UNIVERSIDAD NACIONAL DE INGENIERIA
FACULTAD DE INGENIERIA CIVIL

DISEÑO ESTRUCTURAL DE UN EDIFICIO
MULTIFAMILIAR DE 5 PISOS

INFORME DE SUFICIENCIA

Para Optar el Titulo Profesional de:

INGENIERO CIVIL

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LIMA – PERU
2005

INTRODUCCIÓN

El presente Informe de Suficiencia consiste en el diseño estructural de un edificio multifamiliar, tomando como base un proyecto arquitectónico con ubicación y parámetros urbanísticos definidos, que definirán los parámetros iniciales para la concepción estructural. En el proceso de análisis y diseño se aplican todos los conocimientos adquiridos en la etapa de Pregrado y durante el curso de Actualización de Conocimientos.

El proyecto arquitectónico que se ha escogido es uno existente, al cual se le han hecho algunas modificaciones para darle originalidad, además se le ha dado la ubicación de un terreno libre, de los que se conoce datos, como tipo de suelo.

Para el análisis y diseño se ha considerado además, las recomendaciones de las Normas de diseño vigentes y el cálculo estructural se efectúa con ayuda de programas conocidos como el SAP 2000, PCACOL y hojas de cálculo, cuyos resultados se incluyen en el presente Informe.

Finalmente se presenta los planos correspondientes al proyecto estructural.

CONTENIDO

DISEÑO ESTRUCTURAL DE UN EDIFICIO MULTIFAMILIAR DE 5 PISOS

1. MARCO TEORICO

Para el análisis y diseño de los elementos estructurales del proyecto se han considerado los siguientes documentos técnicos.

- El Reglamento Nacional de Construcciones.
- Norma Técnica E-060, Concreto armado.
- Norma Técnica E-020, Cargas.
- Norma Técnica E-030, Diseño Sismoresistente.
- Norma ACI 318-99.

1.1. Predimensionamiento de Estructuras

El dimensionamiento de los elementos estructurales, se realiza con la finalidad de dar medidas geométricas que garanticen un comportamiento óptimo del modelo estructural.

Predimensionamiento de losas: Peralte 1/25 – 1/20 de la luz libre.

Predimensionamiento de Vigas: Peralte 1/10 - 1/12 de la luz libre.
El ancho varía de 0.3 a 0.5 de la altura. La Norma Peruana indica que el ancho mínimo es 25 cm. para el caso que estos formen parte de pórticos o elementos sismo-resistentes.

Predimensionamiento de Columnas: Se dimensionan estimando su carga la cual suele ser crítica para definir su sección.

Las columnas se pueden dimensionar suponiendo un área igual a:

$$bD = \frac{P}{nf'c}$$

Donde:

D = Dimensión de la sección en la dirección del análisis sísmico de la columna

b = La otra dimensión de la sección de la columna

P = Carga total que soporta la columna

n = Valor que depende del tipo de columna y se obtiene de la Tabla 1

f'c = Resistencia del concreto a la compresión simple

TABLA 1

Tipo C1 (para los primeros pisos)	Columna interior	P = 1.10PG n = 0.30
Tipo C1 (para los 4 ultimo pisos superiores)	Columna Interior	P = 1.10PG n = 0.25
Tipo C2, C3	Columnas externas de pórticos interiores	P = 1.25PG n = 0.25
Tipo C4	Columnas de esquina	P = 1.50PG n = 0.20

PG es el peso total de cargas de gravedad que soporta la columna

- Predimensionamiento de Muros de Corte: Es difícil dar un criterio de dimensionamiento para placas puesto que como su función principal es absorber las fuerzas de sismo, tomaran un mayor porcentaje del cortante sísmico total debido a su rigidez, aliviando más a los pórticos.

1.2. Análisis Sismorresistente

El análisis sismorresistente se efectúa de acuerdo con lo que establece la Norma Peruana de Diseño Sismorresistente NTE.030 del 2003. Con el fin de que la estructura tenga un adecuado comportamiento sísmico.

Los principios de esta norma establece una filosofía de diseño que consiste en:

a. Evitar perdidas de vidas

b. Asegurar la continuidad de los servicios básicos

c. Minimizar los daños a la propiedad

Se reconoce que dar protección no es técnica ni económicamente factible para la mayoría de las estructuras. En concordancia con tal filosofía se establece en esta norma los siguientes principios de diseño.

a. La estructura no debería colapsar, ni causar daños graves a las personas debido a movimientos sísmicos severos que puedan ocurrir en el sitio.

b. La estructura debería soportar movimientos sísmicos moderados, que puedan ocurrir en el sitio durante su vida de servicio, experimentando posibles daños dentro de los límites aceptables.

Para el Análisis sísmico se debe tener en cuenta los siguientes parámetros:

1.2.1. Zonificación: El territorio nacional se encuentra dividido en tres zonas, de acuerdo a la distribución espacial de la sismicidad, a cada zona se le asigna un factor Z según se indica a continuación:

FACTORES DE ZONA	
ZONA	Z
3	0.4
2	0.3
1	0.15

1.2.2. Condiciones Geotécnicas: Los perfiles de suelo se clasifican tomando en cuenta las propiedades mecánicas del suelo, el espesor del estrato, el periodo fundamental de vibración y velocidad de propagación de las ondas de corte, los tipos de perfiles se resumen en cuatro:

PARÁMETROS DE SUELO			
Tipo	**Descripción**	**Tp (s)**	**S**
S_1	Roca o suelos muy rígidos	0.4	1.0
S_2	Suelos intermedios	0.6	1.2
S_3	Suelos flexibles o con estratos	0.9	1.4
S_4	de gran espesor	*	*
	Condiciones excepcionales		

1.2.3. Categoría de la Edificación: Se considera un coeficiente de uso U, según la importancia o categoría de la edificación.

CATEGORÍA DE LA EDIFICACIÓN		
Categoría	**Edificaciones**	**Factor U**
A	Esenciales	1.5
B	Importantes	1.3
C	Comunes	1.0
D	Menores	(*)

(*) En estas edificaciones, a criterio del proyectista, se podrá omitir el análisis por fuerzas sísmicas, pero deberá proveerse de la resistencia y rigidez adecuadas para acciones laterales.

1.2.4. Coeficiente de Reducción: Se usara un coeficiente de reducción dependiendo del sistema de estructuración sismorresistente.

SISTEMA ESTRUCTURAL (Concreto Armado)	
Edificaciones	**Coeficiente de Reducción R**
Pórticos	8
Dual	7
De muros estructurales	6
Muros de ductilidad limitada	4

1.3. Modelo de Análisis

El planteamiento de un modelo apropiado para que el análisis produzca resultados cualitativamente correctos debe de considerar todas las características que influyan en la respuesta. Cuando los edificios son poco esbeltos es común realizar el análisis con un modelo seudo tridimensional, con tres grados de libertad por piso, los pórticos se suponen interconectados solamente por las losas de entrepiso, que actúan como diafragmas infinitamente rígidos en su plano, es decir que se considera que en un pórtico todos los nudos de un piso tienen el mismo desplazamiento horizontal.

Sólo se consideran las componentes horizontales de sismo, ya que se considera que las acciones verticales son similares a las cargas habituales verticales. Las fuerzas de inercia se consideran concentradas en los niveles que corresponden a las losas de entrepiso, en cada nivel se incluyen las masas de las losa, vigas y una fracción de la sobrecarga, así como la mitad de la carga de los muros, columnas y placas en los dos pisos adyacentes.

Todos los elementos de pórtico o construcciones continuas podrán diseñarse en base a los efectos (fuerzas y momentos) que se determinan por medio del análisis, suponiendo comportamiento elástico del material.

1.4. Diseño de Estructuras de Concreto

Los elementos de concreto armado se diseñan de tal manera de alcanzar una adecuada resistencia, a este método se le conoce como "Diseño por Resistencia". Según la Norma E-050 este método requiere que las cargas de servicio o sus efectos (fuerzas internas) sean incrementadas mediante factores de carga, y que las resistencias nominales calculadas sean afectadas por factores de reducción "Ø" (resistencia de diseño).

Las cargas de servicio cumplirán con lo estipulado en La Norma E.020 Cargas y la Norma de diseño sismo resistente, y se consideran las siguientes combinaciones de carga:

1.5M + 1.8V

1.25M +1.25V $\pm$ 1.25S

0.9M $\pm$ 1.25S

Donde:

M = Carga Muerta

V = Carga Viva

S = Carga de sismo

1.4.1. Diseño de vigas

- Diseño por Flexión:

$$A_s = \frac{Mu}{\phi \, f_y d(d - \frac{a}{2})} \qquad y \qquad a = \frac{As}{0.85 \, f'c.b}$$

Donde:

As : Area de acero longitudinal

Mu : Momento ultimo

Fy : Resistencia del acero en Kg/cm2

f'c : Resistencia del concreto en Kg/cm2

d : Peralte efectivo de la viga

b : Ancho de viga

También: Asmin= ρmin.b.d

$$\rho min = 0.7 \frac{\sqrt{f'c}}{fy} \quad \text{según N.T.E. 060}$$

- Diseño por Corte:

$$S = \frac{Av.fy.d}{Vs} \qquad y \qquad Vs = Vn - Vc$$

Donde:

Av : Area de acero Transversal (estribo)

Vn : Fuerza cortante nominal

Vc : Fuerza cortante que resiste el concreto

Vc : $0.53 \sqrt{f'c} bd$

1.4.2. Diseño de Columnas

Las columnas son elementos que están soportados principalmente a esfuerzos de flexocompresión, debido a que resisten cargas axiales y momentos flectores. El diseño de un elemento sometido a flexo compresión se hace en base a las mismas hipótesis del diseño en flexión considerando adicionalmente, el efecto de esbeltez.

Además se tomara las recomendaciones del Código ACI

Refuerzo máximo: Ast = 0.08 Ag
Refuerzo mínimo: Ast = 0.01Ag

1.4.3. Diseño de Zapatas

Área de zapata (Az)

$$\sigma n = \frac{P}{Az} + 6\frac{Pe}{ST^2}$$

Donde:

P: Carga axial

σn: Esfuerzo neto del terreno

T: Longitud mayor de la zapata

S: Longitud menor de la zapata

Pe: Carga axial por la excentricidad o momento M

bxD: Dimensiones de columna

Dimensionamiento de la altura de zapata (H) por punzonamiento

Vu/ϕ = Vc

Vu/ϕ = (Pu-Wu(b+d)(D+d))/ ϕ

$$Vc = 0.27\,(2 + \frac{4}{\beta})\sqrt{f'c}.\,b_0.d$$

Donde:

b_0 = 2(b+d) + 2(D+d)

d = Peralte efectivo de la zapata

- Verificación por corte

Vc > Vn

Vn = Vdu/ϕ

Vdu = (WuS)(Lv-d)

Vc = $0.53\sqrt{f'c}$ .b.d

Donde:

b = Ancho de la zapata

- Diseño por flexión

$$A_s = \frac{Mu}{\phi\, f_y d(d - \frac{a}{2})} \qquad y \qquad a = \frac{As}{0.85\,f'c.b}$$

También: Asmin= ρtemp.b.d = 0.0018.b.d
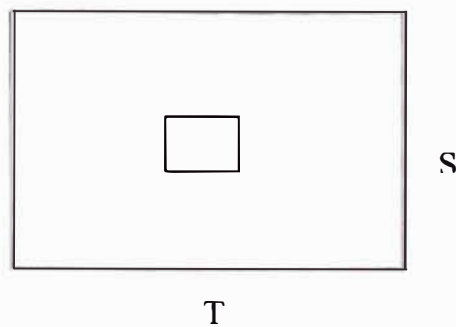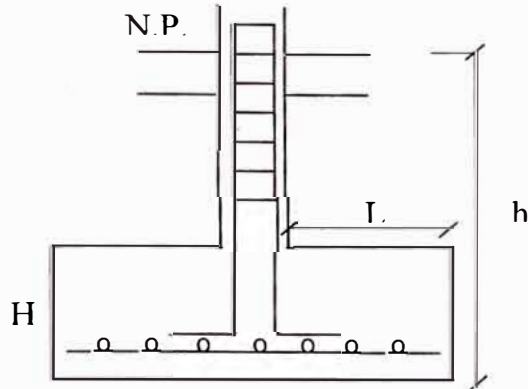
2.   GENERALIDADES

2.1. Memoria Descriptiva

El edificio se encuentra ubicado en la Esq. General Iglesias con Jr. Piura en el distrito de Miraflores, Provincia y Departamento de Lima.

El edificio consta de 5 pisos y esta destinada a 11 departamentos de 83 m2, con su respectivo estacionamiento.

2.2. Distribución

El edificio esta proyectado en un terreno rectangular de 420 m2 con 15 m por el frente y 28 m de costado, el bloque de departamentos se encuentra en la parte delantera dejando 5 m retiro que exigen los parámetros, lo que se ha aprovechando para colocar 3 estacionamientos, quedando además el espacio necesario para el ingreso vehicular y peatonal, en la parte posterior se han distribuido 6 estacionamientos y ha quedado un espacio para futuras construcciones.

El edificio consta de 09 departamentos, distribuidos en 5 pisos; 1 departamento en el primer piso y dos departamentos por piso en los pisos siguientes. Cada departamento cuenta con:

Sala comedor

02 Dormitorios

01 Estudio

02 Baños y

Cocina Lavandería

Los planos de arquitectura se presentan en el anexo A.

2.3. Concepción Estructural

El planteamiento estructural del proyecto, se hace con el objeto de dar seguridad y estabilidad a todos sus componentes estructurales, es así que se ha dado una adecuada distribución, continuidad a los elementos estructurales y una adecuada rigidez torsional. En el planteamiento estructural se han proyectado pórticos de concreto armado, y muros de

corte en ambas direcciones, con el fin de rigidizar la estructura y controlar los desplazamientos laterales. Para el análisis estructural se han considerado las cargas de gravedad y las cargas sísmicas a la que es sometida la estructura durante su vida útil.

En lo referente a las condiciones del suelo de cimentación de la zona, se estima una resistencia de 3.0 Kg/cm2, por lo que se considera zapatas aisladas y vigas de cimentación.

Las losas son aligeradas de 0.20 m de espesor

3. PREDIMENSIONAMIETO

3.1. Predimensionamiento de Losas

Las losas tienen luces de 3.70 m

$$E = \frac{3.70}{20} = .185$$

Consideraremos un espesor de .20 m

3.2. Predimensionamiento de Vigas (bxh)

$$h = \frac{L}{11}$$

UBICACION	LUZ	h	CONSIDERAR
Pórtico Principal	4.8	0.44	0.5
Pórtico Secundario	3.7	0.34	0.4

$$b = \frac{B}{20}$$

UBICACION	B	b	CONSIDERAR
Pórtico Principal	3.7	0.185	0.25 (min)
Pórtico Secundario	2.0	.10	0.25 (min)[1]

PLANTA TIPICA
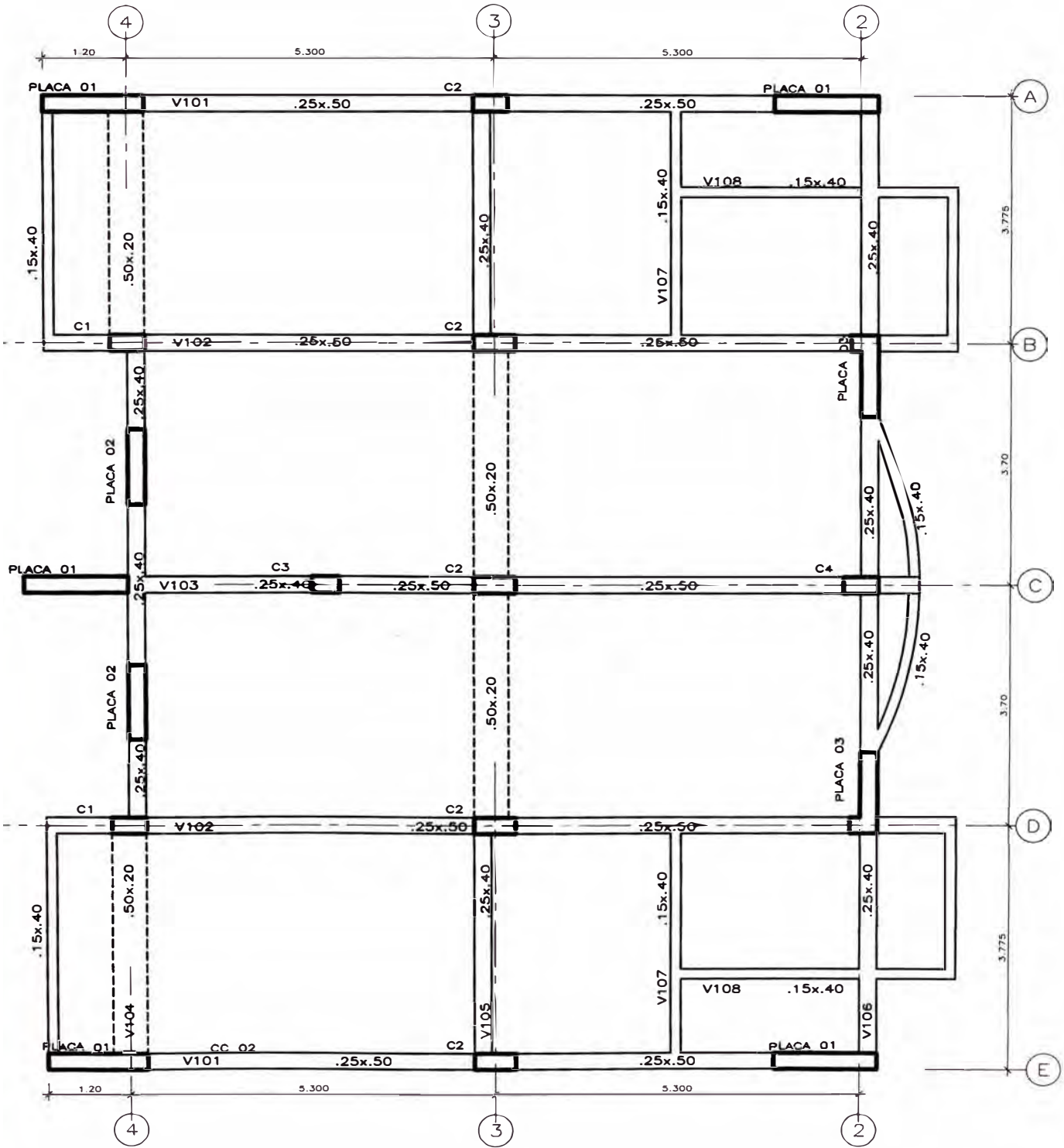
1 Para el caso de vigas chatas se hará la siguiente transformación por igualdad de rigideces:

$$0.10 \times .34^3 = b \times .020^3 \quad \rightarrow \quad b = 0.50 \text{ m}$$

3.3. Predimensionamiento de Columnas

Columna	P (Ton)	BD (cm2)	D (cm) (B=25)	Considerar (cm)
A,2	26.5	946.43	37.86	50
A,3	55.13	1,312.62	52.50	60
A,4	42.93	1,022.14	40.89	50
B,2	52.77	1,256.43	50.26	50
B,3	89.07	1,555.19	62.21	60
B,4	47.32	1,126.67	45.07	50
C,2	49.6	1,180.95	47.24	50
C,3	80.07	1,398.05	55.92	60
C,4	38.74	676.41	27.06	40

4. ANALISIS SISMICO (NORMA E-030-2003)

4.1. Parámetros Sísmicos

- Zona Sísmica: El proyecto se encuentra ubicado en el Dpto. de Lima, definido como zona 3, Z = 0.4

- Categoría de la Edificación: El proyecto esta destinado a vivienda, al cual le corresponde categoría C, U = 1

- Tipo de Suelo: El suelo es grava con limo con una capacidad portante de 3.0 Kg/cm2, el que se clasifica como perfil tipo S2, S = 1.2, Tp = 0.6

- Configuración Estructural: Los elementos sismorresistentes son básicamente pórticos de concreto armado y muros de corte.

- Coeficiente de Reducción: Los muros de corte en ambas direcciones toman mas del 80% de la cortante de la base, es así que:

  Rx = Ry = 6

4.2. Cargas Y Fuerzas

Peso propio de losa aligerada	300 Kg/m2
Peso de tabiquería	150 Kg/m2
Acabados	100 Kg/m2
Carga viva en piso típico	200 Kg/m2

4.3. Análisis Estático Equivalente

Para este método se calcularan las fuerzas estáticas equivalentes.

PESO TOTAL

	NIVEL 1	NIVEL 2	NIVEL 3	NIVEL 4	NIVEL 5	
Losas	44.12	44.12	44.12	44.12	44.12	
Mampostería	25.95	25.95	25.95	25.95	25.95	
Acabados	17.30	17.30	17.30	17.30	17.30	
Vigas y Col.	35.00	35.00	35.00	35.00	35.00	
25% S/C	8.65	8.65	8.65	8.65	8.65	
TOTAL	131.02	131.02	131.02	131.02	131.02	**655.08**

$$V = P \frac{ZUSC}{R} = 131.02 \text{ Tn}$$

Fuerzas Sísmicas y cortantes

NIVEL	P	H	PH	F (X,Y)	CORTANTE
1	131.02	2.60	340.64	8.73	131.02
2	131.02	5.20	681.28	17.47	122.28
3	131.02	7.80	1021.92	26.20	104.81
4	131.02	10.40	1362.56	34.94	78.61
5	131.02	13.00	1703.20	43.67	43.67

4.4. Análisis Dinámico

Se utiliza el siguiente espectro de respuesta:

Combinacion modal espectral

Sa=	Aceleracion espectral
Z = 0.4	Factor de Zona (Zona 3)
U = 1	Edificaciones Comunes (Vivienda)
C =	Factor de Amplificacion Sismica
S = 1.2	Factor de Amplificacion de Suelos (Intermedio)
R = 6	Coeficiente de Reduccion Sismica (Muros de C°A°)
Tp = 0.6	Periodo Fundamental de Vibracion
g = 9.81	Aceleracion de la Gravedad

Espectro de Respuesta

T	C	Sa
0.0	2.50	1.962
0.2	2.50	1.962
0.4	2.50	1.962
0.60	2.50	1.962
0.7	2.14	1.679
0.8	1.88	1.475
0.9	1.67	1.311
1.0	1.50	1.177
1.1	1.36	1.067
1.2	1.25	0.981
1.3	1.15	0.903
1.4	1.07	0.840
1.5	1.00	0.785
1.6	0.94	0.738
1.7	0.88	0.691
1.8	0.83	0.651
1.9	0.79	0.620
2.0	0.75	0.589

Espectro Inelastico de Seudo-Aceleraciones
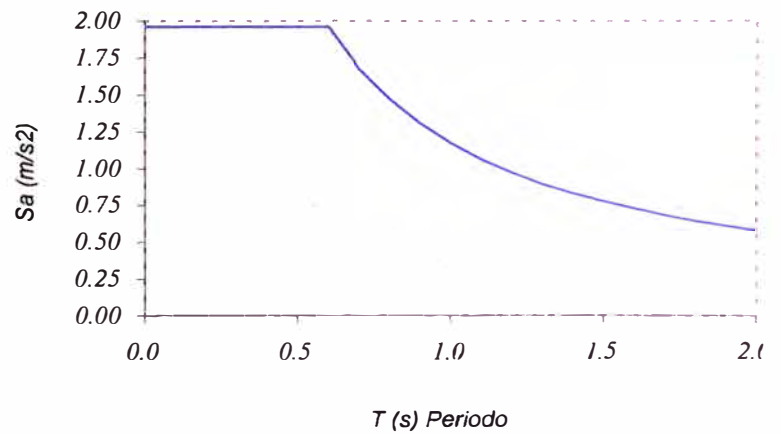
PROCEDIMIENTO DE ANALISIS

Programa Sap 2000
Archivo: informe. $2k

4.5. Modelo de Análisis

Para el análisis se desarrolla un modelo seudo tridimensional, considerando deformaciones por flexión, cortante y normal, además de un diafragma rígido en cada piso, en este modelo se incluyen cargas de gravedad y las solicitaciones sísmicas representadas por los espectros de diseño.
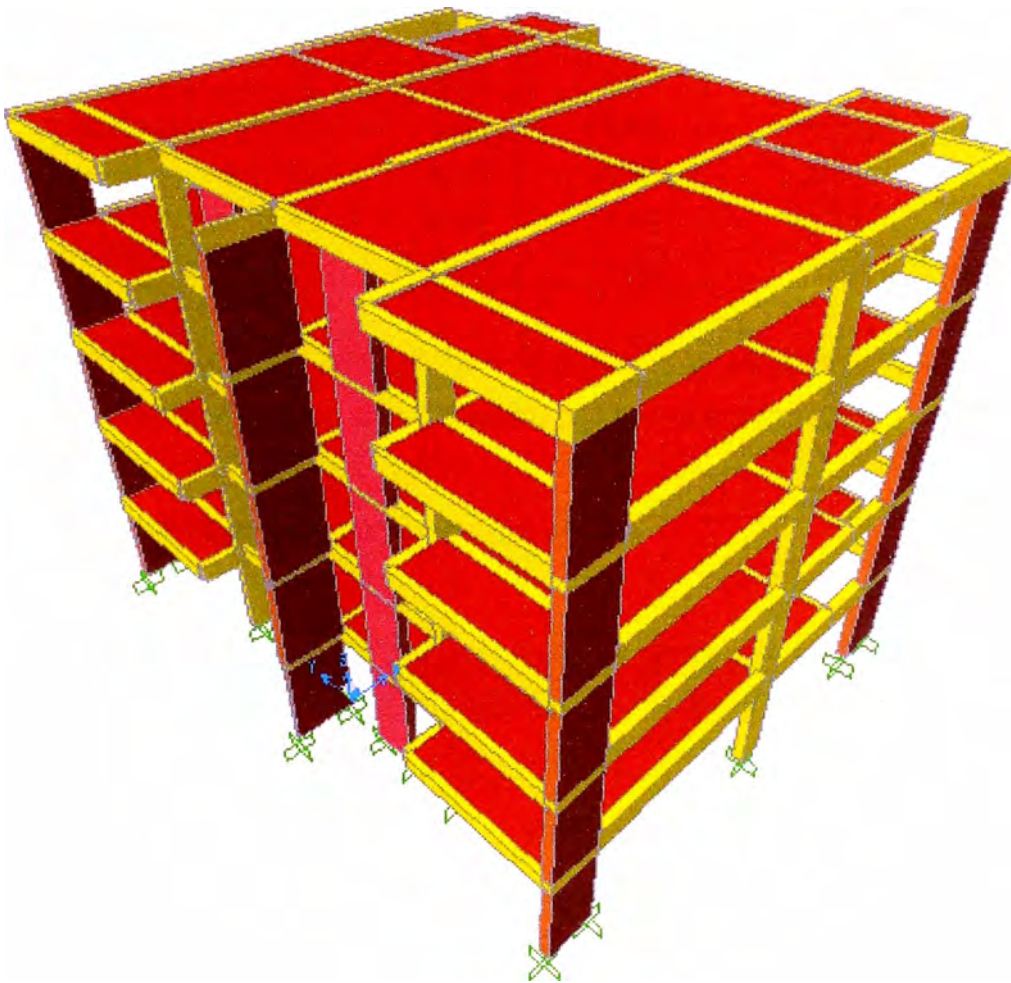
4.6. Resultado de Análisis

4.6.1 Desplazamientos:

	Nivel	Despl. Relat. Al Suelo (cm)	Despl. De Entrepiso Δ (cm)	Distorsión Δ/h (‰)	Permitido Δ/h (‰)
Sismo X-X	1	0.69	0.69	2.64	7
	2	2.03	1.34	5.15	7
	3	3.46	1.43	5.50	7
	4	4.73	1.27	4.88	7
	5	5.73	1.00	3.85	7
Sismo Y-Y	1	0.75	0.75	2.89	7
	2	2.40	1.65	6.35	7
	3	4.18	1.78	6.83	7
	4	5.87	1.69	6.48	7
	5	7.20	1.34	5.15	7

Como se aprecia, para ambas direcciones la máxima distorsión de entrepiso es menor al establecido por la Norma Peruana.

4.6.2 Reacciones en la base de la Estructura:

Case Text	GlobalFX Ton	GlobalFY Ton	GlobalFZ Ton	GlobalMX Ton-m	GlobalMY Ton-m	GlobalMZ Ton-m
SX	104.08	0.01	1.37	0.07	1,001.39	0.04
SY	0.01	121.19	0.02	1,167.85	0.13	567.61

Se observa que para una de las direcciones la fuerza cortante en la base del edificio es mayor al 80% del valor correspondiente al análisis estático = 0.8x131.02 = 104.8 Ton.

