ANEXO N° 1

PREDIMENSIONAMIENTO DE COLUMNAS

PREDIMENSIONADO DE COLUMNAS

ESTIMACION DE PESOS Y DIMENSIONES:

COLUMNA CENTRAL(C-4)-NIVEL 5

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	4.70		1	300	9236
VIGAS-X	3.75	0.25	0.50	1	2400	1125
VIGAS-Y	6.90	0.30	0.60	1	2400	2981
ACABADOS	6.55	4.70		1	100	3079
TABIQUER.	6.55	4.70		1	120	3694
SOBREC.	6.55	4.70		1	150	4618
					TOTAL	**24732**

bxd= 1.10x PG= 27205 432 CM2 **(30X15)**
0.30 X f'c 63

COLUMNA CENTRAL(C-4)-NIVEL 4

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	4.70		1	300	9236
VIGAS-X	3.75	0.25	0.50	1	2400	1125
VIGAS-Y	6.90	0.30	0.60	1	2400	2981
ACABADOS	6.55	4.70		1	100	3079
TABIQUER.	6.55	4.70		1	120	3694
SOBREC.	6.55	4.70		1	300	9236
COLUMNA	0.40	0.40	3.50	1	2400	1344
						30694

bxd= 1.10x PG= 60968 968 CM2 **(30X35)**
0.30 X f'c 63

COLUMNA CENTRAL(C-4)-NIVEL 3

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	4.70		1	300	9236
VIGAS-X	3.75	0.25	0.50	1	2400	1125
VIGAS-Y	6.90	0.30	0.60	1	2400	2981
ACABADOS	6.55	4.70		1	100	3079
TABIQUER.	6.55	4.70		1	120	3694
SOBREC.	6.55	4.70		1	300	9236
COLUMNA	0.40	0.40	3.50	1	2400	1344
						30694

bxd= 1.10x PG= 94731 1504 CM2 **(35X50)**
0.30 X f'c 63

COLUMNA CENTRAL(C-4)-NIVEL 2

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	4.70		1	300	9236
VIGAS-X	3.75	0.25	0.50	1	2400	1125
VIGAS-Y	6.90	0.30	0.60	1	2400	2981
ACABADOS	6.55	4.70		1	100	3079
TABIQUER.	6.55	4.70		1	120	3694
SOBREC.	6.55	4.70		1	300	9236
COLUMNA	0.40	0.40	3.50	1	2400	1344
						30694

bxd= 1.10x PG= 128493 2040 CM2 **(35X60)**
0.30 X f'c 63

COLUMNA CENTRAL(C-4)-NIVEL 1

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	4.70		1	300	9236
VIGAS-X	3.75	0.25	0.50	1	2400	1125
VIGAS-Y	6.90	0.30	0.60	1	2400	2981
ACABADOS	6.55	4.70		1	100	3079
TABIQUER.	6.55	4.70		1	120	3694
SOBREC.	6.55	4.70		1	300	9236
COLUMNA	0.40	0.40	3.50	1	2400	1344
						30694

bxd= 1.10x PG= 162256 2575 CM2 **(50x65)**
0.30 X f'c 63

USAR:

1° Y 2° Piso: (50 x 65)

3°,4° y 5° Piso: (50 x 65)

PREDIMENSIONADO DE COLUMNAS

ESTIMACION DE PESOS Y DIMENSIONES:

COLUMNA LATERAL(C-3)-NIVEL 5

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	5	3.45		1	300	5175
VIGAS-X	3.750	0.25	0.50	1	2400	1125
VIGAS-Y	3.450	0.30	0.60	1	2400	1490
ACABADOS	5.000	3.45		1	100	1725
TABIQUER.	5.000	3.45		1	120	2070
SOBREC.	5.000	3.45		1	150	2588
					TOTAL	**14173**

bxd= 1.25x PG= 17716 337 CM2 **(30X15)**
0.25 X f'c 52.50

COLUMNA LATERAL(C-3)-NIVEL 4

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	5	3.45		1	300	5175
VIGAS-X	3.750	0.25	0.50	1	2400	1125
VIGAS-Y	3.450	0.30	0.60	1	2400	1490
ACABADOS	5.000	3.45		1	100	1725
TABIQUER.	5.000	3.45		1	120	2070
SOBREC.	5.000	3.45		1	300	5175
COLUMNA	0.400	0.40	3.55	1	2400	1363
						18124

bxd= 1.25x PG= 40371 769 CM2 **(30X30)**
0.25 X f'c 52.50

COLUMNA LATERAL(C-3)-NIVEL 3

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	5	3.45		1	300	5175
VIGAS-X	3.750	0.25	0.50	1	2400	1125
VIGAS-Y	3.450	0.30	0.60	1	2400	1490
ACABADOS	5.000	3.45		1	100	1725
TABIQUER.	5.000	3.45		1	120	2070
SOBREC.	5.000	3.45		1	300	5175
COLUMNA	0.400	0.40	3.55	1	2400	1363
						18124

bxd= 1.25x PG= 63025 1200 CM2 **(30X40)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-3)-NIVEL 2

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	5	3.45		1	300	5175
VIGAS-X	3.750	0.25	0.50	1	2400	1125
VIGAS-Y	3.450	0.30	0.60	1	2400	1490
ACABADOS	5.000	3.45		1	100	1725
TABIQUER.	5.000	3.45		1	120	2070
SOBREC.	5.000	3.45		1	300	5175
COLUMNA	0.400	0.40	3.55	1	2400	1363
						18124

bxd= 1.25x PG= 85680 1632 CM2 **(30X55)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-3)-NIVEL 1

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	5	3.45		1	300	5175
VIGAS-X	3.750	0.25	0.50	1	2400	1125
VIGAS-Y	3.450	0.30	0.60	1	2400	1490
ACABADOS	5.000	3.45		1	100	1725
TABIQUER.	5.000	3.45		1	120	2070
SOBREC.	5.000	3.45		1	300	5175
COLUMNA	0.400	0.40	3.55	1	2400	1363
						18124

bxd= 1.25x PG= 108334 2064 CM2 **(40X55)**
0.25 X f'c 52.5

USAR:
1° Y 2° Piso: (40 x 55)
3°,4° y 5° Piso: (40 x 55)

PREDIMENSIONADO DE COLUMNAS

ESTIMACION DE PESOS Y DIMENSIONES:

COLUMNA LATERAL(C-2)-NIVEL 5

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	2.35		1	300	4618
VIGAS-X	2.35	0.25	0.50	1	2400	705
VIGAS-Y	4.35	0.30	0.60	2	2400	3758
ACABADOS	6.55	2.35		1	100	1539
TABIQUER.	6.55	2.35		1	120	1847
SOBREC.	6.55	2.35		1	100	1539
COLUMNA	0.400	0.40	1.78	1	2400	682
					TOTAL	**14688**

bxd= 1.25x PG= 18360 — 350 CM2 **(30X15)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-2)-NIVEL 4

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	2.35		1	300	4618
VIGAS-X	2.35	0.25	0.50	1	2400	705
VIGAS-Y	4.35	0.30	0.60	2	2400	3758
ACABADOS	6.55	2.35		1	100	1539
TABIQUER.	6.55	2.35		1	120	1847
SOBREC.	6.55	2.35		1	300	4618
COLUMNA	0.400	0.40	3.55	1	2400	1363
					TOTAL	**18448**

bxd= 1.25x PG= 41421 — 789 CM2 **(30X25)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-2)-NIVEL 3

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	2.35		1	300	4618
VIGAS-X	2.35	0.25	0.50	1	2400	705
VIGAS-Y	4.35	0.30	0.60	2	2400	3758
ACABADOS	6.55	2.35		1	100	1539
TABIQUER.	6.55	2.35		1	120	1847
SOBREC.	6.55	2.35		1	300	4618
COLUMNA	0.400	0.40	3.55	1	2400	1363
					TOTAL	**18448**

bxd= 1.25x PG= 64482 — 1228 CM2 **(30X45)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-2)-NIVEL 2

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	2.35		1	300	4618
VIGAS-X	2.35	0.25	0.50	1	2400	705
VIGAS-Y	4.35	0.30	0.60	2	2400	3758
ACABADOS	6.55	2.35		1	100	1539
TABIQUER.	6.55	2.35		1	120	1847
SOBREC.	6.55	2.35		1	300	4618
COLUMNA	0.400	0.40	3.55	1	2400	1363
					TOTAL	**18448**

bxd= 1.25x PG= 87542 — 1667 CM2 **(30X55)**
0.25 X f'c 52.5

COLUMNA LATERAL(C-2)-NIVEL 1

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	6.55	2.35		1	300	4618
VIGAS-X	2.35	0.25	0.50	1	2400	705
VIGAS-Y	4.35	0.30	0.60	2	2400	3758
ACABADOS	6.55	2.35		1	100	1539
TABIQUER.	6.55	2.35		1	120	1847
SOBREC.	6.55	2.35		1	300	4618
COLUMNA	0.400	0.40	3.55	1	2400	1363
					TOTAL	**18448**

bxd= 1.25x PG= 110603 — 2107 CM2 **(40X55)**
0.25 X f'c 52.5

USAR:

1° Y 2° Piso: (40 x 55)

3°,4° y 5° Piso: (40 x 55)

1.00 PREDIMENSIONADO DE COLUMNAS

ESTIMACION DE PESOS Y DIMENSIONES:

COLUMNA ESQUINA(C-1)-NIVEL 5

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	2.35	3.28		1	300	2312
VIGAS-X	2.5	0.25	0.50	1	2400	750
VIGAS-Y	4.350	0.30	0.60	1	2400	1879
ACABADOS	2.350	3.28		1	100	771
TABIQUER.	2.350	3.28		1	120	925
SOBREC.	2.350	3.28		1	100	771
PLACA	2.500	0.20	1.78	2	2400	4260
					TOTAL	**11668**

$$bxd = \frac{1.5x\ PG}{0.2 \times f'c} = \frac{17502}{42} = 417\ CM2$$

2x (240x20)

COLUMNA ESQUINA(C-1)-NIVEL 4

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	2.35	3.28		1	300	2312
VIGAS-X	2.5	0.25	0.50	1	2400	750
VIGAS-Y	4.350	0.30	0.60	1	2400	1879
ACABADOS	2.350	3.28		1	100	771
TABIQUER.	2.350	3.28		1	120	925
SOBREC.	2.350	3.28		1	300	2312
COLUMNA	2.500	0.20	3.55	2	2400	8520
						17470

$$bxd = \frac{1.5x\ PG}{0.2 \times f'c} = \frac{43707}{42} = 1041\ CM2$$

(30X35)

COLUMNA ESQUINA(C-1)-NIVEL 3

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	2.35	3.28		1	300	2312
VIGAS-X	2.5	0.25	0.50	1	2400	750
VIGAS-Y	4.350	0.30	0.60	1	2400	1879
ACABADOS	2.350	3.28		1	100	771
TABIQUER.	2.350	3.28		1	120	925
SOBREC.	2.350	3.28		1	300	2312
COLUMNA	2.500	0.20	3.55	2	2400	8520
					TOTAL	**17470**

$$bxd = \frac{1.50x\ PG}{0.20 \times f'c} = \frac{69912}{42} = 1665\ CM2$$

2x (240x20)

COLUMNA ESQUINA(C-1)-NIVEL 2

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	2.35	3.28		1	300	2312
VIGAS-X	2.5	0.25	0.50	1	2400	750
VIGAS-Y	4.350	0.30	0.60	1	2400	1879
ACABADOS	2.350	3.28		1	100	771
TABIQUER.	2.350	3.28		1	120	925
SOBREC.	2.350	3.28		1	300	2312
COLUMNA	2.500	0.20	3.55	2	2400	8520
					TOTAL	**17470**

$$bxd = \frac{1.50x\ PG}{0.20 \times f'c} = \frac{96116}{42} = 2288\ CM2$$

2x (240x20)

COLUMNA ESQUINA(C-1)-NIVEL 1

APORTANT	L(m)	B(m)	H(m)	N° VECES	W(Kgs)	PESO(Kgs)
LOSA	2.35	3.28		1	300	2312
VIGAS-X	2.5	0.25	0.50	1	2400	750
VIGAS-Y	4.350	0.30	0.60	1	2400	1879
ACABADOS	2.350	3.28		1	100	771
TABIQUER.	2.350	3.28		1	120	925
SOBREC.	2.350	3.28		1	300	2312
COLUMNA	2.500	0.20	3.55	2	2400	8520
					TOTAL	**17470**

$$bxd = \frac{1.50x\ PG}{0.20 \times f'c} = \frac{122321}{42} = 2912\ CM2$$

2x (240x20)

USAR:

1° Y 2° Piso: **2x (240x20)**

3°,4° y 5° Piso: **2x (240x20)**

ANEXO N° 2

PREDIMENSIONAMIENTO

DE VIGAS

2.00 PREDIMENSIONADO DE VIGAS

Ejes Sec.	Viga	Luz Libre(m	h(m.)	Usar h(m.	Ancho trib.	b(m.)	Usar b(m.)
A	V-501	4.70	0.39	0.50	1.00	0.05	0.25
	V-401	4.70	0.39	0.50	1.00	0.05	0.25
	V-301	4.70	0.39	0.50	1.00	0.05	0.25
	V-201	4.70	0.39	0.50	1.00	0.05	0.25
	V-101	4.70	0.39	0.50	1.00	0.05	0.25
B	V-502	4.70	0.39	0.50	1.00	0.05	0.25
	V-402	4.70	0.39	0.50	1.00	0.05	0.25
	V-302	4.70	0.39	0.50	1.00	0.05	0.25
	V-202	4.70	0.39	0.50	1.00	0.05	0.25
	V-102	4.70	0.39	0.50	1.00	0.05	0.25
C	V-501	4.70	0.39	0.50	1.00	0.05	0.25
	V-401	4.70	0.39	0.50	1.00	0.05	0.25
	V-301	4.70	0.39	0.50	1.00	0.05	0.25
	V-201	4.70	0.39	0.50	1.00	0.05	0.25
	V-101	4.70	0.39	0.50	1.00	0.05	0.25

Ejes Princ.	Viga	Luz Libre(m	h(m.)	Usar h(m.	Ancho trib.	b(m.)	Usar b(m.)
1	V-503	6.55	0.55	0.60	2.25	0.11	0.30
	V-403	6.55	0.55	0.60	2.25	0.11	0.30
	V-303	6.55	0.55	0.60	2.25	0.11	0.30
	V-203	6.55	0.55	0.60	2.25	0.11	0.30
	V-103	6.55	0.55	0.60	2.25	0.11	0.30
2	V-504	6.55	0.55	0.60	2.25	0.11	0.30
	V-404	6.55	0.55	0.60	2.25	0.11	0.30
	V-304	6.55	0.55	0.60	2.25	0.11	0.30
	V-204	6.55	0.55	0.60	2.25	0.11	0.30
	V-104	6.55	0.55	0.60	2.25	0.11	0.30
3	V-504	6.55	0.55	0.60	2.25	0.11	0.30
	V-404	6.55	0.55	0.60	2.25	0.11	0.30
	V-304	6.55	0.55	0.60	2.25	0.11	0.30
	V-204	6.55	0.55	0.60	2.25	0.11	0.30
	V-104	6.55	0.55	0.60	2.25	0.11	0.30
4	V-503	6.55	0.55	0.60	2.25	0.11	0.30
	V-403	6.55	0.55	0.60	2.25	0.11	0.30
	V-303	6.55	0.55	0.60	2.25	0.11	0.30
	V-203	6.55	0.55	0.60	2.25	0.11	0.30
	V-103	6.55	0.55	0.60	2.25	0.11	0.30

PARA VIGAS PRINCIPALES: EJES 1, 2, 3, 4
Vigas Principales : SECCION 30x60

PARA VIGAS SECUNDARIAS:EJES A, B y C
Vigas Secundarias : SECCION 25x50

ANEXO N° 3

PESO DE LA EDIFICACION

3.00 PESO DE LA EDIFICACIÓN P:

QUINTO NIVEL	PESO	ÁREA	LONGITUD	KG.
PESO DE LOSA 5to NIVEL	300	152.970		45891
PESO DE VIGA V-X	2400	0.125	42.30	12690
PESO DE VIGA V-Y	2400	0.180	52.40	22637
PESO DE PLACAS	2400	3.200	1.775	13632
PESO DE COLUMNAS	2400	1.280	1.775	5453
PESO DE ACABADOS	100	172.200		17220
PESO DE TABIQUERIA	0	0.000		0
25 % SOBRECARGA	75	172.200		12915
			SUB-TOTAL=	130438

CUARTO NIVEL	PESO	ÁREA	LONGITUD	KG.
PESO DE LOSA 4to NIVEL	300	184.700		55410
PESO DE VIGA V-X	2400	0.125	42.30	12690
PESO DE VIGA V-Y	2400	0.180	52.40	22637
PESO DE PLACAS	2400	3.200	3.55	27264
PESO DE COLUMNAS	2400	1.280	3.55	10906
PESO DE ACABADOS	100	210.000		21000
PESO DE TABIQUERIA	120	210.000		25200
50% SOBRECARGA	150	210.000		31500
			SUB-TOTAL=	206606

TERCER NIVEL	PESO	ÁREA	LONGITUD	KG.
PESO DE LOSA 3er NIVEL	300	184.700		55410
PESO DE VIGA V-X	2400	0.125	42.30	12690
PESO DE VIGA V-Y	2400	0.180	52.40	22637
PESO DE PLACAS	2400	3.200	3.55	27264
PESO DE COLUMNAS	2400	1.280	3.55	10906
PESO DE ACABADOS	100	210.000		21000
PESO DE TABIQUERIA	120	210.000		25200
50% SOBRECARGA	150	210.000		31500
			SUB-TOTAL=	206606

SEGUNDO NIVEL	PESO	ÁREA	LONGITUD	KG.
PESO DE LOSA 2do NIVEL	300	184.700		55410
PESO DE VIGA V-X	2400	0.125	42.30	12690
PESO DE VIGA V-Y	2400	0.180	52.40	22637
PESO DE PLACAS	2400	3.200	3.55	27264
PESO DE COLUMNAS	2400	1.280	3.55	10906
PESO DE ACABADOS	100	210.000		21000
PESO DE TABIQUERIA	120	210.000		25200
50% SOBRECARGA	150	210.000		31500
			SUB-TOTAL=	206606

PRIMER NIVEL	PESO	ÁREA	LONGITUD	KG.
PESO DE LOSA 1er NIVEL	300	184.700		55410
PESO DE VIGA V-X	2400	0.125	42.30	12690
PESO DE VIGA V-Y	2400	0.180	52.40	22637
PESO DE PLACAS	2400	3.200	4.00	30720
PESO DE COLUMNAS	2400	1.280	4	12288
PESO DE ACABADOS	100	210.000		21000
PESO DE TABIQUERIA	120	210.000		25200
50% SOBRECARGA	150	210.000		31500
			SUB-TOTAL=	211445
			TOTAL=	**961702**

P = PESO EDIFICACIÓN= 961.70 TON.

ANEXO N° 4

CARGAS EN VIGAS

4.00 CÁLCULOS DE PESOS APORTANTES SIN CONSIDERAR PESOS DE VIGA

Por unidad de Area

APORTANTE	TIPOS DE CARGA	PISO TIPICO Kg/m^2	AZOTEA Kg/m^2
LOSA	D	300	300
TABIQUERIA	D	120	0
ACABADOS	D	100	100
S/C	L	300	100
W_D (Kg/m^2)	D	520	400
W_L (Kg/m^2)	L	300	100

Por unidad de Longitud

NIVEL	CARGA	ANCHO TRIB. Ejes A,B,C	W Kg/m	ANCHO TRIB. Ejes 1,4	W Kg/m	ANCHO TRIB. Ejes 2,3	W Kg/m
Pisos Tipicos	W_D (Kg/m^2)	1	520	2.50	1300	5.00	2600
	W_L (Kg/m^2)	1	300	2.50	750	5.00	1500
Azotea	W_D (Kg/m^2)	1	400	2.50	1000	5.00	2000
	W_L (Kg/m^2)	1	100	2.50	250	5.00	500

ANEXO N° 5

ARCHIVOS DE DATOS Y

RESULTADOS DEL ANALISIS

SISMICO ESTATICO (SAP 2000)

ARCHIVO DE INGRESO DE DATOS PORTICOS 1 Y 4

```
; File D:\Mis documentos\matumay\EJES 1, 4.$2k saved 12/23/01 5:21:10
in Ton-m

SYSTEM
  DOF=UX,UZ,RY  LENGTH=m  FORCE=Ton  PAGE=SECTIONS

JOINT
  1  X=-6.85  Y=0  Z=-.45
  2  X=-6.85  Y=0  Z=3.55
  3  X=-6.85  Y=0  Z=7.1
  4  X=-6.85  Y=0  Z=10.65
  5  X=-6.85  Y=0  Z=14.2
  6  X=-6.85  Y=0  Z=17.75
  7  X=0  Y=0  Z=-.45
  8  X=0  Y=0  Z=3.55
  9  X=0  Y=0  Z=7.1
  10  X=0  Y=0  Z=10.65
  11  X=0  Y=0  Z=14.2
  12  X=0  Y=0  Z=17.75
  13  X=6.85  Y=0  Z=-.45
  14  X=6.85  Y=0  Z=3.55
  15  X=6.85  Y=0  Z=7.1
  16  X=6.85  Y=0  Z=10.65
  17  X=6.85  Y=0  Z=14.2
  18  X=6.85  Y=0  Z=17.75

RESTRAINT
  ADD=1  DOF=U1,U2,U3,R1,R2,R3
  ADD=7  DOF=U1,U2,U3,R1,R2,R3
  ADD=13  DOF=U1,U2,U3,R1,R2,R3

CONSTRAINT
  NAME=DIAPH1  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=2
    ADD=8
    ADD=14
  NAME=DIAPH2  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=3
    ADD=9
    ADD=15
  NAME=DIAPH3  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=4
    ADD=10
    ADD=16
  NAME=DIAPH4  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=5
    ADD=11
    ADD=17
  NAME=DIAPH5  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=6
    ADD=12
    ADD=18

PATTERN
  NAME=DEFAULT

MATERIAL
  NAME=STEEL  IDES=S  M=.798142  W=7.833414
    T=0  E=2.038902E+07  U=.3  A=.0000117  FY=25310.51
  NAME=CONC  IDES=C  M=.2448  W=2.4026
    T=0  E=2200001  U=.2  A=.0000099
  NAME=OTHER  IDES=N  M=.2448012  W=2.402616
    T=0  E=2531051  U=.2  A=.0000099

FRAME SECTION
  NAME=C50X65 MAT=CONC SH=R T=.65,.5 A=.325 J=1.434129E-02
I=1.144271E-02,6.770833E-03 AS=.2708333,.2708333
  NAME=V30X60 MAT=CONC SH=R T=.6,.3 A=.18 J=3.707859E-03
I=.0054,.00135 AS=.15,.15
  NAME=P275X20 MAT=CONC SH=R T=2.75,.2 A=.55 J=6.997334E-03
I=.3466146,1.833333E-03 AS=.4583333,.4583333

FRAME
  1  J=1,2  SEC=P275X20  NSEG=2  ANG=0
  2  J=2,3  SEC=P275X20  NSEG=2  ANG=0
  3  J=3,4  SEC=P275X20  NSEG=2  ANG=0
  4  J=4,5  SEC=P275X20  NSEG=2  ANG=0
  5  J=5,6  SEC=P275X20  NSEG=2  ANG=0
  6  J=7,8  SEC=C50X65  NSEG=2  ANG=0
  7  J=8,9  SEC=C50X65  NSEG=2  ANG=0
  8  J=9,10  SEC=C50X65  NSEG=2  ANG=0
  9  J=10,11  SEC=C50X65  NSEG=2  ANG=0
  10  J=11,12  SEC=C50X65  NSEG=2  ANG=0
  11  J=13,14  SEC=P275X20  NSEG=2  ANG=0
  12  J=14,15  SEC=P275X20  NSEG=2  ANG=0
  13  J=15,16  SEC=P275X20  NSEG=2  ANG=0
  14  J=16,17  SEC=P275X20  NSEG=2  ANG=0
  15  J=17,18  SEC=P275X20  NSEG=2  ANG=0
  16  J=2,8  SEC=V30X60  NSEG=4  IOFF=2.75  JOFF=.325  RIGID=1
  17  J=3,9  SEC=V30X60  NSEG=4  IOFF=2.75  JOFF=.325  RIGID=1
  18  J=4,10  SEC=V30X60  NSEG=4  IOFF=2.75  JOFF=.325  RIGID=1
  19  J=5,11  SEC=V30X60  NSEG=4  IOFF=2.75  JOFF=.325  RIGID=1
  20  J=6,12  SEC=V30X60  NSEG=4  IOFF=2.75  JOFF=.325  RIGID=1
  21  J=8,14  SEC=V30X60  NSEG=4  IOFF=.325  JOFF=2.75  RIGID=1
  22  J=9,15  SEC=V30X60  NSEG=4  IOFF=.325  JOFF=2.75  RIGID=1
  23  J=10,16  SEC=V30X60  NSEG=4  IOFF=.325  JOFF=2.75  RIGID=1
```

```
  24  J=11,17  SEC=V30X60  NSEG=4 IOFF=.325  JOFF=2.75  RIGID=1
  25  J=12,18  SEC=V30X60  NSEG=4 IOFF=.325  JOFF=2.75  RIGID=1

LOAD
  NAME=MUERTA  SW=1
    TYPE=DISTRIBUTED SPAN
      ADD=16  RD=0,1  UZ=-1.3,-1.3
      ADD=17  RD=0,1  UZ=-1.3,-1.3
      ADD=18  RD=0,1  UZ=-1.3,-1.3
      ADD=19  RD=0,1  UZ=-1.3,-1.3
      ADD=21  RD=0,1  UZ=-1.3,-1.3
      ADD=22  RD=0,1  UZ=-1.3,-1.3
      ADD=23  RD=0,1  UZ=-1.3,-1.3
      ADD=24  RD=0,1  UZ=-1.3,-1.3
      ADD=20  RD=0,1  UZ=-1,-1
      ADD=25  RD=0,1  UZ=-1,-1
  NAME=VIVA
    TYPE=DISTRIBUTED SPAN
      ADD=16  RD=0,1  UZ=-.75,-.75
      ADD=17  RD=0,1  UZ=-.75,-.75
      ADD=18  RD=0,1  UZ=-.75,-.75
      ADD=19  RD=0,1  UZ=-.75,-.75
      ADD=21  RD=0,1  UZ=-.75,-.75
      ADD=22  RD=0,1  UZ=-.75,-.75
      ADD=23  RD=0,1  UZ=-.75,-.75
      ADD=24  RD=0,1  UZ=-.75,-.75
      ADD=20  RD=0,1  UZ=-.25,-.25
      ADD=25  RD=0,1  UZ=-.25,-.25
  NAME=SISMO
    TYPE=FORCE
      ADD=6  UX=17.91
      ADD=5  UX=22.83
      ADD=4  UX=17.30
      ADD=3  UX=11.77
      ADD=2  UX=6.38

COMBO
  NAME=COMB1
    LOAD=MUERTA  SF=1.5
    LOAD=VIVA  SF=1.8
  NAME=COMB2
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=1.25
  NAME=COMB3
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=-1.25
  NAME=COMB4
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=-1.25
  NAME=COMB5
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=1.25
  NAME=ENVOLV  TYPE=ENVE
    COMB=COMB1  SF=1
    COMB=COMB2  SF=1
    COMB=COMB3  SF=1
    COMB=COMB4  SF=1
    COMB=COMB5  SF=1
  NAME=SERVICIO
    LOAD=MUERTA  SF=1
    LOAD=VIVA  SF=1

OUTPUT
  ELEM=JOINT  TYPE=DISP  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=SERVICIO

END

; The following data is used for graphics, design and pushover
analysis.
; If changes are made to the analysis data above, then the
following data
; should be checked for consistency.
SAP2000 V7.10 SUPPLEMENTAL DATA
  GRID GLOBAL  X "1"  -6.85
  GRID GLOBAL  X "2"  0
  GRID GLOBAL  X "3"  6.85
  GRID GLOBAL  Y "4"  0
  GRID GLOBAL  Z "5"  -.45
  GRID GLOBAL  Z "6"  3.55
  GRID GLOBAL  Z "7"  7.1
  GRID GLOBAL  Z "8"  10.65
  GRID GLOBAL  Z "9"  14.2
  GRID GLOBAL  Z "10"  17.75
  MATERIAL STEEL FY 25310.51
  MATERIAL CONC FYREBAR 42184.18 FYSHEAR 28122.79 FC 2812.279
FCSHEAR 2812.279
  CONCRETESECTION C50X65 COLUMN  COVER .05 REBAR RR-3-3
  CONCRETESECTION V30X60 COLUMN  COVER .04572 REBAR RR-3-3
  CONCRETESECTION P275X20 COLUMN  COVER .04572 REBAR RR-3-3
  STATICLOAD MUERTA TYPE DEAD
  STATICLOAD VIVA TYPE LIVE
  STATICLOAD SISMO TYPE QUAKE
END SUPPLEMENTAL DATA
```

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RESULTADOS PORTICOS EJES 1 Y 4

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

TRANSLATIONS AND ROTATIONS, IN GLOBAL COORDINATES

COMB ENVOLV ---------- MAX

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	0.001537	.000000	0.000562
3	0.003993	.000000	0.000709
4	0.006617	.000000	0.000693
5	0.008956	.000000	0.000596
6	0.010858	.000000	0.000530
7	.000000	.000000	.000000
8	0.001537	.000000	0.000184
9	0.003993	.000000	0.000268
10	0.006617	.000000	0.000256
11	0.008956	.000000	0.000259
12	0.010858	.000000	7.73E-06
13	.000000	.000000	.000000
14	0.001537	.000000	0.000510
15	0.003993	.000000	0.000658
16	0.006617	.000000	0.000641
17	0.008956	.000000	0.000543
18	0.010858	.000000	0.000454

COMB ENVOLV ---------- MIN

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	-0.001537	-0.000432	-0.000510
3	-0.003993	-0.000734	-0.000658
4	-0.006617	-0.000952	-0.000641
5	-0.008956	-0.001085	-0.000543
6	-0.010858	-0.001137	-0.000454
7	.000000	.000000	.000000
8	-0.001537	-0.000549	-0.000184
9	-0.003993	-0.000926	-0.000268
10	-0.006617	-0.001198	-0.000256
11	-0.008956	-0.001365	-0.000259
12	-0.010858	-0.001430	-7.73E-06
13	.000000	.000000	.000000
14	-0.001537	-0.000432	-0.000562
15	-0.003993	-0.000734	-0.000709
16	-0.006617	-0.000952	-0.000693
17	-0.008956	-0.001085	-0.000596
18	-0.010858	-0.001137	-0.000530

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

ELEM 1 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	27.124351	.000000	158.069526
0.50000	.000000	27.124351	.000000	107.067302
1.00000	.000000	27.124351	.000000	56.943294

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-133.845747	-33.363631	.000000	-160.726418
0.50000	-130.542172	-33.363631	.000000	-97.245635
1.00000	-127.238597	-33.363631	.000000	-34.643067

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-78.606666	-3.320651	.000000	-1.414043
0.50000	-75.963806	-3.320651	.000000	5.227258
1.00000	-73.320946	-3.320651	.000000	11.868560

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-78.606666	-3.320651	.000000	-1.414043
0.50000	-75.963806	-3.320651	.000000	5.227258
1.00000	-73.320946	-3.320651	.000000	11.868560

ELEM 2 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	19.539811	.000000	66.388653
0.50000	.000000	19.539811	.000000	31.705488
1.00000	.000000	19.539811	.000000	27.028009

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-106.175376	-33.166519	.000000	-90.713135
0.50000	-103.243454	-33.166519	.000000	-31.842563
1.00000	-100.311531	-33.166519	.000000	-2.977676

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-61.877488	-7.250921	.000000	-12.945671
0.50000	-59.531950	-7.250921	.000000	-0.075286
1.00000	-57.186412	-7.250921	.000000	12.795098

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-61.877488	-7.250921	.000000	-12.945671
0.50000	-59.531950	-7.250921	.000000	-0.075286
1.00000	-57.186412	-7.250921	.000000	12.795098

ELEM 3 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	14.627025	.000000	22.523239
0.50000	.000000	14.627025	.000000	3.673573
1.00000	.000000	14.627025	.000000	53.930357

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-77.099496	-28.313681	.000000	-46.583211
0.50000	-74.167574	-28.313681	.000000	-3.439731
1.00000	-71.235651	-28.313681	.000000	-29.402702

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-45.574871	-7.279685	.000000	-12.799723
0.50000	-43.229332	-7.279685	.000000	0.121718
1.00000	-40.883794	-7.279685	.000000	13.043158

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-45.574871	-7.279685	.000000	-12.799723
0.50000	-43.229332	-7.279685	.000000	0.121718
1.00000	-40.883794	-7.279685	.000000	13.043158

ELEM 4 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	8.410691	.000000	.000000
0.50000	.000000	8.410691	.000000	21.046444
1.00000	.000000	8.410691	.000000	60.549570

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-48.283847	-22.255282	.000000	-20.759488
0.50000	-45.351924	-22.255282	.000000	-21.025346
1.00000	-42.420001	-22.255282	.000000	-35.954322

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-29.162821	-7.368072	.000000	-13.057371
0.50000	-26.817283	-7.368072	.000000	0.020957
1.00000	-24.471745	-7.368072	.000000	13.099284

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-29.162821	-7.368072	.000000	-13.057371
0.50000	-26.817283	-7.368072	.000000	0.020957
1.00000	-24.471745	-7.368072	.000000	13.099284

ELEM 5 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	1.783955
0.50000	.000000	.000000	.000000	19.662145
1.00000	.000000	.000000	.000000	45.731331

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.570615	-14.686865	.000000	-26.908474
0.50000	-17.638692	-14.686865	.000000	-14.370051
1.00000	-14.706769	-14.686865	.000000	-10.022624

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-12.680633	-8.779296	.000000	-13.326206
0.50000	-10.335095	-8.779296	.000000	2.257044
1.00000	-7.989557	-8.779296	.000000	17.840294

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-12.680633	-8.779296	.000000	-13.326206
0.50000	-10.335095	-8.779296	.000000	2.257044
1.00000	-7.989557	-8.779296	.000000	17.840294

ELEM 6 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	5.124365	.000000	11.409683
0.50000	.000000	5.124365	.000000	1.160953
1.00000	.000000	5.124365	.000000	9.087777

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-100.477591	-5.124365	.000000	-11.409683
0.50000	-98.135056	-5.124365	.000000	-1.160953
1.00000	-95.792521	-5.124365	.000000	-9.087777

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-64.187158	1.13E-15	.000000	8.33E-16
0.50000	-62.625468	1.13E-15	.000000	-1.42E-15
1.00000	-61.063778	1.13E-15	.000000	-3.67E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-64.187158	1.13E-15	.000000	8.33E-16
0.50000	-62.625468	1.13E-15	.000000	-1.42E-15
1.00000	-61.063778	1.13E-15	.000000	-3.67E-15

ELEM 7 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	10.181763	.000000	18.662235
0.50000	.000000	10.181763	.000000	0.589605
1.00000	.000000	10.181763	.000000	17.483024

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-78.096977	-10.181763	.000000	-18.662235
0.50000	-76.017977	-10.181763	.000000	-0.589605
1.00000	-73.938978	-10.181763	.000000	-17.483024

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-49.940881	2.04E-15	.000000	3.72E-15
0.50000	-48.554881	2.04E-15	.000000	9.03E-17
1.00000	-47.168881	2.04E-15	.000000	-3.54E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-49.940881	2.04E-15	.000000	3.72E-15
0.50000	-48.554881	2.04E-15	.000000	9.03E-17
1.00000	-47.168881	2.04E-15	.000000	-3.54E-15

ELEM 8 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	10.434350	.000000	18.438822
0.50000	.000000	10.434350	.000000	0.082150
1.00000	.000000	10.434350	.000000	18.603122

