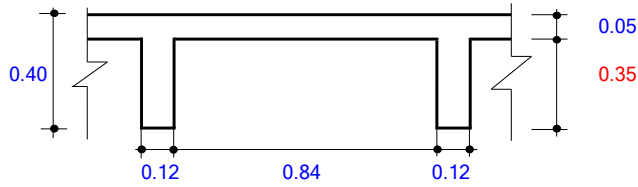
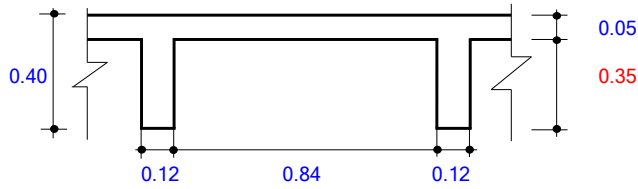


ANÁLISIS DINÁMICO ELÁSTICO - EDIFICACIÓN 16 PISOS
EVALUACIÓN CARGAS ENTREPISO - APARTAMENTOS



	CARGA KN/m ²	CARGA Kgf/m ²
LOSETAS SUPERIOR:	1.200	120
VIGUETAS :	1.050	105
ALIGERAMIENTO CASETON :	0.250	25
AFINADO MORTERO Y ACABADO CERAMICA :	1.100	110
CIELO RASO DRYWALL :	0.500	50
TUBERIA DESCOLGADA :	0.200	20
MUROS :	3.000	300
Σ q_D =	7.300	730
q_L =	1.800	180
$q_{LBALCONES}$ =	5.000	500

EVALUACIÓN CARGAS CUBIERTA



	CARGA T/m ²	CARGA Kgf/m ²
LOSETAS :	1.200	120
VIGUETAS :	1.050	105
ALIGERAMIENTO :	0.250	25
BITUMINOSO SOBRE AFINADO :	1.100	110
CIELO RASO DRYWALL :	0.500	50
TUBERIA DESCOLGADA :	0.200	20
MUROS :	3.000	300
Σ q_D =	7.300	730
q_{Lr} =	1.800	180

ANALISIS DINAMICO ELASTICO - EDIFICACION 16 PISOS ESPECTRO SISMICO DE DISEÑO BOGOTA

DATOS DE ENTRADA

Municipio = **Bogotá D. C.**
 Z.A.Sismica = **Intermedia**
 Aa = **0.15**
 Av = **0.20**

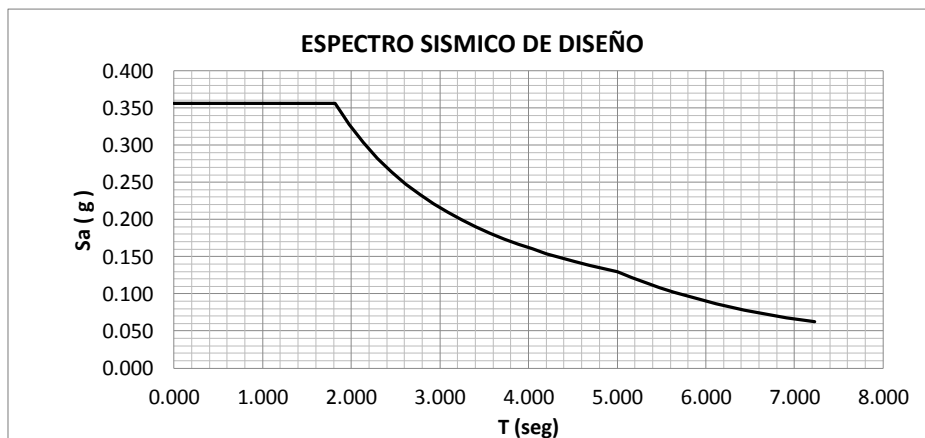
Zona = **LACUSTRE-500**

Fa = **0.95**
 Fv = **2.70**
 Grupo de Uso = **I**
 I = **1.00**
 Perfil del suelo = **F**