4.6.3 Diagramas de Momento y Cortante:

DIAGRAMAS DE
MOMENTO FLECTOR

SAP2000

PORTICO EJE A

SAP2000 v9.0.1 - File:INFORME DE SUFICIENCIA -   Moment 3-3 Diagram   (E) - Ton, m, C Units

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PORTICO EJE B

SAP2000 v9.0.1 - File:INFORME DE SUFICIENCIA -   Moment 3-3 Diagram   (E) - Ton, m, C Units

18

PORTICO EJE C

SAP2000 v9.0.1 - File:INFORME DE SUFICIENCIA -   Moment 3-3 Diagram   (E) - Ton, m, C Units

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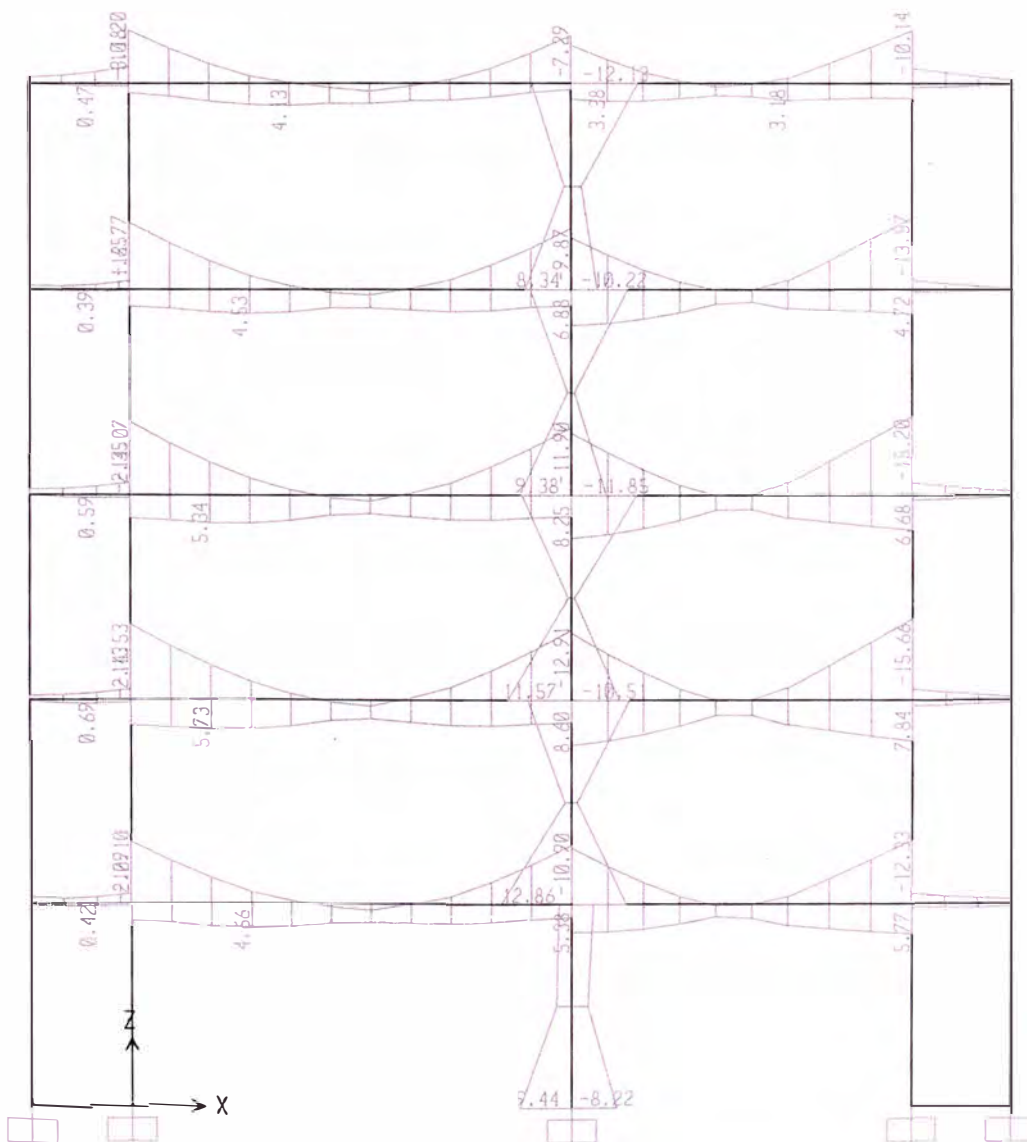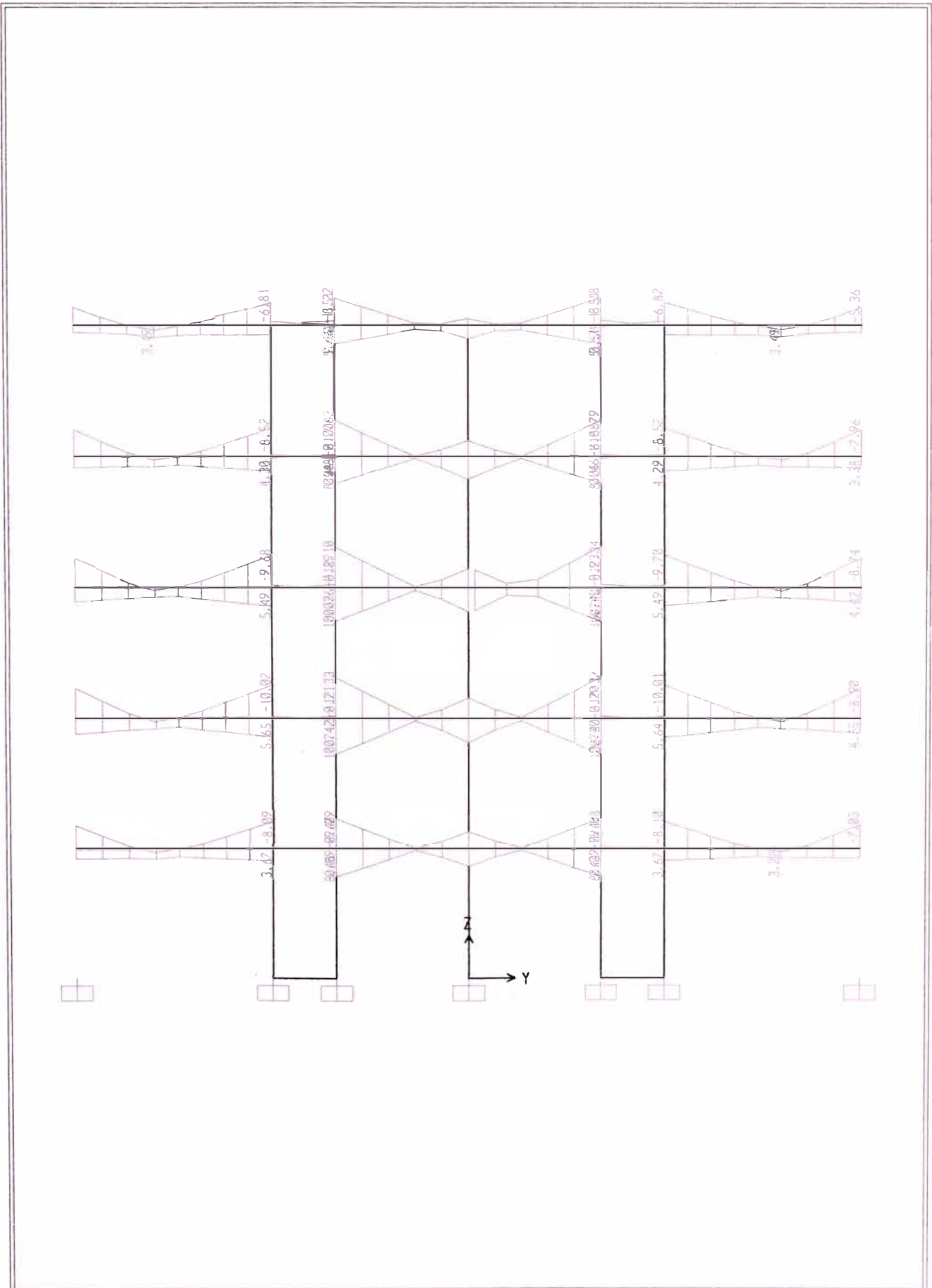
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PORTICO EJE 3
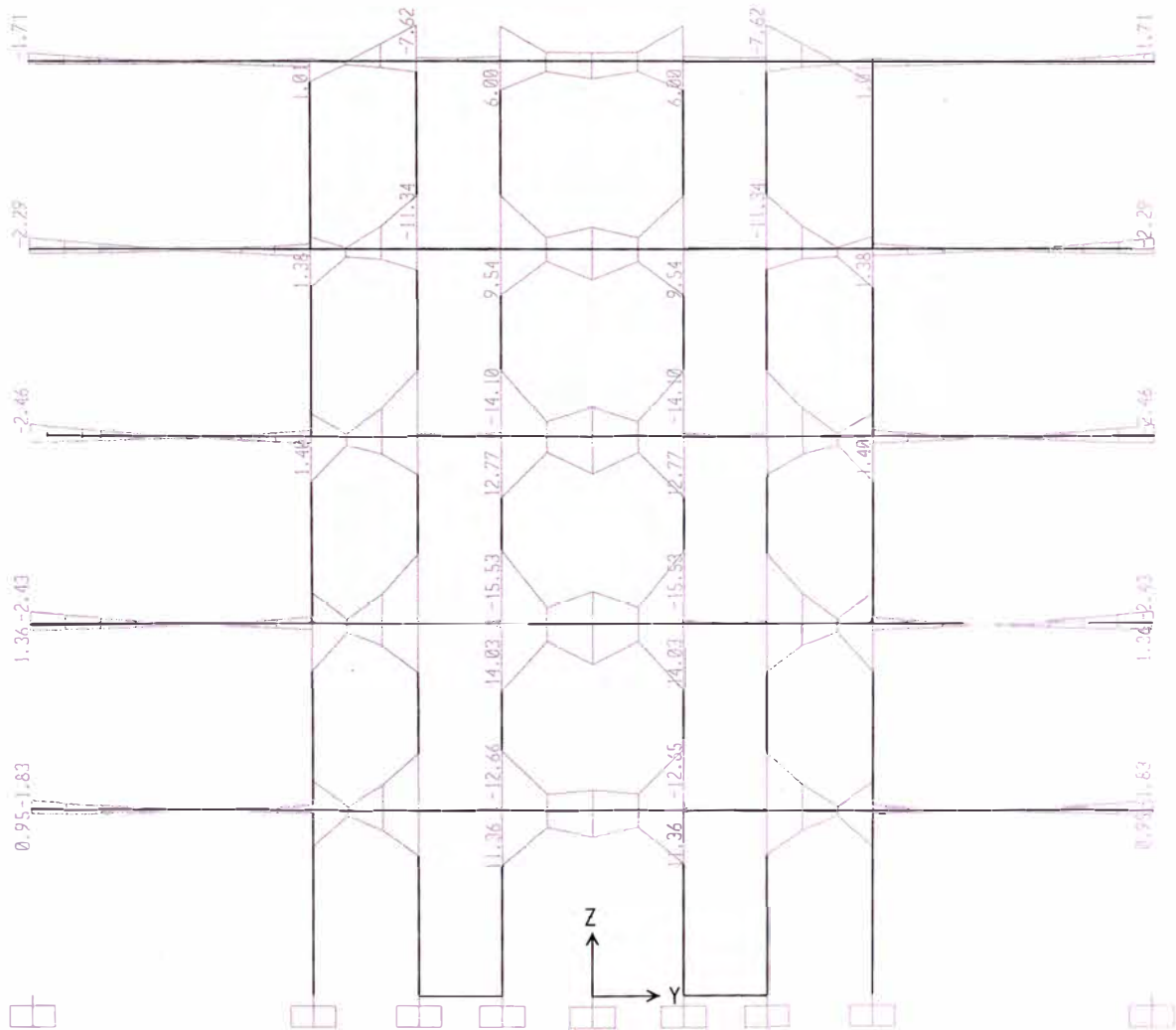
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PORTICO EJE 4

SAP2000 v9.0.1 - File:INFORME DE SUFICIENCIA - Moment 3-3 Diagram (E) - Ton, m, C Units

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5. DISEÑO DE CONCRETO ARMADO

5.1. Diseño De Losas

Espesor de losa		0.20 m
Ancho tributario		0.40 m

Metrado de cargas:

Peso propio	=	0.12 Ton
Tabiquería	=	0.06 Ton
Acabados	=	0.04 Ton
Carga Muerta	=	0.22 Ton
Carga Viva	=	0.08 Ton

El cálculo de esfuerzos y diseño de losas se realiza con ayuda de hojas de cálculo diseñadas por el Dr. Scaletti.

Análisis de Vigas
y Pórticos Simples

Viguetas

Hugo Scaletti Farina - 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	3.70	3.70	3.70	3.70						
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	10x20	10x20	10x20	10x20						
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	E	0.25	0.25	0.25	E						

Indicar F o valor numerico (ancho) para apoyo fijo, R para rótula, E para empotramiento y A para la combinación de F y R

24

Análisis de Vigas y Pórticos Simples

Viguetas

Fracción de la sobrecarga para dameros   1.00
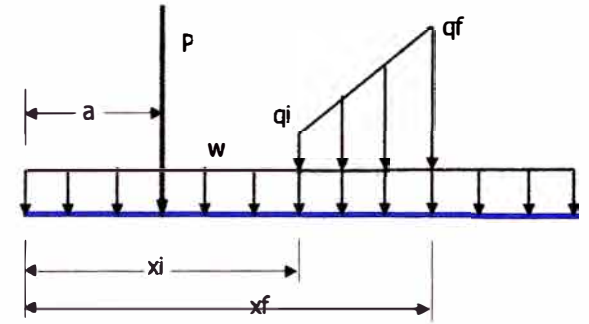
Cargas Uniformemente Distribuidas

tramo		1	2	3	4	5	6	7	8	9	10
w_D	(t/m)	0.220	0.220	0.220	0.220						
w_L	(t/m)	0.080	0.080	0.080	0.080						

Los subindices D y L denotan cargas permanentes y cargas eventuales, respectivamente

Fuerzas Concentradas

tramo		1	2	3	4	5	6	7	8	9	10
a_1	(m)										
P_{1D}	(t)										
P_{1L}	(t)										
a_2	(m)										
P_{2D}	(t)										
P_{2L}	(t)										

Las posiciones de las cargas concentradas se refieren al eje a la izquierda del tramo.   Los indices D y L denotan cargas permanentes y eventuales, respectivamente

nálisis de Vigas
Pórticos Simples

Hugo Scaletti Farina - 1999

iguetas

TRAMO 1   (0.10 x 0.20)

		0.358	0.715	1.073	1.430	1.788	2.145	2.503	2.860	3.218	3.575
Refuerzo de Flexión											
x		0.358	0.715	1.073	1.430	1.788	2.145	2.503	2.860	3.218	3.575
M_U mín	-0.578	-0.284	-0.051							-0.091	-0.255	-0.521
M_U máx			0.010	0.132	0.234	0.286	0.277	0.208	0.078		
A_S sup	0.96	0.57	0.11							0.19	0.55	0.86
A_S inf			0.02	0.28	0.50	0.57	0.57	0.44	0.16		
p											

		0.358	0.715	1.073	1.430	1.788	2.145	2.503	2.860	3.218	3.575
Refuerzo de Corte											
x		0.358	0.715	1.073	1.430	1.788	2.145	2.503	2.860	3.218	3.575
V_U mín						-0.047	-0.176	-0.346	-0.515	-0.685	-0.854
V_U máx	0.907	0.738	0.568	0.399	0.229	0.060					
s ▯ #3											

TRAMO 2   (0.10 x 0.20)

	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
Refuerzo de Flexión											
x	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
M_U mín	-0.519	-0.249	-0.085						-0.090	-0.243	-0.508
M_U máx			0.031	0.174	0.265	0.299	0.277	0.199	0.065		
A_S sup	0.86	0.53	0.18						0.19	0.52	0.84
A_S inf			0.06	0.37	0.57	0.57	0.57	0.42	0.14		
p											

	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
Refuerzo de Corte											
x	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
V_U mín						-0.034	-0.195	-0.359	-0.522	-0.686	-0.849
V_U máx	0.866	0.702	0.539	0.375	0.212	0.048					
s ▯ #3											

Análisis de Vigas
y Pórticos Simples

Viguetas

TRAMO 3 (0.10 x 0.20)

Refuerzo de Flexión

x	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
M_U mín	-0.508	-0.243	-0.090						-0.085	-0.249	-0.519
M_U máx			0.065	0.199	0.277	0.299	0.265	0.174	0.031		
A_S sup	0.84	0.52	0.19						0.18	0.53	0.86
A_S inf			0.14	0.42	0.57	0.57	0.57	0.37	0.06		
p											

Refuerzo de Corte

x	0.125	0.470	0.815	1.160	1.505	1.850	2.195	2.540	2.885	3.230	3.575
V_U mín						-0.048	-0.212	-0.375	-0.539	-0.702	-0.866
V_U máx	0.849	0.686	0.522	0.359	0.195	0.034					
s ▯ #3											

TRAMO 4 (0.10 x 0.20)

Refuerzo de Flexión

x	0.125	0.483	0.840	1.198	1.555	1.913	2.270	2.628	2.985	3.343	3.700
M_U mín	-0.521	-0.255	-0.091						-0.051	-0.284	-0.578
M_U máx			0.078	0.208	0.277	0.286	0.234	0.132	0.010		
A_S sup	0.86	0.55	0.19						0.11	0.57	0.96
A_S inf			0.16	0.44	0.57	0.57	0.50	0.28	0.02		
p											

Refuerzo de Corte

x	0.125	0.483	0.840	1.198	1.555	1.913	2.270	2.628	2.985	3.343	3.700
V_U mín						-0.060	-0.229	-0.399	-0.568	-0.738	-0.907
V_U máx	0.854	0.685	0.515	0.346	0.176	0.047					
s ▯ #3											

5.2. Diseño de Vigas

El diseño de vigas se hará calculando primero los momentos resistentes para cada sección de viga, considerando distribuciones de acero de mayor uso.

MOMENTO RESISTENTE
VIGA (.25 x .50)

Ancho de Viga (b)	0.25
Peralte (h)	0.5
As min = ρmin.bh	3.75
As max= ρmax.bh	12.5

Acero	As	M resistente
2Ø5/8"	3.96	5.9
3Ø5/8"	5.94	8.7
4Ø5/8"	7.92	11.4
2Ø 3/4"	5.7	8.4
2Ø 3/4"+ 1Ø 5/8"	7.68	11
3Ø 3/4"	8.55	12.2
4Ø 3/4"	11.4	15.6

MOMENTO RESISTENTE
VIGA (.25 x .40)

Ancho de Viga (b)	0.25
Peralte (h)	0.4
As min = ρmin.bh	3
As max= ρmax.bh	10

Acero	As	M resistente
2Ø 5/8"	3.96	4.6
3Ø 5/8"	5.94	6.6
4Ø 5/8"	7.92	8.6
2Ø 3/4"	5.7	6.4
2Ø 5/8"+ 1Ø 3/4"	6.81	7.8
2Ø 3/4"+ 2Ø 5/8"	9.66	10.2
3Ø 3/4"	8.55	9.2
4Ø 3/4"	11.4	11.6

MOMENTO RESISTENTE
VIGA (.15 x .50)

Ancho de Viga (b)   0.15

Peralte (h)   0.4

As min = ρmin.bh   1.8

As max= ρmax.bh   6

Acero	As	M resistente
2Ø 1/2"	2.54	2.9
3Ø 1/2"	3.81	4.2
4Ø 1/2"	5.08	5.5

MOMENTO RESISTENTE
VIGA (.5 x .20)

Ancho de Viga (b)   0.5

Peralte (h)   0.2

As min = ρmin.bh   2.4

As max= ρmax.bh   8

Acero	As	M resistente
2Ø 5/8"	3.96	2
3Ø 5/8"	5.94	2.8

DISEÑO DE VIGAS
EJE A

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.25	0.5	0.25	11.9	4.7	3Ø 3/4"	2Ø 3/4"
1	0.25	0.5	0.75	7.9	5.1	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	2.4	0	3.8	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	4.55	6.9	4.6	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	5.05	10.9	4.2	3Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.25	10.6	6.8	3Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.75	6.3	4.5	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	2.4	0	2.8	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	4.55	10.2	6.6	3Ø 3/4"	2Ø 3/4"
2	0.25	0.5	5.05	13.8	7.4	3Ø 3/4"	2Ø 3/4"

DISEÑO DE VIGAS
EJE B

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.25	0.5	0.25	13	2.2	4Ø 3/4"	2Ø 3/4"
1	0.25	0.5	0.75	7.44	3.7	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	2.4	0	6.6	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	4.55	7.8	3.1	2Ø 3/4"	2Ø 3/4"
1	0.25	0.5	5.05	13.6	1.8	4Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.25	13.8	3.4	4Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.75	8	4.2	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	2.4	0	7.2	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	4.55	9.6	3.7	4Ø 3/4"	2Ø 3/4"
2	0.25	0.5	5.05	15	2.8	4Ø 3/4"	2Ø 3/4"

DISEÑO DE VIGAS
EJE C

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.25	0.4	0	11.7	12	3Ø 3/4"	3Ø 3/4"
1	0.25	0.4	0.5	9.6	8.2	3Ø 3/4"	2Ø 3/4"
1	0.25	0.4	1.2	1.4	2.4	2Ø 3/4"	2Ø 3/4"
1	0.25	0.4	1.5	1.7	2.8	2Ø 3/4"	2Ø 3/4"
1	0.25	0.4	2.15	7.9	7.6	3Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.25	6.5	4.2	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	0.75	2.2	2.7	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	1.5	1.1	2.9	2Ø 3/4"	2Ø 3/4"
2	0.25	0.5	2.75	10.4	7	3Ø 3/4"	2Ø 3/4"
2	0.25	0.5	2.95	11.5	6.8	3Ø 3/4"	2Ø 3/4"

DISEÑO DE VIGAS
EJE 2

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.25	0.4	0.125	7.2	4.3	3Ø 3/4"	2Ø 3/4"
1	0.25	0.4	0.5	3.9	3.4	2Ø 3/4"	2Ø 3/4"
1	0.25	0.4	1.85	0	2.5	2Ø 3/4"	2Ø 3/4"
1	0.25	0.4	3	6.7	3.9	2Ø 3/4"	2Ø 3/4"
1	0.25	0.4	3.575	8.9	4.5	3Ø 3/4"	2Ø 3/4"
2	0.25	0.4	0.125	4.3	1.5	2Ø 3/4"	2Ø 3/4"
2	0.25	0.4	0.5	3.2	1.3	2Ø 3/4"	2Ø 3/4"
2	0.25	0.4	1.35	10.9	9.2	4Ø 3/4"	3Ø 3/4"
2	0.25	0.4	1.85	7.3	6.4	4Ø 3/4"	2Ø 3/4"
2	0.25	0.4	3.575	4.8	6.2	2Ø 3/4"	2Ø 3/4"

DISEÑO DE VIGAS
EJE 3

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.25	0.4	0.125	4.8	3.4	3 5/8"	2 5/8"
1	0.25	0.4	0.5	3.1	2.5	2 5/8"	2 5/8"
1	0.25	0.4	1.85	0	0.8	2 5/8"	2 5/8"
1	0.25	0.4	3	2.7	3.3	2 5/8"	2 5/8"
1	0.25	0.4	3.575	3.5	4.2	2 5/8"	2 5/8"
2	0.4	0.2	0.125	1.3	1	2 5/8"	2 5/8"
2	0.4	0.2	0.5	0.7	0.8	2 5/8"	2 5/8"
2	0.4	0.2	1.85	0	0.3	2 5/8"	2 5/8"
2	0.4	0.2	3	1.2	0.8	2 5/8"	2 5/8"
2	0.4	0.2	3.575	1.6	1	2 5/8"	2 5/8"

DISEÑO DE VIGAS
EJE 4

TRAMO	B (m)	H (m)	UBIC. m	Mu Max.(-) Ton.m	Mu Max.(+) Ton.m	Refuerzo Negativo	Refuerzo Positivo
1	0.4	0.2	0.125	1.6	1	2Ø 5/8"	2Ø 5/8"
1	0.4	0.2	0.5	1	0.8	2Ø 5/8"	2Ø 5/8"
1	0.4	0.2	1.85	0	0.4	2Ø 5/8"	2Ø 5/8"
1	0.4	0.2	3	0.7	0.8	2Ø 5/8"	2Ø 5/8"
1	0.4	0.2	3.575	1	1	2Ø 5/8"	2Ø 5/8"
2	0.25	0.4	0.125	4.4	6.5	2Ø 5/8"	3Ø 5/8"
2	0.25	0.4	0.5	2	1.8	2Ø 5/8"	2Ø 5/8"
2	0.25	0.4	1.85	0.3	0.1	2Ø 5/8"	2Ø 5/8"
2	0.25	0.4	2.5	9.6	8.9	2Ø 5/8"+ 2Ø 3/4"	2Ø 5/8"+ 2Ø 3/4"
2	0.25	0.4	3	4.9	4.3	2Ø 5/8"	2Ø 5/8"
2	0.25	0.4	3.575	2.7	3.4	2 5/8"	2Ø 5/8"

5.3. Diseño de Columnas

DISEÑO DE COLUMNA EJES B,4
(TIPO C1)

Geometría

t	25	cm
D	50	cm
Area	1250	cm2

Maximos esfuerzos (Programa SAP2000)

My	6.2	Tn.m
P	100	Tn

DISEÑO

De acuerdo a la Norma E.060

ρmin =	0.01	Asmin =	12.5 cm2
ρmax =	0.06	Asmax =	75 cm2

Considerando:

6Ø3/4"	As =	17.10 cm2	ρ =	0.01368

Distribución

25 cm

50 cm
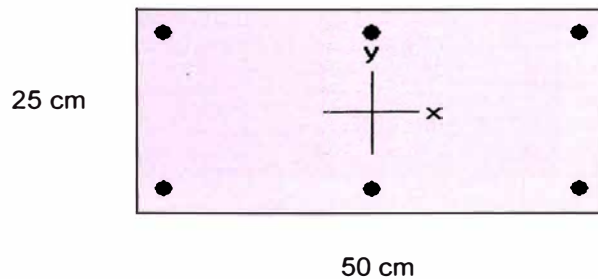
Verificacion de esfuerzos en el programa PCACOL

My	6.2 Tn.m	=	62 Kn.m
P	91.1 Tn	=	911 Kn

Los esfuerzos máximos se encuentran dentro del diagrama de interacciór

DISEÑO DE COLUMNA EJES B,3
(TIPO C2)

Geometría

t	25	cm
D	60	cm
Area	1500	cm2

Maximos esfuerzos (Programa SAP2000)

My	11	Tn.m
P	146.87	Tn

DISEÑO

De acuerdo a la Norma E.060

ρmin =	0.01	Asmin =	15 cm2
ρmax =	0.06	Asmax =	90 cm2

Considerando:

8Ø3/4"   As =   22.80 cm2 ρ =   0.0152

Distribución

25 cm

60 cm
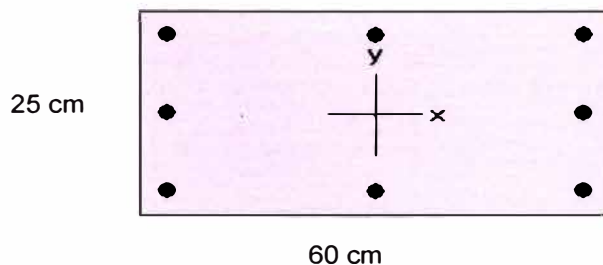
Verificacion de esfuerzos en el programa PCACOL

My	11 Tn.m	=	110 Kn.m
P	146.87 Tn	=	1468.7 Kn

Los esfuerzos máximos se encuentran dentro del diagrama de interacciór

DISEÑO DE COLUMNA EJES C,2
(TIPO C4)

Geometría

t	25	cm
D	50	cm
Area	1250	cm2

Maximos esfuerzos (Programa SAP2000)

My	15.4 Tn.m
P	70 Tn

DISEÑO

De acuerdo a la Norma E.060

ρmin =	0.01	Asmin =	12.5 cm2
ρmax =	0.06	Asmax =	75 cm2

Considerando:

8Ø3/4"   As =   22.80 cm2 ρ =   0.01824

Distribución

25 cm

50 cm
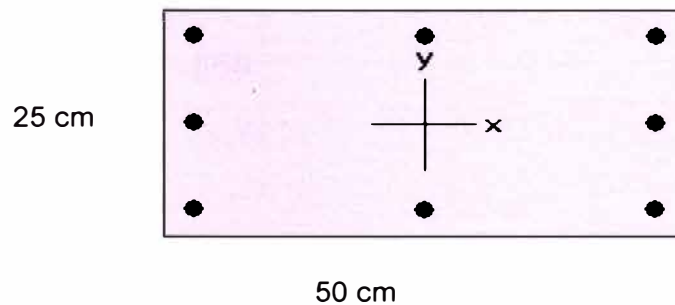
Verificacion de esfuerzos en el programa PCACOL

My	15.4 Tn.m	=	154 Kn.m
P	70 Tn	=	700 Kn

Los esfuerzos máximos se encuentran dentro del diagrama de interacción

PCACOL V2.30
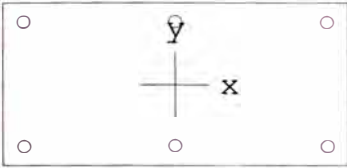
```
      500 x 250 mm

f'c  =     21 MPa

fy   =    420 MPa

Confinement: Tied
clr cover = 20 mm
spacing = 172 mm
  6 N-19 at 1.38%
As = 1719 mm^2

Ix = 6.510e+008 mm^4
Iy = 2.604e+009 mm^4

Xo = 0 mm
Yo = 0 mm
```

⃝ 1993 PCA

```
File name: D:\CALCULO\PCOL\PCOL\C1.COL

Project: INFORME                      Material Properties:

Column Id: C1                         Ec =  23168 MPa    eu = 0.003 mm/mm

Engineer: Yngrid                      fc = 17.85 MPa     Es = 200000 MPa

Date:   230502     Time: 21:31:47 Beta1 = 0.85

Code: ACI 318-89                      Stress Profile: Block

Units: Metric                         phi(c) = 0.70,  phi(b) = 0.90


Y-axis slenderness is not considered.
```

PCACOL V2.30
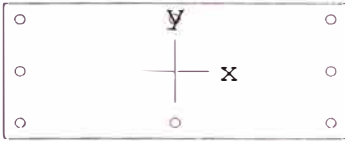
600 x 250 mm

f'c =   21 MPa

fy   =   420 MPa

Confinement: Tied
clr cover = 20 mm
spacing = 77 mm
   8 N-19 at 1.53%
As = 2292 mm^2

Ix = 7.812e+008 mm^4
Iy = 4.500e+009 mm^4

Xo = 0 mm
Yo = 0 mm

○ 1993 PCA

2519

2016

1

fs=0

fs=0.5fy

274

Mny (kN-m)

-866

ϕ

P
n

k
N

File name: D:\CALCULO\PCOL\PCOL\C2.COL

Project: INFORME   Material Properties:

Column Id: C2   Ec = 23168 MPa   eu = 0.003 mm/mm

Engineer: Yngrid   fc = 17.85 MPa   Es = 200000 MPa

Date: 230502   Time: 21:31:47 Beta1 = 0.85

Code: ACI 318-89   Stress Profile: Block

Units: Metric   phi(c) = 0.70, phi(b) = 0.90

Y-axis slenderness is not considered.

