ANEXOS

ANEXO Nº 1

RESULTADOS DEL PROGRAMA A3se, ANÁLISIS SISMICO SEUDO-TRIDIMENSIONAL CON FUERZAS ESTATICAS EQUIVALENTES

RESULTADOS DEL PROGRAMA A3se, ANÁLISIS SIMICO SEUDO- TRIDIMENSIONAL CON FUERZAS ESTATICAS EQUIVALENTES

Análisis Sísmico Seudo-Tridimensional con Fuerzas Estáticas Equivalentes

{A3se} - version 1a - H. Scaletti (1995)

5 pisos
7 pórticos
4 tipo(s)

Alturas de los Entrepisos:

4.50 3.50 3.50 3.50 3.50

Fuerzas y Excentricidades en Cada Nivel:

nivel	xo	yo	Fx	Fy	ex	ey
5	7.00	9.00	39.33	39.33	1.42	1.83
4	7.00	9.00	51.33	51.33	1.42	1.83
3	7.00	9.00	39.35	39.35	1.42	1.83
2	7.00	9.00	27.37	27.37	1.42	1.83
1	7.00	9.00	15.83	15.83	1.42	1.83

E = 2.30E+06
G = 9.20E+05
Gm = 9.20E+05

Factor de reducción de rigideces en vigas: .70
Brazos rígidos reducidos en 1/4 de peralte de viga

Tipo y Ubicación de Cada Pórtico:

pórtico	tipo	xi	yi	alfa
A	1	.00	.00	90.00
B	2	7.00	.00	90.00
C	1	14.00	.00	90.00
1	3	.00	.00	.00
2	4	.00	6.00	.00
3	4	.00	12.00	.00
4	3	.00	18.00	.00

Pórtico tipo 1

3 vano(s)
5 piso(s)

Luces de las Vigas:

4.88	6.00	4.88

Dimensiones de las Vigas:

.25	.60	.00	.00	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60

Dimensiones de las Columnas:

.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50

Momentos de Inercia de Columnas y Placas:

4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01

Pórtico tipo 2

3 vano(s)
5 piso(s)

Luces de las Vigas:

6.00	6.00	6.00

Dimensiones de las Vigas:

.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70

Dimensiones de las Columnas:

.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40

Pórtico tipo 3

2 vano(s)
5 piso(s)

Luces de las Vigas:

5.88 5.88

Dimensiones de las Vigas:

.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60

Dimensiones de las Columnas:

.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50

Momentos de Inercia de Columnas y Placas:

4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01

Pórtico tipo 4

2 vano(s)
5 piso(s)

Luces de las Vigas:

6.78 6.78

Dimensiones de las Vigas:

.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70

Dimensiones de las Columnas:

.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70

Efectos Globales - Sismo en la Dirección X

Desplazamientos de Cada Nivel

nivel	x	y	r
5	1.936E-02	1.007E-09	3.468E-04
4	1.538E-02	7.978E-10	2.708E-04
3	1.102E-02	5.700E-10	1.904E-04
2	6.552E-03	3.381E-10	1.111E-04
1	2.627E-03	1.351E-10	4.347E-05

Distorsiones de los Entrepisos

nivel	x	y	r
5	3.979E-03	2.088E-10	7.603E-05
4	4.366E-03	2.279E-10	8.036E-05
3	4.464E-03	2.319E-10	7.937E-05
2	3.925E-03	2.030E-10	6.758E-05
1	2.627E-03	1.351E-10	4.347E-05

Fuerzas Concentradas

nivel	x	y	r
5	3.933E+01	0.000E+00	7.178E+01
4	5.133E+01	0.000E+00	9.368E+01
3	3.935E+01	0.000E+00	7.181E+01
2	2.737E+01	0.000E+00	4.995E+01
1	1.583E+01	0.000E+00	2.889E+01

Cortantes Totales en Cada Nivel

nivel	x	y	r
5	3.933E+01	0.000E+00	7.178E+01
4	9.066E+01	0.000E+00	1.655E+02
3	1.300E+02	0.000E+00	2.373E+02
2	1.574E+02	0.000E+00	2.872E+02
1	1.732E+02	0.000E+00	3.161E+02

Efectos Globales - Sismo en la Dirección Y

Desplazamientos de Cada Nivel

nivel	x	y	r
5	8.463E-10	2.003E-02	2.708E-04
4	6.723E-10	1.587E-02	2.114E-04
3	4.815E-10	1.135E-02	1.487E-04
2	2.864E-10	6.749E-03	8.671E-05
1	1.148E-10	2.711E-03	3.394E-05

Distorsiones de los Entrepisos

nivel	x	y	r
5	1.739E-10	4.159E-03	5.936E-05
4	1.908E-10	4.517E-03	6.275E-05
3	1.951E-10	4.601E-03	6.198E-05
2	1.716E-10	4.038E-03	5.277E-05
1	1.148E-10	2.711E-03	3.394E-05

Fuerzas Concentradas

nivel	x	y	r
5	0.000E+00	3.933E+01	5.605E+01
4	0.000E+00	5.133E+01	7.315E+01
3	0.000E+00	3.935E+01	5.607E+01
2	0.000E+00	2.737E+01	3.900E+01
1	0.000E+00	1.583E+01	2.256E+01

Cortantes Totales en Cada Nivel

nivel	x	y	r
5	0.000E+00	3.933E+01	5.605E+01
4	0.000E+00	9.066E+01	1.292E+02
3	0.000E+00	1.300E+02	1.853E+02
2	0.000E+00	1.574E+02	2.243E+02
1	0.000E+00	1.732E+02	2.468E+02

Efectos en el Pórtico del Eje A

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02192	.00457	10.978	10.978
4	.01735	.00496	28.762	39.739
3	.01239	.00503	20.591	60.285
2	.00736	.00441	15.444	75.698
1	.00295	.00295	13.991	89.473

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	15.353	12.056	8.003
3	5	12.056	15.353	8.003
1	4	17.362	14.706	9.363
2	4	7.065	7.065	2.523
3	4	14.706	17.362	9.363
1	3	18.523	15.650	9.977
2	3	6.988	6.988	2.496
3	3	15.650	18.523	9.977
1	2	17.928	15.281	9.696
2	2	6.527	6.527	2.331
3	2	15.281	17.928	9.696
1	1	13.497	11.289	7.237
2	1	4.363	4.363	1.558
3	1	11.289	13.497	7.237

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	6.279	20.118	22.858	1.251
1	4	13.626	44.090	8.949	14.404
1	3	21.455	21.385	67.713	24.322
1	2	29.063	44.333	156.359	32.415
1	1	34.742	138.597	330.189	42.658
2	5	6.279	10.494	9.419	5.689
2	4	11.464	9.899	9.843	5.641
2	3	17.153	10.226	10.352	5.879
2	2	22.764	8.976	10.081	5.445
2	1	27.107	3.771	5.580	2.078
3	5	6.279	10.494	9.419	5.689
3	4	11.464	9.899	9.843	5.641
3	3	17.153	10.226	10.352	5.879
3	2	22.764	8.976	10.081	5.445
3	1	27.107	3.771	5.580	2.078
4	5	6.279	20.118	22.858	1.251
4	4	13.626	44.090	8.949	14.404
4	3	21.455	21.385	67.713	24.322
4	2	29.063	44.333	156.359	32.415
4	1	34.742	138.597	330.189	42.658

Efectos en el Pórtico del Eje C

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02192	.00457	10.978	10.978
4	.01735	.00496	28.762	39.740
3	.01239	.00503	20.591	60.285
2	.00736	.00441	15.444	75.699
1	.00295	.00295	13.991	89.473

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	15.353	12.056	8.003
3	5	12.056	15.353	8.003
1	4	17.362	14.706	9.363
2	4	7.065	7.065	2.523
3	4	14.706	17.362	9.363
1	3	18.523	15.650	9.977
2	3	6.988	6.988	2.496
3	3	15.650	18.523	9.977
1	2	17.928	15.281	9.696
2	2	6.527	6.527	2.331
3	2	15.281	17.928	9.696
1	1	13.497	11.289	7.237
2	1	4.363	4.363	1.558
3	1	11.289	13.497	7.237

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	6.279	20.118	22.859	1.251
1	4	13.626	44.090	8.950	14.404
1	3	21.455	21.385	67.713	24.322
1	2	29.063	44.333	156.359	32.415
1	1	34.742	138.597	330.189	42.658
2	5	6.279	10.494	9.419	5.689
2	4	11.464	9.899	9.843	5.641
2	3	17.153	10.226	10.352	5.879
2	2	22.764	8.976	10.081	5.445
2	1	27.107	3.771	5.580	2.078
3	5	6.279	10.494	9.419	5.689
3	4	11.464	9.899	9.843	5.641
3	3	17.153	10.226	10.352	5.879
3	2	22.764	8.976	10.081	5.445
3	1	27.107	3.771	5.580	2.078
4	5	6.279	20.118	22.859	1.251
4	4	13.626	44.090	8.950	14.404
4	3	21.455	21.385	67.713	24.322
4	2	29.063	44.333	156.359	32.415
4	1	34.742	138.597	330.189	42.658

Efectos en el Pórtico del Eje B

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02003	.00416	20.451	20.451
4	.01587	.00452	2.013	18.438
3	.01135	.00460	1.220	19.658
2	.00675	.00404	1.387	18.272
1	.00271	.00271	10.736	7.535

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	7.759	6.941	2.649
2	5	6.986	6.986	2.540
3	5	6.941	7.759	2.649
1	4	12.384	11.611	4.323
2	4	11.751	11.751	4.273
3	4	11.611	12.384	4.323
1	3	12.698	11.903	4.433
2	3	11.933	11.933	4.339
3	3	11.903	12.698	4.433
1	2	12.355	11.584	4.313
2	2	11.487	11.487	4.177
3	2	11.584	12.355	4.313
1	1	9.026	8.387	3.138
2	1	8.170	8.170	2.971
3	1	8.387	9.026	3.138

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	2.213	6.968	5.541	3.574
1	4	5.825	5.569	5.489	3.160
1	3	9.528	5.902	6.062	3.418
1	2	13.132	5.022	6.173	3.199
1	1	15.753	1.926	4.374	1.400
2	5	.094	12.667	10.613	6.651
2	4	.141	10.644	10.564	6.060
2	3	.224	11.125	11.314	6.411
2	2	.344	9.678	11.102	5.937
2	1	.487	3.962	6.693	2.368
3	5	.094	12.667	10.613	6.651
3	4	.141	10.644	10.564	6.060
3	3	.224	11.125	11.314	6.411
3	2	.344	9.678	11.102	5.937
3	1	.487	3.962	6.693	2.368
4	5	2.213	6.968	5.541	3.574
4	4	5.825	5.569	5.489	3.160
4	3	9.528	5.902	6.062	3.418
4	2	13.132	5.022	6.173	3.199
4	1	15.753	1.926	4.374	1.400

Efectos en el Pórtico del Eje 1

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02248	.00466	7.289	7.289
4	.01782	.00509	30.618	37.657
3	.01273	.00518	20.741	58.273
2	.00755	.00453	16.301	74.524
1	.00302	.00302	15.619	90.130

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	14.226	11.905	6.112
2	5	11.905	14.226	6.112
1	4	16.820	15.865	7.646
2	4	15.865	16.820	7.646
1	3	17.512	16.286	7.906
2	3	16.286	17.512	7.906
1	2	16.743	15.692	7.587
2	2	15.692	16.743	7.587
1	1	12.537	11.679	5.665
2	1	11.679	12.537	5.665

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	5.012	18.064	28.363	3.616
1	4	11.282	47.397	9.014	14.862
1	3	17.765	23.476	69.079	24.503
1	2	23.987	48.051	160.834	32.886
1	1	28.632	144.805	337.683	42.995
2	5	.000	22.768	15.636	10.973
2	4	.000	14.663	14.805	8.419
2	3	.000	16.303	16.728	9.437
2	2	.000	13.243	17.502	8.784
2	1	.000	4.806	13.823	4.140
3	5	5.012	18.064	28.363	3.616
3	4	11.282	47.397	9.014	14.862
3	3	17.765	23.476	69.079	24.503
3	2	23.987	48.051	160.834	32.886
3	1	28.632	144.805	337.683	42.995

Efectos en el Pórtico del Eje 4

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02248	.00466	7.289	7.289
4	.01782	.00509	30.618	37.657
3	.01273	.00518	20.741	58.273
2	.00755	.00453	16.301	74.524
1	.00302	.00302	15.619	90.130

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	14.226	11.905	6.112
2	5	11.905	14.226	6.112
1	4	16.820	15.865	7.646
2	4	15.865	16.820	7.646
1	3	17.512	16.286	7.906
2	3	16.286	17.512	7.906
1	2	16.743	15.692	7.587
2	2	15.692	16.743	7.587
1	1	12.537	11.679	5.665
2	1	11.679	12.537	5.665

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	5.012	18.064	28.363	3.616
1	4	11.282	47.397	9.014	14.862
1	3	17.765	23.476	69.079	24.503
1	2	23.987	48.051	160.834	32.886
1	1	28.632	144.805	337.683	42.995
2	5	.000	22.768	15.636	10.973
2	4	.000	14.663	14.805	8.419
2	3	.000	16.303	16.728	9.437
2	2	.000	13.243	17.502	8.784
2	1	.000	4.806	13.823	4.140
3	5	5.012	18.064	28.363	3.616
3	4	11.282	47.397	9.014	14.862
3	3	17.765	23.476	69.079	24.503
3	2	23.987	48.051	160.834	32.886
3	1	28.632	144.805	337.683	42.995

Efectos en el Pórtico del Eje 2

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02040	.00421	15.763	15.763
4	.01619	.00461	1.859	13.905
3	.01159	.00470	1.539	15.401
2	.00689	.00413	.996	14.487
1	.00276	.00276	6.858	7.659

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	9.805	7.459	2.796
2	5	7.459	9.805	2.796
1	4	13.735	12.054	4.176
2	4	12.054	13.735	4.176
1	3	14.299	12.377	4.320
2	3	12.377	14.299	4.320
1	2	13.872	12.044	4.197
2	2	12.044	13.872	4.197
1	1	10.435	8.769	3.110
2	1	8.769	10.435	3.110

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	2.376	9.278	5.936	4.347
1	4	5.926	7.061	6.271	3.809
1	3	9.597	7.259	7.928	4.339
1	2	13.164	5.198	9.146	4.098
1	1	15.807	.751	10.896	2.583
2	5	.000	13.641	11.102	7.069
2	4	.000	10.999	11.005	6.287
2	3	.000	11.684	11.845	6.723
2	2	.000	10.234	11.783	6.290
2	1	.000	4.284	6.932	2.492
3	5	2.376	9.278	5.936	4.347
3	4	5.926	7.061	6.271	3.809
3	3	9.597	7.259	7.928	4.339
3	2	13.164	5.198	9.146	4.098
3	1	15.807	.751	10.896	2.583

Efectos en el Pórtico del Eje 3

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.02040	.00421	15.763	15.763
4	.01619	.00461	1.859	13.905
3	.01159	.00470	1.539	15.401
2	.00689	.00413	.996	14.487
1	.00276	.00276	6.858	7.659

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	9.805	7.459	2.796
2	5	7.459	9.805	2.796
1	4	13.735	12.054	4.176
2	4	12.054	13.735	4.176
1	3	14.299	12.377	4.320
2	3	12.377	14.299	4.320
1	2	13.872	12.044	4.197
2	2	12.044	13.872	4.197
1	1	10.435	8.769	3.110
2	1	8.769	10.435	3.110

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	2.376	9.278	5.936	4.347
1	4	5.926	7.061	6.271	3.809
1	3	9.597	7.259	7.928	4.339
1	2	13.164	5.198	9.146	4.098
1	1	15.807	.751	10.896	2.583
2	5	.000	13.641	11.102	7.069
2	4	.000	10.999	11.005	6.287
2	3	.000	11.684	11.845	6.723
2	2	.000	10.234	11.783	6.290
2	1	.000	4.284	6.932	2.492
3	5	2.376	9.278	5.936	4.347
3	4	5.926	7.061	6.271	3.809
3	3	9.597	7.259	7.928	4.339
3	2	13.164	5.198	9.146	4.098
3	1	15.807	.751	10.896	2.583

ANEXO Nº 2

RESULTADOS DEL PROGRAMA A3S, ANÁLISIS SISMICO SEUDO-TRIDIMENSIONAL UTILIZANDO SUPERPOSICIÓN MODAL ESPECTRAL (MODELO DINAMICO)

RESULTADOS DEL PROGRAMA A3S, ANÁLISIS SISMICO SEUDO-TRIDIMENSIONAL UTILIZANDO SUPERPOSICIÓN MODAL ESPECTRAL (MODELO DINAMICO)

Análisis Sísmico Seudo-Tridimensional de un Edificio-Talleres

{A3s} - version 1.5d - H. Scaletti (1997)

5 pisos
7 pórticos
4 tipo(s)

Alturas de los Entrepisos:

4.50	3.50	3.50	3.50	3.50

Inercias en Cada Nivel:

nivel	xo	yo	masa	Jo
5	7.00	9.00	1.89E+01	8.87E+02
4	7.00	9.00	3.05E+01	1.36E+03
3	7.00	9.00	3.05E+01	1.36E+03
2	7.00	9.00	3.05E+01	1.36E+03
1	7.00	9.00	3.13E+01	1.40E+03

E = 2.30E+06
G = 9.20E+05
Gm = 9.20E+05

Factor de reducción de rigideces en vigas: .70
Brazos rígidos reducidos en 1/4 de peralte de viga

Tipo y Ubicación de Cada Pórtico:

pórtico	tipo	xi	yi	alfa
A	1	.00	.00	90.00
B	2	7.00	.00	90.00
C	1	14.00	.00	90.00
1	3	.00	.00	.00
2	4	.00	6.00	.00
3	4	.00	12.00	.00
4	3	.00	18.00	.00

Análisis Dinámico (Superposición Modal Espectral)

15 modos (RNC)

Espectro de Pseudo Aceleraciones:

T	Sa
.10	1.27
.20	1.27
.25	1.27
.30	1.27
.35	1.27
.40	1.27
.45	1.10
.50	.96
.55	.86
.60	.77
.65	.69
.70	.63
.75	.58
.80	.54
.85	.50
.90	.46
.95	.43
1.00	.41

(interpolación lineal)

Pórtico tipo 1

3 vano(s)
5 piso(s)

Luces de las Vigas:

4.88 6.00 4.88

Dimensiones de las Vigas:

.25	.60	.00	.00	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60
.25	.60	.25	.60	.25	.60

Dimensiones de las Columnas:

.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50
.25	2.50	.70	.40	.70	.40	.25	2.50

Momentos de Inercia de Columnas y Placas:

4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01
4.600E-01	3.733E-03	3.733E-03	4.600E-01

Pórtico tipo 2

3 vano(s)
5 piso(s)

Luces de las Vigas:

6.00	6.00	6.00

Dimensiones de las Vigas:

.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70
.30	.70	.30	.70	.30	.70

Dimensiones de las Columnas:

.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40
.70	.40	.50	.50	.50	.50	.70	.40

Pórtico tipo 3

2 vano(s)
5 piso(s)

Luces de las Vigas:

5.88	5.88

Dimensiones de las Vigas:

.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60
.25	.60	.25	.60

Dimensiones de las Columnas:

.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50
.25	2.50	.40	.70	.25	2.50

Momentos de Inercia de Columnas y Placas:

4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01
4.600E-01	1.143E-02	4.600E-01

Pórtico tipo 4

2 vano(s)
5 piso(s)

Luces de las Vigas:

6.78 6.78

Dimensiones de las Vigas:

.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70
.30	.70	.30	.70

Dimensiones de las Columnas:

.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70
.40	.70	.50	.50	.40	.70

Modo 1

T = .6008 seg
f = 1.6645 Hertz
w = 10.458 rad/seg

Sa = 7.687E-01
Sv = 7.351E-02
Sd = 7.029E-03

Vector Característico:

u	v	é
.000000	.139497	.000000
.000000	.110114	.000000
.000000	.078306	.000000
.000000	.046186	.000000
.000000	.018356	.000000

Factores de Participación:

.000014	10.361520	.000004

Modo 2

T = .5913 seg
f = 1.6912 Hertz
w = 10.626 rad/seg

Sa = 7.857E-01
Sv = 7.394E-02
Sd = 6.958E-03

Vector Característico:

u	v	é
.139200	.000000	.000000
.110188	.000000	.000000
.078462	.000000	.000000
.046296	.000000	.000000
.018372	.000000	.000000

Factores de Participación:

10.366720	-.000014	.000000

Modo 3

T = .3921 seg
f = 2.5503 Hertz
w = 16.024 rad/seg

Sa = 1.270E+00
Sv = 7.925E-02
Sd = 4.946E-03

Vector Característico:

u	v	é
.000000	.000000	.021021
.000000	.000000	.016331
.000000	.000000	.011402
.000000	.000000	.006586
.000000	.000000	.002548

Factores de Participación:

.000000	-.000001	68.916660

Modo 4

T = .1455 seg
f = 6.8742 Hertz
w = 43.192 rad/seg

Sa = 1.270E+00
Sv = 2.940E-02
Sd = 6.808E-04

Vector Característico:

u	v	é
.000000	-.128024	.000000
.000000	-.012286	.000000
.000000	.079523	.000000
.000000	.107234	.000000
.000000	.067404	.000000

Factores de Participación:

.000006	5.001307	.000001

Modo 5

T = .1429 seg
f = 6.9974 Hertz
w = 43.966 rad/seg

Sa = 1.270E+00
Sv = 2.889E-02
Sd = 6.570E-04

Vector Característico:

u	v	é
-.128067	.000000	.000000
-.012652	.000000	.000000
.079475	.000000	.000000
.107290	.000000	.000000
.067256	.000000	.000000

Factores de Participación:

4.984983	-.000006	.000000

Modo 6

T = .0894 seg
f = 11.1861 Hertz
w = 70.284 rad/seg

Sa = 1.270E+00
Sv = 1.807E-02
Sd = 2.571E-04

Vector Característico:

u	v	é
.000000	.000000	-.018549
.000000	.000000	-.001099
.000000	.000000	.012337
.000000	.000000	.016033
.000000	.000000	.009867

Factores de Participación:

.000000	.000000	34.462190

Modo 7

T = .0644 seg
f = 15.5247 Hertz
w = 97.544 rad/seg

Sa = 1.270E+00
Sv = 1.302E-02
Sd = 1.335E-04

Vector Característico:

u	v	é
.000000	-.101984	.000000
.000000	.066153	.000000
.000000	.078957	.000000
.000000	-.054621	.000000
.000000	-.111470	.000000

Factores de Participación:

-.000003	-2.664348	-.000001

Modo 8

T = .0632 seg
f = 15.8286 Hertz
w = 99.454 rad/seg

Sa = 1.270E+00
Sv = 1.277E-02
Sd = 1.284E-04

Vector Característico:

u	v	é
-.102165	.000000	.000000
.066049	.000000	.000000
.079025	.000000	.000000
-.054832	.000000	.000000
-.111282	.000000	.000000

Factores de Participación:

-2.669488	.000003	.000000

Modo 9

T = .0396 seg
f = 25.2251 Hertz
w = 158.494 rad/seg

Sa = 1.270E+00
Sv = 8.013E-03
Sd = 5.056E-05

Vector Característico:

u	v	é
.000000	.071892	.000000
.000000	-.102150	.000000
.000000	.044035	.000000
.000000	.076843	.000000
.000000	-.105030	.000000

Factores de Participación:

-.000001	-1.357128	.000000

Modo 10

T = .0387 seg
f = 25.8259 Hertz
w = 162.269 rad/seg

Sa = 1.270E+00
Sv = 7.827E-03
Sd = 4.823E-05

Vector Característico:

u	v	é
.072097	.000000	.000000
-.102165	.000000	.000000
.044175	.000000	.000000
.076463	.000000	.000000
-.105145	.000000	.000000

Factores de Participación:

-1.364623	.000001	.000000

Modo 11

T = .0386 seg
f = 25.9037 Hertz
w = 162.758 rad/seg

Sa = 1.270E+00
Sv = 7.803E-03
Sd = 4.794E-05

Vector Característico:

u	v	é
.000000	.000000	-.014532
.000000	.000000	.010285
.000000	.000000	.011509
.000000	.000000	-.008564
.000000	.000000	-.016669

Factores de Participación:

.000000	.000000	-18.204500

Modo 12

T = .0302 seg
f = 33.1476 Hertz
w = 208.272 rad/seg

Sa = 1.270E+00
Sv = 6.098E-03
Sd = 2.928E-05

Vector Característico:

u	v	é
.000000	-.037516	.000000
.000000	.075782	.000000
.000000	-.110457	.000000
.000000	.101536	.000000
.000000	-.060013	.000000

Factores de Participación:

.000000	-.552619	.000000

Modo 13

T = .0293 seg
f = 34.1082 Hertz
w = 214.308 rad/seg

Sa = 1.270E+00
Sv = 5.926E-03
Sd = 2.765E-05

Vector Característico:

u	v	é
-.037587	.000000	.000000
.075686	.000000	.000000
-.110277	.000000	.000000
.101599	.000000	.000000
-.060322	.000000	.000000

Factores de Participación:

-.559133	.000000	.000000

Modo 14

T = .0236 seg
f = 42.4518 Hertz
w = 266.732 rad/seg

Sa = 1.270E+00
Sv = 4.761E-03
Sd = 1.785E-05

Vector Característico:

u	v	é
.000000	.000000	.010130
.000000	.000000	-.015324
.000000	.000000	.006876
.000000	.000000	.011316
.000000	.000000	-.015836

Factores de Participación:

.000000	.000000	-9.263056

Modo 15

T = .0179 seg
f = 56.0141 Hertz
w = 351.947 rad/seg

Sa = 1.270E+00
Sv = 3.608E-03
Sd = 1.025E-05

Vector Característico:

u	v	é
.000000	.000000	-.005250
.000000	.000000	.011238
.000000	.000000	-.016519
.000000	.000000	.015264
.000000	.000000	-.009077

Factores de Participación:

.000000	.000000	-3.769978

Masas Efectivas (% de masa total)

modo	X	Y	é
1	.00	75.81	.00
2	75.89	.00	.00
3	.00	.00	74.58
4	.00	17.66	.00
5	17.55	.00	.00
6	.00	.00	18.65
7	.00	5.01	.00
8	5.03	.00	.00
9	.00	1.30	.00
10	1.31	.00	.00
11	.00	.00	5.20
12	.00	.22	.00
13	.22	.00	.00
14	.00	.00	1.35
15	.00	.00	.22
Total	100.00	100.00	100.00

Efectos Globales - Sismo en la Dirección X

Desplazamientos de Cada Nivel

nivel	x	y	r
5	1.016E-02	2.160E-08	1.428E-16
4	7.966E-03	1.686E-08	1.101E-16
3	5.737E-03	1.215E-08	7.760E-17
2	3.448E-03	7.307E-09	4.544E-17
1	1.406E-03	2.987E-09	1.793E-17

Distorsiones de los Entrepisos

nivel	x	y	r
5	2.231E-03	4.801E-09	3.292E-17
4	2.383E-03	5.076E-09	3.410E-17
3	2.358E-03	4.993E-09	3.276E-17
2	2.059E-03	4.354E-09	2.765E-17
1	1.406E-03	2.987E-09	1.793E-17

Fuerzas Concentradas

nivel	x	y	r
5	3.203E+01	6.558E-05	3.753E-11
4	3.253E+01	6.663E-05	3.897E-11
3	3.164E+01	6.396E-05	3.482E-11
2	2.959E+01	5.802E-05	2.901E-11
1	2.371E+01	4.448E-05	2.101E-11

Cortantes Totales en Cada Nivel

nivel	x	y	r
5	3.203E+01	6.558E-05	3.753E-11
4	5.678E+01	1.182E-04	6.992E-11
3	7.191E+01	1.497E-04	8.962E-11
2	8.770E+01	1.832E-04	1.083E-10
1	9.992E+01	2.084E-04	1.207E-10

Mínima fuerza cortante en la base: 138.57
Solicitaciones internas multiplicadas por: 1.39

Efectos Globales - Sismo en la Dirección Y

Desplazamientos de Cada Nivel

nivel	x	y	r
5	2.155E-08	1.029E-02	1.058E-10
4	1.687E-08	8.038E-03	8.152E-11
3	1.217E-08	5.784E-03	5.753E-11
2	7.321E-09	3.476E-03	3.376E-11
1	2.988E-09	1.421E-03	1.336E-11

Distorsiones de los Entrepisos

nivel	x	y	r
5	4.743E-09	2.284E-03	2.452E-11
4	5.062E-09	2.415E-03	2.534E-11
3	4.998E-09	2.378E-03	2.430E-11
2	4.367E-09	2.073E-03	2.052E-11
1	2.988E-09	1.421E-03	1.336E-11

Fuerzas Concentradas

nivel	x	y	r
5	6.562E-05	3.168E+01	2.125E-05
4	6.652E-05	3.190E+01	2.088E-05
3	6.405E-05	3.128E+01	1.844E-05
2	5.814E-05	2.945E+01	1.506E-05
1	4.446E-05	2.370E+01	1.065E-05

Cortantes Totales en Cada Nivel

nivel	x	y	r
5	6.562E-05	3.168E+01	2.125E-05
4	1.181E-04	5.577E+01	3.875E-05
3	1.497E-04	7.038E+01	4.983E-05
2	1.831E-04	8.600E+01	5.987E-05
1	2.084E-04	9.820E+01	6.581E-05

Mínima fuerza cortante en la base: 138.57
Solicitaciones internas multiplicadas por: 1.41

Efectos en el Pórtico del Eje A

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01029	.00228	10.906	10.906
4	.00804	.00241	16.452	23.027
3	.00578	.00238	14.987	30.108
2	.00348	.00207	14.393	38.325
1	.00142	.00142	13.117	47.106

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	10.871	8.543	5.668
3	5	8.543	10.871	5.668
1	4	12.101	10.264	6.530
2	4	4.901	4.901	1.750
3	4	10.264	12.101	6.530
1	3	12.521	10.586	6.747
2	3	4.729	4.729	1.689
3	3	10.586	12.521	6.747
1	2	11.806	10.071	6.387
2	2	4.282	4.282	1.529
3	2	10.071	11.806	6.387
1	1	9.017	7.549	4.837
2	1	2.896	2.896	1.034
3	1	7.549	9.017	4.837

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	4.448	14.246	22.899	5.133
1	4	9.570	34.826	31.372	12.491
1	3	14.814	32.399	60.198	17.338
1	2	19.695	47.116	107.470	23.457
1	1	23.216	96.435	225.795	31.819
2	5	4.448	7.437	6.701	4.039
2	4	8.070	6.805	6.838	3.894
2	3	11.876	6.791	6.960	3.928
2	2	15.461	5.999	6.704	3.629
2	1	18.142	2.624	3.824	1.433
3	5	4.448	7.437	6.701	4.039
3	4	8.070	6.805	6.838	3.894
3	3	11.876	6.791	6.960	3.928
3	2	15.461	5.999	6.704	3.629
3	1	18.142	2.624	3.824	1.433
4	5	4.448	14.246	22.899	5.133
4	4	9.570	34.826	31.372	12.491
4	3	14.814	32.399	60.198	17.338
4	2	19.695	47.116	107.470	23.457
4	1	23.216	96.435	225.795	31.819

Efectos en el Pórtico del Eje C

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01029	.00228	10.906	10.906
4	.00804	.00241	16.452	23.026
3	.00578	.00238	14.987	30.108
2	.00348	.00207	14.393	38.324
1	.00142	.00142	13.117	47.106

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	10.871	8.543	5.668
3	5	8.543	10.871	5.668
1	4	12.101	10.264	6.530
2	4	4.901	4.901	1.750
3	4	10.264	12.101	6.530
1	3	12.521	10.586	6.747
2	3	4.729	4.729	1.689
3	3	10.586	12.521	6.747
1	2	11.806	10.071	6.387
2	2	4.282	4.282	1.529
3	2	10.071	11.806	6.387
1	1	9.017	7.549	4.837
2	1	2.896	2.896	1.034
3	1	7.549	9.017	4.837

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	4.448	14.247	22.899	5.133
1	4	9.570	34.825	31.372	12.491
1	3	14.814	32.399	60.198	17.338
1	2	19.695	47.116	107.470	23.457
1	1	23.216	96.435	225.795	31.819
2	5	4.448	7.437	6.701	4.039
2	4	8.070	6.805	6.838	3.894
2	3	11.876	6.791	6.960	3.928
2	2	15.461	5.999	6.704	3.629
2	1	18.142	2.624	3.824	1.433
3	5	4.448	7.437	6.701	4.039
3	4	8.070	6.805	6.838	3.894
3	3	11.876	6.791	6.960	3.928
3	2	15.461	5.999	6.704	3.629
3	1	18.142	2.624	3.824	1.433
4	5	4.448	14.247	22.899	5.133
4	4	9.570	34.825	31.372	12.491
4	3	14.814	32.399	60.198	17.338
4	2	19.695	47.116	107.470	23.457
4	1	23.216	96.435	225.795	31.819

Efectos en el Pórtico del Eje B

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01029	.00228	11.333	11.333
4	.00804	.00241	1.577	9.930
3	.00578	.00238	1.375	10.203
2	.00348	.00207	1.712	9.439
1	.00142	.00142	5.615	4.026