PERIODOS DE VIBRACION

Tc (seg) = **1.82**
 T_L (seg) = **5.00**
 ΔT1 = **0.182**
 ΔT2 = **0.159**

No	ΔT	T	Sa	No	ΔT	T	Sa
		seg	g			seg	g
1.00	0.18	0.00	0.36	24.00	0.16	3.89	0.17
2.00	0.18	0.38	0.36	25.00	0.16	4.05	0.16
3.00	0.18	0.56	0.36	26.00	0.16	4.20	0.15
4.00	0.18	0.74	0.36	27.00	0.16	4.36	0.15
5.00	0.18	0.92	0.36	28.00	0.16	4.52	0.14
6.00	0.18	1.11	0.36	29.00	0.16	4.68	0.14
7.00	0.18	1.29	0.36	30.00	0.16	4.84	0.13
8.00	0.18	1.47	0.36	31.00	0.16	5.00	0.13
9.00	0.18	1.65	0.36	32.00	0.16	5.00	0.13
10.00	0.18	1.82	0.36	33.00	0.16	5.16	0.12
11.00	0.18	1.82	0.36	34.00	0.16	5.32	0.11
12.00	0.16	1.98	0.33	35.00	0.16	5.48	0.11
13.00	0.16	2.14	0.30	36.00	0.16	5.64	0.10
14.00	0.16	2.30	0.28	37.00	0.16	5.80	0.10
15.00	0.16	2.46	0.26	38.00	0.16	5.95	0.09
16.00	0.16	2.61	0.25	39.00	0.16	6.11	0.09
17.00	0.16	2.77	0.23	40.00	0.16	6.27	0.08
18.00	0.16	2.93	0.22	41.00	0.16	6.43	0.08
19.00	0.16	3.09	0.21	42.00	0.16	6.59	0.07
20.00	0.16	3.25	0.20	43.00	0.16	6.75	0.07
21.00	0.16	3.41	0.19	44.00	0.16	6.91	0.07
22.00	0.16	3.57	0.18	45.00	0.16	7.07	0.06
23.00	0.16	3.73	0.17	46.00	0.16	7.23	0.06



ANALISIS DINAMICO ELASTICO - EDIFICACIÓN 16 PISOS
MODOS DE VIBRACIÓN

Mode	Period	UX	UY	UZ	SumUX	SumUY	SumUZ	RX	RY	RZ	SumRX	SumRY	SumRZ
1	1.472025	76.3389	0	0	76.3389	0	0	0	99.6168	0	0	99.6168	0
2	1.435803	0	67.9521	0	76.3389	67.9521	0	98.7474	0	0	98.7474	99.6168	0
3	1.265639	0	0	0	76.3389	67.9521	0	0	0	68.1119	98.7474	99.6168	68.1119
4	0.4526	11.109	0	0	87.4478	67.9521	0	0	0.0748	0	98.7474	99.6916	68.1119
5	0.337809	0	17.5127	0	87.4478	85.4649	0	0.9542	0	0	99.7016	99.6916	68.1119
6	0.300514	0	0	0	87.4478	85.4649	0	0	0	17.3682	99.7016	99.6916	85.4801
7	0.238528	4.3458	0	0	91.7936	85.4649	0	0	0.2645	0	99.7016	99.9562	85.4801
8	0.150577	2.5265	0	0	94.3201	85.4649	0	0	0.0041	0	99.7016	99.9602	85.4801
9	0.147463	0	6.5466	0	94.3201	92.0114	0	0.2424	0	0	99.944	99.9602	85.4801
10	0.131635	0	0	0	94.3201	92.0114	0	0	0	6.5343	99.944	99.9602	92.0145