PCACOL V2.30
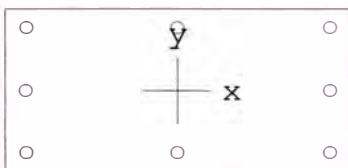
500 x 250 mm

f'c = 21 MPa

fy = 420 MPa

Confinement: Tied
clr cover = 20 mm
spacing = 77 mm
  8 N-19 at 1.83%
As = 2292 mm^2

Ix = 6.510e+008 mm^4
Iy = 2.604e+009 mm^4

Xo = 0 mm
Yo = 0 mm

◯ 1993 PCA

ϕ

P
n
k
N

2207

1766

fs=0

fs=0.5fy

1

205
Mny (kN-m)

-866
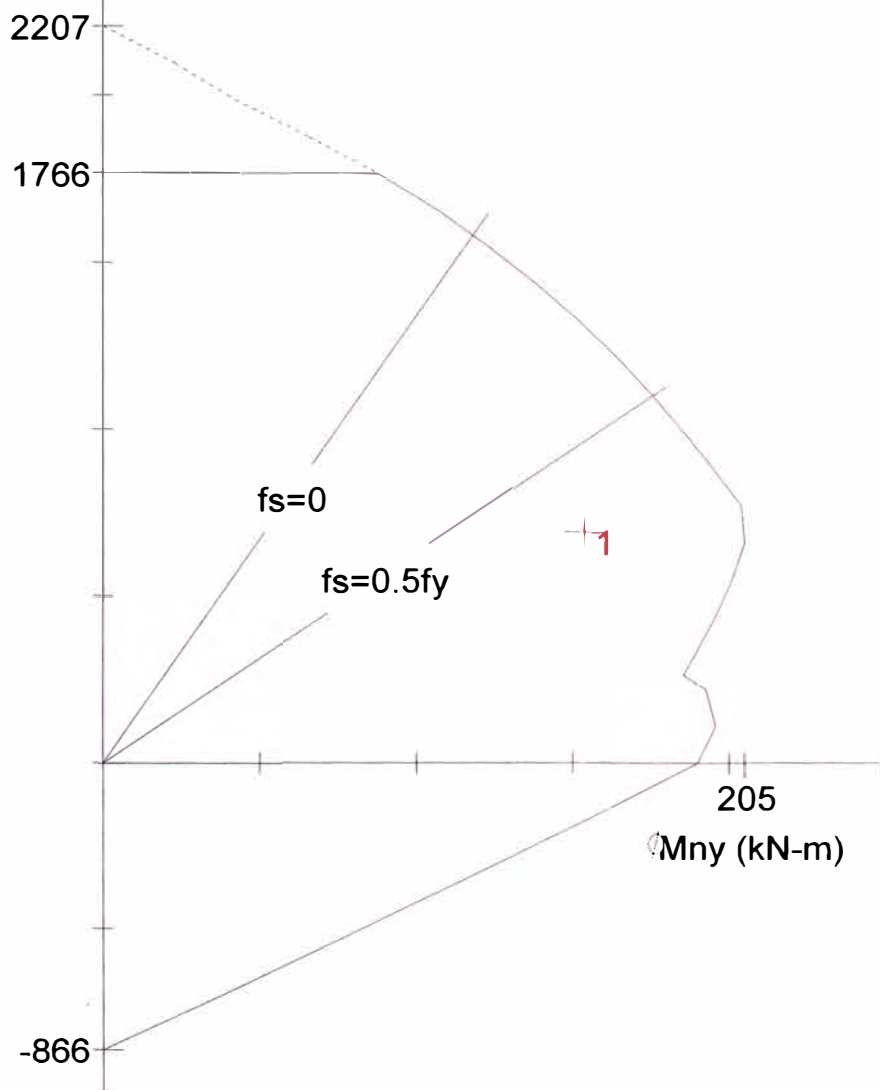
Licensed To: Licensee name not yet specified.

File name: D:\CALCULO\PCOL\PCOL\C4.COL

Project: INFORME

Column Id: C4

Engineer: Yngrid

Date: 230502   Time: 21:31:47

Code: ACI 318-89

Units: Metric

Material Properties:

Ec = 23168 MPa   eu = 0.003 mm/mm

fc = 17.85 MPa   Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

phi(c) = 0.70, phi(b) = 0.90

Y-axis slenderness is not considered.

5.4. Diseño de Placas

DISEÑO DE MURO DE CORTE
PLACA 01

Especificaciones	f'c	210 Kg/cm2	
	fy	4,200 Kg/cm2	
Geometria	H	13 m	
	L	1.5 m	
	e	0.25 m	
Esfuerzos máximos	Pu	146 Tn	
(SAP 2000)	Mu	9 Tn.	7031250 cm4
	Vu	34.0 Tn	

Verificacion de la necesidad de Columna de Confinamiento

	Fc=	48.53 >	42	Necesita columna de confinamiento

Refuerzo en Muro

Refuerzo Horizontal	Vn =	40.00		
	d =	1.20		
	Vc =	23.04		
	Vs =	16.96	→ s =	42.20
	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.25	En dos capas

Refuerzo Vertical	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.25	En dos capas

Refuerzo en Columna de Confinamiento

	Pumax	79.0		
	t	0.25		
	D	0.25		
Asumiendo	As =	7.92	4Ø5/8"	
Verificando	ρ =	0.013 >	pmin =	0.01 OK
	ØPnmax	80.3 >	Pumax	79.0 OK

DISEÑO DE MURO DE CORTE
PLACA 02

Especificaciones	f'c	210	Kg/cm2	
	fy	4,200	Kg/cm2	
Geometria	H	13	m	
	L	1.15	m	
	e	0.25	m	
Esfuerzos máximos	Pu	136	Tn	
(SAP 2000)	Mu	11.5	Tn.	I 3168489.6 cm4
	Vu	38.0	Tn	

Verificacion de la necesidad de Columna de Confinamiento

	Fc=	68.17 >	42	Necesita columna de confinamiento

Refuerzo en Muro

Refuerzo Horizontal

	Vn =	44.71		
	d =	0.92		
	Vc =	17.66		
	Vs =	27.04 → s =		26.47
	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.25	En dos capas

Refuerzo Vertical

	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.25	En dos capas

Refuerzo en Columna de Confinamiento

	Pumax	78.0		
	t	0.25		
	D	0.25		
Asumiendo	As =	7.92	4Ø5/8"	
Verificando	ρ =	0.013 >	ρmin =	0.01 OK
	ØPnmax	80.3 >	Pumax	78.0 OK

DISEÑO DE MURO DE CORTE
PLACA 03

Especificaciones	f'c	210 Kg/cm2		
	fy	4,200 Kg/cm2		
Geometria	H	13 m		
	L	1.25 m		
	e	0.25 m		
Esfuerzos máximos	Pu	155 Tn		
(SAP 2000)	Mu	13 Tn.	I 4069010.4 cm4	
	Vu	45.0 Tn		

Verificacion de la necesidad de Columna de Confinamiento

	Fc=	69.57 >	42	Necesita columna de confinamiento

Refuerzo en Muro

Refuerzo Horizontal

	Vn =	52.94		
	d =	1.00		
	Vc =	19.20		
	Vs =	33.74	→ s =	21.21
	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.20	En dos capas

Refuerzo Vertical

	phmin =	0.0025		
Por metro de muro	As =	6.25	Ø3/8" @.25	En dos capas

Refuerzo en Columna de Confinamiento

	Pumax	87.9		
	t	0.25		
	D	0.25		
Asumiendo	As =	11.88	6Ø5/8"	
Verificando	ρ =	0.019 >	ρmin =	0.01 OK
	ØPnmax	89.2 >	Pumax	87.9 OK

5.5. Diseño de Cimentaciones

DISEÑO DE ZAPATA Z4

INGRESE DATOS	
PD (Tn)	35.97
PL (Tn)	11.35
Mu (Tn.m)	6.95
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de columna (m)	0.5
	0.25
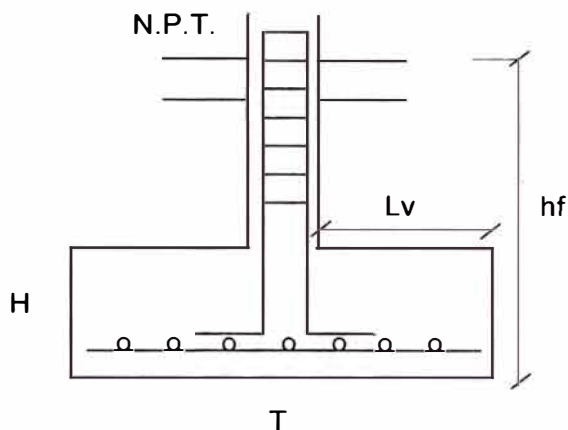
RESULTADOS PARCIALES	
T (m)	1.70
S (m)	1.50
Lv (m)	0.6
Pu (Tn)	69.65
Wu (Tn/m2)	27.31
B	2.00
d (m)	.20
H (m)	.40 Considerar
dprom (cm)	31.09
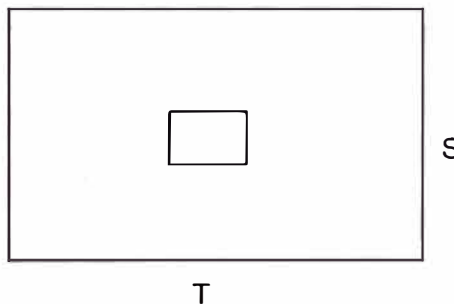
VERIFICACION	
Por punzonamiento (Tn)	**Por cortante (Tn)**
VC= 131.03	VC= 35.82
Vu/Ø= 67.33	Vn= 13.93
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION			
Mu= 7.37 T.m	MuT= 14.32 T.m		
LONGITUD (m)	**ACERO**		
H = 0.40	AsTemp = 8.39		
T = 1.50	As = 12.59	7 Ø 5/8	@ 0.23
S = 1.70	As = 14.27	8 Ø 5/8	@ 0.22

DISEÑO DE ZAPATA Z5

INGRESE DATOS	
PD (Tn)	68.84
PL (Tn)	24.23
Mu (Tn.m)	10.71
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de	0.6
columna (m)	0.25
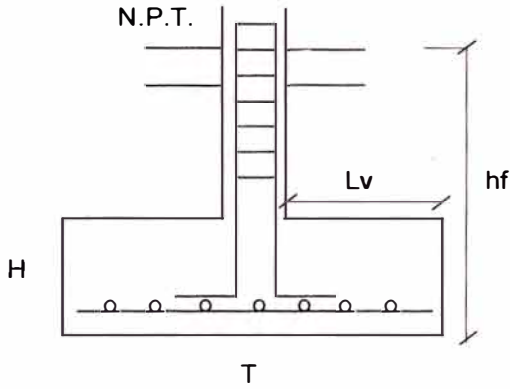
RESULTADOS PARCIALES	
T (m)	2.20
S (m)	1.90
Lv (m)	0.8
Pu (Tn)	137.57
Wu (Tn/m2)	32.91
B	2.40
d (m)	.33
H (m)	.50 Considerar
dprom (cm)	41.09
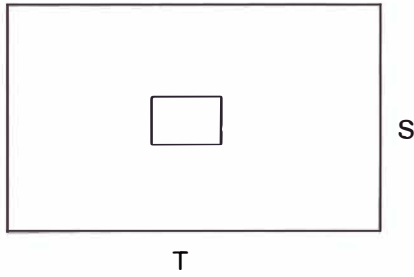
VERIFICACION	
Por punzonamiento (Tn)	Por cortante (Tn)
VC= 211.04	VC= 59.96
Vu/Ø= 135.98	Vn= 28.62
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION		
Mu= 20.01 T.m	MuT= 30.72 T.m	
LONGITUD (m)	ACERO	
H = 0.50	AsTemp = 14.05	
T = 1.90	As = 20.41	11 Ø 5/8 @ 0.18
S = 2.20	As = 23.63	12 Ø 5/8 @ 0.19

DISEÑO DE ZAPATA Z6

INGRESE DATOS	
PD (Tn)	66.07
PL (Tn)	18.72
Mu (Tn.m)	8.98
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de columna (m)	0.5
	0.25
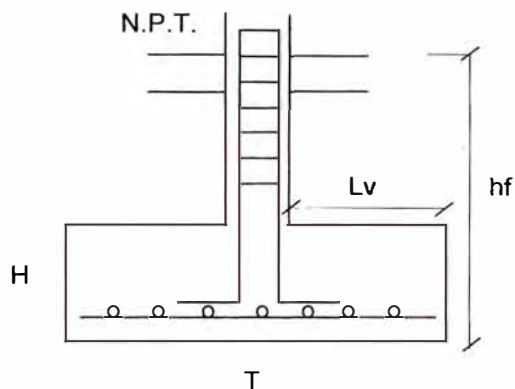
RESULTADOS PARCIALES	
T (m)	2.00
S (m)	2.00
Lv (m)	0.75
Pu (Tn)	124.32
Wu (Tn/m2)	31.08
B	2.00
d (m)	.31
H (m)	.50 Considerar
dprom (cm)	41.09
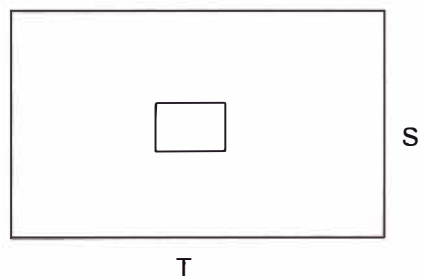
VERIFICACION	
Por punzonamiento (Tn)	**Por cortante (Tn)**
VC= 198.42	VC= 63.12
Vu/Ø= 124.25	Vn= 24.80
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION		
Mu= 17.48 T.m	MuT= 26.46 T.m	
LONGITUD (m)	**ACERO**	
H = 0.50	AsTemp = 14.79	
T = 2.00	As = 17.47	9 Ø 5/8 @ 0.23
S = 2.00	As = 17.47	9 Ø 5/8 @ 0.23

DISEÑO DE ZAPATA Z8

INGRESE DATOS	
PD (Tn)	28.56
PL (Tn)	10.18
Mu (Tn.m)	4.87
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de	0.4
columna (m)	0.25
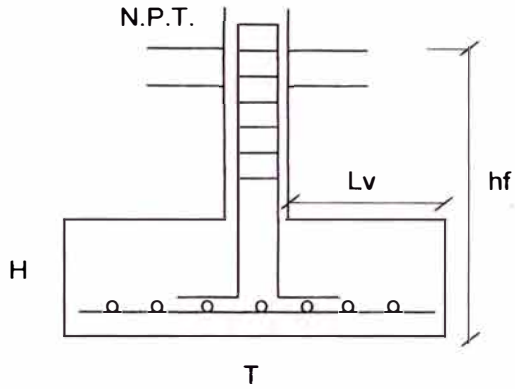
RESULTADOS PARCIALES	
T (m)	1.50
S (m)	1.30
Lv (m)	0.55
Pu (Tn)	57.29
Wu (Tn/m2)	29.38
B	1.60
d (m)	.19
H (m)	.40 Considerar
dprom (cm)	31.09
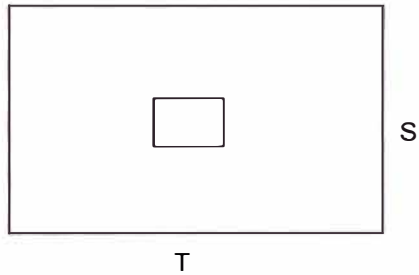
VERIFICACION	
Por punzonamiento (Tn)	Por cortante (Tn)
VC= 121.47	VC= 31.04
Vu/Ø= 53.62	Vn= 10.74
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION			
Mu= 5.78 T.m	MuT= 10.65 T.m		
LONGITUD (m)	ACERO		
H = 0.40	AsTemp = 7.28		
T = 1.30	As = 9.31	5 Ø 5/8	@ 0.29
S = 1.50	As = 10.74	6 Ø 5/8	@ 0.27

DISEÑO DE ZAPATA Z9

INGRESE DATOS	
PD (Tn)	59.22
PL (Tn)	20.85
Mu (Tn.m)	10.67
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de	0.6
columna (m)	0.25
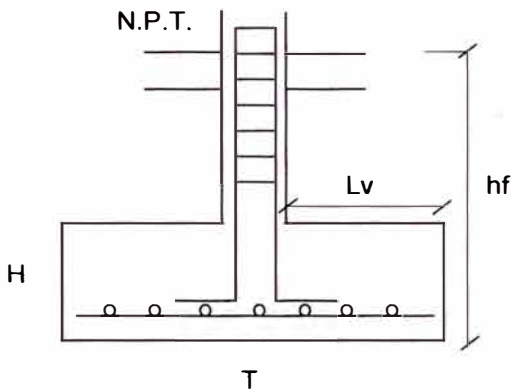
RESULTADOS PARCIALES		
T (m)	2.10	
S (m)	1.80	
Lv (m)	0.75	
Pu (Tn)	118.35	
Wu (Tn/m2)	31.31	
B	2.40	
d (m)	.29	
H (m)	.40	Considerar
dprom (cm)	31.09	
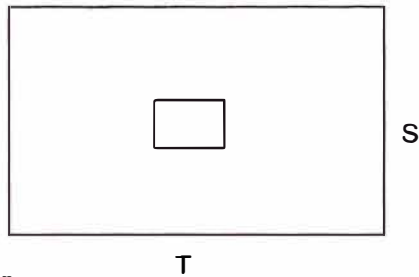
VERIFICACION	
Por punzonamiento (Tn)	**Por cortante (Tn)**
VC= 140.58	VC= 42.98
Vu/Ø= 120.42	Vn= 29.11
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION			
Mu= 15.85 T.m	MuT= 26.52 T.m		
LONGITUD (m)	**ACERO**		
H = 0.40	AsTemp = 10.07		
T = 1.80	As = 23.75	12 Ø 5/8	@ 0.15
S = 2.10	As = 27.71	14 Ø 5/8	@ 0.15

DISEÑO DE ZAPATA Z10

INGRESE DATOS

PD (Tn)	37.53
PL (Tn)	12.07
Mu (Tn.m)	13.64
hf (m)	1.2
σ Kg/cm2	3
S/C (Tn)	0.25
GM (Tn/m3)	2.1
Fy (Kg/cm2)	4200
F'c (Kg/cm2)	210
Longitudes de	0.7
columna (m)	0.25
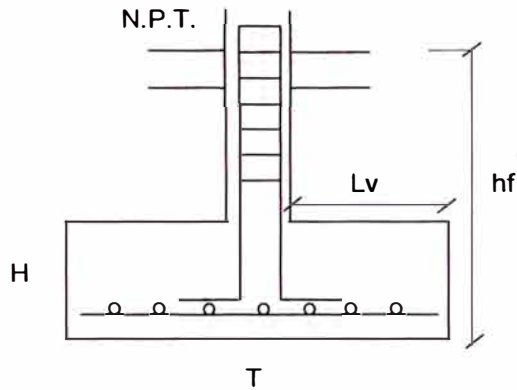
RESULTADOS PARCIALES

T (m)	1.90
S (m)	1.60
Lv (m)	0.6
Pu (Tn)	73.06
Wu (Tn/m2)	24.03
B	2.80
d (m)	.20
H (m)	.40 Considerar
dprom (cm)	31.09
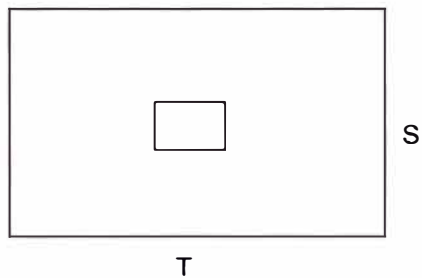
VERIFICACION

Por punzonamiento (Tn)	Por cortante (Tn)
VC= 150.13	VC= 38.21
Vu/Ø= 69.92	Vn= 13.08
VC>Vu/Ø CONFORME	VC>Vn CONFORME

DISEÑO POR FLEXION

Mu= 6.92 T.m	MuT= 20.56 T.m		
LONGITUD (m)	ACERO		
H = 0.40	AsTemp = 8.95		
T = 1.60	As = 18.29	10 Ø 5/8	@ 0.16
S = 1.90	As = 21.71	11 Ø 5/8	@ 0.18

CONCLUSIONES

- El proyecto arquitectónico define la conformación estructural, es decir el tipo, *ordenamiento y distribución de los elementos estructurales. En nuestro caso La* distribución arquitectónica limita el uso de muros de corte en el eje Y-Y, así como también nos obliga al uso de vigas chatas en los ejes que cruzan *dormitorios.*

- El sistema estructural considerado para la edificación es en base a pórticos y Muros de corte en ambas direcciones, interconectados por diafragmas horizontales de piso, *los cuales se suponen rígidos en su plano.*

- El análisis sísmico se efectuó siguiendo las indicaciones de La Norma Peruana de Diseño sismorresistente E-030 del año 2003.

- La respuesta sísmica se determino empleando el método de superposición espectral. Los parámetros para definir este diseño fueron:

  Factor de zona (Zona 3): $\qquad$ Z = 0.4 g

  Perfil de Suelo (Tipo S1): $\qquad$ S = 1.2   Tp=0.6

  Factor de Categoría (Categoría C): $\qquad$ U = 1.0

  Factor de Reducción: $\qquad$ R = 6

  Se usa este factor ya que más del 80% del cortante en la base actúa sobre los muros estructurales en ambas direcciones.

- Para el Análisis estructural se usa el Programa Sap 2000. Las formas de modo y frecuencias, factores de participación modal y porcentajes de participación de masa son evaluados por este programa.

- Para el análisis se uso un modelo seudo tridimensional de masa concentrada, n tres grados de libertad por nivel.

- Se verifico que la cortante en ambas direcciones obtenidas por el análisis dinámico sea mayor que el 80% obtenida por el análisis estático equivalente.

- El dimensionamiento de muros se hace de acuerdo a las solicitaciones sísmicas de la estructura, es decir se hace un proceso iterativo, de manera de alargar o ensanchar el muro en el caso que el análisis no cumpla con los desplazamientos mínimos establecidos por a Norma.

- Se realiza un solo diseño para piso típico, por ello se elige el elemento típico, con mayor esfuerzo de flexión, cortante y carga axial, pudiéndose efectuarse un diseño para cada piso, con lo que se lograría un diseño mas preciso.

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Reglamento Nacional de Construcciones, Norma Técnica de Edificaciones E.60 Concreto Armado

Ministerio de Vivienda, Construcción y Saneamiento, Lima 2003

ANEXO A

PLANOS DE
ARQUITECTURA
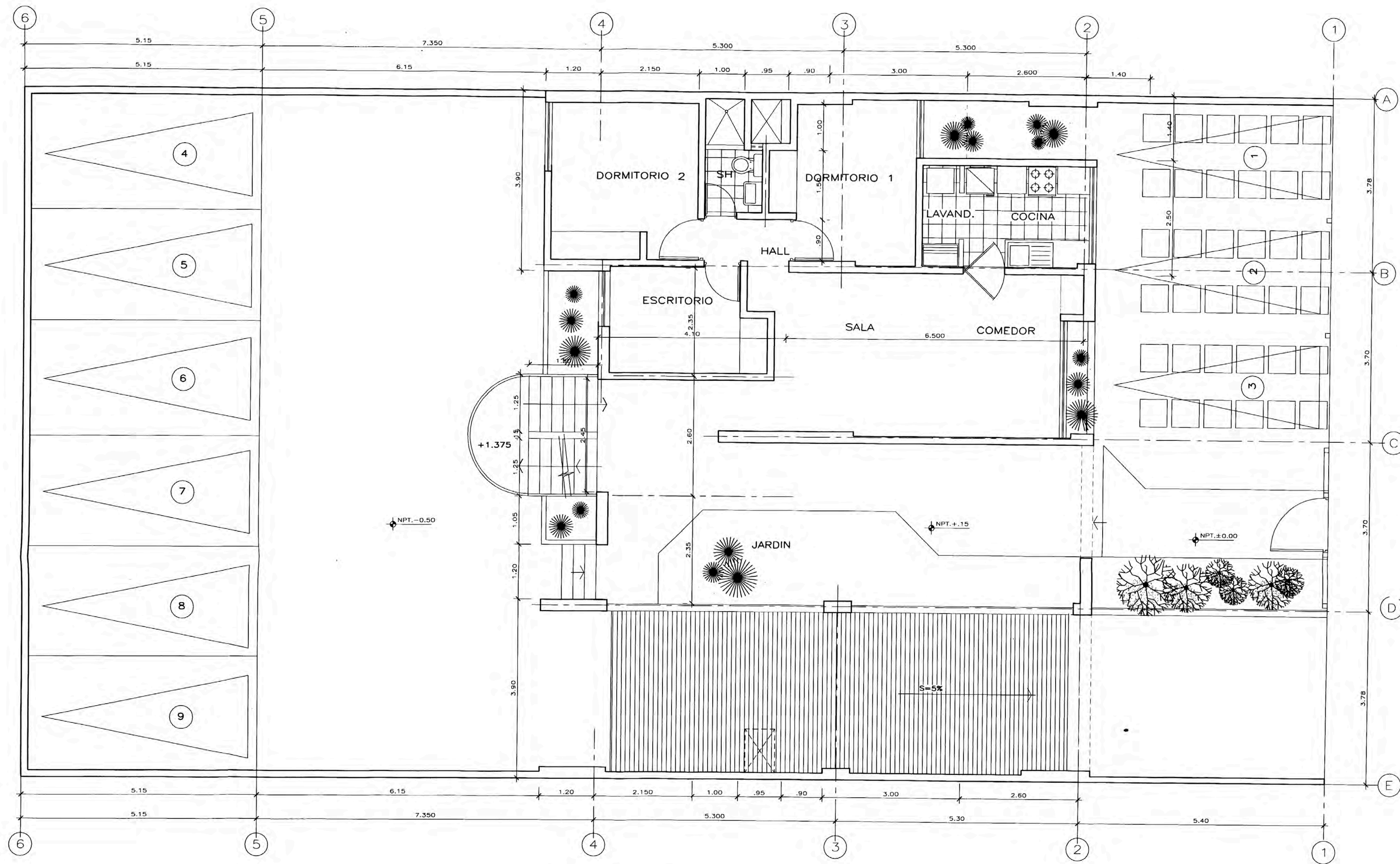
PLANTA PISO 1

Room labels and annotations visible in plan:

- DORMITORIO 2
- SH
- DORMITORIO 1
- LAVAND.
- COCINA
- HALL
- ESCRITORIO
- SALA
- COMEDOR
- JARDIN
- NPT.−0.50
- +1.375
- NPT.+.15
- NPT.±0.00
- S=5%

Grid references: 1, 2, 3, 4, 5, 6 (horizontal); A, B, C, D, E (vertical)

Dimensions: 5.15, 7.350, 5.300, 5.300, 6.15, 1.20, 2.150, 1.00, .95, .90, 3.00, 2.600, 1.40, 3.78, 2.50, 3.70, 3.90, 2.35, 4.10, 2.60, 6.500, 5.40

DISEÑO	BACH. YNGRID BAILON AZURIN	Nº PLANO
PROYECTO:	EDIFICIO MÜLTIFAMILIAR	**A -1**
ESPECIALIDAD: ARQUITECTURA	PLANO DE. PLANTA PRIMER PISO	
UBICACION:	CALLE GENERAL IGLESIAS Nº 426 - MIRAFLORES	
FECHA JUNIO DEL 2005	ESCALA: 1/50	

DORMITORIO 2

SH

SH

DORMITORIO 1

LAVAND.

COCINA

HALL

ESCRITORIO

SALA

COMEDOR

SALA

COMEDOR

ESCRITORIO

HALL

DORMITORIO 2

SH

SH

DORMITORIO 1

LAVAND.