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	6.049	5.414	2.065
2	5	5.424	5.424	1.972
3	5	5.414	6.049	2.065
1	4	9.494	8.901	3.314
2	4	8.990	8.990	3.269
3	4	8.901	9.494	3.314
1	3	9.424	8.832	3.289
2	3	8.851	8.851	3.219
3	3	8.832	9.424	3.289
1	2	8.893	8.337	3.105
2	2	8.259	8.259	3.003
3	2	8.337	8.893	3.105
1	1	6.577	6.110	2.286
2	1	5.941	5.941	2.160
3	1	6.110	6.577	2.286

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	1.726	5.433	4.375	2.802
1	4	4.494	4.201	4.246	2.407
1	3	7.215	4.268	4.508	2.506
1	2	9.746	3.690	4.490	2.336
1	1	11.520	1.506	3.271	1.060
2	5	.081	9.857	8.322	5.194
2	4	.124	8.030	8.091	4.600
2	3	.183	8.073	8.353	4.692
2	2	.261	7.070	8.065	4.324
2	1	.351	3.020	4.992	1.780
3	5	.081	9.857	8.322	5.194
3	4	.124	8.030	8.091	4.600
3	3	.183	8.073	8.353	4.692
3	2	.261	7.070	8.065	4.324
3	1	.351	3.020	4.992	1.780
4	5	1.726	5.433	4.375	2.802
4	4	4.494	4.201	4.246	2.407
4	3	7.215	4.268	4.508	2.506
4	2	9.746	3.690	4.490	2.336
4	1	11.520	1.506	3.271	1.060

Efectos en el Pórtico del Eje 1

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01016	.00223	8.853	8.853
4	.00797	.00238	17.078	21.211
3	.00574	.00236	14.510	28.189
2	.00345	.00206	14.142	36.583
1	.00141	.00141	13.192	45.926

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	9.452	7.919	4.064
2	5	7.919	9.452	4.064
1	4	11.034	10.419	5.018
2	4	10.419	11.034	5.018
1	3	11.202	10.426	5.059
2	3	10.426	11.202	5.059
1	2	10.443	9.794	4.734
2	2	9.794	10.443	4.734
1	1	7.939	7.404	3.589
2	1	7.404	7.939	3.589

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	3.332	12.004	24.213	5.169
1	4	7.446	35.359	29.032	12.041
1	3	11.560	31.077	57.043	16.566
1	2	15.361	45.665	104.451	22.608
1	1	18.112	94.920	219.285	30.480
2	5	.000	15.145	10.542	7.338
2	4	.000	9.534	9.893	5.526
2	3	.000	10.246	10.811	5.996
2	2	.000	8.509	11.052	5.584
2	1	.000	3.365	9.036	2.751
3	5	3.332	12.004	24.213	5.169
3	4	7.446	35.359	29.032	12.041
3	3	11.560	31.077	57.043	16.566
3	2	15.361	45.665	104.451	22.608
3	1	18.112	94.920	219.285	30.480

Efectos en el Pórtico del Eje 4

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01016	.00223	8.853	8.853
4	.00797	.00238	17.078	21.211
3	.00574	.00236	14.510	28.189
2	.00345	.00206	14.142	36.583
1	.00141	.00141	13.192	45.926

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	9.452	7.919	4.064
2	5	7.919	9.452	4.064
1	4	11.034	10.419	5.018
2	4	10.419	11.034	5.018
1	3	11.202	10.426	5.059
2	3	10.426	11.202	5.059
1	2	10.443	9.794	4.734
2	2	9.794	10.443	4.734
1	1	7.939	7.404	3.589
2	1	7.404	7.939	3.589

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	3.332	12.004	24.213	5.169
1	4	7.446	35.359	29.032	12.041
1	3	11.560	31.077	57.043	16.566
1	2	15.361	45.665	104.451	22.608
1	1	18.112	94.920	219.285	30.480
2	5	.000	15.145	10.542	7.338
2	4	.000	9.534	9.893	5.526
2	3	.000	10.246	10.811	5.996
2	2	.000	8.509	11.052	5.584
2	1	.000	3.365	9.036	2.751
3	5	3.332	12.004	24.213	5.169
3	4	7.446	35.359	29.032	12.041
3	3	11.560	31.077	57.043	16.566
3	2	15.361	45.665	104.451	22.608
3	1	18.112	94.920	219.285	30.480

Efectos en el Pórtico del Eje 2

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01016	.00223	8.494	8.494
4	.00797	.00238	1.332	7.318
3	.00574	.00236	1.329	7.790
2	.00345	.00206	1.351	7.323
1	.00141	.00141	3.684	4.050

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	7.250	5.512	2.067
2	5	5.512	7.250	2.067
1	4	10.002	8.773	3.041
2	4	8.773	10.002	3.041
1	3	10.110	8.747	3.054
2	3	8.747	10.110	3.054
1	2	9.534	8.274	2.884
2	2	8.274	9.534	2.884
1	1	7.270	6.103	2.166
2	1	6.103	7.270	2.166

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	1.756	6.861	4.592	3.270
1	4	4.340	5.064	4.875	2.806
1	3	6.910	5.138	5.827	3.056
1	2	9.304	3.825	6.370	2.890
1	1	11.016	1.017	7.821	1.915
2	5	.000	10.079	8.259	5.239
2	4	.000	7.899	8.008	4.539
2	3	.000	8.094	8.332	4.693
2	2	.000	7.143	8.175	4.376
2	1	.000	3.117	4.941	1.790
3	5	1.756	6.861	4.592	3.270
3	4	4.340	5.064	4.875	2.806
3	3	6.910	5.138	5.827	3.056
3	2	9.304	3.825	6.370	2.890
3	1	11.016	1.017	7.821	1.915

Efectos en el Pórtico del Eje 3

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.01016	.00223	8.494	8.494
4	.00797	.00238	1.332	7.318
3	.00574	.00236	1.329	7.790
2	.00345	.00206	1.351	7.323
1	.00141	.00141	3.684	4.050

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	7.250	5.512	2.067
2	5	5.512	7.250	2.067
1	4	10.002	8.773	3.041
2	4	8.773	10.002	3.041
1	3	10.110	8.747	3.054
2	3	8.747	10.110	3.054
1	2	9.534	8.274	2.884
2	2	8.274	9.534	2.884
1	1	7.270	6.103	2.166
2	1	6.103	7.270	2.166

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	1.756	6.861	4.592	3.270
1	4	4.340	5.064	4.875	2.806
1	3	6.910	5.138	5.827	3.056
1	2	9.304	3.825	6.370	2.890
1	1	11.016	1.017	7.821	1.915
2	5	.000	10.079	8.259	5.239
2	4	.000	7.899	8.008	4.539
2	3	.000	8.094	8.332	4.693
2	2	.000	7.143	8.175	4.376
2	1	.000	3.117	4.941	1.790
3	5	1.756	6.861	4.592	3.270
3	4	4.340	5.064	4.875	2.806
3	3	6.910	5.138	5.827	3.056
3	2	9.304	3.825	6.370	2.890
3	1	11.016	1.017	7.821	1.915

ANEXO Nº 3

RESULTADOS DEL PROGRAMA A3S, CON EL FACTOR DE AMPLIFICACIÓN DE 6.10 EN EL ESPECTRO DE ACELERACIONES, PARA EL PORTICO TIPO 2 (EJE B)

RESULTADOS DEL PROGRAMA A3S, CON EL FACTOR DE AMPLIFICACIÓN DE 6.10 EN EL ESPECTRO DE ACELERACIONES, PARA EL PORTICO TIPO 2 (EJE B)

ANALISIS SISMICO SEUDO-TRIDIMENSIONAL DE UN EDIFICIO-TALLERES

{A3s} - version 1.5d - H. Scaletti (1997)

Efectos en el Pórtico del Eje B

Sismo en la Dirección Y

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.06274	.01393	69.133	69.133
4	.04903	.01473	9.619	60.575
3	.03528	.01450	8.388	62.236
2	.02121	.01265	10.446	57.578
1	.00867	.00867	34.251	24.556

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	26.151	23.403	8.929
2	5	23.446	23.446	8.526
3	5	23.403	26.151	8.929
1	4	41.043	38.477	14.328
2	4	38.862	38.862	14.132
3	4	38.477	41.043	14.328
1	3	40.740	38.182	14.220
2	3	38.263	38.263	13.914
3	3	38.182	40.740	14.220
1	2	38.446	36.043	13.421
2	2	35.702	35.702	12.982
3	2	36.043	38.446	13.421
1	1	28.431	26.412	9.882
2	1	25.682	25.682	9.339
3	1	26.412	28.431	9.882

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	7.460	23.486	18.914	12.114
1	4	19.427	18.160	18.354	10.404
1	3	31.192	18.453	19.487	10.833
1	2	42.134	15.952	19.411	10.099
1	1	49.799	6.510	14.141	4.584
2	5	.351	42.611	35.975	22.453
2	4	.537	34.713	34.977	19.884
2	3	.793	34.901	36.109	20.285
2	2	1.127	30.565	34.863	18.691
2	1	1.519	13.055	21.580	7.694
3	5	.351	42.611	35.975	22.453
3	4	.537	34.713	34.977	19.884
3	3	.793	34.901	36.109	20.285
3	2	1.127	30.565	34.863	18.691
3	1	1.519	13.055	21.580	7.694
4	5	7.460	23.486	18.914	12.114
4	4	19.427	18.160	18.354	10.404
4	3	31.192	18.453	19.487	10.833
4	2	42.134	15.952	19.411	10.099
4	1	49.799	6.510	14.141	4.584

ANEXO Nº 4

RESULTADOS DEL PROGRAMA A3S, CON EL FACTOR DE AMPLIFICACIÓN DE 3.08 EN EL ESPECTRO DE ACELERACIONES, PARA EL PORTICO TIPO 4 (EJES 2 Y 3)

RESULTADOS DEL PROGRAMA A3S, CON EL FACTOR DE AMPLIFICACIÓN DE 3.08 EN EL ESPECTRO DE ACELERACIONES, PARA EL PORTICO TIPO 4 (EJES 2 Y 3)

ANALISIS SISMICO SEUDO-TRIDIMENSIONAL DE UN EDIFICIO-VIVIENDA

{A3s} - version 1.5d - H. Scaletti (1997)

Efectos en el Pórtico del Eje 2

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.03130	.00687	26.160	26.160
4	.02454	.00734	4.103	22.541
3	.01767	.00726	4.094	23.994
2	.01062	.00634	4.163	22.555
1	.00433	.00433	11.346	12.475

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	16.102	12.241	4.590
2	5	12.241	16.102	4.590
1	4	22.213	19.485	6.753
2	4	19.485	22.213	6.753
1	3	22.454	19.427	6.782
2	3	19.427	22.454	6.782
1	2	21.174	18.376	6.405
2	2	18.376	21.174	6.405
1	1	16.146	13.554	4.810
2	1	13.554	16.146	4.810

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	3.901	15.237	10.198	7.263
1	4	9.638	11.247	10.827	6.232
1	3	15.347	11.412	12.941	6.787
1	2	20.663	8.494	14.148	6.419
1	1	24.465	2.259	17.370	4.253
2	5	.000	22.385	18.342	11.636
2	4	.000	17.542	17.786	10.080
2	3	.000	17.977	18.505	10.422
2	2	.000	15.864	18.157	9.719
2	1	.000	6.923	10.974	3.976
3	5	3.901	15.237	10.198	7.263
3	4	9.638	11.247	10.827	6.232
3	3	15.347	11.412	12.941	6.787
3	2	20.663	8.494	14.148	6.419
3	1	24.465	2.259	17.370	4.253

Efectos en el Pórtico del Eje 3

Sismo en la Dirección X

Desplazamientos, Distorsiones, Fuerzas y Cortes en Cada Nivel

nivel	u	ë	F	V
5	.03130	.00687	26.160	26.160
4	.02454	.00734	4.103	22.541
3	.01767	.00726	4.094	23.994
2	.01062	.00634	4.163	22.555
1	.00433	.00433	11.346	12.475

Momentos Flectores y Cortes en las Vigas

viga	niv	Mi	Mj	V
1	5	16.102	12.241	4.590
2	5	12.241	16.102	4.590
1	4	22.213	19.485	6.753
2	4	19.485	22.213	6.753
1	3	22.454	19.427	6.782
2	3	19.427	22.454	6.782
1	2	21.174	18.376	6.405
2	2	18.376	21.174	6.405
1	1	16.146	13.554	4.810
2	1	13.554	16.146	4.810

Fuerzas Axiales, Momentos y Cortes en las Columnas

col.	nivel	N	Mt	Mb	V
1	5	3.901	15.237	10.198	7.263
1	4	9.638	11.247	10.827	6.232
1	3	15.347	11.412	12.941	6.787
1	2	20.663	8.494	14.148	6.419
1	1	24.465	2.259	17.370	4.253
2	5	.000	22.385	18.342	11.636
2	4	.000	17.542	17.786	10.080
2	3	.000	17.977	18.505	10.422
2	2	.000	15.864	18.157	9.719
2	1	.000	6.923	10.974	3.976
3	5	3.901	15.237	10.198	7.263
3	4	9.638	11.247	10.827	6.232
3	3	15.347	11.412	12.941	6.787
3	2	20.663	8.494	14.148	6.419
3	1	24.465	2.259	17.370	4.253

ANEXO Nº 5

BASE DE DATOS DEL ARCHIVO DE TRANSFERENCIA

BASE DE DATOS DEL ARCHIVO DE TRANSFERENCIA CON LAS SOLICITACIONES SÍSMICAS EN TODOS LOS ELEMENTOS DE LOS PORTICOS 1, 2, 3 Y 4 (EJES A,B,C,1,2,3 Y 4)QUE SERAN USADOS EN EL PROGRAMA A2E VERSIÓN 1.2

A y C

1.087E+01	8.543E+00	5.668E+00	
8.543E+00	1.087E+01	5.668E+00	
1.210E+01	1.026E+01	6.530E+00	
4.901E+00	4.901E+00	1.750E+00	
1.026E+01	1.210E+01	6.530E+00	
1.252E+01	1.059E+01	6.747E+00	
4.729E+00	4.729E+00	1.689E+00	
1.059E+01	1.252E+01	6.747E+00	
1.181E+01	1.007E+01	6.387E+00	
4.282E+00	4.282E+00	1.529E+00	
1.007E+01	1.181E+01	6.387E+00	
9.017E+00	7.549E+00	4.837E+00	
2.896E+00	2.896E+00	1.034E+00	
7.549E+00	9.017E+00	4.837E+00	
4.448E+00	1.425E+01	2.290E+01	5.133E+00
9.570E+00	3.483E+01	3.137E+01	1.249E+01
1.481E+01	3.240E+01	6.020E+01	1.734E+01
1.969E+01	4.712E+01	1.075E+02	2.346E+01
2.322E+01	9.644E+01	2.258E+02	3.182E+01
4.448E+00	7.437E+00	6.701E+00	4.039E+00
8.070E+00	6.805E+00	6.838E+00	3.894E+00
1.188E+01	6.791E+00	6.960E+00	3.928E+00
1.546E+01	5.999E+00	6.704E+00	3.629E+00
1.814E+01	2.624E+00	3.824E+00	1.433E+00
4.448E+00	7.437E+00	6.701E+00	4.039E+00
8.070E+00	6.805E+00	6.838E+00	3.894E+00
1.188E+01	6.791E+00	6.960E+00	3.928E+00
1.546E+01	5.999E+00	6.704E+00	3.629E+00
1.814E+01	2.624E+00	3.824E+00	1.433E+00
4.448E+00	1.425E+01	2.290E+01	5.133E+00
9.570E+00	3.483E+01	3.137E+01	1.249E+01
1.481E+01	3.240E+01	6.020E+01	1.734E+01
1.969E+01	4.712E+01	1.075E+02	2.346E+01
2.322E+01	9.644E+01	2.258E+02	3.182E+01

B

2.615E+01	2.340E+01	8.929E+00	
2.345E+01	2.345E+01	8.526E+00	
2.340E+01	2.615E+01	8.929E+00	
4.104E+01	3.848E+01	1.433E+01	
3.886E+01	3.886E+01	1.413E+01	
3.848E+01	4.104E+01	1.433E+01	
4.074E+01	3.818E+01	1.422E+01	
3.826E+01	3.826E+01	1.391E+01	
3.818E+01	4.074E+01	1.422E+01	
3.845E+01	3.604E+01	1.342E+01	
3.570E+01	3.570E+01	1.298E+01	
3.604E+01	3.845E+01	1.342E+01	
2.843E+01	2.641E+01	9.882E+00	
2.568E+01	2.568E+01	9.339E+00	
2.641E+01	2.843E+01	9.882E+00	
7.460E+00	2.349E+01	1.891E+01	1.211E+01
1.943E+01	1.816E+01	1.835E+01	1.040E+01
3.119E+01	1.845E+01	1.949E+01	1.083E+01
4.213E+01	1.595E+01	1.941E+01	1.010E+01
4.980E+01	6.510E+00	1.414E+01	4.584E+00
3.509E-01	4.261E+01	3.598E+01	2.245E+01
5.370E-01	3.471E+01	3.498E+01	1.988E+01
7.933E-01	3.490E+01	3.611E+01	2.028E+01
1.127E+00	3.057E+01	3.486E+01	1.869E+01
1.519E+00	1.306E+01	2.158E+01	7.694E+00
3.509E-01	4.261E+01	3.598E+01	2.245E+01
5.370E-01	3.471E+01	3.498E+01	1.988E+01
7.933E-01	3.490E+01	3.611E+01	2.028E+01
1.127E+00	3.057E+01	3.486E+01	1.869E+01
1.519E+00	1.306E+01	2.158E+01	7.694E+00
7.460E+00	2.349E+01	1.891E+01	1.211E+01
1.943E+01	1.816E+01	1.835E+01	1.040E+01
3.119E+01	1.845E+01	1.949E+01	1.083E+01
4.213E+01	1.595E+01	1.941E+01	1.010E+01
4.980E+01	6.510E+00	1.414E+01	4.584E+00

1 y 4

9.452E+00	7.919E+00	4.064E+00	
7.919E+00	9.452E+00	4.064E+00	
1.103E+01	1.042E+01	5.018E+00	
1.042E+01	1.103E+01	5.018E+00	
1.120E+01	1.043E+01	5.059E+00	
1.043E+01	1.120E+01	5.059E+00	
1.044E+01	9.794E+00	4.734E+00	
9.794E+00	1.044E+01	4.734E+00	
7.939E+00	7.404E+00	3.589E+00	
7.404E+00	7.939E+00	3.589E+00	
3.332E+00	1.200E+01	2.421E+01	5.169E+00
7.446E+00	3.536E+01	2.903E+01	1.204E+01
1.156E+01	3.108E+01	5.704E+01	1.657E+01
1.536E+01	4.566E+01	1.045E+02	2.261E+01
1.811E+01	9.492E+01	2.193E+02	3.048E+01
2.420E-15	1.514E+01	1.054E+01	7.338E+00
8.002E-16	9.534E+00	9.893E+00	5.526E+00
1.333E-15	1.025E+01	1.081E+01	5.996E+00
1.235E-15	8.509E+00	1.105E+01	5.584E+00
1.494E-15	3.365E+00	9.036E+00	2.751E+00
3.332E+00	1.200E+01	2.421E+01	5.169E+00
7.446E+00	3.536E+01	2.903E+01	1.204E+01
1.156E+01	3.108E+01	5.704E+01	1.657E+01
1.536E+01	4.566E+01	1.045E+02	2.261E+01
1.811E+01	9.492E+01	2.193E+02	3.048E+01

2 y 3

1.610E+01	1.224E+01	4.590E+00	
1.224E+01	1.610E+01	4.590E+00	
2.221E+01	1.948E+01	6.753E+00	
1.948E+01	2.221E+01	6.753E+00	
2.245E+01	1.943E+01	6.782E+00	
1.943E+01	2.245E+01	6.782E+00	
2.117E+01	1.838E+01	6.405E+00	
1.838E+01	2.117E+01	6.405E+00	
1.615E+01	1.355E+01	4.810E+00	
1.355E+01	1.615E+01	4.810E+00	
3.901E+00	1.524E+01	1.020E+01	7.263E+00
9.638E+00	1.125E+01	1.083E+01	6.232E+00
1.535E+01	1.141E+01	1.294E+01	6.787E+00
2.066E+01	8.494E+00	1.415E+01	6.419E+00
2.446E+01	2.259E+00	1.737E+01	4.253E+00
4.861E-15	2.239E+01	1.834E+01	1.164E+01
3.298E-15	1.754E+01	1.779E+01	1.008E+01
4.094E-15	1.798E+01	1.850E+01	1.042E+01
2.312E-15	1.586E+01	1.816E+01	9.719E+00
3.256E-15	6.923E+00	1.097E+01	3.976E+00
3.901E+00	1.524E+01	1.020E+01	7.263E+00
9.638E+00	1.125E+01	1.083E+01	6.232E+00
1.535E+01	1.141E+01	1.294E+01	6.787E+00
2.066E+01	8.494E+00	1.415E+01	6.419E+00
2.446E+01	2.259E+00	1.737E+01	4.253E+00

ANEXO Nº 6

RESULTADOS DEL PROGRAMA A2e, ANÁLISIS PARA CARGAS VERTICALES DE TODA LA ESTRUCTURA (EDIFICACIÓN)

RESULTADOS DEL PROGRAMA A2e, ANÁLISIS PARA CARGAS VERTICALES DE TODA LA ESTRUCTURA (EDIFICACIÓN)

A2e versión 1.2 - H. Scaletti (1987,1991)

```
Pórticos Ejes A y C
5 pisos 4.50 3.50 3.50 3.50 3.50
3 vanos 4.875 6.0 4.875
nivel 5
  vigas 1 3 .25 .60
  columnas 1 4 .25 2.5 .46
  columnas 2 3 .7 .4
niveles 1 a 4
  vigas 1 3 .25 .60
  viga 2 .25 .60
  columnas 1 4 .25 2.5 .46
  columnas 2 3 .7 .4
cargas
  nivel 5
    vigas 1 3 w 0.93 0.15
  niveles 1 a 4
    vigas 1 a 3 w 1.01 0.35
Análisis
```

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 5 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-1.959	-.375	-.079	-10.870	2.259	.406	.029	5.668
2.96	.547	.100	-.029	-1.163	.667	.149	.029	5.668
4.68	.325	.135	.021	8.543	-.926	-.108	.029	5.668

Envolventes de Momentos y Fuerzas Cortantes / Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	13.781	-17.856	10.864	-6.072	9.54	7.20	27.0
1.59	11.652	-14.203	10.464	-6.358	7.44	6.02	27.0
1.94	9.426	-10.688	10.064	-6.645	5.50	4.82	27.0
2.28	7.100	-7.331	9.664	-6.932	4.50	4.50	27.0
2.62	4.677	-4.202	9.263	-7.218	2.79	3.11	27.0
2.96	2.331	-1.172	8.863	-7.505	.77	1.53	27.0
3.31	2.027	-.464	8.463	-7.792	.30	1.33	27.0
3.65	4.844	-3.182	8.132	-8.078	2.10	3.22	27.0
3.99	7.526	-5.998	7.845	-8.365	4.01	4.50	27.0
4.33	10.082	-8.912	7.559	-8.652	4.55	5.17	27.0
4.68	12.509	-11.924	7.272	-9.046	6.17	6.50	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 3, nivel 5 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	.325	.135	.021	-8.543	.926	.108	-.029	5.668
1.91	.547	.100	-.029	1.163	-.667	-.149	-.029	5.668
3.63	-1.959	-.375	-.079	10.870	-2.259	-.406	-.029	5.668

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	12.509	-11.924	9.046	-7.272	6.17	6.50	27.0
.54	10.082	-8.912	8.652	-7.559	4.55	5.17	27.0
.89	7.526	-5.998	8.365	-7.845	4.01	4.50	27.0
1.23	4.844	-3.182	8.078	-8.132	2.10	3.22	27.0
1.57	2.027	-.464	7.792	-8.463	.30	1.33	27.0
1.91	2.331	-1.172	7.505	-8.863	.77	1.53	27.0
2.26	4.677	-4.202	7.218	-9.263	2.79	3.11	27.0
2.60	7.100	-7.331	6.932	-9.664	4.50	4.50	27.0
2.94	9.426	-10.688	6.645	-10.064	5.50	4.82	27.0
3.28	11.652	-14.203	6.358	-10.464	7.44	6.02	27.0
3.63	13.781	-17.856	6.072	-10.864	9.54	7.20	27.0

Viga 1, nivel 4 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
1.25	-1.442	.068	-.574	-12.100	1.867	-.109	.762	6.530
2.96	.274	-.119	.219	-.920	.137	-.109	.163	6.530
4.68	-.972	-.307	-.015	10.260	-1.593	-.109	-.436	6.530

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	16.006	-19.188	12.078	-7.658	10.33	8.47	27.0
1.59	13.330	-15.141	11.561	-7.969	7.97	6.95	27.0
1.94	10.548	-11.279	11.045	-8.281	5.82	5.42	27.0
2.28	7.659	-7.762	10.528	-8.592	4.50	4.50	27.0
2.62	4.777	-4.362	10.011	-8.903	2.90	3.18	27.0
2.96	1.855	-1.153	9.495	-9.215	.76	1.22	27.0
3.31	2.442	-1.768	9.150	-9.526	1.16	1.61	27.0
3.65	5.428	-5.084	8.839	-9.963	3.39	3.62	27.0
3.99	8.237	-8.524	8.527	-10.479	4.50	4.50	27.0
4.33	11.037	-12.089	8.216	-10.996	6.26	5.69	27.0
4.68	13.797	-15.797	7.905	-11.513	8.35	7.21	27.0

Viga 2, nivel 4 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-2.358	-.769	-.053	-4.901	2.828	.980	.000	1.750
3.00	1.601	.603	-.053	.000	.000	.000	.000	1.750
5.80	-2.358	-.769	-.053	4.901	-2.828	-.980	.000	1.750

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	4.886	-10.390	6.674	.000	5.34	3.25	27.0
.76	4.767	-6.889	5.829	-.466	4.50	3.17	27.0
1.32	4.441	-4.047	4.984	-.975	2.68	2.95	27.0
1.88	4.251	-1.933	4.140	-1.484	1.27	2.82	30.0
2.44	3.588	-.103	3.295	-1.993	.07	2.37	30.0
3.00	3.486	.000	2.502	-2.503	.00	2.31	30.0
3.56	3.588	-.103	1.993	-3.295	.07	2.37	30.0
4.12	4.251	-1.933	1.484	-4.140	1.27	2.82	30.0
4.68	4.441	-4.047	.975	-4.984	2.68	2.95	27.0
5.24	4.767	-6.889	.466	-5.829	4.50	3.17	27.0
5.80	4.886	-10.390	.000	-6.674	5.34	3.25	27.0

Viga 3, nivel 4 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-.972	-.307	-.015	-10.260	1.593	.109	.436	6.530
1.91	.274	-.119	.219	.920	-.137	.109	-.163	6.530
3.63	-1.442	.068	-.574	12.100	-1.867	.109	-.762	6.530

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	13.797	-15.797	11.513	-7.905	8.35	7.21	27.0
.54	11.037	-12.089	10.996	-8.216	6.26	5.69	27.0
.89	8.237	-8.524	10.479	-8.527	4.50	4.50	27.0
1.23	5.428	-5.084	9.963	-8.839	3.39	3.62	27.0
1.57	2.442	-1.768	9.526	-9.150	1.16	1.61	27.0
1.91	1.855	-1.153	9.215	-9.495	.76	1.22	27.0
2.26	4.777	-4.362	8.903	-10.011	2.90	3.18	27.0
2.60	7.659	-7.762	8.592	-10.528	4.50	4.50	27.0
2.94	10.548	-11.279	8.281	-11.045	5.82	5.42	27.0
3.28	13.330	-15.141	7.969	-11.561	7.97	6.95	27.0
3.63	16.006	-19.188	7.658	-12.078	10.33	8.47	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 3 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-1.458	-.618	.116	-12.520	1.901	.793	-.137	6.747
2.96	.317	.228	-.118	-.965	.172	.194	-.137	6.747
4.68	-.870	.047	-.352	10.590	-1.558	-.405	-.137	6.747

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	16.592	-19.849	12.458	-7.937	10.73	8.80	27.0
1.59	13.820	-15.671	11.941	-8.248	8.27	7.23	27.0
1.94	10.941	-11.669	11.424	-8.560	6.03	5.64	27.0
2.28	7.956	-8.023	10.908	-8.871	4.50	4.50	27.0
2.62	4.976	-4.505	10.391	-9.182	2.99	3.31	27.0
2.96	1.976	-1.169	9.874	-9.494	.77	1.30	27.0
3.31	2.567	-1.763	9.491	-9.805	1.16	1.69	27.0
3.65	5.684	-5.183	9.180	-10.226	3.46	3.80	27.0
3.99	8.624	-8.728	8.869	-10.742	4.50	4.50	27.0
4.33	11.483	-12.397	8.557	-11.259	6.43	5.93	27.0
4.68	14.361	-16.190	8.246	-11.776	8.57	7.53	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 3 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-2.411	-.064	-.771	-4.729	2.828	.000	.980	1.689
3.00	1.548	-.064	.601	.000	.000	.000	.000	1.689
5.80	-2.411	-.064	-.771	4.729	-2.828	.000	-.980	1.689

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	4.592	-10.222	6.588	.000	5.25	3.05	27.0
.76	4.522	-6.769	5.744	-.379	4.50	3.01	27.0
1.32	4.238	-3.947	4.899	-.888	2.62	2.81	27.0
1.88	4.096	-1.882	4.054	-1.397	1.24	2.72	30.0
2.44	3.482	-.102	3.209	-1.906	.07	2.30	30.0
3.00	3.403	.000	2.415	-2.415	.00	2.25	30.0
3.56	3.482	-.102	1.906	-3.209	.07	2.30	30.0
4.12	4.096	-1.882	1.397	-4.054	1.24	2.72	30.0
4.68	4.238	-3.947	.888	-4.899	2.62	2.81	27.0
5.24	4.522	-6.769	.379	-5.744	4.50	3.01	27.0
5.80	4.592	-10.222	.000	-6.588	5.25	3.05	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 3, nivel 3 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-.870	.047	-.352	-10.590	1.558	.405	.137	6.747
1.91	.317	.228	-.118	.965	-.172	-.194	.137	6.747
3.63	-1.458	-.618	.116	12.520	-1.901	-.793	.137	6.747

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	14.361	-16.190	11.776	-8.246	8.57	7.53	27.0
.54	11.483	-12.397	11.259	-8.557	6.43	5.93	27.0
.89	8.624	-8.728	10.742	-8.869	4.50	4.50	27.0
1.23	5.684	-5.183	10.226	-9.180	3.46	3.80	27.0
1.57	2.567	-1.763	9.805	-9.491	1.16	1.69	27.0
1.91	1.976	-1.169	9.494	-9.874	.77	1.30	27.0
2.26	4.976	-4.505	9.182	-10.391	2.99	3.31	27.0
2.60	7.956	-8.023	8.871	-10.908	4.50	4.50	27.0
2.94	10.941	-11.669	8.560	-11.424	6.03	5.64	27.0
3.28	13.820	-15.671	8.248	-11.941	8.27	7.23	27.0
3.63	16.592	-19.849	7.937	-12.458	10.73	8.80	27.0

Viga 1, nivel 2 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-1.307	.122	-.573	-11.810	1.820	-.140	.770	6.387
2.96	.329	-.118	.232	-.870	.090	-.140	.170	6.387
4.68	-.998	-.357	.010	10.070	-1.639	-.140	-.429	6.387

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	15.712	-18.640	11.838	-7.495	10.00	8.30	27.0
1.59	13.091	-14.673	11.321	-7.807	7.71	6.82	27.0
1.94	10.363	-10.898	10.805	-8.118	5.61	5.32	27.0
2.28	7.529	-7.475	10.288	-8.429	4.50	4.50	27.0
2.62	4.727	-4.158	9.771	-8.741	2.76	3.15	27.0
2.96	1.860	-1.023	9.255	-9.052	.67	1.22	27.0
3.31	2.506	-1.741	8.903	-9.389	1.14	1.65	27.0
3.65	5.411	-5.020	8.592	-9.841	3.34	3.61	27.0
3.99	8.139	-8.423	8.281	-10.358	4.50	4.50	27.0
4.33	10.825	-11.951	7.969	-10.874	6.19	5.57	27.0
4.68	13.502	-15.602	7.658	-11.391	8.23	7.05	27.0

Viga 2, nivel 2 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-2.426	-.772	-.069	-4.282	2.828	.980	.000	1.529
3.00	1.533	.600	-.069	.000	.000	.000	.000	1.529
5.80	-2.426	-.772	-.069	4.282	-2.828	-.980	.000	1.529

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	3.940	-9.619	6.364	.000	4.92	2.61	27.0
.76	3.998	-6.291	5.520	-.150	4.22	2.65	27.0
1.32	3.846	-3.577	4.675	-.659	2.37	2.55	27.0
1.88	3.830	-1.640	3.830	-1.168	1.08	2.54	30.0
2.44	3.340	.000	2.985	-1.677	.00	2.21	30.0
3.00	3.380	.000	2.186	-2.186	.00	2.24	30.0
3.56	3.340	.000	1.677	-2.985	.00	2.21	30.0
4.12	3.830	-1.640	1.168	-3.830	1.08	2.54	30.0
4.68	3.846	-3.577	.659	-4.675	2.37	2.55	27.0
5.24	3.998	-6.291	.150	-5.520	4.22	2.65	27.0
5.80	3.940	-9.619	.000	-6.364	4.92	2.61	27.0

