Company: PDelta Ingenieria Estructural S.A.S **Engineer:** Ing. Osvaldo Guzman A

Project: P046-2024 - PLAZA DOÑA CEIBA (CAMERINOS) 5:26:59 p. m. 26/06/2024

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FOUNDATION SOIL PROPERTIES

Number of soil properties = 1

Soil	Name	Pressure Distribution	Allowable gross pres. Pa T/m2	Increase Pa Combinations incl.EQ & WL (%)	MODULUS OF SUBGRADE REACTION Gravity load Analysis, Kg T/m3	Lateral load Analysis, Ks T/m3
1	Soil1	Linear	15.2	33	300.0	300.0

* Values of subgrade reaction are used only on footings with rotations and/or vert-displac. permitted.

FOOTING DATA

Total number of footings ..... = 9

Footing	Floor	Type	V-Disp	Rotatn	B m	L m	Area m 2	X-Cent m	Y-Cent m	Theta deg	Mat --	Soil --
1-C	1	Spread	Fixed	Fixed	1.00	1.00	1.00	6.96	6.75	90.0	1	1
2-C	1	Spread	Fixed	Fixed	1.00	1.00	1.00	6.96	2.15	90.0	1	1
3-C	1	Spread	Fixed	Fixed	1.00	1.00	1.00	6.96	0.00	90.0	1	1
1-B	1	Spread	Fixed	Fixed	1.20	1.20	1.44	3.48	6.75	90.0	1	1
2-B	1	Spread	Fixed	Fixed	1.20	1.20	1.44	3.48	2.15	90.0	1	1
3-B	1	Spread	Fixed	Fixed	1.00	1.00	1.00	3.48	0.00	90.0	1	1
1-A	1	Spread	Fixed	Fixed	1.00	1.00	1.00	0.00	6.75	90.0	1	1
2-A	1	Spread	Fixed	Fixed	1.00	1.00	1.00	0.00	2.15	90.0	1	1
3-A	1	Spread	Fixed	Fixed	1.00	1.00	1.00	0.00	0.00	90.0	1	1

P-Delta Analysis- Footing Contact Pressures

Footing group		Load	Force (ton)			Moment (ton-m)			Pressure (ton/m2)	
Group	Floor	LdCase	Rx	Ry	Rz	Mx	My	Mz	PcMax	PcMin
1-C	1	D0	-0.04	-0.11	1.73	-0.13	0.12	0.00	3.23	0.24
		DL	-0.10	-0.23	1.42	0.19	-0.10	0.00	3.11	-0.28
		LL	-0.04	-0.10	0.58	0.08	-0.04	0.00	1.27	-0.11
		EQX	0.54	-0.07	-0.41	0.12	0.85	0.00	5.41	-6.23
		EQY	-0.04	0.46	-0.23	-0.78	-0.06	0.00	4.79	-5.26
		WLX	0.21	-0.17	-0.09	0.03	0.19	0.00	1.17	-1.35
		WLY	-0.11	0.25	-0.05	-0.18	-0.02	0.00	1.11	-1.21
2-C	1	D0	-0.04	0.10	2.32	0.05	0.12	0.00	3.30	1.34
		DL	-0.16	0.26	2.66	-0.30	-0.16	0.00	5.44	-0.11
		LL	-0.07	0.10	1.09	-0.12	-0.07	0.00	2.22	-0.04
		EQX	0.44	-0.11	-0.35	0.16	0.69	0.00	4.76	-5.47
		EQY	-0.01	0.69	-0.51	-1.00	-0.01	0.00	5.59	-6.60
		WLX	0.29	-0.02	-0.08	0.03	0.15	0.00	1.04	-1.20
		WLY	-0.20	0.16	-0.12	-0.23	0.00	0.00	1.29	-1.52
3-C	1	D0	-0.04	0.02	1.21	0.03	0.12	0.00	2.10	0.32
		DL	-0.07	0.05	0.49	-0.10	-0.07	0.00	1.49	-0.51
		LL	-0.03	0.02	0.20	-0.04	-0.03	0.00	0.61	-0.21
		EQX	0.43	-0.09	-0.42	0.14	0.67	0.00	4.49	-5.33
		EQY	0.03	0.59	0.71	-0.90	0.05	0.00	6.40	-4.99
		WLX	0.19	0.14	-0.09	0.03	0.15	0.00	1.00	-1.19
		WLY	-0.09	0.28	0.16	-0.21	0.01	0.00	1.48	-1.15
1-B	1	D0	0.00	-0.19	2.65	-0.05	0.00	0.00	2.03	1.65
		DL	0.00	-0.72	3.73	0.67	0.00	0.00	4.90	0.28
		LL	0.00	-0.29	1.53	0.27	0.00	0.00	2.00	0.12
		EQX	0.99	0.00	0.00	0.00	1.52	0.00	5.27	-5.27
		EQY	-0.07	0.49	-0.24	-0.84	-0.11	0.00	3.14	-3.48
		WLX	0.22	-0.32	0.00	0.00	0.33	0.00	1.15	-1.15
		WLY	0.02	0.41	-0.06	-0.19	0.03	0.00	0.72	-0.80
2-B	1	D0	0.00	0.16	3.33	-0.01	0.00	0.00	2.36	2.26
		DL	0.00	0.56	6.70	-0.61	0.00	0.00	6.76	2.54
		LL	0.00	0.23	2.74	-0.25	0.00	0.00	2.77	1.04