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-56.775330	-10.434350	.000000	-18.438822
0.50000	-54.696330	-10.434350	.000000	-0.082150
1.00000	-52.617330	-10.434350	.000000	-18.603122

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-36.382152	1.25E-15	.000000	2.04E-15
0.50000	-34.996152	1.25E-15	.000000	-1.89E-16
1.00000	-33.610152	1.25E-15	.000000	-2.42E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-36.382152	1.25E-15	.000000	2.04E-15
0.50000	-34.996152	1.25E-15	.000000	-1.89E-16

1.00000 -33.610152 1.25E-15 .000000 -2.42E-15

ELEM 9 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	8.772115	.000000	15.592178
0.50000	.000000	8.772115	.000000	0.021673
1.00000	.000000	8.772115	.000000	15.548832

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-35.798838	-8.772115	.000000	-15.592178
0.50000	-33.719838	-8.772115	.000000	-0.021673
1.00000	-31.640838	-8.772115	.000000	-15.548832

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-23.042286	1.09E-15	.000000	1.82E-15
0.50000	-21.656287	1.09E-15	.000000	-1.05E-16
1.00000	-20.270287	1.09E-15	.000000	-2.03E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-23.042286	1.09E-15	.000000	1.82E-15
0.50000	-21.656287	1.09E-15	.000000	-1.05E-16
1.00000	-20.270287	1.09E-15	.000000	-2.03E-15

ELEM 10 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	8.962008	.000000	14.015471
0.50000	.000000	8.962008	.000000	1.892093
1.00000	.000000	8.962008	.000000	17.799658

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-15.041381	-8.962008	.000000	-14.015471
0.50000	-12.962382	-8.962008	.000000	-1.892093
1.00000	-10.883382	-8.962008	.000000	-17.799658

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-9.842698	6.63E-16	.000000	1.28E-15
0.50000	-8.456698	6.63E-16	.000000	9.87E-17
1.00000	-7.070699	6.63E-16	.000000	-1.08E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-9.842698	6.63E-16	.000000	1.28E-15
0.50000	-8.456698	6.63E-16	.000000	9.87E-17
1.00000	-7.070699	6.63E-16	.000000	-1.08E-15

ELEM 11 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	33.363631	.000000	160.726418
0.50000	.000000	33.363631	.000000	97.245635
1.00000	.000000	33.363631	.000000	34.643067

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-133.845747	-27.124351	.000000	-158.069526
0.50000	-130.542172	-27.124351	.000000	-107.067302
1.00000	-127.238597	-27.124351	.000000	-56.943294

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-78.606666	3.320651	.000000	1.414043
0.50000	-75.963806	3.320651	.000000	-5.227258
1.00000	-73.320946	3.320651	.000000	-11.868560

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-78.606666	3.320651	.000000	1.414043
0.50000	-75.963806	3.320651	.000000	-5.227258
1.00000	-73.320946	3.320651	.000000	-11.868560

ELEM 12 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	33.166519	.000000	90.713135
0.50000	.000000	33.166519	.000000	31.842563
1.00000	.000000	33.166519	.000000	2.977676

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-106.175376	-19.539811	.000000	-66.388653
0.50000	-103.243454	-19.539811	.000000	-31.705488
1.00000	-100.311531	-19.539811	.000000	-27.028009

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-61.877488	7.250921	.000000	12.945671
0.50000	-59.531950	7.250921	.000000	0.075286
1.00000	-57.186412	7.250921	.000000	-12.795098

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-61.877488	7.250921	.000000	12.945671
0.50000	-59.531950	7.250921	.000000	0.075286
1.00000	-57.186412	7.250921	.000000	-12.795098

ELEM 13 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	28.313681	.000000	46.583211
0.50000	.000000	28.313681	.000000	3.439731
1.00000	.000000	28.313681	.000000	29.402702

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-77.099496	-14.627025	.000000	-22.523239
0.50000	-74.167574	-14.627025	.000000	-3.673573
1.00000	-71.235651	-14.627025	.000000	-53.930357

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-45.574871	7.279685	.000000	12.799723
0.50000	-43.229332	7.279685	.000000	-0.121718
1.00000	-40.883794	7.279685	.000000	-13.043158

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-45.574871	7.279685	.000000	12.799723
0.50000	-43.229332	7.279685	.000000	-0.121718
1.00000	-40.883794	7.279685	.000000	-13.043158

ELEM 14 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	22.255282	.000000	20.759488
0.50000	.000000	22.255282	.000000	21.025346
1.00000	.000000	22.255282	.000000	35.954322

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-48.283847	-8.410691	.000000	.000000
0.50000	-45.351924	-8.410691	.000000	-21.046444
1.00000	-42.420001	-8.410691	.000000	-60.549570

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-29.162821	7.368072	.000000	13.057371
0.50000	-26.817283	7.368072	.000000	-0.020957
1.00000	-24.471745	7.368072	.000000	-13.099284

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-29.162821	7.368072	.000000	13.057371
0.50000	-26.817283	7.368072	.000000	-0.020957
1.00000	-24.471745	7.368072	.000000	-13.099284

ELEM 15 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	14.686865	.000000	26.908474
0.50000	.000000	14.686865	.000000	14.370051
1.00000	.000000	14.686865	.000000	10.022624

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.570615	.000000	.000000	-1.783955
0.50000	-17.638692	.000000	.000000	-19.662145
1.00000	-14.706769	.000000	.000000	-45.731331

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-12.680633	8.779296	.000000	13.326206
0.50000	-10.335095	8.779296	.000000	-2.257044
1.00000	-7.989557	8.779296	.000000	-17.840294

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-12.680633	8.779296	.000000	13.326206
0.50000	-10.335095	8.779296	.000000	-2.257044
1.00000	-7.989557	8.779296	.000000	-17.840294

ELEM 16 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	5.99E-15	3.854597	.000000	12.112195
0.53923	5.99E-15	5.326112	.000000	8.107651
0.67701	5.99E-15	6.845134	.000000	3.029459
0.81478	5.99E-15	9.773670	.000000	5.786766
0.95255	5.99E-15	12.702207	.000000	9.807879

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-5.99E-15	-12.529737	.000000	-17.250924
0.53923	-5.99E-15	-9.601201	.000000	-7.135491
0.67701	-5.99E-15	-6.720171	.000000	-0.098959
0.81478	-5.99E-15	-5.248656	.000000	-5.050474
0.95255	-5.99E-15	-3.777141	.000000	-15.418344

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	-2.39E-32	-4.616671	.000000	-2.731555
0.53923	-2.39E-32	-2.273841	.000000	0.519905
0.67701	-2.39E-32	0.068988	.000000	1.560321
0.81478	-2.39E-32	2.411817	.000000	0.389691
0.95255	-2.39E-32	4.754646	.000000	-2.991984

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-2.39E-32	-4.616671	.000000	-2.731555
0.53923	-2.39E-32	-2.273841	.000000	0.519905
0.67701	-2.39E-32	0.068988	.000000	1.560321
0.81478	-2.39E-32	2.411817	.000000	0.389691
0.95255	-2.39E-32	4.754646	.000000	-2.991984

ELEM 17 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	4.51E-15	5.683500	.000000	15.767095
0.53923	4.51E-15	7.155015	.000000	9.941120
0.67701	4.51E-15	8.626530	.000000	3.231557
0.81478	4.51E-15	11.502275	.000000	7.609853
0.95255	4.51E-15	14.430812	.000000	13.470346

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-4.51E-15	-14.678551	.000000	-21.511665
0.53923	-4.51E-15	-11.750014	.000000	-9.272885
0.67701	-4.51E-15	-8.821478	.000000	-0.303065
0.81478	-4.51E-15	-7.297172	.000000	-6.573654
0.95255	-4.51E-15	-5.825657	.000000	-18.478987

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	2.13E-30	-4.784754	.000000	-3.049915
0.53923	2.13E-30	-2.441925	.000000	0.360174
0.67701	2.13E-30	-0.099096	.000000	1.559218
0.81478	2.13E-30	2.243734	.000000	0.547217
0.95255	2.13E-30	4.586563	.000000	-2.675829

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	2.13E-30	-4.784754	.000000	-3.049915
0.53923	2.13E-30	-2.441925	.000000	0.360174
0.67701	2.13E-30	-0.099096	.000000	1.559218
0.81478	2.13E-30	2.243734	.000000	0.547217
0.95255	2.13E-30	4.586563	.000000	-2.675829

ELEM 18 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	1.64E-14	5.213280	.000000	14.865618
0.53923	1.64E-14	6.684795	.000000	9.424431
0.67701	1.64E-14	8.156310	.000000	3.218652
0.81478	1.64E-14	10.968465	.000000	7.381624
0.95255	1.64E-14	13.897001	.000000	12.875465

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-1.64E-14	-14.418320	.000000	-21.003117
0.53923	-1.64E-14	-11.489784	.000000	-8.950948
0.67701	-1.64E-14	-8.561247	.000000	-0.286734
0.81478	-1.64E-14	-6.973351	.000000	-6.143821

0.95255	-1.64E-14	-5.501836	.000000	-17.484325

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	-2.87E-30	-4.894186	.000000	-3.254685
0.53923	-2.87E-30	-2.551357	.000000	0.258680
0.67701	-2.87E-30	-0.208528	.000000	1.561001
0.81478	-2.87E-30	2.134302	.000000	0.652276
0.95255	-2.87E-30	4.477131	.000000	-2.467493

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-2.87E-30	-4.894186	.000000	-3.254685
0.53923	-2.87E-30	-2.551357	.000000	0.258680
0.67701	-2.87E-30	-0.208528	.000000	1.561001
0.81478	-2.87E-30	2.134302	.000000	0.652276
0.95255	-2.87E-30	4.477131	.000000	-2.467493

ELEM 19 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	1.46E-14	3.972992	.000000	12.206921
0.53923	1.46E-14	5.444507	.000000	7.901345
0.67701	1.46E-14	6.916022	.000000	2.901457
0.81478	1.46E-14	9.690700	.000000	6.659180
0.95255	1.46E-14	12.619236	.000000	11.041417

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-1.46E-14	-13.315902	.000000	-18.604339
0.53923	-1.46E-14	-10.387366	.000000	-7.557667
0.67701	-1.46E-14	-7.458829	.000000	.000000
0.81478	-1.46E-14	-5.833455	.000000	-5.290954
0.95255	-1.46E-14	-4.361940	.000000	-15.389740

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	-5.27E-30	-4.964325	.000000	-3.386765
0.53923	-5.27E-30	-2.621495	.000000	0.192794
0.67701	-5.27E-30	-0.278666	.000000	1.561308
0.81478	-5.27E-30	2.064163	.000000	0.718777
0.95255	-5.27E-30	4.406992	.000000	-2.334799

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-5.27E-30	-4.964325	.000000	-3.386765
0.53923	-5.27E-30	-2.621495	.000000	0.192794
0.67701	-5.27E-30	-0.278666	.000000	1.561308
0.81478	-5.27E-30	2.064163	.000000	0.718777
0.95255	-5.27E-30	4.406992	.000000	-2.334799

ELEM 20 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	2.50E-14	2.199830	.000000	8.847958
0.53923	2.50E-14	3.416533	.000000	6.239004
0.67701	2.50E-14	4.633235	.000000	2.941974
0.81478	2.50E-14	6.470721	.000000	3.594907
0.95255	2.50E-14	8.455508	.000000	6.089267

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	-2.50E-14	-8.923286	.000000	-13.240005
0.53923	-2.50E-14	-6.938499	.000000	-5.796493
0.67701	-2.50E-14	-4.953713	.000000	-0.686310
0.81478	-2.50E-14	-3.589710	.000000	-2.547495
0.95255	-2.50E-14	-2.373007	.000000	-9.271512

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.40146	8.02E-30	-3.362770	.000000	-2.230845
0.53923	8.02E-30	-1.774940	.000000	0.193511
0.67701	8.02E-30	-0.187111	.000000	1.119354
0.81478	8.02E-30	1.400718	.000000	0.546684
0.95255	8.02E-30	2.988547	.000000	-1.524501

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.40146	8.02E-30	-3.362770	.000000	-2.230845
0.53923	8.02E-30	-1.774940	.000000	0.193511
0.67701	8.02E-30	-0.187111	.000000	1.119354
0.81478	8.02E-30	1.400718	.000000	0.546684
0.95255	8.02E-30	2.988547	.000000	-1.524501

ELEM 21 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	5.99E-15	3.777141	.000000	9.807879

0.18522	5.99E-15	5.248656	.000000	5.786766
0.32299	5.99E-15	6.720171	.000000	3.029459
0.46077	5.99E-15	9.601201	.000000	8.107651
0.59854	5.99E-15	12.529737	.000000	12.112195

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-5.99E-15	-12.702207	.000000	-15.418344
0.18522	-5.99E-15	-9.773670	.000000	-5.050474
0.32299	-5.99E-15	-6.845134	.000000	-0.098959
0.46077	-5.99E-15	-5.326112	.000000	-7.135491
0.59854	-5.99E-15	-3.854597	.000000	-17.250924

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	-2.39E-32	-4.754646	.000000	-2.991984
0.18522	-2.39E-32	-2.411817	.000000	0.389691
0.32299	-2.39E-32	-0.068988	.000000	1.560321
0.46077	-2.39E-32	2.273841	.000000	0.519905
0.59854	-2.39E-32	4.616671	.000000	-2.731555

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-2.39E-32	-4.754646	.000000	-2.991984
0.18522	-2.39E-32	-2.411817	.000000	0.389691
0.32299	-2.39E-32	-0.068988	.000000	1.560321
0.46077	-2.39E-32	2.273841	.000000	0.519905
0.59854	-2.39E-32	4.616671	.000000	-2.731555

ELEM 22 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	4.51E-15	5.825657	.000000	13.470346
0.18522	4.51E-15	7.297172	.000000	7.609853
0.32299	4.51E-15	8.821478	.000000	3.231557
0.46077	4.51E-15	11.750014	.000000	9.941120
0.59854	4.51E-15	14.678551	.000000	15.767095

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-4.51E-15	-14.430812	.000000	-18.478987
0.18522	-4.51E-15	-11.502275	.000000	-6.573654
0.32299	-4.51E-15	-8.626530	.000000	-0.303065
0.46077	-4.51E-15	-7.155015	.000000	-9.272885
0.59854	-4.51E-15	-5.683500	.000000	-21.511665

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	2.13E-30	-4.586563	.000000	-2.675829
0.18522	2.13E-30	-2.243734	.000000	0.547217
0.32299	2.13E-30	0.099096	.000000	1.559218
0.46077	2.13E-30	2.441925	.000000	0.360174
0.59854	2.13E-30	4.784754	.000000	-3.049915

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	2.13E-30	-4.586563	.000000	-2.675829
0.18522	2.13E-30	-2.243734	.000000	0.547217
0.32299	2.13E-30	0.099096	.000000	1.559218
0.46077	2.13E-30	2.441925	.000000	0.360174
0.59854	2.13E-30	4.784754	.000000	-3.049915

ELEM 23 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	1.64E-14	5.501836	.000000	12.875465
0.18522	1.64E-14	6.973351	.000000	7.381624
0.32299	1.64E-14	8.561247	.000000	3.218652
0.46077	1.64E-14	11.489784	.000000	9.424431
0.59854	1.64E-14	14.418320	.000000	14.865618

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-1.64E-14	-13.897001	.000000	-17.484325
0.18522	-1.64E-14	-10.968465	.000000	-6.143821
0.32299	-1.64E-14	-8.156310	.000000	-0.286734
0.46077	-1.64E-14	-6.684795	.000000	-8.950948
0.59854	-1.64E-14	-5.213280	.000000	-21.003117

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	-2.87E-30	-4.477131	.000000	-2.467493
0.18522	-2.87E-30	-2.134302	.000000	0.652276
0.32299	-2.87E-30	0.208528	.000000	1.561001
0.46077	-2.87E-30	2.551357	.000000	0.258680
0.59854	-2.87E-30	4.894186	.000000	-3.254685

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3

0.04745	-2.87E-30	-4.477131	.000000	-2.467493
0.18522	-2.87E-30	-2.134302	.000000	0.652276
0.32299	-2.87E-30	0.208528	.000000	1.561001
0.46077	-2.87E-30	2.551357	.000000	0.258680
0.59854	-2.87E-30	4.894186	.000000	-3.254685

ELEM 24 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	1.46E-14	4.361940	.000000	11.041417
0.18522	1.46E-14	5.833455	.000000	6.659180
0.32299	1.46E-14	7.458829	.000000	2.901457
0.46077	1.46E-14	10.387366	.000000	7.901345
0.59854	1.46E-14	13.315902	.000000	12.206921

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-1.46E-14	-12.619236	.000000	-15.389740
0.18522	-1.46E-14	-9.690700	.000000	-5.290954
0.32299	-1.46E-14	-6.916022	.000000	.000000
0.46077	-1.46E-14	-5.444507	.000000	-7.557667
0.59854	-1.46E-14	-3.972992	.000000	-18.604339

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	-5.27E-30	-4.406992	.000000	-2.334799
0.18522	-5.27E-30	-2.064163	.000000	0.718777
0.32299	-5.27E-30	0.278666	.000000	1.561308
0.46077	-5.27E-30	2.621495	.000000	0.192794
0.59854	-5.27E-30	4.964325	.000000	-3.386765

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-5.27E-30	-4.406992	.000000	-2.334799
0.18522	-5.27E-30	-2.064163	.000000	0.718777
0.32299	-5.27E-30	0.278666	.000000	1.561308
0.46077	-5.27E-30	2.621495	.000000	0.192794
0.59854	-5.27E-30	4.964325	.000000	-3.386765

ELEM 25 ========== LENGTH = 6.85

COMB ENVOLV ----------- MAX

REL DIST	P	V2	V3	M3
0.04745	2.50E-14	2.373007	.000000	6.089267
0.18522	2.50E-14	3.589710	.000000	3.594907
0.32299	2.50E-14	4.953713	.000000	2.941974
0.46077	2.50E-14	6.938499	.000000	6.239004
0.59854	2.50E-14	8.923286	.000000	8.847958

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	-2.50E-14	-8.455508	.000000	-9.271512
0.18522	-2.50E-14	-6.470721	.000000	-2.547495
0.32299	-2.50E-14	-4.633235	.000000	-0.686310
0.46077	-2.50E-14	-3.416533	.000000	-5.796493
0.59854	-2.50E-14	-2.199830	.000000	-13.240005

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04745	8.02E-30	-2.988547	.000000	-1.524501
0.18522	8.02E-30	-1.400718	.000000	0.546684
0.32299	8.02E-30	0.187111	.000000	1.119354
0.46077	8.02E-30	1.774940	.000000	0.193511
0.59854	8.02E-30	3.362770	.000000	-2.230845

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04745	8.02E-30	-2.988547	.000000	-1.524501
0.18522	8.02E-30	-1.400718	.000000	0.546684
0.32299	8.02E-30	0.187111	.000000	1.119354
0.46077	8.02E-30	1.774940	.000000	0.193511
0.59854	8.02E-30	3.362770	.000000	-2.230845

ARCHIVO DE INGRESO DE DATOS PORTICOS 2 Y 3

```
; File D:\Mis documentos\ matumay\EJES 2, 3.$2k saved 12/23/01 5:38:35
in Ton-m

SYSTEM
  DOF=UX,UZ,RY  LENGTH=m  FORCE=Ton  PAGE=SECTIONS

JOINT
  1  X=-6.85  Y=0  Z=-.45
  2  X=-6.85  Y=0  Z=3.55
  3  X=-6.85  Y=0  Z=7.1
  4  X=-6.85  Y=0  Z=10.65
  5  X=-6.85  Y=0  Z=14.2
  6  X=-6.85  Y=0  Z=17.75
  7  X=0  Y=0  Z=-.45
  8  X=0  Y=0  Z=3.55
  9  X=0  Y=0  Z=7.1
  10  X=0  Y=0  Z=10.65
  11  X=0  Y=0  Z=14.2
  12  X=0  Y=0  Z=17.75
  13  X=6.85  Y=0  Z=-.45
  14  X=6.85  Y=0  Z=3.55
  15  X=6.85  Y=0  Z=7.1
  16  X=6.85  Y=0  Z=10.65
  17  X=6.85  Y=0  Z=14.2
  18  X=6.85  Y=0  Z=17.75

RESTRAINT
  ADD=1  DOF=U1,U2,U3,R1,R2,R3
  ADD=7  DOF=U1,U2,U3,R1,R2,R3
  ADD=13  DOF=U1,U2,U3,R1,R2,R3

CONSTRAINT
  NAME=DIAPH1  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=2
    ADD=8
    ADD=14
  NAME=DIAPH2  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=3
    ADD=9
    ADD=15
  NAME=DIAPH3  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=4
    ADD=10
    ADD=16
  NAME=DIAPH4  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=5
    ADD=11
    ADD=17
  NAME=DIAPH5  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=6
    ADD=12
    ADD=18

PATTERN
  NAME=DEFAULT

MATERIAL
  NAME=STEEL  IDES=S  M=.798142  W=7.833414
    T=0  E=2.038902E+07  U=.3  A=.0000117  FY=25310.51
  NAME=CONC  IDES=C  M=.2448  W=2.4026
    T=0  E=2200001  U=.2  A=.0000099
  NAME=OTHER  IDES=N  M=.2448012  W=2.402616
    T=0  E=2531051  U=.2  A=.0000099

FRAME SECTION
  NAME=C50X75 MAT=CONC SH=R T=.75,.5 A=.375 J=1.834105E-02
I=1.757813E-02,.0078125 AS=.3125,.3125
  NAME=V30X60 MAT=CONC SH=R T=.6,.3 A=.18 J=3.707859E-03
I=.0054,.00135 AS=.15,.15

FRAME
  1  J=1,2  SEC=C50X75  NSEG=2  ANG=0
  2  J=2,3  SEC=C50X75  NSEG=2  ANG=0
  3  J=3,4  SEC=C50X75  NSEG=2  ANG=0
  4  J=4,5  SEC=C50X75  NSEG=2  ANG=0
  5  J=5,6  SEC=C50X75  NSEG=2  ANG=0
  6  J=7,8  SEC=C50X75  NSEG=2  ANG=0
  7  J=8,9  SEC=C50X75  NSEG=2  ANG=0
  8  J=9,10  SEC=C50X75  NSEG=2  ANG=0
  9  J=10,11  SEC=C50X75  NSEG=2  ANG=0
  10  J=11,12  SEC=C50X75  NSEG=2  ANG=0
  11  J=13,14  SEC=C50X75  NSEG=2  ANG=0
  12  J=14,15  SEC=C50X75  NSEG=2  ANG=0
  13  J=15,16  SEC=C50X75  NSEG=2  ANG=0
  14  J=16,17  SEC=C50X75  NSEG=2  ANG=0
  15  J=17,18  SEC=C50X75  NSEG=2  ANG=0
  16  J=2,8  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  17  J=3,9  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  18  J=4,10  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  19  J=5,11  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  20  J=6,12  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  21  J=8,14  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  22  J=9,15  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  23  J=10,16  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  24  J=11,17  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
  25  J=12,18  SEC=V30X60  NSEG=4  IOFF=.375  JOFF=.375  RIGID=1
```

```
LOAD
  NAME=MUERTA  SW=1
    TYPE=DISTRIBUTED SPAN
      ADD=16  RD=0,1  UZ=-2.6,-2.6
      ADD=17  RD=0,1  UZ=-2.6,-2.6
      ADD=18  RD=0,1  UZ=-2.6,-2.6
      ADD=19  RD=0,1  UZ=-2.6,-2.6
      ADD=21  RD=0,1  UZ=-2.6,-2.6
      ADD=22  RD=0,1  UZ=-2.6,-2.6
      ADD=23  RD=0,1  UZ=-2.6,-2.6
      ADD=24  RD=0,1  UZ=-2.6,-2.6
      ADD=20  RD=0,1  UZ=-2,-2
      ADD=25  RD=0,1  UZ=-2,-2
  NAME=VIVA
    TYPE=DISTRIBUTED SPAN
      ADD=16  RD=0,1  UZ=-1.5,-1.5
      ADD=17  RD=0,1  UZ=-1.5,-1.5
      ADD=18  RD=0,1  UZ=-1.5,-1.5
      ADD=19  RD=0,1  UZ=-1.5,-1.5
      ADD=21  RD=0,1  UZ=-1.5,-1.5
      ADD=22  RD=0,1  UZ=-1.5,-1.5
      ADD=23  RD=0,1  UZ=-1.5,-1.5
      ADD=24  RD=0,1  UZ=-1.5,-1.5
      ADD=20  RD=0,1  UZ=-.5,-.5
      ADD=25  RD=0,1  UZ=-.5,-.5
  NAME=SISMO
    TYPE=FORCE
      ADD=6  UX=5.58
      ADD=5  UX=7.12
      ADD=4  UX=5.39
      ADD=3  UX=3.67
      ADD=2  UX=1.99

COMBO
  NAME=COMB1
    LOAD=MUERTA  SF=1.5
    LOAD=VIVA  SF=1.8
  NAME=COMB2
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=1.25
  NAME=COMB3
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=-1.25
  NAME=COMB4
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=-1.25
  NAME=COMB5
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=1.25
  NAME=ENVOLV  TYPE=ENVE
    COMB=COMB1  SF=1
    COMB=COMB2  SF=1
    COMB=COMB3  SF=1
    COMB=COMB4  SF=1
    COMB=COMB5  SF=1
  NAME=SERVICIO
    LOAD=MUERTA  SF=1
    LOAD=VIVA  SF=1

OUTPUT
  ELEM=JOINT  TYPE=DISP  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=SERVICIO

END

; The following data is used for graphics, design and pushover
analysis.
; If changes are made to the analysis data above, then the
following data
; should be checked for consistency.
SAP2000 V7.10 SUPPLEMENTAL DATA
  GRID GLOBAL  X "1"  -6.85
  GRID GLOBAL  X "2"  0
  GRID GLOBAL  X "3"  6.85
  GRID GLOBAL  Y "4"  0
  GRID GLOBAL  Z "5"  -.45
  GRID GLOBAL  Z "6"  3.55
  GRID GLOBAL  Z "7"  7.1
  GRID GLOBAL  Z "8"  10.65
  GRID GLOBAL  Z "9"  14.2
  GRID GLOBAL  Z "10"  17.75
  MATERIAL STEEL FY 25310.51
  MATERIAL CONC FYREBAR 42184.18 FYSHEAR 28122.79 FC 2812.279
FCSHEAR 2812.279
  CONCRETESECTION C50X75 COLUMN  COVER .05 REBAR RR-3-3
  CONCRETESECTION V30X60 COLUMN  COVER .04572 REBAR RR-3-3
  STATICLOAD MUERTA TYPE DEAD
  STATICLOAD VIVA TYPE LIVE
  STATICLOAD SISMO TYPE QUAKE
END SUPPLEMENTAL DATA
```

S A P 2 0 0 0 (R)
Structural Analysis Programs
Educational Version 7.10

RESULTADOS PORTICOS EJES 2 Y 3

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

TRANSLATIONS AND ROTATIONS, IN GLOBAL COORDINATES

COMB ENVOLV ---------- MAX

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	0.001840	.000000	0.000870
3	0.004437	.000000	0.000849
4	0.006858	.000000	0.000765
5	0.008697	.000000	0.000568
6	0.009840	.000000	0.000528
7	.000000	.000000	.000000
8	0.001840	.000000	0.000530
9	0.004437	.000000	0.000582
10	0.006858	.000000	0.000485
11	0.008697	.000000	0.000338
12	0.009840	.000000	0.000182
13	.000000	.000000	.000000
14	0.001840	.000000	0.000490
15	0.004437	.000000	0.000559
16	0.006858	.000000	0.000440
17	0.008697	.000000	0.000286
18	0.009840	.000000	4.24E-05

COMB ENVOLV ---------- MIN

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	-0.001840	-0.000664	-0.000490
3	-0.004437	-0.001127	-0.000559
4	-0.006858	-0.001462	-0.000440
5	-0.008697	-0.001668	-0.000286
6	-0.009840	-0.001746	-4.24E-05
7	.000000	.000000	.000000
8	-0.001840	-0.001218	-0.000530
9	-0.004437	-0.002060	-0.000582
10	-0.006858	-0.002668	-0.000485
11	-0.008697	-0.003043	-0.000338
12	-0.009840	-0.003186	-0.000182
13	.000000	.000000	.000000
14	-0.001840	-0.000664	-0.000870
15	-0.004437	-0.001127	-0.000849
16	-0.006858	-0.001462	-0.000765
17	-0.008697	-0.001668	-0.000568
18	-0.009840	-0.001746	-0.000528

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

ELEM 1 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.406228	.000000	11.941725
0.50000	.000000	2.406228	.000000	8.413626
1.00000	.000000	2.406228	.000000	11.824170

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-139.751869	-7.418496	.000000	-18.286421
0.50000	-137.048944	-7.418496	.000000	-4.733786
1.00000	-134.346019	-7.418496	.000000	.000000

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-88.701684	-2.704671	.000000	-3.423662
0.50000	-86.899734	-2.704671	.000000	1.985679
1.00000	-85.097784	-2.704671	.000000	7.395020

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-88.701684	-2.704671	.000000	-3.423662
0.50000	-86.899734	-2.704671	.000000	1.985679
1.00000	-85.097784	-2.704671	.000000	7.395020

ELEM 2 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	.000000

0.50000	.000000	.000000	.000000	0.108395
1.00000	.000000	.000000	.000000	17.705890

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-109.868523	-10.591275	.000000	-19.893135
0.50000	-107.469677	-10.591275	.000000	-1.093622
1.00000	-105.070831	-10.591275	.000000	.000000

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-69.791671	-5.908270	.000000	-11.016861
0.50000	-68.192440	-5.908270	.000000	-0.529682
1.00000	-66.593210	-5.908270	.000000	9.957497

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-69.791671	-5.908270	.000000	-11.016861
0.50000	-68.192440	-5.908270	.000000	-0.529682
1.00000	-66.593210	-5.908270	.000000	9.957497

ELEM 3 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	.000000
0.50000	.000000	.000000	.000000	1.390013
1.00000	.000000	.000000	.000000	18.104801

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-80.198935	-9.416782	.000000	-15.324774
0.50000	-77.800089	-9.416782	.000000	-1.009002
1.00000	-75.401243	-9.416782	.000000	.000000

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-51.039497	-5.402175	.000000	-9.397109
0.50000	-49.440267	-5.402175	.000000	0.191751
1.00000	-47.841036	-5.402175	.000000	9.780611

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-51.039497	-5.402175	.000000	-9.397109
0.50000	-49.440267	-5.402175	.000000	0.191751
1.00000	-47.841036	-5.402175	.000000	9.780611

ELEM 4 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	.000000
0.50000	.000000	.000000	.000000	1.675889
1.00000	.000000	.000000	.000000	16.997026

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-50.419607	-8.663413	.000000	-15.652320
0.50000	-48.020761	-8.663413	.000000	-2.153049
1.00000	-45.621915	-8.663413	.000000	.000000

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-32.218904	-5.396250	.000000	-9.774051
0.50000	-30.619674	-5.396250	.000000	-0.195707
1.00000	-29.020443	-5.396250	.000000	9.382638

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-32.218904	-5.396250	.000000	-9.774051
0.50000	-30.619674	-5.396250	.000000	-0.195707
1.00000	-29.020443	-5.396250	.000000	9.382638

ELEM 5 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	.000000
0.50000	.000000	.000000	.000000	2.699503
1.00000	.000000	.000000	.000000	19.276752

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.484548	-10.147180	.000000	-16.745736
0.50000	-18.085702	-10.147180	.000000	-0.476547
1.00000	-15.686856	-10.147180	.000000	.000000

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-13.295495	-6.458784	.000000	-10.559157
0.50000	-11.696264	-6.458784	.000000	0.905185
1.00000	-10.097034	-6.458784	.000000	12.369527

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-13.295495	-6.458784	.000000	-10.559157
0.50000	-11.696264	-6.458784	.000000	0.905185
1.00000	-10.097034	-6.458784	.000000	12.369527

ELEM 6 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	5.137184	.000000	15.398660
0.50000	.000000	5.137184	.000000	5.124291
1.00000	.000000	5.137184	.000000	5.150077

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-253.832201	-5.137184	.000000	-15.398660
0.50000	-251.129276	-5.137184	.000000	-5.124291
1.00000	-248.426351	-5.137184	.000000	-5.150077

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-160.343926	-6.56E-16	.000000	1.47E-14
0.50000	-158.541976	-6.56E-16	.000000	1.60E-14
1.00000	-156.740026	-6.56E-16	.000000	1.73E-14

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-160.343926	-6.56E-16	.000000	1.47E-14
0.50000	-158.541976	-6.56E-16	.000000	1.60E-14
1.00000	-156.740026	-6.56E-16	.000000	1.73E-14

ELEM 7 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	5.725625	.000000	10.731173
0.50000	.000000	5.725625	.000000	0.568188
1.00000	.000000	5.725625	.000000	9.594796

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-198.074126	-5.725625	.000000	-10.731173
0.50000	-195.675280	-5.725625	.000000	-0.568188
1.00000	-193.276434	-5.725625	.000000	-9.594796

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-125.257440	-1.04E-15	.000000	1.79E-15
0.50000	-123.658209	-1.04E-15	.000000	3.64E-15
1.00000	-122.058978	-1.04E-15	.000000	5.49E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-125.257440	-1.04E-15	.000000	1.79E-15
0.50000	-123.658209	-1.04E-15	.000000	3.64E-15
1.00000	-122.058978	-1.04E-15	.000000	5.49E-15

ELEM 8 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	4.834373	.000000	7.527306
0.50000	.000000	4.834373	.000000	1.053706
1.00000	.000000	4.834373	.000000	9.634719

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-143.713009	-4.834373	.000000	-7.527306
0.50000	-141.314163	-4.834373	.000000	-1.053706
1.00000	-138.915317	-4.834373	.000000	-9.634719

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-91.071592	-7.75E-16	.000000	-7.69E-16
0.50000	-89.472361	-7.75E-16	.000000	6.07E-16
1.00000	-87.873130	-7.75E-16	.000000	1.98E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-91.071592	-7.75E-16	.000000	-7.69E-16
0.50000	-89.472361	-7.75E-16	.000000	6.07E-16
1.00000	-87.873130	-7.75E-16	.000000	1.98E-15

ELEM 9 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.463732	.000000	4.543531
0.50000	.000000	3.463732	.000000	1.604594
1.00000	.000000	3.463732	.000000	7.752718

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-89.571373	-3.463732	.000000	-4.543531
0.50000	-87.172527	-3.463732	.000000	-1.604594
1.00000	-84.773681	-3.463732	.000000	-7.752718

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-57.022582	-1.08E-15	.000000	-3.05E-15
0.50000	-55.423352	-1.08E-15	.000000	-1.13E-15
1.00000	-53.824121	-1.08E-15	.000000	7.92E-16

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-57.022582	-1.08E-15	.000000	-3.05E-15
0.50000	-55.423352	-1.08E-15	.000000	-1.13E-15
1.00000	-53.824121	-1.08E-15	.000000	7.92E-16

ELEM 10 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.010407	.000000	1.871063
0.50000	.000000	2.010407	.000000	1.697410
1.00000	.000000	2.010407	.000000	5.265882

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-35.741197	-2.010407	.000000	-1.871063
0.50000	-33.342351	-2.010407	.000000	-1.697410
1.00000	-30.943506	-2.010407	.000000	-5.265882

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-23.179205	1.03E-15	.000000	-5.76E-15
0.50000	-21.579975	1.03E-15	.000000	-7.58E-15
1.00000	-19.980744	1.03E-15	.000000	-9.41E-15

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-23.179205	1.03E-15	.000000	-5.76E-15
0.50000	-21.579975	1.03E-15	.000000	-7.58E-15
1.00000	-19.980744	1.03E-15	.000000	-9.41E-15

ELEM 11 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	7.418496	.000000	18.286421
0.50000	.000000	7.418496	.000000	4.733786
1.00000	.000000	7.418496	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-139.751869	-2.406228	.000000	-11.941725
0.50000	-137.048944	-2.406228	.000000	-8.413626
1.00000	-134.346019	-2.406228	.000000	-11.824170