Viga 3, nivel 2 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-.998	-.357	.010	-10.070	1.639	.140	.429	6.387
1.91	.329	-.118	.232	.870	-.090	.140	-.170	6.387
3.63	-1.307	.122	-.573	11.810	-1.820	.140	-.770	6.387

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	13.502	-15.602	11.391	-7.658	8.23	7.05	27.0
.54	10.825	-11.951	10.874	-7.969	6.19	5.57	27.0
.89	8.139	-8.423	10.358	-8.281	4.50	4.50	27.0
1.23	5.411	-5.020	9.841	-8.592	3.34	3.61	27.0
1.57	2.506	-1.741	9.389	-8.903	1.14	1.65	27.0
1.91	1.860	-1.023	9.052	-9.255	.67	1.22	27.0
2.26	4.727	-4.158	8.741	-9.771	2.76	3.15	27.0
2.60	7.529	-7.475	8.429	-10.288	4.50	4.50	27.0
2.94	10.363	-10.898	8.118	-10.805	5.61	5.32	27.0
3.28	13.091	-14.673	7.807	-11.321	7.71	6.82	27.0
3.63	15.712	-18.640	7.495	-11.838	10.00	8.30	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 1 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
1.25	-1.009	-.517	.168	-9.017	1.640	.732	-.164	4.837
2.96	.319	.224	-.113	-.734	-.090	.133	-.164	4.837
4.68	-1.316	-.062	-.395	7.549	-1.819	-.467	-.164	4.837

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	11.987	-14.345	9.431	-5.441	7.52	6.21	27.0
1.59	10.070	-11.203	8.914	-5.752	5.78	5.17	27.0
1.94	8.046	-8.266	8.397	-6.064	4.50	4.50	27.0
2.28	5.916	-5.659	7.881	-6.375	3.78	3.96	27.0
2.62	3.853	-3.157	7.364	-6.713	2.09	2.55	27.0
2.96	1.648	-.838	6.848	-7.077	.55	1.08	27.0
3.31	1.850	-1.269	6.525	-7.440	.83	1.22	27.0
3.65	3.930	-3.879	6.213	-7.940	2.57	2.60	27.0
3.99	5.832	-6.613	5.902	-8.457	4.44	3.90	27.0
4.33	7.749	-9.472	5.591	-8.973	4.85	4.50	27.0
4.68	9.611	-12.535	5.279	-9.490	6.51	4.92	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 1 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-2.415	-.060	-.777	-2.896	2.828	.000	.980	1.034
3.00	1.544	-.060	.595	.000	.000	.000	.000	1.034
5.80	-2.415	-.060	-.777	2.896	-2.828	.000	-.980	1.034

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	1.968	-7.662	6.006	.000	4.50	1.29	27.0
.76	2.422	-4.722	4.827	.000	3.14	1.59	27.0
1.32	2.686	-2.384	3.982	.000	1.57	1.77	30.0
1.88	3.058	-.837	3.137	-.461	.55	2.02	30.0
2.44	3.050	.000	2.292	-.970	.00	2.01	30.0
3.00	3.386	.000	1.479	-1.479	.00	2.24	30.0
3.56	3.050	.000	.970	-2.292	.00	2.01	30.0
4.12	3.058	-.837	.461	-3.137	.55	2.02	30.0
4.68	2.686	-2.384	.000	-3.982	1.57	1.77	30.0
5.24	2.422	-4.722	.000	-4.827	3.14	1.59	27.0
5.80	1.968	-7.662	.000	-6.006	4.50	1.29	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 3, nivel 1 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-1.316	-.062	-.395	-7.549	1.819	.467	.164	4.837
1.91	.319	.224	-.113	.734	.090	-.133	.164	4.837
3.63	-1.009	-.517	.168	9.017	-1.640	-.732	.164	4.837

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	9.611	-12.535	9.490	-5.279	6.51	4.92	27.0
.54	7.749	-9.472	8.973	-5.591	4.85	4.50	27.0
.89	5.832	-6.613	8.457	-5.902	4.44	3.90	27.0
1.23	3.930	-3.879	7.940	-6.213	2.57	2.60	27.0
1.57	1.850	-1.269	7.440	-6.525	.83	1.22	27.0
1.91	1.648	-.838	7.077	-6.848	.55	1.08	27.0
2.26	3.853	-3.157	6.713	-7.364	2.09	2.55	27.0
2.60	5.916	-5.659	6.375	-7.881	3.78	3.96	27.0
2.94	8.046	-8.266	6.064	-8.397	4.50	4.50	27.0
3.28	10.070	-11.203	5.752	-8.914	5.78	5.17	27.0
3.63	11.987	-14.345	5.441	-9.431	7.52	6.21	27.0

Columna 1, nivel 5 (.25 x 2.50)

	Mt	Mb	V	P
D	-4.783	-1.850	-1.895	8.672
L1	-.882	.103	-.223	.593
L2	-.115	-.760	-.250	.029
S	14.250	22.900	5.133	4.448

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	7.790	.000	7.790	14.076	-3.243	.011	.002
2	6.394	.000	6.394	13.060	-3.293	.010	.002
3	7.862	.000	7.862	14.128	-3.693	.011	.002
4	5.469	29.904	35.508	16.092	4.912	.012	.011
5	4.477	29.904	34.510	15.370	4.876	.012	.011
6	5.521	29.904	35.560	16.129	4.591	.012	.011
7	5.469	29.904	35.404	3.638	-9.461	.003	.011
8	4.477	29.904	34.405	2.916	-9.496	.002	.010
9	5.521	29.904	35.455	3.675	-9.781	.003	.011
10	3.793	30.545	34.456	14.165	5.635	.011	.011
11	3.793	30.545	34.350	1.444	-9.046	.001	.010

Columna 1, nivel 4 (.25 x 2.50)

	Mt	Mb	V	P
D	-1.925	-1.915	-1.097	17.051
L1	.101	-.804	-.201	.484
L2	-.767	.144	-.178	1.229
S	34.830	31.370	12.490	9.570

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.718	.000	3.718	26.447	-2.007	.020	.001
2	3.679	.000	3.679	27.789	-1.967	.021	.001
3	3.388	.000	3.388	28.660	-2.328	.022	.001
4	2.873	43.516	46.740	31.921	16.077	.024	.014
5	2.959	43.516	46.837	32.875	16.106	.025	.014
6	3.014	43.516	46.900	33.494	15.849	.026	.014
7	2.618	43.516	46.190	5.125	-18.895	.004	.014
8	2.589	43.516	46.172	6.079	-18.866	.005	.014
9	2.382	43.516	45.972	6.698	-19.123	.005	.014
10	2.613	44.449	47.386	29.031	16.873	.022	.014
11	1.437	44.449	45.904	1.661	-18.848	.001	.014

Columna 1, nivel 3 (.25 x 2.50)

	Mt	Mb	V	P
D	-1.919	-1.786	-1.059	25.465
L1	-.805	.149	-.188	1.715
L2	.144	-.767	-.178	1.092
S	32.400	60.200	17.340	14.810

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.750	.000	3.750	41.284	-1.925	.031	.001
2	3.615	.000	3.615	40.163	-1.909	.031	.001
3	3.892	.000	3.892	43.250	-2.246	.033	.001
4	4.470	76.997	82.422	49.667	22.924	.038	.025

5	4.398	76.997	82.335	48.870	22.936	.037	.025
6	4.596	76.997	82.576	51.065	22.696	.039	.025
7	2.640	76.997	79.793	8.199	-25.628	.006	.024
8	2.455	76.997	79.593	7.402	-25.616	.006	.024
9	2.388	76.997	79.568	9.597	-25.856	.007	.024
10	3.969	78.647	83.478	44.097	23.843	.034	.025
11	1.441	78.647	80.122	1.740	-25.749	.001	.024

Columna 1, nivel 2 (.25 x 2.50)

	Mt	Mb	V	P
D	-1.795	-1.571	-.962	33.797
L1	.148	-.748	-.172	1.575
L2	-.769	.205	-.161	2.300
S	47.120	107.500	23.460	19.690

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.818	.000	4.818	53.531	-1.752	.041	.001
2	4.935	.000	4.935	54.835	-1.733	.042	.002
3	5.190	.000	5.190	57.670	-2.042	.044	.002
4	5.856	150.500	159.323	65.069	31.614	.050	.049
5	5.940	150.500	159.449	65.996	31.628	.050	.049
6	6.121	150.500	159.725	68.012	31.408	.052	.049
7	2.608	150.500	153.553	9.937	-34.074	.008	.047
8	2.504	150.500	153.491	10.864	-34.060	.008	.047
9	2.346	150.500	153.424	12.880	-34.280	.010	.047
10	5.272	153.725	161.714	58.574	32.682	.045	.049
11	1.414	153.725	155.242	2.261	-34.414	.002	.047

Columna 1, nivel 1 (.25 x 2.50)

	Mt	Mb	V	P
D	-1.487	-.194	-.373	43.449
L1	-.684	-.089	-.172	2.745
L2	.169	.022	.043	2.135
S	96.440	225.800	31.820	23.220

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	6.310	.000	6.310	70.115	-.869	.053	.002
2	6.212	.000	6.212	69.018	-.484	.053	.002
3	6.656	.000	6.656	73.958	-.793	.056	.002
4	7.348	316.120	323.468	81.643	43.936	.062	.099
5	7.278	316.120	323.398	80.863	44.210	.062	.099
6	7.594	316.120	323.714	84.376	43.990	.064	.099
7	2.253	316.120	318.373	16.627	-45.160	.013	.097
8	1.426	316.120	317.546	15.847	-44.886	.012	.097
9	2.053	316.120	318.173	19.360	-45.106	.015	.097
10	6.508	322.894	329.402	72.309	45.166	.055	.100
11	1.237	322.894	324.131	5.900	-45.839	.004	.099

Columna 2, nivel 5 (.70 x .40)

	Mt	Mb	V	P
D	-.140	-.622	-.218	3.464
L1	-.113	-.342	-.130	.138
L2	-.027	.092	.019	-.029
S	7.437	6.701	4.039	4.448

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.380	.000	1.380	5.444	-.560	.009	.006
2	.680	.000	.680	5.143	-.293	.009	.003
3	1.225	.000	1.225	5.392	-.527	.009	.005
4	.972	8.715	9.765	10.041	5.260	.017	.042
5	.474	8.715	9.266	9.827	5.450	.017	.039
6	.862	8.715	9.655	10.004	5.284	.017	.041
7	.972	8.715	9.688	-2.414	-6.050	-.004	.041
8	.474	8.715	9.190	-2.627	-5.859	-.004	.039
9	.862	8.715	9.577	-2.451	-6.026	-.004	.041
10	.501	8.902	9.477	9.478	5.580	.016	.040
11	.501	8.902	9.403	-3.243	-5.972	-.006	.040

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 4 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-1.011	-.940	-.557	10.640
L1	-.295	-.017	-.089	1.297
L2	-.043	-.304	-.099	.477
S	6.805	6.838	3.894	8.070

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.748	.000	1.748	18.296	-.996	.031	.007
2	1.653	.000	1.653	16.820	-1.014	.029	.007
3	1.771	.000	1.771	19.155	-1.174	.033	.008
4	1.229	7.938	9.354	24.131	4.752	.041	.040
5	1.163	7.938	9.280	23.081	4.740	.039	.039
6	1.245	7.938	9.376	24.742	4.626	.042	.040
7	1.229	7.938	9.178	1.535	-6.151	.003	.039
8	1.163	7.938	9.104	.485	-6.164	.001	.039
9	1.245	7.938	9.199	2.146	-6.277	.004	.039
10	.759	8.108	9.031	21.117	5.067	.036	.038
11	.759	8.108	8.867	-1.964	-6.070	-.003	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 3 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-.855	-.836	-.483	17.783
L1	-.013	-.288	-.086	1.773
L2	-.284	-.001	-.081	1.664
S	6.791	6.960	3.928	11.880

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.509	.000	1.509	29.865	-.880	.051	.006
2	1.532	.000	1.532	29.669	-.871	.050	.007
3	1.510	.000	1.510	32.860	-1.026	.056	.006
4	1.061	8.094	9.452	37.573	4.882	.064	.040
5	1.078	8.094	9.466	37.433	4.888	.064	.040
6	1.072	8.094	9.480	39.703	4.777	.068	.040
7	1.061	8.094	9.188	4.309	-6.117	.007	.039
8	1.078	8.094	9.203	4.169	-6.111	.007	.039
9	1.062	8.094	9.204	6.439	-6.221	.011	.039
10	.891	8.268	9.418	32.993	5.182	.056	.040
11	.639	8.268	8.907	-.984	-6.052	-.002	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 2 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-.831	-.846	-.479	25.006
L1	-.294	-.025	-.091	2.963
L2	.007	-.267	-.074	2.163
S	5.999	6.704	3.629	15.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.511	.000	1.511	42.841	-.883	.073	.006
2	1.494	.000	1.494	41.402	-.852	.070	.006
3	1.490	.000	1.490	46.735	-1.017	.079	.006
4	1.396	7.861	9.643	51.692	4.461	.088	.041
5	1.368	7.861	9.609	50.669	4.482	.086	.041
6	1.470	7.861	9.741	54.461	4.366	.093	.041
7	1.063	7.861	8.984	8.404	-5.700	.014	.038
8	1.051	7.861	8.964	7.381	-5.679	.013	.038
9	1.048	7.861	8.988	11.173	-5.796	.019	.038
10	1.205	8.030	9.566	44.613	4.758	.076	.041
11	.632	8.030	8.664	.397	-5.621	.001	.037

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 1 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-.455	-.224	-.151	33.081
L1	.121	.059	.040	3.499
L2	-.279	-.137	-.092	3.377
S	2.624	3.824	1.433	18.140

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.510	.000	1.510	55.920	-.154	.095	.006
2	1.504	.000	1.504	55.701	-.392	.095	.006
3	1.674	.000	1.674	61.999	-.320	.105	.007
4	1.744	5.354	7.560	64.610	1.899	.110	.032
5	1.740	5.354	7.557	64.454	1.730	.110	.032
6	1.861	5.354	7.712	68.933	1.781	.117	.033
7	.373	5.354	5.819	13.818	-2.113	.024	.025
8	.751	5.354	6.196	13.662	-2.283	.023	.026
9	.612	5.354	6.087	18.141	-2.231	.031	.026
10	1.504	5.468	7.370	55.713	1.913	.095	.031
11	.369	5.468	5.863	3.833	-2.185	.007	.025

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 5 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.140	.622	.218	3.464
L1	.113	.342	.130	.138
L2	.027	-.092	-.019	-.029
S	7.437	6.701	4.039	4.448

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.380	.000	1.380	5.444	.560	.009	.006
2	.680	.000	.680	5.143	.293	.009	.003
3	1.225	.000	1.225	5.392	.527	.009	.005
4	.972	8.715	9.765	10.041	6.050	.017	.042
5	.474	8.715	9.265	9.827	5.859	.017	.039
6	.862	8.715	9.654	10.004	6.026	.017	.041
7	.972	8.715	9.688	-2.414	-5.260	-.004	.041
8	.474	8.715	9.190	-2.627	-5.450	-.004	.039
9	.862	8.715	9.577	-2.451	-5.284	-.004	.041
10	.501	8.902	9.477	9.478	5.972	.016	.040
11	.501	8.902	9.403	-3.243	-5.580	-.006	.040

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 4 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.011	.940	.557	10.640
L1	.295	.017	.089	1.297
L2	.043	.304	.099	.477
S	6.805	6.838	3.894	8.070

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.748	.000	1.748	18.296	.996	.031	.007
2	1.653	.000	1.653	16.820	1.014	.029	.007
3	1.771	.000	1.771	19.155	1.174	.033	.008
4	1.229	7.938	9.349	24.131	6.151	.041	.040
5	1.163	7.938	9.275	23.081	6.164	.039	.039
6	1.245	7.938	9.371	24.742	6.277	.042	.040
7	1.229	7.938	9.178	1.535	-4.752	.003	.039
8	1.163	7.938	9.104	.485	-4.740	.001	.039
9	1.245	7.938	9.200	2.146	-4.626	.004	.039
10	.759	8.108	9.028	21.117	6.070	.036	.038
11	.759	8.108	8.867	-1.964	-5.067	-.003	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 3 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.855	.836	.483	17.783
L1	.013	.288	.086	1.773
L2	.284	.001	.081	1.664
S	6.791	6.960	3.928	11.880

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.509	.000	1.509	29.865	.880	.051	.006
2	1.532	.000	1.532	29.669	.871	.050	.007
3	1.510	.000	1.510	32.860	1.026	.056	.006
4	1.061	8.094	9.445	37.573	6.117	.064	.040
5	1.078	8.094	9.461	37.433	6.111	.064	.040

6	1.072	8.094	9.473	39.703	6.221	.068	.040
7	1.061	8.094	9.188	4.309	-4.882	.007	.039
8	1.078	8.094	9.204	4.169	-4.888	.007	.039
9	1.062	8.094	9.205	6.439	-4.777	.011	.039
10	.891	8.268	9.415	32.993	6.052	.056	.040
11	.639	8.268	8.907	-.984	-5.182	-.002	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 2 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.831	.846	.479	25.006
L1	.294	.025	.091	2.963
L2	-.007	.267	.074	2.163
S	5.999	6.704	3.629	15.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.511	.000	1.511	42.841	.883	.073	.006
2	1.494	.000	1.494	41.402	.852	.070	.006
3	1.490	.000	1.490	46.735	1.017	.079	.006
4	1.396	7.861	9.636	51.692	5.700	.088	.041
5	1.368	7.861	9.600	50.669	5.679	.086	.041
6	1.470	7.861	9.731	54.461	5.796	.093	.041
7	1.063	7.861	8.985	8.404	-4.461	.014	.038
8	1.051	7.861	8.965	7.381	-4.482	.013	.038
9	1.048	7.861	8.990	11.173	-4.366	.019	.038
10	1.205	8.030	9.562	44.613	5.621	.076	.041
11	.632	8.030	8.664	.397	-4.758	.001	.037

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 1 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.455	.224	.151	33.081
L1	-.121	-.059	-.040	3.499
L2	.279	.137	.092	3.377
S	2.624	3.824	1.433	18.140

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.510	.000	1.510	55.920	.154	.095	.006
2	1.504	.000	1.504	55.701	.392	.095	.006
3	1.674	.000	1.674	61.999	.320	.105	.007
4	1.744	5.354	7.558	64.610	2.113	.110	.032
5	1.740	5.354	7.551	64.454	2.283	.110	.032
6	1.861	5.354	7.707	68.933	2.231	.117	.033
7	.373	5.354	5.819	13.818	-1.899	.024	.025
8	.751	5.354	6.197	13.662	-1.730	.023	.026
9	.612	5.354	6.088	18.141	-1.781	.031	.026
10	1.504	5.468	7.368	55.713	2.185	.095	.031
11	.369	5.468	5.863	3.833	-1.913	.007	.025

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 5 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	4.783	1.850	1.895	8.672
L1	.882	-.103	.223	.593
L2	.115	.760	.250	.029
S	14.250	22.900	5.133	4.448

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	7.790	.000	7.790	14.076	3.243	.011	.002
2	6.394	.000	6.394	13.060	3.293	.010	.002
3	7.862	.000	7.862	14.128	3.693	.011	.002
4	5.469	29.904	35.507	16.092	9.461	.012	.011
5	4.477	29.904	34.508	15.370	9.496	.012	.011
6	5.521	29.904	35.558	16.129	9.781	.012	.011
7	5.469	29.904	35.404	3.638	-4.912	.003	.011
8	4.477	29.904	34.405	2.916	-4.876	.002	.010
9	5.521	29.904	35.456	3.675	-4.591	.003	.011
10	3.793	30.545	34.455	14.165	9.046	.011	.011
11	3.793	30.545	34.350	1.444	-5.635	.001	.010

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 4 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.925	1.915	1.097	17.051
L1	-.101	.804	.201	.484
L2	.767	-.144	.178	1.229
S	34.830	31.370	12.490	9.570

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.718	.000	3.718	26.447	2.007	.020	.001
2	3.679	.000	3.679	27.789	1.967	.021	.001
3	3.388	.000	3.388	28.660	2.328	.022	.001
4	2.873	43.516	46.740	31.921	18.895	.024	.014
5	2.959	43.516	46.836	32.875	18.866	.025	.014
6	3.014	43.516	46.898	33.494	19.123	.026	.014
7	2.618	43.516	46.190	5.125	-16.077	.004	.014
8	2.589	43.516	46.172	6.079	-16.106	.005	.014
9	2.382	43.516	45.972	6.698	-15.849	.005	.014
10	2.613	44.449	47.385	29.031	18.848	.022	.014
11	1.437	44.449	45.904	1.661	-16.873	.001	.014

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 3 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.919	1.786	1.059	25.465
L1	.805	-.149	.188	1.715
L2	-.144	.767	.178	1.092
S	32.400	60.200	17.340	14.810

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.750	.000	3.750	41.284	1.925	.031	.001
2	3.615	.000	3.615	40.163	1.909	.031	.001
3	3.892	.000	3.892	43.250	2.246	.033	.001
4	4.470	76.997	82.422	49.667	25.628	.038	.025
5	4.398	76.997	82.334	48.870	25.616	.037	.025
6	4.596	76.997	82.574	51.065	25.856	.039	.025
7	2.640	76.997	79.794	8.199	-22.924	.006	.024
8	2.455	76.997	79.593	7.402	-22.936	.006	.024
9	2.388	76.997	79.568	9.597	-22.696	.007	.024
10	3.969	78.647	83.477	44.097	25.749	.034	.025
11	1.441	78.647	80.122	1.740	-23.843	.001	.024

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 2 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.795	1.571	.962	33.797
L1	-.148	.748	.172	1.575
L2	.769	-.205	.161	2.300
S	47.120	107.500	23.460	19.690

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.818	.000	4.818	53.531	1.752	.041	.001
2	4.935	.000	4.935	54.835	1.733	.042	.002
3	5.190	.000	5.190	57.670	2.042	.044	.002
4	5.856	140.647	148.772	65.069	34.074	.050	.045
5	5.940	140.647	148.889	65.996	34.060	.050	.045
6	6.121	140.647	149.141	68.012	34.280	.052	.045
7	2.239	140.647	143.228	9.937	-31.614	.008	.044
8	2.504	140.647	143.525	10.864	-31.628	.008	.044
9	2.249	140.647	143.340	12.880	-31.408	.010	.044
10	5.272	143.661	151.012	58.574	34.414	.045	.046
11	1.356	143.661	145.096	2.261	-32.682	.002	.044

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 1 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.487	.194	.373	43.449
L1	.684	.089	.172	2.745
L2	-.169	-.022	-.043	2.135
S	96.440	225.800	31.820	23.220

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	6.310	.000	6.310	70.115	.869	.053	.002
2	6.212	.000	6.212	69.018	.484	.053	.002
3	6.656	.000	6.656	73.958	.793	.056	.002
4	7.348	316.120	323.468	81.643	45.160	.062	.099
5	7.278	316.120	323.398	80.863	44.886	.062	.099
6	7.594	316.120	323.714	84.376	45.106	.064	.099
7	2.253	316.120	318.373	16.627	-43.936	.013	.097
8	1.426	316.120	317.546	15.847	-44.210	.012	.097
9	2.053	316.120	318.173	19.360	-43.990	.015	.097
10	6.508	322.894	329.402	72.309	45.839	.055	.100
11	1.237	322.894	324.131	5.900	-45.166	.004	.099

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Pórtico Eje B
5 pisos 4.50 3.50 3.50 3.50 3.50
3 vanos 6.0 6.0 6.0
niveles 1 a 5
  vigas 1 a 3 .30 .70
  columnas 1 4 0.7 0.4
  columnas 2 3 0.5 0.5
cargas
  nivel 5
    vigas 1 a 3 w 1.64 0.30
  niveles 1 a 4
    vigas 1 a 3 w 1.80 0.70
Análisis
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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 5 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-2.502	-.400	-.259	-26.150	4.285	.855	-.005	8.929
2.98	3.075	.817	-.274	-1.375	-.266	.022	-.005	8.929
5.75	-3.977	-.277	-.289	23.400	-4.817	-.810	-.005	8.929

Envolventes de Momentos y Fuerzas Cortantes / Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	35.143	-40.081	18.094	-8.912	18.71	16.12	30.0
.75	29.970	-30.648	16.925	-9.731	13.84	13.51	30.0
1.31	24.508	-22.103	15.756	-10.550	9.71	10.85	30.0
1.87	19.054	-14.014	14.588	-11.369	6.40	8.30	30.0
2.42	12.951	-6.379	13.419	-12.189	3.57	6.40	30.0
2.98	6.199	.000	12.529	-13.008	.00	3.46	30.0
3.53	8.823	-2.712	11.710	-13.927	1.50	4.96	30.0
4.09	14.647	-10.613	10.891	-15.096	6.00	6.40	30.0
4.64	19.823	-18.968	10.072	-16.265	8.26	8.65	30.0
5.19	24.975	-27.823	9.253	-17.434	12.45	11.08	30.0
5.75	29.882	-37.660	8.433	-18.602	17.43	13.46	30.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 5 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.25	-4.142	-.335	-.357	-23.450	4.510	.000	.825	8.526
3.00	2.059	-.335	.777	.000	.000	.000	.000	8.526
5.75	-4.142	-.335	-.357	23.450	-4.510	.000	-.825	8.526

Envolventes de Momentos y Fuerzas Cortantes / Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	29.806	-38.065	17.728	-8.133	17.64	13.42	30.0
.80	25.108	-28.697	16.570	-8.945	12.88	11.14	30.0
1.35	19.988	-20.308	15.411	-9.757	8.88	8.73	30.0
1.90	15.015	-12.453	14.253	-10.569	6.40	6.46	30.0
2.45	9.404	-5.092	13.095	-11.380	2.84	5.30	30.0
3.00	4.488	.000	12.192	-12.192	.00	2.50	30.0
3.55	9.404	-5.093	11.380	-13.095	2.84	5.30	30.0
4.10	15.015	-12.453	10.569	-14.253	6.40	6.46	30.0
4.65	19.988	-20.308	9.757	-15.411	8.88	8.73	30.0
5.20	25.108	-28.697	8.945	-16.570	12.88	11.14	30.0
5.75	29.806	-38.065	8.133	-17.728	17.64	13.42	30.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 3, nivel 5 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.25	-3.977	-.277	-.289	-23.400	4.817	.810	.005	8.929
3.03	3.075	.817	-.274	1.375	.266	-.022	.005	8.929
5.80	-2.502	-.400	-.259	26.150	-4.285	-.855	.005	8.929

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	29.882	-37.660	18.602	-8.433	17.43	13.46	30.0
.81	24.975	-27.823	17.434	-9.253	12.45	11.08	30.0
1.36	19.823	-18.968	16.265	-10.072	8.26	8.65	30.0
1.91	14.647	-10.613	15.096	-10.891	6.00	6.40	30.0
2.47	8.823	-2.712	13.927	-11.710	1.50	4.96	30.0
3.03	6.199	.000	13.008	-12.529	.00	3.46	30.0
3.58	12.951	-6.379	12.189	-13.419	3.57	6.40	30.0
4.14	19.054	-14.014	11.369	-14.588	6.40	8.30	30.0
4.69	24.508	-22.103	10.550	-15.756	9.71	10.85	30.0
5.24	29.970	-30.648	9.731	-16.925	13.84	13.51	30.0
5.80	35.143	-40.081	8.912	-18.094	18.71	16.12	30.0

Viga 1, nivel 4 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.20	-4.223	-.235	-1.250	-41.040	5.043	-.050	1.967	14.330
2.98	2.840	-.375	1.513	-1.280	.048	-.050	.024	14.330
5.75	-3.958	-.514	-1.115	38.480	-4.947	-.050	-1.918	14.330

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	54.887	-63.790	27.874	-15.953	28.98	25.29	14.1
.75	45.785	-48.847	26.328	-16.853	22.79	21.52	15.7
1.31	36.184	-35.705	24.782	-17.752	16.41	16.66	17.7
1.87	27.170	-23.062	23.236	-18.651	10.17	12.13	20.2
2.42	17.370	-10.919	21.689	-19.550	6.18	7.53	23.6
2.98	6.984	.000	20.535	-20.449	.00	3.91	27.0
3.53	13.876	-7.210	19.636	-21.592	4.04	6.40	23.9
4.09	23.766	-19.306	18.737	-23.138	8.41	10.50	20.4
4.64	32.799	-31.901	17.838	-24.684	14.47	14.92	17.8
5.19	42.315	-45.128	16.938	-26.230	21.25	19.92	15.8
5.75	51.465	-60.113	16.039	-27.776	27.46	23.87	14.2

Viga 2, nivel 4 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.25	-4.420	-1.230	-.522	-38.860	4.950	1.925	.000	14.130
3.00	2.386	1.417	-.522	.000	.000	.000	.000	14.130
5.75	-4.420	-1.230	-.522	38.860	-4.950	-1.925	.000	14.130

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	51.592	-61.288	27.443	-15.751	27.94	23.92	14.5
.80	42.683	-46.615	25.911	-16.642	21.86	20.13	16.2
1.35	33.284	-33.399	24.379	-17.533	15.23	15.17	18.3
1.90	24.395	-21.068	22.847	-18.424	9.23	10.80	21.0
2.45	14.779	-9.330	21.314	-19.315	5.26	6.40	24.6
3.00	6.130	.000	20.206	-20.206	.00	3.42	28.2
3.55	14.779	-9.330	19.315	-21.314	5.26	6.40	24.6
4.10	24.395	-21.068	18.424	-22.847	9.23	10.80	21.0
4.65	33.284	-33.399	17.533	-24.379	15.23	15.17	18.3
5.20	42.683	-46.615	16.642	-25.911	21.86	20.13	16.2
5.75	51.592	-61.288	15.751	-27.444	27.94	23.92	14.5

Viga 3, nivel 4 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.25	-3.958	-.514	-1.115	-38.480	4.947	.050	1.918	14.330
3.03	2.840	-.375	1.513	1.280	-.048	.050	-.024	14.330
5.80	-4.223	-.235	-1.250	41.040	-5.043	.050	-1.967	14.330

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	51.465	-60.113	27.776	-16.039	27.46	23.87	14.2
.81	42.315	-45.128	26.230	-16.938	21.25	19.92	15.8
1.36	32.799	-31.901	24.684	-17.838	14.47	14.92	17.8
1.91	23.766	-19.306	23.138	-18.737	8.41	10.50	20.4
2.47	13.876	-7.210	21.592	-19.636	4.04	6.40	23.9
3.03	6.984	.000	20.449	-20.535	.00	3.91	27.0
3.58	17.370	-10.919	19.550	-21.689	6.18	7.53	23.6
4.14	27.170	-23.062	18.651	-23.236	10.17	12.13	20.2
4.69	36.184	-35.705	17.752	-24.782	16.41	16.66	17.7
5.24	45.785	-48.847	16.853	-26.328	22.79	21.52	15.7
5.80	54.887	-63.790	15.953	-27.874	28.98	25.29	14.1

Viga 1, nivel 3 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-3.868	-1.218	-.246	-40.740	4.941	1.961	-.057	14.220
2.98	2.912	1.528	-.404	-1.280	-.054	.018	-.057	14.220
5.75	-4.169	-1.116	-.563	38.180	-5.049	-1.924	-.057	14.220

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	54.777	-62.971	27.606	-15.888	28.64	25.25	14.4
.75	45.710	-48.235	26.059	-16.787	22.53	21.49	16.0
1.31	36.147	-35.230	24.513	-17.686	16.16	16.64	18.1
1.87	27.225	-22.724	22.967	-18.585	10.01	12.16	20.7
2.42	17.444	-10.717	21.421	-19.484	6.06	7.56	24.3
2.98	7.119	.000	20.286	-20.383	.00	3.99	27.6
3.53	13.823	-7.111	19.387	-21.561	3.98	6.40	24.0
4.09	23.566	-19.172	18.488	-23.107	8.35	10.40	20.5
4.64	32.451	-31.732	17.589	-24.653	14.38	14.75	17.9
5.19	41.832	-45.008	16.689	-26.199	21.20	19.66	15.8
5.75	50.845	-59.978	15.790	-27.746	27.40	23.62	14.2

Viga 2, nivel 3 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.491	-.547	-1.205	-38.260	4.950	.000	1.925	13.910
3.00	2.315	-.547	1.441	.000	.000	.000	.000	13.910
5.75	-4.491	-.547	-1.205	38.260	-4.950	.000	-1.925	13.910

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	50.670	-60.522	27.135	-15.436	27.63	23.54	14.8
.80	41.933	-46.017	25.603	-16.327	21.61	19.71	16.6
1.35	32.706	-32.980	24.071	-17.218	15.01	14.87	18.8
1.90	24.016	-20.838	22.539	-18.109	9.12	10.62	21.6
2.45	14.568	-9.267	21.006	-19.000	5.22	6.40	25.5
3.00	6.068	.000	19.891	-19.891	.00	3.39	29.4
3.55	14.568	-9.267	19.000	-21.006	5.22	6.40	25.5
4.10	24.016	-20.838	18.109	-22.539	9.12	10.62	21.6
4.65	32.706	-32.980	17.218	-24.071	15.01	14.87	18.8
5.20	41.933	-46.017	16.327	-25.603	21.61	19.71	16.6
5.75	50.670	-60.522	15.436	-27.135	27.63	23.54	14.8