COCINA
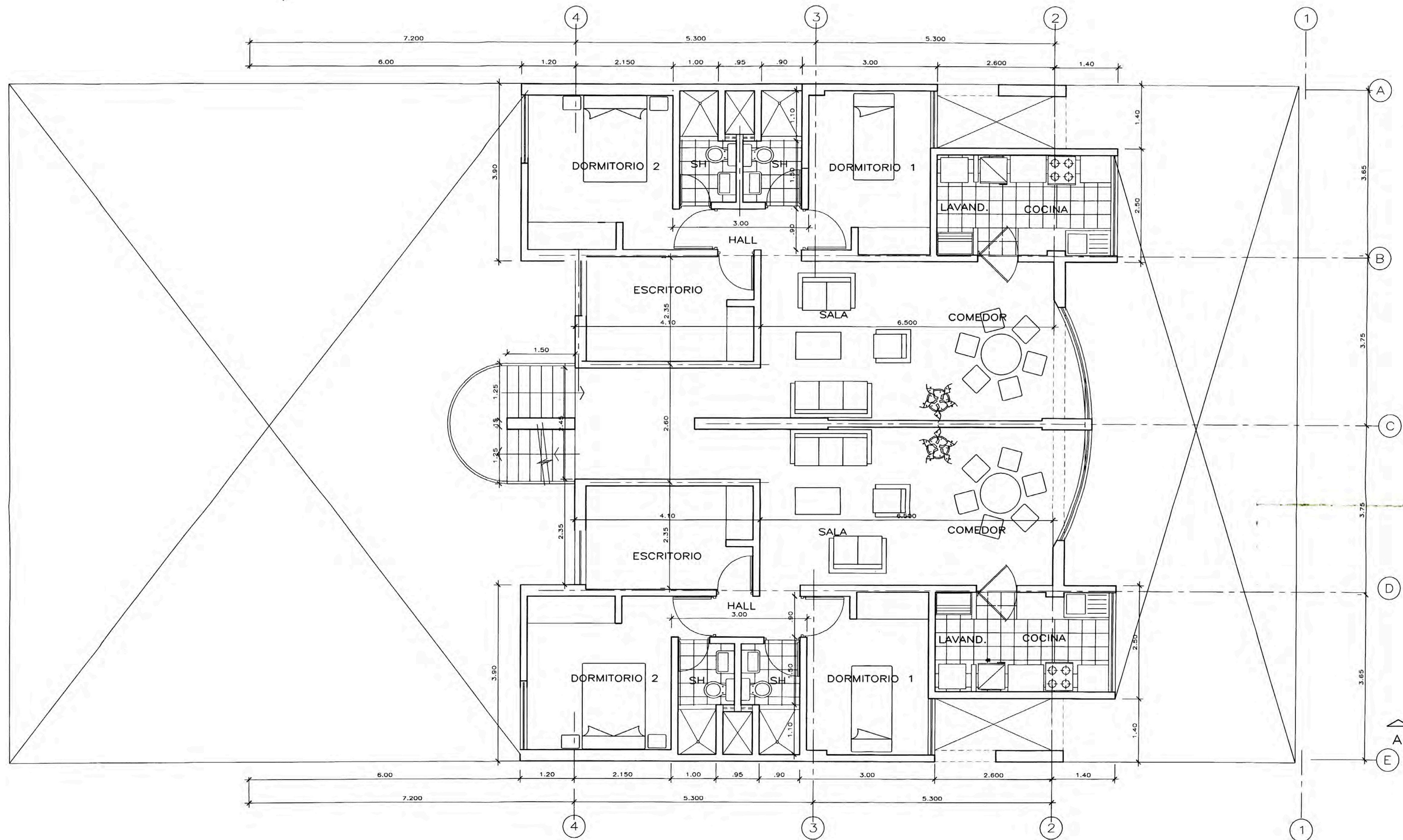
DISEÑO	BACH. YNGRID BAILON AZURIN		Nº PLANO
PROYECTO:	EDIFICIO MULTIFAMILIAR		
ESPECIALIDAD:	ARQUITECTURA	PLANO DE. PLANTA TIPICA	A -2
UBICACION:	CALLE GENERAL IGLESIAS Nº 426 - MIRAFLORES		
FECHA	JUNIO DEL 2005	ESCALA: 1/50	

ANEXO B

PLANOS DE
ESTRUCTURAS
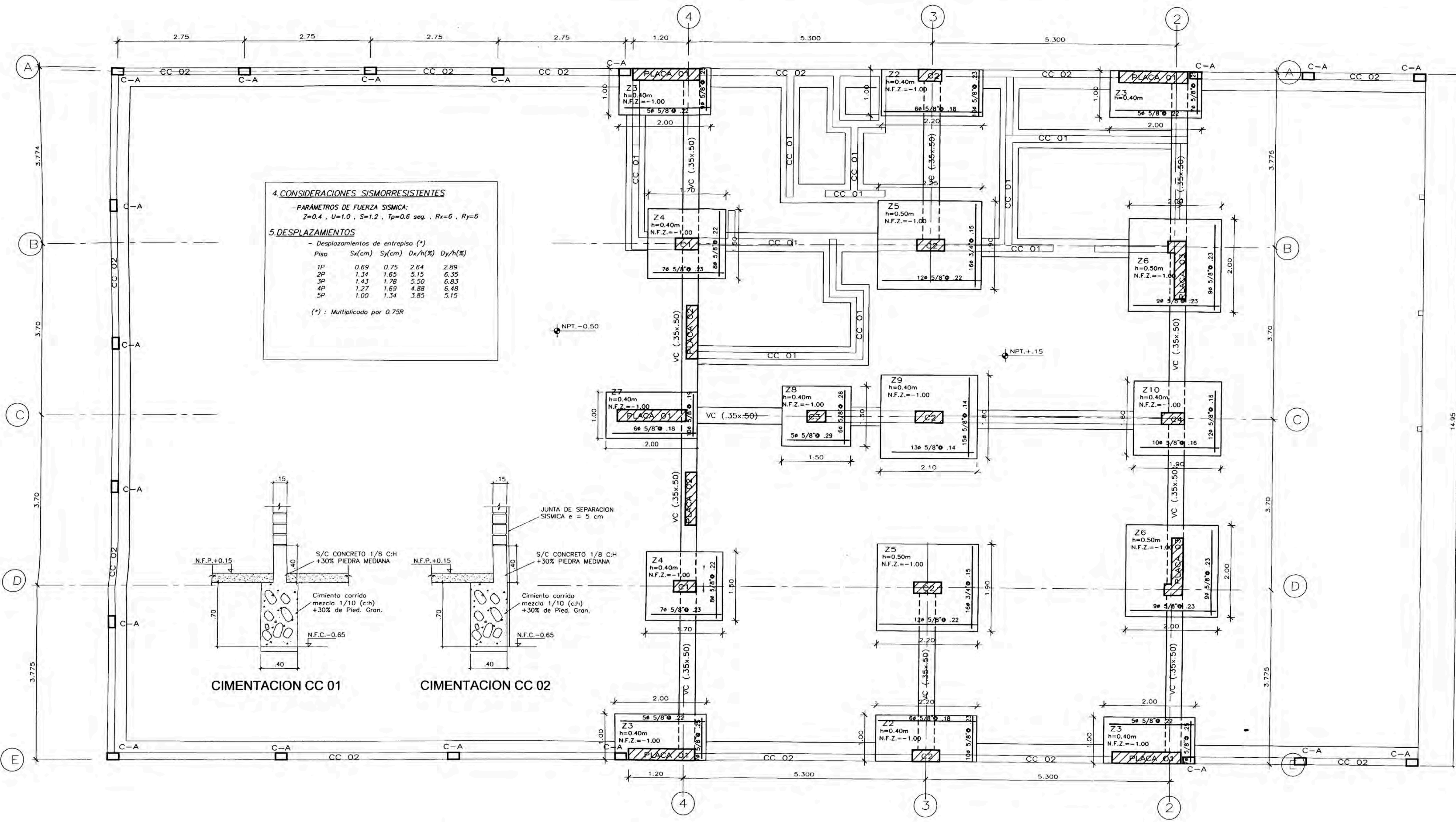
4. CONSIDERACIONES SISMORRESISTENTES

- PARÁMETROS DE FUERZA SÍSMICA:
  Z=0.4 , U=1.0 , S=1.2 , Tp=0.6 seg. , Rx=6 , Ry=6

5. DESPLAZAMIENTOS
- Desplazamientos de entrepiso (*)

Piso	Sx(cm)	Sy(cm)	Dx/h(%)	Dy/h(%)
1P	0.69	0.75	2.64	2.89
2P	1.34	1.65	5.15	6.35
3P	1.43	1.78	5.50	6.83
4P	1.27	1.69	4.88	6.48
5P	1.00	1.34	3.85	5.15

(*) : Multiplicado por 0.75R

NPT.−0.50

NPT.+.15

JUNTA DE SEPARACION SISMICA e = 5 cm

S/C CONCRETO 1/8 C:H +30% PIEDRA MEDIANA

N.F.P.+0.15
Cimiento corrido mezcla 1/10 (c:h) +30% de Pied. Gran.
N.F.C.−0.65

CIMENTACION CC 01

S/C CONCRETO 1/8 C:H +30% PIEDRA MEDIANA

N.F.P.+0.15
Cimiento corrido mezcla 1/10 (c:h) +30% de Pied. Gran.
N.F.C.−0.65

CIMENTACION CC 02

02 ESTRIBOS EN ZONA DE VIGAS

DETALLE DE ESPACIAMIENTO DE ESTRIBOS EN COLUMNA (1°-5° NIVEL)

N.P.T.+−0.00

N.F.C.−1.20

Solado f'c=100Kg/cm2
VER PLANTA

ANCLAJE DE COLUMNA EN ZAPATA
ESCALA=1/25

1° al 2° PISO
PLACA 01
Esc. 1/25

1° al 2° PISO
PLACA 02
Esc. 1/25

1° al 2° PISO
PLACA 03
Esc. 1/25

3° al 5° PISO
PLACA 01
Esc. 1/25

3° al 5° PISO
PLACA 02
Esc. 1/25

3° al 5° PISO
PLACA 03
Esc. 1/25

JUNTA DE SEPARACION SISMICA e = 5 cm
N.P.T.+0.15
4Ø1"
4Ø3/4"
Solado f'c=100Kg/cm2

DETALLE DE VIGA DE CIMENTACION

4Ø1"
4Ø3/4"
Ø3/8": 1@.05, Rto. @.20
VC-2(.35x.50)
ESCALA 1/25

ESPECIFICACIONES TECNICAS

1. CONCRETO ARMADO

RESISTENCIA DEL CONCRETO
- ZAPATAS   f'c=210 kg/cm2
- MUROS   f'c=210 kg/cm2
- COLUMNAS Y VIGAS f'c=210 kg/cm2
- LOSAS   f'c=210 kg/cm2

ACERO DE REFUERZO
VARILLAS   fy=4200 kg/cm2

RECUBRIMIENTOS
- VIGAS Y COLUMNAS   4 cm.
- MUROS   2.5 cm.

2. CIMENTACION
- TIPO DE CIMENTACION: Zapatas Aisladas y Conectadas
- ESTRATO DE APOYO: Grava
- PROFUNDIDAD DE CIMENTACION: Ver detalle
- PRESION ADMISIBLE   qt = 3.00 kg/cm2
- PERFIL TIPO = 2
- PERIODO PREDOMINANTE (Ts) = 0.6
- FACTOR DE SUELO (S) = 1.2

3. SOBRECARGAS
- S/C = 200 Kg/m2 (Piso Típico)

DISEÑO	BACH. YNGRID BAILON AZURIN		Nº PLANO
PROYECTO:	EDIFICIO MULTIFAMILIAR		
ESPECIALIDAD:	ESTRUCTURAS	PLANO DE. CIMENTACIONES	E-1
UBICACION:	CALLE GENERAL IGLESIAS Nº 426 - MIRAFLORES		
FECHA JUNIO DEL 2005	ESCALA: 1/50		

CUADRO DE COLUMNAS

ESC. 1:20

TIPO	C1(m.)	C2(m.)	C3(m.)	C4(m.)	C-A(m.)
t ×D.	0.25 × 0.50	0.25 × 0.60	0.25 × 0.40	0.25 × 0.50	(0.25× 0.15)
As.	6ø3/4"	8ø3/4"	6ø3/4"	8ø3/4"	4ø3/8"
□øS.	□ø3/8"ø 0.25+ 1 Ι ø3/8"ø 0.25	□ø3/8"ø 0.25 1 Ι ø3/8"ø 0.25	□ø3/8"ø 0.25 1 Ι ø3/8"ø 0.25	2□ ø3/8"ø 0.25	□øl/4"ø 0.20
DISPOSICION DEL ACERO					

TECHO PISO TIPICO
ALIGERADO h=0.20m
SOBRECARGA 200 Kg/m2

EMPALMES EN VIGAS
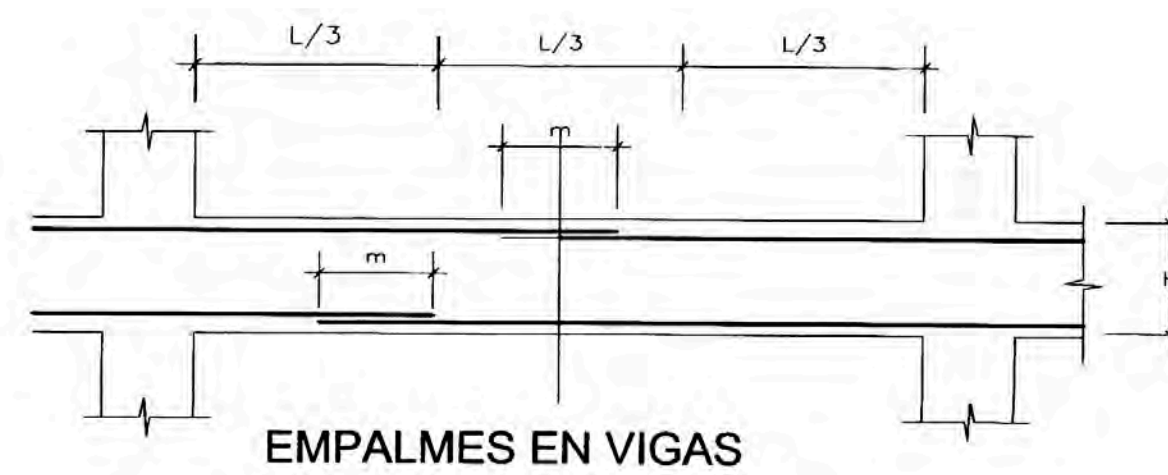
VALORES DE m

ø	REFUERZO INFERIOR h CUALQUIERA	REFUERZO SUPERIOR h MENOR DE 0.30	REFUERZO SUPERIOR h MAYOR DE 0.30
3/8"	0.40	0.40	0.45
1/2"	0.40	0.40	0.50
5/8"	0.50	0.45	0.60
3/4"	0.60	0.55	0.75
1"	1.15	1.00	1.30

NOTA:

A- NO EMPALMAR MAS DEL 50% DEL AREA TOTAL EN UNA MISMA SECCION.
B- EN CASO DE NO EMPALMARSE EN LAS ZONAS INDICADAS O LOS PORCENTAJES ESPECIFICADOS AUMENTAR LA LONGITUD DE EMPALME EN UN 70% o CONSULTAR AL PROYECTISTA.

EMPALMES TRASLAPADOS PARA VIGAS

DETALLE DE LOSA ALIGERADA
S/E

ø 1/4"ø0.25
ø Corrugada
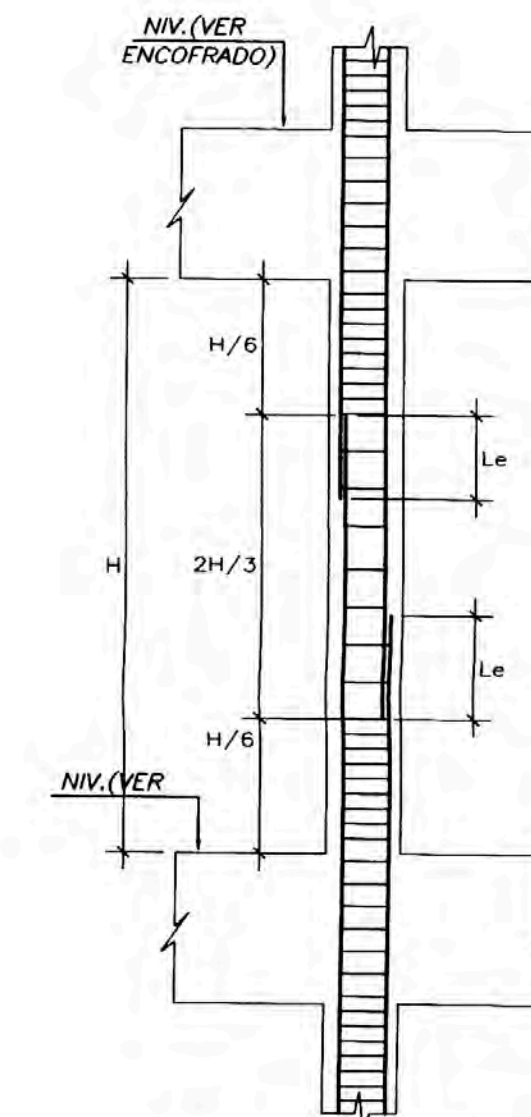
DETALLE DE EMPALME DE COLUMNAS

ø	Le(m)
3/8"	.40
1/2"	.45
5/8"	.60
3/4"	.80
1"	1.00

NOTA.- EMPALMAR EN DIFERENTES PARTES TRATANDO DE EMPALMAR FUERA DE LA ZONA DE CONFINAMIENTO, Y EN UN PORCENTAJE MENOR AL 50% DEL TOTAL DEL FIERRO

EMPALME DE COLUMNAS

ø	Le(m)
3/8"	.60
1/2"	.70
5/8"	.90
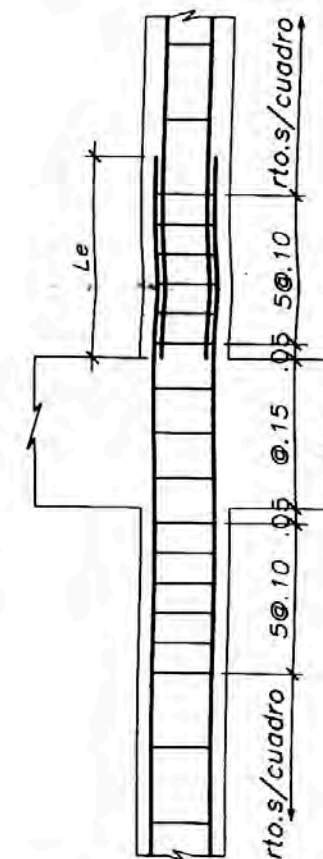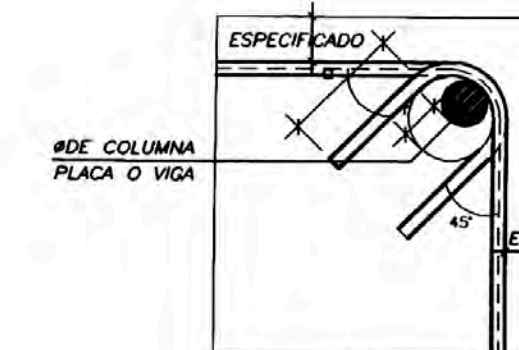
DETALLE DE DOBLADO DE ESTRIBOS EN COLUMNAS Y VIGAS

ø	r(cm.)	a(cm.)
1/4"	1.3	6.5
8mm	2.0	10.0
3/8"	2.0	10.0
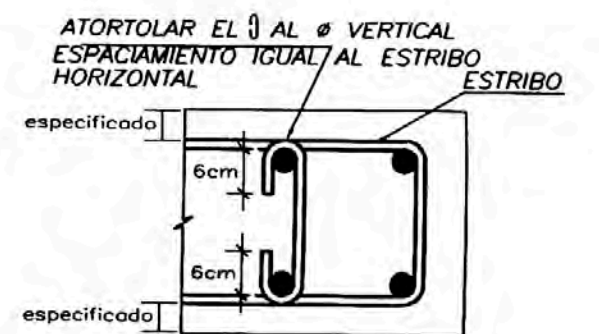
DETALLE DE GANCHO EN COLUMNAS

ATORTOLAR EL ø AL ø VERTICAL ESPACIAMIENTO IGUAL AL ESTRIBO HORIZONTAL

DISEÑO	BACH. YNGRID BAILON AZURIN		Nº PLANO
PROYECTO:	EDIFICIO MULTIFAMILIAR		
ESPECIALIDAD:	ESTRUCTURAS	PLANO DE. TECHOS	**E -2**
UBICACION:	CALLE GENERAL IGLESIAS Nº 426 - MIRAFLORES		
FECHA JUNIO DEL 2005		ESCALA: 1/50	

PLACA 01   C2   PLACA 01

1.50 .80 1.00 1∅3/4" 4.70 2∅3/4" 1∅3/4" 1.00 .60 .80 2∅3/4" 3.75 2∅3/4" 1.00 .80 1.49

2 ▷   2∅3/4"   1 ▷

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20   ⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−101 (.25x.50)
EJE A Y E

C1   .50   C2   C1

.50 1.00 1∅3/4" 3 ▷ 4.75 2∅3/4" 2∅3/4" 1.00 .60 4 ▷ 1.00 2∅3/4" 4.85 2∅3/4" 1.00 4 ▷ .40 .50

2∅3/4" 3 ▷   4 ▷   2∅3/4"   4 ▷

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20   ⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−102 (.25x.50)
EJE B Y D

PLACA 01   C3   C2   C4

1.50 .80 1.00 1∅3/4" 2.65 .40 5 ▷ 1.95 2∅3/4" .60 1.00 3 ▷ 4.75 2∅3/4" 1∅3/4" 1.00 .50

.50 1.00 1∅3/4" 2∅3/4" 5 ▷   2∅3/4"   3 ▷

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20   ⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−103 (.25x.50)
EJE C

C1   PLACA 3   C4   PLACA 3   C1

.25 .80 1∅3/4" 6 ▷ 3.40 2∅3/4" .80 1.25 .80 2.45 .25 2.45 2∅3/4" .80 1.25 .80 7 ▷ 3.40 1∅3/4" .80 .25

2∅3/4" 6 ▷ 1∅3/4" 7 ▷   2∅3/4"   2∅3/4" 1∅3/4"   7 ▷   2∅3/4"

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−106 (.25x.40)
EJE 02

C1   C2   C2   C2   C1

.25 8 ▷ .80 1∅5/8" 3.40 6 ▷ 2∅5/8" .25 3.45 9 ▷ 2∅5/8" .25 3.45 2∅5/8" 6 ▷ 3.40 1∅5/8" .80 .25

8 ▷ 2∅5/8" 6 ▷ .80 2∅5/8" 9 ▷ 2∅5/8" 9 ▷ 6 ▷ 2∅5/8"

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−105 (.25x.40)
EJE 03

C1   C1   C1   C1

.25 12 ▷ .80 2∅5/8" 3.40 9 ▷ 2∅5/8" .25 2.40 11 ▷ .50 2.30 2∅3/4" .60 1.15 .15 2∅5/8" .60 3.50 2∅5/8" .25 3.40 2∅5/8" ◁ 10 .80 .25

12 ▷ 2∅5/8" 9 ▷ 11 ▷ .80 2∅3/4" 2∅5/8" 2∅5/8" ◁ 10 2∅5/8" 2∅3/4"

⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20   ⬚ ⅜":1@.05, 6@.10, 4@.15 Rto.@.20

VIGA V−104 (.25x.40)
EJE 04

Cortes

0.25 2∅3/4" — 2∅3/4" — 0.50
⬚ TIPO 1
CORTE 1−1
ESC 1/20

0.25 3∅3/4" — 0.50
⬚ TIPO 1
CORTE 2−2
ESC 1/20
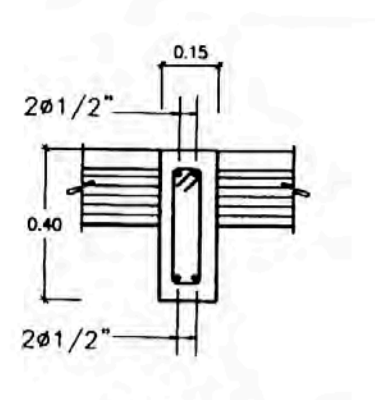
0.15 2∅1/2" — 2∅1/2" — 0.40
⬚ TIPO 2
VIGA V107 Y V108
ESC 1/20
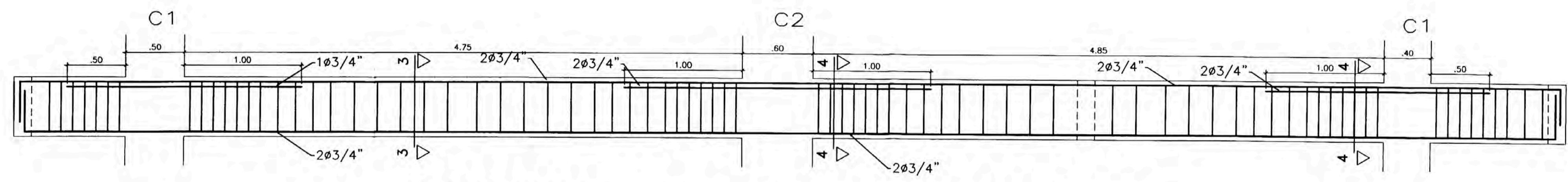
0.25 2∅3/4" — 2∅3/4" — 0.50
⬚ TIPO 1
CORTE 3−3
ESC 1/20
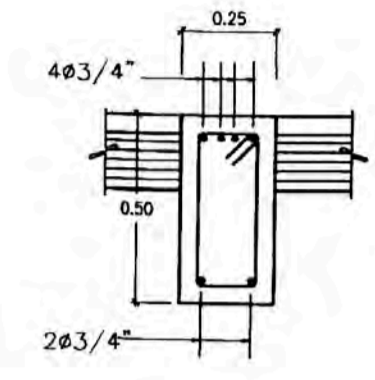
0.25 4∅3/4" — 0.50
⬚ TIPO 1
CORTE 4−4
ESC 1/20
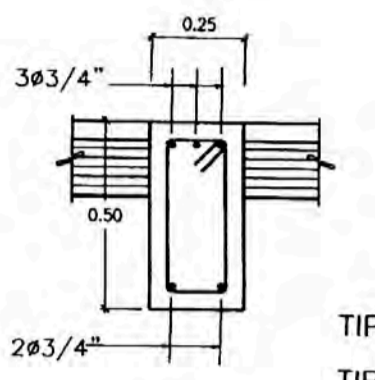
0.25 3∅3/4" — 0.50
⬚ TIPO 1
TIPO 2
CORTE 5−5
ESC 1/20