ANALISIS DINAMICO ELASTICO - EDIFICACIÓN 16 PISOS
REACCION ESPECTRAL EN LA BASE

Spec	Mode	Dir	F1	F2	F3	M1	M2	M3
SDX	1	U1	34243.64	0	0	-0.001	1127378.6	-428045.482
SDX	2	U1	0	0	0	0	0	0
SDX	3	U1	0	0	0	0	0	0
SDX	4	U1	4983.19	0	0	0.002	-11788.106	-62289.91
SDX	5	U1	0	0	0	0.002	0	-0.003
SDX	6	U1	0	0	0	0	0	0
SDX	7	U1	1949.39	0	0	-0.009	13860.844	-24367.349
SDX	8	U1	1133.31	0	0	0.002	1307.879	-14166.406
SDX	9	U1	0	0	0	0	0	0
SDX	10	U1	0	0	0	0	0	0
SDX	All	All	34718.1	0	0	0.01	1127483.006	433976.205
SDY	1	U2	0	0	0	0	0.005	-0.002
SDY	2	U2	0	33439.04	0	-1161746.736	0	421331.865
SDY	3	U2	0	0	0	0	0	0
SDY	4	U2	0	0	0	0	0.002	0.009
SDY	5	U2	0	8617.96	0	-57974.497	0	108586.315
SDY	6	U2	0	0	0	0	0	0
SDY	7	U2	0	0	0	0	0.024	-0.042
SDY	8	U2	0	0	0	0	-0.001	0.007
SDY	9	U2	0	3221.54	0	-17865.857	-0.003	40591.45
SDY	10	U2	0	0	0	0	0	0
SDY	All	All	0	34720.06	0	1163536.069	0.025	437472.789
SDX =	34718.10							
SDY =	34720.06							