Viga 3, nivel 3 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.169	-1.116	-.563	-38.180	5.049	1.924	.057	14.220
3.03	2.912	1.528	-.404	1.280	.054	-.018	.057	14.220
5.80	-3.868	-1.218	-.246	40.740	-4.941	-1.961	.057	14.220

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	50.845	-59.978	27.746	-15.790	27.40	23.62	14.2
.81	41.832	-45.008	26.199	-16.689	21.20	19.66	15.8
1.36	32.451	-31.732	24.653	-17.589	14.38	14.75	17.9
1.91	23.566	-19.172	23.107	-18.488	8.35	10.40	20.5
2.47	13.823	-7.111	21.561	-19.387	3.98	6.40	24.0
3.03	7.119	.000	20.383	-20.286	.00	3.99	27.6
3.58	17.444	-10.717	19.484	-21.421	6.06	7.56	24.3
4.14	27.225	-22.724	18.585	-22.967	10.01	12.16	20.7
4.69	36.147	-35.230	17.686	-24.513	16.16	16.64	18.1
5.24	45.710	-48.235	16.787	-26.059	22.53	21.49	16.0
5.80	54.777	-62.971	15.888	-27.606	28.64	25.25	14.4

Viga 1, nivel 2 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-3.719	-.209	-1.198	-38.450	4.869	-.071	1.951	13.420
2.98	2.861	-.407	1.519	-1.205	-.126	-.071	.008	13.420
5.75	-4.421	-.605	-1.154	36.040	-5.121	-.071	-1.934	13.420

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	51.636	-59.537	26.397	-14.809	27.22	23.94	15.6
.75	43.166	-45.496	24.851	-15.708	21.40	20.39	17.6
1.31	34.263	-33.161	23.304	-16.607	15.11	15.67	20.1
1.87	25.912	-21.324	21.758	-17.506	9.35	11.52	23.5
2.42	16.703	-9.987	20.212	-18.405	5.64	7.22	28.2
2.98	7.025	.000	19.077	-19.304	.00	3.93	30.0
3.53	13.193	-6.674	18.178	-20.548	3.73	6.40	27.0
4.09	22.266	-18.131	17.279	-22.094	7.87	9.79	22.6
4.64	30.481	-30.109	16.380	-23.640	13.57	13.76	19.5
5.19	39.215	-42.940	15.480	-25.186	20.27	18.25	17.1
5.75	47.559	-57.349	14.581	-26.733	26.31	22.25	15.2

Viga 2, nivel 2 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.509	-1.214	-.547	-35.700	4.950	1.925	.000	12.980
3.00	2.297	1.433	-.547	.000	.000	.000	.000	12.980
5.75	-4.509	-1.214	-.547	35.700	-4.950	-1.925	.000	12.980

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	46.993	-56.969	25.833	-14.106	26.15	22.02	16.3
.80	38.988	-43.181	24.301	-14.997	20.40	18.13	18.4
1.35	30.493	-30.849	22.769	-15.888	13.94	13.77	21.1
1.90	22.552	-19.424	21.237	-16.779	8.47	9.93	24.9
2.45	13.820	-8.570	19.704	-17.670	4.82	6.40	30.0
3.00	6.024	.000	18.561	-18.561	.00	3.36	30.0
3.55	13.820	-8.570	17.670	-19.704	4.82	6.40	30.0
4.10	22.552	-19.424	16.779	-21.237	8.47	9.93	24.9
4.65	30.493	-30.849	15.888	-22.769	13.94	13.77	21.1
5.20	38.988	-43.181	14.997	-24.301	20.40	18.13	18.4
5.75	46.993	-56.969	14.106	-25.833	26.15	22.02	16.3

Viga 3, nivel 2 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.421	-.605	-1.154	-36.040	5.121	.071	1.934	13.420
3.03	2.861	-.407	1.519	1.205	.126	.071	-.008	13.420
5.80	-3.719	-.209	-1.198	38.450	-4.869	.071	-1.951	13.420

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	47.559	-57.349	26.733	-14.581	26.31	22.25	15.2
.81	39.215	-42.940	25.186	-15.480	20.27	18.25	17.1
1.36	30.481	-30.109	23.640	-16.380	13.57	13.76	19.5
1.91	22.266	-18.131	22.094	-17.279	7.87	9.79	22.6
2.47	13.193	-6.674	20.548	-18.178	3.73	6.40	27.0
3.03	7.025	.000	19.304	-19.077	.00	3.93	30.0
3.58	16.703	-9.987	18.405	-20.212	5.64	7.22	28.2
4.14	25.912	-21.324	17.506	-21.758	9.35	11.52	23.5
4.69	34.263	-33.161	16.607	-23.304	15.11	15.67	20.1
5.24	43.166	-45.496	15.708	-24.851	21.40	20.39	17.6
5.80	51.636	-59.537	14.809	-26.397	27.22	23.94	15.6

Viga 1, nivel 1 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.20	-2.934	-1.093	-.029	-28.430	4.642	1.908	-.109	9.882
2.98	3.018	1.505	-.332	-1.010	-.353	-.035	-.109	9.882
5.75	-4.891	-1.287	-.636	26.410	-5.348	-1.977	-.109	9.882

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.20	38.014	-44.319	21.151	-9.953	20.91	17.61	25.1
.75	32.242	-33.384	19.605	-10.852	15.22	14.64	30.0
1.31	26.371	-23.972	18.058	-11.751	10.60	11.75	30.0
1.87	20.609	-15.058	16.512	-12.650	6.48	9.02	30.0
2.42	13.988	-6.644	14.966	-13.550	3.72	6.40	30.0
2.98	7.236	.000	13.814	-14.449	.00	4.05	30.0
3.53	10.699	-4.107	12.915	-15.936	2.28	6.05	30.0
4.09	16.859	-12.929	12.016	-17.482	6.40	7.30	30.0
4.64	22.161	-22.345	11.117	-19.029	9.83	9.74	30.0
5.19	27.944	-32.724	10.217	-20.575	14.88	12.51	26.9
5.75	33.364	-44.572	9.318	-22.121	21.01	15.21	22.6

Viga 2, nivel 1 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.649	-.530	-1.282	-25.680	4.950	.000	1.925	9.339
3.00	2.157	-.530	1.364	.000	.000	.000	.000	9.339
5.75	-4.649	-.530	-1.282	25.680	-4.950	.000	-1.925	9.339

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	32.538	-43.153	20.736	-8.900	20.38	14.79	26.4
.80	27.399	-32.170	19.204	-9.791	14.60	12.24	30.0
1.35	21.790	-22.557	17.671	-10.682	9.93	9.57	30.0
1.90	16.706	-13.937	16.139	-11.573	6.40	7.23	30.0
2.45	10.780	-5.889	14.607	-12.464	3.29	6.10	30.0
3.00	5.691	.000	13.355	-13.355	.00	3.18	30.0
3.55	10.780	-5.889	12.464	-14.607	3.29	6.10	30.0
4.10	16.706	-13.937	11.573	-16.139	6.40	7.23	30.0
4.65	21.790	-22.557	10.682	-17.671	9.93	9.57	30.0
5.20	27.399	-32.170	9.791	-19.204	14.60	12.24	30.0
5.75	32.538	-43.153	8.900	-20.736	20.38	14.79	26.4

Viga 3, nivel 1 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-4.891	-1.287	-.636	-26.410	5.348	1.977	.109	9.882
3.03	3.018	1.505	-.332	1.010	.353	.035	.109	9.882
5.80	-2.934	-1.093	-.029	28.430	-4.642	-1.908	.109	9.882

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	33.364	-44.572	22.121	-9.318	21.01	15.21	22.6
.81	27.944	-32.724	20.575	-10.217	14.88	12.51	26.9
1.36	22.161	-22.345	19.029	-11.117	9.83	9.74	30.0
1.91	16.859	-12.929	17.482	-12.016	6.40	7.30	30.0
2.47	10.699	-4.107	15.936	-12.915	2.28	6.05	30.0
3.03	7.236	.000	14.449	-13.814	.00	4.05	30.0
3.58	13.988	-6.644	13.550	-14.966	3.72	6.40	30.0
4.14	20.609	-15.058	12.650	-16.512	6.48	9.02	30.0
4.69	26.371	-23.972	11.751	-18.058	10.60	11.75	30.0
5.24	32.242	-33.384	10.852	-19.605	15.22	14.64	30.0
5.80	38.014	-44.319	9.953	-21.151	20.91	17.61	25.1

Columna 1, nivel 5 (.70 x .40)

	Mt	Mb	V	P
D	-3.359	-2.838	-1.771	6.965
L1	-.571	-.052	-.178	.915
L2	-.258	-.855	-.318	-.005
S	23.490	18.910	12.110	7.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	5.024	.000	5.024	12.094	-2.976	.021	.021
2	4.665	.000	4.665	10.438	-3.228	.018	.020
3	5.289	.000	5.289	12.084	-3.548	.021	.022
4	3.527	26.952	30.898	18.928	14.867	.032	.131
5	3.280	26.952	30.624	17.751	14.688	.030	.130
6	3.715	26.952	31.087	18.921	14.460	.032	.132
7	3.527	26.952	30.479	-1.960	-19.041	-.003	.130
8	3.280	26.952	30.233	-3.137	-19.220	-.005	.129
9	3.715	26.952	30.667	-1.967	-19.448	-.003	.130
10	2.465	27.530	30.369	16.936	15.724	.029	.129
11	2.465	27.530	29.995	-4.399	-18.911	-.007	.128

Columna 1, nivel 4 (.70 x .40)

	Mt	Mb	V	P
D	-2.393	-2.444	-1.382	14.720
L1	-.173	-.821	-.284	.864
L2	-.788	-.121	-.260	2.101
S	18.160	18.350	10.400	19.430

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.239	.000	4.239	23.636	-2.584	.040	.018
2	4.120	.000	4.120	25.862	-2.541	.044	.018
3	4.293	.000	4.293	27.418	-3.052	.047	.018
4	2.981	20.594	24.482	43.764	12.745	.074	.104
5	2.898	20.594	24.432	45.348	12.776	.077	.104
6	3.020	20.594	24.583	46.454	12.413	.079	.105
7	2.981	20.594	23.575	-10.640	-16.375	-.018	.100
8	2.898	20.594	23.492	-9.056	-16.344	-.015	.100
9	3.020	20.594	23.614	-7.950	-16.707	-.014	.100
10	1.764	21.035	23.648	41.033	13.628	.070	.101
11	1.764	21.035	22.799	-14.537	-16.116	-.025	.097

Columna 1, nivel 3 (.70 x .40)

	Mt	Mb	V	P
D	-2.412	-2.329	-1.355	22.373
L1	-.789	-.107	-.256	2.965
L2	-.114	-.772	-.253	2.044
S	18.450	19.490	10.830	31.190

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.166	.000	4.166	38.896	-2.493	.066	.018
2	4.013	.000	4.013	37.239	-2.487	.063	.017
3	4.211	.000	4.211	42.576	-2.948	.072	.018
4	2.930	21.979	26.505	70.953	13.412	.121	.113

5	2.822	21.979	26.376	69.774	13.416	.119	.112
6	2.962	21.979	26.608	73.570	13.088	.125	.113
7	2.930	21.979	24.910	-16.379	-16.912	-.028	.106
8	2.822	21.979	24.802	-17.558	-16.908	-.030	.105
9	2.962	21.979	24.942	-13.762	-17.236	-.023	.106
10	1.748	22.450	25.651	64.737	14.268	.110	.109
11	1.744	22.450	24.195	-24.466	-16.706	-.042	.103

Columna 1, nivel 2 (.70 x .40)

	Mt	Mb	V	P
D	-2.364	-2.486	-1.386	29.953
Ll	-.088	-.748	-.239	2.894
L2	-.816	-.204	-.292	4.135
S	15.950	19.410	10.100	42.130

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	5.076	.000	5.076	50.139	-2.509	.085	.022
2	4.105	.000	4.105	52.373	-2.604	.089	.017
3	5.444	.000	5.444	57.582	-3.034	.098	.023
4	3.568	27.174	34.116	94.137	12.379	.160	.145
5	2.888	27.174	33.489	95.726	12.312	.163	.142
6	3.830	27.174	34.597	99.430	12.006	.169	.147
7	3.568	27.174	30.742	-23.827	-15.901	-.041	.131
8	2.888	27.174	30.062	-22.238	-15.968	-.038	.128
9	3.830	27.174	31.004	-18.534	-16.274	-.032	.132
10	2.355	27.756	33.202	87.204	13.196	.148	.141
11	2.237	27.756	29.993	-33.288	-15.690	-.057	.128

Columna 1, nivel 1 (.70 x .40)

	Mt	Mb	V	P
D	-1.377	-.676	-.456	37.980
Ll	-.726	-.357	-.241	4.941
L2	.197	.097	.065	4.026
S	6.510	14.140	4.584	49.800

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	2.981	.000	2.981	65.864	-1.118	.112	.013
2	1.734	.000	1.734	64.216	-.567	.109	.007
3	2.667	.000	2.667	73.110	-1.000	.124	.011
4	3.130	19.796	26.266	115.924	5.631	.197	.112
5	3.098	19.796	26.187	114.751	6.022	.195	.111
6	3.269	19.796	26.578	121.076	5.714	.206	.113
7	2.100	19.796	21.896	-23.516	-7.205	-.040	.093
8	1.055	19.796	20.851	-24.689	-6.813	-.042	.089
9	1.876	19.796	21.672	-18.364	-7.121	-.031	.092
10	2.846	20.220	26.079	105.396	6.145	.179	.111
11	1.095	20.220	21.316	-37.032	-6.966	-.063	.091

Columna 2, nivel 5 (.50 x .50)

	Mt	Mb	V	P
D	-.088	-.208	-.085	12.247
Ll	.145	-.685	-.154	.885
L2	-.273	.606	.095	.905
S	42.610	35.980	22.450	.351

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.402	.000	1.402	19.964	-.404	.038	.005
2	.764	.000	.764	20.000	.044	.038	.003
3	.648	.000	.648	21.593	-.233	.041	.002
4	.994	48.653	49.952	14.484	31.144	.028	.190
5	.546	48.653	49.504	14.509	31.463	.028	.189
6	.469	48.653	49.451	15.643	31.266	.030	.188
7	.994	48.653	49.931	13.501	-31.716	.026	.190
8	.546	48.653	49.483	13.527	-31.397	.026	.189
9	.440	48.653	49.401	14.660	-31.594	.028	.188
10	.346	49.696	50.288	11.524	32.027	.022	.192
11	.316	49.696	50.237	10.520	-32.180	.020	.191

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 4 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-.255	-.188	-.127	25.144
L1	-.500	.532	.009	3.036
L2	.466	-.566	-.028	2.999
S	34.710	34.980	19.880	.537

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.295	.000	1.312	43.180	-.173	.082	.005
2	1.293	.000	1.310	43.114	-.241	.082	.005
3	1.457	.000	1.457	48.578	-.224	.093	.006
4	.931	39.231	40.795	31.039	27.711	.059	.155
5	.930	39.231	40.793	30.991	27.663	.059	.155
6	1.046	39.231	40.982	34.877	27.675	.066	.156
7	.886	39.231	40.718	29.535	-27.953	.056	.155
8	.885	39.231	40.716	29.488	-28.001	.056	.155
9	1.001	39.231	40.906	33.373	-27.989	.064	.156
10	.702	40.071	41.253	23.398	28.315	.045	.157
11	.656	40.071	41.175	21.862	-28.542	.042	.157

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 3 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-.110	-.092	-.058	38.143
L1	.518	-.529	-.003	5.135
L2	-.544	.512	-.009	5.156
S	34.900	36.110	20.280	.793

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.994	.000	2.030	66.458	-.092	.127	.008
2	1.995	.000	2.031	66.495	-.103	.127	.008
3	2.272	.000	2.272	75.738	-.109	.144	.009
4	1.432	40.617	43.067	47.734	28.328	.091	.164
5	1.433	40.617	43.069	47.760	28.320	.091	.164
6	1.630	40.617	43.391	54.333	28.316	.103	.165
7	1.365	40.617	42.951	45.512	-28.456	.087	.164
8	1.366	40.617	42.953	45.539	-28.464	.087	.164
9	1.563	40.617	43.277	52.112	-28.468	.099	.165
10	1.064	41.487	43.306	35.463	28.949	.068	.165
11	.996	41.487	43.189	33.195	-29.052	.063	.165

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 2 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.046	.180	.065	51.215
L1	-.544	.487	-.016	7.306
L2	.579	-.404	.050	7.265
S	30.570	34.860	18.690	1.127

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	2.699	.000	2.771	89.973	.068	.171	.011
2	2.697	.000	2.769	89.899	.187	.171	.011
3	3.092	.000	3.092	103.050	.158	.196	.012
4	1.941	39.646	42.914	64.705	26.213	.123	.163
5	1.940	39.646	42.911	64.652	26.298	.123	.163
6	2.220	39.646	43.356	74.004	26.277	.141	.165
7	1.846	39.646	42.751	61.549	-26.119	.117	.163
8	1.845	39.646	42.748	61.497	-26.034	.117	.163
9	2.125	39.646	43.195	70.849	-26.055	.135	.165
10	1.431	40.495	42.894	47.705	26.785	.091	.163
11	1.334	40.495	42.730	44.482	-26.669	.085	.163

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 1 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.162	.079	.053	65.112
L1	.765	.372	.253	9.459
L2	-.697	-.339	-.230	9.474
S	13.060	21.580	7.694	1.519

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.441	.000	3.441	114.694	.535	.218	.013
2	3.442	.000	3.442	114.722	-.334	.219	.013
3	3.952	.000	3.952	131.748	.121	.251	.015
4	2.478	30.212	34.693	82.602	11.151	.157	.132
5	2.479	30.212	34.695	82.622	10.533	.157	.132
6	2.842	30.212	35.374	94.729	10.857	.180	.135
7	2.350	30.212	34.456	78.348	-10.392	.149	.131
8	2.351	30.212	34.457	78.369	-11.010	.149	.131
9	2.714	30.212	35.135	90.476	-10.687	.172	.134
10	1.823	30.859	34.161	60.773	11.050	.116	.130
11	1.693	30.859	33.920	56.429	-10.954	.107	.129

Columna 3, nivel 5 (.50 x .50)

	Mt	Mb	V	P
D	.088	.208	.085	12.247
L1	-.145	.685	.154	.885
L2	.273	-.606	-.095	.905
S	42.610	35.980	22.450	.351

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.402	.000	1.402	19.964	.404	.038	.005
2	.764	.000	.764	20.000	-.044	.038	.003
3	.648	.000	.648	21.593	.233	.041	.002
4	.994	48.653	49.952	14.484	31.716	.028	.190
5	.546	48.653	49.504	14.509	31.397	.028	.189
6	.469	48.653	49.451	15.643	31.594	.030	.188
7	.994	48.653	49.931	13.501	-31.144	.026	.190
8	.546	48.653	49.483	13.527	-31.463	.026	.189
9	.440	48.653	49.401	14.660	-31.266	.028	.188
10	.346	49.696	50.288	11.524	32.180	.022	.192
11	.316	49.696	50.237	10.520	-32.027	.020	.191

Columna 3, nivel 4 (.50 x .50)

	Mt	Mb	V	P
D	.255	.188	.127	25.144
L1	.500	-.532	-.009	3.036
L2	-.466	.566	.028	2.999
S	34.710	34.980	19.880	.537

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.295	.000	1.312	43.180	.173	.082	.005
2	1.293	.000	1.310	43.114	.241	.082	.005
3	1.457	.000	1.457	48.578	.224	.093	.006
4	.931	39.231	40.795	31.039	27.953	.059	.155
5	.930	39.231	40.793	30.991	28.001	.059	.155
6	1.046	39.231	40.982	34.877	27.989	.066	.156
7	.886	39.231	40.718	29.535	-27.711	.056	.155
8	.885	39.231	40.716	29.488	-27.663	.056	.155
9	1.001	39.231	40.906	33.373	-27.675	.064	.156
10	.702	40.071	41.253	23.398	28.542	.045	.157
11	.656	40.071	41.175	21.862	-28.315	.042	.157

Columna 3, nivel 3 (.50 x .50)

	Mt	Mb	V	P
D	.110	.092	.058	38.143
L1	-.518	.529	.003	5.135
L2	.544	-.512	.009	5.156
S	34.900	36.110	20.280	.793

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.994	.000	2.030	66.458	.092	.127	.008
2	1.995	.000	2.031	66.495	.103	.127	.008
3	2.272	.000	2.272	75.738	.109	.144	.009
4	1.432	40.617	43.067	47.734	28.456	.091	.164
5	1.433	40.617	43.069	47.760	28.464	.091	.164

6	1.630	40.617	43.391	54.333	28.468	.103	.165
7	1.365	40.617	42.952	45.512	-28.328	.087	.164
8	1.366	40.617	42.953	45.539	-28.320	.087	.164
9	1.563	40.617	43.277	52.112	-28.316	.099	.165
10	1.064	41.487	43.306	35.463	29.052	.068	.165
11	.996	41.487	43.189	33.195	-28.949	.063	.165

Columna 3, nivel 2 (.50 x .50)

	Mt	Mb	V	P
D	-.046	-.180	-.065	51.215
L1	.544	-.487	.016	7.306
L2	-.579	.404	-.050	7.265
S	30.570	34.860	18.690	1.127

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	2.699	.000	2.771	89.973	-.068	.171	.011
2	2.697	.000	2.769	89.899	-.187	.171	.011
3	3.092	.000	3.092	103.050	-.158	.196	.012
4	1.941	39.646	42.914	64.705	26.119	.123	.163
5	1.940	39.646	42.911	64.652	26.034	.123	.163
6	2.220	39.646	43.356	74.004	26.055	.141	.165
7	1.846	39.646	42.751	61.549	-26.213	.117	.163
8	1.845	39.646	42.748	61.497	-26.298	.117	.163
9	2.125	39.646	43.195	70.849	-26.277	.135	.165
10	1.431	40.495	42.894	47.705	26.669	.091	.163
11	1.334	40.495	42.730	44.482	-26.785	.085	.163

Columna 3, nivel 1 (.50 x .50)

	Mt	Mb	V	P
D	-.162	-.079	-.053	65.112
L1	-.765	-.372	-.253	9.459
L2	.697	.339	.230	9.474
S	13.060	21.580	7.694	1.519

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.441	.000	3.441	114.694	-.535	.218	.013
2	3.442	.000	3.442	114.722	.334	.219	.013
3	3.952	.000	3.952	131.748	-.121	.251	.015
4	2.478	30.212	34.694	82.602	10.392	.157	.132
5	2.479	30.212	34.695	82.622	11.010	.157	.132
6	2.842	30.212	35.374	94.729	10.687	.180	.135
7	2.350	30.212	34.456	78.348	-11.151	.149	.131
8	2.351	30.212	34.458	78.369	-10.533	.149	.131
9	2.714	30.212	35.135	90.476	-10.857	.172	.134
10	1.823	30.859	34.161	60.773	10.954	.116	.130
11	1.693	30.859	33.920	56.429	-11.050	.107	.129

Columna 4, nivel 5 (.70 x .40)

	Mt	Mb	V	P
D	3.359	2.838	1.771	6.965
L1	.571	.052	.178	.915
L2	.258	.855	.318	-.005
S	23.490	18.910	12.110	7.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	5.024	.000	5.024	12.094	2.976	.021	.021
2	4.665	.000	4.665	10.438	3.228	.018	.020
3	5.289	.000	5.289	12.084	3.548	.021	.022
4	3.527	26.952	30.888	18.928	19.041	.032	.131
5	3.280	26.952	30.616	17.751	19.220	.030	.130
6	3.715	26.952	31.075	18.921	19.448	.032	.132
7	3.527	26.952	30.479	-1.960	-14.867	-.003	.130
8	3.280	26.952	30.233	-3.137	-14.688	-.005	.129
9	3.715	26.952	30.667	-1.967	-14.460	-.003	.130
10	2.465	27.530	30.364	16.936	18.911	.029	.129
11	2.465	27.530	29.995	-4.399	-15.724	-.007	.128

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 4 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	2.393	2.444	1.382	14.720
L1	.173	.821	.284	.864
L2	.788	.121	.260	2.101
S	18.160	18.350	10.400	19.430

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.239	.000	4.239	23.636	2.584	.040	.018
2	4.120	.000	4.120	25.862	2.541	.044	.018
3	4.293	.000	4.293	27.418	3.052	.047	.018
4	2.981	20.594	24.461	43.764	16.375	.074	.104
5	2.898	20.594	24.411	45.348	16.344	.077	.104
6	3.020	20.594	24.556	46.454	16.707	.079	.104
7	2.981	20.594	23.575	-10.640	-12.745	-.018	.100
8	2.898	20.594	23.492	-9.056	-12.776	-.015	.100
9	3.020	20.594	23.614	-7.950	-12.413	-.014	.100
10	1.764	21.035	23.637	41.033	16.116	.070	.100
11	1.764	21.035	22.799	-14.537	-13.628	-.025	.097

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 3 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	2.412	2.329	1.355	22.373
L1	.789	.107	.256	2.965
L2	.114	.772	.253	2.044
S	18.450	19.490	10.830	31.190

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.166	.000	4.166	38.896	2.493	.066	.018
2	4.013	.000	4.013	37.239	2.487	.063	.017
3	4.211	.000	4.211	42.576	2.948	.072	.018
4	2.930	21.979	26.480	70.953	16.912	.121	.113
5	2.822	21.979	26.339	69.774	16.908	.119	.112
6	2.962	21.979	26.569	73.570	17.236	.125	.113
7	2.930	21.979	24.910	-16.379	-13.412	-.028	.106
8	2.822	21.979	24.802	-17.558	-13.416	-.030	.105
9	2.962	21.979	24.942	-13.762	-13.088	-.023	.106
10	1.748	22.450	25.634	64.737	16.706	.110	.109
11	1.744	22.450	24.195	-24.466	-14.268	-.042	.103

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 2 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	2.364	2.486	1.386	29.953
L1	.088	.748	.239	2.894
L2	.816	.204	.292	4.135
S	15.950	19.410	10.100	42.130

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.198	.000	4.198	50.139	2.509	.085	.018
2	4.105	.000	4.105	52.373	2.604	.089	.017
3	4.382	.000	4.382	57.582	3.034	.098	.019
4	2.952	22.225	27.245	94.137	15.901	.160	.116
5	2.888	22.225	27.224	95.726	15.968	.163	.116
6	3.083	22.225	27.503	99.430	16.274	.169	.117
7	2.952	22.225	25.177	-23.827	-12.379	-.041	.107
8	2.888	22.225	25.113	-22.238	-12.312	-.038	.107
9	3.083	22.225	25.308	-18.534	-12.006	-.032	.108
10	2.355	22.701	26.980	87.204	15.690	.148	.115
11	1.801	22.701	24.502	-33.288	-13.196	-.057	.104

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 4, nivel 1 (.70 x .40) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	1.377	.676	.456	37.980
L1	.726	.357	.241	4.941
L2	-.197	-.097	-.065	4.026
S	6.510	14.140	4.584	49.800

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	2.981	.000	2.981	65.864	1.118	.112	.013
2	1.734	.000	1.734	64.216	.567	.109	.007
3	2.667	.000	2.667	73.110	1.000	.124	.011
4	3.130	19.796	26.238	115.924	7.205	.197	.112
5	3.098	19.796	26.174	114.751	6.813	.195	.111
6	3.269	19.796	26.552	121.076	7.121	.206	.113
7	2.100	19.796	21.896	-23.516	-5.631	-.040	.093
8	1.055	19.796	20.851	-24.689	-6.022	-.042	.089
9	1.876	19.796	21.672	-18.364	-5.714	-.031	.092
10	2.846	20.220	26.068	105.396	6.966	.179	.111
11	1.095	20.220	21.316	-37.032	-6.145	-.063	.091

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Pórticos Ejes 1 y 4
5 pisos 4.50 3.50 3.50 3.50 3.50
2 vanos 5.875 5.875
niveles 1 a 5
  vigas 1 2 .25 .60
  columnas 1 3 .25 2.5 .46
  columna 2 0.40 0.70
cargas
  nivel 5
    vigas 1 2 w 2.14 0.47
  niveles 1 a 4
    vigas 1 2 w 2.39 1.09
Análisis
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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 5 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-4.889	-1.182	-.190	-9.452	5.359	1.266	.052	4.064
3.39	1.678	.450	-.079	-.766	.785	.261	.052	4.064
5.53	-1.532	-.065	.031	7.919	-3.789	-.743	.052	4.064

Envolventes de Momentos y Fuerzas Cortantes / Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	9.116	-20.122	13.003	-.988	10.89	4.65	27.0
1.68	8.518	-14.824	11.786	-1.811	7.79	4.50	27.0
2.11	7.568	-10.046	10.568	-2.635	5.15	4.50	27.0
2.53	6.266	-5.862	9.350	-3.458	3.92	4.20	27.0
2.96	5.087	-2.548	8.132	-4.281	1.68	3.39	27.0
3.39	3.411	.000	6.915	-5.105	.00	2.26	27.0
3.82	3.932	.000	5.697	-5.928	.00	2.61	27.0
4.24	6.078	-2.462	4.871	-6.966	1.62	4.07	27.0
4.67	7.704	-5.524	4.048	-8.184	3.69	4.50	27.0
5.10	8.821	-8.937	3.225	-9.402	4.56	4.50	27.0
5.53	9.945	-12.779	2.401	-10.620	6.65	5.10	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 5 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-1.532	.031	-.065	-7.919	3.789	-.052	.743	4.064
2.49	1.678	-.079	.450	.767	-.785	-.052	-.261	4.064
4.63	-4.889	-.190	-1.182	9.452	-5.359	-.052	-1.266	4.064

Envolventes de Momentos y Fuerzas Cortantes / Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	9.945	-12.779	10.620	-2.401	6.65	5.10	27.0
.78	8.821	-8.937	9.402	-3.225	4.56	4.50	27.0
1.21	7.704	-5.524	8.184	-4.048	3.69	4.50	27.0
1.63	6.078	-2.462	6.966	-4.871	1.62	4.07	27.0
2.06	3.932	.000	5.928	-5.697	.00	2.61	27.0
2.49	3.411	.000	5.105	-6.915	.00	2.26	27.0
2.92	5.087	-2.548	4.281	-8.132	1.68	3.39	27.0
3.34	6.266	-5.862	3.458	-9.350	3.92	4.20	27.0
3.77	7.568	-10.046	2.635	-10.568	5.15	4.50	27.0
4.20	8.518	-14.824	1.811	-11.786	7.79	4.50	27.0
4.63	9.116	-20.122	.988	-13.003	10.89	4.65	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 4 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores / Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-5.292	-.068	-2.238	-11.030	5.894	-.018	2.655	5.018
3.39	1.847	-.105	.947	-.305	.785	-.018	.325	5.018
5.53	-1.934	-.143	-.848	10.420	-4.323	-.018	-2.005	5.018

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	11.010	-23.949	16.612	-1.871	13.27	5.67	23.4
1.68	10.014	-17.214	14.943	-2.791	9.17	5.14	27.0
2.11	8.625	-11.193	13.274	-3.710	5.77	4.50	27.0
2.53	7.096	-6.299	11.604	-4.630	4.22	4.50	27.0
2.96	5.694	-2.340	9.935	-5.549	1.54	3.81	27.0
3.39	4.475	.000	8.266	-6.469	.00	2.97	27.0
3.82	5.901	-.863	6.963	-7.476	.56	3.95	27.0
4.24	8.364	-4.218	6.043	-9.146	2.80	4.50	27.0
4.67	10.113	-7.966	5.124	-10.815	4.50	5.19	27.0
5.10	11.559	-12.194	4.204	-12.484	6.32	5.97	27.0
5.53	13.160	-17.887	3.285	-14.153	9.56	6.86	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 4 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	V1	V2	Vs
.35	-1.934	-.848	-.143	-10.420	4.323	2.005	.018	5.018
2.49	1.847	.947	-.105	.305	-.785	-.325	.018	5.018
4.63	-5.292	-2.238	-.068	11.030	-5.894	-2.655	.018	5.018

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	13.160	-17.887	14.153	-3.285	9.56	6.86	27.0
.78	11.559	-12.194	12.484	-4.204	6.32	5.97	27.0
1.21	10.113	-7.966	10.815	-5.124	4.50	5.19	27.0
1.63	8.364	-4.218	9.146	-6.043	2.80	4.50	27.0
2.06	5.901	-.863	7.476	-6.963	.56	3.95	27.0
2.49	4.475	.000	6.469	-8.266	.00	2.97	27.0
2.92	5.694	-2.340	5.549	-9.935	1.54	3.81	27.0
3.34	7.096	-6.299	4.630	-11.604	4.22	4.50	27.0
3.77	8.625	-11.193	3.710	-13.274	5.77	4.50	27.0
4.20	10.014	-17.214	2.791	-14.943	9.17	5.14	27.0
4.63	11.010	-23.949	1.871	-16.612	13.27	5.67	23.4

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 3 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	V1	V2	Vs
1.25	-5.079	-2.167	-.068	-11.200	5.794	2.625	-.021	5.059
3.39	1.846	.954	-.112	-.385	.685	.295	-.021	5.059
5.53	-2.149	-.905	-.156	10.430	-4.423	-2.035	-.021	5.059