⅜":1@.05, 6@.10, Rto.@.25
1/4":1@.05, 8@.10, Rto.@.20
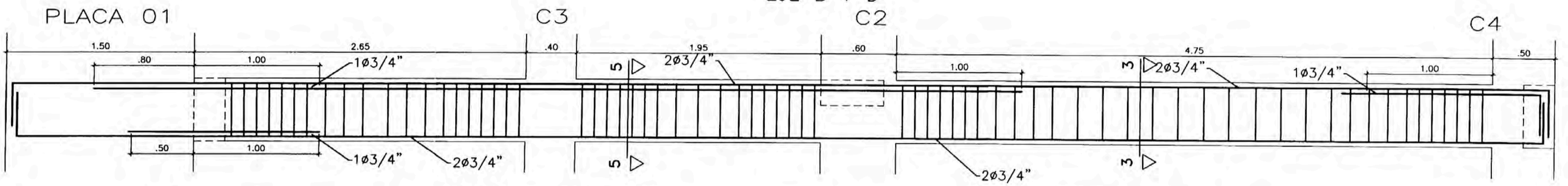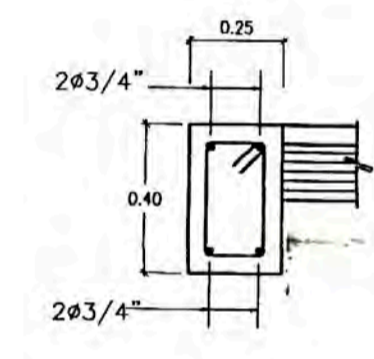
0.25 2∅3/4" — 2∅3/4" — 0.40
⬚ TIPO 1
CORTE 6−6
ESC 1/20
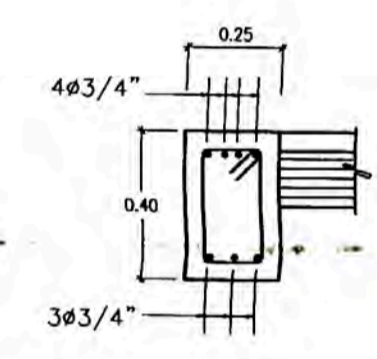
0.25 4∅3/4" — 3∅3/4" — 0.40
⬚ TIPO 1
CORTE 7−7
ESC 1/20
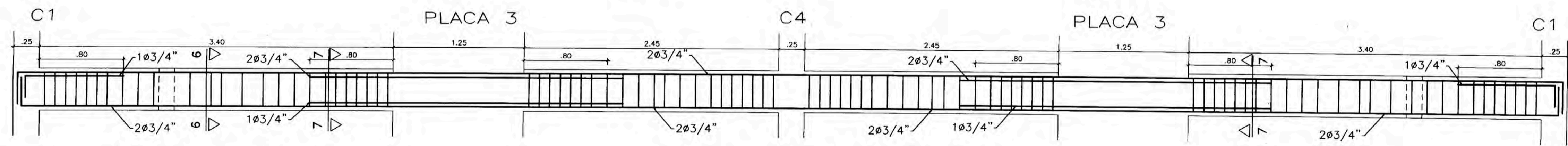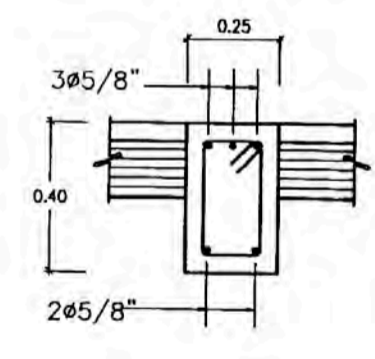
0.40 3∅5/8" — 2∅5/8" —
⬚ TIPO 1
CORTE 8−8
ESC 1/20
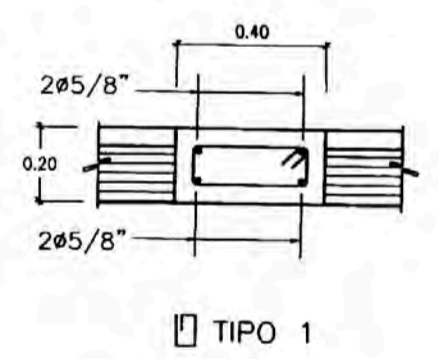
0.40 2∅5/8" — 2∅5/8" — 0.20
⬚ TIPO 1
CORTE 9−9
ESC 1/20
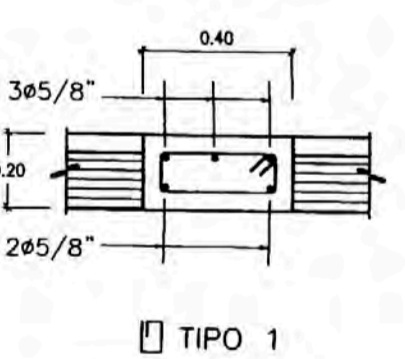
0.40 3∅5/8" — 2∅5/8" —
⬚ TIPO 1
CORTE 10−10
ESC 1/20
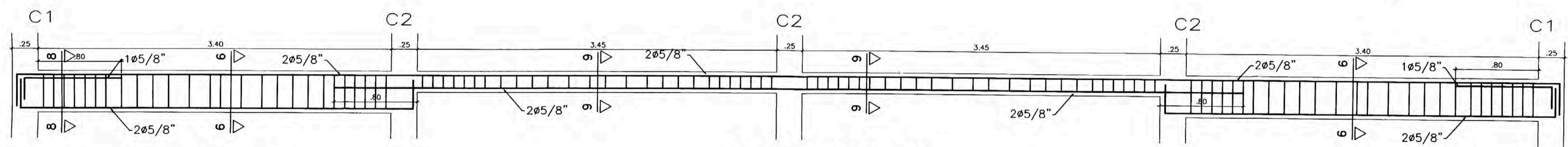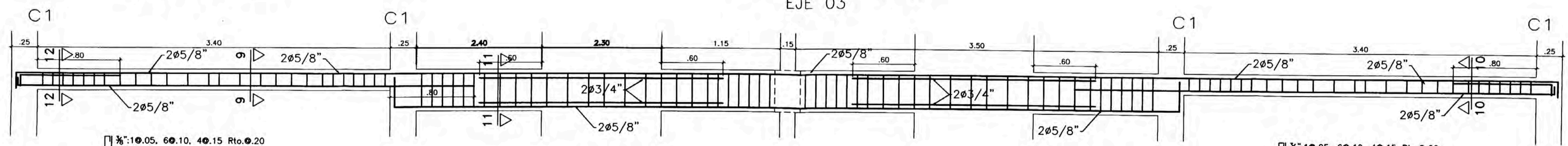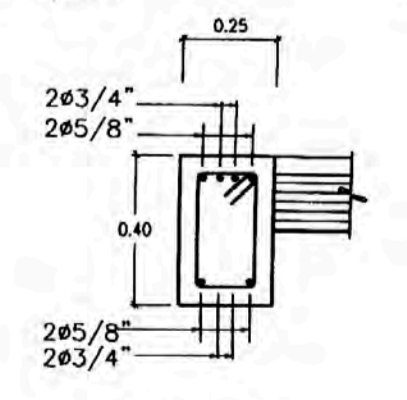
0.25 2∅3/4" 2∅5/8" — 2∅5/8" 2∅3/4" — 0.40
⬚ TIPO 1
CORTE 11−11
ESC 1/20

DISEÑO	**BACH. YNGRID BAILON AZURIN**		N° PLANO
PROYECTO:	*EDIFICIO MULTIFAMILIAR*		
ESPECIALIDAD:	*ESTRUCTURAS*	PLANO DE. *VIGAS*	**E-3**
UBICACION:	*CALLE GENERAL IGLESIAS N° 426 - MIRAFLORES*		
FECHA JUNIO DEL 2005	ESCALA: 1/25		

ANEXO C

RESULTADOS DEL
PROGRAMA SAP 2000
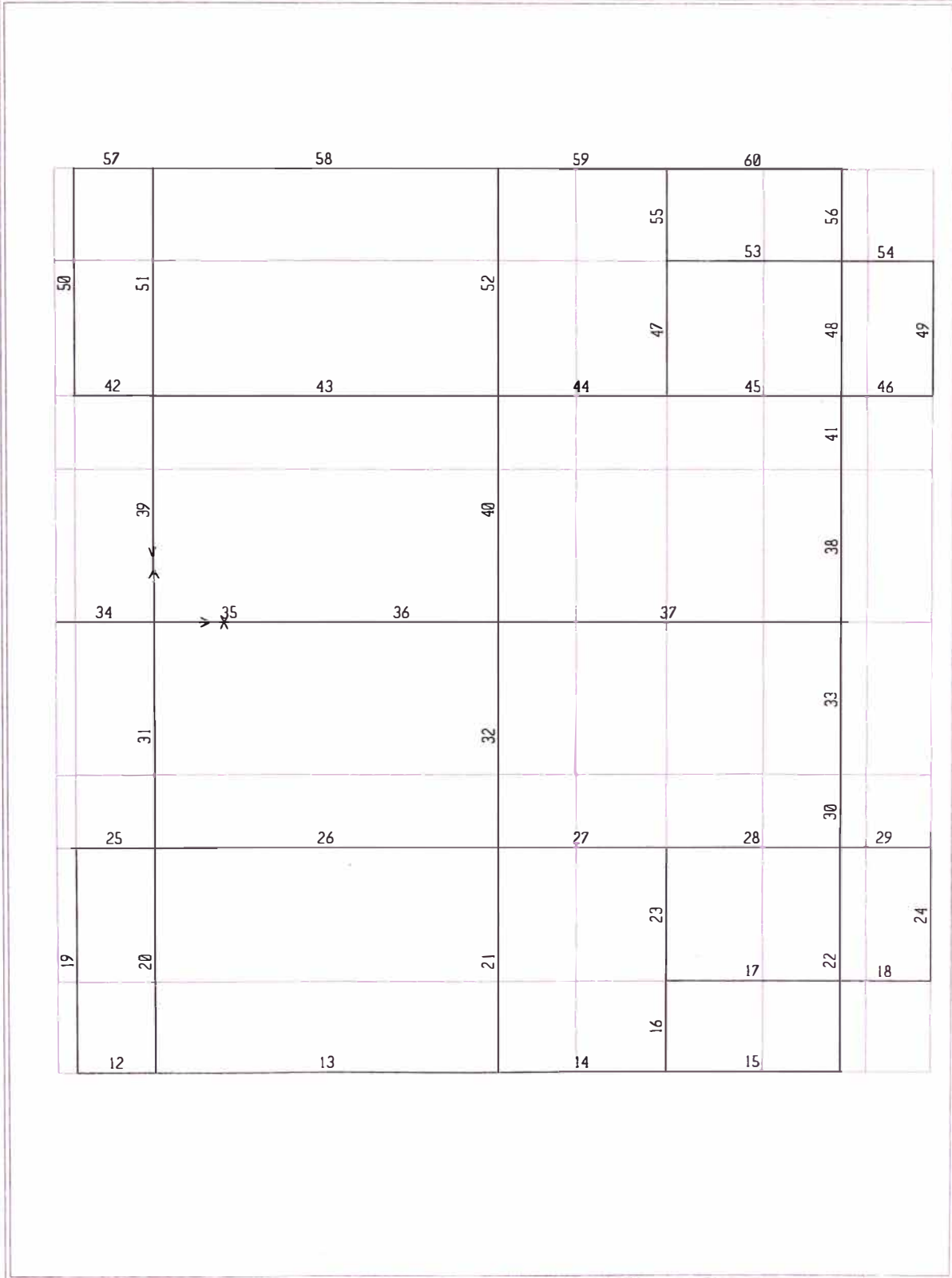
RESULTADO DE ANALISIS VIGAS PISO 1
SAP-2000

TABLE: Element Forces - Frames

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
12	0.00	E	Combination	Max	5.510	-0.238	0.066	0.169	0.114	0.203
12	0.40	E	Combination	Max	5.510	0.258	0.066	0.169	0.088	0.403
12	0.80	E	Combination	Max	5.510	1.133	0.066	0.169	0.062	0.419
12	1.20	E	Combination	Max	5.510	2.154	0.066	0.169	0.037	0.253
12	0.00	E	Combination	Min	1.984	-1.341	-0.058	-0.251	-0.114	-1.255
12	0.40	E	Combination	Min	1.984	-0.357	-0.058	-0.251	-0.091	-1.182
12	0.80	E	Combination	Min	1.984	0.185	-0.058	-0.251	-0.068	-1.459
12	1.20	E	Combination	Min	1.984	0.643	-0.058	-0.251	-0.046	-2.087
13	0.00	E	Combination	Max	2.280	-0.962	0.011	0.156	0.033	3.209
13	0.48	E	Combination	Max	2.280	-0.411	0.011	0.156	0.028	3.610
13	0.96	E	Combination	Max	2.280	0.140	0.011	0.156	0.023	4.391
13	1.45	E	Combination	Max	2.280	0.691	0.011	0.156	0.017	4.664
13	1.93	E	Combination	Max	2.280	1.242	0.011	0.156	0.013	4.429
13	2.41	E	Combination	Max	2.280	2.069	0.011	0.156	0.010	3.686
13	2.89	E	Combination	Max	2.280	3.123	0.011	0.156	0.008	3.445
13	3.37	E	Combination	Max	2.280	4.177	0.011	0.156	0.006	3.590
13	3.85	E	Combination	Max	2.280	5.232	0.011	0.156	0.010	3.800
13	4.34	E	Combination	Max	2.280	6.286	0.011	0.156	0.015	3.503
13	4.82	E	Combination	Max	2.280	7.340	0.011	0.156	0.020	2.846
13	5.30	E	Combination	Max	2.280	8.394	0.011	0.156	0.024	2.504
13	0.00	E	Combination	Min	-1.950	-8.343	-0.010	-0.190	-0.030	-12.103
13	0.48	E	Combination	Min	-1.950	-7.288	-0.010	-0.190	-0.025	-8.337
13	0.96	E	Combination	Min	-1.950	-6.234	-0.010	-0.190	-0.020	-5.080
13	1.45	E	Combination	Min	-1.950	-5.180	-0.010	-0.190	-0.015	-2.330
13	1.93	E	Combination	Min	-1.950	-4.126	-0.010	-0.190	-0.011	-0.675
13	2.41	E	Combination	Min	-1.950	-3.072	-0.010	-0.190	-0.009	0 575
13	2.89	E	Combination	Min	-1.950	-2.018	-0.010	-0.190	-0.007	1.211
13	3.37	E	Combination	Min	-1.950	-1.218	-0.010	-0.190	-0.005	-0.051
13	3.85	E	Combination	Min	-1.950	-0.667	-0.010	-0.190	-0.009	-1.590
13	4.34	E	Combination	Min	-1.950	-0.116	-0.010	-0.190	-0.014	-4.365
13	4.82	E	Combination	Min	-1.950	0.435	-0.010	-0.190	-0.019	-7.647
13	5.30	E	Combination	Min	-1.950	0.986	-0.010	-0.190	-0.024	-11.438
14	0.00	E	Combination	Max	2.242	1.054	0.021	0.043	0.039	5.379
14	0.43	E	Combination	Max	2.242	1.549	0.021	0.043	0.030	5.245
14	0.87	E	Combination	Max	2.242	2.044	0.021	0.043	0.021	4.701
14	1.30	E	Combination	Max	2.242	2.678	0.021	0.043	0.012	3.746
14	1.73	E	Combination	Max	2.242	3.626	0.021	0.043	0.008	2.380
14	2.17	E	Combination	Max	2.242	4.575	0.021	0.043	0.018	2.647
14	2.60	E	Combination	Max	2.242	5.523	0.021	0.043	0.029	4.124
14	0.00	E	Combination	Min	-2.573	-8.624	-0.027	-0.657	-0.040	-10.902
14	0.43	E	Combination	Min	-2.573	-7.676	-0.027	-0.657	-0.029	-7.371
14	0.87	E	Combination	Min	-2.573	-6.727	-0.027	-0.657	-0.017	-4.250
14	1.30	E	Combination	Min	-2.573	-5.779	-0.027	-0.657	-0.006	-1.541
14	1.73	E	Combination	Min	-2.573	-4.831	-0.027	-0.657	-0.001	0.189
14	2.17	E	Combination	Min	-2.573	-3.883	-0.027	-0.657	-0.007	0.063
14	2.60	E	Combination	Min	-2.573	-2.935	-0.027	-0.657	-0.016	-1.585
15	0.00	E	Combination	Max	3.599	6.988	0.341	1.674	0.292	4.031
15	0.50	E	Combination	Max	3.599	7.176	0.341	1.674	0.121	4.706
15	1.00	E	Combination	Max	3.599	7.364	0.341	1.674	0.001	5.287
15	1.50	E	Combination	Max	3.599	7.551	0.341	1.674	0.085	5.775
15	1.50	E	Combination	Max	5.463	0.057	0.064	0.707	0.094	0.696
15	1.90	E	Combination	Max	5.463	0.165	0.064	0.707	0.074	0.679
15	2.30	E	Combination	Max	5.463	0.274	0.064	0.707	0.059	0.609
15	2.70	E	Combination	Max	5.463	0.401	0.064	0.707	0.077	0.480
15	0.00	E	Combination	Min	-3.735	-1.905	-0.187	-0.427	-0.195	-1.455
15	0.50	E	Combination	Min	-3.735	-1.770	-0.187	-0.427	-0.102	-4.964

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
15	1.00	E	Combination	Min	-3.735	-1.635	-0.187	-0.427	-0.049	-8.598
15	1.50	E	Combination	Min	-3.735	-1.499	-0.187	-0.427	-0.220	-12.327
15	1.50	E	Combination	Min	0.873	-1.008	-0.085	-1.365	-0.117	-1.878
15	1.90	E	Combination	Min	0.873	-0.858	-0.085	-1.365	-0.088	-1.505
15	2.30	E	Combination	Min	0.873	-0.708	-0.085	-1.365	-0.065	-1.192
15	2.70	E	Combination	Min	0.873	-0.558	-0.085	-1.365	-0.074	-0.941
16	0.00	E	Combination	Max	0.481	-0.352	0 186	0.162	0 125	0.469
16	0.50	E	Combination	Max	0.481	-0.288	0.186	0.162	0.032	0.662
16	1.00	E	Combination	Max	0.481	-0.223	0 186	0.162	0.057	1.038
16	1.50	E	Combination	Max	0.481	-0.158	0.186	0.162	0.146	1.369
16	0.00	E	Combination	Min	-0.452	-2.069	-0.178	-0.093	-0.121	-2.331
16	0.50	E	Combination	Min	-0.452	-1.979	-0.178	-0.093	-0.032	-1.319
16	1.00	E	Combination	Min	-0.452	-1.889	-0.178	-0.093	-0.061	-0.355
16	1.50	E	Combination	Min	-0.452	-1.799	-0.178	-0.093	-0.153	0.212
17	0.00	E	Combination	Max	0.361	-0.602	0.010	0.121	0.006	0.176
17	0.45	E	Combination	Max	0.361	-0.260	0.010	0.121	0.002	0.720
17	0.90	E	Combination	Max	0.361	0.082	0.010	0.121	0.004	0.967
17	1.35	E	Combination	Max	0.361	0.734	0.010	0.121	0.008	0.917
17	1.80	E	Combination	Max	0.361	1.571	0.010	0.121	0.012	0.569
17	2.25	E	Combination	Max	0.361	2.408	0.010	0.121	0.016	0.087
17	2.70	E	Combination	Max	0 361	3.245	0.010	0.121	0.020	-0.387
17	0.00	E	Combination	Min	-0.428	-1.871	-0.009	-0.011	-0.005	-0.243
17	0.45	E	Combination	Min	-0.428	-1.034	-0.009	-0.011	-0.001	0.011
17	0.90	E	Combination	Min	-0.428	-0.219	-0.009	-0.011	-0.003	0.052
17	1.35	E	Combination	Min	-0.428	0.200	-0.009	-0.011	-0.007	-0.062
17	1.80	E	Combination	Min	-0.428	0.542	-0.009	-0.011	-0.012	-0.353
17	2.25	E	Combination	Min	-0.428	0.884	-0.009	-0.011	-0.016	-1.124
17	2.70	E	Combination	Min	-0.428	1.226	-0.009	-0.011	-0.020	-2.192
18	0.00	E	Combination	Max	0.064	-0.801	0.012	0.255	0.022	-0.412
18	0.47	E	Combination	Max	0.064	-0.446	0.012	0.255	0.016	-0 121
18	0.93	E	Combination	Max	0.064	-0.092	0.012	0.255	0.011	0.004
18	1.40	E	Combination	Max	0.064	0.362	0.012	0.255	0.005	0.092
18	0.00	E	Combination	Min	-0.072	-2.603	-0.012	-0.052	-0.023	-1.871
18	0.47	E	Combination	Min	-0.072	-1.745	-0.012	-0.052	-0.017	-0.897
18	0.93	E	Combination	Min	-0.072	-1.060	-0.012	-0.052	-0.011	-0.243
18	1.40	E	Combination	Min	-0.072	-0.375	-0.012	-0.052	-0.006	-0.038
19	0.00	E	Combination	Max	0.014	0.636	0.003	0.049	0.008	0.834
19	0.46	E	Combination	Max	0.014	0.719	0.003	0.049	0.006	0.521
19	0.93	E	Combination	Max	0.014	0.802	0.003	0.049	0.005	0.236
19	1.39	E	Combination	Max	0.014	0.886	0.003	0.049	0.004	0.634
19	1.85	E	Combination	Max	0.014	0.969	0.003	0.049	0.004	1.018
19	2.31	E	Combination	Max	0.014	1.052	0.003	0.049	0.004	1.363
19	2.78	E	Combination	Max	0.014	1.136	0 003	0.049	0.005	1.670
19	3.24	E	Combination	Max	0.014	1.219	0.003	0.049	0.006	1.939
19	3.70	E	Combination	Max	0.014	1.302	0.003	0.049	0.006	2.169
19	0.00	E	Combination	Min	-0.060	-1.123	-0.001	-0.017	-0.004	-0.751
19	0.46	E	Combination	Min	-0.060	-1.039	-0.001	-0.017	-0.003	-0.252
19	0.93	E	Combination	Min	-0.060	-0.956	-0.001	-0.017	-0.003	0.089
19	1.39	E	Combination	Min	-0.060	-0.873	-0.001	-0.017	-0.003	-0.222
19	1.85	E	Combination	Min	-0.060	-0.789	-0.001	-0.017	-0.004	-0.650
19	2.31	E	Combination	Min	-0.060	-0.706	-0.001	-0.017	-0.005	-1.118
19	2.78	E	Combination	Min	-0.060	-0.622	-0.001	-0.017	-0.007	-1.624
19	3.24	E	Combination	Min	-0.060	-0.539	-0.001	-0.017	-0.008	-2.168
19	3.70	E	Combination	Min	-0.060	-0.456	-0.001	-0.017	-0.009	-2 751
20	0.00	E	Combination	Max	0.886	0.131	0.057	0 104	0.128	0.710
20	0.46	E	Combination	Max	0.886	0.270	0.057	0.104	0.101	0.618
20	0.93	E	Combination	Max	0.886	0.409	0.057	0.104	0.075	0.461
20	1.39	E	Combination	Max	0.886	0.548	0.057	0.104	0.049	0.283
20	1.85	E	Combination	Max	0.886	0.687	0 057	0.104	0.043	0.480

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
20	2.31	E	Combination	Max	0.886	0.825	0.057	0.104	0.059	0.694
20	2.78	E	Combination	Max	0.886	0.964	0.057	0.104	0.074	0.844
20	3.24	E	Combination	Max	0.886	1.103	0.057	0.104	0.090	0.929
20	3.70	E	Combination	Max	0.886	1.242	0.057	0 104	0 105	0.951
20	0.00	E	Combination	Min	-0.907	-1.088	-0.070	-0.009	-0.158	-1.019
20	0.46	E	Combination	Min	-0.907	-0.949	-0.070	-0.009	-0.125	-0.548
20	0.93	E	Combination	Min	-0.907	-0.810	-0.070	-0.009	-0.093	-0.146
20	1.39	E	Combination	Min	-0.907	-0.671	-0.070	-0.009	-0.061	0.096
20	1.85	E	Combination	Min	-0.907	-0.532	-0.070	-0.009	-0.049	-0.060
20	2.31	E	Combination	Min	-0.907	-0.394	-0.070	-0.009	-0.058	-0.396
20	2.78	E	Combination	Min	-0.907	-0.255	-0.070	-0.009	-0.067	-0.809
20	3.24	E	Combination	Min	-0.907	-0.148	-0.070	-0.009	-0.077	-1.288
20	3.70	E	Combination	Min	-0.907	-0.048	-0.070	-0.009	-0.086	-1.830
21	0.00	E	Combination	Max	0.490	1.701	0.013	0.056	0.027	3.767
21	0.46	E	Combination	Max	0.490	1.840	0.013	0.056	0.021	2.948
21	0.93	E	Combination	Max	0.490	1.979	0.013	0.056	0.015	2.065
21	1.39	E	Combination	Max	0.490	2.118	0.013	0.056	0.009	1.118
21	1.85	E	Combination	Max	0.490	2.257	0.013	0.056	0.006	0.399
21	2.31	E	Combination	Max	0.490	2.395	0.013	0.056	0.005	1.301
21	2.78	E	Combination	Max	0.490	2.534	0.013	0.056	0.011	2.139
21	3.24	E	Combination	Max	0.490	2.673	0.013	0.056	0.017	2.912
21	3.70	E	Combination	Max	0.490	2.812	0.013	0.056	0.023	3.622
21	0.00	E	Combination	Min	-0.354	-2.576	-0.013	-0.021	-0.026	-3.852
21	0.46	E	Combination	Min	-0.354	-2.437	-0.013	-0.021	-0.020	-2.693
21	0.93	E	Combination	Min	-0.354	-2.298	-0.013	-0.021	-0.014	-1.598
21	1.39	E	Combination	Min	-0.354	-2.159	-0.013	-0.021	-0.008	-0.567
21	1.85	E	Combination	Min	-0.354	-2.020	-0.013	-0.021	-0.005	0.057
21	2.31	E	Combination	Min	-0.354	-1.881	-0.013	-0.021	-0.004	-0.970
21	2.78	E	Combination	Min	-0.354	-1.742	-0.013	-0.021	-0.010	-2.110
21	3.24	E	Combination	Min	-0.354	-1.603	-0.013	-0.021	-0.016	-3.314
21	3.70	E	Combination	Min	-0.354	-1.464	-0.013	-0.021	-0.022	-4.582
22	0 00	E	Combination	Max	1.780	0.842	0.050	0.115	0.029	3.666
22	0.44	E	Combination	Max	1.780	0.937	0.050	0.115	0.011	3.483
22	0.88	E	Combination	Max	1.780	1.032	0.050	0.115	0.021	3.242
22	1.32	E	Combination	Max	1.780	1.128	0.050	0.115	0.039	2.943
22	1.76	E	Combination	Max	1.780	1.223	0.050	0.115	0.058	2.585
22	2.20	E	Combination	Max	1.780	1.318	0.050	0 115	0.076	3.160
22	2.20	E	Combination	Max	1.827	6.068	0 735	0.232	0.481	3.218
22	2.70	E	Combination	Max	1.827	6.219	0 735	0.232	0 123	2.887
22	3.20	E	Combination	Max	1.827	6.369	0 735	0.232	0.247	3.000
22	3.70	E	Combination	Max	1.827	6.519	0.735	0.232	0.629	3.038
22	0.00	E	Combination	Min	-1 288	-5.302	-0.042	-0.159	-0.017	-8.090
22	0.44	E	Combination	Min	-1.288	-5.170	-0.042	-0.159	-0.003	-5.787
22	0.88	E	Combination	Min	-1.288	-5.038	-0.042	-0.159	-0.016	-3.541
22	1.32	E	Combination	Min	-1.288	-4.906	-0.042	-0.159	-0.038	-1.353
22	1.76	E	Combination	Min	-1.288	-4.774	-0.042	-0.159	-0.060	0 199
22	2.20	E	Combination	Min	-1.288	-4.642	-0.042	-0.159	-0.082	1.087
22	2.20	E	Combination	Min	-1.066	-1.117	-0.767	-0.621	-0.523	1.269
22	2.70	E	Combination	Min	-1.066	-1.009	-0.767	-0.621	-0.148	-0.805
22	3.20	E	Combination	Min	-1.066	-0.901	-0.767	-0.621	-0.257	-3.806
22	3.70	E	Combination	Min	-1.066	-0.793	-0 767	-0.621	-0.623	-7.028
23	0.00	E	Combination	Max	0.138	0.832	0.002	0.083	0.005	1.251
23	0.44	E	Combination	Max	0 138	0.912	0.002	0.083	0.006	1.047
23	0.88	E	Combination	Max	0.138	0.991	0.002	0.083	0 007	0.882
23	1.32	E	Combination	Max	0.138	1.070	0.002	0.083	0.008	0.992
23	1.76	E	Combination	Max	0.138	1.149	0.002	0.083	0.009	1.067
23	2.20	E	Combination	Max	0.138	1.229	0.002	0.083	0.011	1.107
23	0 00	E	Combination	Min	-0.184	-0.448	-0.004	-0.081	-0.006	0.221
23	0.44	E	Combination	Min	-0.184	-0.372	-0.004	-0.081	-0.007	0.374

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
23	0.88	E	Combination	Min	-0.184	-0.315	-0.004	-0.081	-0.007	0.202
23	1.32	E	Combination	Min	-0.184	-0.258	-0.004	-0.081	-0.007	-0.123
23	1.76	E	Combination	Min	-0.184	-0.201	-0.004	-0.081	-0.007	-0.493
23	2.20	E	Combination	Min	-0.184	-0.144	-0.004	-0.081	-0.008	-1 016
24	0.00	E	Combination	Max	0.046	0.028	0.004	0.038	0.002	0.607
24	0.44	E	Combination	Max	0.046	0.086	0.004	0.038	0.003	0.606
24	0.88	E	Combination	Max	0.046	0.143	0.004	0.038	0.005	0.571
24	1.32	E	Combination	Max	0.046	0.200	0.004	0.038	0.007	0.500
24	1.76	E	Combination	Max	0.046	0.279	0.004	0.038	0.008	0.395
24	2.20	E	Combination	Max	0.046	0.359	0.004	0.038	0.010	0.255
24	0.00	E	Combination	Min	-0.065	-0.742	-0.004	-0.092	-0.003	-1.227
24	0.44	E	Combination	Min	-0.065	-0.663	-0.004	-0.092	-0.005	-0.918
24	0.88	E	Combination	Min	-0.065	-0.584	-0.004	-0.092	-0.006	-0.643
24	1.32	E	Combination	Min	-0.065	-0.505	-0.004	-0.092	-0 008	-0.404
24	1.76	E	Combination	Min	-0.065	-0.425	-0.004	-0.092	-0.009	-0.200
24	2.20	E	Combination	Min	-0.065	-0.346	-0.004	-0.092	-0.011	-0.052
25	0.00	E	Combination	Max	-0.164	1.120	0.057	0.834	0.029	0.017
25	0.40	E	Combination	Max	-0.164	1.980	0.057	0.834	0.053	0.107
25	0.80	E	Combination	Max	-0.164	2.840	0.057	0.834	0.077	0.041
25	1.20	E	Combination	Max	-0.164	3.700	0.057	0.834	0 100	-0.209
25	0 00	E	Combination	Min	-0.624	-0.633	-0.059	-0.751	-0.024	-0.049
25	0.40	E	Combination	Min	-0.624	-0.062	-0.059	-0.751	-0.047	-0.637
25	0.80	E	Combination	Min	-0.624	0.395	-0.059	-0.751	-0.070	-1.600
25	1.20	E	Combination	Min	-0.624	0.852	-0.059	-0.751	-0.092	-2.908
26	0.00	E	Combination	Max	1.166	-3.533	0.005	0.124	0.013	0.390
26	0.48	E	Combination	Max	1.166	-2.553	0.005	0.124	0.011	1.856
26	0.96	E	Combination	Max	1.166	-1.573	0.005	0.124	0.010	3.525
26	1.45	E	Combination	Max	1.166	-0.592	0.005	0.124	0.008	5.129
26	1.93	E	Combination	Max	1.166	0.388	0.005	0.124	0.007	5.808
26	2.41	E	Combination	Max	1.166	1.474	0.005	0.124	0.007	6.566
26	2.89	E	Combination	Max	1.166	3.396	0.005	0.124	0.006	6.412
26	3.37	E	Combination	Max	1.166	5.317	0.005	0.124	0.005	5.244
26	3.85	E	Combination	Max	1.166	7.239	0.005	0.124	0.006	4.280
26	4.34	E	Combination	Max	1.166	9.160	0.005	0.124	0.009	2.391
26	4.82	E	Combination	Max	1.166	11.358	0.005	0.124	0.011	1.110
26	5.30	E	Combination	Max	1.166	13.798	0.005	0.124	0.014	-0.498
26	0 00	E	Combination	Min	-0.044	-13.102	-0.005	-0.238	-0.014	-13.933
26	0.48	E	Combination	Min	-0.044	-10.662	-0.005	-0.238	-0.012	-8.416
26	0.96	E	Combination	Min	-0.044	-8.568	-0.005	-0.238	-0.011	-3.825
26	1.45	E	Combination	Min	-0.044	-6.646	-0.005	-0.238	-0.009	-0.859
26	1.93	E	Combination	Min	-0.044	-4.725	-0.005	-0.238	-0.008	0.839
26	2.41	E	Combination	Min	-0.044	-2.804	-0.005	-0.238	-0.007	2.065
26	2.89	E	Combination	Min	-0.044	-1.074	-0.005	-0.238	-0.006	2.103
26	3.37	E	Combination	Min	-0.044	-0.094	-0.005	-0.238	-0.005	0 735
26	3.85	E	Combination	Min	-0.044	0.886	-0.005	-0.238	-0.006	-1.105
26	4.34	E	Combination	Min	-0.044	1.867	-0.005	-0.238	-0.009	-4.687
26	4.82	E	Combination	Min	-0.044	2.847	-0.005	-0.238	-0.011	-9.563
26	5.30	E	Combination	Min	-0.044	3.827	-0.005	-0.238	-0.013	-15.365
27	0.00	E	Combination	Max	1.263	-3.704	0.023	0.349	0.031	-0.128
27	0.43	E	Combination	Max	1.263	-2.823	0.023	0 349	0.022	1.287
27	0.87	E	Combination	Max	1 263	-1.941	0.023	0.349	0.012	2.389
27	1.30	E	Combination	Max	1.263	-1.060	0.023	0.349	0.015	4.199
27	1.73	E	Combination	Max	1.263	-0.178	0.023	0.349	0.020	5.261
27	2.17	E	Combination	Max	1.263	0.704	0.023	0.349	0 026	6.304
27	2.60	E	Combination	Max	1.263	1.871	0.023	0.349	0.031	7.026
27	0.00	E	Combination	Min	-0.119	-13.737	-0.013	-0.348	-0.015	-15.188
27	0.43	E	Combination	Min	-0.119	-11.543	-0.013	-0.348	-0.010	-9.867
27	0.87	E	Combination	Min	-0.119	-9.687	-0.013	-0.348	-0.005	-5.295
27	1.30	E	Combination	Min	-0.119	-7.959	-0.013	-0.348	-0.012	-1.568