Group	Floor	LdCase	Rx	Ry	Rz	Mx	My	Mz	PcMax	PcMin
		EQX	0.81	0.00	0.00	0.00	1.24	0.00	4.30	-4.30
		EQY	0.02	0.75	-0.55	-1.10	0.02	0.00	3.53	-4.30
		WLX	0.18	0.00	0.00	0.00	0.28	0.00	0.96	-0.96
		WLY	0.00	0.17	-0.13	-0.25	0.01	0.00	0.81	-0.99
3-B	1	D0	0.00	0.01	1.88	0.04	0.00	0.00	2.09	1.67
		DL	0.00	0.01	1.10	-0.06	0.00	0.00	1.47	0.72
		LL	0.00	0.00	0.45	-0.03	0.00	0.00	0.60	0.30
		EQX	0.79	0.00	0.00	0.00	1.21	0.00	7.27	-7.27
		EQY	0.06	0.64	0.80	-0.99	0.09	0.00	7.25	-5.65
		WLX	0.18	0.32	0.00	0.00	0.27	0.00	1.65	-1.65
		WLY	0.01	0.44	0.18	-0.23	0.02	0.00	1.67	-1.30
1-A	1	D0	0.04	-0.11	1.73	-0.13	-0.12	0.00	3.23	0.24
		DL	0.10	-0.23	1.42	0.19	0.10	0.00	3.11	-0.28
		LL	0.04	-0.10	0.58	0.08	0.04	0.00	1.27	-0.11
		EQX	0.54	0.07	0.41	-0.12	0.85	0.00	6.23	-5.41
		EQY	0.04	0.46	-0.23	-0.78	0.06	0.00	4.79	-5.26
		WLX	0.21	-0.14	0.09	-0.03	0.19	0.00	1.35	-1.17
		WLY	0.11	0.25	-0.05	-0.18	0.02	0.00	1.11	-1.21
2-A	1	D0	0.04	0.10	2.32	0.05	-0.12	0.00	3.30	1.34
		DL	0.16	0.26	2.66	-0.30	0.16	0.00	5.44	-0.11
		LL	0.07	0.10	1.09	-0.12	0.07	0.00	2.22	-0.04
		EQX	0.44	0.11	0.35	-0.16	0.69	0.00	5.47	-4.76
		EQY	0.01	0.69	-0.51	-1.00	0.01	0.00	5.59	-6.60
		WLX	0.29	0.02	0.08	-0.03	0.15	0.00	1.20	-1.04
		WLY	0.20	0.16	-0.12	-0.23	0.00	0.00	1.29	-1.52
3-A	1	D0	0.04	0.02	1.21	0.03	-0.12	0.00	2.10	0.32
		DL	0.07	0.05	0.49	-0.10	0.07	0.00	1.49	-0.51
		LL	0.03	0.02	0.20	-0.04	0.03	0.00	0.61	-0.21
		EQX	0.43	0.09	0.42	-0.14	0.67	0.00	5.33	-4.49
		EQY	-0.03	0.59	0.71	-0.90	-0.05	0.00	6.40	-4.99
		WLX	0.19	0.18	0.09	-0.03	0.15	0.00	1.19	-1.00
		WLY	0.09	0.28	0.16	-0.21	-0.01	0.00	1.48	-1.15