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	11.445	-23.874	16.526	-2.020	13.22	5.91	23.7
1.68	10.384	-17.177	14.857	-2.939	9.14	5.34	27.0
2.11	8.931	-11.193	13.188	-3.859	5.77	4.56	27.0
2.53	7.389	-6.389	11.519	-4.778	4.28	4.50	27.0
2.96	5.901	-2.443	9.849	-5.698	1.61	3.95	27.0
3.39	4.486	.000	8.180	-6.617	.00	2.98	27.0
3.82	5.761	-.814	6.932	-7.681	.53	3.85	27.0
4.24	8.188	-4.233	6.012	-9.350	2.81	4.50	27.0
4.67	9.901	-8.045	5.093	-11.019	4.50	5.08	27.0
5.10	11.393	-12.436	4.173	-12.689	6.46	5.88	27.0
5.53	12.981	-18.217	3.254	-14.358	9.75	6.76	27.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 3 (.25 x .60) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	V1	V2	Vs
.35	-2.149	-.156	-.905	-10.430	4.423	.021	2.035	5.059
2.49	1.846	-.112	.954	.385	-.685	.021	-.295	5.059
4.63	-5.079	-.068	-2.167	11.200	-5.794	.021	-2.625	5.059

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	12.981	-18.217	14.358	-3.254	9.75	6.76	27.0
.78	11.393	-12.436	12.689	-4.173	6.46	5.88	27.0
1.21	9.901	-8.045	11.019	-5.093	4.50	5.08	27.0
1.63	8.188	-4.233	9.350	-6.012	2.81	4.50	27.0
2.06	5.761	-.814	7.681	-6.932	.53	3.85	27.0
2.49	4.486	.000	6.617	-8.180	.00	2.98	27.0
2.92	5.901	-2.443	5.698	-9.849	1.61	3.95	27.0
3.34	7.389	-6.389	4.778	-11.519	4.28	4.50	27.0
3.77	8.931	-11.193	3.859	-13.188	5.77	4.56	27.0
4.20	10.384	-17.177	2.939	-14.857	9.14	5.34	27.0
4.63	11.445	-23.874	2.020	-16.526	13.22	5.91	23.7

Viga 1, nivel 2 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-4.746	.041	-2.150	-10.440	5.638	-.070	2.615	4.734
3.39	1.845	-.109	.950	-.323	.529	-.070	.285	4.734
5.53	-2.484	-.259	-.930	9.794	-4.580	-.070	-2.045	4.734

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	10.658	-22.350	15.894	-1.696	12.26	5.48	25.8
1.68	9.737	-15.913	14.225	-2.615	8.41	4.99	27.0
2.11	8.423	-10.214	12.556	-3.535	5.24	4.50	27.0
2.53	7.057	-5.782	10.887	-4.454	3.87	4.50	27.0
2.96	5.688	-2.095	9.217	-5.374	1.38	3.80	27.0
3.39	4.477	.000	7.548	-6.294	.00	2.98	27.0
3.82	5.571	-.764	6.326	-7.466	.50	3.72	27.0
4.24	7.726	-4.044	5.407	-9.135	2.68	4.50	27.0
4.67	9.169	-7.717	4.487	-10.804	4.50	4.68	27.0
5.10	10.442	-12.153	3.567	-12.474	6.30	5.37	27.0
5.53	11.769	-17.842	2.648	-14.143	9.53	6.09	27.0

Viga 2, nivel 2 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-2.484	-.930	-.259	-9.794	4.580	2.045	.070	4.734
2.49	1.845	.950	-.109	.323	-.529	-.285	.070	4.734
4.63	-4.746	-2.150	.041	10.440	-5.638	-2.615	.070	4.734

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	11.769	-17.842	14.143	-2.648	9.53	6.09	27.0
.78	10.442	-12.153	12.474	-3.567	6.30	5.37	27.0
1.21	9.169	-7.717	10.804	-4.487	4.50	4.68	27.0
1.63	7.726	-4.044	9.135	-5.407	2.68	4.50	27.0
2.06	5.571	-.764	7.466	-6.326	.50	3.72	27.0
2.49	4.477	.000	6.294	-7.548	.00	2.98	27.0
2.92	5.688	-2.095	5.374	-9.217	1.38	3.80	27.0
3.34	7.057	-5.782	4.454	-10.887	3.87	4.50	27.0
3.77	8.423	-10.214	3.535	-12.556	5.24	4.50	27.0
4.20	9.737	-15.913	2.615	-14.225	8.41	4.99	27.0
4.63	10.658	-22.350	1.696	-15.894	12.26	5.48	25.8

Viga 1, nivel 1 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
1.25	-4.282	-1.978	.056	-7.939	5.420	2.532	-.075	3.589
3.39	1.844	.944	-.103	-.268	.312	.202	-.075	3.589
5.53	-2.950	-1.113	-.263	7.404	-4.797	-2.127	-.075	3.589

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
1.25	7.499	-18.143	13.957	-.254	9.71	4.50	27.0
1.68	7.194	-12.533	12.288	-1.174	6.51	4.50	27.0
2.11	6.496	-7.647	10.619	-2.093	4.50	4.36	27.0
2.53	5.887	-4.137	8.949	-3.013	2.74	3.94	27.0
2.96	5.060	-1.233	7.280	-3.932	.81	3.37	27.0
3.39	4.466	.000	5.611	-4.852	.00	2.97	27.0
3.82	4.812	-.229	4.493	-6.203	.15	3.20	27.0
4.24	6.141	-2.892	3.574	-7.872	1.91	4.11	27.0
4.67	6.755	-6.033	2.654	-9.542	4.04	4.50	27.0
5.10	7.388	-10.075	1.735	-11.211	5.17	4.50	27.0
5.53	7.933	-15.224	.815	-12.880	8.02	4.50	27.0

Viga 2, nivel 1 (.25 x .60)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-2.950	-.263	-1.113	-7.404	4.797	.075	2.127	3.589
2.49	1.844	-.103	.944	.268	-.312	.075	-.202	3.589
4.63	-4.282	.056	-1.978	7.939	-5.420	.075	-2.532	3.589

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	7.933	-15.224	12.880	-.815	8.02	4.50	27.0
.78	7.388	-10.075	11.211	-1.735	5.17	4.50	27.0
1.21	6.755	-6.033	9.542	-2.654	4.04	4.50	27.0
1.63	6.141	-2.892	7.872	-3.574	1.91	4.11	27.0
2.06	4.812	-.229	6.203	-4.493	.15	3.20	27.0
2.49	4.466	.000	4.852	-5.611	.00	2.97	27.0
2.92	5.060	-1.233	3.932	-7.280	.81	3.37	27.0
3.34	5.887	-4.137	3.013	-8.949	2.74	3.94	27.0
3.77	6.496	-7.647	2.093	-10.619	4.50	4.36	27.0
4.20	7.194	-12.533	1.174	-12.288	6.51	4.50	27.0
4.63	7.499	-18.143	.254	-13.957	9.71	4.50	27.0

Columna 1, nivel 5 (.25 x 2.50)

	Mt	Mb	V	P
D	-11.588	-6.258	-5.099	13.284
L1	-2.765	.059	-.773	1.853
L2	-.254	-2.857	-.889	.052
S	12.000	24.210	5.169	3.332

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	19.647	.000	19.647	23.263	-9.040	.018	.006
2	15.066	.000	15.066	20.020	-9.248	.015	.005
3	19.625	.000	19.625	23.356	-10.640	.018	.006
4	13.804	31.723	45.751	20.986	.893	.016	.014
5	10.546	31.723	42.478	18.680	.745	.014	.013
6	13.788	31.723	45.745	21.052	-.244	.016	.014
7	13.804	31.723	45.642	11.656	-13.580	.009	.014
8	10.546	31.723	42.360	9.350	-13.728	.007	.013
9	13.788	31.723	45.625	11.722	-14.718	.009	.014
10	9.053	32.403	41.629	16.721	2.803	.013	.013
11	9.053	32.403	41.526	7.191	-11.981	.005	.013

Columna 1, nivel 4 (.25 x 2.50)

	Mt	Mb	V	P
D	-6.401	-6.154	-3.587	27.416
L1	-.105	-2.726	-.809	1.836
L2	-2.700	-.017	-.776	4.069
S	35.360	29.030	12.040	7.446

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	12.087	.000	12.087	44.428	-6.837	.034	.004
2	12.428	.000	12.428	48.448	-6.778	.037	.004
3	12.180	.000	12.180	51.753	-8.234	.039	.004
4	8.511	44.447	53.473	41.561	12.054	.032	.016
5	8.749	44.447	53.754	44.419	12.096	.034	.016
6	8.573	44.447	53.607	46.769	11.060	.036	.016
7	8.511	44.447	53.206	20.712	-21.658	.016	.016
8	8.749	44.447	53.477	23.571	-21.616	.018	.016

9	8.573	44.447	53.329	25.921	-22.652	.020	.016
10	4.793	45.400	50.629	35.322	13.989	.027	.015
11	4.793	45.400	50.361	14.027	-20.446	.011	.015

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 1, nivel 3 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-6.168	-5.890	-3.445	41.448
L1	-2.722	-.003	-.778	5.823
L2	-.026	-2.640	-.762	4.048
S	31.080	57.040	16.570	11.560

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	12.180	.000	12.180	72.653	-6.569	.055	.004
2	11.626	.000	11.626	69.458	-6.539	.053	.004
3	11.815	.000	11.815	79.940	-7.940	.061	.004
4	8.576	72.897	82.770	67.158	18.584	.051	.025
5	8.186	72.897	82.341	64.886	18.606	.049	.025
6	8.316	72.897	82.617	72.340	17.609	.055	.025
7	8.576	72.897	82.133	34.790	-27.812	.027	.025
8	8.186	72.897	81.698	32.518	-27.790	.025	.025
9	8.316	72.897	81.971	39.972	-28.787	.030	.025
10	4.845	74.459	80.349	53.834	20.595	.041	.024
11	4.621	74.459	79.477	20.772	-26.796	.016	.024

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 1, nivel 2 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-5.903	-5.689	-3.312	55.323
L1	.131	-2.694	-.732	5.753
L2	-2.778	.124	-.758	8.026
S	45.660	104.500	22.610	15.360

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	13.381	.000	13.381	93.340	-6.286	.071	.004
2	11.955	.000	11.955	97.431	-6.333	.074	.004
3	13.158	.000	13.158	107.787	-7.651	.082	.004
4	9.421	146.300	159.729	86.957	27.239	.066	.049
5	8.420	146.300	158.861	89.866	27.206	.068	.048
6	9.262	146.300	160.058	97.230	26.269	.074	.049
7	9.421	146.300	157.709	43.949	-36.069	.033	.048
8	8.420	146.300	156.843	46.858	-36.102	.036	.048
9	9.262	146.300	158.023	54.222	-37.039	.041	.048
10	6.458	149.435	159.228	71.755	29.352	.055	.049
11	5.120	149.435	155.828	27.826	-35.313	.021	.047

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 1, nivel 1 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	-5.369	-.699	-1.348	70.480
L1	-2.450	.364	-.464	9.648
L2	.026	-.680	-.145	7.951
S	94.920	219.300	30.480	18.110

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	11.606	.000	11.606	123.087	-2.857	.094	.004
2	10.803	.000	10.803	120.033	-2.285	.091	.003
3	12.366	.000	12.366	137.400	-3.119	.105	.004
4	10.054	307.020	317.074	111.708	40.663	.085	.097
5	9.858	307.020	316.878	109.536	41.070	.083	.097
6	10.970	307.020	317.990	121.886	40.477	.093	.097
7	8.171	307.020	315.191	61.000	-44.681	.046	.096
8	5.295	307.020	312.315	58.828	-44.274	.045	.095
9	8.082	307.020	315.102	71.178	-44.867	.054	.096
10	8.040	313.599	321.639	89.330	42.373	.068	.098
11	4.468	313.599	318.067	37.535	-44.800	.029	.097

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 5 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	11.428
L1	.374	-.780	-.116	.856
L2	-.374	.780	.116	.856
S	15.140	10.540	7.338	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.341	.000	1.341	18.683	-.209	.032	.003
2	1.341	.000	1.341	18.683	.209	.032	.003
3	.728	.000	.730	20.225	.000	.034	.002
4	.954	18.114	19.190	13.095	10.125	.022	.047
5	.954	18.114	19.190	13.095	10.422	.022	.047
6	.511	18.114	18.757	14.191	10.273	.024	.046
7	.954	18.114	19.190	13.095	-10.422	.022	.047
8	.954	18.114	19.190	13.095	-10.125	.022	.047
9	.511	18.114	18.757	14.191	-10.273	.024	.046
10	.370	18.502	18.970	10.285	10.493	.017	.046
11	.370	18.502	18.970	10.285	-10.493	.017	.046

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 4 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	24.100
L1	-.621	.736	.033	3.260
L2	.621	-.736	-.033	3.260
S	9.534	9.893	5.526	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	1.513	.000	1.520	42.018	.059	.071	.004
2	1.513	.000	1.520	42.018	-.059	.071	.004
3	1.724	.000	1.734	47.886	.000	.081	.004
4	1.061	11.529	12.827	29.478	7.778	.050	.031
5	1.061	11.529	12.827	29.478	7.695	.050	.031
6	1.211	11.529	13.013	33.651	7.736	.057	.032
7	1.061	11.529	12.827	29.478	-7.695	.050	.031
8	1.061	11.529	12.827	29.478	-7.778	.050	.031
9	1.211	11.529	13.013	33.651	-7.736	.057	.032
10	.781	11.776	12.732	21.690	7.902	.037	.031
11	.781	11.776	12.732	21.690	-7.902	.037	.031

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 3 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	36.971
L1	.718	-.660	.017	5.697
L2	-.718	.660	-.017	5.697
S	10.250	10.810	5.996	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	2.366	.000	2.384	65.711	.030	.112	.006
2	2.366	.000	2.384	65.711	-.030	.112	.006
3	2.735	.000	2.759	75.966	.000	.129	.007
4	1.660	12.616	14.689	46.112	8.416	.078	.036
5	1.660	12.616	14.689	46.112	8.373	.078	.036
6	1.923	12.616	15.009	53.404	8.394	.091	.036
7	1.660	12.616	14.689	46.112	-8.373	.078	.036
8	1.660	12.616	14.689	46.112	-8.416	.078	.036
9	1.923	12.616	15.009	53.404	-8.394	.091	.036
10	1.198	12.886	14.384	33.274	8.574	.057	.035
11	1.198	12.886	14.384	33.274	-8.574	.057	.035

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 2 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	50.155
L1	-.703	.612	-.026	8.193
L2	.703	-.612	.026	8.193
S	8.509	11.050	5.584	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.239	.000	3.273	89.981	-.047	.153	.008
2	3.239	.000	3.273	89.981	.047	.153	.008
3	3.770	.000	3.770	104.728	.000	.178	.009
4	2.273	13.125	15.976	63.150	7.784	.107	.039
5	2.273	13.125	15.976	63.150	7.851	.107	.039
6	2.651	13.125	16.435	73.637	7.818	.125	.040
7	2.273	13.125	15.976	63.150	-7.851	.107	.039
8	2.273	13.125	15.976	63.150	-7.784	.107	.039
9	2.651	13.125	16.435	73.637	-7.818	.125	.040
10	1.625	13.406	15.436	45.140	7.985	.077	.038
11	1.625	13.406	15.436	45.140	-7.985	.077	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 1 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	64.446
L1	.956	.475	.318	10.777
L2	-.956	-.475	-.318	10.777
S	3.365	9.036	2.751	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.178	.000	4.178	116.068	.572	.197	.010
2	4.178	.000	4.178	116.068	-.572	.197	.010
3	4.877	.000	5.043	135.466	.000	.230	.012
4	2.933	12.650	16.191	81.463	4.259	.139	.039
5	2.933	12.650	16.191	81.463	3.444	.139	.039
6	3.429	12.650	16.797	95.257	3.851	.162	.041
7	2.933	12.650	16.191	81.463	-3.444	.139	.039
8	2.933	12.650	16.191	81.463	-4.259	.139	.039
9	3.429	12.650	16.878	95.257	-3.851	.162	.041
10	2.088	12.921	15.476	58.002	3.934	.099	.038
11	2.088	12.921	15.476	58.002	-3.934	.099	.038

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 5 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	11.588	6.258	5.099	13.284
L1	.254	2.857	.889	.052
L2	2.765	-.059	.773	1.853
S	12.000	24.210	5.169	3.332

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	15.066	.000	15.066	20.020	9.248	.015	.005
2	19.647	.000	19.647	23.263	9.040	.018	.006
3	19.625	.000	19.625	23.356	10.640	.018	.006
4	10.546	31.723	42.451	18.680	13.728	.014	.013
5	13.804	31.723	45.735	20.986	13.580	.016	.014
6	13.788	31.723	45.716	21.052	14.718	.016	.014
7	10.546	31.723	42.373	9.350	-.745	.007	.013
8	13.804	31.723	45.651	11.656	-.893	.009	.014
9	13.788	31.723	45.641	11.722	.244	.009	.014
10	9.053	32.403	41.620	16.721	11.981	.013	.013
11	9.053	32.403	41.530	7.191	-2.803	.005	.013

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 4 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	6.401	6.154	3.587	27.416
L1	2.700	.017	.776	4.069
L2	.105	2.726	.809	1.836
S	35.360	29.030	12.040	7.446

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	12.428	.000	12.428	48.448	6.778	.037	.004
2	12.087	.000	12.087	44.428	6.837	.034	.004
3	12.180	.000	12.180	51.753	8.234	.039	.004
4	8.749	44.447	53.729	44.419	21.616	.034	.016
5	8.511	44.447	53.459	41.561	21.658	.032	.016
6	8.573	44.447	53.582	46.769	22.652	.036	.016
7	8.749	44.447	53.491	23.571	-12.096	.018	.016
8	8.511	44.447	53.213	20.712	-12.054	.016	.016
9	8.573	44.447	53.344	25.921	-11.060	.020	.016
10	4.793	45.400	50.620	35.322	20.446	.027	.015
11	4.793	45.400	50.365	14.027	-13.989	.011	.015

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 3 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	6.168	5.890	3.445	41.448
L1	.026	2.640	.762	4.048
L2	2.722	.003	.778	5.823
S	31.080	57.040	16.570	11.560

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	11.626	.000	11.626	69.458	6.539	.053	.004
2	12.180	.000	12.180	72.653	6.569	.055	.004
3	11.815	.000	11.815	79.940	7.940	.061	.004
4	8.186	72.897	82.321	64.886	27.790	.049	.025
5	8.576	72.897	82.758	67.158	27.812	.051	.025
6	8.316	72.897	82.596	72.340	28.787	.055	.025
7	8.186	72.897	81.708	32.518	-18.606	.025	.025
8	8.576	72.897	82.139	34.790	-18.584	.027	.025
9	8.316	72.897	81.982	39.972	-17.609	.030	.025
10	4.845	74.459	80.342	53.834	26.796	.041	.024
11	4.621	74.459	79.479	20.772	-20.595	.016	.024

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 2 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	5.903	5.689	3.312	55.323
L1	2.778	-.124	.758	8.026
L2	-.131	2.694	.732	5.753
S	45.660	104.500	22.610	15.360

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	11.955	.000	11.955	97.431	6.333	.074	.004
2	11.496	.000	11.496	93.340	6.286	.071	.004
3	11.324	.000	11.324	107.787	7.651	.082	.003
4	8.420	136.804	148.369	89.866	36.102	.068	.045
5	8.097	136.804	147.939	86.957	36.069	.066	.045
6	8.751	136.804	148.962	97.230	37.039	.074	.045
7	8.420	136.804	146.850	46.858	-27.206	.036	.045
8	8.097	136.804	146.426	43.949	-27.239	.033	.045
9	7.971	136.804	146.662	54.222	-26.269	.041	.045
10	6.458	139.735	148.732	71.755	35.313	.055	.045
11	4.418	139.735	145.129	27.826	-29.352	.021	.044

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 1 (.25 x 2.50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	5.369	.699	1.348	70.480
L1	-.026	.680	.145	7.951
L2	2.450	-.364	.464	9.648
S	94.920	219.300	30.480	18.110

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	10.803	.000	10.803	120.033	2.285	.091	.003
2	11.606	.000	11.606	123.087	2.857	.094	.004
3	12.366	.000	12.366	137.400	3.119	.105	.004
4	9.858	307.020	316.878	109.536	44.274	.083	.097
5	10.054	307.020	317.074	111.708	44.681	.085	.097
6	10.970	307.020	317.990	121.886	44.867	.093	.097
7	5.295	307.020	312.315	58.828	-41.070	.045	.095
8	8.171	307.020	315.191	61.000	-40.663	.046	.096
9	8.082	307.020	315.102	71.178	-40.477	.054	.096
10	8.040	313.599	321.639	89.330	44.800	.068	.098
11	4.468	313.599	318.067	37.535	-42.373	.029	.097

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Pórticos Ejes 2 y 3
5 pisos 4.50 3.50 3.50 3.50 3.50
2 vanos 6.775 6.775
niveles 1 a 5
  vigas 1 2 .30 .70
  columnas 1 3 .40 .70
  columna 2 .50 .50
cargas
  nivel 5
    vigas 1 2 w 3.92 0.90
  niveles 1 a 4
    vigas 1 2 w 4.40 2.10
Análisis
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ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 5 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-10.803	-2.631	-.610	-16.100	12.031	3.053	-.045	4.590
3.44	7.658	2.505	-.749	-1.930	-.072	.274	-.045	4.590
6.52	-11.249	-.937	-.888	12.240	-12.175	-2.504	-.045	4.590

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	13.300	-38.032	23.542	.000	17.62	6.40	19.7
.97	15.261	-24.891	19.713	.000	11.03	6.57	30.0
1.59	16.303	-14.338	16.460	-.093	6.40	7.04	30.0
2.20	17.528	-6.583	13.207	-2.272	3.68	7.60	30.0
2.82	16.743	-.553	9.954	-4.450	.30	7.24	30.0
3.44	15.997	.000	6.701	-6.629	.00	6.90	30.0
4.06	14.805	.000	4.320	-9.461	.00	6.40	30.0
4.67	12.804	-1.454	2.142	-12.714	.80	6.40	30.0
5.29	11.920	-9.428	.000	-15.967	5.31	6.40	30.0
5.91	9.420	-18.971	.000	-19.220	8.26	5.31	30.0
6.52	7.379	-31.283	.000	-22.852	14.16	4.14	21.0

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 2, nivel 5 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-11.249	-.888	-.937	-12.240	12.175	.045	2.504	4.590
3.34	7.658	-.749	2.505	1.930	.072	.045	-.274	4.590
6.42	-10.803	-.610	-2.631	16.100	-12.031	.045	-3.053	4.590

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	7.379	-31.283	22.852	.000	14.16	4.14	21.0
.87	9.420	-18.971	19.220	.000	8.26	5.31	30.0
1.49	11.920	-9.428	15.967	.000	5.31	6.40	30.0
2.10	12.804	-1.454	12.714	-2.142	.80	6.40	30.0
2.72	14.805	.000	9.461	-4.320	.00	6.40	30.0
3.34	15.997	.000	6.629	-6.701	.00	6.90	30.0
3.96	16.743	-.553	4.450	-9.954	.30	7.24	30.0
4.57	17.528	-6.583	2.272	-13.207	3.68	7.60	30.0
5.19	16.303	-14.338	.093	-16.460	6.40	7.04	30.0
5.81	15.261	-24.891	.000	-19.713	11.03	6.57	30.0
6.42	13.300	-38.032	.000	-23.542	17.62	6.40	19.7

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Viga 1, nivel 4 (.30 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-15.364	-.288	-6.524	-22.210	14.249	-.240	6.889	6.753
3.44	7.659	-1.029	4.737	-1.365	.664	-.240	.405	6.753
6.52	-11.262	-1.771	-4.021	19.480	-12.921	-.240	-6.078	6.753

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	17.932	-55.945	33.775	.000	25.73	7.78	10.2
.97	19.135	-37.008	28.721	.000	17.09	8.34	13.4
1.59	18.827	-21.346	24.209	-1.723	9.36	8.19	18.5
2.20	20.614	-10.865	19.696	-4.168	6.15	9.02	30.0
2.82	19.708	-2.145	15.183	-6.614	1.19	8.60	30.0
3.44	20.015	.000	10.671	-9.064	.00	8.74	30.0
4.06	19.102	.000	7.809	-13.058	.00	8.32	30.0
4.67	19.796	-6.079	5.364	-17.571	3.40	8.64	30.0
5.29	19.418	-16.079	2.919	-22.083	6.94	8.47	22.7
5.91	18.185	-28.695	.474	-26.596	12.88	7.90	15.4
6.52	17.721	-46.510	.000	-31.109	21.82	7.69	11.6

Viga 2, nivel 4 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-11.262	-4.021	-1.771	-19.480	12.921	6.078	.240	6.753
3.34	7.659	4.737	-1.029	1.365	-.664	-.405	.240	6.753
6.42	-15.364	-6.524	-.288	22.210	-14.249	-6.889	.240	6.753

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	17.721	-46.510	31.109	.000	21.82	7.69	11.6
.87	18.185	-28.695	26.596	-.474	12.88	7.90	15.4
1.49	19.418	-16.079	22.083	-2.919	6.94	8.47	22.7
2.10	19.796	-6.079	17.571	-5.364	3.40	8.64	30.0
2.72	19.102	.000	13.058	-7.809	.00	8.32	30.0
3.34	20.015	.000	9.064	-10.671	.00	8.74	30.0
3.96	19.708	-2.145	6.614	-15.183	1.19	8.60	30.0
4.57	20.614	-10.865	4.168	-19.696	6.15	9.02	30.0
5.19	18.827	-21.346	1.723	-24.209	9.36	8.19	18.5
5.81	19.135	-37.008	.000	-28.721	17.09	8.34	13.4
6.42	17.932	-55.945	.000	-33.775	25.73	7.78	10.2

Viga 1, nivel 3 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-14.278	-6.446	-.234	-22.450	13.939	6.878	-.275	6.782
3.44	7.786	4.779	-1.083	-1.510	.354	.394	-.275	6.782
6.52	-12.094	-4.014	-1.932	19.430	-13.231	-6.090	-.275	6.782

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	19.253	-54.973	33.288	.000	25.33	8.39	10.4
.97	20.256	-36.247	28.421	.000	16.69	8.85	13.6
1.59	19.834	-20.878	23.908	-2.044	9.14	8.66	19.0
2.20	21.478	-10.598	19.396	-4.489	5.99	9.42	30.0
2.82	20.335	-2.092	14.883	-6.935	1.16	8.89	30.0
3.44	20.281	.000	10.370	-9.475	.00	8.86	30.0
4.06	19.067	.000	7.571	-13.484	.00	8.30	30.0
4.67	19.413	-6.322	5.126	-17.997	3.53	8.46	30.0
5.29	18.850	-16.578	2.681	-22.509	7.17	8.20	21.7
5.91	17.510	-29.432	.235	-27.022	13.24	7.59	14.9
6.52	16.901	-47.512	.000	-31.535	22.23	7.31	11.4

Viga 2, nivel 3 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-12.094	-1.932	-4.014	-19.430	13.231	.275	6.090	6.782
3.34	7.786	-1.083	4.779	1.510	-.354	.275	-.394	6.782
6.42	-14.278	-.234	-6.446	22.450	-13.939	.275	-6.878	6.782

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	16.901	-47.512	31.535	.000	22.23	7.31	11.4
.87	17.510	-29.432	27.022	-.235	13.24	7.59	14.9
1.49	18.850	-16.578	22.509	-2.681	7.17	8.20	21.7
2.10	19.413	-6.322	17.997	-5.126	3.53	8.46	30.0
2.72	19.067	.000	13.484	-7.571	.00	8.30	30.0
3.34	20.281	.000	9.475	-10.370	.00	8.86	30.0
3.96	20.335	-2.092	6.935	-14.883	1.16	8.89	30.0
4.57	21.478	-10.598	4.489	-19.396	5.99	9.42	30.0
5.19	19.834	-20.878	2.044	-23.908	9.14	8.66	19.0
5.81	20.256	-36.247	.000	-28.421	16.69	8.85	13.6
6.42	19.253	-54.973	.000	-33.288	25.33	8.39	10.4

Viga 1, nivel 2 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-13.888	-.099	-6.393	-21.170	13.781	-.321	6.852	6.405
3.44	7.688	-1.089	4.755	-1.395	.196	-.321	.369	6.405
6.52	-12.679	-2.079	-4.116	18.380	-13.389	-.321	-6.115	6.405

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	17.773	-52.530	33.006	.000	24.31	7.71	10.6
.97	19.022	-34.289	27.695	.000	15.68	8.28	14.3
1.59	18.928	-19.433	23.183	-1.647	8.47	8.24	20.3
2.20	20.776	-9.625	18.670	-4.092	5.43	9.09	30.0
2.82	19.837	-1.595	14.157	-6.538	.88	8.66	30.0
3.44	20.091	.000	9.644	-9.172	.00	8.78	30.0
4.06	18.703	.000	6.890	-13.213	.00	8.14	30.0
4.67	18.543	-6.219	4.445	-17.725	3.47	8.06	30.0
5.29	17.532	-16.286	1.999	-22.238	7.04	7.60	22.3
5.91	15.902	-29.063	.000	-26.751	13.06	6.86	15.2
6.52	14.872	-46.975	.000	-31.668	22.01	6.40	11.3

Viga 2, nivel 2 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.25	-12.679	-4.116	-2.079	-18.380	13.389	6.115	.321	6.405
3.34	7.688	4.755	-1.089	1.395	-.196	-.369	.321	6.405
6.42	-13.888	-6.393	-.099	21.170	-13.781	-6.852	.321	6.405

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	14.872	-46.975	31.668	.000	22.01	6.40	11.3
.87	15.902	-29.063	26.751	.000	13.06	6.86	15.2
1.49	17.532	-16.286	22.238	-1.999	7.04	7.60	22.3
2.10	18.543	-6.219	17.725	-4.445	3.47	8.06	30.0
2.72	18.703	.000	13.213	-6.890	.00	8.14	30.0
3.34	20.091	.000	9.172	-9.644	.00	8.78	30.0
3.96	19.837	-1.595	6.538	-14.157	.88	8.66	30.0
4.57	20.776	-9.625	4.092	-18.670	5.43	9.09	30.0
5.19	18.928	-19.433	1.647	-23.183	8.47	8.24	20.3
5.81	19.022	-34.289	.000	-27.695	15.68	8.28	14.3
6.42	17.774	-52.530	.000	-33.006	24.31	7.71	10.6

Viga 1, nivel 1 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	M1	M2	Ms	Vd	V1	V2	Vs
.35	-11.962	-5.700	.058	-16.150	13.218	6.620	-.334	4.810
3.44	7.877	4.730	-.974	-1.300	-.367	.136	-.334	4.810
6.52	-14.226	-4.860	-2.005	13.550	-13.952	-6.348	-.334	4.810

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.35	12.328	-42.466	31.743	.000	20.01	6.40	11.3
.97	14.672	-26.089	25.334	.000	11.61	6.40	16.9
1.59	16.470	-13.694	20.061	.000	6.40	7.12	28.7
2.20	19.148	-5.876	15.549	-2.318	3.28	8.34	30.0
2.82	19.040	.000	11.036	-4.763	.00	8.29	30.0
3.44	20.329	.000	6.548	-7.547	.00	8.89	30.0
4.06	18.162	.000	4.103	-11.885	.00	7.89	30.0
4.67	14.988	-3.998	1.658	-16.398	2.22	6.45	30.0
5.29	12.049	-13.062	.000	-20.911	6.40	6.40	25.8
5.91	9.324	-25.603	.000	-26.545	11.38	5.25	15.4
6.52	6.573	-42.695	.000	-32.955	20.13	3.68	10.6

Viga 2, nivel 1 (.30 x .70)

Diagramas de Momentos Flectores — Diagramas de Fuerzas Cortantes

x	Md	Ml	M2	Ms	Vd	Vl	V2	Vs
.25	-14.226	-2.005	-4.860	-13.550	13.952	.334	6.348	4.810
3.34	7.877	-.974	4.730	1.300	.367	.334	-.136	4.810
6.42	-11.962	.058	-5.700	16.150	-13.218	.334	-6.620	4.810

Envolventes de Momentos y Fuerzas Cortantes — Refuerzo (ACI 318-83)

x	M máx	M min	V máx	V min	As sup	As inf	S e#3
.25	6.573	-42.695	32.955	.000	20.13	3.68	10.6
.87	9.324	-25.603	26.545	.000	11.38	5.25	15.4
1.49	12.049	-13.062	20.911	.000	6.40	6.40	25.8
2.10	14.988	-3.998	16.398	-1.658	2.22	6.45	30.0
2.72	18.162	.000	11.885	-4.103	.00	7.89	30.0
3.34	20.329	.000	7.547	-6.548	.00	8.89	30.0
3.96	19.040	.000	4.763	-11.036	.00	8.29	30.0
4.57	19.148	-5.876	2.318	-15.549	3.28	8.34	30.0
5.19	16.470	-13.694	.000	-20.061	6.40	7.12	28.7
5.81	14.672	-26.089	.000	-25.334	11.61	6.40	16.9
6.42	12.328	-42.466	.000	-31.743	20.01	6.40	11.3

Columna 1, nivel 5 (.40 x .70)

	Mt	Mb	V	P
D	-15.014	-11.429	-7.555	15.755
Ll	-3.700	.040	-1.046	3.368
L2	-.594	-4.544	-1.468	-.045
S	15.240	10.200	7.263	3.901