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
27	1.73	E	Combination	Min	-0.119	-6.231	-0.013	-0.348	-0.021	0 310
27	2.17	E	Combination	Min	-0.119	-4.503	-0.013	-0.348	-0.031	1.806
27	2.60	E	Combination	Min	-0.119	-2.774	-0.013	-0.348	-0.041	2.394
28	0.00	E	Combination	Max	1.675	2.271	0.079	0.760	0.125	7.021
28	0.45	E	Combination	Max	1.675	4.048	0.079	0 760	0.089	6.430
28	0.90	E	Combination	Max	1.675	5.826	0.079	0.760	0.054	5.619
28	1.35	E	Combination	Max	1.675	7.604	0.079	0.760	0.018	4.517
28	1.80	E	Combination	Max	1.675	9.382	0.079	0.760	0.015	2.616
28	2.25	E	Combination	Max	1.675	11.458	0.079	0.760	0.050	1.330
28	2.70	E	Combination	Max	1.675	13.713	0.079	0.760	0.085	-0.210
28	0.00	E	Combination	Min	-0.465	-1.997	-0.078	-0.667	-0.125	2.396
28	0.45	E	Combination	Min	-0.465	-0.696	-0.078	-0.667	-0.090	1.674
28	0.90	E	Combination	Min	-0.465	0.219	-0.078	-0.667	-0.055	0.246
28	1.35	E	Combination	Min	-0.465	1.135	-0.078	-0.667	-0.020	-1.595
28	1.80	E	Combination	Min	-0.465	2.050	-0.078	-0.667	-0.018	-5.268
28	2.25	E	Combination	Min	-0.465	2.965	-0.078	-0.667	-0.054	-9.889
28	2.70	E	Combination	Min	-0.465	3.881	-0.078	-0.667	-0.089	-15 311
29	0.00	E	Combination	Max	0.046	-1.240	0.022	1.227	0.055	-0.922
29	0.47	E	Combination	Max	0.046	-0.820	0.022	1.227	0.045	-0.441
29	0.93	E	Combination	Max	0.046	-0.400	0.022	1.227	0.035	-0.157
29	1.40	E	Combination	Max	0.046	0.020	0.022	1.227	0.025	0.038
29	0.00	E	Combination	Min	-0.070	-3.721	-0.009	-0.607	-0.034	-2.992
29	0.47	E	Combination	Min	-0.070	-2.643	-0.009	-0.607	-0.030	-1.507
29	0.93	E	Combination	Min	-0.070	-1.578	-0.009	-0.607	-0.026	-0.526
29	1.40	E	Combination	Min	-0.070	-0.732	-0.009	-0.607	-0.022	-0.092
30	0.00	E	Combination	Max	7.435	0.148	0.032	0.543	0.061	0.091
30	0.60	E	Combination	Max	7.435	0.329	0.032	0.543	0.043	-0.024
30	1.20	E	Combination	Max	7.435	0.509	0.032	0.543	0.027	-0.077
30	0.00	E	Combination	Min	0.443	-0.435	-0.017	-0.046	-0.051	-0.468
30	0.60	E	Combination	Min	0.443	-0.255	-0.017	-0.046	-0.042	-0.262
30	1.20	E	Combination	Min	0.443	-0.079	-0.017	-0.046	-0.035	-0.340
31	0.00	E	Combination	Max	2.979	15.148	0 106	0.031	0.057	5.650
31	0.60	E	Combination	Max	2.979	15.256	0 106	0.031	0.008	3.581
31	1.20	E	Combination	Max	2.979	15.364	0.106	0.031	0.067	11.360
31	1.20	E	Combination	Max	2.351	0.559	0 001	0.003	0.018	0.299
31	1.75	E	Combination	Max	2.351	0.658	0.001	0.003	0.018	0.074
31	2.30	E	Combination	Max	2.351	0.757	0.001	0.003	0.018	0.162
31	2.30	E	Combination	Max	3.366	10.901	0.084	0.016	0.063	9.455
31	2.77	E	Combination	Max	3.366	10.985	0.084	0.016	0.024	4.348
31	3.23	E	Combination	Max	3.366	11.069	0.084	0.016	0.013	1.219
31	3.70	E	Combination	Max	3 366	11.153	0.084	0.016	0.051	7.777
31	0.00	E	Combination	Min	-4.613	-13.126	-0.100	-0.013	-0.054	-4.262
31	0.60	E	Combination	Min	-4.613	-13.018	-0.100	-0.013	-0.008	-3.471
31	1.20	E	Combination	Min	-4.613	-12.910	-0.100	-0.013	-0.071	-12.657
31	1.20	E	Combination	Min	0.302	-0.712	-0.001	-0.012	-0.017	-0.513
31	1.75	E	Combination	Min	0.302	-0.613	-0.001	-0.012	-0.017	-0.243
31	2.30	E	Combination	Min	0.302	-0.514	-0.001	-0.012	-0.017	-0.425
31	2.30	E	Combination	Min	-3.850	-14.264	-0.080	-0.130	-0.061	-12.015
31	2.77	E	Combination	Min	-3.850	-14.180	-0.080	-0.130	-0.024	-5.379
31	3.23	E	Combination	Min	-3.850	-14.096	-0.080	-0.130	-0.016	-0.798
31	3.70	E	Combination	Min	-3.850	-14.011	-0.080	-0.130	-0 055	-5 983
32	0.00	E	Combination	Max	0.821	0.099	0.007	0.056	0.026	0.870
32	0.46	E	Combination	Max	0.821	0.199	0.007	0.056	0.027	0.812
32	0.93	E	Combination	Max	0.821	0.333	0.007	0.056	0.029	0.690
32	1.39	E	Combination	Max	0.821	0.472	0.007	0.056	0.031	0.504
32	1.85	E	Combination	Max	0.821	0.611	0.007	0.056	0.034	0.253
32	2.31	E	Combination	Max	0.821	0.750	0.007	0.056	0.038	0 379
32	2.78	E	Combination	Max	0.821	0.889	0.007	0.056	0.042	0.595
32	3.24	E	Combination	Max	0.821	1.028	0.007	0.056	0.047	0.747

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
32	3.70	E	Combination	Max	0.821	1.167	0.007	0.056	0.052	0.836
32	0.00	E	Combination	Min	-0.682	-1.232	-0.018	0.007	-0.049	-1.668
32	0.46	E	Combination	Min	-0.682	-1.093	-0.018	0.007	-0.045	-1.130
32	0.93	E	Combination	Min	-0.682	-0.954	-0.018	0.007	-0.041	-0.657
32	1.39	E	Combination	Min	-0.682	-0.816	-0.018	0.007	-0.038	-0.247
32	1.85	E	Combination	Min	-0.682	-0.677	-0.018	0.007	-0.035	0.063
32	2.31	E	Combination	Min	-0.682	-0.538	-0.018	0.007	-0.034	-0.067
32	2.78	E	Combination	Min	-0.682	-0.399	-0.018	0.007	-0.032	-0.441
32	3.24	E	Combination	Min	-0.682	-0.260	-0.018	0.007	-0.031	-0.884
32	3.70	E	Combination	Min	-0.682	-0.131	-0.018	0.007	-0.031	-1.391
33	0.00	E	Combination	Max	0.502	5.387	0.062	0.034	0.051	5.314
33	0.50	E	Combination	Max	0.502	5.537	0.062	0.034	0.020	2.583
33	1.00	E	Combination	Max	0.502	5.687	0.062	0.034	0.004	0.487
33	1.50	E	Combination	Max	0.502	5.838	0.062	0.034	0.049	3.216
33	2.00	E	Combination	Max	0.502	5.988	0.062	0.034	0.095	5.871
33	2.50	E	Combination	Max	0.502	6.138	0.062	0.034	0.141	8.451
33	0.00	E	Combination	Min	-2.509	-5.835	-0.092	-0.263	-0.088	-5.198
33	0.50	E	Combination	Min	-2.509	-5.685	-0.092	-0.263	-0.043	-2.318
33	1.00	E	Combination	Min	-2.509	-5.535	-0.092	-0.263	-0.011	-0.223
33	1.50	E	Combination	Min	-2.509	-5.385	-0.092	-0.263	-0.042	-3.104
33	2.00	E	Combination	Min	-2.509	-5.234	-0.092	-0.263	-0.073	-6.060
33	2.50	E	Combination	Min	-2.509	-5.084	-0.092	-0.263	-0.104	-9.092
34	0.00	E	Combination	Max	4.168	-1.039	0.039	0.763	0.036	-0.071
34	0.50	E	Combination	Max	4.168	-0.344	0.039	0.763	0.017	0.385
34	1.00	E	Combination	Max	4.168	0.811	0.039	0.763	0.005	0.394
34	1.50	E	Combination	Max	4.168	2.509	0.039	0.763	0.023	-0.067
34	0.00	E	Combination	Min	-0.584	-2.599	-0.039	-0.763	-0.036	-0.860
34	0.50	E	Combination	Min	-0.584	-0.901	-0.039	-0.763	-0.017	-0.158
34	1.00	E	Combination	Min	-0.584	0.303	-0.039	-0.763	-0.005	-0.138
34	1.50	E	Combination	Min	-0.584	0.998	-0.039	-0.763	-0.023	-0.766
35	0.00	E	Combination	Max	2.430	2.052	0.102	1.049	0.135	5.563
35	0.47	E	Combination	Max	2.430	2.982	0.102	1.049	0.088	4.766
35	0.94	E	Combination	Max	2.430	4.454	0.102	1.049	0.040	3.105
35	1.41	E	Combination	Max	2.430	6.293	0.102	1.049	0.011	1.059
35	1.88	E	Combination	Max	2.430	8.132	0.102	1.049	0.056	2.946
35	2.35	E	Combination	Max	2.430	9.971	0.102	1.049	0.104	3.968
35	0.00	E	Combination	Min	-2.870	-10.451	-0.102	-1.049	-0.135	-9.788
35	0.47	E	Combination	Min	-2.870	-8.612	-0.102	-1.049	-0.088	-5.308
35	0.94	E	Combination	Min	-2.870	-6.773	-0.102	-1.049	-0.040	-1.693
35	1.41	E	Combination	Min	-2.870	-4.934	-0.102	-1.049	-0.011	0.218
35	1.88	E	Combination	Min	-2.870	-3.207	-0.102	-1.049	-0.056	-2.811
35	2.35	E	Combination	Min	-2.870	-2.277	-0.102	-1.049	-0.104	-7.065
36	0.00	E	Combination	Max	0.917	0.519	0.046	0.128	0.087	2.745
36	0.49	E	Combination	Max	0.917	1.519	0.046	0.128	0.065	2.786
36	0.98	E	Combination	Max	0.917	2.661	0.046	0.128	0.043	1.961
36	1.48	E	Combination	Max	0.917	4.622	0.046	0.128	0.021	2.382
36	1.97	E	Combination	Max	0.917	6.582	0.046	0.128	0.008	3.614
36	2.46	E	Combination	Max	0.917	8.543	0.046	0.128	0.027	3.882
36	2.95	E	Combination	Max	0.917	10.504	0.046	0.128	0.049	3.701
36	0.00	E	Combination	Min	-0.874	-9.370	-0.046	-0.128	-0.087	-7.101
36	0.49	E	Combination	Min	-0.874	-7.409	-0.046	-0.128	-0.065	-2.976
36	0.98	E	Combination	Min	-0.874	-5.448	-0.046	-0.128	-0.043	-0.169
36	1.48	E	Combination	Min	-0.874	-3.487	-0.046	-0.128	-0.021	-0.233
36	1.97	E	Combination	Min	-0.874	-1.968	-0.046	-0.128	-0.008	-2.585
36	2.46	E	Combination	Min	-0.874	-0.968	-0.046	-0.128	-0.027	-6.303
36	2.95	E	Combination	Min	-0.874	0.033	-0.046	-0.128	-0.049	-10.986
37	0.00	E	Combination	Max	1.757	-3.585	0.013	0.403	0.030	0.139
37	0.48	E	Combination	Max	1.757	-2.605	0.013	0.403	0.024	1.630
37	0.96	E	Combination	Max	1.757	-1.625	0.013	0.403	0.018	3.178

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
37	1.45	E	Combination	Max	1.757	-0.645	0.013	0.403	0.012	4.847
37	1.93	E	Combination	Max	1.757	0.335	0.013	0.403	0.007	5.591
37	2.41	E	Combination	Max	1.757	1.340	0.013	0.403	0.005	6.466
37	2.89	E	Combination	Max	1.757	3.261	0.013	0.403	0.009	6.400
37	3.37	E	Combination	Max	1.757	5.183	0.013	0.403	0.015	5.674
37	3.85	E	Combination	Max	1.757	7.104	0.013	0.403	0.021	4.809
37	4.34	E	Combination	Max	1.757	9.026	0.013	0.403	0.027	3.018
37	4.82	E	Combination	Max	1.757	11.141	0.013	0.403	0.033	1.555
37	5.30	E	Combination	Max	1.757	13.581	0.013	0.403	0.039	-0.001
37	0.00	E	Combination	Min	-1.470	-13.285	-0.013	-0.403	-0.030	-14.193
37	0.48	E	Combination	Min	-1.470	-10.844	-0.013	-0.403	-0.024	-8.577
37	0.96	E	Combination	Min	-1.470	-8.773	-0.013	-0.403	-0.018	-3.888
37	1.45	E	Combination	Min	-1.470	-6.851	-0.013	-0.403	-0.012	-0.781
37	1.93	E	Combination	Min	-1.470	-4.930	-0.013	-0.403	-0.007	0.970
37	2.41	E	Combination	Min	-1.470	-3.008	-0.013	-0.403	-0.005	2.248
37	2.89	E	Combination	Min	-1.470	-1.183	-0.013	-0.403	-0.009	2.003
37	3.37	E	Combination	Min	-1.470	-0.202	-0.013	-0.403	-0.015	0.661
37	3.85	E	Combination	Min	-1.470	0.778	-0.013	-0.403	-0.021	-1.154
37	4.34	E	Combination	Min	-1.470	1.758	-0.013	-0.403	-0.027	-4.580
37	4.82	E	Combination	Min	-1.470	2.738	-0.013	-0.403	-0.033	-9.392
37	5.30	E	Combination	Min	-1.470	3.718	-0.013	-0.403	-0.039	-15.129
38	0.00	E	Combination	Max	0.498	5.075	0.091	0.263	0.140	8.439
38	0.50	E	Combination	Max	0.498	5.226	0.091	0.263	0.095	5.864
38	1.00	E	Combination	Max	0.498	5.376	0.091	0.263	0.049	3.214
38	1.50	E	Combination	Max	0.498	5.526	0.091	0.263	0.004	0.489
38	2.00	E	Combination	Max	0.498	5.676	0.091	0.263	0.020	2.576
38	2.50	E	Combination	Max	0.498	5.826	0.091	0.263	0.051	5.302
38	0.00	E	Combination	Min	-2.503	-6.127	-0.062	-0.034	-0.104	-9.078
38	0.50	E	Combination	Min	-2.503	-5.977	-0.062	-0.034	-0.073	-6.052
38	1.00	E	Combination	Min	-2.503	-5.827	-0.062	-0.034	-0.042	-3.101
38	1.50	E	Combination	Min	-2.503	-5.677	-0.062	-0.034	-0.011	-0.225
38	2.00	E	Combination	Min	-2.503	-5.527	-0.062	-0.034	-0.042	-2.312
38	2.50	E	Combination	Min	-2.503	-5.376	-0.062	-0.034	-0.088	-5.188
39	0.00	E	Combination	Max	3.365	14.012	0.080	0.130	0.051	7.778
39	0.47	E	Combination	Max	3.365	14.096	0.080	0.130	0.013	1.219
39	0.93	E	Combination	Max	3.365	14.180	0.080	0.130	0.024	4.348
39	1.40	E	Combination	Max	3.365	14.264	0.080	0 130	0.063	9.454
39	1.40	E	Combination	Max	2.351	0.514	0.001	0.012	0.018	0.162
39	1.95	E	Combination	Max	2.351	0.613	0.001	0.012	0.018	0.074
39	2.50	E	Combination	Max	2.351	0.712	0.001	0.012	0.018	0.299
39	2.50	E	Combination	Max	2.980	12.910	0 100	0.013	0.067	11.360
39	3.10	E	Combination	Max	2.980	13.019	0 100	0.013	0.008	3.581
39	3.70	E	Combination	Max	2.980	13.127	0 100	0.013	0.058	5.650
39	0.00	E	Combination	Min	-3.849	-11.152	-0.084	-0.016	-0.055	-5.983
39	0.47	E	Combination	Min	-3.849	-11.068	-0.084	-0.016	-0.016	-0.798
39	0.93	E	Combination	Min	-3.849	-10.984	-0.084	-0.016	-0.024	-5.379
39	1.40	E	Combination	Min	-3.849	-10.900	-0.084	-0.016	-0.061	-12.016
39	1.40	E	Combination	Min	0.302	-0.757	-0.001	-0.003	-0.017	-0.425
39	1.95	E	Combination	Min	0.302	-0.658	-0.001	-0.003	-0.017	-0.243
39	2.50	E	Combination	Min	0.302	-0.559	-0.001	-0.003	-0.017	-0.513
39	2.50	E	Combination	Min	-4.613	-15.363	-0.106	-0.031	-0.071	-12.656
39	3.10	E	Combination	Min	-4.613	-15.255	-0.106	-0.031	-0.008	-3.471
39	3.70	E	Combination	Min	-4.613	-15.147	-0.106	-0.031	-0.054	-4.263
40	0.00	E	Combination	Max	0.821	0.131	0.018	-0.006	0.052	0.836
40	0.46	E	Combination	Max	0.821	0.260	0.018	-0.006	0.047	0.747
40	0.93	E	Combination	Max	0.821	0.399	0.018	-0.006	0.042	0.595
40	1.39	E	Combination	Max	0.821	0.538	0.018	-0.006	0.038	0.379
40	1.85	E	Combination	Max	0.821	0.677	0.018	-0.006	0.034	0.253
40	2.31	E	Combination	Max	0.821	0.816	0.018	-0.006	0.031	0.504

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
40	2.78	E	Combination	Max	0.821	0.954	0.018	-0.006	0.029	0.690
40	3.24	E	Combination	Max	0.821	1.093	0.018	-0.006	0.027	0.812
40	3.70	E	Combination	Max	0.821	1.232	0.018	-0.006	0.026	0.869
40	0.00	E	Combination	Min	-0.682	-1.167	-0.007	-0.056	-0.031	-1.391
40	0.46	E	Combination	Min	-0.682	-1.028	-0.007	-0.056	-0.032	-0.884
40	0.93	E	Combination	Min	-0.682	-0.889	-0.007	-0.056	-0.032	-0.441
40	1.39	E	Combination	Min	-0.682	-0.750	-0.007	-0.056	-0.034	-0.067
40	1.85	E	Combination	Min	-0.682	-0.611	-0.007	-0.056	-0.035	0.063
40	2.31	E	Combination	Min	-0.682	-0.472	-0.007	-0.056	-0.038	-0.247
40	2.78	E	Combination	Min	-0.682	-0.333	-0.007	-0.056	-0.041	-0.657
40	3.24	E	Combination	Min	-0.682	-0.199	-0.007	-0.056	-0.045	-1.130
40	3.70	E	Combination	Min	-0.682	-0.099	-0.007	-0.056	-0.049	-1.668
41	0.00	E	Combination	Max	7.418	0.079	0.017	0.046	0.027	-0.080
41	0.60	E	Combination	Max	7.418	0.254	0.017	0.046	0.043	-0.021
41	1.20	E	Combination	Max	7.418	0.434	0.017	0.046	0.061	0.094
41	0.00	E	Combination	Min	0.452	-0.509	-0.032	-0.543	-0.035	-0.336
41	0.60	E	Combination	Min	0.452	-0.329	-0.032	-0.543	-0.042	-0.266
41	1.20	E	Combination	Min	0.452	-0.149	-0.032	-0.543	-0.051	-0.471
42	0.00	E	Combination	Max	-0.164	1.120	0.059	0.751	0.024	0.017
42	0.40	E	Combination	Max	-0.164	1.980	0.059	0.751	0.047	0.107
42	0.80	E	Combination	Max	-0.164	2.840	0.059	0.751	0.070	0.041
42	1.20	E	Combination	Max	-0.164	3.700	0.059	0.751	0.092	-0.209
42	0.00	E	Combination	Min	-0.624	-0.632	-0.057	-0.834	-0.029	-0.049
42	0.40	E	Combination	Min	-0.624	-0.062	-0.057	-0.834	-0.053	-0.637
42	0.80	E	Combination	Min	-0.624	0.395	-0.057	-0.834	-0.077	-1.600
42	1.20	E	Combination	Min	-0.624	0.852	-0.057	-0.834	-0.100	-2.908
43	0.00	E	Combination	Max	1.165	-3.533	0.005	0.238	0.014	0.390
43	0.48	E	Combination	Max	1.165	-2.553	0.005	0.238	0.012	1.856
43	0.96	E	Combination	Max	1.165	-1.573	0.005	0.238	0.011	3.526
43	1.45	E	Combination	Max	1.165	-0.592	0.005	0.238	0.009	5.130
43	1.93	E	Combination	Max	1.165	0.388	0.005	0.238	0.008	5.808
43	2.41	E	Combination	Max	1.165	1.475	0.005	0.238	0.007	6.566
43	2.89	E	Combination	Max	1.165	3.396	0.005	0.238	0.006	6.412
43	3.37	E	Combination	Max	1.165	5.318	0.005	0.238	0.005	5.243
43	3.85	E	Combination	Max	1.165	7.239	0.005	0.238	0.006	4.279
43	4.34	E	Combination	Max	1.165	9.161	0.005	0.238	0.009	2.390
43	4.82	E	Combination	Max	1.165	11.359	0.005	0.238	0.011	1.110
43	5.30	E	Combination	Max	1.165	13.799	0.005	0.238	0.013	-0.498
43	0.00	E	Combination	Min	-0.044	-13.101	-0.005	-0.124	-0.013	-13.932
43	0.48	E	Combination	Min	-0.044	-10.661	-0.005	-0.124	-0.011	-8.415
43	0.96	E	Combination	Min	-0.044	-8.568	-0.005	-0.124	-0.010	-3.824
43	1.45	E	Combination	Min	-0.044	-6.646	-0.005	-0.124	-0.008	-0.859
43	1.93	E	Combination	Min	-0.044	-4.725	-0.005	-0.124	-0.007	0.839
43	2.41	E	Combination	Min	-0.044	-2.803	-0.005	-0.124	-0.007	2.065
43	2.89	E	Combination	Min	-0.044	-1.074	-0.005	-0.124	-0.006	2.103
43	3.37	E	Combination	Min	-0.044	-0.094	-0.005	-0.124	-0.005	0.735
43	3.85	E	Combination	Min	-0.044	0.886	-0.005	-0.124	-0.006	-1.105
43	4.34	E	Combination	Min	-0.044	1.867	-0.005	-0.124	-0.009	-4.688
43	4.82	E	Combination	Min	-0.044	2.847	-0.005	-0.124	-0.011	-9.565
43	5.30	E	Combination	Min	-0.044	3.827	-0.005	-0.124	-0.014	-15.367
44	0.00	E	Combination	Max	1.255	-3.704	0.013	0.347	0.015	-0.127
44	0.43	E	Combination	Max	1.255	-2.823	0.013	0.347	0.010	1.287
44	0.87	E	Combination	Max	1.255	-1.941	0.013	0.347	0.005	2.390
44	1.30	E	Combination	Max	1.255	-1.060	0.013	0.347	0.012	4.200
44	1.73	E	Combination	Max	1.255	-0.178	0.013	0.347	0.021	5.262
44	2.17	E	Combination	Max	1.255	0.704	0.013	0.347	0.031	6.304
44	2.60	E	Combination	Max	1.255	1.871	0.013	0.347	0.041	7.026
44	0.00	E	Combination	Min	-0.119	-13.737	-0.023	-0.349	-0.031	-15.188
44	0.43	E	Combination	Min	-0.119	-11.543	-0.023	-0.349	-0.022	-9.867

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
44	0.87	E	Combination	Min	-0.119	-9.687	-0.023	-0.349	-0.012	-5.295
44	1.30	E	Combination	Min	-0.119	-7.959	-0.023	-0.349	-0.015	-1.568
44	1.73	E	Combination	Min	-0.119	-6.231	-0.023	-0.349	-0.020	0.310
44	2.17	E	Combination	Min	-0.119	-4.503	-0.023	-0.349	-0.026	1.806
44	2.60	E	Combination	Min	-0.119	-2.775	-0.023	-0.349	-0.031	2.394
45	0.00	E	Combination	Max	1.665	2.271	0.078	0.668	0.125	7.021
45	0.45	E	Combination	Max	1.665	4.048	0.078	0.668	0.090	6.430
45	0.90	E	Combination	Max	1.665	5.826	0.078	0.668	0.055	5.619
45	1.35	E	Combination	Max	1.665	7.604	0.078	0.668	0.020	4.518
45	1.80	E	Combination	Max	1.665	9.382	0.078	0.668	0.018	2.617
45	2.25	E	Combination	Max	1.665	11.458	0.078	0.668	0.054	1.331
45	2.70	E	Combination	Max	1.665	13.713	0.078	0.668	0.089	-0.210
45	0.00	E	Combination	Min	-0.465	-1.997	-0.079	-0.760	-0.125	2.396
45	0.45	E	Combination	Min	-0.465	-0.696	-0.079	-0.760	-0.089	1.674
45	0.90	E	Combination	Min	-0.465	0.219	-0.079	-0.760	-0.054	0.246
45	1.35	E	Combination	Min	-0.465	1.135	-0.079	-0.760	-0.018	-1.595
45	1.80	E	Combination	Min	-0.465	2.050	-0.079	-0.760	-0.015	-5.267
45	2.25	E	Combination	Min	-0.465	2.965	-0.079	-0.760	-0.050	-9.889
45	2.70	E	Combination	Min	-0.465	3.881	-0.079	-0.760	-0.085	-15.310
46	0.00	E	Combination	Max	0.046	-1.240	0.009	0.607	0.034	-0.922
46	0.47	E	Combination	Max	0.046	-0.820	0.009	0.607	0.030	-0.441
46	0.93	E	Combination	Max	0.046	-0.400	0.009	0.607	0.026	-0.156
46	1.40	E	Combination	Max	0.046	0.020	0.009	0.607	0.022	0.038
46	0.00	E	Combination	Min	-0.070	-3.722	-0.022	-1.228	-0.055	-2.993
46	0.47	E	Combination	Min	-0.070	-2.643	-0.022	-1.228	-0.045	-1.508
46	0.93	E	Combination	Min	-0.070	-1.579	-0.022	-1.228	-0.035	-0.526
46	1.40	E	Combination	Min	-0.070	-0.733	-0.022	-1.228	-0.025	-0.092
47	0.00	E	Combination	Max	0.139	0.833	0.004	0.081	0.006	1.251
47	0.44	E	Combination	Max	0.139	0.912	0.004	0.081	0.007	1.047
47	0.88	E	Combination	Max	0.139	0.991	0.004	0.081	0.007	0.882
47	1.32	E	Combination	Max	0.139	1.070	0.004	0.081	0.007	0.992
47	1.76	E	Combination	Max	0.139	1.150	0.004	0.081	0.007	1.067
47	2.20	E	Combination	Max	0.139	1.229	0.004	0.081	0.008	1.107
47	0.00	E	Combination	Min	-0.183	-0.448	-0.002	-0.083	-0.005	0.221
47	0.44	E	Combination	Min	-0.183	-0.372	-0.002	-0.083	-0.006	0.374
47	0.88	E	Combination	Min	-0.183	-0.315	-0.002	-0.083	-0.007	0.202
47	1.32	E	Combination	Min	-0.183	-0.258	-0.002	-0.083	-0.008	-0.123
47	1.76	E	Combination	Min	-0.183	-0.201	-0.002	-0.083	-0.009	-0.494
47	2.20	E	Combination	Min	-0.183	-0.144	-0.002	-0.083	-0.011	-1.017
48	0.00	E	Combination	Max	1.779	4.644	0.042	0.159	0.076	3.160
48	0.44	E	Combination	Max	1.779	4.776	0.042	0.159	0.058	2.586
48	0.88	E	Combination	Max	1.779	4.908	0.042	0.159	0.039	2.944
48	1.32	E	Combination	Max	1.779	5.040	0.042	0.159	0.021	3.243
48	1.76	E	Combination	Max	1.779	5.172	0.042	0.159	0.011	3.485
48	2.20	E	Combination	Max	1.779	5.304	0.042	0.159	0.029	3.668
48	0.00	E	Combination	Min	-1.290	-1.319	-0.050	-0.115	-0.082	1.087
48	0.44	E	Combination	Min	-1.290	-1.224	-0.050	-0.115	-0.060	0.198
48	0.88	E	Combination	Min	-1.290	-1.129	-0.050	-0.115	-0.038	-1.355
48	1.32	E	Combination	Min	-1.290	-1.033	-0.050	-0.115	-0.016	-3.544
48	1.76	E	Combination	Min	-1.290	-0.938	-0.050	-0.115	-0.003	-5.790
48	2.20	E	Combination	Min	-1.290	-0.843	-0.050	-0.115	-0.017	-8.095
49	0.00	E	Combination	Max	0.046	0.346	0.004	0.092	0.010	0.255
49	0.44	E	Combination	Max	0.046	0.426	0.004	0.092	0.008	0.395
49	0.88	E	Combination	Max	0.046	0.505	0.004	0.092	0.007	0.500
49	1.32	E	Combination	Max	0.046	0.584	0.004	0.092	0.005	0.571
49	1.76	E	Combination	Max	0.046	0.664	0.004	0.092	0.003	0.607
49	2.20	E	Combination	Max	0.046	0.743	0.004	0.092	0.002	0.607
49	0.00	E	Combination	Min	-0.065	-0.359	-0.004	-0.038	-0.011	-0.052
49	0.44	E	Combination	Min	-0.065	-0.279	-0.004	-0.038	-0.009	-0.200