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-88.701684	2.704671	.000000	3.423662
0.50000	-86.899734	2.704671	.000000	-1.985679
1.00000	-85.097784	2.704671	.000000	-7.395020

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-88.701684	2.704671	.000000	3.423662
0.50000	-86.899734	2.704671	.000000	-1.985679
1.00000	-85.097784	2.704671	.000000	-7.395020

ELEM 12 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	10.591275	.000000	19.893135
0.50000	.000000	10.591275	.000000	1.093622
1.00000	.000000	10.591275	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3

0.00000	-109.868523	.000000	.000000	.000000
0.50000	-107.469677	.000000	.000000	-0.108395
1.00000	-105.070831	.000000	.000000	-17.705890

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-69.791671	5.908270	.000000	11.016861
0.50000	-68.192440	5.908270	.000000	0.529682
1.00000	-66.593210	5.908270	.000000	-9.957497

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-69.791671	5.908270	.000000	11.016861
0.50000	-68.192440	5.908270	.000000	0.529682
1.00000	-66.593210	5.908270	.000000	-9.957497

ELEM 13 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	9.416782	.000000	15.324774
0.50000	.000000	9.416782	.000000	1.009002
1.00000	.000000	9.416782	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-80.198935	.000000	.000000	.000000
0.50000	-77.800089	.000000	.000000	-1.390013
1.00000	-75.401243	.000000	.000000	-18.104801

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-51.039497	5.402175	.000000	9.397109
0.50000	-49.440267	5.402175	.000000	-0.191751
1.00000	-47.841036	5.402175	.000000	-9.780611

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-51.039497	5.402175	.000000	9.397109
0.50000	-49.440267	5.402175	.000000	-0.191751
1.00000	-47.841036	5.402175	.000000	-9.780611

ELEM 14 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	8.663413	.000000	15.652320
0.50000	.000000	8.663413	.000000	2.153049
1.00000	.000000	8.663413	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-50.419607	.000000	.000000	.000000
0.50000	-48.020761	.000000	.000000	-1.675889
1.00000	-45.621915	.000000	.000000	-16.997026

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-32.218904	5.396250	.000000	9.774051
0.50000	-30.619674	5.396250	.000000	0.195707
1.00000	-29.020443	5.396250	.000000	-9.382638

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-32.218904	5.396250	.000000	9.774051
0.50000	-30.619674	5.396250	.000000	0.195707
1.00000	-29.020443	5.396250	.000000	-9.382638

ELEM 15 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	10.147180	.000000	16.745736
0.50000	.000000	10.147180	.000000	0.476547
1.00000	.000000	10.147180	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.484548	.000000	.000000	.000000
0.50000	-18.085702	.000000	.000000	-2.699503
1.00000	-15.686856	.000000	.000000	-19.276752

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-13.295495	6.458784	.000000	10.559157
0.50000	-11.696264	6.458784	.000000	-0.905185
1.00000	-10.097034	6.458784	.000000	-12.369527

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-13.295495	6.458784	.000000	10.559157
0.50000	-11.696264	6.458784	.000000	-0.905185
1.00000	-10.097034	6.458784	.000000	-12.369527

ELEM 16 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	3.87E-15	.000000	.000000	.000000
0.27737	3.87E-15	.000000	.000000	6.881408
0.50000	3.87E-15	2.637896	.000000	11.878084
0.72263	3.87E-15	11.403579	.000000	5.726622
0.94526	3.87E-15	22.457849	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.87E-15	-21.759233	.000000	-23.617105
0.27737	-3.87E-15	-10.733938	.000000	-2.277720
0.50000	-3.87E-15	-2.238847	.000000	.000000
0.72263	-3.87E-15	.000000	.000000	-2.340033
0.94526	-3.87E-15	.000000	.000000	-24.951006

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-2.68E-30	-13.606437	.000000	-12.990778
0.27737	-2.68E-30	-6.694424	.000000	2.488629
0.50000	-2.68E-30	0.217590	.000000	7.427214
0.72263	-2.68E-30	7.129604	.000000	1.824979
0.94526	-2.68E-30	14.041617	.000000	-14.318077

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-2.68E-30	-13.606437	.000000	-12.990778
0.27737	-2.68E-30	-6.694424	.000000	2.488629
0.50000	-2.68E-30	0.217590	.000000	7.427214
0.72263	-2.68E-30	7.129604	.000000	1.824979
0.94526	-2.68E-30	14.041617	.000000	-14.318077

ELEM 17 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	7.91E-15	.000000	.000000	.000000
0.27737	7.91E-15	.000000	.000000	6.531985
0.50000	7.91E-15	2.513144	.000000	11.726886
0.72263	7.91E-15	11.142426	.000000	6.370041
0.94526	7.91E-15	22.063450	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-7.91E-15	-22.153633	.000000	-25.185753
0.27737	-7.91E-15	-11.217450	.000000	-2.811026
0.50000	-7.91E-15	-2.577433	.000000	.000000
0.72263	-7.91E-15	.000000	.000000	-2.453002
0.94526	-7.91E-15	.000000	.000000	-24.680575

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-3.15E-29	-13.854037	.000000	-13.840653
0.27737	-3.15E-29	-6.942023	.000000	2.016343
0.50000	-3.15E-29	-0.030009	.000000	7.332518
0.72263	-3.15E-29	6.882004	.000000	2.107872
0.94526	-3.15E-29	13.794018	.000000	-13.657595

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.15E-29	-13.854037	.000000	-13.840653
0.27737	-3.15E-29	-6.942023	.000000	2.016343
0.50000	-3.15E-29	-0.030009	.000000	7.332518
0.72263	-3.15E-29	6.882004	.000000	2.107872
0.94526	-3.15E-29	13.794018	.000000	-13.657595

ELEM 18 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	3.29E-14	.000000	.000000	.000000
0.27737	3.29E-14	.000000	.000000	5.764065
0.50000	3.29E-14	2.038099	.000000	11.780170
0.72263	3.29E-14	10.899438	.000000	5.897516
0.94526	3.29E-14	21.953709	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.29E-14	-22.263374	.000000	-24.060329
0.27737	-3.29E-14	-11.209103	.000000	-2.166782
0.50000	-3.29E-14	-2.228154	.000000	.000000
0.72263	-3.29E-14	.000000	.000000	-1.720566
0.94526	-3.29E-14	.000000	.000000	-23.067999

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-4.45E-29	-13.922456	.000000	-14.015051
0.27737	-4.45E-29	-7.010443	.000000	1.946284
0.50000	-4.45E-29	-0.098429	.000000	7.366799
0.72263	-4.45E-29	6.813585	.000000	2.246492
0.94526	-4.45E-29	13.725598	.000000	-13.414635

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-4.45E-29	-13.922456	.000000	-14.015051
0.27737	-4.45E-29	-7.010443	.000000	1.946284
0.50000	-4.45E-29	-0.098429	.000000	7.366799
0.72263	-4.45E-29	6.813585	.000000	2.246492
0.94526	-4.45E-29	13.725598	.000000	-13.414635

ELEM 19 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	1.41E-14	.000000	.000000	.000000
0.27737	1.41E-14	.000000	.000000	4.431882
0.50000	1.41E-14	1.269338	.000000	11.731048
0.72263	1.41E-14	10.743708	.000000	5.065955
0.94526	1.41E-14	21.797979	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-1.41E-14	-22.419104	.000000	-22.931693
0.27737	-1.41E-14	-11.364833	.000000	-1.250125
0.50000	-1.41E-14	-1.675929	.000000	.000000
0.72263	-1.41E-14	.000000	.000000	-0.644094
0.94526	-1.41E-14	.000000	.000000	-21.037262

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	6.00E-29	-14.025272	.000000	-14.363628
0.27737	6.00E-29	-7.113259	.000000	1.754501
0.50000	6.00E-29	-0.201245	.000000	7.331810
0.72263	6.00E-29	6.710769	.000000	2.368298
0.94526	6.00E-29	13.622782	.000000	-13.136035

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	6.00E-29	-14.025272	.000000	-14.363628
0.27737	6.00E-29	-7.113259	.000000	1.754501
0.50000	6.00E-29	-0.201245	.000000	7.331810
0.72263	6.00E-29	6.710769	.000000	2.368298
0.94526	6.00E-29	13.622782	.000000	-13.136035

ELEM 20 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	1.13E-14	.000000	.000000	.000000
0.27737	1.13E-14	.000000	.000000	3.204164
0.50000	1.13E-14	0.829605	.000000	7.771171
0.72263	1.13E-14	6.829219	.000000	3.228050
0.94526	1.13E-14	13.765990	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-1.13E-14	-13.981093	.000000	-13.714012
0.27737	-1.13E-14	-7.044322	.000000	-0.038243
0.50000	-1.13E-14	-0.861601	.000000	.000000
0.72263	-1.13E-14	.000000	.000000	.000000
0.94526	-1.13E-14	.000000	.000000	-13.057947

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-8.07E-29	-8.997358	.000000	-8.789328
0.27737	-8.07E-29	-4.525345	.000000	1.521733
0.50000	-8.07E-29	-0.053331	.000000	5.012973
0.72263	-8.07E-29	4.418683	.000000	1.684392
0.94526	-8.07E-29	8.890696	.000000	-8.464010

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-8.07E-29	-8.997358	.000000	-8.789328
0.27737	-8.07E-29	-4.525345	.000000	1.521733
0.50000	-8.07E-29	-0.053331	.000000	5.012973
0.72263	-8.07E-29	4.418683	.000000	1.684392
0.94526	-8.07E-29	8.890696	.000000	-8.464010

ELEM 21 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	3.87E-15	.000000	.000000	.000000
0.27737	3.87E-15	.000000	.000000	5.726622
0.50000	3.87E-15	2.238847	.000000	11.878084

0.72263	3.87E-15	10.733938	.000000	6.881408
0.94526	3.87E-15	21.759233	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.87E-15	-22.457849	.000000	-24.951006
0.27737	-3.87E-15	-11.403579	.000000	-2.340033
0.50000	-3.87E-15	-2.637896	.000000	.000000
0.72263	-3.87E-15	.000000	.000000	-2.277720
0.94526	-3.87E-15	.000000	.000000	-23.617105

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-2.68E-30	-14.041617	.000000	-14.318077
0.27737	-2.68E-30	-7.129604	.000000	1.824979
0.50000	-2.68E-30	-0.217590	.000000	7.427214
0.72263	-2.68E-30	6.694424	.000000	2.488629
0.94526	-2.68E-30	13.606437	.000000	-12.990778

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-2.68E-30	-14.041617	.000000	-14.318077
0.27737	-2.68E-30	-7.129604	.000000	1.824979
0.50000	-2.68E-30	-0.217590	.000000	7.427214
0.72263	-2.68E-30	6.694424	.000000	2.488629
0.94526	-2.68E-30	13.606437	.000000	-12.990778

ELEM 22 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	7.91E-15	.000000	.000000	.000000
0.27737	7.91E-15	.000000	.000000	6.370041
0.50000	7.91E-15	2.577433	.000000	11.726886
0.72263	7.91E-15	11.217450	.000000	6.531985
0.94526	7.91E-15	22.153633	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-7.91E-15	-22.063450	.000000	-24.680575
0.27737	-7.91E-15	-11.142426	.000000	-2.453002
0.50000	-7.91E-15	-2.513144	.000000	.000000
0.72263	-7.91E-15	.000000	.000000	-2.811026
0.94526	-7.91E-15	.000000	.000000	-25.185753

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-3.15E-29	-13.794018	.000000	-13.657595
0.27737	-3.15E-29	-6.882004	.000000	2.107872
0.50000	-3.15E-29	0.030009	.000000	7.332518
0.72263	-3.15E-29	6.942023	.000000	2.016343
0.94526	-3.15E-29	13.854037	.000000	-13.840653

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.15E-29	-13.794018	.000000	-13.657595
0.27737	-3.15E-29	-6.882004	.000000	2.107872
0.50000	-3.15E-29	0.030009	.000000	7.332518
0.72263	-3.15E-29	6.942023	.000000	2.016343
0.94526	-3.15E-29	13.854037	.000000	-13.840653

ELEM 23 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	3.29E-14	.000000	.000000	.000000
0.27737	3.29E-14	.000000	.000000	5.897516
0.50000	3.29E-14	2.228154	.000000	11.780170
0.72263	3.29E-14	11.209103	.000000	5.764065
0.94526	3.29E-14	22.263374	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-3.29E-14	-21.953709	.000000	-23.067999
0.27737	-3.29E-14	-10.899438	.000000	-1.720566
0.50000	-3.29E-14	-2.038099	.000000	.000000
0.72263	-3.29E-14	.000000	.000000	-2.166782
0.94526	-3.29E-14	.000000	.000000	-24.060329

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-4.45E-29	-13.725598	.000000	-13.414635
0.27737	-4.45E-29	-6.813585	.000000	2.246492
0.50000	-4.45E-29	0.098429	.000000	7.366799
0.72263	-4.45E-29	7.010443	.000000	1.946284
0.94526	-4.45E-29	13.922456	.000000	-14.015051

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-4.45E-29	-13.725598	.000000	-13.414635
0.27737	-4.45E-29	-6.813585	.000000	2.246492

0.50000	-4.45E-29	0.098429	.000000	7.366799
0.72263	-4.45E-29	7.010443	.000000	1.946284
0.94526	-4.45E-29	13.922456	.000000	-14.015051

ELEM 24 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	1.41E-14	.000000	.000000	.000000
0.27737	1.41E-14	.000000	.000000	5.065955
0.50000	1.41E-14	1.675929	.000000	11.731048
0.72263	1.41E-14	11.364833	.000000	4.431882
0.94526	1.41E-14	22.419104	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-1.41E-14	-21.797979	.000000	-21.037262
0.27737	-1.41E-14	-10.743708	.000000	-0.644094
0.50000	-1.41E-14	-1.269338	.000000	.000000
0.72263	-1.41E-14	.000000	.000000	-1.250125
0.94526	-1.41E-14	.000000	.000000	-22.931693

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	6.00E-29	-13.622782	.000000	-13.136035
0.27737	6.00E-29	-6.710769	.000000	2.368298
0.50000	6.00E-29	0.201245	.000000	7.331810
0.72263	6.00E-29	7.113259	.000000	1.754501
0.94526	6.00E-29	14.025272	.000000	-14.363628

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	6.00E-29	-13.622782	.000000	-13.136035
0.27737	6.00E-29	-6.710769	.000000	2.368298
0.50000	6.00E-29	0.201245	.000000	7.331810
0.72263	6.00E-29	7.113259	.000000	1.754501
0.94526	6.00E-29	14.025272	.000000	-14.363628

ELEM 25 ========== LENGTH = 6.85

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	1.13E-14	.000000	.000000	.000000
0.27737	1.13E-14	.000000	.000000	3.228050
0.50000	1.13E-14	0.861601	.000000	7.771171
0.72263	1.13E-14	7.044322	.000000	3.204164
0.94526	1.13E-14	13.981093	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-1.13E-14	-13.765990	.000000	-13.057947
0.27737	-1.13E-14	-6.829219	.000000	.000000
0.50000	-1.13E-14	-0.829605	.000000	.000000
0.72263	-1.13E-14	.000000	.000000	-0.038243
0.94526	-1.13E-14	.000000	.000000	-13.714012

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05474	-8.07E-29	-8.890696	.000000	-8.464010
0.27737	-8.07E-29	-4.418683	.000000	1.684392
0.50000	-8.07E-29	0.053331	.000000	5.012973
0.72263	-8.07E-29	4.525345	.000000	1.521733
0.94526	-8.07E-29	8.997358	.000000	-8.789328

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05474	-8.07E-29	-8.890696	.000000	-8.464010
0.27737	-8.07E-29	-4.418683	.000000	1.684392
0.50000	-8.07E-29	0.053331	.000000	5.012973
0.72263	-8.07E-29	4.525345	.000000	1.521733
0.94526	-8.07E-29	8.997358	.000000	-8.789328

ARCHIVO DE INGRESO DE DATOS PORTICO EJES A Y C

```
; File D:\Mis documentos \ejes A,C.$2k saved 12/23/01 5:07:37 in Ton-m

SYSTEM
  DOF=UX,UZ,RY  LENGTH=m  FORCE=Ton  PAGE=SECTIONS

JOINT
  1  X=-7.5  Y=0  Z=-.45
  2  X=-7.5  Y=0  Z=3.55
  3  X=-7.5  Y=0  Z=7.1
  4  X=-7.5  Y=0  Z=10.65
  5  X=-7.5  Y=0  Z=14.2
  6  X=-7.5  Y=0  Z=17.75
  7  X=-2.5  Y=0  Z=-.45
  8  X=-2.5  Y=0  Z=3.55
  9  X=-2.5  Y=0  Z=7.1
  10  X=-2.5  Y=0  Z=10.65
  11  X=-2.5  Y=0  Z=14.2
  12  X=-2.5  Y=0  Z=17.75
  13  X=2.5  Y=0  Z=-.45
  14  X=2.5  Y=0  Z=3.55
  15  X=2.5  Y=0  Z=7.1
  16  X=2.5  Y=0  Z=10.65
  17  X=2.5  Y=0  Z=14.2
  18  X=2.5  Y=0  Z=17.75
  19  X=7.5  Y=0  Z=-.45
  20  X=7.5  Y=0  Z=3.55
  21  X=7.5  Y=0  Z=7.1
  22  X=7.5  Y=0  Z=10.65
  23  X=7.5  Y=0  Z=14.2
  24  X=7.5  Y=0  Z=17.75

RESTRAINT
  ADD=1  DOF=U1,U2,U3,R1,R2,R3
  ADD=7  DOF=U1,U2,U3,R1,R2,R3
  ADD=13  DOF=U1,U2,U3,R1,R2,R3
  ADD=19  DOF=U1,U2,U3,R1,R2,R3

CONSTRAINT
  NAME=DIAPH1  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=2
    ADD=8
    ADD=14
    ADD=20
  NAME=DIAPH2  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=3
    ADD=9
    ADD=15
    ADD=21
  NAME=DIAPH3  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=4
    ADD=10
    ADD=16
    ADD=22
  NAME=DIAPH4  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=5
    ADD=11
    ADD=17
    ADD=23
  NAME=DIAPH5  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=6
    ADD=12
    ADD=18
    ADD=24

PATTERN
  NAME=DEFAULT

MATERIAL
  NAME=STEEL  IDES=S  M=.798142  W=7.833414
    T=0  E=2.038902E+07  U=.3  A=.0000117  FY=25310.51
  NAME=CONC  IDES=C  M=.2448  W=2.4026
    T=0  E=2200001  U=.2  A=.0000099
  NAME=OTHER  IDES=N  M=.2448012  W=2.402616
    T=0  E=2531051  U=.2  A=.0000099

FRAME SECTION
  NAME=C50X75 MAT=CONC SH=R T=.5,.75 A=.375 J=1.834105E-02
I=.0078125,1.757813E-02 AS=.3125,.3125
  NAME=V25X60 MAT=CONC SH=R T=.6,.25 A=.15 J=2.306748E-03
I=.0045,7.8125E-04 AS=.125,.125
  NAME=P250X20 MAT=CONC SH=R T=2.5,.2 A=.5 J=6.330668E-03
I=.2604167,1.666667E-03 AS=.4166667,.4166667

FRAME
  1  J=1,2  SEC=P250X20  NSEG=2  ANG=0
  2  J=2,3  SEC=P250X20  NSEG=2  ANG=0
  3  J=3,4  SEC=P250X20  NSEG=2  ANG=0
  4  J=4,5  SEC=P250X20  NSEG=2  ANG=0
  5  J=5,6  SEC=P250X20  NSEG=2  ANG=0
  6  J=7,8  SEC=C50X75  NSEG=2  ANG=0
  7  J=8,9  SEC=C50X75  NSEG=2  ANG=0
  8  J=9,10  SEC=C50X75  NSEG=2  ANG=0
  9  J=10,11  SEC=C50X75  NSEG=2  ANG=0
  10  J=11,12  SEC=C50X75  NSEG=2  ANG=0
  11  J=13,14  SEC=C50X75  NSEG=2  ANG=0
  12  J=14,15  SEC=C50X75  NSEG=2  ANG=0
```

```
  13  J=15,16  SEC=C50X75  NSEG=2  ANG=0
  14  J=16,17  SEC=C50X75  NSEG=2  ANG=0
  15  J=17,18  SEC=C50X75  NSEG=2  ANG=0
  16  J=19,20  SEC=P250X20  NSEG=2  ANG=0
  17  J=20,21  SEC=P250X20  NSEG=2  ANG=0
  18  J=21,22  SEC=P250X20  NSEG=2  ANG=0
  19  J=22,23  SEC=P250X20  NSEG=2  ANG=0
  20  J=23,24  SEC=P250X20  NSEG=2  ANG=0
  21  J=2,8  SEC=V25X60  NSEG=4  ANG=0  IOFF=2.5  JOFF=.25  RIGID=1
  22  J=3,9  SEC=V25X60  NSEG=4  ANG=0  IOFF=2.5  JOFF=.25  RIGID=1
  23  J=4,10  SEC=V25X60  NSEG=4  ANG=0  IOFF=2.5  JOFF=.25  RIGID=1
  24  J=5,11  SEC=V25X60  NSEG=4  ANG=0  IOFF=2.5  JOFF=.25  RIGID=1
  25  J=6,12  SEC=V25X60  NSEG=4  ANG=0  IOFF=2.5  JOFF=.25  RIGID=1
  26  J=8,14  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  27  J=9,15  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  28  J=10,16  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  29  J=11,17  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  31  J=14,20  SEC=V25X60  NSEG=4  ANG=0  IOFF=.25  JOFF=2.5  RIGID=1
  32  J=15,21  SEC=V25X60  NSEG=4  ANG=0  IOFF=.25  JOFF=2.5  RIGID=1
  33  J=16,22  SEC=V25X60  NSEG=4  ANG=0  IOFF=.25  JOFF=2.5  RIGID=1
  34  J=17,23  SEC=V25X60  NSEG=4  ANG=0  IOFF=.25  JOFF=2.5  RIGID=1
  35  J=18,24  SEC=V25X60  NSEG=4  ANG=0  IOFF=.25  JOFF=2.5  RIGID=1

LOAD
  NAME=SISMO
    TYPE=FORCE
      ADD=6  UX=18.35
      ADD=5  UX=23.39
      ADD=4  UX=17.72
      ADD=3  UX=12.05
      ADD=2  UX=6.54
  NAME=MUERTA  SW=1
    TYPE=DISTRIBUTED SPAN
      ADD=21  RD=0,1  UZ=-.52,-.52
      ADD=22  RD=0,1  UZ=-.52,-.52
      ADD=23  RD=0,1  UZ=-.52,-.52
      ADD=24  RD=0,1  UZ=-.52,-.52
      ADD=26  RD=0,1  UZ=-.52,-.52
      ADD=27  RD=0,1  UZ=-.52,-.52
      ADD=28  RD=0,1  UZ=-.52,-.52
      ADD=29  RD=0,1  UZ=-.52,-.52
      ADD=31  RD=0,1  UZ=-.52,-.52
      ADD=32  RD=0,1  UZ=-.52,-.52
      ADD=33  RD=0,1  UZ=-.52,-.52
      ADD=34  RD=0,1  UZ=-.52,-.52
      ADD=25  RD=0,1  UZ=-.4,-.4
      ADD=35  RD=0,1  UZ=-.4,-.4
  NAME=VIVA
    TYPE=DISTRIBUTED SPAN
      ADD=21  RD=0,1  UZ=-.3,-.3
      ADD=22  RD=0,1  UZ=-.3,-.3
      ADD=23  RD=0,1  UZ=-.3,-.3
      ADD=24  RD=0,1  UZ=-.3,-.3
      ADD=26  RD=0,1  UZ=-.3,-.3
      ADD=27  RD=0,1  UZ=-.3,-.3
      ADD=28  RD=0,1  UZ=-.3,-.3
      ADD=29  RD=0,1  UZ=-.3,-.3
      ADD=31  RD=0,1  UZ=-.3,-.3
      ADD=32  RD=0,1  UZ=-.3,-.3
      ADD=33  RD=0,1  UZ=-.3,-.3
      ADD=34  RD=0,1  UZ=-.3,-.3
      ADD=25  RD=0,1  UZ=-.1,-.1
      ADD=35  RD=0,1  UZ=-.1,-.1

COMBO
  NAME=COMB1
    LOAD=MUERTA  SF=1.5
    LOAD=VIVA  SF=1.8
  NAME=COMB2
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=1.25
  NAME=COMB3
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=-1.25
  NAME=COMB4
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=1.25
  NAME=COMB5
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=-1.25
  NAME=ENVOLV  TYPE=ENVE
    COMB=COMB1  SF=1
    COMB=COMB2  SF=1
    COMB=COMB3  SF=1
    COMB=COMB4  SF=1
    COMB=COMB5  SF=1
  NAME=SERVICIO
    LOAD=MUERTA  SF=1
    LOAD=VIVA  SF=1

OUTPUT
  ELEM=JOINT  TYPE=DISP  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=SERVICIO

END
```

S A P 2 0 0 0 (R)
Structural Analysis Programs
Educational Version 7.10

23 Dec 2001 05:07:38

RESULTADOS PORTICOS EJES A Y C

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

TRANSLATIONS AND ROTATIONS, IN GLOBAL COORDINATES

COMB ENVOLV ---------- MAX

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	0.001503	8.05E-05	0.000477
3	0.003701	0.000133	0.000577
4	0.005960	0.000159	0.000553
5	0.007928	0.000169	0.000466
6	0.009483	0.000172	0.000398
7	.000000	.000000	.000000
8	0.001503	8.82E-05	0.000173
9	0.003701	0.000145	0.000243
10	0.005960	0.000175	0.000247
11	0.007928	0.000188	0.000241
12	0.009483	0.000202	0.000169
13	.000000	.000000	.000000
14	0.001503	8.82E-05	0.000124
15	0.003701	0.000145	0.000197
16	0.005960	0.000175	0.000200
17	0.007928	0.000188	0.000176
18	0.009483	0.000202	0.000222
19	.000000	.000000	.000000
20	0.001503	8.05E-05	0.000461
21	0.003701	0.000133	0.000561
22	0.005960	0.000159	0.000535
23	0.007928	0.000169	0.000451
24	0.009483	0.000172	0.000366

COMB ENVOLV ---------- MIN

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	-0.001503	-0.000370	-0.000461
3	-0.003701	-0.000624	-0.000561
4	-0.005960	-0.000797	-0.000535
5	-0.007928	-0.000898	-0.000451
6	-0.009483	-0.000937	-0.000366
7	.000000	.000000	.000000
8	-0.001503	-0.000429	-0.000124
9	-0.003701	-0.000716	-0.000197
10	-0.005960	-0.000907	-0.000200
11	-0.007928	-0.001014	-0.000176
12	-0.009483	-0.001052	-0.000222
13	.000000	.000000	.000000
14	-0.001503	-0.000429	-0.000173
15	-0.003701	-0.000716	-0.000243
16	-0.005960	-0.000907	-0.000247
17	-0.007928	-0.001014	-0.000241
18	-0.009483	-0.001052	-0.000169
19	.000000	.000000	.000000
20	-0.001503	-0.000370	-0.000477
21	-0.003701	-0.000624	-0.000577
22	-0.005960	-0.000797	-0.000553
23	-0.007928	-0.000898	-0.000466
24	-0.009483	-0.000937	-0.000398

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

ELEM 1 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	19.986052	28.200790	.000000	124.078811
0.50000	22.148392	28.200790	.000000	68.384412
1.00000	24.310732	28.200790	.000000	12.981204

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-104.885216	-29.853723	.000000	-125.043022
0.50000	-101.881966	-29.853723	.000000	-66.042757
1.00000	-98.878716	-29.853723	.000000	-7.333685

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-41.406487	-0.860848	.000000	-0.502161
0.50000	-39.003887	-0.860848	.000000	1.219534
1.00000	-36.601287	-0.860848	.000000	2.941229

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-41.406487	-0.860848	.000000	-0.502161
0.50000	-39.003887	-0.860848	.000000	1.219534
1.00000	-36.601287	-0.860848	.000000	2.941229

ELEM 2 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	14.189721	21.764149	.000000	54.720870
0.50000	16.108798	21.764149	.000000	16.099842
1.00000	18.027875	21.764149	.000000	29.121862

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-81.197378	-25.455912	.000000	-61.246624
0.50000	-78.531994	-25.455912	.000000	-16.072718
1.00000	-75.866609	-25.455912	.000000	-22.541860

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-32.665136	-1.923268	.000000	-3.398816
0.50000	-30.532828	-1.923268	.000000	0.014984
1.00000	-28.400521	-1.923268	.000000	3.428784

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-32.665136	-1.923268	.000000	-3.398816
0.50000	-30.532828	-1.923268	.000000	0.014984
1.00000	-28.400521	-1.923268	.000000	3.428784

ELEM 3 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	6.400114	17.181692	.000000	26.491756
0.50000	8.319191	17.181692	.000000	4.103170
1.00000	10.238268	17.181692	.000000	41.307422

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-56.394106	-20.960142	.000000	-33.101081
0.50000	-53.728722	-20.960142	.000000	-4.005747
1.00000	-51.063337	-20.960142	.000000	-34.503251

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-24.315203	-1.968939	.000000	-3.444233
0.50000	-22.182896	-1.968939	.000000	0.050633
1.00000	-20.050588	-1.968939	.000000	3.545500

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-24.315203	-1.968939	.000000	-3.444233
0.50000	-22.182896	-1.968939	.000000	0.050633
1.00000	-20.050588	-1.968939	.000000	3.545500

ELEM 4 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	0.911258	11.219336	.000000	6.065080
0.50000	2.830335	11.219336	.000000	13.647723
1.00000	4.749412	11.219336	.000000	40.032684

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-33.785562	-14.891860	.000000	-12.833420
0.50000	-31.120177	-14.891860	.000000	-13.897332
1.00000	-28.454793	-14.891860	.000000	-33.763562

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-15.909523	-1.921299	.000000	-3.529385
0.50000	-13.777216	-1.921299	.000000	-0.119080
1.00000	-11.644908	-1.921299	.000000	3.291225

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-15.909523	-1.921299	.000000	-3.529385
0.50000	-13.777216	-1.921299	.000000	-0.119080
1.00000	-11.644908	-1.921299	.000000	3.291225

ELEM 5 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.651175	.000000	1.939072
0.50000	0.982813	2.651175	.000000	14.075219
1.00000	2.901890	2.651175	.000000	28.257359

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-14.972090	-7.989938	.000000	-8.771820
0.50000	-12.306706	-7.989938	.000000	-11.431663
1.00000	-9.641322	-7.989938	.000000	-16.137499

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-7.579800	-2.690734	.000000	-3.551496
0.50000	-5.447492	-2.690734	.000000	1.224556
1.00000	-3.315185	-2.690734	.000000	6.000608

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.579800	-2.690734	.000000	-3.551496
0.50000	-5.447492	-2.690734	.000000	1.224556
1.00000	-3.315185	-2.690734	.000000	6.000608

ELEM 6 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	16.577381	3.659619	.000000	7.998553
0.50000	18.199136	3.659619	.000000	0.743669
1.00000	19.820891	3.659619	.000000	7.463240

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-90.774586	-3.964928	.000000	-8.396474
0.50000	-88.522148	-3.964928	.000000	-0.530970
1.00000	-86.269711	-3.964928	.000000	-6.639921

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-36.568568	-0.159073	.000000	-0.207326
0.50000	-34.766618	-0.159073	.000000	0.110821
1.00000	-32.964668	-0.159073	.000000	0.428968

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-36.568568	-0.159073	.000000	-0.207326
0.50000	-34.766618	-0.159073	.000000	0.110821
1.00000	-32.964668	-0.159073	.000000	0.428968

ELEM 7 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	11.689970	6.589780	.000000	12.040428
0.50000	13.129277	6.589780	.000000	0.343568
1.00000	14.568585	6.589780	.000000	12.653520

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-68.690327	-7.331115	.000000	-13.371937
0.50000	-66.691289	-7.331115	.000000	-0.359208
1.00000	-64.692251	-7.331115	.000000	-11.353291

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-28.047894	-0.386353	.000000	-0.693863
0.50000	-26.448664	-0.386353	.000000	-0.008085
1.00000	-24.849433	-0.386353	.000000	0.677692

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-28.047894	-0.386353	.000000	-0.693863
0.50000	-26.448664	-0.386353	.000000	-0.008085
1.00000	-24.849433	-0.386353	.000000	0.677692

ELEM 8 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	5.491222	6.276398	.000000	11.158048
0.50000	6.930530	6.276398	.000000	0.018988
1.00000	8.369837	6.276398	.000000	12.401006

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3

0.00000	-46.450842	-6.995376	.000000	-12.432577
0.50000	-44.451804	-6.995376	.000000	-0.017332
1.00000	-42.452766	-6.995376	.000000	-11.123165

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-20.081826	-0.375475	.000000	-0.665187
0.50000	-18.482595	-0.375475	.000000	0.001281
1.00000	-16.883364	-0.375475	.000000	0.667749

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.081826	-0.375475	.000000	-0.665187
0.50000	-18.482595	-0.375475	.000000	0.001281
1.00000	-16.883364	-0.375475	.000000	0.667749

ELEM 9 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	1.755206	5.063622	.000000	8.936402
0.50000	3.194513	5.063622	.000000	0.139395
1.00000	4.633821	5.063622	.000000	10.657568

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-26.780111	-5.925731	.000000	-10.378778
0.50000	-24.781073	-5.925731	.000000	-0.051527
1.00000	-22.782035	-5.925731	.000000	-9.039455

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-12.171504	-0.447775	.000000	-0.750860
0.50000	-10.572274	-0.447775	.000000	0.043940
1.00000	-8.973043	-0.447775	.000000	0.838740

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-12.171504	-0.447775	.000000	-0.750860
0.50000	-10.572274	-0.447775	.000000	0.043940
1.00000	-8.973043	-0.447775	.000000	0.838740

ELEM 10 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	1.792421	3.756463	.000000	6.409103
0.50000	3.231729	3.756463	.000000	.000000
1.00000	4.671036	3.756463	.000000	6.533868

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-10.728874	-3.842449	.000000	-7.135039
0.50000	-8.729835	-3.842449	.000000	-0.443687
1.00000	-6.730797	-3.842449	.000000	-6.954553

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-4.185226	-0.060176	.000000	-0.393184
0.50000	-2.585996	-0.060176	.000000	-0.286371
1.00000	-0.986765	-0.060176	.000000	-0.179559

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-4.185226	-0.060176	.000000	-0.393184
0.50000	-2.585996	-0.060176	.000000	-0.286371
1.00000	-0.986765	-0.060176	.000000	-0.179559

ELEM 11 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	16.577381	3.964928	.000000	8.396474
0.50000	18.199136	3.964928	.000000	0.530970
1.00000	19.820891	3.964928	.000000	6.639921

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-90.774586	-3.659619	.000000	-7.998553
0.50000	-88.522148	-3.659619	.000000	-0.743669
1.00000	-86.269711	-3.659619	.000000	-7.463240

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-36.568568	0.159073	.000000	0.207326
0.50000	-34.766618	0.159073	.000000	-0.110821
1.00000	-32.964668	0.159073	.000000	-0.428968

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-36.568568	0.159073	.000000	0.207326
0.50000	-34.766618	0.159073	.000000	-0.110821
1.00000	-32.964668	0.159073	.000000	-0.428968

ELEM 12 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	11.689970	7.331115	.000000	13.371937
0.50000	13.129277	7.331115	.000000	0.359208
1.00000	14.568585	7.331115	.000000	11.353291

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-68.690327	-6.589780	.000000	-12.040428
0.50000	-66.691289	-6.589780	.000000	-0.343568
1.00000	-64.692251	-6.589780	.000000	-12.653520

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-28.047894	0.386353	.000000	0.693863
0.50000	-26.448664	0.386353	.000000	0.008085
1.00000	-24.849433	0.386353	.000000	-0.677692