ANALISIS DINAMICO ELASTICO - EDIFICACIÓN 16 PISOS
REACCIONES BASE

Story	Point	Load	FX	FY	FZ	MX	MY	MZ
BASE	1	D	0.4	97.43	1481.33	-10.748	0.352	0
BASE	1	PPIO	3.37	98.69	1802.73	-2.221	2.976	0
BASE	2	D	0.42	26.13	1896.04	-22.968	0.367	0
BASE	2	PPIO	0.08	2.19	1254.43	-1.926	0.066	0
BASE	3	D	0	26.2	1955.85	-23.036	0	0
BASE	3	PPIO	0	2.2	1266.93	-1.931	0	0
BASE	4	D	-0.42	26.13	1896.04	-22.968	-0.367	0
BASE	4	PPIO	-0.08	2.19	1254.43	-1.926	-0.066	0
BASE	5	D	-0.4	97.43	1481.33	-10.748	-0.352	0
BASE	5	PPIO	-3.37	98.69	1802.73	-2.221	-2.976	0
BASE	6	D	0.85	-75.68	1558.98	0.798	0.753	0
BASE	6	PPIO	3.42	-93.84	1820.01	-0.009	3.018	0
BASE	7	D	0.89	-0.05	3222.67	0.048	0.784	0
BASE	7	PPIO	0.11	0.1	1379.23	-0.085	0.099	0
BASE	8	D	0	0.24	3352.76	-0.214	0	0
BASE	8	PPIO	0	0.13	1397.92	-0.11	0	0
BASE	9	D	-0.89	-0.05	3222.67	0.048	-0.784	0
BASE	9	PPIO	-0.11	0.1	1379.23	-0.085	-0.099	0
BASE	10	D	-0.85	-75.68	1558.98	0.798	-0.753	0
BASE	10	PPIO	-3.42	-93.84	1820.01	-0.009	-3.018	0
BASE	11	D	0.93	0.77	1790.35	-0.651	0.787	0
BASE	11	PPIO	7.63	0.38	1455.28	-0.321	6.472	0
BASE	12	D	207.78	-0.65	3145.03	0.552	-2.544	0
BASE	12	PPIO	136.37	0.04	2032.66	-0.038	-3.19	0
BASE	13	D	-222.5	0	904.09	0	0	0
BASE	13	PPIO	-138.42	0	587.55	0	0	0
BASE	14	D	0	-0.39	2775.05	0.331	0	0
BASE	14	PPIO	0	0.07	1501.29	-0.059	0	0
BASE	15	D	222.5	0	904.09	0	0	0
BASE	15	PPIO	138.42	0	587.55	0	0	0
BASE	16	D	-207.78	-0.65	3145.03	0.552	2.544	0
BASE	16	PPIO	-136.37	0.04	2032.66	-0.038	3.19	0
BASE	17	D	-0.93	0.77	1790.35	-0.651	-0.787	0
BASE	17	PPIO	-7.63	0.38	1455.28	-0.321	-6.472	0
BASE	34	D	0.93	-0.77	1790.35	0.651	0.787	0
BASE	34	PPIO	7.63	-0.38	1455.28	0.321	6.472	0
BASE	35	D	207.78	0.65	3145.03	-0.552	-2.544	0
BASE	35	PPIO	136.37	-0.04	2032.66	0.038	-3.19	0
BASE	36	D	-222.5	0	904.09	0	0	0
BASE	36	PPIO	-138.42	0	587.55	0	0	0
BASE	37	D	0	0.39	2775.05	-0.331	0	0
BASE	37	PPIO	0	-0.07	1501.29	0.059	0	0
BASE	38	D	222.5	0	904.09	0	0	0
BASE	38	PPIO	138.42	0	587.55	0	0	0
BASE	39	D	-207.78	0.65	3145.03	-0.552	2.544	0
BASE	39	PPIO	-136.37	-0.04	2032.66	0.038	3.19	0
BASE	40	D	-0.93	-0.77	1790.35	0.651	-0.787	0
BASE	40	PPIO	-7.63	-0.38	1455.28	0.321	-6.472	0
BASE	41	D	0.85	75.68	1558.98	-0.798	0.753	0
BASE	41	PPIO	3.42	93.84	1820.01	0.009	3.018	0
BASE	42	D	0.89	0.05	3222.67	-0.048	0.784	0
BASE	42	PPIO	0.11	-0.1	1379.23	0.085	0.099	0
BASE	43	D	0	-0.24	3352.76	0.214	0	0
BASE	43	PPIO	0	-0.13	1397.92	0.11	0	0
BASE	44	D	-0.89	0.05	3222.67	-0.048	-0.784	0
BASE	44	PPIO	-0.11	-0.1	1379.23	0.085	-0.099	0
BASE	45	D	-0.85	75.68	1558.98	-0.798	-0.753	0
BASE	45	PPIO	-3.42	93.84	1820.01	0.009	-3.018	0
BASE	46	D	0.4	-97.43	1481.33	10.748	0.352	0
BASE	46	PPIO	3.37	-98.69	1802.73	2.221	2.976	0
BASE	47	D	0.42	-26.13	1896.04	22.968	0.367	0
BASE	47	PPIO	0.08	-2.19	1254.43	1.926	0.066	0
BASE	48	D	0	-26.2	1955.85	23.036	0	0
BASE	48	PPIO	0	-2.2	1266.93	1.931	0	0
BASE	49	D	-0.42	-26.13	1896.04	22.968	-0.367	0
BASE	49	PPIO	-0.08	-2.19	1254.43	1.926	-0.066	0
BASE	50	D	-0.4	-97.43	1481.33	10.748	-0.352	0
BASE	50	PPIO	-3.37	-98.69	1802.73	2.221	-2.976	0
Summation	0, 0, Base	D	0	0	72161.25	902015.685	-909231.811	0
Summation	0, 0, Base	PPIO	0	0	49659.83	620747.878	-625713.861	0

PESO TOTAL W = 121821.08 KN

ANALISIS DINAMICO ELASTICO - EDIFICACIÓN 16 PISOS
VERIFICACION DEL 80% DEL CORTANTE BASAL POR FHE

ANALISIS SISMICO - FHE				$\Omega_0=$	2.5
Estructura	Regular	$T_a=$	0.89	$\phi_a=$	1.0
$C_T=$	0.049	$W (KN)=$	121821.08	$\phi_p=$	1.0
$\alpha=$	0.75	$S_a (2.5*Aa*Fa*1)=$	0.36	$\phi_r=$	1.0
$h=$	48.00	$V_s=$	43398.76	$R=$	5.0

AJUSTE DE LOS DATOS					
REACCION ESPECTRAL EN LA BASE				INDICE	FACTOR
CASOS ESPECTRALES	$SDX =$	34718.10	0.800	1.000	9.810
	$SDY =$	34720.06	0.800	1.000	9.810