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
49	0.88	E	Combination	Min	-0.065	-0.200	-0.004	-0.038	-0.008	-0.404
49	1.32	E	Combination	Min	-0.065	-0.143	-0.004	-0.038	-0.006	-0.644
49	1.76	E	Combination	Min	-0.065	-0.086	-0.004	-0.038	-0.005	-0.919
49	2.20	E	Combination	Min	-0.065	-0.029	-0.004	-0.038	-0.003	-1.228
50	0.00	E	Combination	Max	0.014	0.456	0.001	0.017	0.006	2.169
50	0.46	E	Combination	Max	0.014	0.539	0.001	0.017	0.006	1.939
50	0.93	E	Combination	Max	0.014	0.622	0.001	0.017	0.005	1.670
50	1.39	E	Combination	Max	0.014	0.706	0.001	0.017	0.004	1.363
50	1.85	E	Combination	Max	0.014	0.789	0.001	0.017	0.004	1.018
50	2.31	E	Combination	Max	0.014	0.873	0.001	0.017	0.004	0.634
50	2.78	E	Combination	Max	0.014	0.956	0.001	0.017	0.005	0.236
50	3.24	E	Combination	Max	0.014	1.039	0.001	0.017	0.006	0.521
50	3.70	E	Combination	Max	0.014	1.123	0.001	0.017	0.008	0.834
50	0.00	E	Combination	Min	-0.060	-1.302	-0.003	-0.049	-0.009	-2.751
50	0.46	E	Combination	Min	-0.060	-1.219	-0.003	-0.049	-0.008	-2.168
50	0.93	E	Combination	Min	-0.060	-1.136	-0.003	-0.049	-0.007	-1.624
50	1.39	E	Combination	Min	-0.060	-1.052	-0.003	-0.049	-0.005	-1.118
50	1.85	E	Combination	Min	-0.060	-0.969	-0.003	-0.049	-0.004	-0.650
50	2.31	E	Combination	Min	-0.060	-0.886	-0.003	-0.049	-0.003	-0.222
50	2.78	E	Combination	Min	-0.060	-0.802	-0.003	-0.049	-0.003	0.089
50	3.24	E	Combination	Min	-0.060	-0.719	-0.003	-0.049	-0.003	-0.252
50	3.70	E	Combination	Min	-0.060	-0.635	-0.003	-0.049	-0.004	-0.751
51	0.00	E	Combination	Max	0.886	0.048	0.070	0.009	0.105	0.951
51	0.46	E	Combination	Max	0.886	0.148	0.070	0.009	0.090	0.930
51	0.93	E	Combination	Max	0.886	0.255	0.070	0.009	0.074	0.844
51	1.39	E	Combination	Max	0.886	0.394	0.070	0.009	0.059	0.694
51	1.85	E	Combination	Max	0.886	0.533	0.070	0.009	0.043	0.480
51	2.31	E	Combination	Max	0.886	0.671	0.070	0.009	0.049	0.283
51	2.78	E	Combination	Max	0.886	0.810	0.070	0.009	0.075	0.461
51	3.24	E	Combination	Max	0.886	0.949	0.070	0.009	0.101	0.618
51	3.70	E	Combination	Max	0.886	1.088	0.070	0.009	0.128	0.710
51	0.00	E	Combination	Min	-0.906	-1.242	-0.057	-0.104	-0.086	-1.830
51	0.46	E	Combination	Min	-0.906	-1.103	-0.057	-0.104	-0.077	-1.287
51	0.93	E	Combination	Min	-0.906	-0.964	-0.057	-0.104	-0.067	-0.809
51	1.39	E	Combination	Min	-0.906	-0.825	-0.057	-0.104	-0.058	-0.396
51	1.85	E	Combination	Min	-0.906	-0.687	-0.057	-0.104	-0.049	-0.060
51	2.31	E	Combination	Min	-0.906	-0.548	-0.057	-0.104	-0.061	0.096
51	2.78	E	Combination	Min	-0.906	-0.409	-0.057	-0.104	-0.093	-0.146
51	3.24	E	Combination	Min	-0.906	-0.270	-0.057	-0.104	-0.125	-0.548
51	3.70	E	Combination	Min	-0.906	-0.131	-0.057	-0.104	-0.158	-1.019
52	0.00	E	Combination	Max	0.490	1.465	0.013	0.021	0.023	3.622
52	0.46	E	Combination	Max	0.490	1.604	0.013	0.021	0.017	2.913
52	0.93	E	Combination	Max	0.490	1.742	0.013	0.021	0.011	2.139
52	1.39	E	Combination	Max	0.490	1.881	0.013	0.021	0.005	1.301
52	1.85	E	Combination	Max	0.490	2.020	0.013	0.021	0.006	0.399
52	2.31	E	Combination	Max	0.490	2.159	0.013	0.021	0.009	1.117
52	2.78	E	Combination	Max	0.490	2.298	0.013	0.021	0.015	2.064
52	3.24	E	Combination	Max	0.490	2.437	0.013	0.021	0.021	2.947
52	3.70	E	Combination	Max	0.490	2.576	0.013	0.021	0.027	3.766
52	0.00	E	Combination	Min	-0.354	-2.812	-0.013	-0.056	-0.022	-4.582
52	0.46	E	Combination	Min	-0.354	-2.673	-0.013	-0.056	-0.016	-3.313
52	0.93	E	Combination	Min	-0.354	-2.534	-0.013	-0.056	-0.010	-2.109
52	1.39	E	Combination	Min	-0.354	-2.395	-0.013	-0.056	-0.004	-0.969
52	1.85	E	Combination	Min	-0.354	-2.256	-0.013	-0.056	-0.005	0.057
52	2.31	E	Combination	Min	-0.354	-2.117	-0.013	-0.056	-0.008	-0.568
52	2.78	E	Combination	Min	-0.354	-1.978	-0.013	-0.056	-0.014	-1.598
52	3.24	E	Combination	Min	-0.354	-1.839	-0.013	-0.056	-0.020	-2.693
52	3.70	E	Combination	Min	-0.354	-1.700	-0.013	-0.056	-0.026	-3.852
53	0.00	E	Combination	Max	0.362	-0.602	0.009	0.011	0.005	0.176

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
53	0.45	E	Combination	Max	0.362	-0.260	0.009	0.011	0.001	0.720
53	0.90	E	Combination	Max	0.362	0.082	0.009	0.011	0.003	0.967
53	1.35	E	Combination	Max	0.362	0.734	0.009	0.011	0.007	0.917
53	1.80	E	Combination	Max	0.362	1.571	0.009	0.011	0.012	0.569
53	2.25	E	Combination	Max	0.362	2.408	0.009	0.011	0.016	0.087
53	2.70	E	Combination	Max	0.362	3.245	0.009	0.011	0.021	-0.387
53	0.00	E	Combination	Min	-0.427	-1.871	-0.010	-0.121	-0.006	-0.243
53	0.45	E	Combination	Min	-0.427	-1.034	-0.010	-0.121	-0.002	0.011
53	0.90	E	Combination	Min	-0.427	-0.219	-0.010	-0.121	-0.004	0.052
53	1.35	E	Combination	Min	-0.427	0.200	-0.010	-0.121	-0.008	-0.062
53	1.80	E	Combination	Min	-0.427	0.542	-0.010	-0.121	-0.012	-0.353
53	2.25	E	Combination	Min	-0.427	0.884	-0.010	-0.121	-0.016	-1.124
53	2.70	E	Combination	Min	-0.427	1.226	-0.010	-0.121	-0.020	-2.191
54	0.00	E	Combination	Max	0.064	-0.801	0.012	0.052	0.023	-0.412
54	0.47	E	Combination	Max	0.064	-0.446	0.012	0.052	0.017	-0.121
54	0.93	E	Combination	Max	0.064	-0.092	0.012	0.052	0.011	0.004
54	1.40	E	Combination	Max	0.064	0.363	0.012	0.052	0.006	0.092
54	0.00	E	Combination	Min	-0.072	-2.602	-0.012	-0.255	-0.022	-1.871
54	0.47	E	Combination	Min	-0.072	-1.745	-0.012	-0.255	-0.016	-0.897
54	0.93	E	Combination	Min	-0.072	-1.060	-0.012	-0.255	-0.011	-0.243
54	1.40	E	Combination	Min	-0.072	-0.375	-0.012	-0.255	-0.005	-0.038
55	0.00	E	Combination	Max	0.480	-0.352	0.179	0.093	0.122	0.470
55	0.50	E	Combination	Max	0.480	-0.287	0.179	0.093	0.032	0.663
55	1.00	E	Combination	Max	0.480	-0.223	0.179	0.093	0.061	1.038
55	1.50	E	Combination	Max	0.480	-0.158	0.179	0.093	0.153	1.369
55	0.00	E	Combination	Min	-0.453	-2.069	-0.185	-0.162	-0.125	-2.331
55	0.50	E	Combination	Min	-0.453	-1.979	-0.185	-0.162	-0.032	-1.319
55	1.00	E	Combination	Min	-0.453	-1.889	-0.185	-0.162	-0.057	-0.355
55	1.50	E	Combination	Min	-0.453	-1.799	-0.185	-0.162	-0.146	0.212
56	0.00	E	Combination	Max	1.826	0.794	0.767	0.622	0.630	3.041
56	0.50	E	Combination	Max	1.826	0.902	0.767	0.622	0.247	3.002
56	1.00	E	Combination	Max	1.826	1.010	0.767	0.622	0.122	2.888
56	1.50	E	Combination	Max	1.826	1.119	0.767	0.622	0.481	3.218
56	0.00	E	Combination	Min	-1.068	-6.520	-0.734	-0.232	-0.622	-7.028
56	0.50	E	Combination	Min	-1.068	-6.369	-0.734	-0.232	-0.256	-3.806
56	1.00	E	Combination	Min	-1.068	-6.219	-0.734	-0.232	-0.148	-0.805
56	1.50	E	Combination	Min	-1.068	-6.069	-0.734	-0.232	-0.523	1.270
57	0.00	E	Combination	Max	5.510	-0.238	0.058	0.251	0.114	0.203
57	0.40	E	Combination	Max	5.510	0.258	0.058	0.251	0.091	0.403
57	0.80	E	Combination	Max	5.510	1.133	0.058	0.251	0.068	0.419
57	1.20	E	Combination	Max	5.510	2.154	0.058	0.251	0.046	0.253
57	0.00	E	Combination	Min	1.983	-1.341	-0.066	-0.169	-0.114	-1.255
57	0.40	E	Combination	Min	1.983	-0.357	-0.066	-0.169	-0.088	-1.182
57	0.80	E	Combination	Min	1.983	0.185	-0.066	-0.169	-0.062	-1.459
57	1.20	E	Combination	Min	1.983	0.643	-0.066	-0.169	-0.037	-2.087
58	0.00	E	Combination	Max	2.280	-0.961	0.010	0.190	0.030	3.209
58	0.48	E	Combination	Max	2.280	-0.410	0.010	0.190	0.025	3.611
58	0.96	E	Combination	Max	2.280	0.140	0.010	0.190	0.020	4.392
58	1.45	E	Combination	Max	2.280	0.691	0.010	0.190	0.015	4.665
58	1.93	E	Combination	Max	2.280	1.242	0.010	0.190	0.011	4.429
58	2.41	E	Combination	Max	2.280	2.070	0.010	0.190	0.009	3.686
58	2.89	E	Combination	Max	2.280	3.124	0.010	0.190	0.007	3.445
58	3.37	E	Combination	Max	2.280	4.178	0.010	0.190	0.005	3.590
58	3.85	E	Combination	Max	2.280	5.232	0.010	0.190	0.009	3.800
58	4.34	E	Combination	Max	2.280	6.286	0.010	0.190	0.014	3.502
58	4.82	E	Combination	Max	2.280	7.340	0.010	0.190	0.019	2.846
58	5.30	E	Combination	Max	2.280	8.395	0.010	0.190	0.024	2.504
58	0.00	E	Combination	Min	-1.951	-8.342	-0.011	-0.156	-0.033	-12.102
58	0.48	E	Combination	Min	-1.951	-7.288	-0.011	-0.156	-0.028	-8.337

Frame	Station	O.Case	CaseType	Type	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
58	0.96	E	Combination	Min	-1.951	-6.234	-0.011	-0.156	-0.023	-5.079
58	1.45	E	Combination	Min	-1.951	-5.180	-0.011	-0.156	-0.017	-2.330
58	1.93	E	Combination	Min	-1.951	-4.126	-0.011	-0.156	-0.013	-0.675
58	2.41	E	Combination	Min	-1.951	-3.072	-0.011	-0.156	-0.010	0.575
58	2.89	E	Combination	Min	-1.951	-2.017	-0.011	-0.156	-0.008	1.210
58	3.37	E	Combination	Min	-1.951	-1.218	-0.011	-0.156	-0.006	-0.051
58	3.85	E	Combination	Min	-1.951	-0.667	-0.011	-0.156	-0.010	-1.591
58	4.34	E	Combination	Min	-1.951	-0.116	-0.011	-0.156	-0.015	-4.366
58	4.82	E	Combination	Min	-1.951	0.435	-0.011	-0.156	-0.020	-7.648
58	5.30	E	Combination	Min	-1.951	0.986	-0.011	-0.156	-0.024	-11.439
59	0.00	E	Combination	Max	2.243	2.935	0.027	0.658	0.029	4.124
59	0.43	E	Combination	Max	2.243	3.883	0.027	0.658	0.018	2.647
59	0.87	E	Combination	Max	2.243	4.831	0.027	0.658	0.008	2.380
59	1.30	E	Combination	Max	2.243	5.779	0.027	0.658	0.012	3.746
59	1.73	E	Combination	Max	2.243	6.727	0.027	0.658	0.021	4.702
59	2.17	E	Combination	Max	2.243	7.675	0.027	0.658	0.030	5.247
59	2.60	E	Combination	Max	2.243	8.623	0.027	0.658	0.039	5.380
59	0.00	E	Combination	Min	-2.573	-5.524	-0.021	-0.043	-0.016	-1.586
59	0.43	E	Combination	Min	-2.573	-4.576	-0.021	-0.043	-0.007	0.063
59	0.87	E	Combination	Min	-2.573	-3.627	-0.021	-0.043	-0.001	0.189
59	1.30	E	Combination	Min	-2.573	-2.679	-0.021	-0.043	-0.006	-1.540
59	1.73	E	Combination	Min	-2.573	-2.045	-0.021	-0.043	-0.017	-4.250
59	2.17	E	Combination	Min	-2.573	-1.549	-0.021	-0.043	-0.029	-7.370
59	2.60	E	Combination	Min	-2.573	-1.054	-0.021	-0.043	-0.040	-10.902
60	0.00	E	Combination	Max	5.463	0.558	0.085	1.365	0.077	0.480
60	0.40	E	Combination	Max	5.463	0.708	0.085	1.365	0.059	0.609
60	0.80	E	Combination	Max	5.463	0.858	0.085	1.365	0.074	0.679
60	1.20	E	Combination	Max	5.463	1.009	0.085	1.365	0.094	0.696
60	1.20	E	Combination	Max	3.599	1.500	0.187	0.427	0.085	5.774
60	1.70	E	Combination	Max	3.599	1.635	0.187	0.427	0.001	5.286
60	2.20	E	Combination	Max	3.599	1.770	0.187	0.427	0.122	4.705
60	2.70	E	Combination	Max	3.599	1.905	0.187	0.427	0.292	4.030
60	0.00	E	Combination	Min	0.873	-0.401	-0.064	-0.708	-0.074	-0.941
60	0.40	E	Combination	Min	0.873	-0.274	-0.064	-0.708	-0.065	-1.193
60	0.80	E	Combination	Min	0.873	-0.165	-0.064	-0.708	-0.088	-1.505
60	1.20	E	Combination	Min	0.873	-0.057	-0.064	-0.708	-0.117	-1.878
60	1.20	E	Combination	Min	-3.735	-7.552	-0.341	-1.674	-0.220	-12.329
60	1.70	E	Combination	Min	-3.735	-7.364	-0.341	-1.674	-0.049	-8.600
60	2.20	E	Combination	Min	-3.735	-7.177	-0.341	-1.674	-0.102	-4.965
60	2.70	E	Combination	Min	-3.735	-6.989	-0.341	-1.674	-0.195	-1.456

PLANTA PISO 1
(Numeración de Columnas)
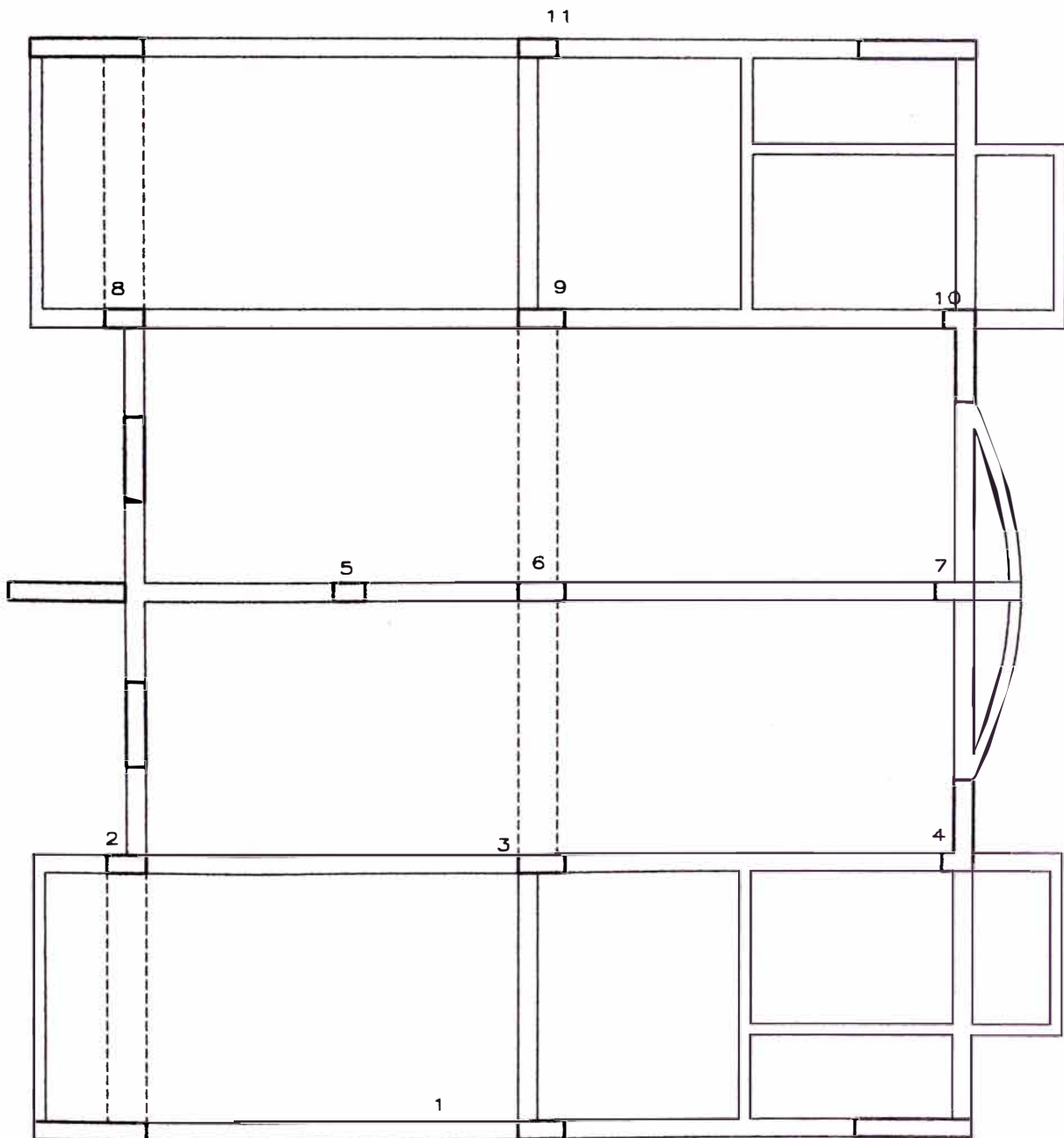
RESULTADO DE ANALISIS COLUMNAS PISO 1
SAP-2000

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
1	0	COMB1	Combination		-63.492	-1.093	-0.186	0.000	-0.324	-1.747
1	1.3	COMB1	Combination		-64.195	-1.093	-0.186	0.000	-0.081	-0.326
1	2.6	COMB1	Combination		-64.898	-1.093	-0.186	0.000	0.161	1.096
1	0	COMB2	Combination		-62.957	-0.058	-0.226	-0.002	-0.393	0.043
1	1.3	COMB2	Combination		-63.660	-0.058	-0.226	-0.002	-0.099	0.118
1	2.6	COMB2	Combination		-64.363	-0.058	-0.226	-0.002	0.195	0.193
1	0	COMB3	Combination		-73.134	-0.694	-0.232	-0.001	-0.403	-1.027
1	1.3	COMB3	Combination		-73.837	-0.694	-0.232	-0.001	-0.101	-0.125
1	2.6	COMB3	Combination		-74.540	-0.694	-0.232	-0.001	0.200	0.777
1	0	COMB4	Combinatior	Max	-50.091	4.043	-0.155	0.017	-0.279	2.302
1	1.3	COMB4	Combinatior	Max	-50.677	4.043	-0.155	0.017	-0.077	2.766
1	2.6	COMB4	Combinatior	Max	-51.262	4.043	-0.155	0.017	0.196	9.437
1	0	COMB4	Combinatior	Min	-66.294	-5.134	-0.217	-0.019	-0.368	-3.917
1	1.3	COMB4	Combinatior	Min	-66.880	-5.134	-0.217	-0.019	-0.086	-2.963
1	2.6	COMB4	Combinatior	Min	-67.466	-5.134	-0.217	-0.019	0.124	-8.216
1	0	COMB5	Combinatior	Max	-50.091	4.043	-0.155	0.017	-0.279	2.302
1	1.3	COMB5	Combinatior	Max	-50.677	4.043	-0.155	0.017	-0.077	2.766
1	2.6	COMB5	Combinatior	Max	-51.262	4.043	-0.155	0.017	0.196	9.437
1	0	COMB5	Combinatior	Min	-66.294	-5.134	-0.217	-0.019	-0.368	-3.917
1	1.3	COMB5	Combinatior	Min	-66.880	-5.134	-0.217	-0.019	-0.086	-2.963
1	2.6	COMB5	Combinatior	Min	-67.466	-5.134	-0.217	-0.019	0.124	-8.216
1	0	E	Combinatior	Max	-23.222	4.043	1.186	0.021	0.810	2.302
1	1.3	E	Combinatior	Max	-23.644	4.043	1.186	0.021	0.571	2.766
1	2.6	E	Combinatior	Max	-24.065	4.043	1.186	0.021	2.594	9.437
1	0	E	Combinatior	Min	-73.134	-5.134	-1.557	-0.022	-1.456	-3.917
1	1.3	E	Combinatior	Min	-73.837	-5.134	-1.557	-0.022	-0.734	-2.963
1	2.6	E	Combinatior	Min	-74.540	-5.134	-1.557	-0.022	-2.274	-8.216
2	0	D	LinStatic		-33.715	0.8157	0.1254	-0.0001	0.21983	1.4965
2	1.3	D	LinStatic		-34.105	0.8157	0.1254	-0.0001	0.05677	0.43609
2	2.6	D	LinStatic		-34.496	0.8157	0.1254	-0.0001	-0.1063	-0.6243
2	0	COMB1	Combination		-61.791	2.2024	0.2296	0.00056	0.40231	4.03958
2	1.3	COMB1	Combination		-62.376	2.2024	0.2296	0.00056	0.10388	1.17644
2	2.6	COMB1	Combination		-62.962	2.2024	0.2296	0.00056	-0.1946	-1.6867
2	0	COMB2	Combination		-59.012	0.9072	0.2057	-0.0011	0.3603	1.66305
2	1.3	COMB2	Combination		-59.598	0.9072	0.2057	-0.0011	0.09287	0.48369
2	2.6	COMB2	Combination		-60.183	0.9072	0.2057	-0.0011	-0.1746	-0.6957
2	0	COMB3	Combination		-70.23	1.8861	0.2471	-0.0003	0.43286	3.45788
2	1.3	COMB3	Combination		-70.816	1.8861	0.2471	-0.0003	0.1116	1.006
2	2.6	COMB3	Combination		-71.401	1.8861	0.2471	-0.0003	-0.2097	-1.4459
2	0	COMB4	Combinatior	Max	-50.3	3.7843	0.214	0.00926	0.36731	3.66297
2	1.3	COMB4	Combinatior	Max	-50.788	3.7843	0.214	0.00926	0.0959	2.85232
2	2.6	COMB4	Combinatior	Max	-51.276	3.7843	0.214	0.00926	-0.1444	3.9216
2	0	COMB4	Combinatior	Min	-61.29	-0.8249	0.1815	-0.0098	0.32548	1.76318
2	1.3	COMB4	Combinatior	Min	-61.778	-0.8249	0.1815	-0.0098	0.08275	-1.2734
2	2.6	COMB4	Combinatior	Min	-62.266	-0.8249	0.1815	-0.0098	-0.1911	-6.1899
2	0	COMB5	Combinatior	Max	-50.3	3.7843	0.214	0.00926	0.36731	3.66297
2	1.3	COMB5	Combinatior	Max	-50.788	3.7843	0.214	0.00926	0.0959	2.85232
2	2.6	COMB5	Combinatior	Max	-51.276	3.7843	0.214	0.00926	-0.1444	3.9216
2	0	COMB5	Combinatior	Min	-61.29	-0.8249	0.1815	-0.0098	0.32548	1.76318
2	1.3	COMB5	Combinatior	Min	-61.778	-0.8249	0.1815	-0.0098	0.08275	-1.2734
2	2.6	COMB5	Combinatior	Min	-62.266	-0.8249	0.1815	-0.0098	-0.1911	-6.1899
2	0	E	Combinatior	Max	4.4942	3.7843	2.4385	0.01359	3.14038	4.03958
2	1.3	E	Combinatior	Max	4.1428	3.7843	2.4385	0.01359	0.21002	2.85232
2	2.6	E	Combinatior	Max	3.7914	3.7843	2.4385	0.01359	2.86425	3.9216
2	0	E	Combinatior	Min	-99.342	-1.1096	-2.043	-0.0141	-2.4476	0.58694
2	1.3	E	Combinatior	Min	-99.83	-1.1096	-2.043	-0.0141	-0.0455	-1.2734