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	24.555	.000	24.555	29.695	-13.215	.051	.060
2	20.432	.000	20.432	23.551	-13.975	.040	.050
3	24.700	.000	24.700	29.614	-15.858	.050	.060
4	17.255	17.777	35.558	26.315	.897	.045	.086
5	14.383	17.777	32.596	21.946	.356	.037	.079
6	17.358	17.777	35.660	26.258	-.982	.045	.087
7	17.255	17.777	35.240	15.392	-19.440	.026	.086
8	14.383	17.777	32.313	11.024	-19.980	.019	.079
9	17.358	17.777	35.342	15.335	-21.319	.026	.086
10	11.133	18.158	29.691	19.758	3.586	.034	.072
11	11.133	18.158	29.409	8.601	-17.186	.015	.071

Columna 1, nivel 4 (.40 x .70)

	Mt	Mb	V	P
D	-8.922	-9.521	-5.269	33.896
Ll	-.243	-4.480	-1.349	3.128
L2	-4.391	-.098	-1.283	7.579
S	11.250	10.830	6.232	9.638

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	18.728	.000	18.728	56.474	-10.333	.096	.046
2	17.713	.000	17.713	64.487	-10.213	.110	.043
3	18.097	.000	18.097	70.117	-12.642	.119	.044
4	13.190	12.696	26.969	53.088	1.465	.090	.066
5	12.478	12.696	26.384	58.786	1.550	.100	.064
6	12.741	12.696	26.738	62.789	-.177	.107	.065
7	13.190	12.696	26.218	26.102	-15.985	.044	.064
8	12.478	12.696	25.581	31.799	-15.900	.054	.062
9	12.741	12.696	25.899	35.803	-17.627	.061	.063
10	6.909	12.968	20.787	44.289	4.169	.075	.051
11	6.909	12.968	20.099	16.724	-13.654	.028	.049

Columna 1, nivel 3 (.40 x .70)

	Mt	Mb	V	P
D	-9.636	-9.175	-5.375	51.727
Ll	-4.374	.010	-1.247	10.740
L2	-.039	-4.281	-1.234	7.304
S	11.410	12.940	6.787	15.350

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	18.719	.000	18.719	96.923	-10.306	.165	.045
2	17.869	.000	17.869	90.738	-10.284	.154	.043
3	18.012	.000	18.012	110.071	-12.528	.187	.044
4	13.182	14.790	30.232	89.551	2.263	.152	.073
5	12.585	14.790	29.508	85.153	2.279	.145	.072
6	12.679	14.790	30.005	98.901	.683	.168	.073
7	13.182	14.790	28.675	46.571	-16.741	.079	.070
8	12.585	14.790	28.000	42.173	-16.725	.072	.068
9	12.679	14.790	28.313	55.921	-18.321	.095	.069
10	6.979	15.107	23.619	68.505	4.868	.117	.057
11	6.979	15.107	22.459	24.604	-14.543	.042	.055

Columna 1, nivel 2 (.40 x .70)

	Mt	Mb	V	P
D	-9.537	-10.428	-5.704	69.400
Ll	.003	-4.550	-1.299	10.420
L2	-4.510	-.379	-1.397	14.892
S	8.494	14.150	6.419	20.660

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	23.832	.000	23.832	122.855	-10.895	.209	.058
2	18.548	.000	18.548	130.905	-11.071	.223	.045
3	24.515	.000	24.515	149.660	-13.409	.255	.060
4	16.774	19.810	41.781	115.131	1.334	.196	.102
5	13.064	19.810	38.402	120.855	1.209	.206	.093
6	17.259	19.810	43.402	134.192	-.454	.228	.105
7	16.774	19.810	38.010	57.283	-16.639	.097	.092
8	13.064	19.810	34.522	63.007	-16.764	.107	.084
9	17.259	19.810	39.010	76.344	-18.427	.130	.095
10	9.385	20.234	33.328	92.004	4.045	.156	.081
11	9.385	20.234	30.443	32.916	-14.313	.056	.074

Columna 1, nivel 1 (.40 x .70)

	Mt	Mb	V	P
D	-6.161	-2.916	-2.017	87.182
Ll	-3.466	-.989	-.990	17.775
L2	.554	-.390	.036	14.557
S	2.259	17.370	4.253	24.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	13.798	.000	13.798	162.768	-4.808	.277	.034
2	7.209	.000	7.209	156.977	-2.960	.267	.018
3	12.825	.000	12.825	188.971	-4.742	.321	.031
4	9.721	24.318	37.101	148.537	2.569	.253	.090
5	5.199	24.318	32.456	144.419	3.883	.246	.079
6	9.029	24.318	36.871	167.170	2.616	.284	.090

7	9.721	24.318	35.488	80.049	-9.339	.136	.086
8	5.035	24.318	30.730	75.931	-8.025	.129	.075
9	9.029	24.318	35.152	98.682	-9.293	.168	.085
10	4.909	24.839	31.939	113.442	4.266	.193	.078
11	4.909	24.839	30.517	43.486	-7.897	.074	.074

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 5 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	28.410
L1	.665	-2.143	-.422	2.774
L2	-.665	2.143	.422	2.774
S	22.390	18.340	11.640	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.591	.000	3.591	47.609	-.760	.091	.014
2	3.591	.000	3.591	47.609	.760	.091	.014
3	1.578	.000	1.578	52.603	.000	.100	.006
4	2.553	25.642	28.591	33.382	15.755	.064	.109
5	2.553	25.642	28.591	33.382	16.837	.064	.109
6	1.108	25.642	27.189	36.933	16.296	.070	.104
7	2.553	25.642	28.591	33.382	-16.837	.064	.109
8	2.553	25.642	28.591	33.382	-15.755	.064	.109
9	1.108	25.642	27.189	36.933	-16.296	.070	.104
10	.767	26.192	27.267	25.569	16.645	.049	.104
11	.767	26.192	27.267	25.569	-16.645	.049	.104

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 4 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	58.552
L1	-1.567	1.800	.067	9.618
L2	1.567	-1.800	-.067	9.618
S	17.540	17.790	10.080	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	3.198	.000	3.262	105.140	.120	.200	.012
2	3.198	.000	3.262	105.140	-.120	.200	.012
3	3.674	.000	3.783	122.452	.000	.233	.014
4	2.274	19.967	23.086	73.790	14.197	.141	.088
5	2.274	19.967	23.086	73.790	14.027	.141	.088
6	2.583	19.967	23.524	86.101	14.112	.164	.090
7	2.274	19.967	23.086	73.790	-14.027	.141	.088
8	2.274	19.967	23.086	73.790	-14.197	.141	.088
9	2.583	19.967	23.524	86.101	-14.112	.164	.090
10	1.581	20.395	22.573	52.696	14.414	.100	.086
11	1.581	20.395	22.573	52.696	-14.414	.100	.086

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 3 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	89.314
L1	1.736	-1.692	.013	16.508
L2	-1.736	1.692	-.013	16.508
S	17.980	18.500	10.420	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	4.911	.000	5.109	163.685	.023	.312	.019
2	4.911	.000	5.109	163.685	-.023	.312	.019
3	5.802	.000	5.802	193.399	.000	.368	.022
4	3.447	20.794	25.715	114.910	14.604	.219	.098
5	3.447	20.794	25.715	114.910	14.572	.219	.098
6	4.081	20.794	26.525	136.040	14.588	.259	.101
7	3.447	20.794	25.715	114.910	-14.572	.219	.098
8	3.447	20.794	25.715	114.910	-14.604	.219	.098
9	4.081	20.794	26.525	136.040	-14.588	.259	.101
10	2.411	21.240	24.616	80.383	14.901	.153	.094
11	2.411	21.240	24.616	80.383	-14.901	.153	.094

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 2 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	120.392
L1	-1.794	1.451	-.098	23.469
L2	1.794	-1.451	.098	23.469
S	15.860	18.160	9.719	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	6.685	.000	7.057	222.832	-.176	.424	.027
2	6.685	.000	7.057	222.832	.176	.424	.027
3	7.952	.000	7.952	265.076	.000	.505	.030
4	4.694	20.662	27.373	156.452	13.481	.298	.104
5	4.694	20.662	27.373	156.452	13.732	.298	.104
6	5.595	20.662	28.743	186.492	13.607	.355	.109
7	4.694	20.662	27.373	156.452	-13.732	.298	.104
8	4.694	20.662	27.373	156.452	-13.481	.298	.104
9	5.595	20.662	28.743	186.492	-13.607	.355	.109
10	3.251	21.104	25.706	108.353	13.898	.206	.098
11	3.251	21.104	25.706	108.353	-13.898	.206	.098

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 2, nivel 1 (.50 x .50) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	.000	.000	.000	153.196
L1	2.906	1.713	1.026	30.675
L2	-2.906	-1.713	-1.026	30.675
S	6.923	10.970	3.976	.000

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	8.550	.000	8.550	285.009	1.848	.543	.033
2	8.550	.000	8.550	285.009	-1.848	.543	.033
3	10.207	.000	10.207	340.225	.000	.648	.039
4	6.004	15.358	24.182	200.120	6.880	.381	.092
5	6.004	15.358	24.182	200.120	4.253	.381	.092
6	7.182	15.358	26.040	239.384	5.566	.456	.099
7	6.004	15.358	24.182	200.120	-4.253	.381	.092
8	6.004	15.358	24.182	200.120	-6.880	.381	.092
9	7.182	15.358	26.040	239.384	-5.566	.456	.099
10	4.136	15.687	21.701	137.876	5.686	.263	.083
11	4.136	15.687	21.701	137.876	-5.686	.263	.083

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 5 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	15.014	11.429	7.555	15.755
L1	.594	4.544	1.468	-.045
L2	3.700	-.040	1.046	3.368
S	15.240	10.200	7.263	3.901

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	20.432	.000	20.432	23.551	13.975	.040	.050
2	24.555	.000	24.555	29.695	13.215	.051	.060
3	24.700	.000	24.700	29.614	15.858	.050	.060
4	14.383	17.777	32.468	21.946	19.980	.037	.079
5	17.255	17.777	35.390	26.315	19.440	.045	.086
6	17.358	17.777	35.491	26.258	21.319	.045	.086
7	14.383	17.777	32.376	11.024	-.356	.019	.079
8	17.255	17.777	35.336	15.392	-.897	.026	.086
9	17.358	17.777	35.438	15.335	.982	.026	.086
10	11.133	18.158	29.565	19.758	17.186	.034	.072
11	11.133	18.158	29.463	8.601	-3.586	.015	.072

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 4 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	8.922	9.521	5.269	33.896
L1	4.391	.098	1.283	7.579
L2	.243	4.480	1.349	3.128
S	11.250	10.830	6.232	9.638

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	17.713	.000	17.713	64.487	10.213	.110	.043
2	18.728	.000	18.728	56.474	10.333	.096	.046
3	18.097	.000	18.097	70.117	12.642	.119	.044
4	12.478	12.696	25.948	58.786	15.900	.100	.063
5	13.190	12.696	26.580	53.088	15.985	.090	.065
6	12.741	12.696	26.270	62.789	17.627	.107	.064
7	12.478	12.696	25.801	31.799	-1.550	.054	.063
8	13.190	12.696	26.396	26.102	-1.465	.044	.064
9	12.741	12.696	26.148	35.803	.177	.061	.064
10	6.909	12.968	20.481	44.289	13.654	.075	.050
11	6.909	12.968	20.206	16.724	-4.169	.028	.049

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 3 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	9.636	9.175	5.375	51.727
L1	.039	4.281	1.234	7.304
L2	4.374	-.010	1.247	10.740
S	11.410	12.940	6.787	15.350

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	17.869	.000	17.869	90.738	10.284	.154	.043
2	18.719	.000	18.719	96.923	10.306	.165	.045
3	18.012	.000	18.012	110.071	12.528	.187	.044
4	12.585	14.790	28.692	85.153	16.725	.145	.070
5	13.182	14.790	29.384	89.551	16.741	.152	.071
6	12.679	14.790	29.029	98.901	18.321	.168	.071
7	12.585	14.790	28.360	42.173	-2.279	.072	.069
8	13.182	14.790	29.067	46.571	-2.263	.079	.071
9	12.679	14.790	28.804	55.921	-.683	.095	.070
10	6.979	15.107	23.172	68.505	14.543	.117	.056
11	6.979	15.107	22.603	24.604	-4.868	.042	.055

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 2 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	9.537	10.428	5.704	69.400
L1	4.510	.379	1.397	14.892
L2	-.003	4.550	1.299	10.420
S	8.494	14.150	6.419	20.660

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	18.548	.000	18.548	130.905	11.071	.223	.045
2	20.019	.000	20.019	122.855	10.895	.209	.049
3	19.821	.000	19.821	149.660	13.409	.255	.048
4	13.064	16.665	31.921	120.855	16.764	.206	.078
5	14.095	16.665	32.730	115.131	16.639	.196	.080
6	13.955	16.665	32.965	134.192	18.427	.228	.080
7	13.064	16.665	31.374	63.007	-1.209	.107	.076
8	14.095	16.665	32.243	57.283	-1.334	.097	.078
9	13.955	16.665	32.656	76.344	.454	.130	.079
10	7.588	17.022	26.209	92.004	14.313	.156	.064
11	7.588	17.022	25.363	32.916	-4.045	.056	.062

ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ Columna 3, nivel 1 (.40 x .70) ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

	Mt	Mb	V	P
D	6.161	2.916	2.017	87.182
L1	-.554	.390	-.036	14.557
L2	3.466	.989	.990	17.775
S	2.259	17.370	4.253	24.460

i	M2b	M2s	Mu	Pu	Vu	ku	ku*e/t
1	7.209	.000	7.209	156.977	2.960	.267	.018
2	13.798	.000	13.798	162.768	4.808	.277	.034
3	12.825	.000	12.825	188.971	4.742	.321	.031
4	5.199	24.318	32.275	144.419	8.025	.246	.078
5	9.721	24.318	36.871	148.537	9.339	.253	.090
6	9.029	24.318	36.571	167.170	9.293	.284	.089
7	5.035	24.318	30.815	75.931	-3.883	.129	.075
8	9.721	24.318	35.599	80.049	-2.569	.136	.086
9	9.029	24.318	35.311	98.682	-2.616	.168	.086
10	4.909	24.839	31.857	113.442	7.897	.193	.077
11	4.909	24.839	30.545	43.486	-4.266	.074	.074

Fin

ANEXO Nº 7

APLICACIÓN HOJAS DE CALCULO DEL DR. SCALETTI
ANÁLISIS PARA LOSAS ALIGERADAS

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 01

PF versión 3 - HSF 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	6.00	6.00	6.00							
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	a1	a1	a1							
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	0.25	0.30	0.30	0.25							

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

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 01

PF versión 3 - HSF 1999

Combinaciones de Carga	
NTE E-060	1.5 D + 1.8 L
	1.25 (D + S + L)
	0.9 D + 1.25 S

TRAMO 1 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.075	0.366	0.571	0.692	0.727	0.677	0.541	0.321	0.015	-0.376	-0.852
S											
L mín	-0.004	-0.023	-0.042	-0.061	-0.081	-0.100	-0.119	-0.138	-0.157	-0.216	-0.459
L máx	0.040	0.197	0.308	0.372	0.391	0.373	0.337	0.267	0.163	0.064	0.071
M_U mín									-0.259	-0.952	-2.103
M_U máx	0.185	0.903	1.411	1.708	1.795	1.686	1.419	0.963	0.316		

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.582	0.434	0.285	0.136	-0.013	-0.162	-0.311	-0.460	-0.608	-0.757	-0.906
S											
L mín	-0.033	-0.033	-0.033	-0.033	-0.033	-0.087	-0.167	-0.247	-0.328	-0.408	-0.488
L máx	0.314	0.233	0.153	0.088	0.028	0.012	0.012	0.012	0.012	0.012	0.012
V_U mín					-0.079	-0.400	-0.767	-1.135	-1.502	-1.870	-2.237
V_U máx	1.438	1.071	0.703	0.383	0.031						

TRAMO 2 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	-0.876	-0.496	-0.201	0.010	0.137	0.179	0.137	0.010	-0.201	-0.496	-0.876
S											
L mín	-0.472	-0.267	-0.200	-0.200	-0.200	-0.200	-0.200	-0.200	-0.200	-0.267	-0.472
L máx	0.064	0.031	0.119	0.204	0.255	0.272	0.255	0.204	0.119	0.031	0.064
M_U mín	-2.164	-1.226	-0.661	-0.344	-0.154	-0.091	-0.154	-0.344	-0.661	-1.226	-2.164
M_U máx				0.383	0.666	0.760	0.666	0.383			

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	0.741	0.593	0.445	0.296	0.148	0.000	-0.148	-0.296	-0.445	-0.593	-0.741
S											
L mín	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	-0.118	-0.177	-0.239	-0.319	-0.399
L máx	0.399	0.319	0.239	0.177	0.118	0.058	0.058	0.058	0.058	0.058	0.058
V_U mín						-0.104	-0.434	-0.784	-1.098	-1.464	-1.830
V_U máx	1.830	1.464	1.098	0.764	0.434	0.104					

TRAMO 3 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
D	-0.852	-0.376	0.015	0.321	0.541	0.677	0.727	0.692	0.571	0.366	0.075
S											
L mín	-0.459	-0.216	-0.157	-0.138	-0.119	-0.100	-0.081	-0.061	-0.042	-0.023	-0.004
L máx	0.071	0.064	0.163	0.267	0.337	0.373	0.391	0.372	0.308	0.197	0.040
M_U mín	-2.103	-0.952	-0.259								
M_U máx			0.316	0.963	1.419	1.686	1.795	1.708	1.411	0.903	0.185

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
D	0.906	0.757	0.608	0.460	0.311	0.162	0.013	-0.136	-0.285	-0.434	-0.582
S											
L mín	-0.012	-0.012	-0.012	-0.012	-0.012	-0.012	-0.028	-0.088	-0.153	-0.233	-0.314
L máx	0.488	0.408	0.328	0.247	0.167	0.087	0.033	0.033	0.033	0.033	0.033
V_U mín							-0.031	-0.383	-0.703	-1.071	-1.436
V_U máx	2.237	1.870	1.502	1.135	0.767	0.400	0.079				

Análisis de Vigas y Pórticos Simples

PF versión 3 - HSF 1999

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 01

TRAMO 1 (0.10 x 0.25)

Refuerzo de Flexión

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
M_U mín									-0.259	-0.952	-2.103
M_U máx	0.185	0.903	1.411	1.708	1.795	1.686	1.419	0.963	0.318		
A_s sup									0.42	1.22	2.90
A_s inf	0.30	1.10	1.74	2.11	2.22	2.09	1.75	1.18	0.51		0.65
p											

Refuerzo de Corte

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
V_U mín					-0.079	-0.400	-0.767	-1.135	-1.502	-1.870	-2.237
V_U máx	1.438	1.071	0.703	0.363	0.031						
s [] #3	11.0								11.0	11.0	11.0

TRAMO 2 (0.10 x 0.25)

Refuerzo de Flexión

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
M_U mín	-2.164	-1.226	-0.661	-0.344	-0.154	-0.091	-0.154	-0.344	-0.661	-1.226	-2.164
M_U máx				0.383	0.666	0.760	0.666	0.383			
A_s sup	2.99	1.61	0.83	0.56	0.25	0.15	0.25	0.56	0.83	1.61	2.99
A_s inf	0.75			0.62	0.81	0.92	0.81	0.62			0.75
p											

Refuerzo de Corte

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
V_U mín						-0.104	-0.434	-0.764	-1.098	-1.464	-1.830
V_U máx	1.830	1.464	1.098	0.764	0.434	0.104					
s [] #3	11.0	11.0								11.0	11.0

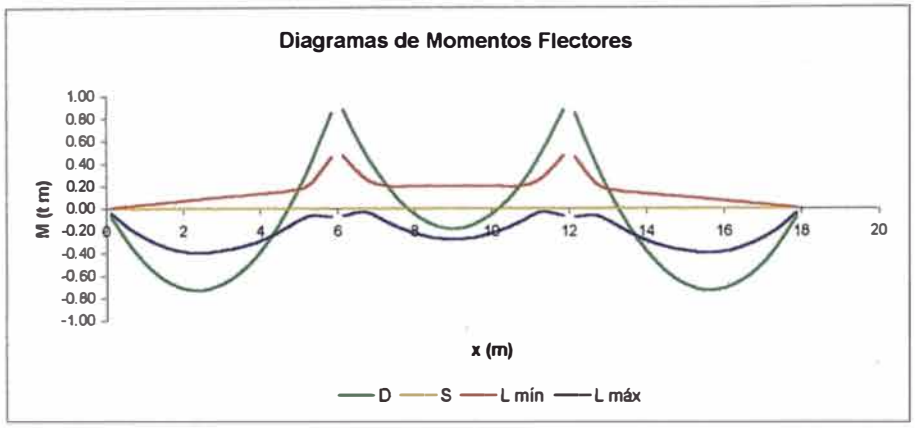
TRAMO 3 (0.10 x 0.25)

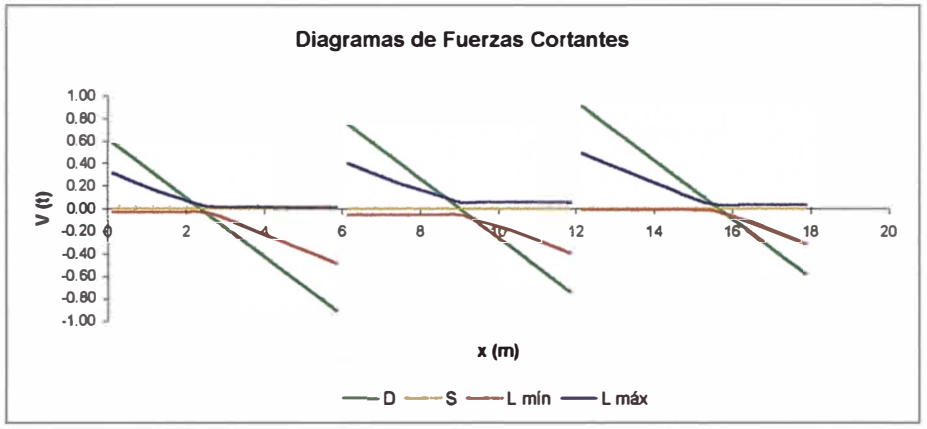
Refuerzo de Flexión

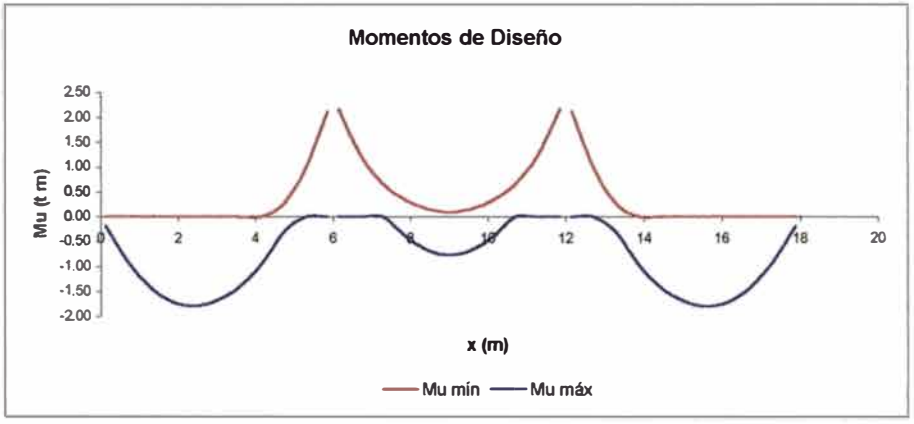
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
M_U mín	-2.103	-0.952	-0.259								
M_U máx			0.316	0.963	1.419	1.686	1.795	1.708	1.411	0.903	0.185
A_s sup	2.90	1.22	0.42								
A_s inf	0.65		0.51	1.18	1.75	2.09	2.22	2.11	1.74	1.10	0.30
p											

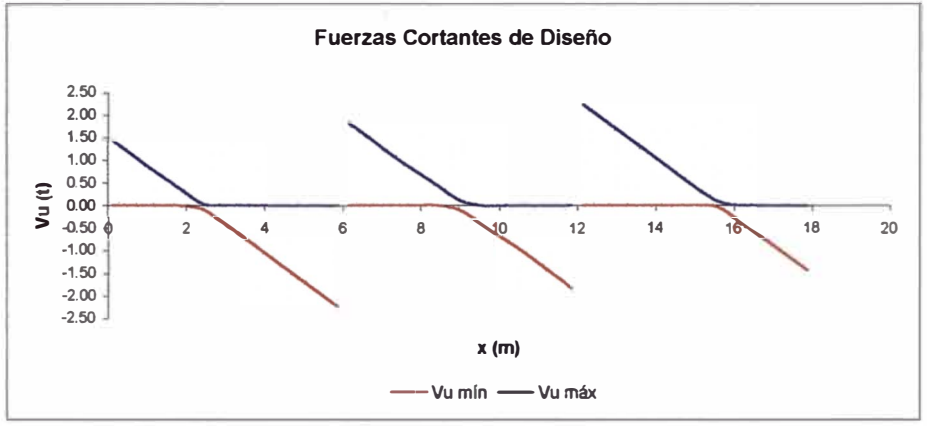
Refuerzo de Corte

x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
V_U mín							-0.031	-0.363	-0.703	-1.071	-1.438
V_U máx	2.237	1.870	1.502	1.135	0.767	0.400	0.079				
s [] #3	11.0	11.0	11.0								11.0


Diagramas de Momentos Flectores
M (t m)
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
0
2
4
6
8
10
12
14
16
18
20
x (m)
D
S
L mín
L máx


Diagramas de Fuerzas Cortantes
V (t)
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
0
2
6
8
10
12
14
16
18
20
x (m)
D
S
L mín
L máx


Momentos de Diseño
Mu (t m)
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
0
2
4
6
8
10
12
14
16
18
20
x (m)
Mu mín
Mu máx


Fuerzas Cortantes de Diseño
Vu (t)
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
0
2
4
6
8
10
12
14
16
18
20
x (m)
Vu mín
Vu máx

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 02

PF versión 3 - HSF 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	6.00	6.00								
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	a1	a1								
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	0.25	0.30	0.30								

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

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 02

PF versión 3 - HSF 1999

Combinaciones de Carga	
NTE E-060	1.5 D + 1.8 L 1.25 (D + S + L) 0.9 D + 1.25 S

TRAMO 1 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.069	0.335	0.515	0.610	0.620	0.545	0.384	0.139	-0.192	-0.608	-1.110
S											
L mín	-0.005	-0.029	-0.054	-0.078	-0.102	-0.126	-0.150	-0.175	-0.199	-0.328	-0.598
L máx	0.037	0.180	0.277	0.329	0.358	0.346	0.306	0.231	0.121		
M_U mín								-0.106	-0.646	-1.502	-2.740
M_U máx	0.171	0.827	1.272	1.507	1.565	1.441	1.127	0.623			

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.538	0.389	0.241	0.092	-0.057	-0.206	-0.355	-0.504	-0.653	-0.801	-0.950
S											
L mín	-0.042	-0.042	-0.042	-0.042	-0.042	-0.111	-0.191	-0.271	-0.351	-0.432	-0.512
L máx	0.290	0.210	0.139	0.079	0.019						
V_U mín					-0.162	-0.509	-0.876	-1.244	-1.611	-1.979	-2.346
V_U máx	1.329	0.962	0.612	0.280							

TRAMO 2 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	-1.110	-0.610	-0.196	0.135	0.381	0.542	0.619	0.612	0.520	0.344	0.083
S											
L mín	-0.598	-0.329	-0.199	-0.175	-0.151	-0.127	-0.103	-0.079	-0.054	-0.030	-0.006
L máx			0.120	0.229	0.305	0.346	0.353	0.329	0.280	0.185	0.045
M_U mín	-2.740	-1.507	-0.651	-0.112							
M_U máx				0.615	1.120	1.436	1.564	1.511	1.284	0.848	0.204

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	0.950	0.802	0.654	0.506	0.357	0.209	0.061	-0.087	-0.235	-0.384	-0.532
S											
L mín							-0.018	-0.077	-0.137	-0.207	-0.286
L máx	0.512	0.432	0.352	0.272	0.192	0.113	0.042	0.042	0.042	0.042	0.042
V_U mín								-0.270	-0.600	-0.947	-1.313
V_U máx	2.346	1.980	1.614	1.248	0.883	0.517	0.168				

Análisis de Vigas y Pórticos Simples

PF versión 3 - HSF 1999

Diseño de Losa Aligerada 1° al 4° Nivel
Losa Tipo 02

TRAMO 1 (0.10 x 0.25)

Refuerzo de Flexión

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
M_U mín								-0.106	-0.646	-1.502	-2.740
M_U máx	0.171	0.827	1.272	1.507	1.565	1.441	1.127	0.623			
A_S sup								0.17	0.81	2.03	3.79
A_S inf	0.28	1.01	1.56	1.86	1.93	1.77	1.38	0.76			1.69
p											

Refuerzo de Corte

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
V_U mín					-0.162	-0.509	-0.876	-1.244	-1.611	-1.979	-2.346
V_U máx	1.329	0.962	0.612	0.280							
s □ #3									11.0	11.0	11.0

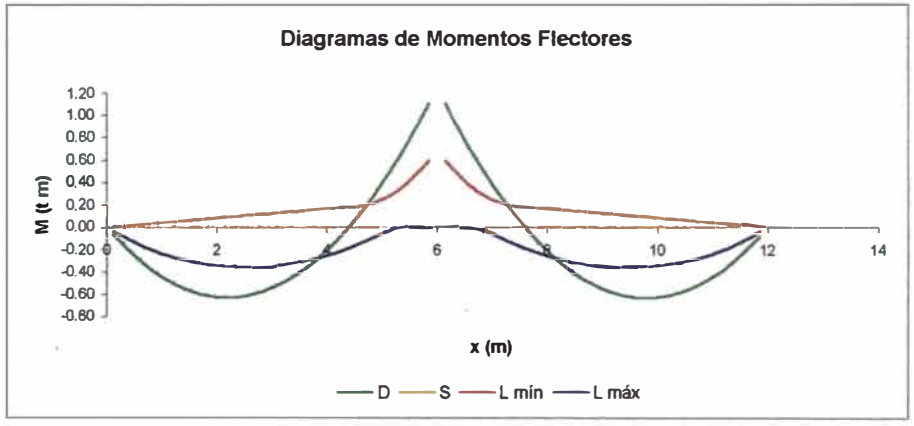
TRAMO 2 (0.10 x 0.25)

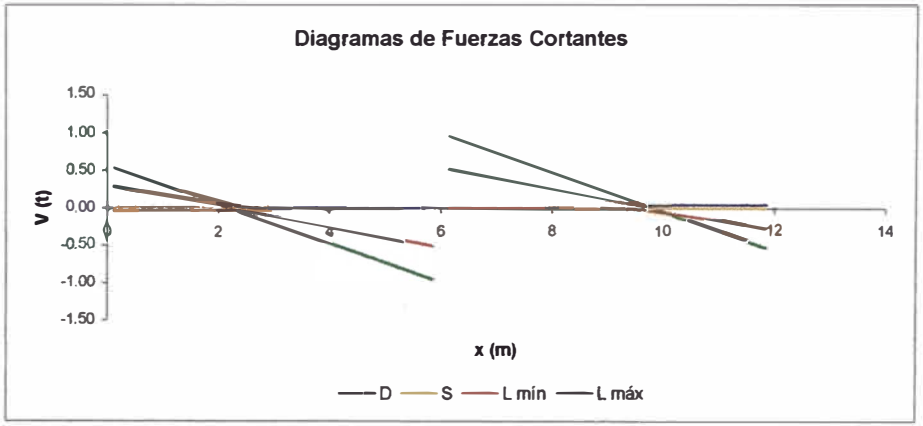
Refuerzo de Flexión

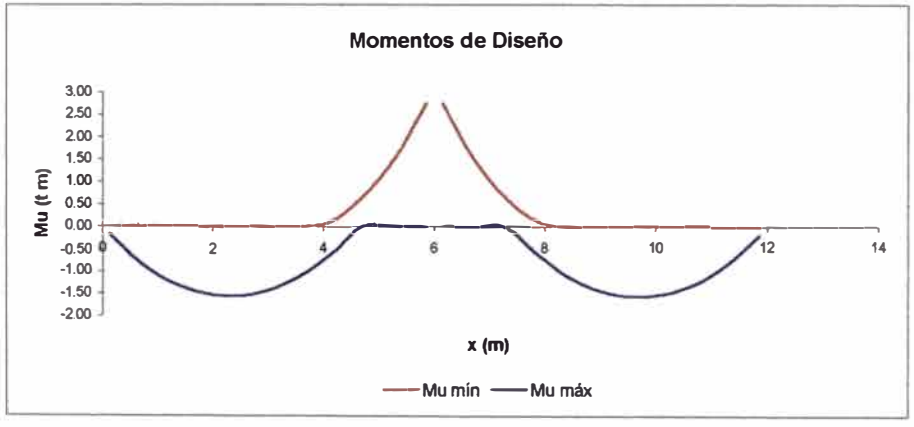
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
M_U mín	-2.740	-1.507	-0.651	-0.112							
M_U máx				0.615	1.120	1.436	1.564	1.511	1.284	0.848	0.204
A_S sup	3.79	2.03	0.82	0.18							
A_S inf	1.69			0.75	1.37	1.77	1.93	1.86	1.58	1.03	0.33
p											