P-Delta Analysis- Footing Envelopes

Load combinations : Service
Type of contact pressure: Linear, Pmax|Pmin = Rz/A (1 ± eb/S3 ± el/S2)
Self weight of footing: 0.10 Rz (D0 + DL + LL)

Group	Floor	Rz max ton	Rz min ton	Pc max ton/m2	Pc min ton/m2	Pc/Pa max	Pc/Pa min
1-C	1	4.18	1.98	7.79	2.38	0.50	0.15
2-C	1	6.68	3.24	12.01	2.09	0.77	0.13
3-C	1	2.41	0.71	7.10	2.83	0.46	0.18
1-B	1	8.70	4.45	11.40	1.75	0.73	0.11
2-B	1	14.05	6.91	14.37	0.76	0.93	0.05
3-B	1	4.07	1.57	8.57	3.06	0.55	0.20
1-A	1	4.18	1.98	7.79	2.38	0.50	0.15
2-A	1	6.68	3.24	12.01	2.09	0.77	0.13
3-A	1	2.41	0.71	7.10	2.83	0.46	0.18

Design results - Footings

Footing	Floor	Mat	B m	L m	h cm	Vu1/ØVc1 Vu2/ØVc2	Dir -	Reinforcem	As cm2	Mu ton-m
1-C	1	1	1.00	1.00	35	0.09	B	5#4@21 cm	6.300	0.69
						0.15	L	5#4@21 cm	6.300	0.70
2-C	1	1	1.00	1.00	35	0.14	B	5#4@21 cm	6.300	1.00
						0.19	L	5#4@21 cm	6.300	0.84
3-C	1	1	1.00	1.00	35	0.09	B	5#4@21 cm	6.300	0.68
						0.13	L	5#4@21 cm	6.300	0.49

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Footing	Floor	Mat	B	L	h	Vu1/ØVc1	Dir	Reinforcem	As	Mu
1-B	1	1	1.20	1.20	35	0.19	B	6#4@21 cm	7.560	1.53
						0.25	L	6#4@20 cm	7.560	1.41
2-B	1	1	1.20	1.20	35	0.24	B	6#4@21 cm	7.560	2.02
						0.28	L	6#4@21 cm	7.560	1.70
3-B	1	1	1.00	1.00	35	0.11	B	5#4@21 cm	6.300	0.80
						0.14	L	5#4@21 cm	6.300	0.74
1-A	1	1	1.00	1.00	35	0.09	B	5#4@21 cm	6.300	0.69
						0.14	L	5#4@21 cm	6.300	0.70
2-A	1	1	1.00	1.00	35	0.14	B	5#4@21 cm	6.300	1.00
						0.19	L	5#4@21 cm	6.300	0.84
3-A	1	1	1.00	1.00	35	0.09	B	5#4@21 cm	6.300	0.68
						0.13	L	5#4@21 cm	6.300	0.49