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-28.047894	0.386353	.000000	0.693863
0.50000	-26.448664	0.386353	.000000	0.008085
1.00000	-24.849433	0.386353	.000000	-0.677692

ELEM 13 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	5.491222	6.995376	.000000	12.432577
0.50000	6.930530	6.995376	.000000	0.017332
1.00000	8.369837	6.995376	.000000	11.123165

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-46.450842	-6.276398	.000000	-11.158048
0.50000	-44.451804	-6.276398	.000000	-0.018988
1.00000	-42.452766	-6.276398	.000000	-12.401006

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-20.081826	0.375475	.000000	0.665187
0.50000	-18.482595	0.375475	.000000	-0.001281
1.00000	-16.883364	0.375475	.000000	-0.667749

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-20.081826	0.375475	.000000	0.665187
0.50000	-18.482595	0.375475	.000000	-0.001281
1.00000	-16.883364	0.375475	.000000	-0.667749

ELEM 14 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	1.755206	5.925731	.000000	10.378778
0.50000	3.194513	5.925731	.000000	0.051527
1.00000	4.633821	5.925731	.000000	9.039455

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-26.780111	-5.063622	.000000	-8.936402
0.50000	-24.781073	-5.063622	.000000	-0.139395
1.00000	-22.782035	-5.063622	.000000	-10.657568

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-12.171504	0.447775	.000000	0.750860
0.50000	-10.572274	0.447775	.000000	-0.043940
1.00000	-8.973043	0.447775	.000000	-0.838740

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-12.171504	0.447775	.000000	0.750860
0.50000	-10.572274	0.447775	.000000	-0.043940
1.00000	-8.973043	0.447775	.000000	-0.838740

ELEM 15 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	1.792421	3.842449	.000000	7.135039

0.50000	3.231729	3.842449	.000000	0.443687
1.00000	4.671036	3.842449	.000000	6.954553

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-10.728874	-3.756463	.000000	-6.409103
0.50000	-8.729835	-3.756463	.000000	.000000
1.00000	-6.730797	-3.756463	.000000	-6.533868

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-4.185226	0.060176	.000000	0.393184
0.50000	-2.585996	0.060176	.000000	0.286371
1.00000	-0.986765	0.060176	.000000	0.179559

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-4.185226	0.060176	.000000	0.393184
0.50000	-2.585996	0.060176	.000000	0.286371
1.00000	-0.986765	0.060176	.000000	0.179559

ELEM 16 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	19.986052	29.853723	.000000	125.043022
0.50000	22.148392	29.853723	.000000	66.042757
1.00000	24.310732	29.853723	.000000	7.333685

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-104.885216	-28.200790	.000000	-124.078811
0.50000	-101.881966	-28.200790	.000000	-68.384412
1.00000	-98.878716	-28.200790	.000000	-12.981204

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-41.406487	0.860848	.000000	0.502161
0.50000	-39.003887	0.860848	.000000	-1.219534
1.00000	-36.601287	0.860848	.000000	-2.941229

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-41.406487	0.860848	.000000	0.502161
0.50000	-39.003887	0.860848	.000000	-1.219534
1.00000	-36.601287	0.860848	.000000	-2.941229

ELEM 17 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	14.189721	25.455912	.000000	61.246624
0.50000	16.108798	25.455912	.000000	16.072718
1.00000	18.027875	25.455912	.000000	22.541860

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-81.197378	-21.764149	.000000	-54.720870
0.50000	-78.531994	-21.764149	.000000	-16.099842
1.00000	-75.866609	-21.764149	.000000	-29.121862

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-32.665136	1.923268	.000000	3.398816
0.50000	-30.532828	1.923268	.000000	-0.014984
1.00000	-28.400521	1.923268	.000000	-3.428784

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-32.665136	1.923268	.000000	3.398816
0.50000	-30.532828	1.923268	.000000	-0.014984
1.00000	-28.400521	1.923268	.000000	-3.428784

ELEM 18 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	6.400114	20.960142	.000000	33.101081
0.50000	8.319191	20.960142	.000000	4.005747
1.00000	10.238268	20.960142	.000000	34.503251

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-56.394106	-17.181692	.000000	-26.491756
0.50000	-53.728722	-17.181692	.000000	-4.103170
1.00000	-51.063337	-17.181692	.000000	-41.307422

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-24.315203	1.968939	.000000	3.444233
0.50000	-22.182896	1.968939	.000000	-0.050633
1.00000	-20.050588	1.968939	.000000	-3.545500

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-24.315203	1.968939	.000000	3.444233
0.50000	-22.182896	1.968939	.000000	-0.050633
1.00000	-20.050588	1.968939	.000000	-3.545500

ELEM 19 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	0.911258	14.891860	.000000	12.833420
0.50000	2.830335	14.891860	.000000	13.897332
1.00000	4.749412	14.891860	.000000	33.763562

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-33.785562	-11.219336	.000000	-6.065080
0.50000	-31.120177	-11.219336	.000000	-13.647723
1.00000	-28.454793	-11.219336	.000000	-40.032684

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-15.909523	1.921299	.000000	3.529385
0.50000	-13.777216	1.921299	.000000	0.119080
1.00000	-11.644908	1.921299	.000000	-3.291225

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-15.909523	1.921299	.000000	3.529385
0.50000	-13.777216	1.921299	.000000	0.119080
1.00000	-11.644908	1.921299	.000000	-3.291225

ELEM 20 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	7.989938	.000000	8.771820
0.50000	0.982813	7.989938	.000000	11.431663
1.00000	2.901890	7.989938	.000000	16.137499

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-14.972090	-2.651175	.000000	-1.939072
0.50000	-12.306706	-2.651175	.000000	-14.075219
1.00000	-9.641322	-2.651175	.000000	-28.257359

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-7.579800	2.690734	.000000	3.551496
0.50000	-5.447492	2.690734	.000000	-1.224556
1.00000	-3.315185	2.690734	.000000	-6.000608

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.579800	2.690734	.000000	3.551496
0.50000	-5.447492	2.690734	.000000	-1.224556
1.00000	-3.315185	2.690734	.000000	-6.000608

ELEM 21 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	4.82E-15	12.101888	.000000	15.666595
0.61250	4.82E-15	12.547586	.000000	8.836212
0.72500	4.82E-15	13.189602	.000000	1.650487
0.83750	4.82E-15	14.019564	.000000	5.604235
0.95000	4.82E-15	14.849525	.000000	12.275748

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-4.82E-15	-13.992619	.000000	-16.026047
0.61250	-4.82E-15	-13.162657	.000000	-8.490907
0.72500	-4.82E-15	-12.529014	.000000	-1.317983
0.83750	-4.82E-15	-12.083317	.000000	-6.002091
0.95000	-4.82E-15	-11.637620	.000000	-14.121522

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	1.95E-32	-0.985176	.000000	-0.188386
0.61250	1.95E-32	-0.321207	.000000	0.179034
0.72500	1.95E-32	0.342763	.000000	0.172972
0.83750	1.95E-32	1.006732	.000000	-0.206574
0.95000	1.95E-32	1.670701	.000000	-0.959602

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	1.95E-32	-0.985176	.000000	-0.188386
0.61250	1.95E-32	-0.321207	.000000	0.179034
0.72500	1.95E-32	0.342763	.000000	0.172972
0.83750	1.95E-32	1.006732	.000000	-0.206574
0.95000	1.95E-32	1.670701	.000000	-0.959602

ELEM 22 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	1.72E-14	13.608638	.000000	17.488118
0.61250	1.72E-14	14.054336	.000000	9.764844
0.72500	1.72E-14	14.607851	.000000	1.781354
0.83750	1.72E-14	15.437813	.000000	6.446070
0.95000	1.72E-14	16.267774	.000000	14.075332

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-1.72E-14	-15.783784	.000000	-18.152584
0.61250	-1.72E-14	-14.953823	.000000	-9.564569
0.72500	-1.72E-14	-14.231679	.000000	-1.433897
0.83750	-1.72E-14	-13.785981	.000000	-6.668989
0.95000	-1.72E-14	-13.340284	.000000	-15.586185

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	-3.06E-32	-1.134343	.000000	-0.348442
0.61250	-3.06E-32	-0.470373	.000000	0.102885
0.72500	-3.06E-32	0.193596	.000000	0.180728
0.83750	-3.06E-32	0.857565	.000000	-0.114911
0.95000	-3.06E-32	1.521535	.000000	-0.784033

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-3.06E-32	-1.134343	.000000	-0.348442
0.61250	-3.06E-32	-0.470373	.000000	0.102885
0.72500	-3.06E-32	0.193596	.000000	0.180728
0.83750	-3.06E-32	0.857565	.000000	-0.114911
0.95000	-3.06E-32	1.521535	.000000	-0.784033

ELEM 23 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	2.91E-15	11.307887	.000000	14.774710
0.61250	2.91E-15	11.753585	.000000	8.326241
0.72500	2.91E-15	12.273755	.000000	1.655680
0.83750	2.91E-15	13.103717	.000000	5.319604
0.95000	2.91E-15	13.933679	.000000	11.695575

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-2.91E-15	-13.589057	.000000	-15.557301
0.61250	-2.91E-15	-12.759095	.000000	-8.184454
0.72500	-2.91E-15	-12.003607	.000000	-1.307073
0.83750	-2.91E-15	-11.557909	.000000	-5.481734
0.95000	-2.91E-15	-11.112212	.000000	-13.086001

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	2.73E-31	-1.190090	.000000	-0.410941
0.61250	2.73E-31	-0.526121	.000000	0.071743
0.72500	2.73E-31	0.137849	.000000	0.180945
0.83750	2.73E-31	0.801818	.000000	-0.083337
0.95000	2.73E-31	1.465787	.000000	-0.721101

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	2.73E-31	-1.190090	.000000	-0.410941
0.61250	2.73E-31	-0.526121	.000000	0.071743
0.72500	2.73E-31	0.137849	.000000	0.180945
0.83750	2.73E-31	0.801818	.000000	-0.083337
0.95000	2.73E-31	1.465787	.000000	-0.721101

ELEM 24 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	3.42E-14	7.666552	.000000	10.347450
0.61250	3.42E-14	8.112250	.000000	5.946280
0.72500	3.42E-14	8.668574	.000000	1.303634
0.83750	3.42E-14	9.498536	.000000	3.470598
0.95000	3.42E-14	10.328497	.000000	7.732177

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-3.42E-14	-9.793984	.000000	-11.043746
0.61250	-3.42E-14	-8.964022	.000000	-5.804675
0.72500	-3.42E-14	-8.244687	.000000	-1.041686
0.83750	-3.42E-14	-7.798990	.000000	-3.805866

0.95000	-3.42E-14	-7.353292	.000000	-9.382219

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	-7.46E-31	-1.114133	.000000	-0.368669
0.61250	-7.46E-31	-0.450164	.000000	0.071289
0.72500	-7.46E-31	0.213805	.000000	0.137765
0.83750	-7.46E-31	0.877775	.000000	-0.169242
0.95000	-7.46E-31	1.541744	.000000	-0.849732

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-7.46E-31	-1.114133	.000000	-0.368669
0.61250	-7.46E-31	-0.450164	.000000	0.071289
0.72500	-7.46E-31	0.213805	.000000	0.137765
0.83750	-7.46E-31	0.877775	.000000	-0.169242
0.95000	-7.46E-31	1.541744	.000000	-0.849732

ELEM 25 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	2.18E-14	4.612768	.000000	6.744176
0.61250	2.18E-14	4.997715	.000000	4.067727
0.72500	2.18E-14	5.382663	.000000	1.283622
0.83750	2.18E-14	5.856964	.000000	2.686254
0.95000	2.18E-14	6.461925	.000000	5.406075

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	-2.18E-14	-6.952603	.000000	-7.514954
0.61250	-2.18E-14	-6.347641	.000000	-3.800759
0.72500	-2.18E-14	-5.742679	.000000	-0.535732
0.83750	-2.18E-14	-5.227071	.000000	-2.014267
0.95000	-2.18E-14	-4.842124	.000000	-5.366814

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.50000	4.55E-32	-1.164210	.000000	-0.401365
0.61250	4.55E-32	-0.680240	.000000	0.117387
0.72500	4.55E-32	-0.196271	.000000	0.363906
0.83750	4.55E-32	0.287698	.000000	0.338192
0.95000	4.55E-32	0.771668	.000000	0.040245

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.50000	4.55E-32	-1.164210	.000000	-0.401365
0.61250	4.55E-32	-0.680240	.000000	0.117387
0.72500	4.55E-32	-0.196271	.000000	0.363906
0.83750	4.55E-32	0.287698	.000000	0.338192
0.95000	4.55E-32	0.771668	.000000	0.040245

ELEM 26 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	4.82E-15	.000000	.000000	1.730909
0.27000	4.82E-15	0.416529	.000000	1.990882
0.50000	4.82E-15	1.327733	.000000	1.815473
0.73000	4.82E-15	3.024544	.000000	1.990882
0.96000	4.82E-15	4.721354	.000000	1.730909

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-4.82E-15	-4.721354	.000000	-5.516795
0.27000	-4.82E-15	-3.024544	.000000	-1.277944
0.50000	-4.82E-15	-1.327733	.000000	.000000
0.73000	-4.82E-15	-0.416529	.000000	-1.277944
0.96000	-4.82E-15	.000000	.000000	-5.516795

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.95E-32	-2.714897	.000000	-1.970407
0.27000	1.95E-32	-1.357448	.000000	0.371191
0.50000	1.95E-32	7.15E-16	.000000	1.151724
0.73000	1.95E-32	1.357449	.000000	0.371191
0.96000	1.95E-32	2.714897	.000000	-1.970407

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	1.95E-32	-2.714897	.000000	-1.970407
0.27000	1.95E-32	-1.357448	.000000	0.371191
0.50000	1.95E-32	7.15E-16	.000000	1.151724
0.73000	1.95E-32	1.357449	.000000	0.371191
0.96000	1.95E-32	2.714897	.000000	-1.970407

ELEM 27 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.72E-14	0.261549	.000000	3.465303

0.27000	1.72E-14	1.172753	.000000	2.851554
0.50000	1.72E-14	2.083956	.000000	1.804174
0.73000	1.72E-14	3.780767	.000000	2.851554
0.96000	1.72E-14	5.477577	.000000	3.465303

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-1.72E-14	-5.477577	.000000	-7.265094
0.27000	-1.72E-14	-3.780767	.000000	-2.152520
0.50000	-1.72E-14	-2.083956	.000000	.000000
0.73000	-1.72E-14	-1.172753	.000000	-2.152520
0.96000	-1.72E-14	-0.261549	.000000	-7.265094

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	-3.06E-32	-2.714897	.000000	-1.977595
0.27000	-3.06E-32	-1.357448	.000000	0.364003
0.50000	-3.06E-32	6.04E-16	.000000	1.144536
0.73000	-3.06E-32	1.357449	.000000	0.364003
0.96000	-3.06E-32	2.714897	.000000	-1.977595

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-3.06E-32	-2.714897	.000000	-1.977595
0.27000	-3.06E-32	-1.357448	.000000	0.364003
0.50000	-3.06E-32	6.04E-16	.000000	1.144536
0.73000	-3.06E-32	1.357449	.000000	0.364003
0.96000	-3.06E-32	2.714897	.000000	-1.977595

ELEM 28 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.91E-15	0.496208	.000000	4.005067
0.27000	2.91E-15	1.407411	.000000	3.122835
0.50000	2.91E-15	2.318615	.000000	1.806208
0.73000	2.91E-15	4.015426	.000000	3.122835
0.96000	2.91E-15	5.712236	.000000	4.005067

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-2.91E-15	-5.712236	.000000	-7.803385
0.27000	-2.91E-15	-4.015426	.000000	-2.422328
0.50000	-2.91E-15	-2.318615	.000000	.000000
0.73000	-2.91E-15	-1.407411	.000000	-2.422328
0.96000	-2.91E-15	-0.496208	.000000	-7.803385

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.73E-31	-2.714897	.000000	-1.976456
0.27000	2.73E-31	-1.357448	.000000	0.365142
0.50000	2.73E-31	1.60E-16	.000000	1.145675
0.73000	2.73E-31	1.357449	.000000	0.365142
0.96000	2.73E-31	2.714897	.000000	-1.976456

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	2.73E-31	-2.714897	.000000	-1.976456
0.27000	2.73E-31	-1.357448	.000000	0.365142
0.50000	2.73E-31	1.60E-16	.000000	1.145675
0.73000	2.73E-31	1.357449	.000000	0.365142
0.96000	2.73E-31	2.714897	.000000	-1.976456

ELEM 29 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	3.42E-14	0.510520	.000000	4.067273
0.27000	3.42E-14	1.421724	.000000	3.188125
0.50000	3.42E-14	2.332927	.000000	1.866762
0.73000	3.42E-14	4.029738	.000000	3.188125
0.96000	3.42E-14	5.726549	.000000	4.067273

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-3.42E-14	-5.726549	.000000	-7.787472
0.27000	-3.42E-14	-4.029738	.000000	-2.409500
0.50000	-3.42E-14	-2.332927	.000000	.000000
0.73000	-3.42E-14	-1.421724	.000000	-2.409500
0.96000	-3.42E-14	-0.510520	.000000	-7.787472

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	-7.46E-31	-2.714897	.000000	-1.937392
0.27000	-7.46E-31	-1.357448	.000000	0.404207
0.50000	-7.46E-31	6.04E-16	.000000	1.184740
0.73000	-7.46E-31	1.357449	.000000	0.404207
0.96000	-7.46E-31	2.714897	.000000	-1.937392

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3

0.04000	-7.46E-31	-2.714897	.000000	-1.937392
0.27000	-7.46E-31	-1.357448	.000000	0.404207
0.50000	-7.46E-31	6.04E-16	.000000	1.184740
0.73000	-7.46E-31	1.357449	.000000	0.404207
0.96000	-7.46E-31	2.714897	.000000	-1.937392

ELEM 31 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	8.84E-15	11.637620	.000000	12.275748
0.16250	8.84E-15	12.083317	.000000	5.604235
0.27500	8.84E-15	12.529014	.000000	1.650487
0.38750	8.84E-15	13.162657	.000000	8.836212
0.50000	8.84E-15	13.992619	.000000	15.666595

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-8.84E-15	-14.849525	.000000	-14.121522
0.16250	-8.84E-15	-14.019564	.000000	-6.002091
0.27500	-8.84E-15	-13.189602	.000000	-1.317983
0.38750	-8.84E-15	-12.547586	.000000	-8.490907
0.50000	-8.84E-15	-12.101888	.000000	-16.026047

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	3.05E-32	-1.670701	.000000	-0.959602
0.16250	3.05E-32	-1.006732	.000000	-0.206574
0.27500	3.05E-32	-0.342763	.000000	0.172972
0.38750	3.05E-32	0.321207	.000000	0.179034
0.50000	3.05E-32	0.985176	.000000	-0.188386

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	3.05E-32	-1.670701	.000000	-0.959602
0.16250	3.05E-32	-1.006732	.000000	-0.206574
0.27500	3.05E-32	-0.342763	.000000	0.172972
0.38750	3.05E-32	0.321207	.000000	0.179034
0.50000	3.05E-32	0.985176	.000000	-0.188386

ELEM 32 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	1.73E-17	13.340284	.000000	14.075332
0.16250	1.73E-17	13.785981	.000000	6.446070
0.27500	1.73E-17	14.231679	.000000	1.781354
0.38750	1.73E-17	14.953823	.000000	9.764844
0.50000	1.73E-17	15.783784	.000000	17.488118

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-1.73E-17	-16.267774	.000000	-15.586185
0.16250	-1.73E-17	-15.437813	.000000	-6.668989
0.27500	-1.73E-17	-14.607851	.000000	-1.433897
0.38750	-1.73E-17	-14.054336	.000000	-9.564569
0.50000	-1.73E-17	-13.608638	.000000	-18.152584

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	1.14E-31	-1.521535	.000000	-0.784033
0.16250	1.14E-31	-0.857565	.000000	-0.114911
0.27500	1.14E-31	-0.193596	.000000	0.180728
0.38750	1.14E-31	0.470373	.000000	0.102885
0.50000	1.14E-31	1.134343	.000000	-0.348442

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	1.14E-31	-1.521535	.000000	-0.784033
0.16250	1.14E-31	-0.857565	.000000	-0.114911
0.27500	1.14E-31	-0.193596	.000000	0.180728
0.38750	1.14E-31	0.470373	.000000	0.102885
0.50000	1.14E-31	1.134343	.000000	-0.348442

ELEM 33 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	1.28E-14	11.112212	.000000	11.695575
0.16250	1.28E-14	11.557909	.000000	5.319604
0.27500	1.28E-14	12.003607	.000000	1.655680
0.38750	1.28E-14	12.759095	.000000	8.326241
0.50000	1.28E-14	13.589057	.000000	14.774710

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-1.28E-14	-13.933679	.000000	-13.086001
0.16250	-1.28E-14	-13.103717	.000000	-5.481734
0.27500	-1.28E-14	-12.273755	.000000	-1.307073
0.38750	-1.28E-14	-11.753585	.000000	-8.184454
0.50000	-1.28E-14	-11.307887	.000000	-15.557301

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	7.92E-32	-1.465787	.000000	-0.721101
0.16250	7.92E-32	-0.801818	.000000	-0.083337
0.27500	7.92E-32	-0.137849	.000000	0.180945
0.38750	7.92E-32	0.526121	.000000	0.071743
0.50000	7.92E-32	1.190090	.000000	-0.410941

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	7.92E-32	-1.465787	.000000	-0.721101
0.16250	7.92E-32	-0.801818	.000000	-0.083337
0.27500	7.92E-32	-0.137849	.000000	0.180945
0.38750	7.92E-32	0.526121	.000000	0.071743
0.50000	7.92E-32	1.190090	.000000	-0.410941

ELEM 34 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	1.01E-14	7.353292	.000000	7.732177
0.16250	1.01E-14	7.798990	.000000	3.470598
0.27500	1.01E-14	8.244687	.000000	1.303634
0.38750	1.01E-14	8.964022	.000000	5.946280
0.50000	1.01E-14	9.793984	.000000	10.347450

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-1.01E-14	-10.328497	.000000	-9.382219
0.16250	-1.01E-14	-9.498536	.000000	-3.805866
0.27500	-1.01E-14	-8.668574	.000000	-1.041686
0.38750	-1.01E-14	-8.112250	.000000	-5.804675
0.50000	-1.01E-14	-7.666552	.000000	-11.043746

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	1.17E-31	-1.541744	.000000	-0.849732
0.16250	1.17E-31	-0.877775	.000000	-0.169242
0.27500	1.17E-31	-0.213805	.000000	0.137765
0.38750	1.17E-31	0.450164	.000000	0.071289
0.50000	1.17E-31	1.114133	.000000	-0.368669

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	1.17E-31	-1.541744	.000000	-0.849732
0.16250	1.17E-31	-0.877775	.000000	-0.169242
0.27500	1.17E-31	-0.213805	.000000	0.137765
0.38750	1.17E-31	0.450164	.000000	0.071289
0.50000	1.17E-31	1.114133	.000000	-0.368669

ELEM 35 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	2.59E-14	4.842124	.000000	5.406075
0.16250	2.59E-14	5.227071	.000000	2.686254
0.27500	2.59E-14	5.742679	.000000	1.283622
0.38750	2.59E-14	6.347641	.000000	4.067727
0.50000	2.59E-14	6.952603	.000000	6.744176

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-2.59E-14	-6.461925	.000000	-5.366814
0.16250	-2.59E-14	-5.856964	.000000	-2.014267
0.27500	-2.59E-14	-5.382663	.000000	-0.535732
0.38750	-2.59E-14	-4.997715	.000000	-3.800759
0.50000	-2.59E-14	-4.612768	.000000	-7.514954

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.05000	-2.44E-31	-0.771668	.000000	0.040245
0.16250	-2.44E-31	-0.287698	.000000	0.338192
0.27500	-2.44E-31	0.196271	.000000	0.363906
0.38750	-2.44E-31	0.680240	.000000	0.117387
0.50000	-2.44E-31	1.164210	.000000	-0.401365

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.05000	-2.44E-31	-0.771668	.000000	0.040245
0.16250	-2.44E-31	-0.287698	.000000	0.338192
0.27500	-2.44E-31	0.196271	.000000	0.363906
0.38750	-2.44E-31	0.680240	.000000	0.117387
0.50000	-2.44E-31	1.164210	.000000	-0.401365

ARCHIVO DE INGRESO DE DATOS PORTICO EJE B

```
; File D:\Mis documentos\sap2000\matumay\eje B .$2k saved 12/23/01
8:39:50 in Ton-m

SYSTEM
  DOF=UX,UZ,RY  LENGTH=m  FORCE=Ton  PAGE=SECTIONS

JOINT
  1  X=-7.5  Y=0  Z=-.45
  2  X=-7.5  Y=0  Z=3.55
  3  X=-7.5  Y=0  Z=7.1
  4  X=-7.5  Y=0  Z=10.65
  5  X=-7.5  Y=0  Z=14.2
  6  X=-7.5  Y=0  Z=17.75
  7  X=-2.5  Y=0  Z=-.45
  8  X=-2.5  Y=0  Z=3.55
  9  X=-2.5  Y=0  Z=7.1
  10  X=-2.5  Y=0  Z=10.65
  11  X=-2.5  Y=0  Z=14.2
  12  X=-2.5  Y=0  Z=17.75
  13  X=2.5  Y=0  Z=-.45
  14  X=2.5  Y=0  Z=3.55
  15  X=2.5  Y=0  Z=7.1
  16  X=2.5  Y=0  Z=10.65
  17  X=2.5  Y=0  Z=14.2
  18  X=2.5  Y=0  Z=17.75
  19  X=7.5  Y=0  Z=-.45
  20  X=7.5  Y=0  Z=3.55
  21  X=7.5  Y=0  Z=7.1
  22  X=7.5  Y=0  Z=10.65
  23  X=7.5  Y=0  Z=14.2
  24  X=7.5  Y=0  Z=17.75

RESTRAINT
  ADD=1  DOF=U1,U2,U3,R1,R2,R3
  ADD=7  DOF=U1,U2,U3,R1,R2,R3
  ADD=13  DOF=U1,U2,U3,R1,R2,R3
  ADD=19  DOF=U1,U2,U3,R1,R2,R3

CONSTRAINT
  NAME=DIAPH1  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=2
    ADD=8
    ADD=14
    ADD=20
  NAME=DIAPH2  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=3
    ADD=9
    ADD=15
    ADD=21
  NAME=DIAPH3  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=4
    ADD=10
    ADD=16
    ADD=22
  NAME=DIAPH4  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=5
    ADD=11
    ADD=17
    ADD=23
  NAME=DIAPH5  TYPE=DIAPH  AXIS=Z  CSYS=0
    ADD=6
    ADD=12
    ADD=18
    ADD=24

PATTERN
  NAME=DEFAULT

MATERIAL
  NAME=STEEL  IDES=S  M=.798142  W=7.833414
    T=0  E=2.038902E+07  U=.3  A=.0000117  FY=25310.51
  NAME=CONC  IDES=C  M=.2448  W=2.4026
    T=0  E=2200001  U=.2  A=.0000099
  NAME=OTHER  IDES=N  M=.2448012  W=2.402616
    T=0  E=2531051  U=.2  A=.0000099

FRAME SECTION
  NAME=C50X65 MAT=CONC SH=R T=.5,.65 A=.325 J=1.434129E-02
I=6.770833E-03,1.144271E-02 AS=.2708333,.2708333
  NAME=V25X60 MAT=CONC SH=R T=.6,.25 A=.15 J=2.306748E-03
I=.0045,7.8125E-04 AS=.125,.125
  NAME=C50X75 MAT=CONC SH=R T=.5,.75 A=.375 J=1.834105E-02
I=.0078125,1.757813E-02 AS=.3125,.3125

FRAME
  1  J=1,2  SEC=C50X65  NSEG=2  ANG=0
  2  J=2,3  SEC=C50X65  NSEG=2  ANG=0
  3  J=3,4  SEC=C50X65  NSEG=2  ANG=0
  4  J=4,5  SEC=C50X65  NSEG=2  ANG=0
  5  J=5,6  SEC=C50X65  NSEG=2  ANG=0
  6  J=7,8  SEC=C50X75  NSEG=2  ANG=0
  7  J=8,9  SEC=C50X75  NSEG=2  ANG=0
  8  J=9,10  SEC=C50X75  NSEG=2  ANG=0
  9  J=10,11  SEC=C50X75  NSEG=2  ANG=0
  10  J=11,12  SEC=C50X75  NSEG=2  ANG=0
  11  J=13,14  SEC=C50X75  NSEG=2  ANG=0
  12  J=14,15  SEC=C50X75  NSEG=2  ANG=0
```

```
  13  J=15,16  SEC=C50X75  NSEG=2  ANG=0
  14  J=16,17  SEC=C50X75  NSEG=2  ANG=0
  15  J=17,18  SEC=C50X75  NSEG=2  ANG=0
  16  J=19,20  SEC=C50X65  NSEG=2  ANG=0
  17  J=20,21  SEC=C50X65  NSEG=2  ANG=0
  18  J=21,22  SEC=C50X65  NSEG=2  ANG=0
  19  J=22,23  SEC=C50X65  NSEG=2  ANG=0
  20  J=23,24  SEC=C50X65  NSEG=2  ANG=0
  21  J=2,8  SEC=V25X60  NSEG=4  ANG=0  IOFF=.225  JOFF=.2  RIGID=1
  22  J=3,9  SEC=V25X60  NSEG=4  ANG=0  IOFF=.225  JOFF=.2  RIGID=1
  23  J=4,10  SEC=V25X60  NSEG=4  ANG=0  IOFF=.225  JOFF=.2  RIGID=1
  24  J=5,11  SEC=V25X60  NSEG=4  ANG=0  IOFF=.225  JOFF=.2  RIGID=1
  25  J=6,12  SEC=V25X60  NSEG=4  ANG=0  IOFF=.225  JOFF=.2  RIGID=1
  26  J=8,14  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  27  J=9,15  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  28  J=10,16  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  29  J=11,17  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.2  RIGID=1
  30  J=12,18  SEC=V25X60  NSEG=4  ANG=0
  31  J=14,20  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.225  RIGID=1
  32  J=15,21  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.225  RIGID=1
  33  J=16,22  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.225  RIGID=1
  34  J=17,23  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.225  RIGID=1
  35  J=18,24  SEC=V25X60  NSEG=4  ANG=0  IOFF=.2  JOFF=.225  RIGID=1

LOAD
  NAME=SISMO
    TYPE=FORCE
      ADD=6  UX=5.58
      ADD=5  UX=7.12
      ADD=4  UX=5.40
      ADD=3  UX=3.67
      ADD=2  UX=1.99
  NAME=MUERTA  SW=1
    TYPE=DISTRIBUTED SPAN
      ADD=21  RD=0,1  UZ=-.52,-.52
      ADD=22  RD=0,1  UZ=-.52,-.52
      ADD=23  RD=0,1  UZ=-.52,-.52
      ADD=24  RD=0,1  UZ=-.52,-.52
      ADD=26  RD=0,1  UZ=-.52,-.52
      ADD=27  RD=0,1  UZ=-.52,-.52
      ADD=28  RD=0,1  UZ=-.52,-.52
      ADD=29  RD=0,1  UZ=-.52,-.52
      ADD=31  RD=0,1  UZ=-.52,-.52
      ADD=32  RD=0,1  UZ=-.52,-.52
      ADD=33  RD=0,1  UZ=-.52,-.52
      ADD=34  RD=0,1  UZ=-.52,-.52
      ADD=25  RD=0,1  UZ=-.4,-.4
      ADD=35  RD=0,1  UZ=-.4,-.4
      ADD=30  RD=0,1  UZ=-.4,-.4
  NAME=VIVA
    TYPE=DISTRIBUTED SPAN
      ADD=21  RD=0,1  UZ=-.3,-.3
      ADD=22  RD=0,1  UZ=-.3,-.3
      ADD=23  RD=0,1  UZ=-.3,-.3
      ADD=24  RD=0,1  UZ=-.3,-.3
      ADD=26  RD=0,1  UZ=-.3,-.3
      ADD=27  RD=0,1  UZ=-.3,-.3
      ADD=28  RD=0,1  UZ=-.3,-.3
      ADD=29  RD=0,1  UZ=-.3,-.3
      ADD=31  RD=0,1  UZ=-.3,-.3
      ADD=32  RD=0,1  UZ=-.3,-.3
      ADD=33  RD=0,1  UZ=-.3,-.3
      ADD=34  RD=0,1  UZ=-.3,-.3
      ADD=25  RD=0,1  UZ=-.1,-.1
      ADD=35  RD=0,1  UZ=-.1,-.1
      ADD=30  RD=0,1  UZ=-.1,-.1

COMBO
  NAME=COMB1
    LOAD=MUERTA  SF=1.5
    LOAD=VIVA  SF=1.8
  NAME=COMB2
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=1.25
  NAME=COMB3
    LOAD=MUERTA  SF=1.25
    LOAD=VIVA  SF=1.25
    LOAD=SISMO  SF=-1.25
  NAME=COMB4
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=1.25
  NAME=COMB5
    LOAD=MUERTA  SF=.9
    LOAD=SISMO  SF=-1.25
  NAME=ENVOLV  TYPE=ENVE
    COMB=COMB1  SF=1
    COMB=COMB2  SF=1
    COMB=COMB3  SF=1
    COMB=COMB4  SF=1
    COMB=COMB5  SF=1
  NAME=SERVICIO
    LOAD=MUERTA  SF=1
    LOAD=VIVA  SF=1

OUTPUT
  ELEM=JOINT  TYPE=DISP  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=ENVOLV
  ELEM=FRAME  TYPE=FORCE  COMB=SERVICIO
```

S A P 2 0 0 0 (R)
Structural Analysis Programs
Educational Version 7.10

RESULTADOS PORTICO DEL EJE B

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

TRANSLATIONS AND ROTATIONS, IN GLOBAL COORDINATES

COMB ENVOLV ---------- MAX

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	0.002099	.000000	0.000611
3	0.004498	.000000	0.000563
4	0.006583	.000000	0.000472
5	0.008100	.000000	0.000322
6	0.008944	.000000	0.000234
7	.000000	.000000	.000000
8	0.002099	.000000	0.000423
9	0.004498	.000000	0.000420
10	0.006583	.000000	0.000335
11	0.008100	.000000	0.000223
12	0.008944	.000000	0.000103
13	.000000	.000000	.000000
14	0.002099	.000000	0.000428
15	0.004498	.000000	0.000417
16	0.006583	.000000	0.000333
17	0.008100	.000000	0.000214
18	0.008944	.000000	0.000112
19	.000000	.000000	.000000
20	0.002099	.000000	0.000491
21	0.004498	.000000	0.000467
22	0.006583	.000000	0.000366
23	0.008100	.000000	0.000230
24	0.008944	.000000	6.91E-05

COMB ENVOLV ---------- MIN

JOINT	UX	UZ	RY
1	.000000	.000000	.000000
2	-0.002099	-0.000237	-0.000491
3	-0.004498	-0.000398	-0.000467
4	-0.006583	-0.000510	-0.000366
5	-0.008100	-0.000577	-0.000230
6	-0.008944	-0.000601	-6.91E-05
7	.000000	.000000	.000000
8	-0.002099	-0.000319	-0.000428
9	-0.004498	-0.000540	-0.000417
10	-0.006583	-0.000701	-0.000333
11	-0.008100	-0.000800	-0.000214
12	-0.008944	-0.000839	-0.000112
13	.000000	.000000	.000000
14	-0.002099	-0.000319	-0.000423
15	-0.004498	-0.000540	-0.000420
16	-0.006583	-0.000701	-0.000335
17	-0.008100	-0.000800	-0.000223
18	-0.008944	-0.000839	-0.000103
19	.000000	.000000	.000000
20	-0.002099	-0.000237	-0.000611
21	-0.004498	-0.000398	-0.000563
22	-0.006583	-0.000510	-0.000472
23	-0.008100	-0.000577	-0.000322
24	-0.008944	-0.000601	-0.000234