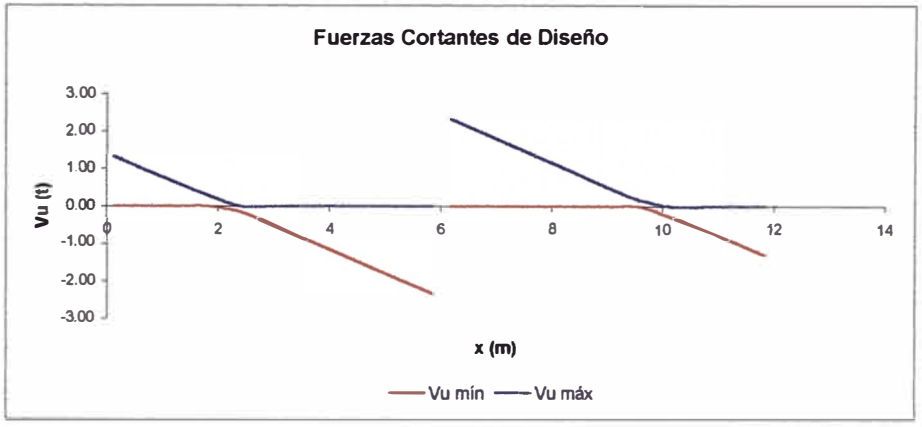
Refuerzo de Corte

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
V_U mín								-0.270	-0.600	-0.947	-1.313
V_U máx	2.346	1.980	1.614	1.248	0.883	0.517	0.168				
s □ #3	11.0	11.0	11.0								


Diagramas de Momentos Flectores
M (t m)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
0
2
4
6
8
10
12
14
x (m)
D
S
L mín
L máx


Diagramas de Fuerzas Cortantes
V (t)
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
0
2
4
6
8
10
12
14
x (m)
D
S
L mín
L máx


Momentos de Diseño
Mu (t m)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
0
2
4
6
8
10
12
14
x (m)
Mu mín
Mu máx


Fuerzas Cortantes de Diseño
Vu (t)
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
0
2
4
6
8
10
12
14
x (m)
Vu mín
Vu máx

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 5to Nivel
Losa Tipo 03

PF versión 3 - HSF 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	6.00	6.00	6.00							
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	a1	a1	a1							
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	0.25	0.30	0.30	0.25							

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

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 5to Nivel
Losa Tipo 03

PF versión 3 - HSF 1999

Combinaciones de Carga	
NTE E-060	1.5 D + 1.8 L 1.25 (D + S + L) 0.9 D + 1.25 S

TRAMO 1 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.066	0.323	0.505	0.812	0.843	0.599	0.479	0.284	0.014	-0.332	-0.753
S											
L mín	-0.002	-0.010	-0.018	-0.026	-0.035	-0.043	-0.051	-0.059	-0.067	-0.093	-0.197
L máx	0.017	0.084	0.132	0.160	0.168	0.160	0.145	0.115	0.070	0.028	0.030
M_U mín									-0.101	-0.665	-1.484
M_U máx	0.130	0.637	0.995	1.205	1.266	1.186	0.979	0.632	0.146		

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.515	0.384	0.252	0.120	-0.011	-0.143	-0.275	-0.407	-0.538	-0.670	-0.802
S											
L mín	-0.014	-0.014	-0.014	-0.014	-0.014	-0.037	-0.072	-0.106	-0.140	-0.175	-0.209
L máx	0.134	0.100	0.066	0.038	0.012	0.005	0.005	0.005	0.005	0.005	0.005
V_U mín					-0.043	-0.282	-0.541	-0.801	-1.060	-1.319	-1.579
V_U máx	1.015	0.755	0.496	0.248	0.004						

TRAMO 2 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	-0.775	-0.439	-0.178	0.009	0.121	0.159	0.121	0.009	-0.178	-0.439	-0.775
S											
L mín	-0.202	-0.115	-0.086	-0.086	-0.086	-0.086	-0.086	-0.086	-0.086	-0.115	-0.202
L máx	0.028	0.013	0.051	0.086	0.109	0.117	0.109	0.086	0.051	0.013	0.028
M_U mín	-1.527	-0.865	-0.421	-0.140				-0.140	-0.421	-0.865	-1.527
M_U máx				0.171	0.379	0.448	0.379	0.171			

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	0.656	0.524	0.393	0.262	0.131	0.000	-0.131	-0.262	-0.393	-0.524	-0.656
S											
L mín	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	-0.050	-0.078	-0.103	-0.137	-0.171
L máx	0.171	0.137	0.103	0.078	0.050	0.025	0.025	0.025	0.025	0.025	0.025
V_U mín						-0.044	-0.287	-0.530	-0.775	-1.033	-1.291
V_U máx	1.291	1.033	0.775	0.530	0.287	0.044					

TRAMO 3 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
D	-0.753	-0.332	0.014	0.284	0.479	0.599	0.843	0.812	0.505	0.323	0.066
S											
L mín	-0.197	-0.093	-0.067	-0.059	-0.051	-0.043	-0.035	-0.026	-0.018	-0.010	-0.002
L máx	0.030	0.028	0.070	0.115	0.145	0.160	0.168	0.160	0.132	0.084	0.017
M_U mín	-1.484	-0.665	-0.101								
M_U máx			0.148	0.632	0.979	1.186	1.266	1.205	0.995	0.637	0.130

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
D	0.802	0.670	0.538	0.407	0.275	0.143	0.011	-0.120	-0.252	-0.384	-0.515
S											
L mín	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.012	-0.038	-0.066	-0.100	-0.134
L máx	0.209	0.175	0.140	0.106	0.072	0.037	0.014	0.014	0.014	0.014	0.014
V_U mín							-0.004	-0.248	-0.496	-0.755	-1.015
V_U máx	1.579	1.319	1.060	0.801	0.541	0.282	0.043				

Análisis de Vigas y Pórticos Simples

PF versión 3 - HSF 1999

Diseño de Losa Aligerada 5to Nivel
Losa Tipo 03

TRAMO 1 (0.10 x 0.25)

Refuerzo de Flexión

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
M_U mín									-0.101	-0.865	-1.484
M_U máx	0.130	0.637	0.995	1.205	1.266	1.188	0.979	0.632	0.148		
A_s sup									0.16	0.84	2.00
A_s inf	0.21	0.77	1.22	1.48	1.58	1.45	1.20	0.77	0.23		
p											

Refuerzo de Corte

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
V_U mín					-0.043	-0.282	-0.541	-0.801	-1.060	-1.319	-1.579
V_U máx	1.015	0.755	0.496	0.248	0.004						
s [] #3											11.0

TRAMO 2 (0.10 x 0.25)

Refuerzo de Flexión

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
M_U mín	-1.527	-0.865	-0.421	-0.140				-0.140	-0.421	-0.865	-1.527
M_U máx				0.171	0.379	0.448	0.379	0.171			
A_s sup	2.06	1.11	0.69	0.23				0.23	0.69	1.11	2.06
A_s inf				0.28	0.81	0.72	0.61	0.28			
p											

Refuerzo de Corte

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
V_U mín						-0.044	-0.287	-0.530	-0.775	-1.033	-1.291
V_U máx	1.291	1.033	0.775	0.530	0.287	0.044					
s [] #3											

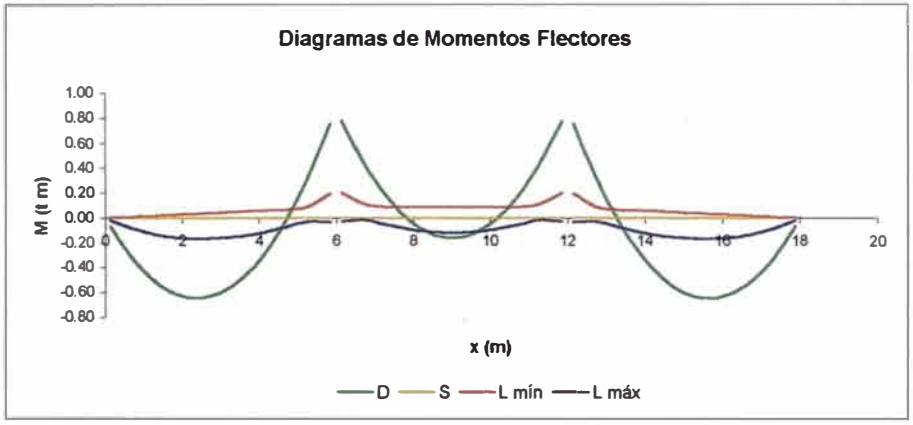
TRAMO 3 (0.10 x 0.25)

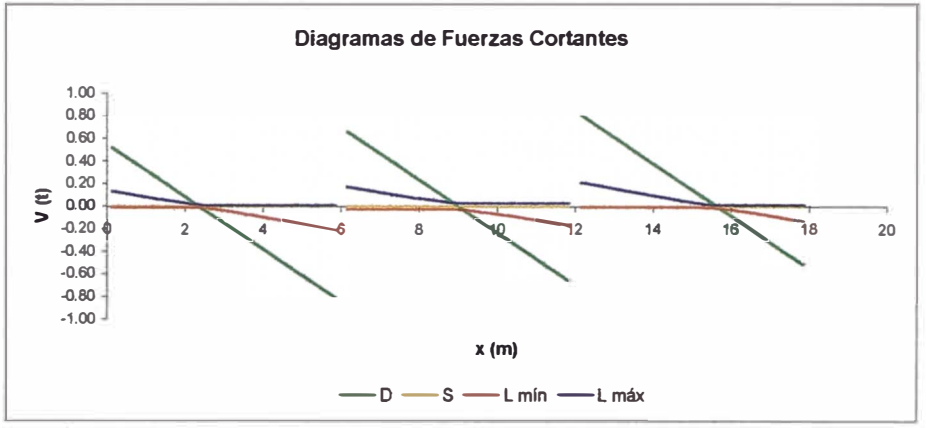
Refuerzo de Flexión

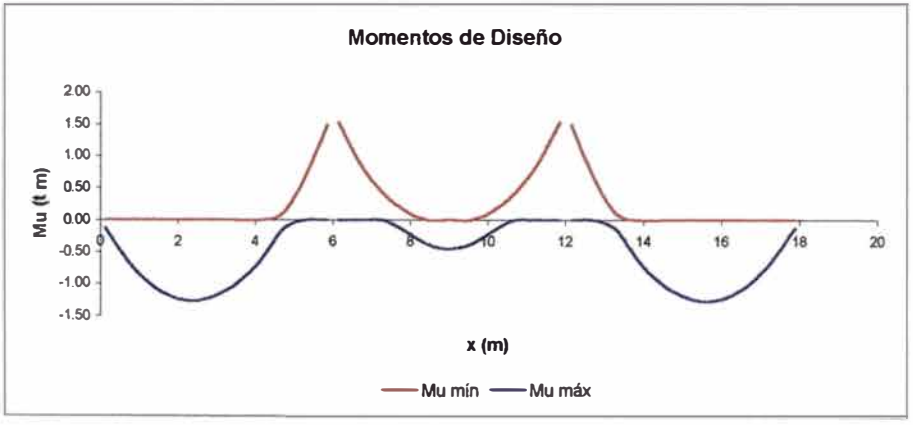
x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
M_U mín	-1.484	-0.865	-0.101								
M_U máx			0.148	0.632	0.979	1.188	1.266	1.205	0.995	0.637	0.130
A_s sup	2.00	0.84	0.16								
A_s inf			0.23	0.77	1.20	1.45	1.58	1.48	1.22	0.77	0.21
p											

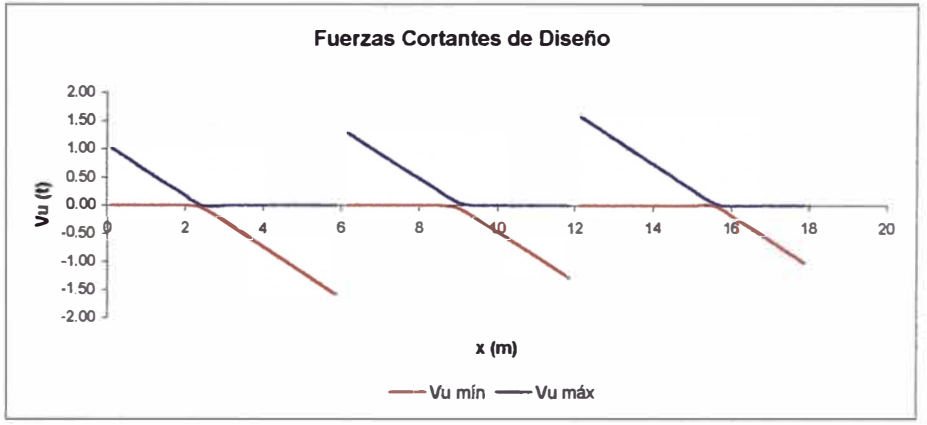
Refuerzo de Corte

x	0.150	0.723	1.295	1.868	2.440	3.013	3.585	4.158	4.730	5.303	5.875
V_U mín							-0.004	-0.248	-0.496	-0.755	-1.015
V_U máx	1.579	1.319	1.060	0.801	0.541	0.282	0.043				
s [] #3	11.0										


Diagramas de Momentos Flectores
M (t m)
x (m)
D
S
L mín
L máx


Diagramas de Fuerzas Cortantes
V (t)
x (m)
D
S
L mín
L máx


Momentos de Diseño
Mu (t m)
x (m)
Mu mín
Mu máx


Fuerzas Cortantes de Diseño
Vu (t)
x (m)
Vu mín
Vu máx

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 5° Nivel
Losa Tipo 04

PF versión 3 - HSF 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	6.00	6.00								
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	a1	a1								
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	0.25	0.30	0.30								

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

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 5° Nivel
Losa Tipo 04

PF versión 3 - HSF 1999

Combinaciones de Carga	
NTE E-060	1.5 D + 1.8 L 1.25 (D + S + L) 0.9 D + 1.25 S

TRAMO 1 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.061	0.296	0.456	0.540	0.549	0.482	0.340	0.123	-0.170	-0.538	-0.982
S											
L mín	-0.002	-0.013	-0.023	-0.033	-0.044	-0.054	-0.064	-0.075	-0.085	-0.140	-0.256
L máx	0.016	0.077	0.119	0.141	0.151	0.148	0.131	0.099	0.052		
M_U mín									-0.408	-1.060	-1.934
M_U máx	0.121	0.583	0.898	1.063	1.095	0.990	0.746	0.362			

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.476	0.345	0.213	0.081	-0.051	-0.182	-0.314	-0.446	-0.577	-0.709	-0.841
S											
L mín	-0.018	-0.018	-0.018	-0.018	-0.018	-0.048	-0.082	-0.116	-0.151	-0.185	-0.219
L máx	0.124	0.090	0.060	0.034	0.008						
V_U mín					-0.108	-0.359	-0.618	-0.878	-1.137	-1.396	-1.656
V_U máx	0.938	0.679	0.427	0.183							

TRAMO 2 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	-0.982	-0.540	-0.173	0.119	0.337	0.480	0.548	0.541	0.460	0.304	0.073
S											
L mín	-0.256	-0.141	-0.085	-0.075	-0.065	-0.054	-0.044	-0.034	-0.023	-0.013	-0.003
L máx			0.051	0.098	0.131	0.148	0.151	0.141	0.120	0.079	0.019
M_U mín	-1.934	-1.064	-0.413								
M_U máx				0.356	0.740	0.986	1.094	1.066	0.906	0.599	0.144

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
D	0.841	0.709	0.578	0.447	0.316	0.185	0.054	-0.077	-0.208	-0.339	-0.470
S											
L mín							-0.008	-0.033	-0.059	-0.089	-0.123
L máx	0.219	0.185	0.151	0.117	0.082	0.048	0.018	0.018	0.018	0.018	0.018
V_U mín								-0.175	-0.418	-0.668	-0.927
V_U máx	1.656	1.397	1.139	0.881	0.623	0.365	0.114				

Análisis de Vigas y Pórticos Simples

PF versión 3 - HSF 1999

Diseño de Losa Aligerada 5° Nivel
Losa Tipo 04

TRAMO 1 (0.10 x 0.25)

Refuerzo de Flexión

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
M_U mín									-0.408	-1.060	-1.934
M_U máx	0.121	0.583	0.898	1.063	1.095	0.990	0.746	0.362			
A_S sup									0.67	1.38	2.66
A_S inf	0.19	0.73	1.10	1.30	1.34	1.21	0.91	0.58			0.37
p											

Refuerzo de Corte

x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
V_U mín					-0.108	-0.359	-0.618	-0.878	-1.137	-1.396	-1.656
V_U máx	0.938	0.679	0.427	0.183							
s □ #3											11.0

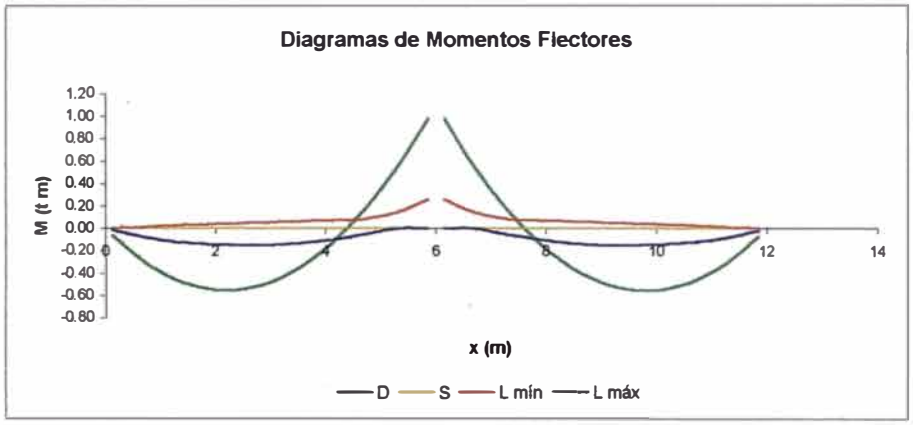
TRAMO 2 (0.10 x 0.25)

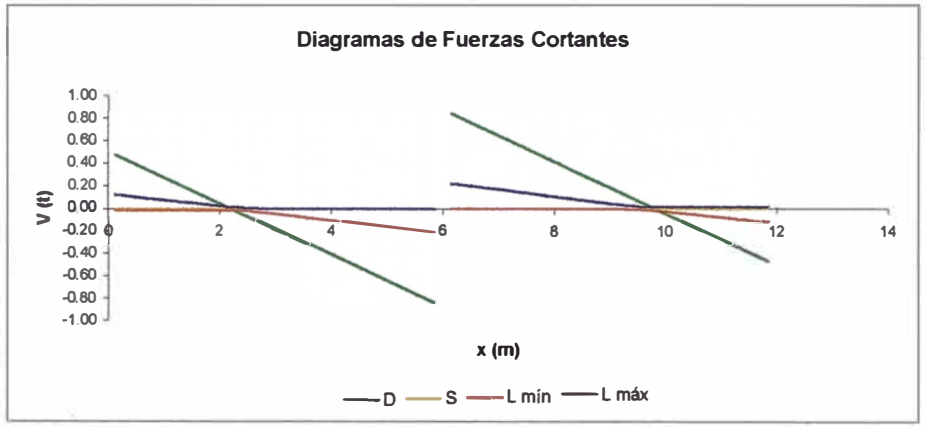
Refuerzo de Flexión

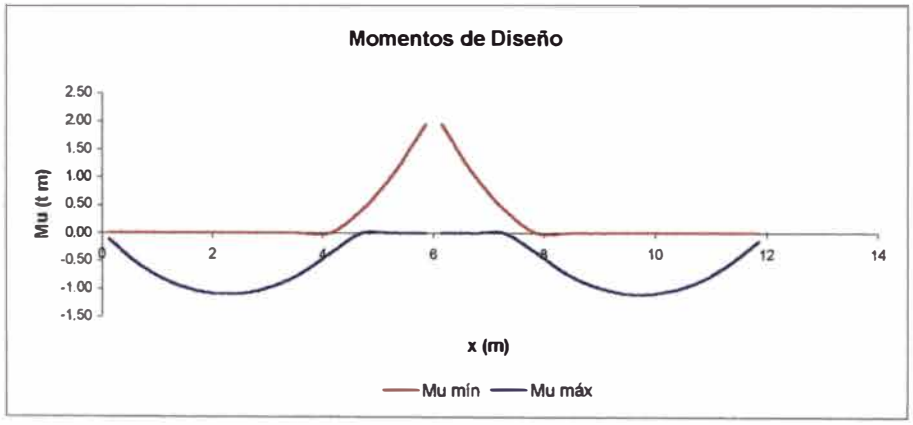
x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
M_U mín	-1.934	-1.064	-0.413								
M_U máx				0.356	0.740	0.986	1.094	1.066	0.906	0.599	0.144
A_S sup	2.66	1.38	0.68								
A_S inf	0.37			0.57	0.90	1.21	1.34	1.30	1.11	0.73	0.23
p											

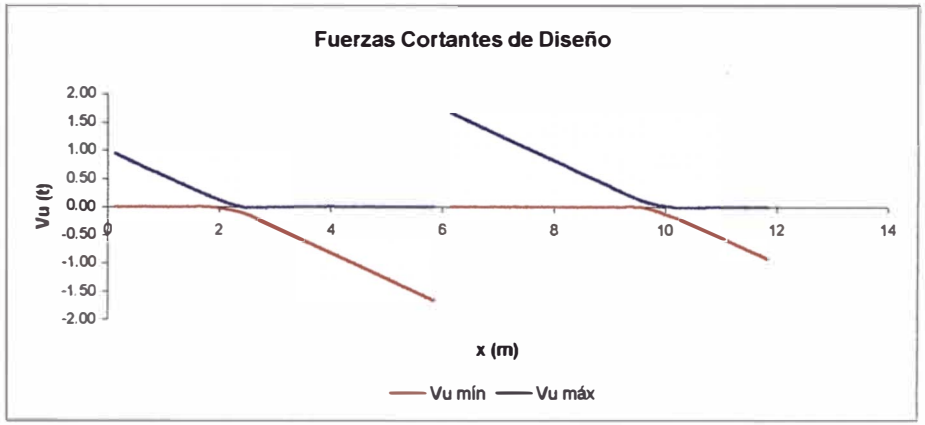
Refuerzo de Corte

x	0.150	0.720	1.290	1.860	2.430	3.000	3.570	4.140	4.710	5.280	5.850
V_U mín								-0.175	-0.418	-0.668	-0.927
V_U máx	1.656	1.397	1.139	0.881	0.623	0.365	0.114				
s □ #3	11.0										


Diagramas de Momentos Flectores
M (t m)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
0
2
4
6
8
10
12
14
x (m)
D
S
L mín
L máx


Diagramas de Fuerzas Cortantes
V (t)
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
0
2
4
6
8
10
12
14
x (m)
D
S
L mín
L máx


Momentos de Diseño
Mu (t m)
2.50
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
0
2
4
6
8
10
12
14
x (m)
Mu mín
Mu máx


Fuerzas Cortantes de Diseño
Vu (t)
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
0
2
4
6
8
10
12
14
x (m)
Vu mín
Vu máx

Análisis de Vigas y Pórticos Simples

Diseño de Losa Aligerada 5° Nivel
Losa Tipo 05

PF versión 3 - HSF 1999

Luces y Alturas (m)

Tramo	1	2	3	4	5	6	7	8	9	10
Altura arriba										
Luz	6.00									
Altura abajo										

Sección Transversal

Tramo	1	2	3	4	5	6	7	8	9	10
Columna arriba										
Viga	a1									
Columna abajo										

Condiciones Especiales

Nudo	1	2	3	4	5	6	7	8	9	10	11
Código	0.25	0.30									

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

álisis de Vigas
Pórticos Simples

Diseño de Losa Aligerada 5° Nivel
Losa Tipo 05

PF versión 3 - HSF 1999

Combinaciones de Carga	
NTE E-060	1.5 D + 1.8 L 1.25 (D + S + L) 0.9 D + 1.25 S

TRAMO 1 (0.10 x 0.25)

Diagramas y Envolventes de Momentos Flectores											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.084	0.425	0.691	0.881	0.996	1.035	0.999	0.888	0.701	0.438	0.101
S											
L min											
L máx	0.022	0.111	0.180	0.230	0.260	0.270	0.261	0.232	0.183	0.114	0.026
M_U min											
M_U máx	0.166	0.838	1.361	1.735	1.961	2.038	1.967	1.748	1.380	0.864	0.199

Diagramas y Envolventes de Fuerzas Cortantes											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
D	0.661	0.530	0.398	0.266	0.135	0.003	-0.129	-0.260	-0.392	-0.524	-0.656
S											
L min							-0.034	-0.068	-0.102	-0.137	-0.171
L máx	0.173	0.138	0.104	0.069	0.035	0.001					
V_U min							-0.254	-0.513	-0.772	-1.032	-1.291
V_U máx	1.302	1.043	0.784	0.524	0.265	0.006					

Análisis de Vigas
Pórticos Simples

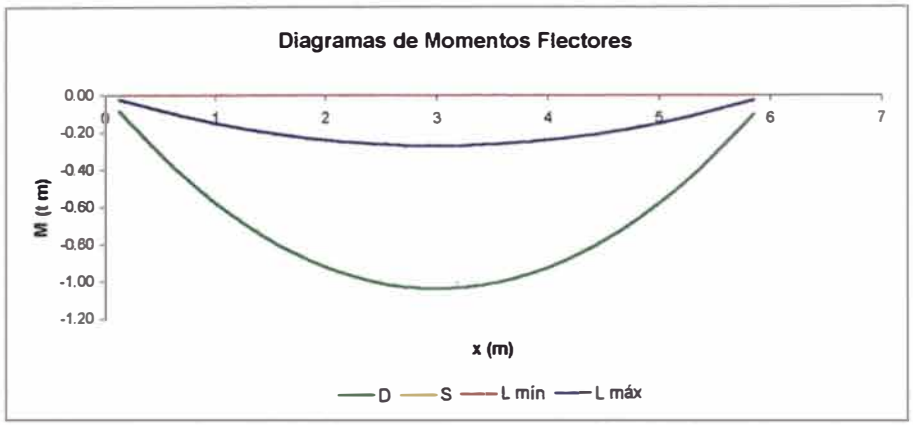
PF versión 3 - HSF 1999

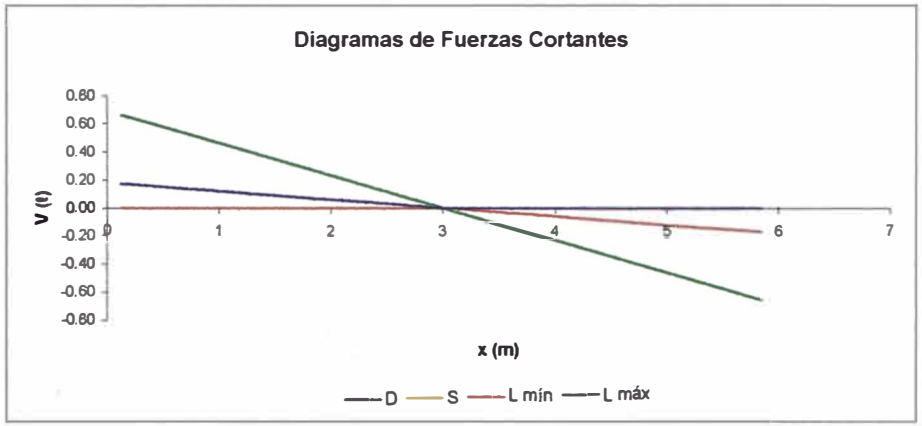
Diseño de Losa Aligerada 5° Nivel
Losa Tipo 05

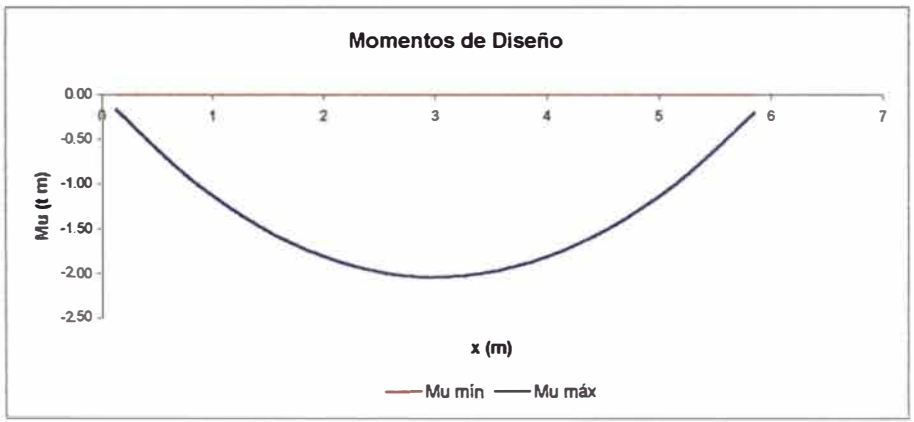
TRAMO 1 (0.10 x 0.25)

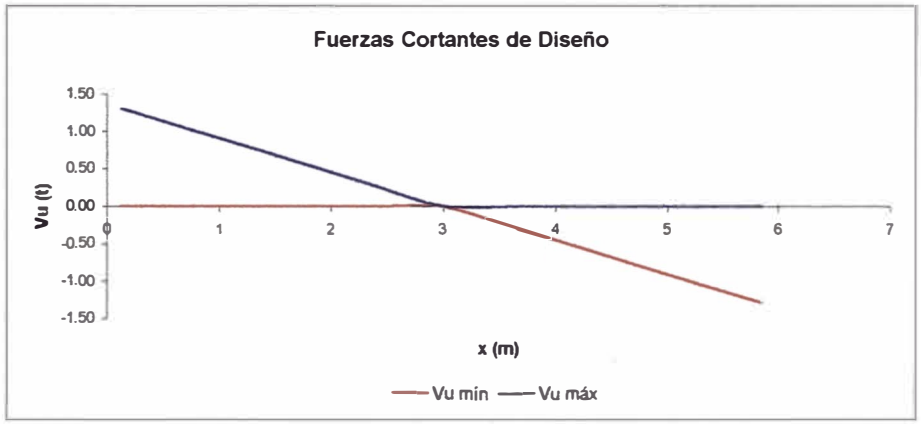
Refuerzo de Flexión											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
M_U mín											
M_U máx	0.166	0.838	1.361	1.735	1.961	2.038	1.967	1.748	1.380	0.864	0.199
A_S sup											
A_S inf	0.27	1.02	1.67	2.15	2.44	2.54	2.45	2.16	1.70	1.05	0.32
p											

Refuerzo de Corte											
x	0.125	0.698	1.270	1.843	2.415	2.988	3.560	4.133	4.705	5.278	5.850
V_U mín							-0.254	-0.513	-0.772	-1.032	-1.291
V_U máx	1.302	1.043	0.784	0.524	0.265	0.006					
s □ #3											


Diagramas de Momentos Flectores
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
M (t m)
0
1
2
3
4
5
6
7
x (m)
D
S
L mín
L máx


Diagramas de Fuerzas Cortantes
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
V (t)
0
1
2
3
4
5
6
7
x (m)
D
S
L mín
L máx

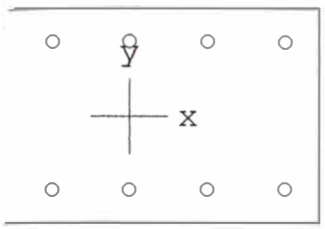

Momentos de Diseño
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
Mu (t m)
0
1
2
3
4
5
6
7
x (m)
Mu mín
Mu máx


Fuerzas Cortantes de Diseño
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
Vu (t)
0
1
2
3
4
5
6
7
x (m)
Vu mín
Vu máx