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
2	2.6	E	Combinatior	Min	-100.32	-1.1096	-2.043	-0.0141	-3.1998	-6.1899
3	0	D	LinStatic		-67.428	-0.0526	-0.014	0.0002	-0.0241	0.00452
3	1.3	D	LinStatic		-67.897	-0.0526	-0.014	0.0002	-0.0059	0.07294
3	2.6	D	LinStatic		-68.365	-0.0526	-0.014	0.0002	0.01238	0.14137
3	0	COMB1	Combination		-122.82	-1.3775	-0.0317	-0.0003	-0.0548	-2.2539
3	1.3	COMB1	Combination		-123.52	-1.3775	-0.0317	-0.0003	-0.0136	-0.4631
3	2.6	COMB1	Combination		-124.22	-1.3775	-0.0317	-0.0003	0.02754	1.32771
3	0	COMB2	Combination		-122.78	1.1432	-0.0319	0.00116	-0.0547	2.20559
3	1.3	COMB2	Combination		-123.49	1.1432	-0.0319	0.00116	-0.0132	0.71944
3	2.6	COMB2	Combination		-124.19	1.1432	-0.0319	0.00116	0.02828	-0.7667
3	0	COMB3	Combination		-144.46	-0.1554	-0.0426	0.00056	-0.0734	-0.0551
3	1.3	COMB3	Combination		-145.16	-0.1554	-0.0426	0.00056	-0.0181	0.14694
3	2.6	COMB3	Combination		-145.87	-0.1554	-0.0426	0.00056	0.03724	0.34895
3	0	COMB4	Combinatior	Max	-113.35	4.1989	0.0047	0.01316	0.00268	2.27623
3	1.3	COMB4	Combinatior	Max	-113.94	4.1989	0.0047	0.01316	-0.0033	3.44211
3	2.6	COMB4	Combinatior	Max	-114.52	4.1989	0.0047	0.01316	0.06638	9.20326
3	0	COMB4	Combinatior	Min	-115.38	-4.4367	-0.0696	-0.0123	-0.1147	-2.3508
3	1.3	COMB4	Combinatior	Min	-115.97	-4.4367	-0.0696	-0.0123	-0.0243	-3.2076
3	2.6	COMB4	Combinatior	Min	-116.55	-4.4367	-0.0696	-0.0123	-0.0095	-8.6597
3	0	COMB5	Combinatior	Max	-113.35	4.1989	0.0047	0.01316	0.00268	2.27623
3	1.3	COMB5	Combinatior	Max	-113.94	4.1989	0.0047	0.01316	-0.0033	3.44211
3	2.6	COMB5	Combinatior	Max	-114.52	4.1989	0.0047	0.01316	0.06638	9.20326
3	0	COMB5	Combinatior	Min	-115.38	-4.4367	-0.0696	-0.0123	-0.1147	-2.3508
3	1.3	COMB5	Combinatior	Min	-115.97	-4.4367	-0.0696	-0.0123	-0.0243	-3.2076
3	2.6	COMB5	Combinatior	Min	-116.55	-4.4367	-0.0696	-0.0123	-0.0095	-8.6597
3	0	E	Combinatior	Max	-56.171	4.1989	1.6082	0.03429	1.54835	2.27623
3	1.3	E	Combinatior	Max	-56.593	4.1989	1.6082	0.03429	0.5165	3.44211
3	2.6	E	Combinatior	Max	-57.015	4.1989	1.6082	0.03429	2.69059	9.20326
3	0	E	Combinatior	Min	-144.46	-4.4367	-1.6732	-0.0334	-1.6604	-2.3508
3	1.3	E	Combinatior	Min	-145.16	-4.4367	-1.6732	-0.0334	-0.5441	-3.2076
3	2.6	E	Combinatior	Min	-145.87	-4.4367	-1.6732	-0.0334	-2.6337	-8.6597
4	0	D	LinStatic		-18.805	-0.7675	0.0359	-0.0001	0.06612	-1.2959
4	1.3	D	LinStatic		-19.195	-0.7675	0.0359	-0.0001	0.01945	-0.2981
4	2.6	D	LinStatic		-19.586	-0.7675	0.0359	-0.0001	-0.0272	0.6996
4	0	COMB1	Combination		-32.654	-0.8502	0.0638	-0.0011	0.11691	-1.3402
4	1.3	COMB1	Combination		-33.24	-0.8502	0.0638	-0.0011	0.03394	-0.2349
4	2.6	COMB1	Combination		-33.826	-0.8502	0.0638	-0.0011	-0.049	0.87034
4	0	COMB2	Combination		-33.814	-2.0084	0.0626	0.00076	0.11595	-3.4838
4	1.3	COMB2	Combination		-34.399	-2.0084	0.0626	0.00076	0.03451	-0.8729
4	2.6	COMB2	Combination		-34.985	-2.0084	0.0626	0.00076	-0.0469	1.73795
4	0	COMB3	Combination		-38.261	-1.7073	0.0726	-0.0002	0.13368	-2.8801
4	1.3	COMB3	Combination		-38.847	-1.7073	0.0726	-0.0002	0.03927	-0.6606
4	2.6	COMB3	Combination		-39.432	-1.7073	0.0726	-0.0002	-0.0551	1.55889
4	0	COMB4	Combinatior	Max	-26.004	0.755	0.0725	0.01051	0.13457	-1.6985
4	1.3	COMB4	Combinatior	Max	-26.492	0.755	0.0725	0.01051	0.04027	1.66382
4	2.6	COMB4	Combinatior	Max	-26.98	0.755	0.0725	0.01051	-0.0339	6.14085
4	0	COMB4	Combinatior	Min	-34.972	-3.4461	0.0433	-0.0108	0.07865	-2.8416
4	1.3	COMB4	Combinatior	Min	-35.46	-3.4461	0.0433	-0.0108	0.02238	-2.7056
4	2.6	COMB4	Combinatior	Min	-35.948	-3.4461	0.0433	-0.0108	-0.054	-3.6842
4	0	COMB5	Combinatior	Max	-26.004	0.755	0.0725	0.01051	0.13457	-1.6985
4	1.3	COMB5	Combinatior	Max	-26.492	0.755	0.0725	0.01051	0.04027	1.66382
4	2.6	COMB5	Combinatior	Max	-26.98	0.755	0.0725	0.01051	-0.0339	6.14085
4	0	COMB5	Combinatior	Min	-34.972	-3.4461	0.0433	-0.0108	0.07865	-2.8416
4	1.3	COMB5	Combinatior	Min	-35.46	-3.4461	0.0433	-0.0108	0.02238	-2.7056
4	2.6	COMB5	Combinatior	Min	-35.948	-3.4461	0.0433	-0.0108	-0.054	-3.6842
4	0	E	Combinatior	Max	36.6985	0.9897	0.3106	0.05485	0.56586	-0.7091
4	1.3	E	Combinatior	Max	36.3471	0.9897	0.3106	0.05485	0.81646	1.66382
4	2.6	E	Combinatior	Max	35.9957	0.9897	0.3106	0.05485	1.06858	6.14085
4	0	E	Combinatior	Min	-97.516	-3.4461	-0.1948	-0.0551	-0.3526	-3.4838

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
4	1.3	E	Combinatior	Min	-98.004	-3.4461	-0.1948	-0.0551	-0.7538	-2.7056
4	2.6	E	Combinatior	Min	-98.492	-3.4461	-0.1948	-0.0551	-1.1565	-3.6842
5	0	COMB1	Combination		-53.577	0.172	0.000	0.000	0.000	0.365
5	1.3	COMB1	Combination		-54.045	0.172	0.000	0.000	0.000	0.141
5	2.6	COMB1	Combination		-54.514	0.172	0.000	0.000	0.000	-0.083
5	0	COMB2	Combination		-49.740	0.107	0.000	0.000	0.000	0.225
5	1.3	COMB2	Combination		-50.208	0.107	0.000	0.000	0.000	0.086
5	2.6	COMB2	Combination		-50.677	0.107	0.000	0.000	0.000	-0.053
5	0	COMB3	Combination		-61.028	0.165	0.000	0.000	0.000	0.349
5	1.3	COMB3	Combination		-61.497	0.165	0.000	0.000	0.000	0.135
5	2.6	COMB3	Combination		-61.965	0.165	0.000	0.000	0.000	-0.079
5	0	COMB4	Combinatior	Max	-42.942	2.999	0.000	0.000	0.000	3.694
5	1.3	COMB4	Combinatior	Max	-43.332	2.999	0.000	0.000	0.000	0.420
5	2.6	COMB4	Combinatior	Max	-43.723	2.999	0.000	0.000	0.000	3.979
5	0	COMB4	Combinatior	Min	-53.566	-2.739	0.000	0.000	0.000	-3.142
5	1.3	COMB4	Combinatior	Min	-53.957	-2.739	0.000	0.000	0.000	-0.207
5	2.6	COMB4	Combinatior	Min	-54.347	-2.739	0.000	0.000	0.000	-4.105
5	0	COMB5	Combinatior	Max	-42.942	2.999	0.000	0.000	0.000	3.694
5	1.3	COMB5	Combinatior	Max	-43.332	2.999	0.000	0.000	0.000	0.420
5	2.6	COMB5	Combinatior	Max	-43.723	2.999	0.000	0.000	0.000	3.979
5	0	COMB5	Combinatior	Min	-53.566	-2.739	0.000	0.000	0.000	-3.142
5	1.3	COMB5	Combinatior	Min	-53.957	-2.739	0.000	0.000	0.000	-0.207
5	2.6	COMB5	Combinatior	Min	-54.347	-2.739	0.000	0.000	0.000	-4.105
5	0	E	Combinatior	Max	-21.123	2.999	0.593	0.013	0.166	3.694
5	1.3	E	Combinatior	Max	-21.404	2.999	0.593	0.013	0.627	0.420
5	2.6	E	Combinatior	Max	-21.685	2.999	0.593	0.013	1.396	3.979
5	0	E	Combinatior	Min	-61.028	-2.739	-0.593	-0.013	-0.166	-3.142
5	1.3	E	Combinatior	Min	-61.497	-2.739	-0.593	-0.013	-0.627	-0.207
5	2.6	E	Combinatior	Min	-61.965	-2.739	-0.593	-0.013	-1.396	-4.105
6	0	COMB1	Combination		-101.299	0.367	0.000	0.000	0.000	0.872
6	1.3	COMB1	Combination		-102.001	0.367	0.000	0.000	0.000	0.395
6	2.6	COMB1	Combination		-102.704	0.367	0.000	0.000	0.000	-0.082
6	0	COMB2	Combination		-102.977	1.916	0.000	0.000	0.000	3.568
6	1.3	COMB2	Combination		-103.680	1.916	0.000	0.000	0.000	1.078
6	2.6	COMB2	Combination		-104.383	1.916	0.000	0.000	0.000	-1.412
6	0	COMB3	Combination		-120.086	1.365	0.000	0.000	0.000	2.655
6	1.3	COMB3	Combination		-120.789	1.365	0.000	0.000	0.000	0.881
6	2.6	COMB3	Combination		-121.492	1.365	0.000	0.000	0.000	-0.893
6	0	COMB4	Combinatior	Max	-84.679	5.715	0.000	0.000	0.000	4.917
6	1.3	COMB4	Combinatior	Max	-85.265	5.715	0.000	0.000	0.000	3.918
6	2.6	COMB4	Combinatior	Max	-85.851	5.715	0.000	0.000	0.000	8.548
6	0	COMB4	Combinatior	Min	-105.493	-3.565	0.000	0.000	0.000	-0.733
6	1.3	COMB4	Combinatior	Min	-106.079	-3.565	0.000	0.000	0.000	-2.530
6	2.6	COMB4	Combinatior	Min	-106.664	-3.565	0.000	0.000	0.000	-9.955
6	0	COMB5	Combinatior	Max	-84.679	5.715	0.000	0.000	0 000	4.917
6	1.3	COMB5	Combinatior	Max	-85.265	5.715	0.000	0.000	0.000	3.918
6	2.6	COMB5	Combinatior	Max	-85.851	5.715	0.000	0.000	0.000	8.548
6	0	COMB5	Combinatior	Min	-105.493	-3.565	0.000	0.000	0.000	-0.733
6	1.3	COMB5	Combinatior	Min	-106.079	-3.565	0.000	0.000	0.000	-2.530
6	2.6	COMB5	Combinatior	Min	-106.664	-3.565	0.000	0.000	0.000	-9.955
6	0	E	Combinatior	Max	-42.188	5.715	1.048	0.041	0.579	4.917
6	1.3	E	Combinatior	Max	-42.610	5.715	1.048	0.041	0.789	3.918
6	2.6	E	Combinatior	Max	-43.032	5.715	1.048	0.041	2.151	8.548
6	0	E	Combinatior	Min	-120.086	-3.565	-1.048	-0.041	-0.579	-1.190
6	1.3	E	Combinatior	Min	-120.789	-3.565	-1.048	-0.041	-0.789	-2.530
6	2.6	E	Combinatior	Min	-121.492	-3.565	-1.048	-0.041	-2.150	-9.955
7	0	COMB1	Combination		-58.661	2.456	0.000	0.000	0.000	2.303
7	1.3	COMB1	Combination		-57.841	2.456	0.000	0.000	0.000	-0.889
7	2.6	COMB1	Combination		-57.021	2.456	0.000	0.000	0.000	-4.082

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
6	2.6	COMB1	Combination		-102.704	0.367	0.000	0.000	0.000	-0.082
6	0	COMB2	Combination		-102.977	1.916	0.000	0.000	0.000	3.568
6	1.3	COMB2	Combination		-103.680	1.916	0.000	0.000	0.000	1.078
6	2.6	COMB2	Combination		-104.383	1.916	0.000	0.000	0.000	-1.412
6	0	COMB3	Combination		-120.086	1.365	0.000	0.000	0.000	2.655
6	1.3	COMB3	Combination		-120.789	1.365	0.000	0.000	0.000	0.881
6	2.6	COMB3	Combination		-121.492	1.365	0.000	0.000	0.000	-0.893
6	0	COMB4	Combination	Max	-84.679	5.715	0.000	0.000	0.000	4.917
6	1.3	COMB4	Combination	Max	-85.265	5.715	0.000	0.000	0.000	3.918
6	2.6	COMB4	Combination	Max	-85.851	5.715	0.000	0.000	0.000	8.548
6	0	COMB4	Combination	Min	-105.493	-3.565	0.000	0.000	0.000	-0.733
6	1.3	COMB4	Combination	Min	-106.079	-3.565	0.000	0.000	0.000	-2.530
6	2.6	COMB4	Combination	Min	-106.664	-3.565	0.000	0.000	0.000	-9.955
6	0	COMB5	Combination	Max	-84.679	5.715	0.000	0.000	0.000	4.917
6	1.3	COMB5	Combination	Max	-85.265	5.715	0.000	0.000	0.000	3.918
6	2.6	COMB5	Combination	Max	-85.851	5.715	0.000	0.000	0.000	8.548
6	0	COMB5	Combination	Min	-105.493	-3.565	0.000	0.000	0.000	-0.733
6	1.3	COMB5	Combination	Min	-106.079	-3.565	0.000	0.000	0.000	-2.530
6	2.6	COMB5	Combination	Min	-106.664	-3.565	0.000	0.000	0.000	-9.955
6	0	E	Combination	Max	-42.188	5.715	1.048	0.041	0.579	4.917
6	1.3	E	Combination	Max	-42.610	5.715	1.048	0.041	0.789	3.918
6	2.6	E	Combination	Max	-43.032	5.715	1.048	0.041	2.151	8.548
6	0	E	Combination	Min	-120.086	-3.565	-1.048	-0.041	-0.579	-1.190
6	1.3	E	Combination	Min	-120.789	-3.565	-1.048	-0.041	-0.789	-2.530
6	2.6	E	Combination	Min	-121.492	-3.565	-1.048	-0.041	-2.150	-9.955
7	0	COMB1	Combination		-58.661	2.456	0.000	0.000	0.000	2.303
7	1.3	COMB1	Combination		-57.841	2.456	0.000	0.000	0.000	-0.889
7	2.6	COMB1	Combination		-57.021	2.456	0.000	0.000	0.000	-4.082
7	0	COMB2	Combination		-62.339	3.994	0.000	0.000	0.000	3.257
7	1.3	COMB2	Combination		-61.519	3.994	0.000	0.000	0.000	-1.936
7	2.6	COMB2	Combination		-60.699	3.994	0.000	0.000	0.000	-7.128
7	0	COMB3	Combination		-70.295	3.862	0.000	0.000	0.000	3.330
7	1.3	COMB3	Combination		-69.475	3.862	0.000	0.000	0.000	-1.690
7	2.6	COMB3	Combination		-68.655	3.862	0.000	0.000	0.000	-6.710
7	0	COMB4	Combination	Max	-45.957	8.370	0.000	0.000	0.000	15.410
7	1.3	COMB4	Combination	Max	-45.273	8.370	0.000	0.000	0.000	4.532
7	2.6	COMB4	Combination	Max	-44.590	8.370	0.000	0.000	0.000	-4.175
7	0	COMB4	Combination	Min	-65.760	-2.288	0.000	0.000	0.000	-10.165
7	1.3	COMB4	Combination	Min	-65.077	-2.288	0.000	0.000	0.000	-7.195
7	2.6	COMB4	Combination	Min	-64.393	-2.288	0.000	0.000	0.000	-6.394
7	0	COMB5	Combination	Max	-45.957	8.370	0.000	0.000	0.000	15.410
7	1.3	COMB5	Combination	Max	-45.273	8.370	0.000	0.000	0.000	4.532
7	2.6	COMB5	Combination	Max	-44.590	8.370	0.000	0.000	0.000	-4.175
7	0	COMB5	Combination	Min	-65.760	-2.288	0.000	0.000	0.000	-10.165
7	1.3	COMB5	Combination	Min	-65.077	-2.288	0.000	0.000	0.000	-7.195
7	2.6	COMB5	Combination	Min	-64.393	-2.288	0.000	0.000	0.000	-6.394
7	0	E	Combination	Max	-22.502	8.370	3.052	0.040	3.883	15.410
7	1.3	E	Combination	Max	-22.010	8.370	3.052	0.040	0.084	4.532
7	2.6	E	Combination	Max	-21.518	8.370	3.052	0.040	4.052	-1.812
7	0	E	Combination	Min	-70.295	-2.710	-3.052	-0.039	-3.884	-10.165
7	1.3	E	Combination	Min	-69.475	-2.710	-3.052	-0.039	-0.085	-7.195
7	2.6	E	Combination	Min	-68.655	-2.710	-3.052	-0.039	-4.052	-7.128
8	0	COMB1	Combination		-61.785	2.202	-0.230	-0.001	-0.402	4.039
8	1.3	COMB1	Combination		-62.371	2.202	-0.230	-0.001	-0.104	1.176
8	2.6	COMB1	Combination		-62.957	2.202	-0.230	-0.001	0.195	-1.686
8	0	COMB2	Combination		-59.009	0.907	-0.206	0.001	-0.360	1.663
8	1.3	COMB2	Combination		-59.594	0.907	-0.206	0.001	-0.093	0.484
8	2.6	COMB2	Combination		-60.180	0.907	-0.206	0.001	0.175	-0.696
8	0	COMB3	Combination		-70.224	1.886	-0.247	0.000	-0.433	3.457

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
8	1.3	COMB3	Combination		-70.810	1.886	-0.247	0.000	-0.112	1.006
8	2.6	COMB3	Combination		-71.395	1.886	-0.247	0.000	0.210	-1.445
8	0	COMB4	Combination	Max	-50.299	3.784	-0.182	0.010	-0.326	3.663
8	1.3	COMB4	Combination	Max	-50.787	3.784	-0.182	0.010	-0.083	2.852
8	2.6	COMB4	Combination	Max	-51.275	3.784	-0.182	0.010	0.191	3.922
8	0	COMB4	Combination	Min	-61.281	-0.825	-0.214	-0.009	-0.367	1.763
8	1.3	COMB4	Combination	Min	-61.770	-0.825	-0.214	-0.009	-0.096	-1.273
8	2.6	COMB4	Combination	Min	-62.258	-0.825	-0.214	-0.009	0.145	-6.190
8	0	COMB5	Combination	Max	-50.299	3.784	-0.182	0.010	-0.326	3.663
8	1.3	COMB5	Combination	Max	-50.787	3.784	-0.182	0.010	-0.083	2.852
8	2.6	COMB5	Combination	Max	-51.275	3.784	-0.182	0.010	0.191	3.922
8	0	COMB5	Combination	Min	-61.281	-0.825	-0.214	-0.009	-0.367	1.763
8	1.3	COMB5	Combination	Min	-61.770	-0.825	-0.214	-0.009	-0.096	-1.273
8	2.6	COMB5	Combination	Min	-62.258	-0.825	-0.214	-0.009	0.145	-6.190
8	0	E	Combination	Max	4.496	3.784	2.043	0.014	2.447	4.039
8	1.3	E	Combination	Max	4.145	3.784	2.043	0.014	0.045	2.852
8	2.6	E	Combination	Max	3.793	3.784	2.043	0.014	3.200	3.922
8	0	E	Combination	Min	-99.338	-1.110	-2.439	-0.014	-3.140	0.587
8	1.3	E	Combination	Min	-99.826	-1.110	-2.439	-0.014	-0.210	-1.273
8	2.6	E	Combination	Min	-100.314	-1.110	-2.439	-0.014	-2.864	-6.190
9	0	COMB1	Combination		-122.763	-1.375	0.031	0.000	0.055	-2.250
9	1.3	COMB1	Combination		-123.465	-1.375	0.031	0.000	0.014	-0.462
9	2.6	COMB1	Combination		-124.168	-1.375	0.031	0.000	-0.027	1.326
9	0	COMB2	Combination		-122.786	1.143	0.032	-0.001	0.055	2.206
9	1.3	COMB2	Combination		-123.488	1.143	0.032	-0.001	0.013	0.720
9	2.6	COMB2	Combination		-124.191	1.143	0.032	-0.001	-0.028	-0.767
9	0	COMB3	Combination		-144.406	-0.153	0.042	-0.001	0.073	-0.051
9	1.3	COMB3	Combination		-145.109	-0.153	0.042	-0.001	0.018	0.148
9	2.6	COMB3	Combination		-145.811	-0.153	0.042	-0.001	-0.037	0.348
9	0	COMB4	Combination	Max	-113.317	4.201	0.070	0.012	0.115	2.279
9	1.3	COMB4	Combination	Max	-113.902	4.201	0.070	0.012	0.024	3.443
9	2.6	COMB4	Combination	Max	-114.488	4.201	0.070	0.012	0.010	9.203
9	0	COMB4	Combination	Min	-115.342	-4.435	-0.005	-0.013	-0.003	-2.348
9	1.3	COMB4	Combination	Min	-115.928	-4.435	-0.005	-0.013	0.003	-3.207
9	2.6	COMB4	Combination	Min	-116.513	-4.435	-0.005	-0.013	-0.066	-8.661
9	0	COMB5	Combination	Max	-113.317	4.201	0.070	0.012	0.115	2.279
9	1.3	COMB5	Combination	Max	-113.902	4.201	0.070	0.012	0.024	3.443
9	2.6	COMB5	Combination	Max	-114.488	4.201	0.070	0.012	0.010	9.203
9	0	COMB5	Combination	Min	-115.342	-4.435	-0.005	-0.013	-0.003	-2.348
9	1.3	COMB5	Combination	Min	-115.928	-4.435	-0.005	-0.013	0.003	-3.207
9	2.6	COMB5	Combination	Min	-116.513	-4.435	-0.005	-0.013	-0.066	-8.661
9	0	E	Combination	Max	-56.173	4.201	1.673	0.033	1.660	2.279
9	1.3	E	Combination	Max	-56.595	4.201	1.673	0.033	0.544	3.443
9	2.6	E	Combination	Max	-57.017	4.201	1.673	0.033	2.634	9.203
9	0	E	Combination	Min	-144.406	-4.435	-1.608	-0.034	-1.548	-2.348
9	1.3	E	Combination	Min	-145.109	-4.435	-1.608	-0.034	-0.516	-3.207
9	2.6	E	Combination	Min	-145.811	-4.435	-1.608	-0.034	-2.690	-8.661
10	0	COMB1	Combination		-32.581	-0.852	-0.064	0.001	-0.117	-1.344
10	1.3	COMB1	Combination		-33.167	-0.852	-0.064	0.001	-0.034	-0.236
10	2.6	COMB1	Combination		-33.752	-0.852	-0.064	0.001	0.049	0.872
10	0	COMB2	Combination		-33.814	-2.008	-0.063	-0.001	-0.116	-3.484
10	1.3	COMB2	Combination		-34.400	-2.008	-0.063	-0.001	-0.034	-0.873
10	2.6	COMB2	Combination		-34.986	-2.008	-0.063	-0.001	0.047	1.738
10	0	COMB3	Combination		-38.188	-1.710	-0.073	0.000	-0.134	-2.884
10	1.3	COMB3	Combination		-38.774	-1.710	-0.073	0.000	-0.039	-0.662
10	2.6	COMB3	Combination		-39.359	-1.710	-0.073	0.000	0.055	1.560
10	0	COMB4	Combination	Max	-25.950	0.754	-0.043	0.011	-0.079	-1.701
10	1.3	COMB4	Combination	Max	-26.439	0.754	-0.043	0.011	-0.022	1.663
10	2.6	COMB4	Combination	Max	-26.927	0.754	-0.043	0.011	0.054	6.142

Frame	Station	O. Case	CaseType	StepType	P	V2	V3	T	M2	M3
Text	m	Text	Text	Text	Ton	Ton	Ton	Ton-m	Ton-m	Ton-m
10	0	COMB4	Combination	Min	-34.924	-3.448	-0.073	-0.011	-0.135	-2.845
10	1.3	COMB4	Combination	Min	-35.412	-3.448	-0.073	-0.011	-0.040	-2.707
10	2.6	COMB4	Combination	Min	-35.900	-3.448	-0.073	-0.011	0.034	-3.683
10	0	COMB5	Combination	Max	-25.950	0.754	-0.043	0.011	-0.079	-1.701
10	1.3	COMB5	Combination	Max	-26.439	0.754	-0.043	0.011	-0.022	1.663
10	2.6	COMB5	Combination	Max	-26.927	0.754	-0.043	0.011	0.054	6.142
10	0	COMB5	Combination	Min	-34.924	-3.448	-0.073	-0.011	-0.135	-2.845
10	1.3	COMB5	Combination	Min	-35.412	-3.448	-0.073	-0.011	-0.040	-2.707
10	2.6	COMB5	Combination	Min	-35.900	-3.448	-0.073	-0.011	0.034	-3.683
10	0	E	Combination	Max	36.760	0.990	0.194	0.055	0.355	-0.709
10	1.3	E	Combination	Max	36.409	0.990	0.194	0.055	0.754	1.663
10	2.6	E	Combination	Max	36.057	0.990	0.194	0.055	1.156	6.142
10	0	E	Combination	Min	-97.542	-3.448	-0.310	-0.055	-0.568	-3.484
10	1.3	E	Combination	Min	-98.031	-3.448	-0.310	-0.055	-0.817	-2.707
10	2.6	E	Combination	Min	-98.519	-3.448	-0.310	-0.055	-1.068	-3.683
11	0	COMB1	Combination		-63.484	-1.094	0.186	0.000	0.324	-1.747
11	1.3	COMB1	Combination		-64.187	-1.094	0.186	0.000	0.082	-0.325
11	2.6	COMB1	Combination		-64.890	-1.094	0.186	0.000	-0.160	1.097
11	0	COMB2	Combination		-62.955	-0.058	0.226	0.002	0.393	0.042
11	1.3	COMB2	Combination		-63.658	-0.058	0.226	0.002	0.099	0.118
11	2.6	COMB2	Combination		-64.361	-0.058	0.226	0.002	-0.194	0.194
11	0	COMB3	Combination		-73.125	-0.694	0.231	0.001	0.402	-1.027
11	1.3	COMB3	Combination		-73.828	-0.694	0.231	0.001	0.102	-0.125
11	2.6	COMB3	Combination		-74.531	-0.694	0.231	0.001	-0.199	0.778
11	0	COMB4	Combination	Max	-50.084	4.043	0.217	0.019	0.368	2.302
11	1.3	COMB4	Combination	Max	-50.670	4.043	0.217	0.019	0.086	2.766
11	2.6	COMB4	Combination	Max	-51.255	4.043	0.217	0.019	-0.124	9.438
11	0	COMB4	Combination	Min	-66.288	-5.135	0.155	-0.017	0.279	-3.917
11	1.3	COMB4	Combination	Min	-66.874	-5.135	0.155	-0.017	0.077	-2.962
11	2.6	COMB4	Combination	Min	-67.459	-5.135	0.155	-0.017	-0.196	-8.215
11	0	COMB5	Combination	Max	-50.084	4.043	0.217	0.019	0.368	2.302
11	1.3	COMB5	Combination	Max	-50.670	4.043	0.217	0.019	0.086	2.766
11	2.6	COMB5	Combination	Max	-51.255	4.043	0.217	0.019	-0.124	9.438
11	0	COMB5	Combination	Min	-66.288	-5.135	0.155	-0.017	0.279	-3.917
11	1.3	COMB5	Combination	Min	-66.874	-5.135	0.155	-0.017	0.077	-2.962
11	2.6	COMB5	Combination	Min	-67.459	-5.135	0.155	-0.017	-0.196	-8.215
11	0	E	Combination	Max	-23.220	4.043	1.557	0.022	1.456	2.302
11	1.3	E	Combination	Max	-23.642	4.043	1.557	0.022	0.734	2.766
11	2.6	E	Combination	Max	-24.063	4.043	1.557	0.022	2.274	9.438
11	0	E	Combination	Min	-73.125	-5.135	-1.186	-0.021	-0.810	-3.917
11	1.3	E	Combination	Min	-73.828	-5.135	-1.186	-0.021	-0.571	-2.962
11	2.6	E	Combination	Min	-74.531	-5.135	-1.186	-0.021	-2.594	-8.215