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

ELEM 1 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.535637	.000000	7.212558
0.50000	.000000	2.535637	.000000	2.275328
1.00000	.000000	2.535637	.000000	4.657286

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-44.332725	-3.176167	.000000	-8.047381
0.50000	-42.380613	-3.176167	.000000	-1.829093
1.00000	-40.428500	-3.176167	.000000	-2.929992

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-28.047851	-0.333175	.000000	-0.434239
0.50000	-26.486161	-0.333175	.000000	0.232112
1.00000	-24.924471	-0.333175	.000000	0.898463

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-28.047851	-0.333175	.000000	-0.434239
0.50000	-26.486161	-0.333175	.000000	0.232112
1.00000	-24.924471	-0.333175	.000000	0.898463

ELEM 2 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	1.629952	.000000	2.720688
0.50000	.000000	1.629952	.000000	0.100463
1.00000	.000000	1.629952	.000000	5.525697

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-34.088636	-3.073693	.000000	-5.385913
0.50000	-32.356136	-3.073693	.000000	-0.203048
1.00000	-30.623636	-3.073693	.000000	-3.065642

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-22.066286	-0.751128	.000000	-1.386514
0.50000	-20.680286	-0.751128	.000000	-0.053262
1.00000	-19.294286	-0.751128	.000000	1.279989

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-22.066286	-0.751128	.000000	-1.386514
0.50000	-20.680286	-0.751128	.000000	-0.053262
1.00000	-19.294286	-0.751128	.000000	1.279989

ELEM 3 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	1.339074	.000000	1.986939
0.50000	.000000	1.339074	.000000	0.436742
1.00000	.000000	1.339074	.000000	5.217997

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.072404	-2.693664	.000000	-4.344512
0.50000	-22.993404	-2.693664	.000000	-0.389918
1.00000	-20.914404	-2.693664	.000000	-2.766775

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-16.363306	-0.702932	.000000	-1.224587
0.50000	-14.977306	-0.702932	.000000	0.023118
1.00000	-13.591306	-0.702932	.000000	1.270823

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.363306	-0.702932	.000000	-1.224587
0.50000	-14.977306	-0.702932	.000000	0.023118
1.00000	-13.591306	-0.702932	.000000	1.270823

ELEM 4 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	0.818070	.000000	0.826866
0.50000	.000000	0.818070	.000000	0.571369
1.00000	.000000	0.818070	.000000	4.395035

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.265508	-2.156071	.000000	-3.259018
0.50000	-14.186508	-2.156071	.000000	-0.628568
1.00000	-12.107508	-2.156071	.000000	-2.077282

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-10.641499	-0.701164	.000000	-1.268789
0.50000	-9.255499	-0.701164	.000000	-0.024224
1.00000	-7.869500	-0.701164	.000000	1.220342

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-10.641499	-0.701164	.000000	-1.268789
0.50000	-9.255499	-0.701164	.000000	-0.024224
1.00000	-7.869500	-0.701164	.000000	1.220342

ELEM 5 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	.000000	.000000	.000000
0.50000	.000000	.000000	.000000	0.693598
1.00000	.000000	.000000	.000000	3.580620

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.413462	-1.626491	.000000	-2.210503
0.50000	-5.334463	-1.626491	.000000	-0.390008
1.00000	-3.255463	-1.626491	.000000	-0.202854

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-4.889707	-0.869499	.000000	-1.413849
0.50000	-3.503707	-0.869499	.000000	0.129513
1.00000	-2.117707	-0.869499	.000000	1.672874

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-4.889707	-0.869499	.000000	-1.413849
0.50000	-3.503707	-0.869499	.000000	0.129513
1.00000	-2.117707	-0.869499	.000000	1.672874

ELEM 6 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.874918	.000000	9.559284
0.50000	.000000	3.874918	.000000	1.816746
1.00000	.000000	3.874918	.000000	5.849363

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-68.596065	-3.841163	.000000	-9.515290
0.50000	-65.893140	-3.841163	.000000	-1.840262
1.00000	-63.190215	-3.841163	.000000	-5.940389

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-44.425898	0.017693	.000000	0.023059
0.50000	-42.623948	0.017693	.000000	-0.012326
1.00000	-40.821998	0.017693	.000000	-0.047711

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-44.425898	0.017693	.000000	0.023059
0.50000	-42.623948	0.017693	.000000	-0.012326
1.00000	-40.821998	0.017693	.000000	-0.047711

ELEM 7 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.954447	.000000	7.013247
0.50000	.000000	3.954447	.000000	0.057536
1.00000	.000000	3.954447	.000000	7.028546

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-53.740690	-3.933831	.000000	-6.936555
0.50000	-51.341844	-3.933831	.000000	-0.017437
1.00000	-48.942998	-3.933831	.000000	-7.025041

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-34.827258	0.011385	.000000	0.040863
0.50000	-33.228027	0.011385	.000000	0.020656
1.00000	-31.628797	0.011385	.000000	0.000448

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-34.827258	0.011385	.000000	0.040863
0.50000	-33.228027	0.011385	.000000	0.020656
1.00000	-31.628797	0.011385	.000000	0.000448

ELEM 8 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.258120	.000000	5.372382
0.50000	.000000	3.258120	.000000	0.408526
1.00000	.000000	3.258120	.000000	6.262493

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-39.607833	-3.298009	.000000	-5.445440
0.50000	-37.208987	-3.298009	.000000	-0.410781
1.00000	-34.810141	-3.298009	.000000	-6.193944

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-25.706852	-0.020407	.000000	-0.036993
0.50000	-24.107621	-0.020407	.000000	-0.000771
1.00000	-22.508391	-0.020407	.000000	0.035451

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.706852	-0.020407	.000000	-0.036993

0.50000	-24.107621	-0.020407	.000000	-0.000771
1.00000	-22.508391	-0.020407	.000000	0.035451

ELEM 9 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.316623	.000000	3.564357
0.50000	.000000	2.316623	.000000	0.580710
1.00000	.000000	2.316623	.000000	4.850946

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.504650	-2.405767	.000000	-3.689526
0.50000	-23.105804	-2.405767	.000000	-0.547648
1.00000	-20.706958	-2.405767	.000000	-4.659653

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-16.605273	-0.043307	.000000	-0.061775
0.50000	-15.006042	-0.043307	.000000	0.015094
1.00000	-13.406811	-0.043307	.000000	0.091964

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.605273	-0.043307	.000000	-0.061775
0.50000	-15.006042	-0.043307	.000000	0.015094
1.00000	-13.406811	-0.043307	.000000	0.091964

ELEM 10 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	1.172929	.000000	1.507046
0.50000	.000000	1.172929	.000000	0.494843
1.00000	.000000	1.172929	.000000	2.566002

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-11.446617	-1.172083	.000000	-1.594893
0.50000	-9.047771	-1.172083	.000000	-0.584191
1.00000	-6.648925	-1.172083	.000000	-2.656851

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-7.533679	-0.004360	.000000	-0.047193
0.50000	-5.934449	-0.004360	.000000	-0.039454
1.00000	-4.335218	-0.004360	.000000	-0.031715

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.533679	-0.004360	.000000	-0.047193
0.50000	-5.934449	-0.004360	.000000	-0.039454
1.00000	-4.335218	-0.004360	.000000	-0.031715

ELEM 11 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.841163	.000000	9.515290
0.50000	.000000	3.841163	.000000	1.840262
1.00000	.000000	3.841163	.000000	5.940389

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-68.596065	-3.874918	.000000	-9.559284
0.50000	-65.893140	-3.874918	.000000	-1.816746
1.00000	-63.190215	-3.874918	.000000	-5.849363

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-44.425898	-0.017693	.000000	-0.023059
0.50000	-42.623948	-0.017693	.000000	0.012326
1.00000	-40.821998	-0.017693	.000000	0.047711

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-44.425898	-0.017693	.000000	-0.023059
0.50000	-42.623948	-0.017693	.000000	0.012326
1.00000	-40.821998	-0.017693	.000000	0.047711

ELEM 12 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.933831	.000000	6.936555
0.50000	.000000	3.933831	.000000	0.017437
1.00000	.000000	3.933831	.000000	7.025041

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-53.740690	-3.954447	.000000	-7.013247

0.50000	-51.341844	-3.954447	.000000	-0.057536
1.00000	-48.942998	-3.954447	.000000	-7.028546

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-34.827258	-0.011385	.000000	-0.040863
0.50000	-33.228027	-0.011385	.000000	-0.020656
1.00000	-31.628797	-0.011385	.000000	-0.000448

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-34.827258	-0.011385	.000000	-0.040863
0.50000	-33.228027	-0.011385	.000000	-0.020656
1.00000	-31.628797	-0.011385	.000000	-0.000448

ELEM 13 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.298009	.000000	5.445440
0.50000	.000000	3.298009	.000000	0.410781
1.00000	.000000	3.298009	.000000	6.193944

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-39.607833	-3.258120	.000000	-5.372382
0.50000	-37.208987	-3.258120	.000000	-0.408526
1.00000	-34.810141	-3.258120	.000000	-6.262493

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-25.706852	0.020407	.000000	0.036993
0.50000	-24.107621	0.020407	.000000	0.000771
1.00000	-22.508391	0.020407	.000000	-0.035451

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.706852	0.020407	.000000	0.036993
0.50000	-24.107621	0.020407	.000000	0.000771
1.00000	-22.508391	0.020407	.000000	-0.035451

ELEM 14 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.405767	.000000	3.689526
0.50000	.000000	2.405767	.000000	0.547648
1.00000	.000000	2.405767	.000000	4.659653

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.504650	-2.316623	.000000	-3.564357
0.50000	-23.105804	-2.316623	.000000	-0.580710
1.00000	-20.706958	-2.316623	.000000	-4.850946

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-16.605273	0.043307	.000000	0.061775
0.50000	-15.006042	0.043307	.000000	-0.015094
1.00000	-13.406811	0.043307	.000000	-0.091964

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.605273	0.043307	.000000	0.061775
0.50000	-15.006042	0.043307	.000000	-0.015094
1.00000	-13.406811	0.043307	.000000	-0.091964

ELEM 15 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	1.172083	.000000	1.594893
0.50000	.000000	1.172083	.000000	0.584191
1.00000	.000000	1.172083	.000000	2.656851

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-11.446617	-1.172929	.000000	-1.507046
0.50000	-9.047771	-1.172929	.000000	-0.494843
1.00000	-6.648925	-1.172929	.000000	-2.566002

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-7.533679	0.004360	.000000	0.047193
0.50000	-5.934449	0.004360	.000000	0.039454
1.00000	-4.335218	0.004360	.000000	0.031715

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.533679	0.004360	.000000	0.047193
0.50000	-5.934449	0.004360	.000000	0.039454
1.00000	-4.335218	0.004360	.000000	0.031715

ELEM 16 ========== LENGTH = 4.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.176167	.000000	8.047381
0.50000	.000000	3.176167	.000000	1.829093
1.00000	.000000	3.176167	.000000	2.929992

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-44.332725	-2.535637	.000000	-7.212558
0.50000	-42.380613	-2.535637	.000000	-2.275328
1.00000	-40.428500	-2.535637	.000000	-4.657286

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-28.047851	0.333175	.000000	0.434239
0.50000	-26.486161	0.333175	.000000	-0.232112
1.00000	-24.924471	0.333175	.000000	-0.898463

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-28.047851	0.333175	.000000	0.434239
0.50000	-26.486161	0.333175	.000000	-0.232112
1.00000	-24.924471	0.333175	.000000	-0.898463

ELEM 17 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	3.073693	.000000	5.385913
0.50000	.000000	3.073693	.000000	0.203048
1.00000	.000000	3.073693	.000000	3.065642

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-34.088636	-1.629952	.000000	-2.720688
0.50000	-32.356136	-1.629952	.000000	-0.100463
1.00000	-30.623636	-1.629952	.000000	-5.525697

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-22.066286	0.751128	.000000	1.386514
0.50000	-20.680286	0.751128	.000000	0.053262
1.00000	-19.294286	0.751128	.000000	-1.279989

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-22.066286	0.751128	.000000	1.386514
0.50000	-20.680286	0.751128	.000000	0.053262
1.00000	-19.294286	0.751128	.000000	-1.279989

ELEM 18 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.693664	.000000	4.344512
0.50000	.000000	2.693664	.000000	0.389918
1.00000	.000000	2.693664	.000000	2.766775

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-25.072404	-1.339074	.000000	-1.986939
0.50000	-22.993404	-1.339074	.000000	-0.436742
1.00000	-20.914404	-1.339074	.000000	-5.217997

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-16.363306	0.702932	.000000	1.224587
0.50000	-14.977306	0.702932	.000000	-0.023118
1.00000	-13.591306	0.702932	.000000	-1.270823

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.363306	0.702932	.000000	1.224587
0.50000	-14.977306	0.702932	.000000	-0.023118
1.00000	-13.591306	0.702932	.000000	-1.270823

ELEM 19 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	2.156071	.000000	3.259018
0.50000	.000000	2.156071	.000000	0.628568
1.00000	.000000	2.156071	.000000	2.077282

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-16.265508	-0.818070	.000000	-0.826866
0.50000	-14.186508	-0.818070	.000000	-0.571369
1.00000	-12.107508	-0.818070	.000000	-4.395035

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-10.641499	0.701164	.000000	1.268789
0.50000	-9.255499	0.701164	.000000	0.024224
1.00000	-7.869500	0.701164	.000000	-1.220342

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-10.641499	0.701164	.000000	1.268789
0.50000	-9.255499	0.701164	.000000	0.024224
1.00000	-7.869500	0.701164	.000000	-1.220342

ELEM 20 ========== LENGTH = 3.55

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	.000000	1.626491	.000000	2.210503
0.50000	.000000	1.626491	.000000	0.390008
1.00000	.000000	1.626491	.000000	0.202854

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-7.413462	.000000	.000000	.000000
0.50000	-5.334463	.000000	.000000	-0.693598
1.00000	-3.255463	.000000	.000000	-3.580620

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-4.889707	0.869499	.000000	1.413849
0.50000	-3.503707	0.869499	.000000	-0.129513
1.00000	-2.117707	0.869499	.000000	-1.672874

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-4.889707	0.869499	.000000	1.413849
0.50000	-3.503707	0.869499	.000000	-0.129513
1.00000	-2.117707	0.869499	.000000	-1.672874

ELEM 21 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	2.26E-15	1.025802	.000000	5.439931
0.27375	2.26E-15	1.932054	.000000	4.051271
0.50250	2.26E-15	2.901566	.000000	1.844989
0.73125	2.26E-15	4.589155	.000000	3.274652
0.96000	2.26E-15	6.276743	.000000	4.645216

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-2.26E-15	-6.007880	.000000	-8.654077
0.27375	-2.26E-15	-4.320291	.000000	-3.050518
0.50250	-2.26E-15	-2.695963	.000000	.000000
0.73125	-2.26E-15	-1.789711	.000000	-2.744216
0.96000	-2.26E-15	-0.883460	.000000	-8.799996

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	7.58E-31	-2.592597	.000000	-1.671764
0.27375	7.58E-31	-1.242526	.000000	0.521447
0.50250	7.58E-31	0.107545	.000000	1.170513
0.73125	7.58E-31	1.457616	.000000	0.275436
0.96000	7.58E-31	2.807688	.000000	-2.163784

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	7.58E-31	-2.592597	.000000	-1.671764
0.27375	7.58E-31	-1.242526	.000000	0.521447
0.50250	7.58E-31	0.107545	.000000	1.170513
0.73125	7.58E-31	1.457616	.000000	0.275436
0.96000	7.58E-31	2.807688	.000000	-2.163784

ELEM 22 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	2.93E-15	0.820053	.000000	4.888125
0.27375	2.93E-15	1.726305	.000000	3.666995
0.50250	2.93E-15	2.654836	.000000	1.787246
0.73125	2.93E-15	4.342424	.000000	3.210933
0.96000	2.93E-15	6.030013	.000000	4.434630

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-2.93E-15	-5.943139	.000000	-8.495655
0.27375	-2.93E-15	-4.255550	.000000	-2.898347
0.50250	-2.93E-15	-2.590241	.000000	.000000
0.73125	-2.93E-15	-1.683990	.000000	-2.590046
0.96000	-2.93E-15	-0.777738	.000000	-8.337680

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3

0.04500	-3.75E-30	-2.665393	.000000	-1.874985
0.27375	-3.75E-30	-1.315321	.000000	0.401486
0.50250	-3.75E-30	0.034750	.000000	1.133813
0.73125	-3.75E-30	1.384821	.000000	0.321996
0.96000	-3.75E-30	2.734892	.000000	-2.033964

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-3.75E-30	-2.665393	.000000	-1.874985
0.27375	-3.75E-30	-1.315321	.000000	0.401486
0.50250	-3.75E-30	0.034750	.000000	1.133813
0.73125	-3.75E-30	1.384821	.000000	0.321996
0.96000	-3.75E-30	2.734892	.000000	-2.033964

ELEM 23 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	5.24E-15	0.246341	.000000	3.558271
0.27375	5.24E-15	1.152592	.000000	2.986383
0.50250	5.24E-15	2.070235	.000000	1.806052
0.73125	5.24E-15	3.757824	.000000	2.638771
0.96000	5.24E-15	5.445413	.000000	3.217246

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-5.24E-15	-5.405606	.000000	-7.223405
0.27375	-5.24E-15	-3.718017	.000000	-2.233959
0.50250	-5.24E-15	-2.041820	.000000	.000000
0.73125	-5.24E-15	-1.135568	.000000	-1.951349
0.96000	-5.24E-15	-0.229317	.000000	-7.012382

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	6.66E-31	-2.684219	.000000	-1.905784
0.27375	6.66E-31	-1.334148	.000000	0.392220
0.50250	6.66E-31	0.015923	.000000	1.146080
0.73125	6.66E-31	1.365994	.000000	0.355796
0.96000	6.66E-31	2.716065	.000000	-1.978631

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	6.66E-31	-2.684219	.000000	-1.905784
0.27375	6.66E-31	-1.334148	.000000	0.392220
0.50250	6.66E-31	0.015923	.000000	1.146080
0.73125	6.66E-31	1.365994	.000000	0.355796
0.96000	6.66E-31	2.716065	.000000	-1.978631

ELEM 24 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	2.77E-14	.000000	.000000	1.645274
0.27375	2.77E-14	0.350258	.000000	1.974643
0.50250	2.77E-14	1.256892	.000000	1.778164
0.73125	2.77E-14	2.944481	.000000	1.827631
0.96000	2.77E-14	4.632070	.000000	1.540226

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-2.77E-14	-4.667227	.000000	-5.500984
0.27375	-2.77E-14	-2.979639	.000000	-1.339646
0.50250	-2.77E-14	-1.292433	.000000	.000000
0.73125	-2.77E-14	-0.386181	.000000	-1.111335
0.96000	-2.77E-14	.000000	.000000	-5.233337

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	1.97E-30	-2.714205	.000000	-1.993616
0.27375	1.97E-30	-1.364134	.000000	0.338684
0.50250	1.97E-30	-0.014063	.000000	1.126841
0.73125	1.97E-30	1.336008	.000000	0.370854
0.96000	1.97E-30	2.686079	.000000	-1.929277

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	1.97E-30	-2.714205	.000000	-1.993616
0.27375	1.97E-30	-1.364134	.000000	0.338684
0.50250	1.97E-30	-0.014063	.000000	1.126841
0.73125	1.97E-30	1.336008	.000000	0.370854
0.96000	1.97E-30	2.686079	.000000	-1.929277

ELEM 25 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	2.80E-14	.000000	.000000	0.432953
0.27375	2.80E-14	.000000	.000000	1.234640
0.50250	2.80E-14	0.624606	.000000	1.428869
0.73125	2.80E-14	1.854695	.000000	0.991831
0.96000	2.80E-14	3.084783	.000000	0.086344

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-2.80E-14	-2.974726	.000000	-2.884083

0.27375	-2.80E-14	-1.744637	.000000	-0.352893
0.50250	-2.80E-14	-0.519374	.000000	.000000
0.73125	-2.80E-14	.000000	.000000	-0.350802
0.96000	-2.80E-14	.000000	.000000	-3.018909

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04500	-1.60E-30	-1.924119	.000000	-1.218169
0.27375	-1.60E-30	-0.940048	.000000	0.419777
0.50250	-1.60E-30	0.044023	.000000	0.932191
0.73125	-1.60E-30	1.028094	.000000	0.319074
0.96000	-1.60E-30	2.012165	.000000	-1.419574

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04500	-1.60E-30	-1.924119	.000000	-1.218169
0.27375	-1.60E-30	-0.940048	.000000	0.419777
0.50250	-1.60E-30	0.044023	.000000	0.932191
0.73125	-1.60E-30	1.028094	.000000	0.319074
0.96000	-1.60E-30	2.012165	.000000	-1.419574

ELEM 26 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.73E-15	0.655283	.000000	4.293387
0.27000	2.73E-15	1.566487	.000000	3.159132
0.50000	2.73E-15	2.477691	.000000	1.620898
0.73000	2.73E-15	4.174501	.000000	3.159132
0.96000	2.73E-15	5.871312	.000000	4.293387

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-2.73E-15	-5.871312	.000000	-8.315899
0.27000	-2.73E-15	-4.174501	.000000	-2.682820
0.50000	-2.73E-15	-2.477691	.000000	.000000
0.73000	-2.73E-15	-1.566487	.000000	-2.682820
0.96000	-2.73E-15	-0.655283	.000000	-8.315899

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	7.53E-31	-2.714897	.000000	-2.093768
0.27000	7.53E-31	-1.357448	.000000	0.247830
0.50000	7.53E-31	1.38E-15	.000000	1.028363
0.73000	7.53E-31	1.357449	.000000	0.247830
0.96000	7.53E-31	2.714897	.000000	-2.093768

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	7.53E-31	-2.714897	.000000	-2.093768
0.27000	7.53E-31	-1.357448	.000000	0.247830
0.50000	7.53E-31	1.38E-15	.000000	1.028363
0.73000	7.53E-31	1.357449	.000000	0.247830
0.96000	7.53E-31	2.714897	.000000	-2.093768

ELEM 27 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	8.53E-15	0.620511	.000000	4.226105
0.27000	8.53E-15	1.531714	.000000	3.142099
0.50000	8.53E-15	2.442918	.000000	1.649722
0.73000	8.53E-15	4.139729	.000000	3.142099
0.96000	8.53E-15	5.836539	.000000	4.226105

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-8.53E-15	-5.836539	.000000	-8.212967
0.27000	-8.53E-15	-4.139729	.000000	-2.630136
0.50000	-8.53E-15	-2.442918	.000000	.000000
0.73000	-8.53E-15	-1.531714	.000000	-2.630136
0.96000	-8.53E-15	-0.620511	.000000	-8.212967

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	5.84E-31	-2.714897	.000000	-2.075404
0.27000	5.84E-31	-1.357448	.000000	0.266194
0.50000	5.84E-31	1.49E-15	.000000	1.046727
0.73000	5.84E-31	1.357449	.000000	0.266194
0.96000	5.84E-31	2.714897	.000000	-2.075404

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	5.84E-31	-2.714897	.000000	-2.075404
0.27000	5.84E-31	-1.357448	.000000	0.266194
0.50000	5.84E-31	1.49E-15	.000000	1.046727
0.73000	5.84E-31	1.357449	.000000	0.266194
0.96000	5.84E-31	2.714897	.000000	-2.075404

ELEM 28 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.95E-14	0.130124	.000000	3.097068
0.27000	1.95E-14	1.041328	.000000	2.577297

0.50000	1.95E-14	1.952531	.000000	1.648870
0.73000	1.95E-14	3.649342	.000000	2.577297
0.96000	1.95E-14	5.346153	.000000	3.097068

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-1.95E-14	-5.346153	.000000	-7.085935
0.27000	-1.95E-14	-3.649342	.000000	-2.067339
0.50000	-1.95E-14	-1.952531	.000000	.000000
0.73000	-1.95E-14	-1.041328	.000000	-2.067339
0.96000	-1.95E-14	-0.130124	.000000	-7.085935

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	5.01E-30	-2.714897	.000000	-2.076090
0.27000	5.01E-30	-1.357448	.000000	0.265509
0.50000	5.01E-30	1.38E-15	.000000	1.046041
0.73000	5.01E-30	1.357449	.000000	0.265509
0.96000	5.01E-30	2.714897	.000000	-2.076090

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	5.01E-30	-2.714897	.000000	-2.076090
0.27000	5.01E-30	-1.357448	.000000	0.265509
0.50000	5.01E-30	1.38E-15	.000000	1.046041
0.73000	5.01E-30	1.357449	.000000	0.265509
0.96000	5.01E-30	2.714897	.000000	-2.076090

ELEM 29 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.92E-14	.000000	.000000	1.558502
0.27000	1.92E-14	0.366900	.000000	1.818479
0.50000	1.92E-14	1.278103	.000000	1.668819
0.73000	1.92E-14	2.974914	.000000	1.818479
0.96000	1.92E-14	4.671724	.000000	1.558502

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-1.92E-14	-4.671724	.000000	-5.517975
0.27000	-1.92E-14	-2.974914	.000000	-1.279127
0.50000	-1.92E-14	-1.278103	.000000	.000000
0.73000	-1.92E-14	-0.366900	.000000	-1.279127
0.96000	-1.92E-14	.000000	.000000	-5.517975

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.60E-30	-2.714897	.000000	-2.062671
0.27000	2.60E-30	-1.357448	.000000	0.278928
0.50000	2.60E-30	1.38E-15	.000000	1.059461
0.73000	2.60E-30	1.357449	.000000	0.278928
0.96000	2.60E-30	2.714897	.000000	-2.062671

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	2.60E-30	-2.714897	.000000	-2.062671
0.27000	2.60E-30	-1.357448	.000000	0.278928
0.50000	2.60E-30	1.38E-15	.000000	1.059461
0.73000	2.60E-30	1.357449	.000000	0.278928
0.96000	2.60E-30	2.714897	.000000	-2.062671

ELEM 30 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	2.80E-14	.000000	.000000	.000000
0.25000	2.80E-14	.000000	.000000	0.884945
0.50000	2.80E-14	0.498916	.000000	1.354567
0.75000	2.80E-14	1.843275	.000000	0.884945
1.00000	2.80E-14	3.301463	.000000	.000000

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-2.80E-14	-3.301462	.000000	-3.506663
0.25000	-2.80E-14	-1.843275	.000000	-0.463409
0.50000	-2.80E-14	-0.498916	.000000	.000000
0.75000	-2.80E-14	.000000	.000000	-0.463409
1.00000	-2.80E-14	.000000	.000000	-3.506663

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.00000	-1.60E-30	-2.150975	.000000	-1.807499
0.25000	-1.60E-30	-1.075487	.000000	0.209040
0.50000	-1.60E-30	1.12E-15	.000000	0.881220
0.75000	-1.60E-30	1.075488	.000000	0.209040
1.00000	-1.60E-30	2.150975	.000000	-1.807499

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.00000	-1.60E-30	-2.150975	.000000	-1.807499
0.25000	-1.60E-30	-1.075487	.000000	0.209040
0.50000	-1.60E-30	1.12E-15	.000000	0.881220
0.75000	-1.60E-30	1.075488	.000000	0.209040
1.00000	-1.60E-30	2.150975	.000000	-1.807499

ELEM 31 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.73E-15	0.883460	.000000	4.645216
0.26875	2.73E-15	1.789711	.000000	3.274652
0.49750	2.73E-15	2.695963	.000000	1.844989
0.72625	2.73E-15	4.320291	.000000	4.051271
0.95500	2.73E-15	6.007880	.000000	5.439931

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-2.73E-15	-6.276743	.000000	-8.799996
0.26875	-2.73E-15	-4.589155	.000000	-2.744216
0.49750	-2.73E-15	-2.901566	.000000	.000000
0.72625	-2.73E-15	-1.932054	.000000	-3.050518
0.95500	-2.73E-15	-1.025802	.000000	-8.654077

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	7.53E-31	-2.807688	.000000	-2.163784
0.26875	7.53E-31	-1.457616	.000000	0.275436
0.49750	7.53E-31	-0.107545	.000000	1.170513
0.72625	7.53E-31	1.242526	.000000	0.521447
0.95500	7.53E-31	2.592597	.000000	-1.671764

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	7.53E-31	-2.807688	.000000	-2.163784
0.26875	7.53E-31	-1.457616	.000000	0.275436
0.49750	7.53E-31	-0.107545	.000000	1.170513
0.72625	7.53E-31	1.242526	.000000	0.521447
0.95500	7.53E-31	2.592597	.000000	-1.671764

ELEM 32 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	8.53E-15	0.777738	.000000	4.434630
0.26875	8.53E-15	1.683990	.000000	3.210933
0.49750	8.53E-15	2.590241	.000000	1.787246
0.72625	8.53E-15	4.255550	.000000	3.666995
0.95500	8.53E-15	5.943139	.000000	4.888125

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-8.53E-15	-6.030013	.000000	-8.337680
0.26875	-8.53E-15	-4.342424	.000000	-2.590046
0.49750	-8.53E-15	-2.654836	.000000	.000000
0.72625	-8.53E-15	-1.726305	.000000	-2.898347
0.95500	-8.53E-15	-0.820053	.000000	-8.495655

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	5.84E-31	-2.734892	.000000	-2.033964
0.26875	5.84E-31	-1.384821	.000000	0.321996
0.49750	5.84E-31	-0.034750	.000000	1.133813
0.72625	5.84E-31	1.315321	.000000	0.401486
0.95500	5.84E-31	2.665393	.000000	-1.874985

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	5.84E-31	-2.734892	.000000	-2.033964
0.26875	5.84E-31	-1.384821	.000000	0.321996
0.49750	5.84E-31	-0.034750	.000000	1.133813
0.72625	5.84E-31	1.315321	.000000	0.401486
0.95500	5.84E-31	2.665393	.000000	-1.874985

ELEM 33 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.95E-14	0.229317	.000000	3.217246
0.26875	1.95E-14	1.135568	.000000	2.638771
0.49750	1.95E-14	2.041820	.000000	1.806052
0.72625	1.95E-14	3.718017	.000000	2.986383
0.95500	1.95E-14	5.405606	.000000	3.558271

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-1.95E-14	-5.445413	.000000	-7.012382
0.26875	-1.95E-14	-3.757824	.000000	-1.951349
0.49750	-1.95E-14	-2.070235	.000000	.000000
0.72625	-1.95E-14	-1.152592	.000000	-2.233959
0.95500	-1.95E-14	-0.246341	.000000	-7.223405

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	5.01E-30	-2.716065	.000000	-1.978631
0.26875	5.01E-30	-1.365994	.000000	0.355796
0.49750	5.01E-30	-0.015923	.000000	1.146080
0.72625	5.01E-30	1.334148	.000000	0.392220
0.95500	5.01E-30	2.684219	.000000	-1.905784

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	5.01E-30	-2.716065	.000000	-1.978631
0.26875	5.01E-30	-1.365994	.000000	0.355796
0.49750	5.01E-30	-0.015923	.000000	1.146080
0.72625	5.01E-30	1.334148	.000000	0.392220
0.95500	5.01E-30	2.684219	.000000	-1.905784

ELEM 34 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	1.92E-14	.000000	.000000	1.540226
0.26875	1.92E-14	0.386181	.000000	1.827631
0.49750	1.92E-14	1.292433	.000000	1.778164
0.72625	1.92E-14	2.979639	.000000	1.974643
0.95500	1.92E-14	4.667227	.000000	1.645274

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-1.92E-14	-4.632070	.000000	-5.233337
0.26875	-1.92E-14	-2.944481	.000000	-1.111335
0.49750	-1.92E-14	-1.256892	.000000	.000000
0.72625	-1.92E-14	-0.350258	.000000	-1.339646
0.95500	-1.92E-14	.000000	.000000	-5.500984

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	2.60E-30	-2.686079	.000000	-1.929277
0.26875	2.60E-30	-1.336008	.000000	0.370854
0.49750	2.60E-30	0.014063	.000000	1.126841
0.72625	2.60E-30	1.364134	.000000	0.338684
0.95500	2.60E-30	2.714205	.000000	-1.993616

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	2.60E-30	-2.686079	.000000	-1.929277
0.26875	2.60E-30	-1.336008	.000000	0.370854
0.49750	2.60E-30	0.014063	.000000	1.126841
0.72625	2.60E-30	1.364134	.000000	0.338684
0.95500	2.60E-30	2.714205	.000000	-1.993616

ELEM 35 ========== LENGTH = 5.00

COMB ENVOLV ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	3.11E-14	.000000	.000000	0.086344
0.26875	3.11E-14	.000000	.000000	0.991831
0.49750	3.11E-14	0.519374	.000000	1.428869
0.72625	3.11E-14	1.744637	.000000	1.234640
0.95500	3.11E-14	2.974726	.000000	0.432953

COMB ENVOLV ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-3.11E-14	-3.084783	.000000	-3.018909
0.26875	-3.11E-14	-1.854695	.000000	-0.350802
0.49750	-3.11E-14	-0.624606	.000000	.000000
0.72625	-3.11E-14	.000000	.000000	-0.352893
0.95500	-3.11E-14	.000000	.000000	-2.884083

COMBSERVICIO ---------- MAX

REL DIST	P	V2	V3	M3
0.04000	-5.05E-31	-2.012165	.000000	-1.419574
0.26875	-5.05E-31	-1.028094	.000000	0.319074
0.49750	-5.05E-31	-0.044023	.000000	0.932191
0.72625	-5.05E-31	0.940048	.000000	0.419777
0.95500	-5.05E-31	1.924119	.000000	-1.218169

COMBSERVICIO ---------- MIN

REL DIST	P	V2	V3	M3
0.04000	-5.05E-31	-2.012165	.000000	-1.419574
0.26875	-5.05E-31	-1.028094	.000000	0.319074
0.49750	-5.05E-31	-0.044023	.000000	0.932191
0.72625	-5.05E-31	0.940048	.000000	0.419777
0.95500	-5.05E-31	1.924119	.000000	-1.218169

ANEXO N° 5-A

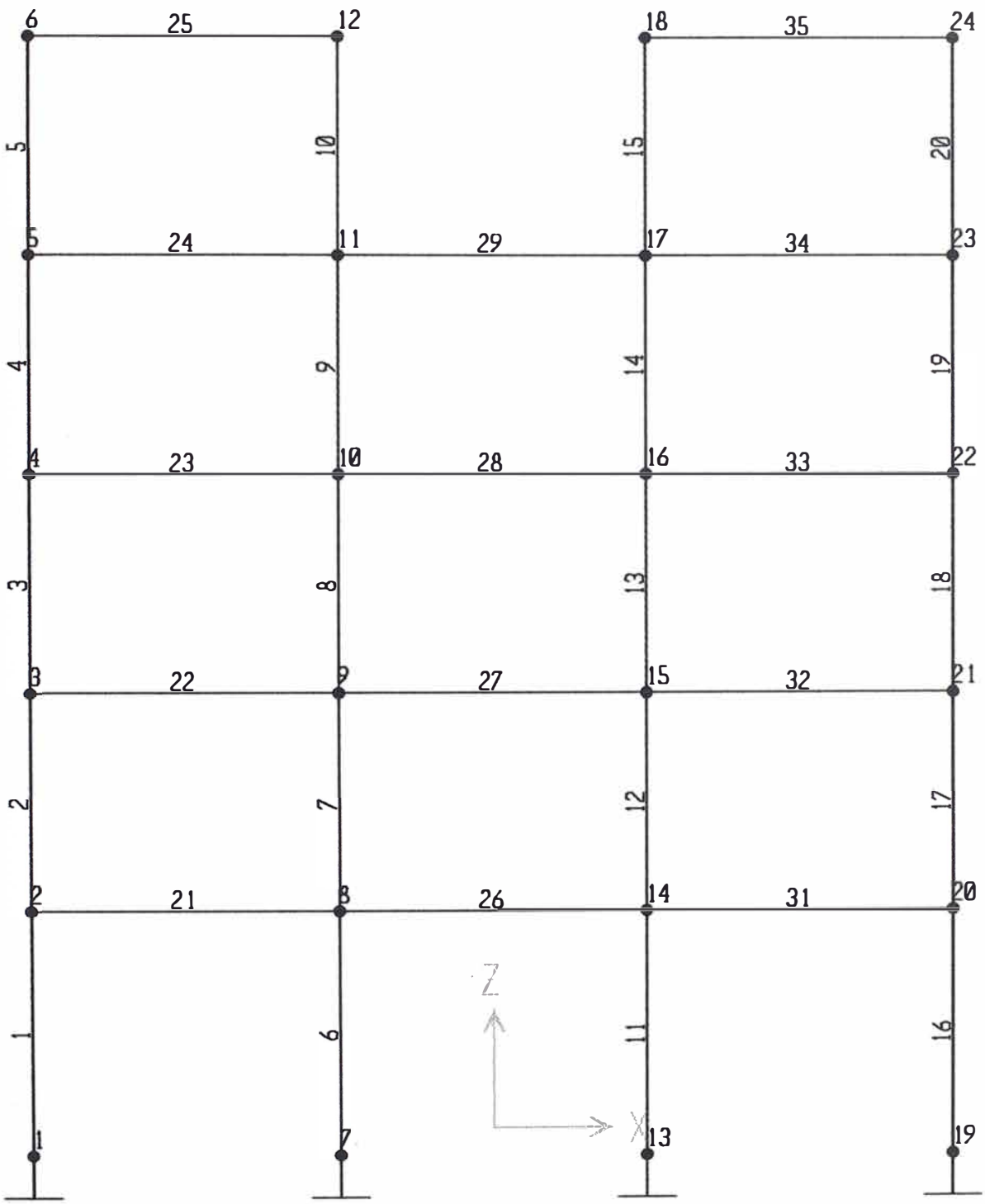
DIAGRAMAS DE MOMENTOS

FUERZAS CORTANTES Y

FUERZA AXIAL

(ENVOLVENTES SAP)