ANEXO Nº 8

DIAGRAMAS DE INTERACCION PARA LAS COLUMNAS

APLICACIÓN DEL PROGRAMA PCACOL VS. 2.30



700 x 400 mm

c = 21 MPa

= 420 MPa

nfinement: Tied

r cover = 49 mm

acing = 118 mm

0 N-8 at 1.82%

= 5100 mm^2

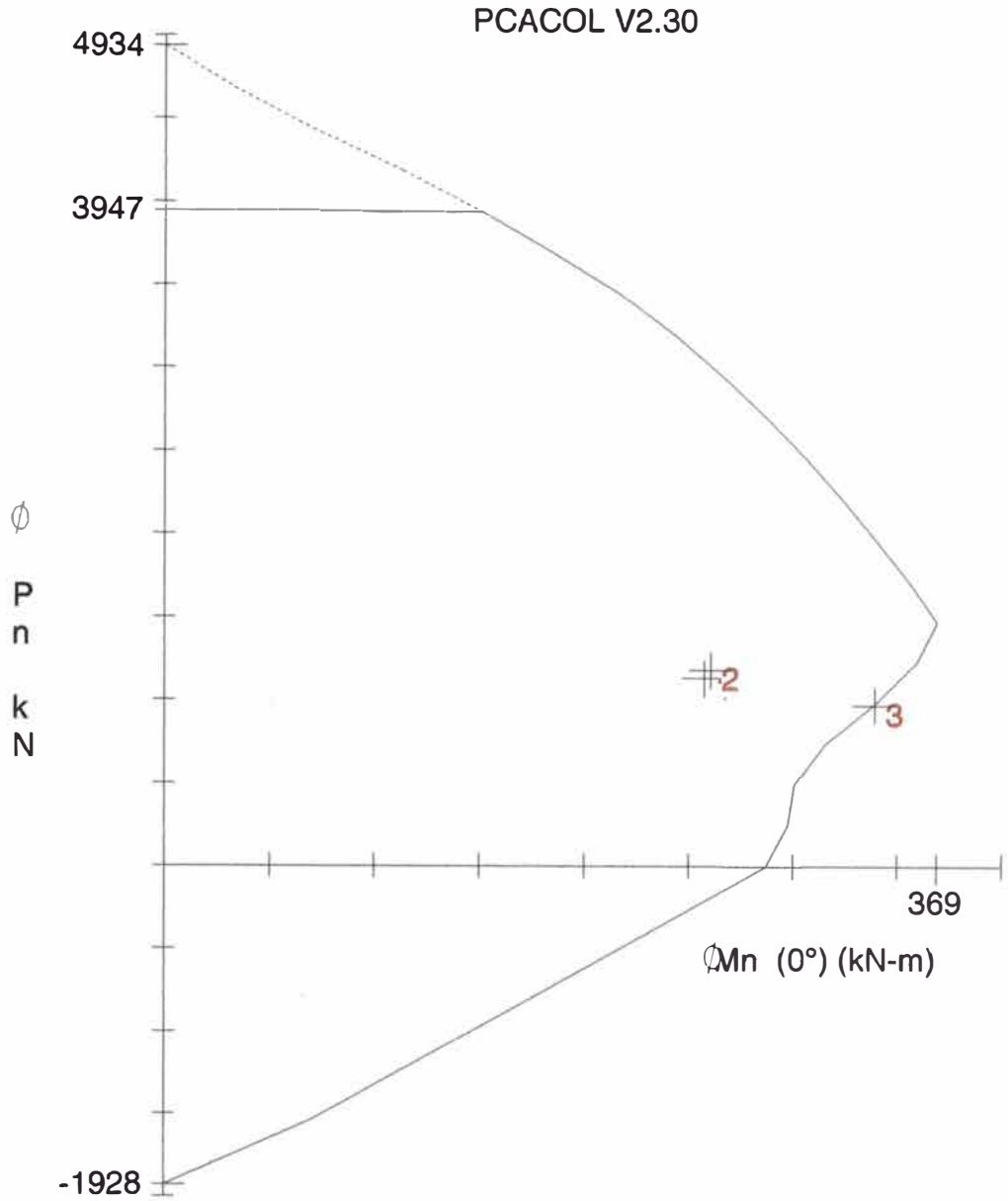
= 3.733e+009 mm^4

= 1.143e+010 mm^4

= 0 mm

= 0 mm

1993 PCA



censed To: Licensee name not yet specified.

le name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C1F-1.COL

oject: Edificio-Talleres

olumn Id: C1

gineer: JORGE ARCE POMALIA

te: 23/04/01 Time: 12:27:00

de: ACI 318-83

its: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

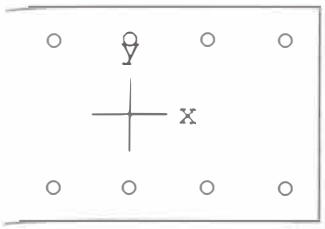
Ec = 23168 MPa eu = 0.003 mm/mm

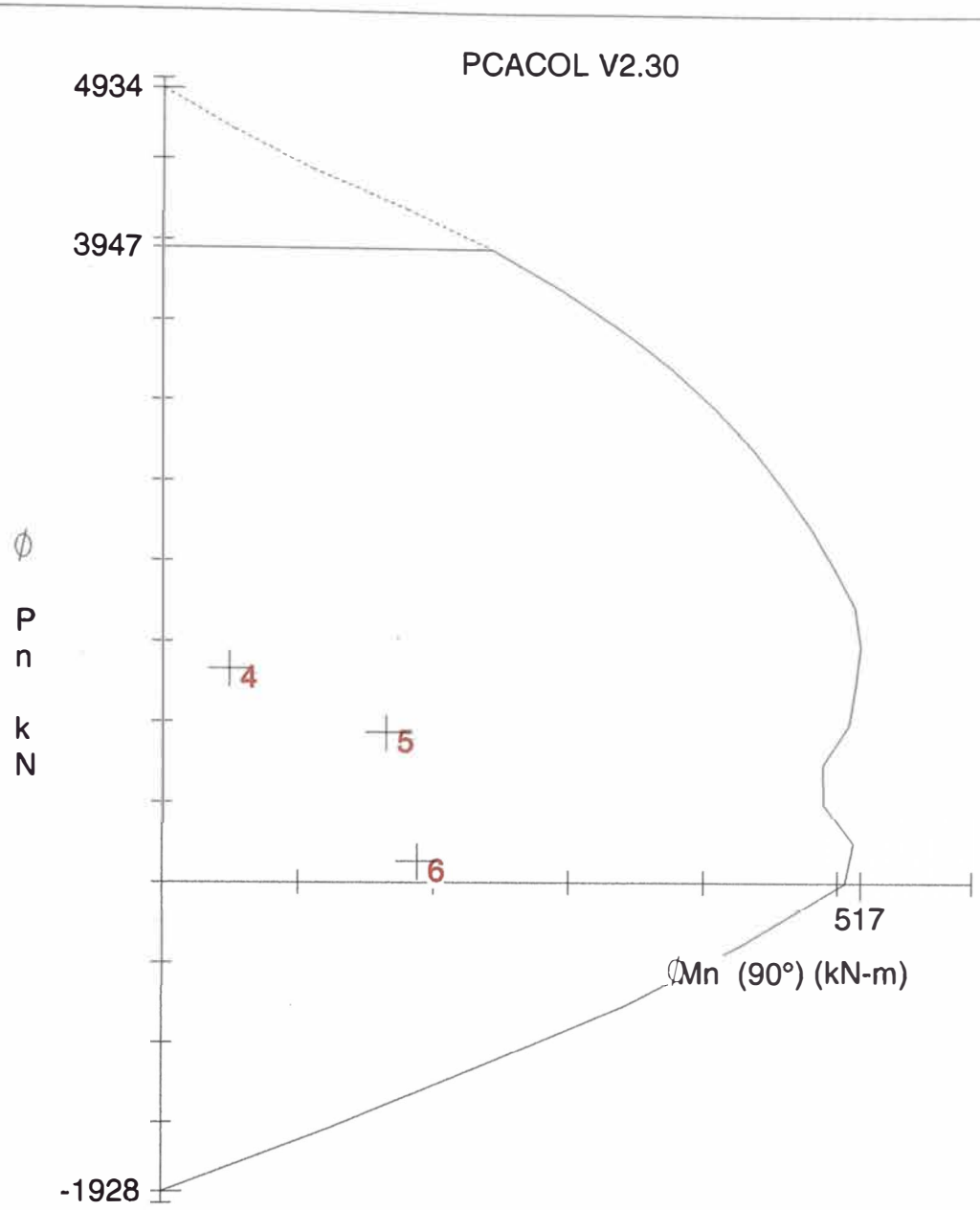
fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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





700 x 400 mm

c = 21 MPa

= 420 MPa

nfinement: Tied

r cover = 49 mm

acing = 118 mm

0 N-8 at 1.82%

= 5100 mm^2

= 3.733e+009 mm^4

= 1.143e+010 mm^4

= 0 mm

= 0 mm

1993 PCA

censed To: Licensee name not yet specified.

le name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C1F-1.COL

oject: Edificio-Talleres

olumn Id: C1

gineer: JORGE ARCE POMALIA

te: 23/04/01 Time: 12:27:00

de: ACI 318-83

its: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

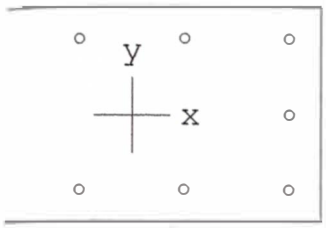
Ec = 23168 MPa eu = 0.003 mm/mm

fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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



'700 x 400 mm

c = 21 MPa

= 420 MPa

nfinement: Tied

r cover = 50 mm

acing = 122 mm

0 N-6 at 1.01%

= 2840 mm^2

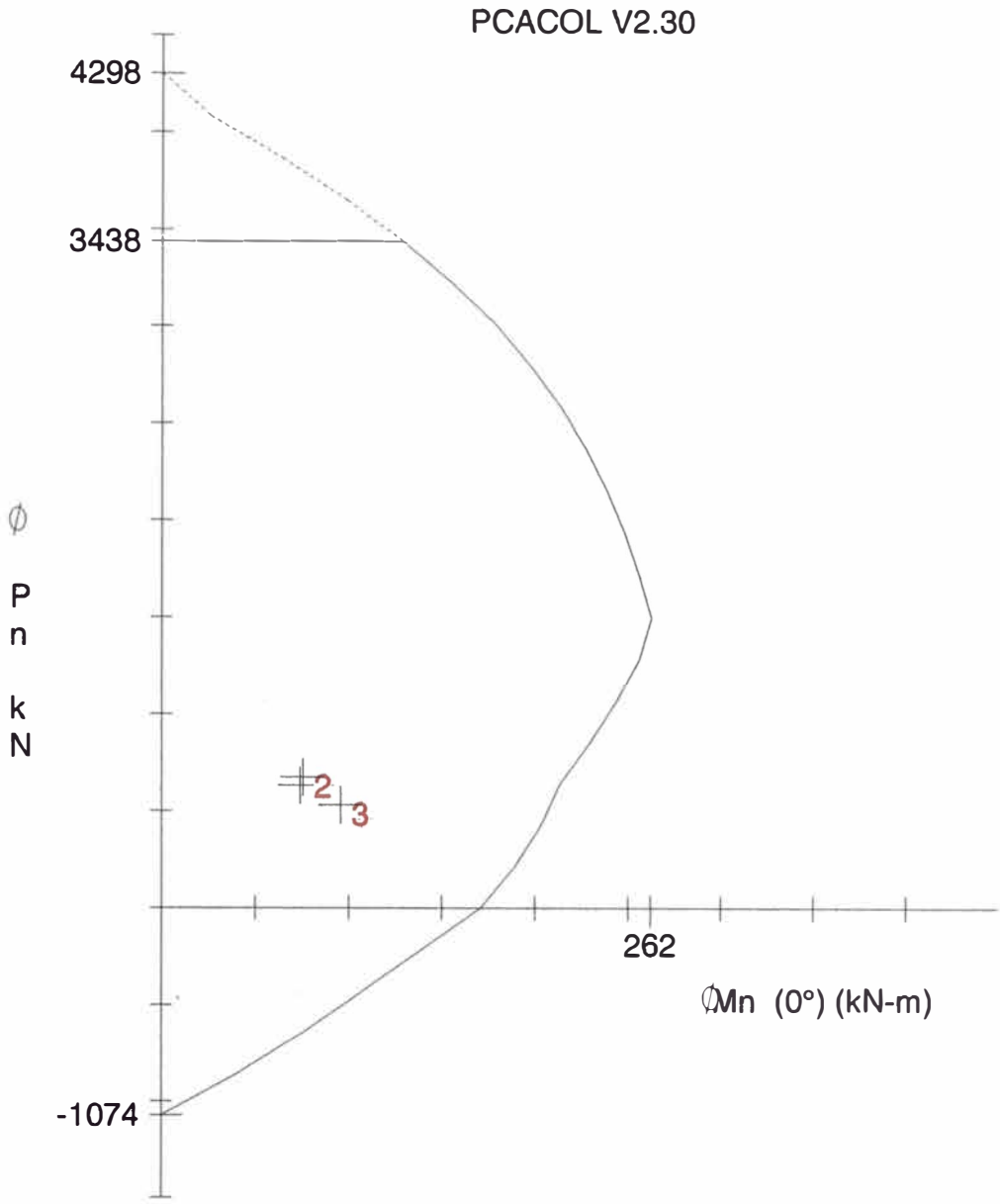
= 3.733e+009 mm^4

= 1.143e+010 mm^4

= 0 mm

= 0 mm

1993 PCA



censed To: Licensee name not yet specified.

le name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C2F-1.COL

oject: Edificio-Talleres

olumn Id: C2

gineer: JORGE ARCE POMALIA

ate: 23/04/01 Time: 12:38:00

ode: ACI 318-83

nits: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

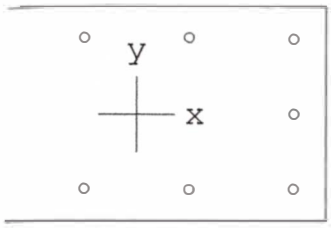
Ec = 23168 MPa eu = 0.003 mm/mm

fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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



700 x 400 mm

c = 21 MPa

= 420 MPa

nfinement: Tied

r cover = 50 mm

acing = 122 mm

0 N-6 at 1.01%

= 2840 mm^2

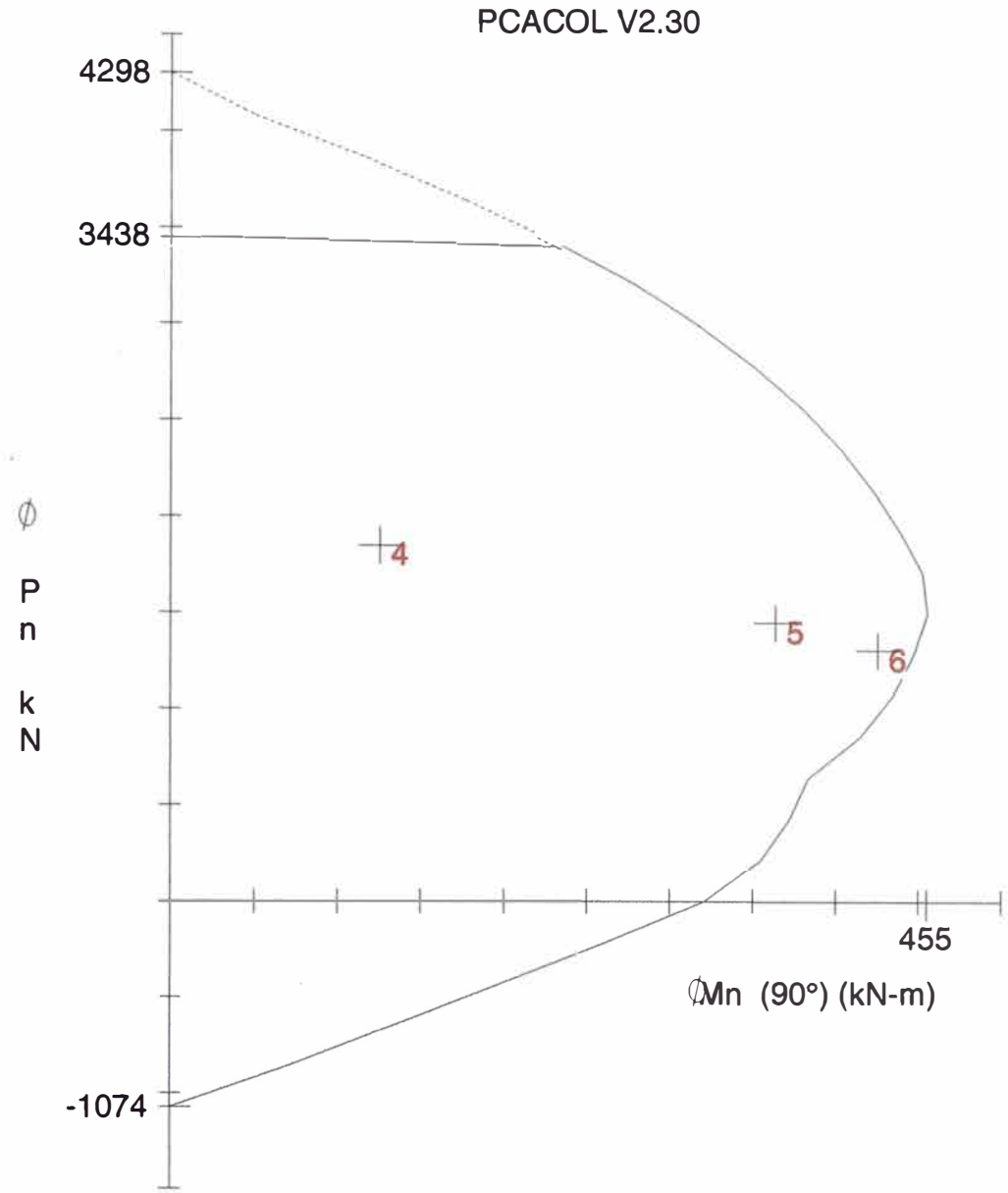
= 3.733e+009 mm^4

= 1.143e+010 mm^4

= 0 mm

= 0 mm

1993 PCA



Licensed To: Licensee name not yet specified.

File name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C2F-1.COL

Project: Edificio-Talleres

Column Id: C2

Engineer: JORGE ARCE POMALIA

Date: 23/04/01 Time: 12:38:00

Code: ACI 318-83

Units: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

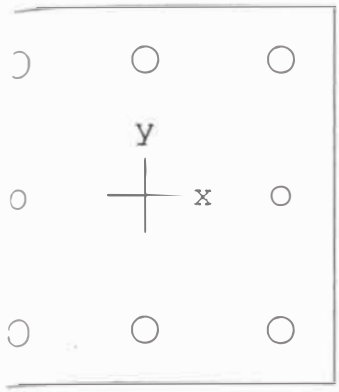
Ec = 23168 MPa eu = 0.003 mm/mm

fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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



500 x 500 mm

'c = 21 MPa

y = 420 MPa

onfinement: Tied

lr cover = 53 mm

pacing = 144 mm

8 bars at 2.82%

s = 7056 mm^2

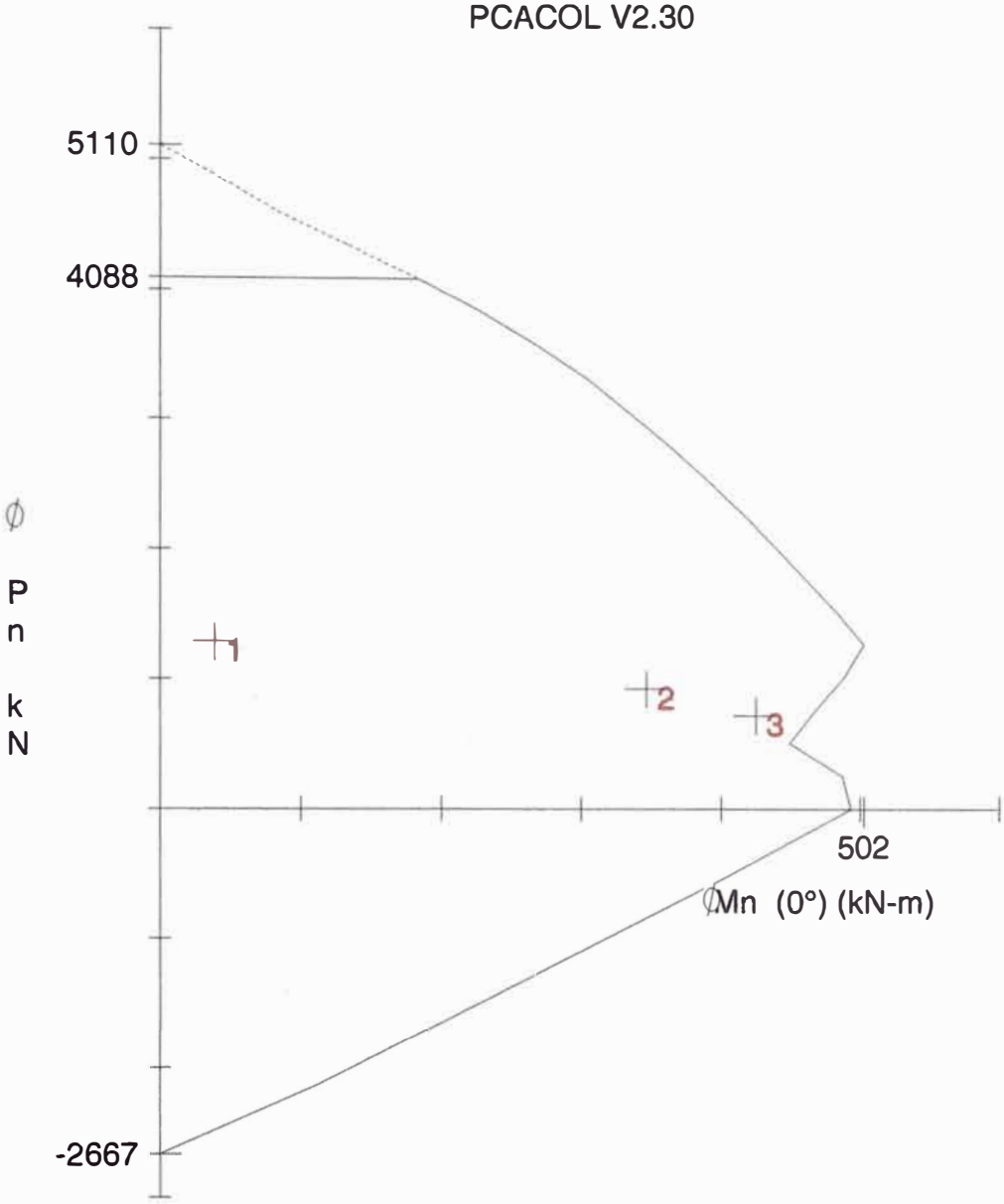
x = 5.208e+009 mm^4

y = 5.208e+009 mm^4

o = 0 mm

o = 0 mm

1993 PCA



icensed To: Licensee name not yet specified.

ile name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C3F-1.COL

roject: Edificio-Talleres

olumn Id: C3

ngineer: JORGE ARCE POMALIA

ate: 23/04/01 Time: 10:39:00

ode: ACI 318-83

nits: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

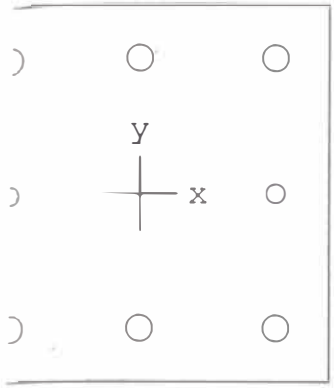
Ec = 23168 MPa eu = 0.003 mm/mm

fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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



500 x 500 mm

c = 21 MPa

= 420 MPa

nfinement: Tied

r cover = 53 mm

acing = 144 mm

8 bars at 2.82%

= 7056 mm^2

= 5.208e+009 mm^4

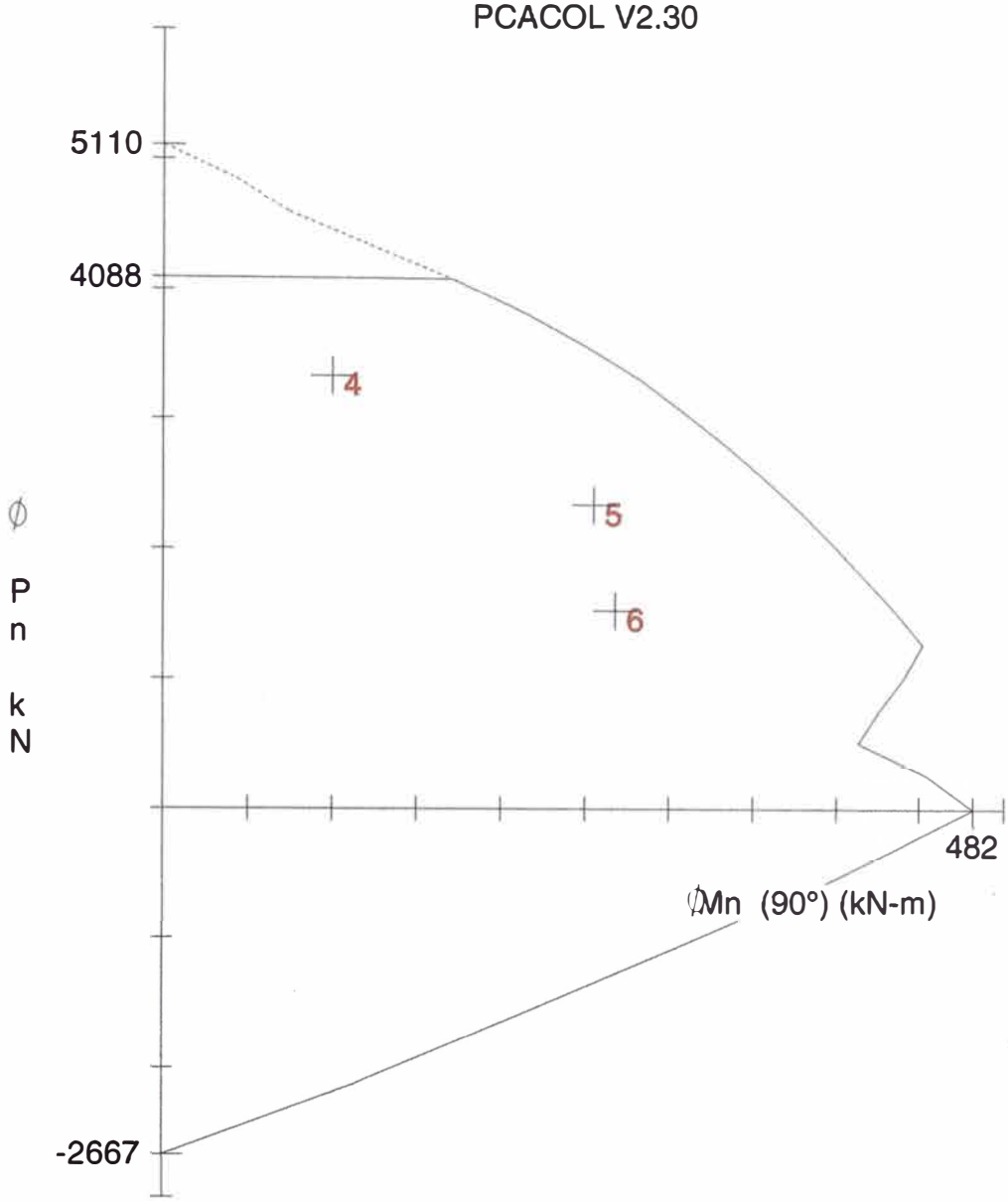
= 5.208e+009 mm^4

= 0 mm

= 0 mm

1993 PCA

PCACOL V2.30



icensed To: Licensee name not yet specified.

ile name: C:\COQUI\CURSOT~1\DISEÑO~2\PCACOL\C3F-1.COL

roject: Edificio-Talleres

olumn Id: C3

ngineer: JORGE ARCE POMALIA

ate: 23/04/01 Time: 10:39:00

ode: ACI 318-83

nits: Metric

-axis slenderness is not considered.

-axis slenderness is not considered.

Material Properties:

Ec = 23168 MPa eu = 0.003 mm/mm

fc = 17.85 MPa Es = 200000 MPa

Beta1 = 0.85

Stress Profile: Block

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

ANEXO Nº 9

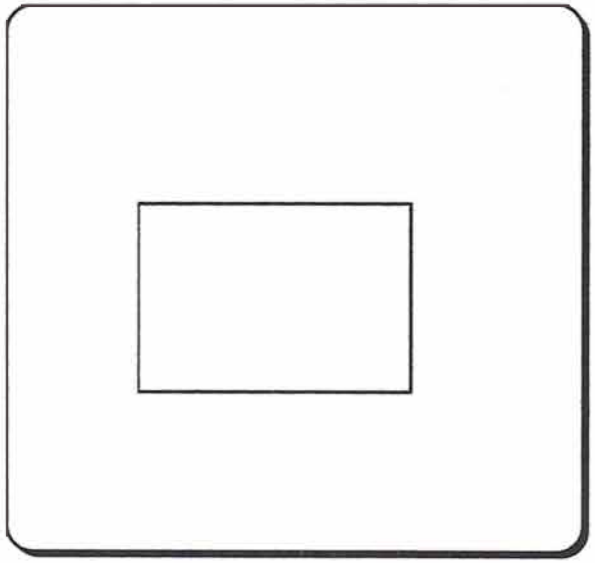
PROPIEDADES DE LAS SECCIONES

Propiedades de un Área Definida por las Coordenadas de sus Vértices

HSF 1995

	Coordenadas de los Vértices	
	x	y
1	0	0.000
2	14.25	0.000
3	14.25	18.25
4	0.000	18.25
5	0.000	0
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Círculos: agregar (R+) o descontar (R-)		
R	x	y



A = 260.063

Ejes Originales

y_{max} = 18.250

y_{min} = 0.000

Ix = 2.8872E+04

Iy = 1.7603E+04

Ixy = 1.6908E+04

J = 3.4511E+04

Ejes Baricéntricos

x = 7.125

y = 9.125

Ix = 7.2181E+03

Iy = 4.4007E+03

Ixy = 0.0000E+00

J = 1.1619E+04

i = 6.684

S_{top} = 7.9102E+02

S_{bot} = 7.9102E+02

Ejes Principales

ϕ = 0.00

Ix = 7.2181E+03

Iy = 4.4007E+03

Los vértices deben darse en sentido antihorario si el área es positiva y en sentido horario si es negativa

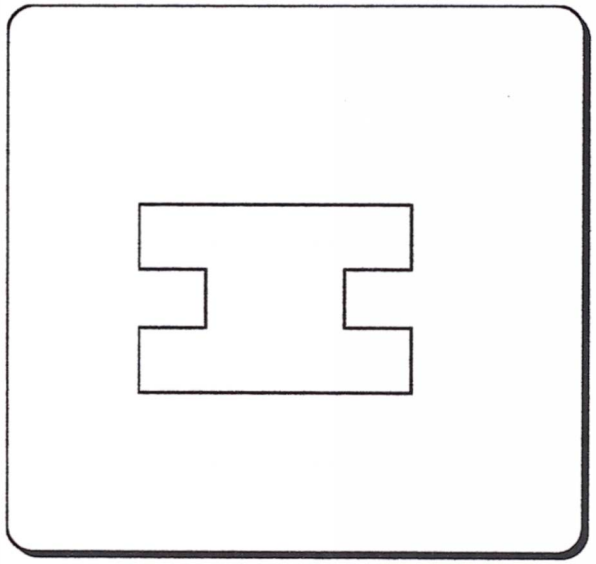
Cada bloque correspondiente a un perímetro, exterior o interior, debe terminarse con una línea en blanco

Propiedades de un Área Definida por las Coordenadas de sus Vértices

HSF 1995

	Coordenadas de los Vértices	
	x	y
1	0	0.000
2	14.25	0.000
3	14.25	6.275
4	10.750	6.275
5	10.750	11.975
6	14.250	11.975
7	14.250	18.25
8	0	18.25
9	0	11.975
10	3.5	11.975
11	3.5	6.275
12	0	6.275
13	0	0
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Círculos: agregar (R+) o descontar (R-)		
R	x	y



A = 220.163

Ejes Originales

y_{max} = 18.250

y_{min} = 0.000

I_x = 2.5442E+04

I_y = 1.4384E+04

I_{xy} = 1.4314E+04

J = 2.8698E+04

Ejes Baricéntricos

x = 7.125

y = 9.125

I_x = 7.1101E+03

I_y = 3.2073E+03

I_{xy} = 0.0000E+00

J = 1.0317E+04

i = 6.846

S_{top} = 7.7918E+02

S_{bot} = 7.7918E+02

Ejes Principales

ϕ = 0.00

I_x = 7.1101E+03

I_y = 3.2073E+03

Los vértices deben darse en sentido antihorario si el área es positiva y en sentido horario si es negativa

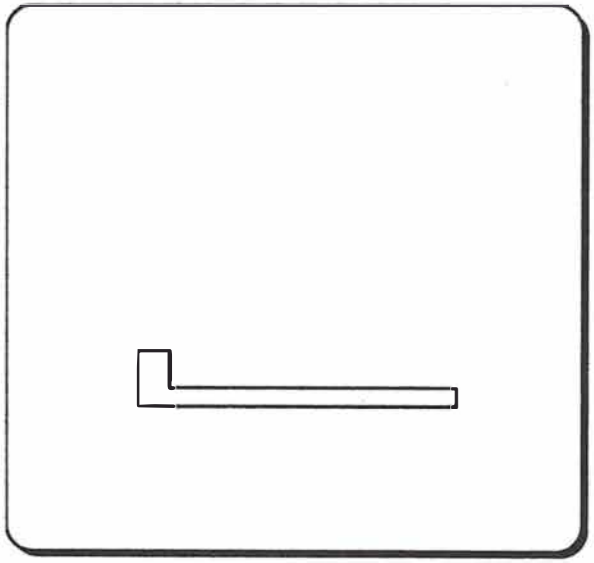
Cada bloque correspondiente a un perímetro, exterior o interior, debe terminarse con una línea en blanco

Propiedades de un Área Definida por las Coordenadas de sus Vértices

HSF 1995

	Coordenadas de los Vértices	
	x	y
1	0	0.000
2	2.5	0.000
3	2.5	0.25
4	0.250	0.25
5	0.250	0.75
6	0.000	0.75
7	0.000	0
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Círculos: agregar (R+) o descontar (R-)		
R	x	y



A = 0.750

Ejes Originales

y_{max} = 0.750

y_{min} = 0.000

Ix = 4.6875E-02

Iy = 1.3047E+00

Ixy = 1.0547E-01

J = 1.4102E+00

Ejes Baricéntricos

x = 1.063

y = 0.188

Ix = 2.0508E-02

Iy = 4.5801E-01

Ixy = -4.3945E-02

J = 4.7852E-01

i = 0.799

S_{top} = 3.6458E-02

S_{bot} = 1.0937E-01

Ejes Principales

ϕ = 84.32

Ix = 4.6238E-01

Iy = 1.6137E-02

Los vértices deben darse en sentido antihorario si el área es positiva y en sentido horario si es negativa

Cada bloque correspondiente a un perímetro, exterior o interior, debe terminarse con una línea en blanco