SAP2000 12/21/03 23:57:25



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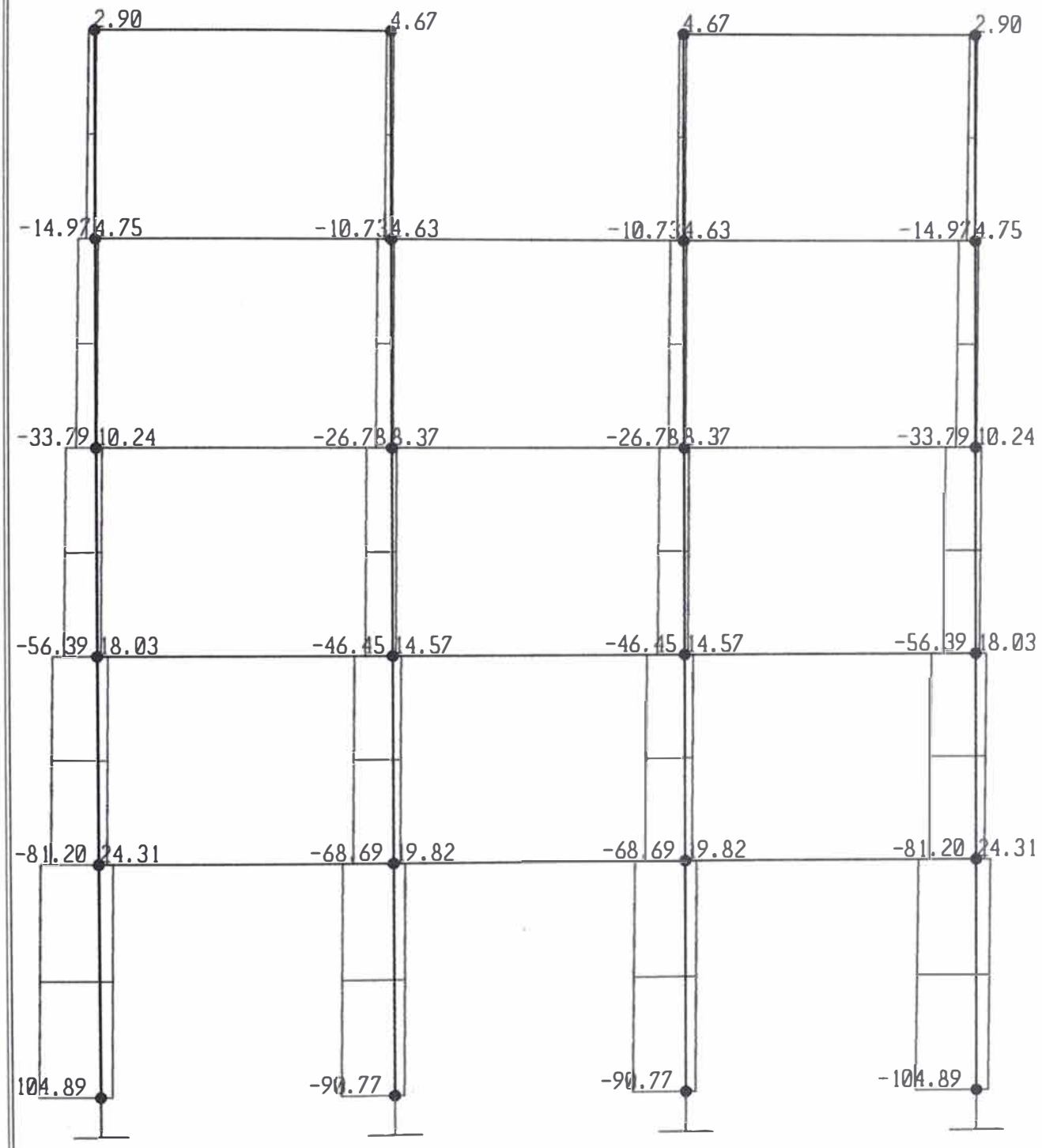
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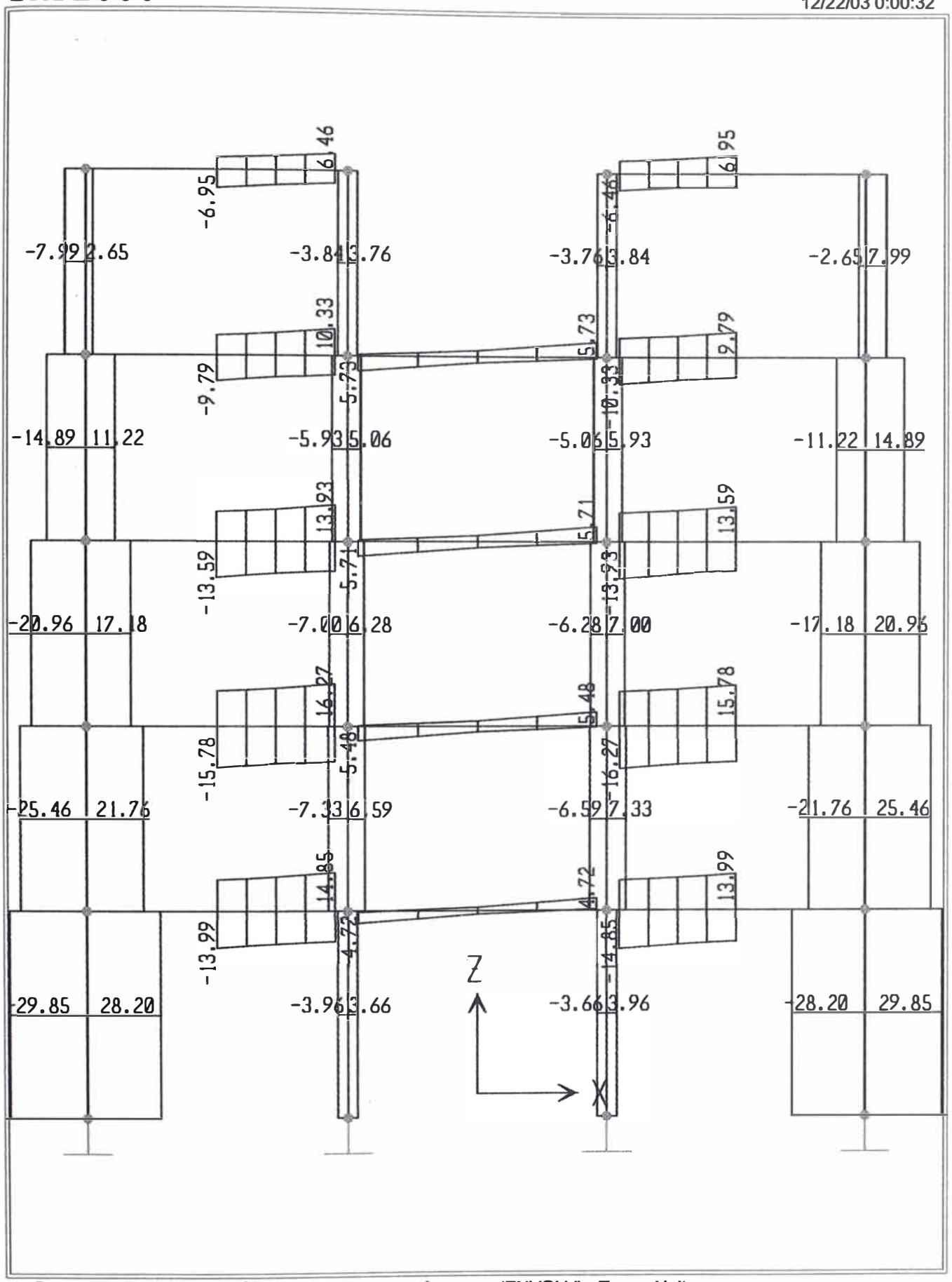

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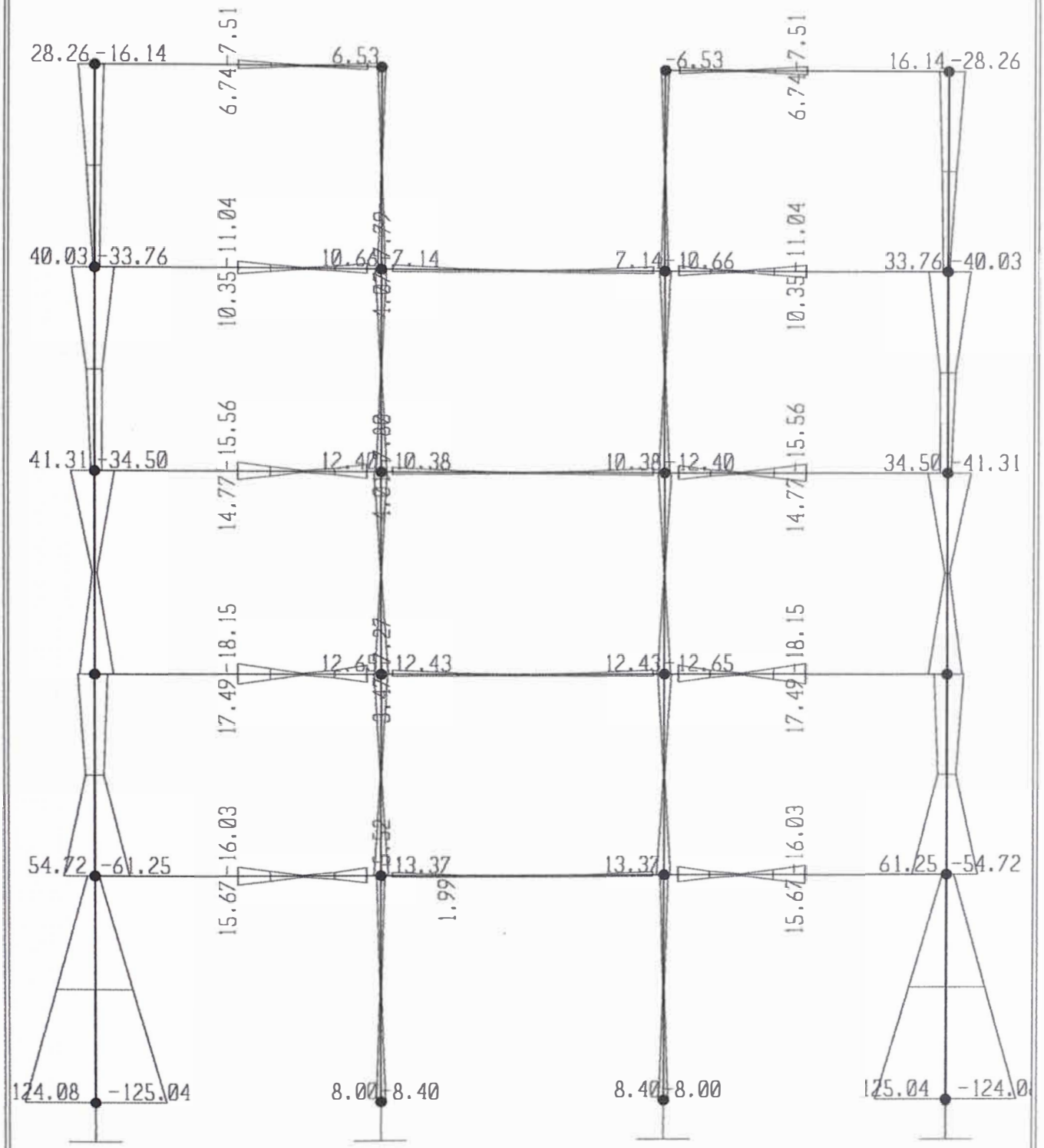
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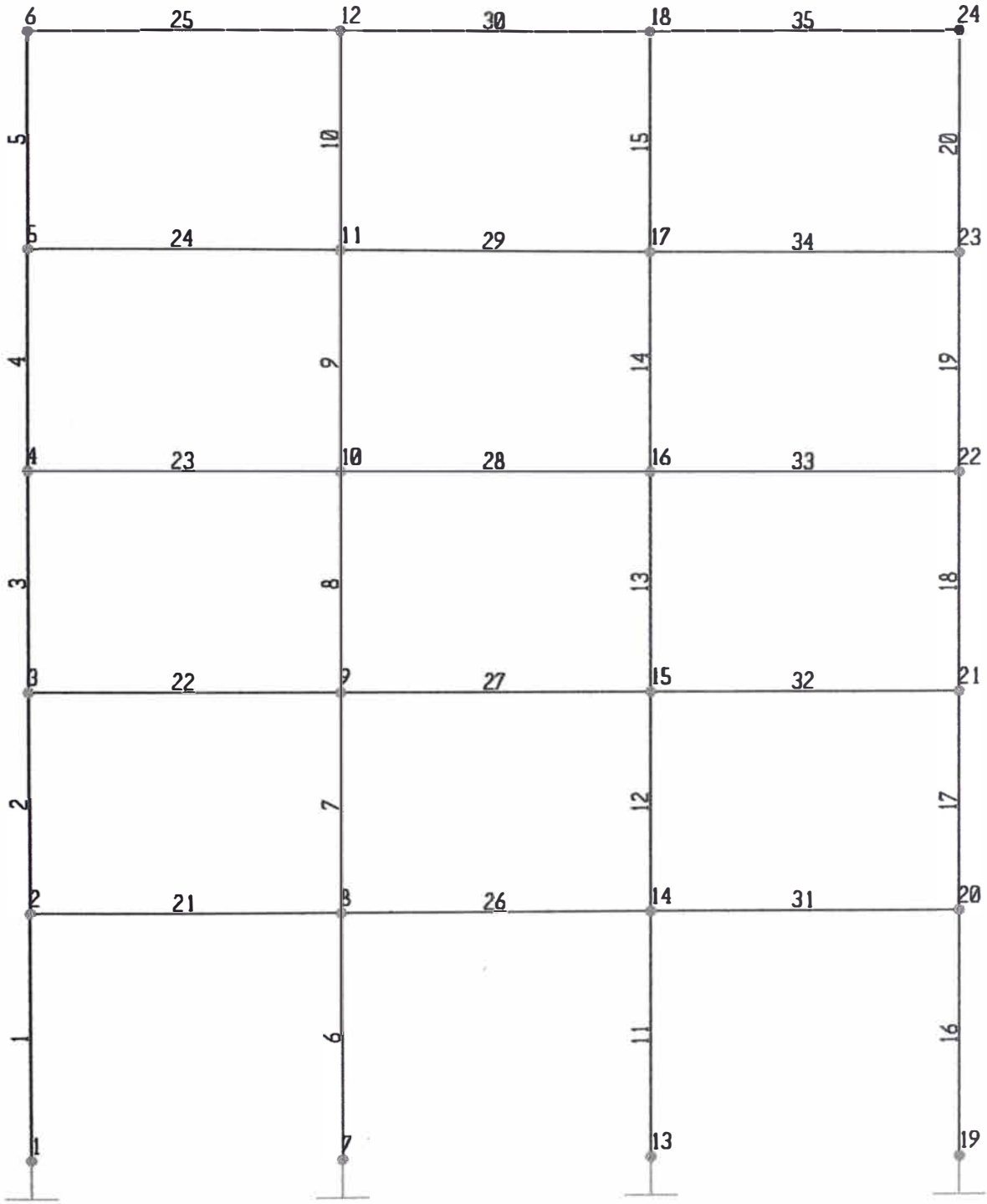
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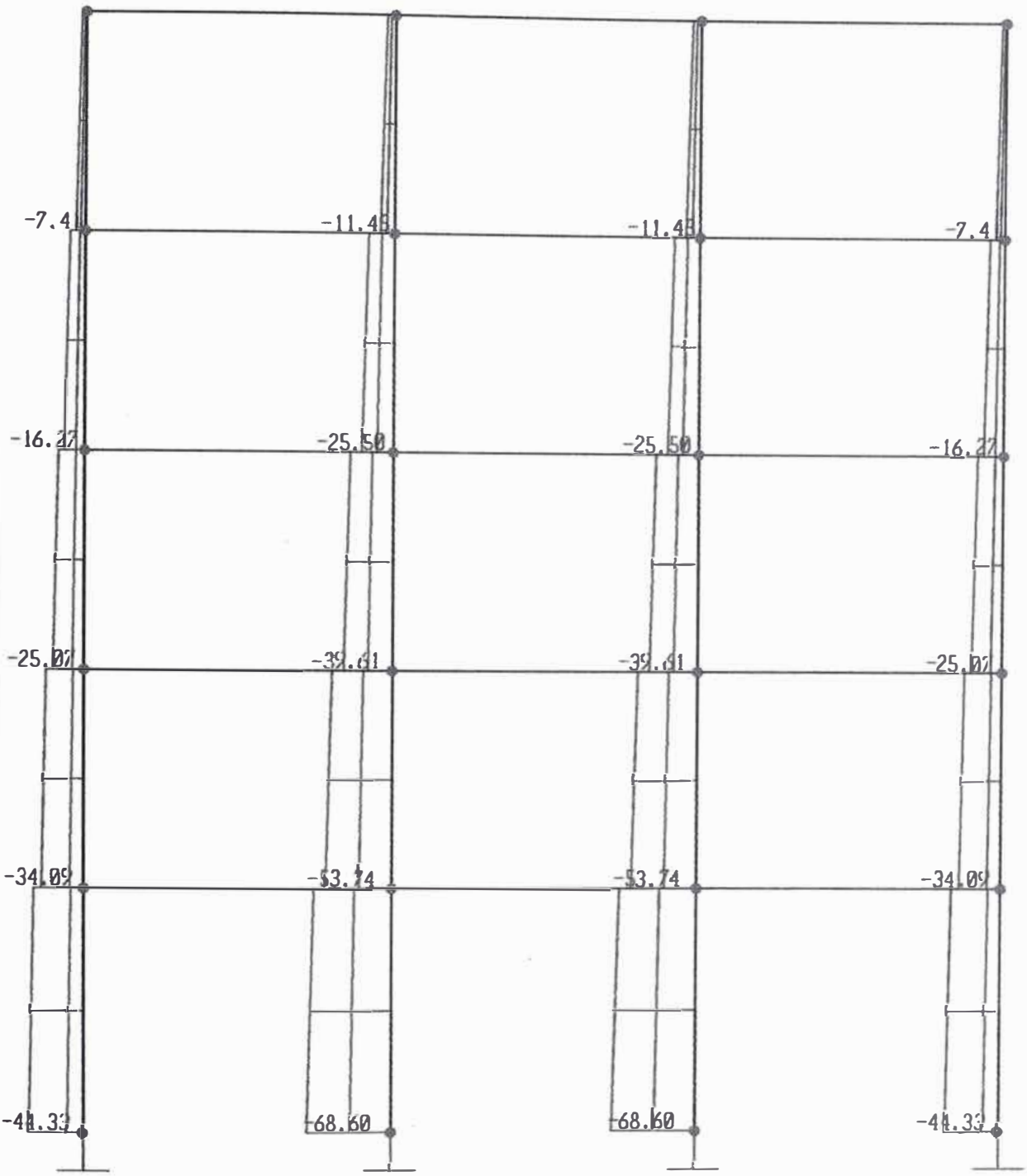
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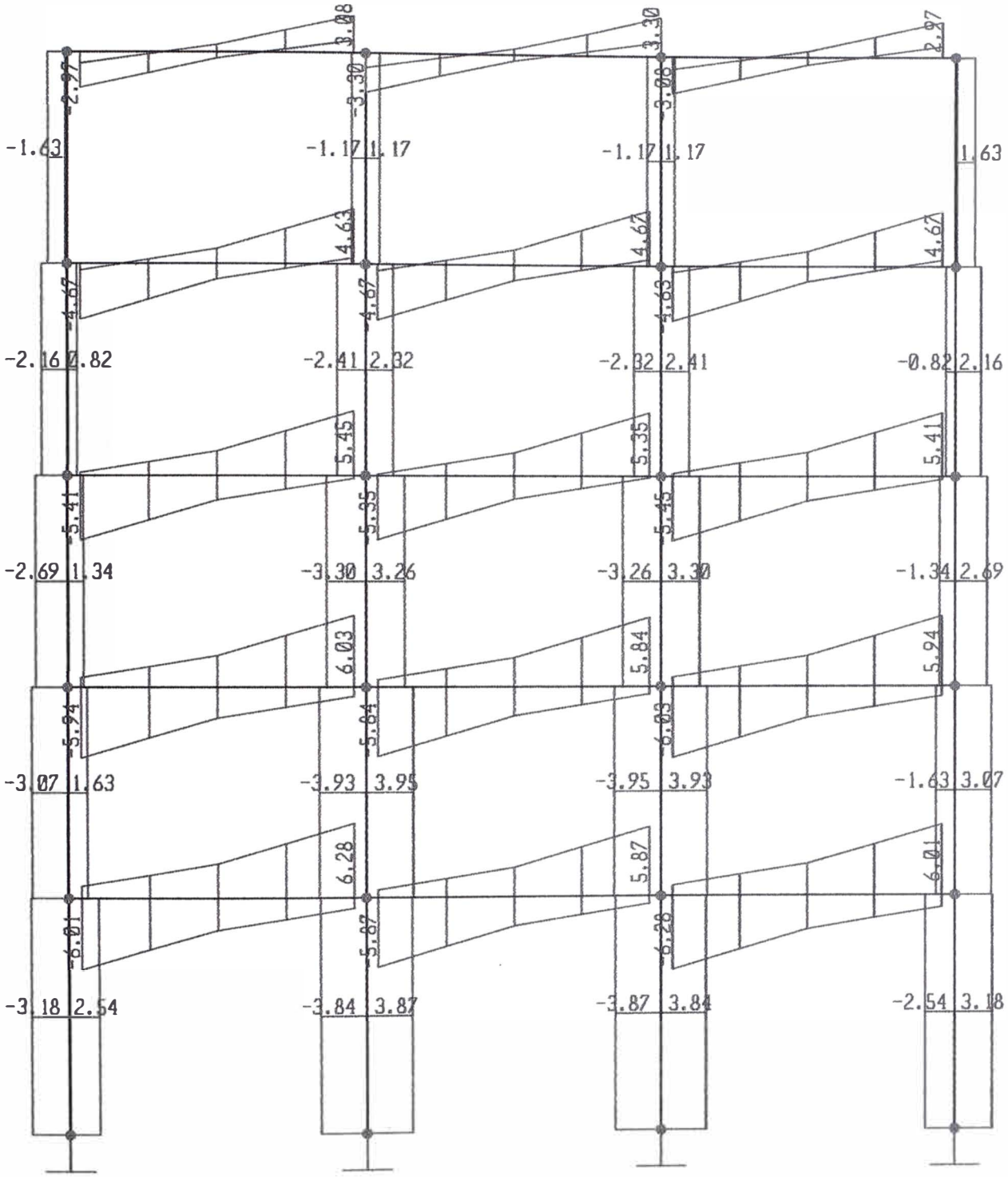
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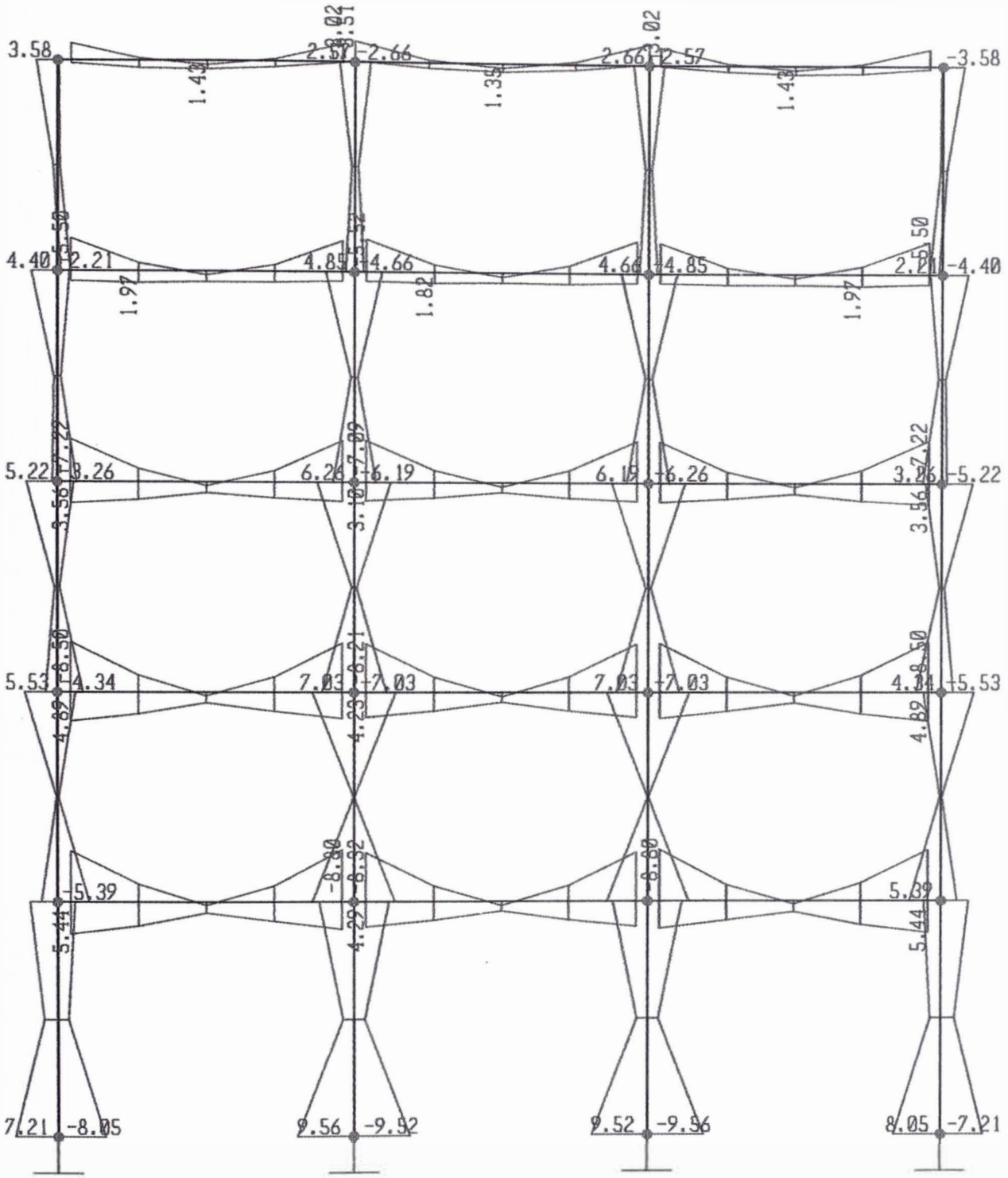
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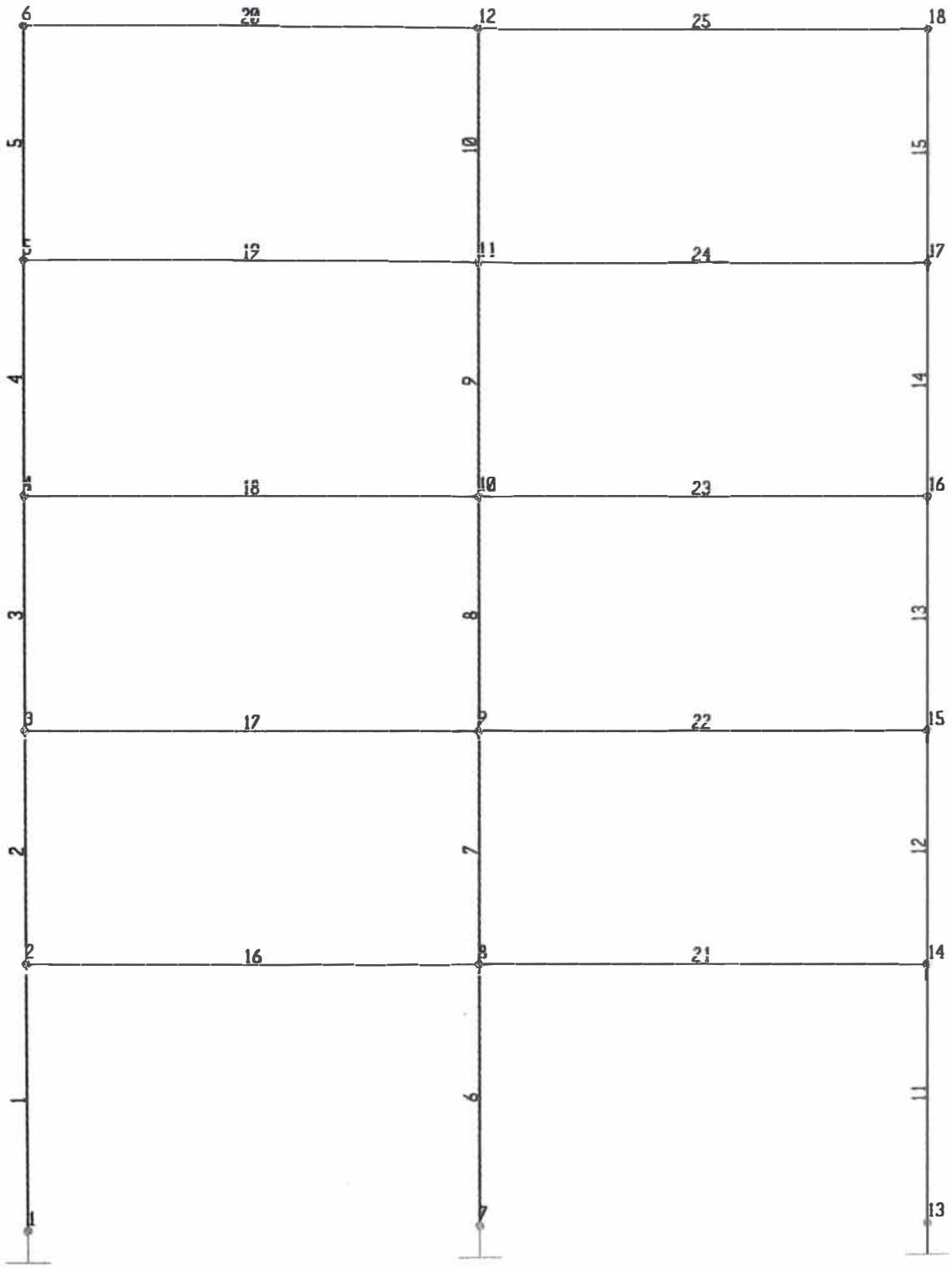

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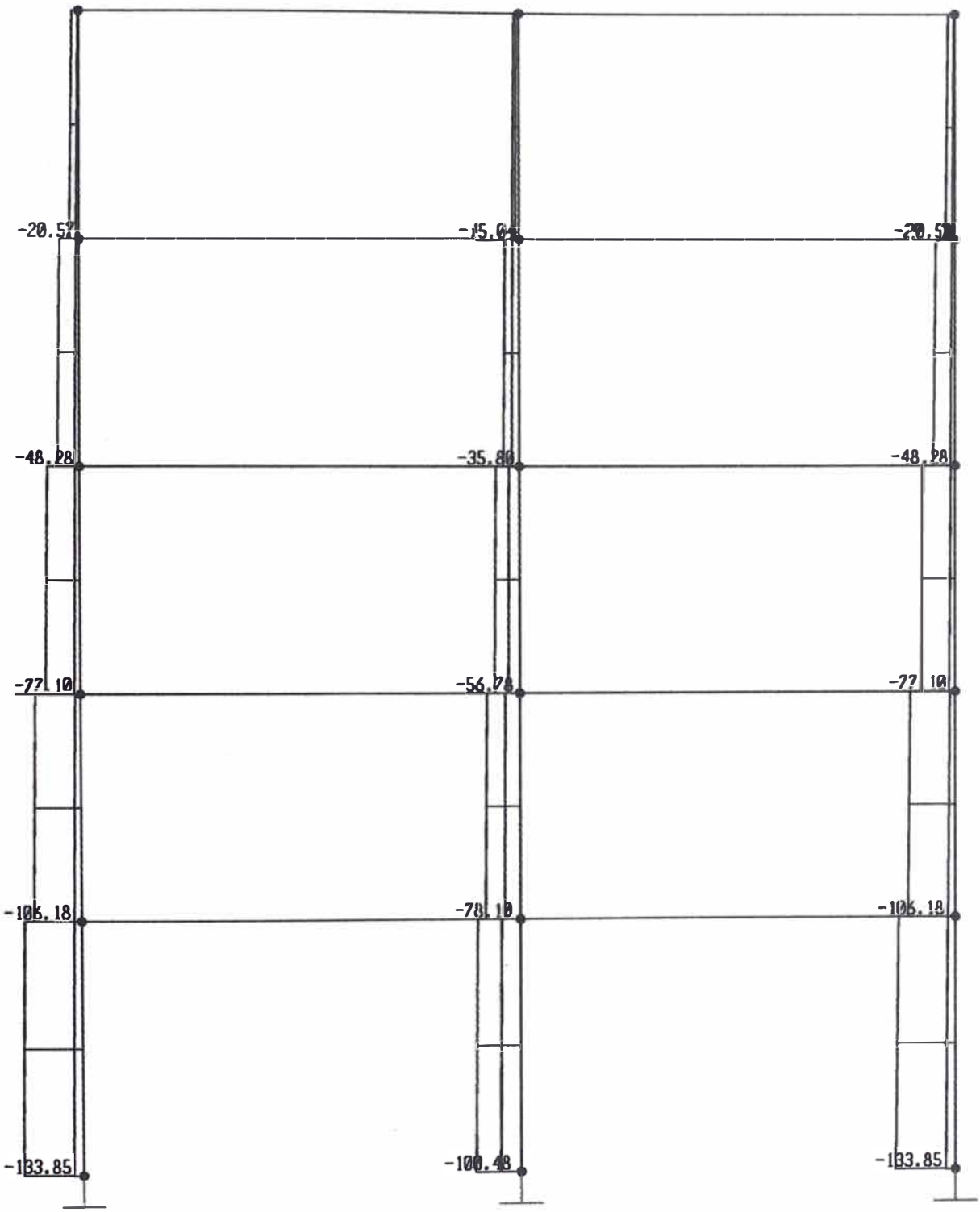

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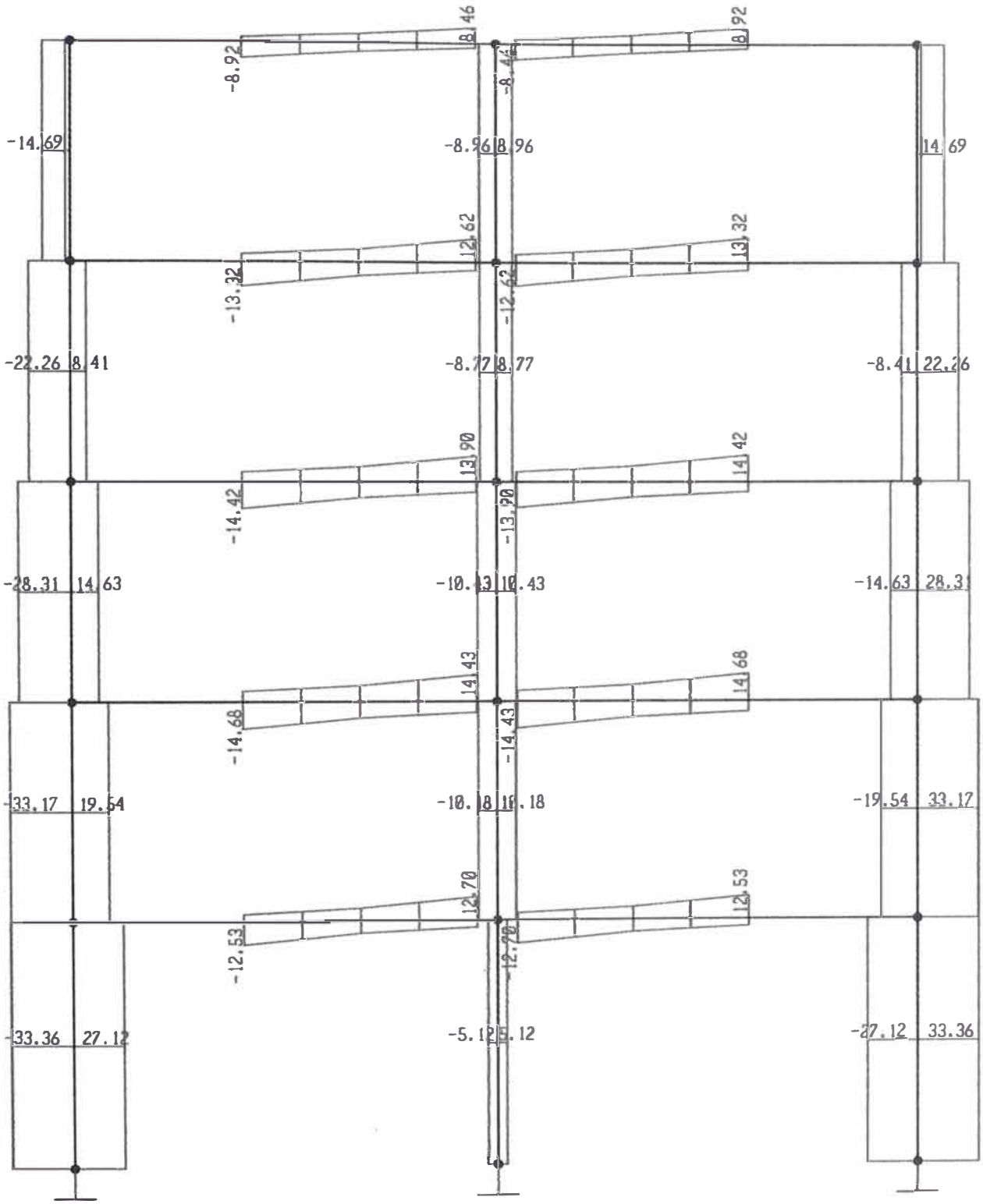
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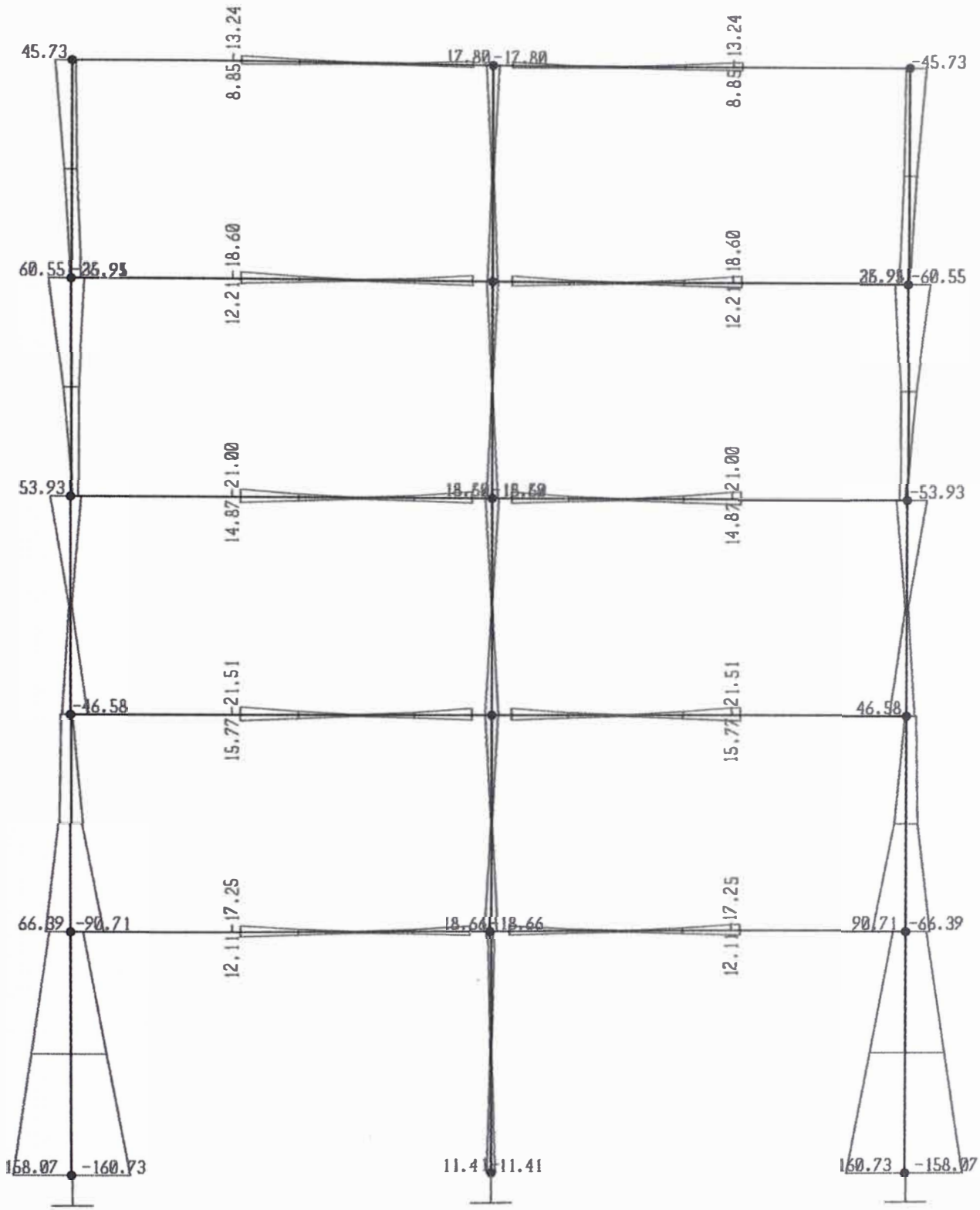
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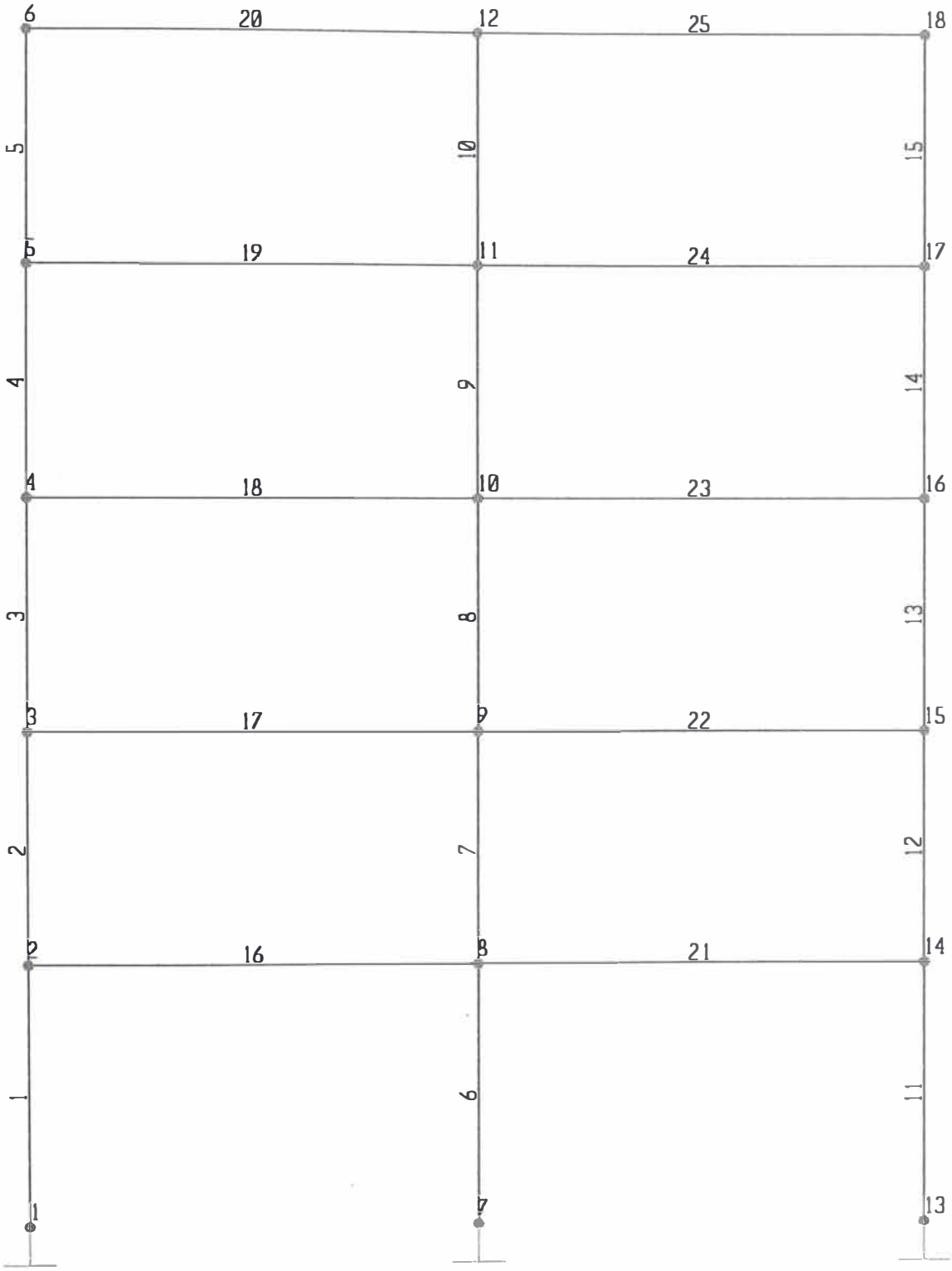
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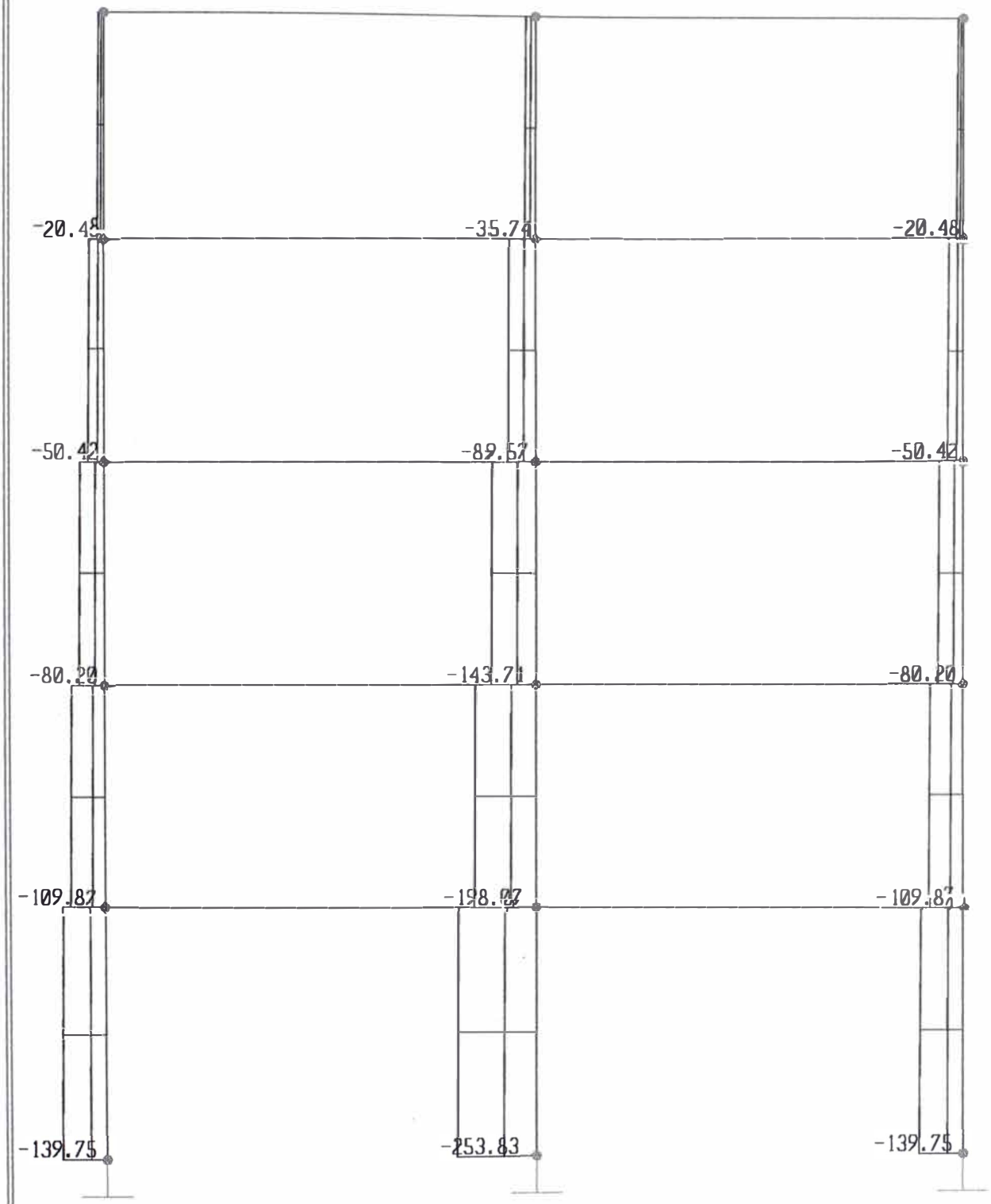
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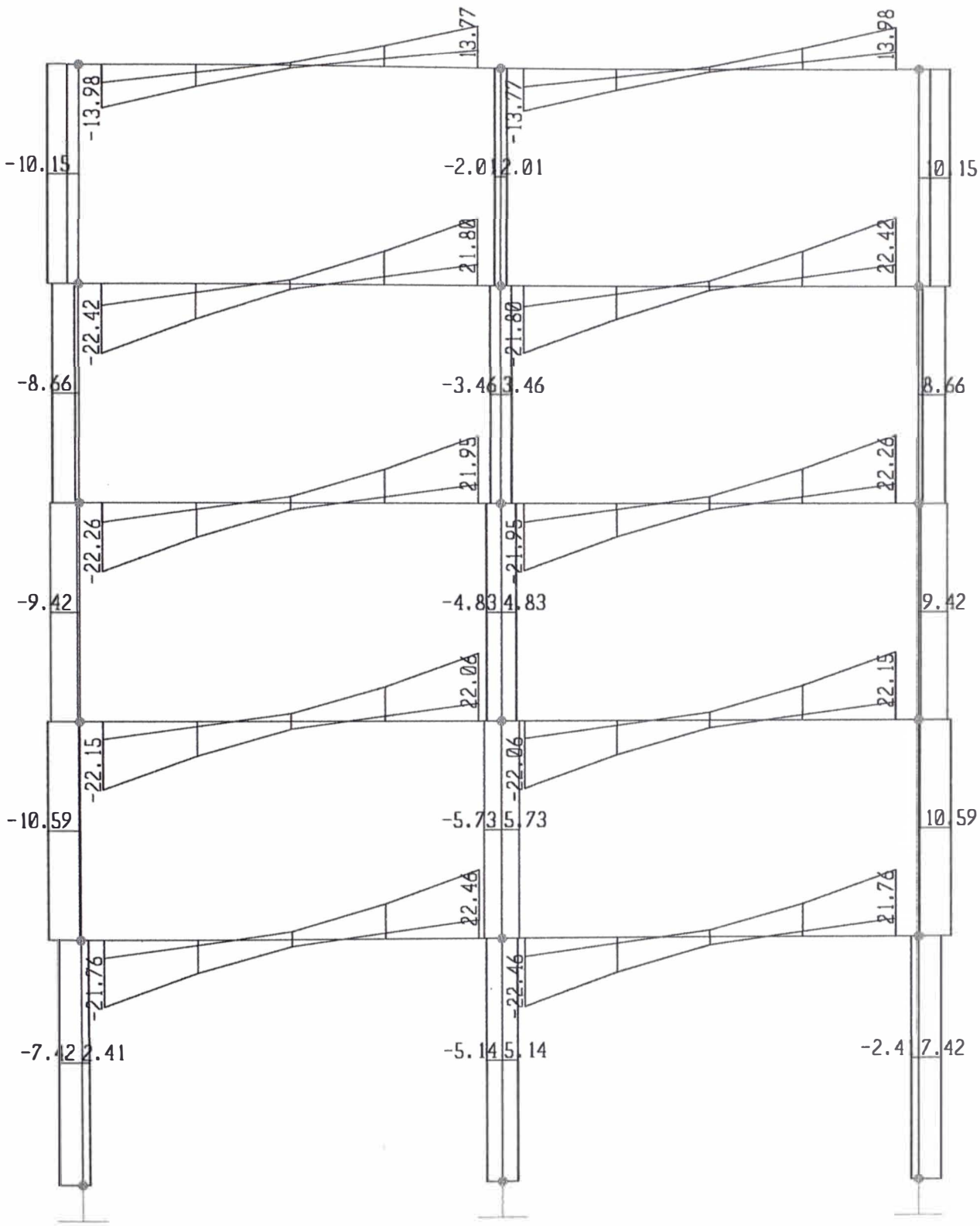
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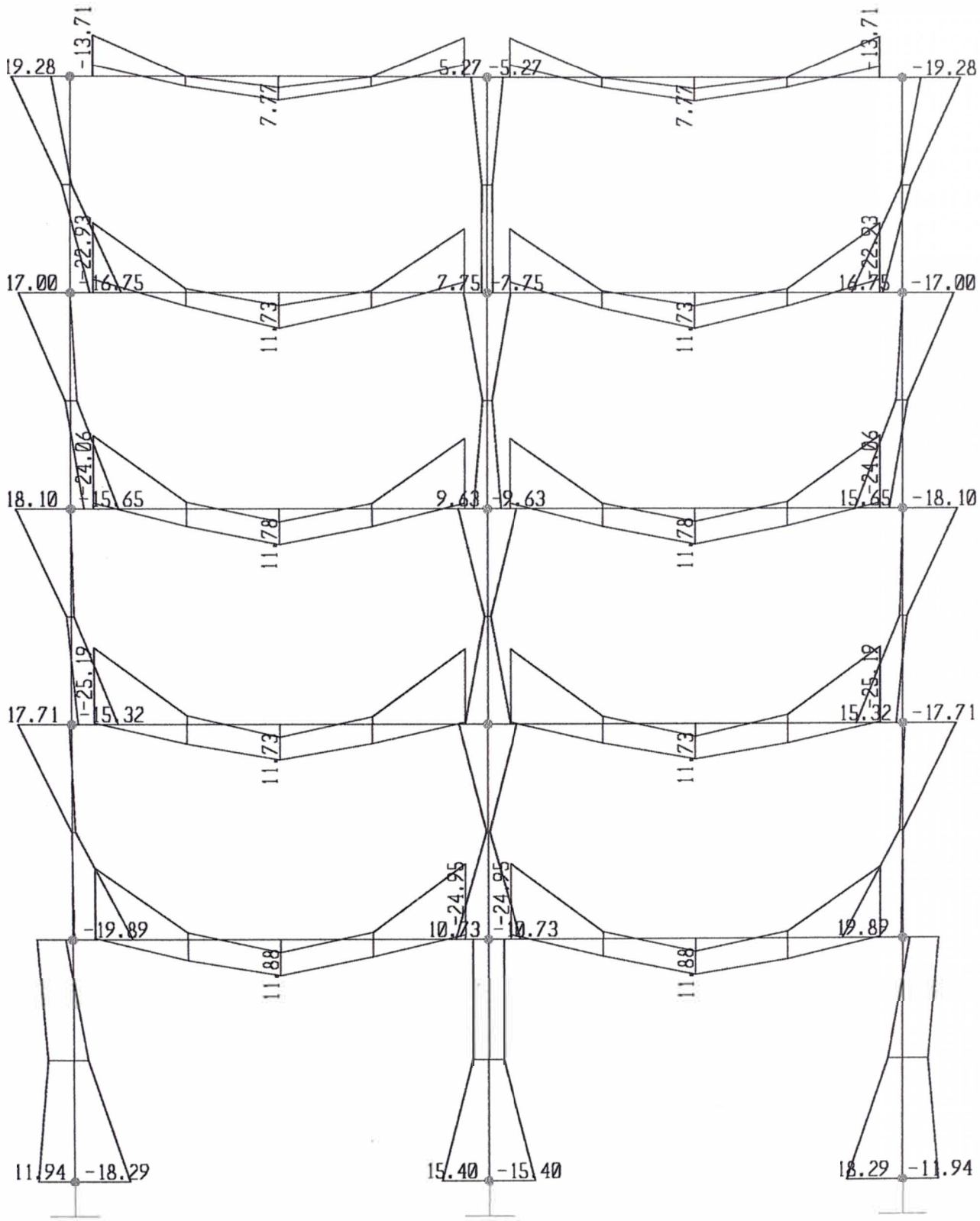
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ANEXO N° 6

CALCULO DE RIGIDECES

DISTRIBUCIÓN DE FUERZAS

SÍSMICAS POR PORTICO

DESPLAZAMIENTOS

6.00 CALCULO DE LAS FUERZAS HORIZONTALES

Determinación de Cargas Laterales
Cargas Estaticas Equivalentes - NTE E.030

Cortante en la base : $$V = \frac{Z.U.S.C}{R} * P$$

Donde :
Z =Factor de zona
U = Factor de uso e importancia
S = Factor de Suelo
C =Coeficiente de Amplificación sísmica
R =Coeficiente de reducción de solicitación sísmica
P = Peso total de la Edificacion

hn = 18.20 : Altura del Edificio
CT = 35 : Porticos de Concreto Armado
Tp = 0.4 : Suelo Rígido
$T = \frac{hn}{CT} = 0.5200$

C = 1.923 C <=2.5 ⟹ C= 1.92

Datos :

Z = 0.4 Zona 3
U = 1.5 Edificaciones Esenciales (A)
S = 1 Roca o Suelos muy rígidos (S1)
R = 7 Pórticos de Concreto Armado

$$C = 2.5 * \left(\frac{Tp}{T}\right) \leq 2.5$$ C / R >0,125 = 0.2747253 OK

Peso de la Edificacion P :

Peso total = 961.70 *toneladas*

$$V = \frac{Z.U.S.C}{R} * P$$

$$V = \frac{0.4 \quad 1.5 \quad 1.0 \quad 1.9}{7} * 961.70$$

Cortante en la base $V =$ 158.52 *toneladas*

DISTRIBUCION DE FUERZAS LATERALES POR NIVEL

Nivel	Pi	Hi	Pi*Hi	Pi*Hi/tot	Vi
1	211.44	4.0	845.78	0.084	13.28
2	206.61	7.6	1559.88	0.154	24.48
3	206.61	11.1	2293.33	0.227	36.00
4	206.61	14.7	3026.78	0.300	47.51
5	130.44	18.2	2373.96	0.235	37.26
	961.70		10099.74		158.52

DISTRIBUCION DE FUERZAS LATERALES POR NIVEL

1º NIVEL	P-X				C-3							
Direccion X	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE A	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	6.536
EJE B	0.55	0.40	2	0.005866667	0.65	0.40	2	0.006933333	5286454.237	10572908.47	15859362.71	0.203
EJE C	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	6.536
											1035401623	13.275

2º NIVEL	P-X				C-3							
Direccion X	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE A	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	12.054
EJE B	0.55	0.40	2	0.005866667	0.65	0.40	2	0.006933333	5286454.237	10572908.47	15859362.71	0.375
EJE C	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	12.054
											1035401623	24.483

3º NIVEL	P-X				C-3							
Direccion X	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE A	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	17.722
EJE B	0.55	0.40	2	0.005866667	0.65	0.40	2	0.006933333	5286454.237	10572908.47	15859362.71	0.551
EJE C	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	17.722
											1035401623	35.995

4º NIVEL	P-X				C-3							
Direccion X	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE A	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	23.390
EJE B	0.55	0.40	2	0.005866667	0.65	0.40	2	0.006933333	5286454.237	10572908.47	15859362.71	0.728
EJE C	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	23.390
											1035401623	47.507

5º NIVEL	P-X				C-3							
Direccion X	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE A	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	18.345
EJE B	0.55	0.40	2	0.005866667	0.65	0.40	2	0.006933333	5286454.237	10572908.47	15859362.71	0.571
EJE C	0.20	2.30	2	0.405566667	0.55	0.40	2	0.005866667	169923710	339847420	509771130.1	18.345
											1035401623	37.261

DISTRIBUCION DE FUERZAS LATERALES POR PORTICO

1º NIVEL	C1				C2							
Direccion Y	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE 1	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	6.379
EJE 2	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.258
EJE 3	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.258
EJE 4	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	6.379
											1059975375	13.275

2º NIVEL	C1				C2							
Direccion Y	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE 1	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	11.766
EJE 2	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.476
EJE 3	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.476
EJE 4	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	11.766
											1059975375	24.483

3º NIVEL	C1				C2							
Direccion Y	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE 1	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	17.298
EJE 2	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.700
EJE 3	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.700
EJE 4	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	17.298
											1059975375	35.995

4º NIVEL	C1				C2							
Direccion Y	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE 1	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	22.830
EJE 2	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.924
EJE 3	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.924
EJE 4	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	22.830
											1059975375	47.507

5º NIVEL	C1				C2							
Direccion Y	b (m)	h (m)	# Col.	I (m^4)	b (m)	h (m)	# Col.	I (m^4)	K1 (kg/m)	K2 (kg/m)	K tot	F. Port.(ton)
EJE 1	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	17.906
EJE 2	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.725
EJE 3	0.40	0.55	3	0.0166375				0	6871357.998	13742716	20614073.99	0.725
EJE 4	0.20	2.30	2	0.405566667	0.40	0.55	1	0.005545833	169791204.5	339582409	509373613.5	17.906
											1059975375	37.261

DISTRIBUCION DE FUERZAS LATERALES POR NIVEL

Nivel	Pi	Hi	Pi*Hi	Pi*Hi/tot	Vi
1	211.44	4	845.78	0.084	13.28
2	206.61	7.55	1559.88	0.154	24.48
3	206.61	11.1	2293.33	0.227	36.00
4	206.61	14.65	3026.78	0.300	47.51
5	130.44	18.2	2373.96	0.235	37.26
	961.70		10099.74		158.52

DISTRIBUCION DE FUERZAS LATERALES POR PORTICOS

RESUMEN

	Dirección X		Dirección Y	
NIVEL	EJE A, C	EJE B	EJE 1, 4	EJE 2, 3
5	18.35	0.57	17.91	0.72
4	23.39	0.73	22.83	0.92
3	17.72	0.55	17.30	0.70
2	12.05	0.38	11.77	0.48
1	6.54	0.20	6.38	0.26
TOTAL	78.05	2.43	76.18	3.08

CORRECCION DE FUERZAS LATERALES POR REGLAMENTO

Comparacion de cortantes por portico respecto al 25% del cortante total:

PORTICO	CORTANTE	25% V_{total}	Cumple?	V corregidos
EJE A, C	78.05	15.85	Ok!	78.05
EJE B	2.43	15.85	No, modifica	15.85
EJE 1, 4	76.18	15.85	Ok!	76.18
EJE 2, 3	3.08	15.85	No, modifica	15.85

DISTRIBUCION DE FUERZAS LATERALES POR PORTICOS

Corregidos por reglamento

NIVEL	EJE A, C	EJE B	EJE 1, 4	EJE 2, 3
5	18.35	5.58	17.91	5.58
4	23.39	7.12	22.83	7.12
3	17.72	5.40	17.30	5.39
2	12.05	3.67	11.77	3.67
1	6.54	1.99	6.38	1.99
TOTAL	78.05	23.76	76.18	23.76

VERIFICACION DE DESPLAZAMIENTOS

PÓRTICO EJES A,C

Factor de Reducción R = 7

NIVEL	H	$D_{entrepiso}$	Distorsion	CONDICIÓN
5°	3.55	0.01398	0.0033	*Menor de 0.007, Cumple!*
4°	3.55	0.01173	0.0043	*Menor de 0.007, Cumple!*
3°	3.55	0.00885	0.0049	*Menor de 0.007, Cumple!*
2°	3.55	0.00551	0.0048	*Menor de 0.007, Cumple!*
1°	4.00	0.00224	0.0029	*Menor de 0.007, Cumple!*

PÓRTICO EJE B

Factor de Reducción R = 7

NIVEL	H	$D_{entrepiso}$	Distorsion	CONDICIÓN
5°	3.55	0.01584	0.0021	*Menor de 0.007, Cumple!*
4°	3.55	0.01442	0.0039	*Menor de 0.007, Cumple!*
3°	3.55	0.01176	0.0055	*Menor de 0.007, Cumple!*
2°	3.55	0.00806	0.0063	*Menor de 0.007, Cumple!*
1°	4.00	0.00377	0.0049	*Menor de 0.007, Cumple!*

PÓRTICO EJES 1, 4

Factor de Reducción R = 7

NIVEL	H	$D_{entrepiso}$	Distorsion	CONDICIÓN
5°	3.55	0.01280	0.0033	*Menor de 0.007, Cumple!*
4°	3.55	0.01060	0.0041	*Menor de 0.007, Cumple!*
3°	3.55	0.00786	0.0046	*Menor de 0.007, Cumple!*
2°	3.55	0.00475	0.0043	*Menor de 0.007, Cumple!*
1°	4.00	0.00183	0.0024	*Menor de 0.007, Cumple!*

PÓRTICO EJES 2, 3

Factor de Reducción R = 7

NIVEL	H	$D_{entrepiso}$	Distorsion	CONDICIÓN
5°	3.55	0.01743	0.0029	*Menor de 0.007, Cumple!*
4°	3.55	0.01547	0.0048	*Menor de 0.007, Cumple!*
3°	3.55	0.01225	0.0064	*Menor de 0.007, Cumple!*
2°	3.55	0.00795	0.0069	*Menor de 0.007, Cumple!*
1°	4.00	0.00330	0.0043	*Menor de 0.007, Cumple!*

DIMENSIONAMIENTO DE COLUMNAS POR DESPLAZAMIENTOS

PREDIMENSIONAM.	
P-X	2.40x0.20
P-Y	2.40x0.21
C-2	0.40x0.55
C-3	0.40x0.55
C-4	0.50x0.65
V-PRINC.	0.30x0.60
V-SECUND.	0.25x0.50

DIM. FINALES	
P-X	2.50x0.20
P-Y	2.75x0.20
C-2	0.50x0.65
C-3	0.50x0.75
C-4	0.50x0.75
V-PRINC.	0.30x0.60
V-SECUND.	0.25x0.60

ANEXO Nº 7

DISEÑO DE COLUMNAS

(RESULTADOS PCACOL)

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 1
21:00:20 Licensed to: E D I N C O, LIMA, PERU

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OOOOOOO    OOOOO    OOOOO    OOOOO    OOOOO   OO
OO    OO   OO  OO   OO  OO   OO  OO   OO  OO  OO
OO    OO   OO  OO   OO  OO   OO  OO   OO  OO  OO
OO    OO   OO       OO  OO   OO      OO  OO  OO
OO    OO   OO       OOOOOOO  OO      OO  OO  OO
OOOOOOO    OO  OO   OO  OO   OO  OO  OO  OO  OO
OO         OO  OO   OO  OO   OO  OO  OO  OO  OO
OO          OOOOO   OO  OO    OOOOO    OOOOO   OOOOO  (TM)
```

==========

Computer program for the Strength Design of Reinforced Concrete Sections

==========

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12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 2
21:56:24 Licensed to: E D I N C O, LIMA, PERU

General Information:
==========

File Name: C:\MISDOC~1\ALEX\CACHUELO\TITULA~1\MATUMAY\P-Y.COL
Project: Trabajo Concreto Code: ACI 318-89
Column: P-Y Units: SI Metric
Engineer: David Matumay Date: 25/12/00 Time: 12:50:37

Run Option: Design Short (nonslender) column
Run Axis: Biaxial Column Type: Structural

Material Properties:
==========

f'c = 21 MPa fy = 420 MPa
Ec = 23168.3 MPa Es = 200000 MPa
fc = 21 MPa erup = 0 mm/mm
eu = 0.003 mm/mm
Stress Profile: Block Beta1 = 0.85

Geometry:
==========

Rectangular: Width = 200 mm Depth = 2750 mm

Gross section area, Ag = 550000 mm^2
Ix = 3.46615e+011 mm^4 Xo = 0 mm
Iy = 1.83333e+009 mm^4 Yo = 0 mm

Reinforcement:
==========

Rebar Database: User-defined

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
3	10	71	4	13	127	5	16	198
6	19	285						

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
N-3 ties with N-5 bars, N-3 with larger bars.

Layout: Rectangular
Pattern: Equal Bar Spacing [Cover to transverse reinforcement (ties)]

Total steel area, As = 5541 mm^2 at 1.01%

28N-5 Cover = 40 mm

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 3
21:56:24 Licensed to: E D I N C O, LIMA, PERU

	Applied Loads			Computed Strength			Computed/
	P	Mx	My	P	Mx	My	Applied
Pt.	(kN)	(kN-m)	(kN-m)	(kN)	(kN-m)	(kN-m)	Ray length
1	1339	1607	0	2913	3599	0	2.214

Program completed as requested!

General Information:

File Name: C:\MISDOC~1\ALEX\CACHUELO\TITULA~1\MATUMAY\P-X.COL
Project: Trabajo Concreto Code: ACI 318-89
Column: P-X Units: SI Metric
Engineer: David Matumay Date: 25/12/00 Time: 12:50:37

Run Option: Design Short (nonslender) column
Run Axis: Biaxial Column Type: Structural

Material Properties:

f'c = 21 MPa fy = 420 MPa
Ec = 23168.3 MPa Es = 200000 MPa
fc = 21 MPa erup = 0 mm/mm
eu = 0.003 mm/mm
Stress Profile: Block Beta1 = 0.85

Geometry:

Rectangular: Width = 2500 mm Depth = 200 mm

Gross section area, Ag = 500000 mm^2
Ix = 1.66667e+009 mm^4 Xo = 0 mm
Iy = 2.60417e+011 mm^4 Yo = 0 mm

Reinforcement:

Rebar Database: User-defined

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
3	10	71	4	13	127	5	16	198
6	19	285						

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
N-3 ties with N-5 bars, N-3 with larger bars.

Layout: Rectangular
Pattern: Equal Bar Spacing [Cover to transverse reinforcement (ties)]

Total steel area, As = 5145 mm^2 at 1.03%

26N-5 Cover = 40 mm

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 3
21:55:40 Licensed to: E D I N C O, LIMA, PERU

	Applied Loads			Computed Strength			Computed/
Pt.	P (kN)	Mx (kN-m)	My (kN-m)	P (kN)	Mx (kN-m)	My (kN-m)	Applied Ray length
1	1049	0	1250	2362	-3	2893	2.288

Program completed as requested!

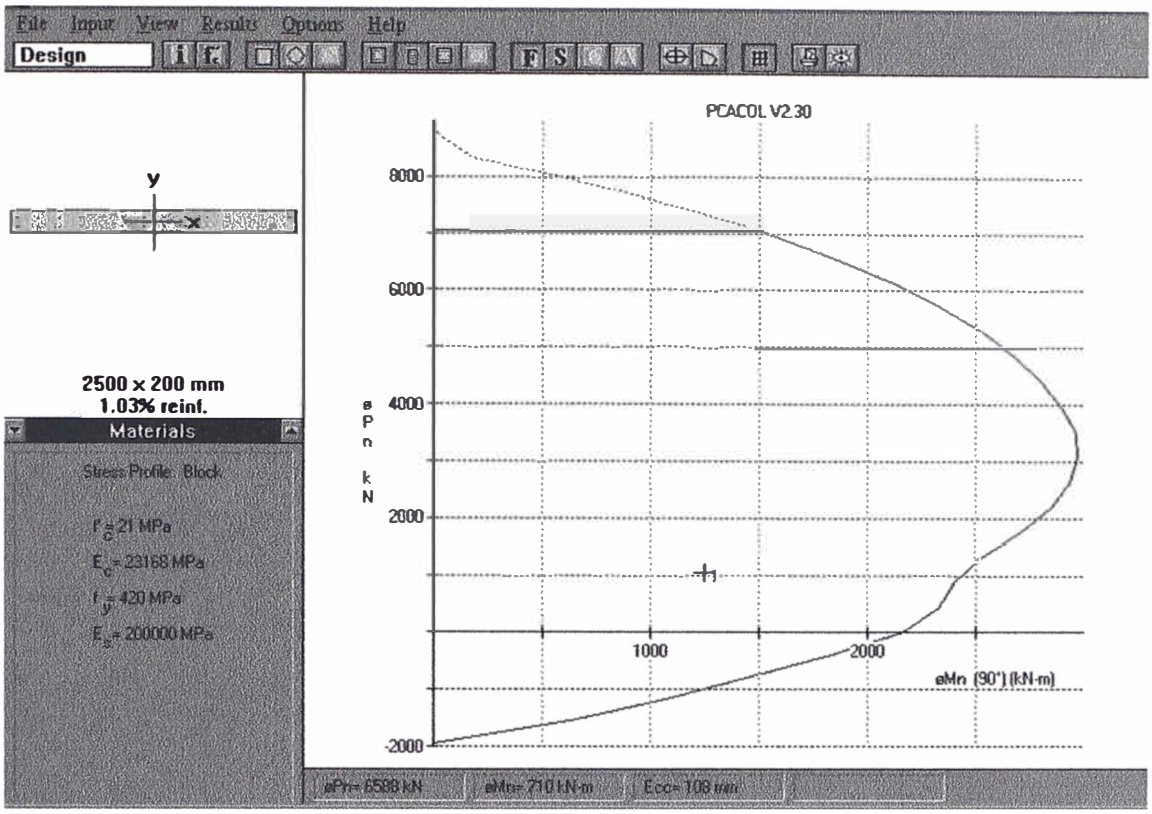

DIAGRAMA DE INTERACCION MXX

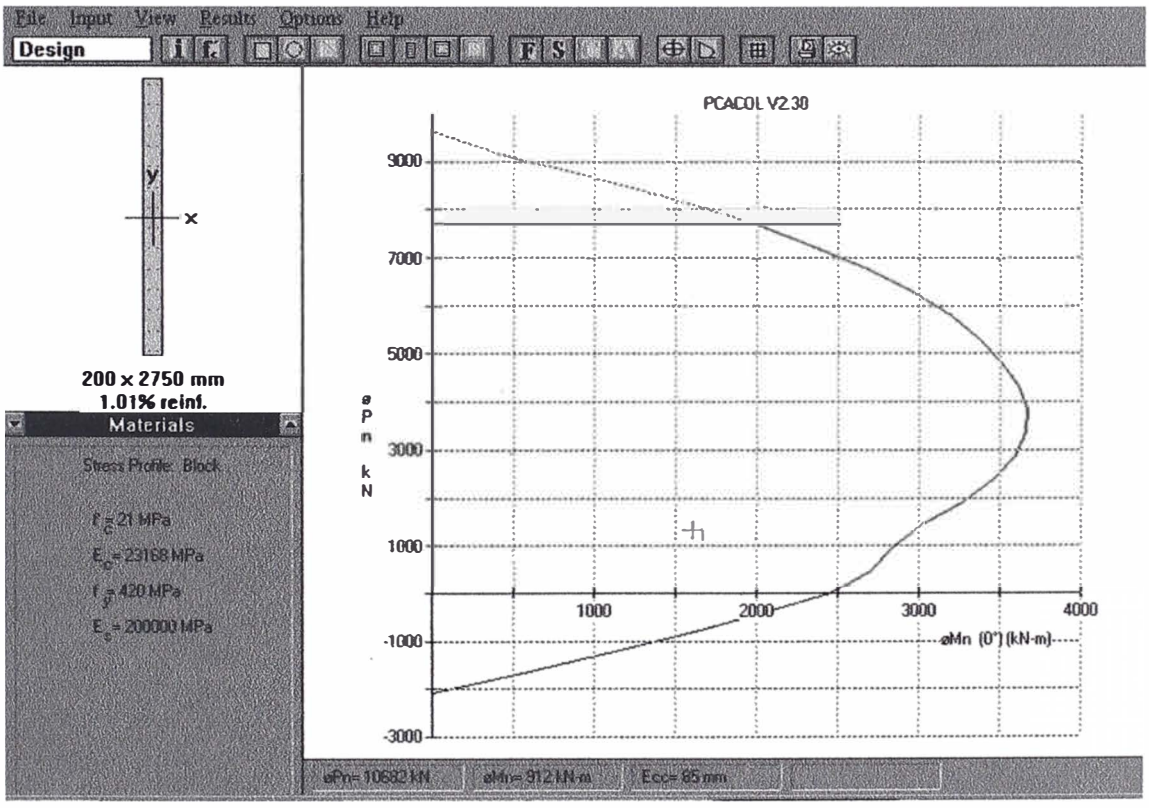

DIAGRAMA DE INTERACCION MYY

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12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 1
12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 2
21:00:20 Licensed to: E D I N C O, LIMA, PERU


      General Information:
      ====================
        File Name:  C:\MISDOC~1\ALEX\CACHUELO\TITULA~1\MATUMAY\C-2.COL
        Project:    Trabajo Concreto        Code: ACI 318-89
        Column:     C-2                     Units: SI Metric
        Engineer:   David Matumay           Date: 25/12/00  Time: 12:50:37

        Run Option: Design                  Short (nonslender) column
        Run Axis:   Biaxial                 Column Type: Structural

      Material Properties:
      ====================
        f'c   = 21 MPa                      fy   = 420 MPa
        Ec    = 23168.3 MPa                 Es   = 200000 MPa
        fc    = 21 MPa                      erup = 0 mm/mm
        eu    = 0.003 mm/mm
        Stress Profile: Block               Beta1 = 0.85

      Geometry:
      =========
        Rectangular: Width = 500 mm         Depth = 650 mm

        Gross section area, Ag =  325000 mm^2
        Ix =  1.14427e+010 mm^4             Xo =  0 mm
        Iy =  6.77083e+009 mm^4             Yo =  0 mm

      Reinforcement:
      ==============
        Rebar Database: User-defined
        Size     Diam    Area  Size     Diam    Area  Size     Diam    Area
        ------------------------------------------------------------------
           3       10      71     4       13     127     5       16     198
           6       19     285

        Confinement: Tied; phi(c) = 0.7,  phi(b) = 0.9,  a = 0.8
        N-3 ties with N-5 bars, N-3 with larger bars.

        Layout: Rectangular
        Pattern: All Sides Equal  [Cover to transverse reinforcement (ties)]

        Total steel area, As = 3420 mm^2 at 1.05%

        12N-6   Cover = 40 mm
```

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 3
21:00:20 Licensed to: E D I N C O, LIMA, PERU

	Applied Loads			Computed Strength			Computed/
Pt.	P (kN)	Mx (kN-m)	My (kN-m)	P (kN)	Mx (kN-m)	My (kN-m)	Applied Ray length
1	1005	114	0	3730	438	-0	3.714
2	443	0	81	2275	0	421	5.134

Program completed as requested!

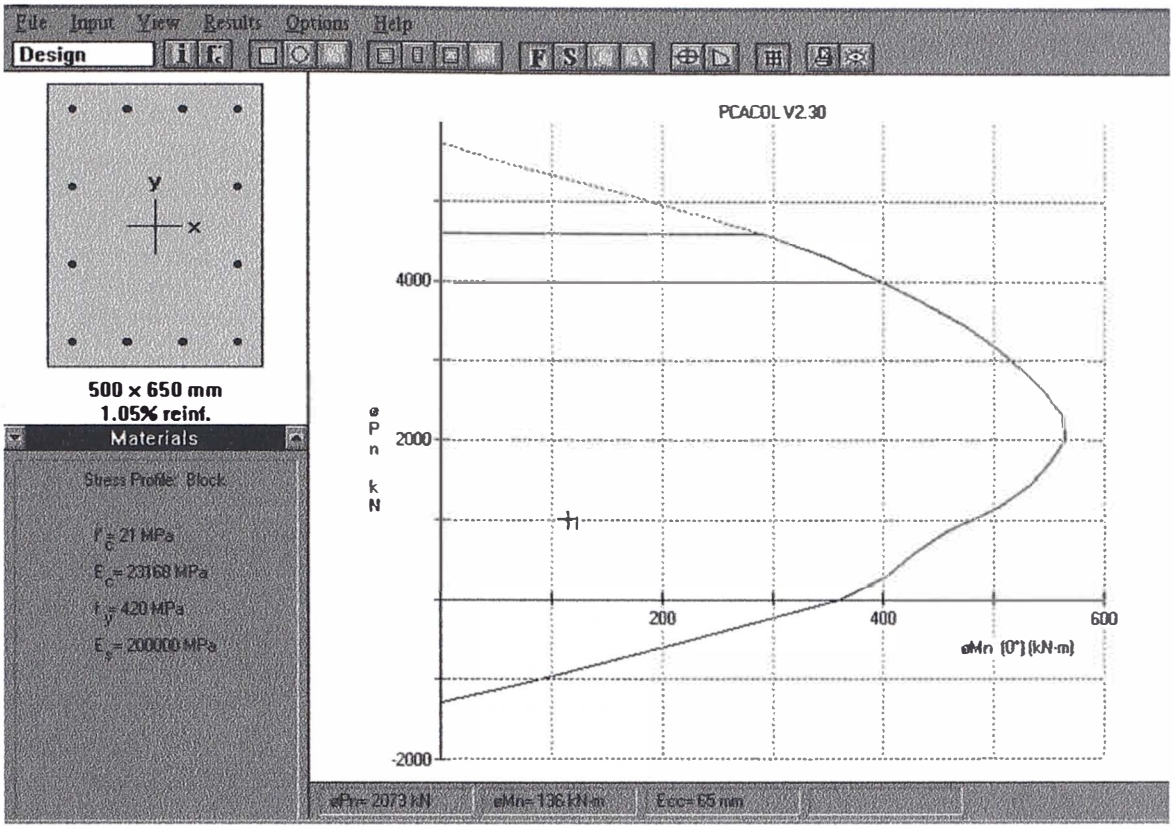

DIAGRAMA DE INTERACCION MXX

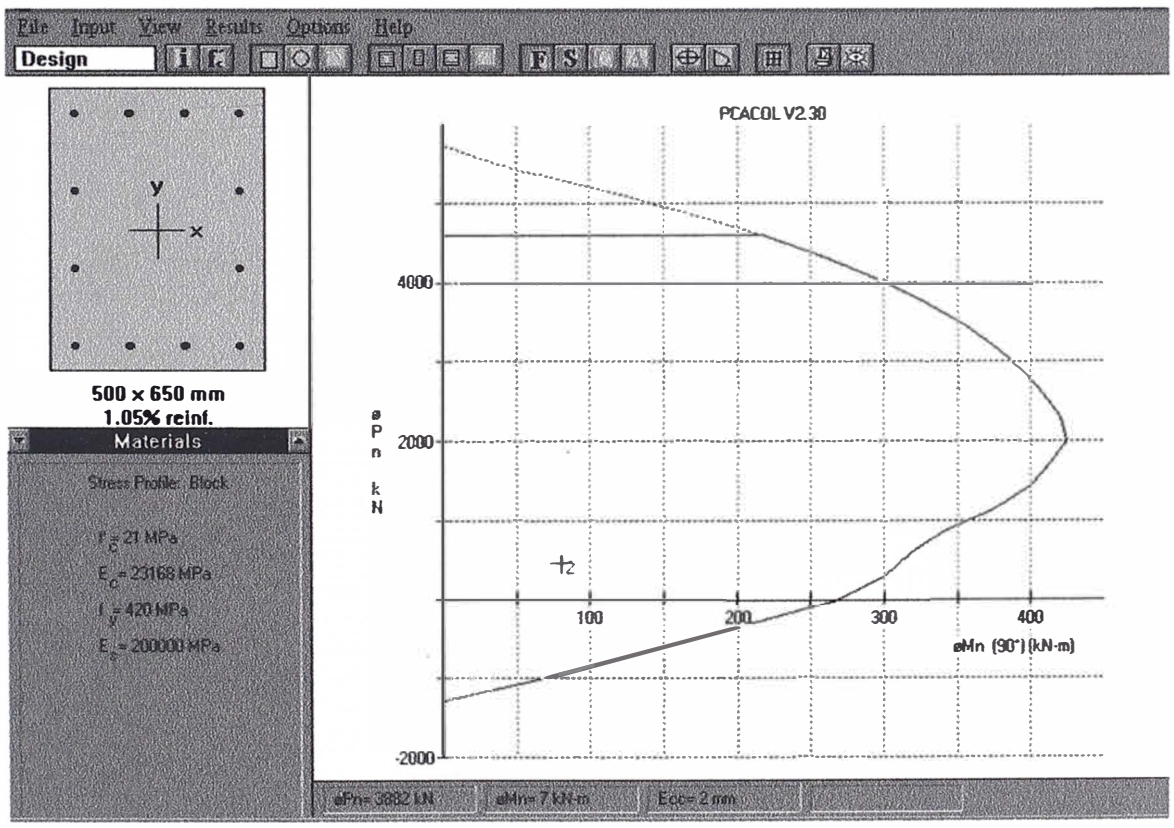

DIAGRAMA DE INTERACCION MYY

General Information:
==========

File Name: C:\MISDOC~1\ALEX\CACHUELO\TITULA~1\MATUMAY\C-3.COL
Project: Trabajo Concreto Code: ACI 318-89
Column: C-3 Units: SI Metric
Engineer: David Matumay Date: 25/12/00 Time: 12:50:37

Run Option: Design Short (nonslender) column
Run Axis: Biaxial Column Type: Structural

Material Properties:
==========

f'c = 21 MPa fy = 420 MPa
Ec = 23168.3 MPa Es = 200000 MPa
fc = 21 MPa erup = 0 mm/mm
eu = 0.003 mm/mm
Stress Profile: Block Beta1 = 0.85

Geometry:
==========

Rectangular: Width = 500 mm Depth = 750 mm

Gross section area, Ag = 375000 mm^2
Ix = 1.75781e+010 mm^4 Xo = 0 mm
Iy = 7.8125e+009 mm^4 Yo = 0 mm

Reinforcement:
==========

Rebar Database: User-defined

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
3	10	71	4	13	127	5	16	198
6	19	285						

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
N-3 ties with N-5 bars, N-3 with larger bars.

Layout: Rectangular
Pattern: Equal Bar Spacing [Cover to transverse reinforcement (ties)]

Total steel area, As = 3990 mm^2 at 1.06%

14N-6 Cover = 40 mm

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 3
20:59:23 Licensed to: E D I N C O, LIMA, PERU

	Applied Loads			Computed Strength			Computed/
Pt.	P (kN)	Mx (kN-m)	My (kN-m)	P (kN)	Mx (kN-m)	My (kN-m)	Applied Ray length
1	1397	183	0	4302	584	-0	3.081
2	908	0	84	4180	0	399	4.606

Program completed as requested!

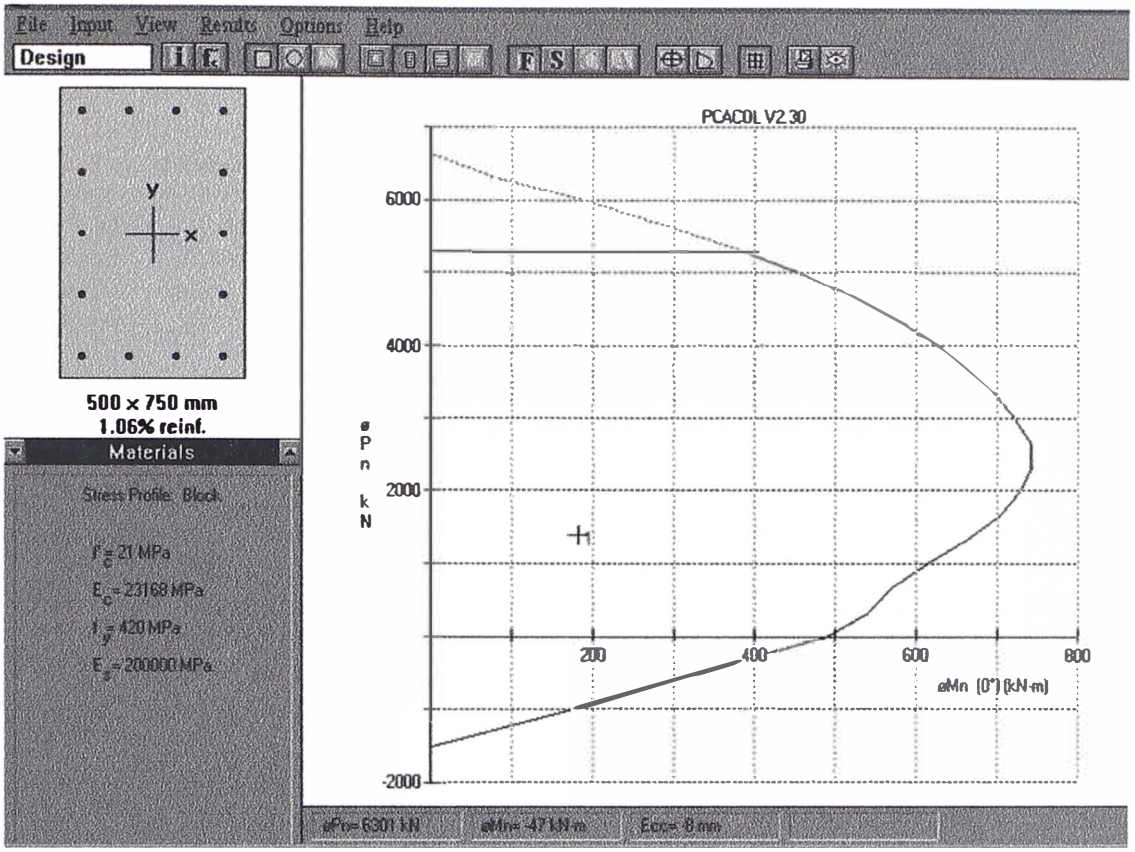

DIAGRAMA DE INTERACCION MXX

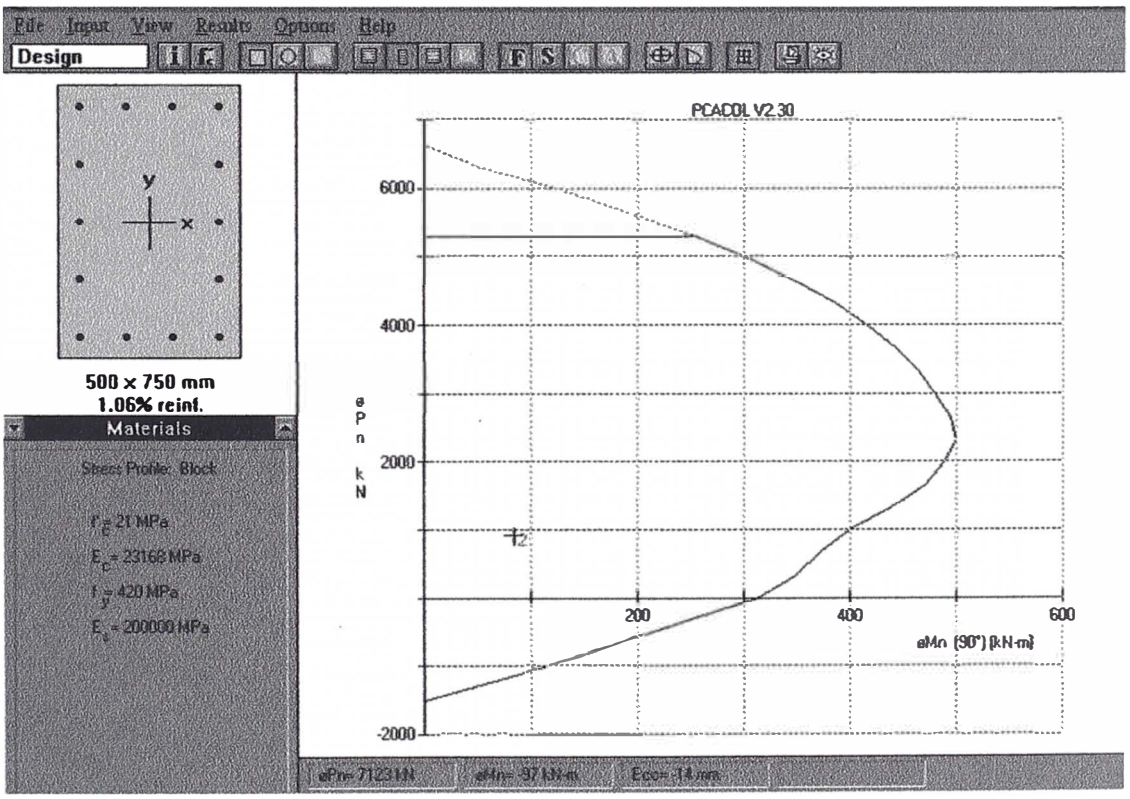

DIAGRAMA DE INTERACCION MYY

General Information:

File Name: C:\MISDOC~1\ALEX\CACHUELO\TITULA~1\MATUMAY\C-4.COL
Project: Trabajo Concreto Code: ACI 318-89
Column: C-4 Units: SI Metric
Engineer: David Matumay Date: 25/12/00 Time: 12:50:37

Run Option: Design Short (nonslender) column
Run Axis: Biaxial Column Type: Structural

Material Properties:

f'c = 21 MPa fy = 420 MPa
Ec = 23168.3 MPa Es = 200000 MPa
fc = 21 MPa erup = 0 mm/mm
eu = 0.003 mm/mm
Stress Profile: Block Beta1 = 0.85

Geometry:

Rectangular: Width = 500 mm Depth = 750 mm

Gross section area, Ag = 375000 mm^2
Ix = 1.75781e+010 mm^4 Xo = 0 mm
Iy = 7.8125e+009 mm^4 Yo = 0 mm

Reinforcement:

Rebar Database: User-defined

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
3	10	71	4	13	127	5	16	198
6	19	285						

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
N-3 ties with N-5 bars, N-3 with larger bars.

Layout: Rectangular
Pattern: Equal Bar Spacing [Cover to transverse reinforcement (ties)]

Total steel area, As = 3990 mm^2 at 1.06%

14N-6 Cover = 40 mm

12/21/03 PCACOL(tm)V2.30 Proprietary Software of PORTLAND CEMENT ASSN. Page 3
20:55:05 Licensed to: E D I N C O, LIMA, PERU

	Applied Loads			Computed Strength			Computed/
Pt.	P (kN)	Mx (kN-m)	My (kN-m)	P (kN)	Mx (kN-m)	My (kN-m)	Applied Ray length
1	1397	183	0	4302	584	-0	3.081
2	908	0	84	4180	0	399	4.606

Program completed as requested!

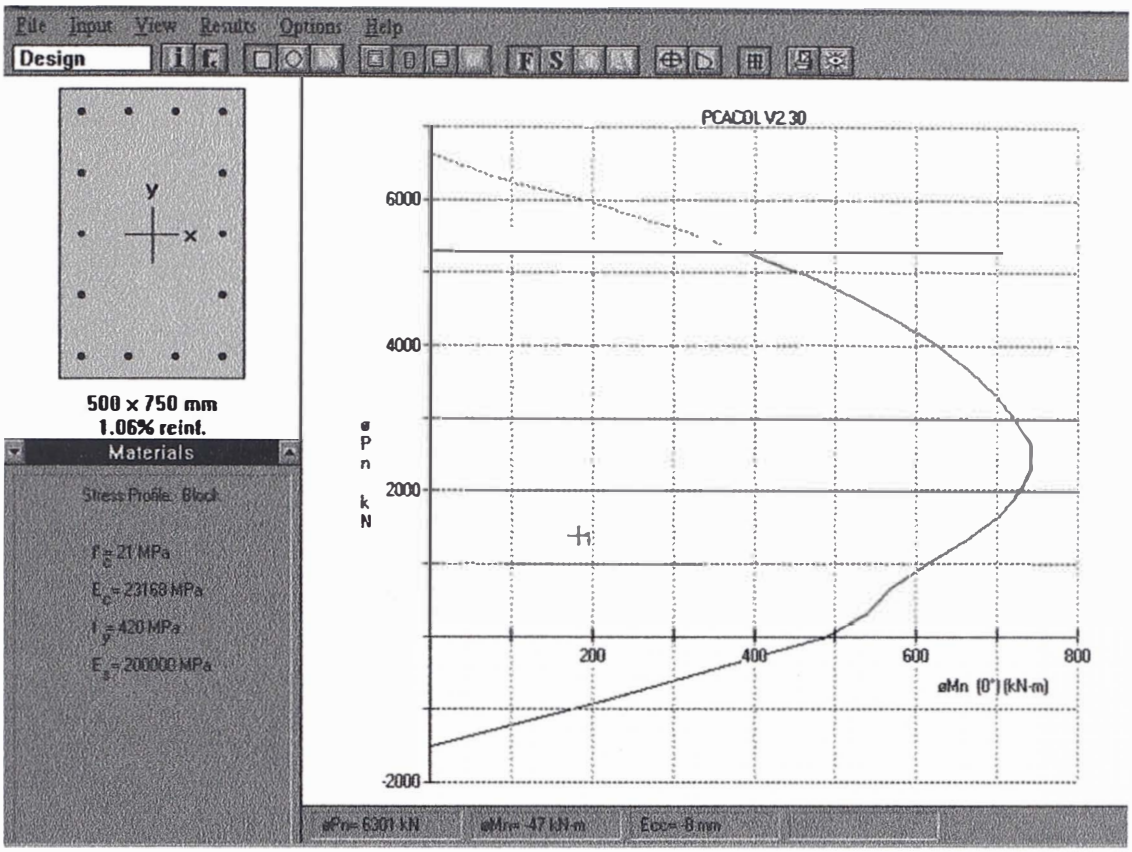

DIAGRAMA DE INTERACCION MXX

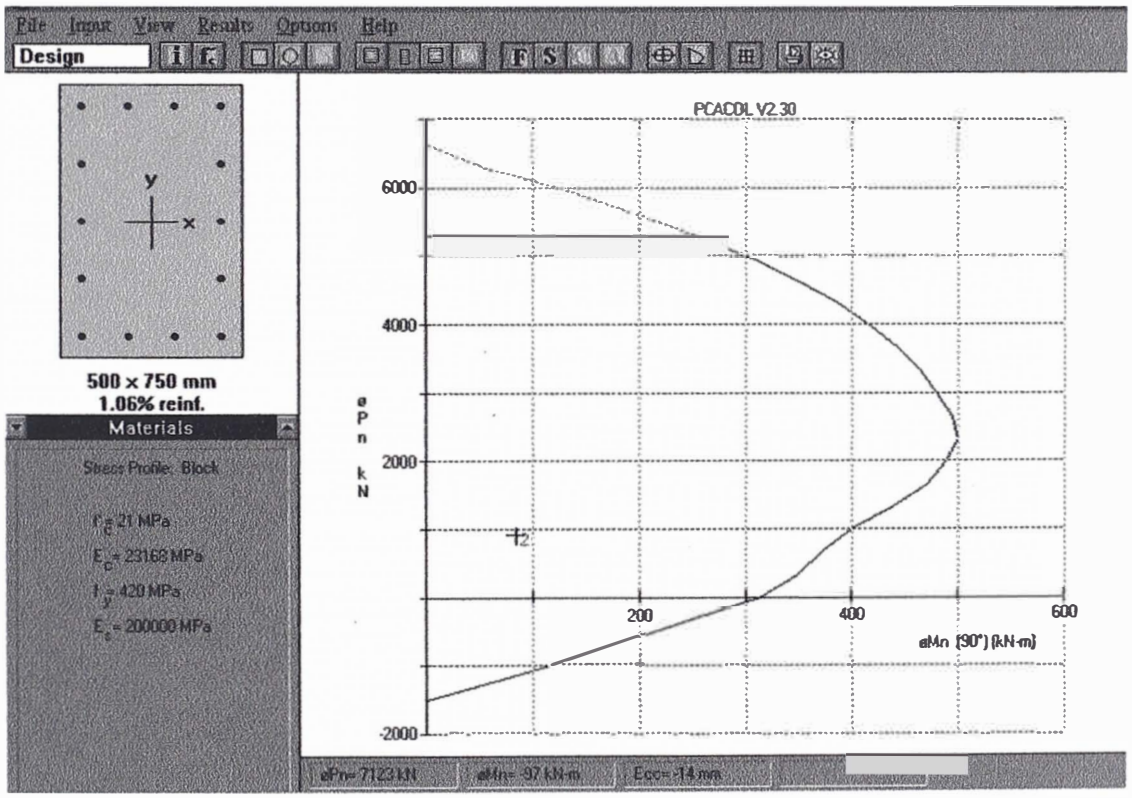

DIAGRAMA DE INTERACCION MYY

ANEXO N° 8

HOJAS DE CALCULO:

DISEÑO DE VIGAS

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA : V-504

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	13.71	7.76	13.06

f´c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mi (izq)	0.04	3/8	13.710	1	0.54	156.7215	0.0875	0.0044	0.0044	5.44	25.82	7.13	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2
---	---	--	--	--	--	--	--	--	--	7.13

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mij	0.04	3/8	7.760	1	0.54	88.7060	0.0483	0.0024	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2
---	---	--	--	--	--	--	--	--	--	5.44

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mj (-der)	0.04	3/8	13.060	1	0.54	149.2913	0.0831	0.0042	0.0042	5.44	25.82	6.80	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2
---	---	--	--	--	--	--	--	--	--	6.80

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA:	V-104

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	25.19	11.86	24.95

f´c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	25.190	1	0.54	287.9515	0.1693	0.0085	0.0085	5.44	25.82	13.77	no requiere	no requiere
Mi (izq)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	13.77	----		

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	11.860	1	0.54	135.5738	0.0751	0.0038	0.0038	5.44	25.82	6.16	no requiere	no requiere
Mij	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	6.16	----		

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	24.950	1	0.54	285.2080	0.1675	0.0084	0.0084	5.44	25.82	13.61	no requiere	no requiere
Mj (-der)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	13.61	----		

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA : V-503

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	13.24	0.00	9.27

f'c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	13.240	1	0.54	151.3489	0.0843	0.0042	0.0042	5.44	25.82	6.80	no requiere	no requiere
Mi (izq)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	6.80	----		

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	0.000	1	0.54	0.0000	0.0000	0.0000	0.00336	5.44	25.82	5.44	no requiere	no requiere
Mij	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	5.44	----		

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	9.270	1	0.54	105.9671	0.0581	0.0029	0.00336	5.44	25.82	5.44	no requiere	no requiere
Mj (-der)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	5.44	----		

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA	V-103

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	21.51	0.00	18.48

f'c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	21.510	1	0.54	245.8848	0.1420	0.0071	0.0071	5.44	25.82	11.50	no requiere	no requiere
Mi (izq)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	11.50	----		

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	0.000	1	0.54	0.0000	0.0000	0.0000	0.00336	5.44	25.82	5.44	no requiere	no requiere
Mij	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	5.44	----		

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	18.480	1	0.54	211.2483	0.1203	0.0060	0.006	5.44	25.82	9.72	no requiere	no requiere
Mj (-der)	p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2			
	---	---	--	--	--	--	--	--	--	--	9.72	----		

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA : V-502

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	2.88	1.43	3.51

f'c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mi (izq)	0.04	3/8	2.880	1	0.54	32.9218	0.0176	0.0009	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*	a1	Mn1	Mn2	As2	f's	A's	s=As1+As	
---	---	--	--	--	--	--	--	--	--	5.44	----

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mij	0.04	3/8	1.430	1	0.54	16.3466	0.0087	0.0004	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*	a1	Mn1	Mn2	As2	f's	A's	s=As1+As	
---	---	--	--	--	--	--	--	--	--	5.44	----

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mj (-der)	0.04	3/8	3.510	1	0.54	40.1235	0.0215	0.0011	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*	a1	Mn1	Mn2	As2	f's	A's	s=As1+As	
---	---	--	--	--	--	--	--	--	--	5.44	----

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA	V-102

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.30	0.60	8.65	0.00	8.80

f´c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mi (izq)	0.04	3/8	8.650	1	0.54	98.8797	0.0541	0.0027	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	5.44	----

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mij	0.04	3/8	0.000	1	0.54	0.0000	0.0000	0.0000	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	5.44	----

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mj (-der)	0.04	3/8	8.800	1	0.54	100.5944	0.0550	0.0028	0.00336	5.44	25.82	5.44	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	5.44	----

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA :	V-501

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.25	0.60	7.51	0.00	5.41

f'c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00276

Mi (izq)

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	7.510	1	0.54	103.0178	0.0564	0.0028	0.0028	3.73	21.52	3.78	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	3.78	---

Mij

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	0.000	1	0.54	0.0000	0.0000	0.0000	0.00276	3.73	21.52	3.73	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	3.73	----

Mj (-der)

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
	0.04	3/8	5.410	1	0.54	74.2112	0.0403	0.0020	0.00276	3.73	21.52	3.73	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	3.73	----

DISEÑO DE VIGAS DE CONCRETO ARMADO

DMC-2002

VIGA : V-101

RESULTADOS DE ANALISIS

	b	h	Mi (izq)	Mij	Mj (-der)
(30x60)	0.25	0.60	18.15	0.00	15.59

f´c =	4200	ρ_b:	0.02125
fy =	210	ρ_{max}:	0.01594
β_1 =	0.85	ρ_{min} :	0.00336

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mi (izq)	0.04	3/8	18.150	1	0.54	248.9712	0.1440	0.0072	0.0072	4.53	21.52	9.72	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	9.72	----

(30x60)	Rec.	Estribo	M(izq)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mij	0.04	3/8	0.000	1	0.54	0.0000	0.0000	0.0000	0.00336	4.53	21.52	4.54	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	4.54	----

(30x60)	Rec.	Estribo	M(der)	capas	d	Ru	w	P	Pflexion	As(min)	As(max)	As	Ascomp	As_{flx}
Mj (-der)	0.04	3/8	15.590	1	0.54	213.8546	0.1220	0.0061	0.0061	4.53	21.52	8.24	no requiere	no requiere

p´	p´max	d'	As1=0.9*p	a1	Mn1	Mn2	As2	f's	A's	As=As1+As2	
---	---	--	--	--	--	--	--	--	--	8.24	----

ANEXO N° 9

PLANOS