MEMORIAL DE CÁLCULO DAS FUNDAÇÕES

IDENTIFICAÇÃO DA OBRA

Empreendimento: **Implantação de Pronto Atendimento Médico – PAM**
Área da Edificação: **812,89 m²**
Local: Lote 19 da Quadra 01
Rua Marginal, esquina com Rua “B” e Rua “C”
Loteamento Habitacional de Interesse Social João Fritzen

Município: Nova Esperança do Sudoeste/PR

1. Método adotado

Para a estimativa da capacidade de carga do solo, foi utilizado o método semiempírico de:

Décourt-Quaresma

Com base nos valores de NSPT obtidos nas sondagens realizadas no terreno.

2. Parâmetros geotécnicos adotados

Com base no SPT:

Solo predominante: argila siltosa rija a dura
NSPT na cota de apoio (~1,50 m): ≥ 8 a 10
Profundidade de apoio: 1,50 m

- Tensão admissível adotada:

σ_{adm} = 150kN/m²

Valor conservador e compatível com os dados de sondagem.

3. Critério de dimensionamento

As sapatas foram dimensionadas conforme:

$A = N/\sigma_{adm}$

Onde:
A = área da sapata
N = carga do pilar
σ_{adm} = tensão admissível do solo

4. VERIFICAÇÃO DAS SAPATAS (exemplos:)

- **Sapata S1**
  Carga: 5,39 tf ≈ 53,9 kN
  Dimensão: 1,51 x 1,75 m
  Área: 2,64 m²

  Tensão:
  σ= 2,64 / 53,9= 20,4kN/m²

- **Sapata S42**
  Carga: 32,93 tf ≈ 329 kN
  Dimensão: 2,05 x 2,36 m
  Área: 4,84 m²

  Tensão:
  σ= 4,84 / 329= 68,0kN/m²

- **Sapata S18**
  Carga: 15,37 tf ≈ 153,7 kN
  Área estimada ≈ 3,0 m²

Relatório das Sapatas

Fundação fck = 250.00 kgf/cm² E = 238000 kgf/cm² Peso Espec = 2500.00 kgf/m³
Lance 1 cobr = 3.00 cm

Nome	Dados						Resultados			
	Esforços			Solo			Dimensões (cm)		Armadura	
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	E Solo (kgf/m³) Coesão (kgf/cm²)	Ângulo atrito (graus)	B H	H0 H1	AsB inf AsB sup	AsH inf AsH sup
S1	22.97 22.97	0.02 0.02	5.39 6.00	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S1GA	3.91 3.91	0.00 0.00	0.92 1.53	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S1RE	0.00 0.00	0.02 0.02	5.20 6.23	2.50	1900.00 0.60	75	60.00 75.00	30.00 30.00	9 ø 8.0 c/8 (4.52 cm²)	6 ø 10.0 c/10 (4.71 cm²)
S1VC	10.39 10.39	0.01 0.01	2.44 3.05	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S2	43.15 43.15	0.04 0.04	10.12 10.90	2.50	1900.00 0.60	75	65.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S2GA	25.36 25.36	0.02 0.02	5.95 6.56	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S2RE	19.48 19.48	0.02 0.02	4.57 5.18	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S2VC	10.05 10.05	0.01 0.01	2.36 2.97	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S3	50.40 50.40	0.04 0.04	11.82 12.79	2.50	1900.00 0.60	75	70.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S3GA	17.04 17.04	0.01 0.01	4.00 4.61	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S3RE	0.00 0.00	0.02 0.02	5.75 6.85	2.50	1900.00 0.60	75	60.00 80.00	30.00 30.00	9 ø 8.0 c/9 (4.52 cm²)	6 ø 10.0 c/10 (4.71 cm²)
S3VC	10.39 10.39	0.01 0.01	2.44 3.05	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S4	51.17 51.17	0.04 0.04	12.00 12.97	2.50	1900.00 0.60	75	70.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S4GA	5.40 5.40	0.00 0.00	1.27 1.88	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S4RE	23.66 23.66	0.02 0.02	5.55 6.16	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S4VC	10.39 10.39	0.01 0.01	2.44 3.05	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S5	50.66 50.66	0.04 0.04	11.88 12.85	2.50	1900.00 0.60	75	70.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S5GA	30.27 30.27	0.03 0.03	7.10 7.71	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S6	25.19 25.19	0.02 0.02	5.91 6.52	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S6GA	21.40 21.40	0.02 0.02	5.02 5.63	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S7	38.80 38.80	0.03 0.03	9.10 9.82	2.50	1900.00 0.60	75	60.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S7GA	2.93 2.93	0.00 0.00	0.69 1.30	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S8	26.09 26.09	0.02 0.02	6.12 6.73	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S8GA	2.88 2.88	0.00 0.00	0.68 1.29	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S9	96.60 96.60	0.08 0.08	22.65 24.43	2.50	1900.00 0.60	75	90.00 120.00	30.00 30.00	13 ø 8.0 c/9 (6.53 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S10	140.46	0.12	32.93	2.50	1900.00	75	120.00	20.00	14 ø 8.0 c/9	12 ø 8.0 c/10

Nome	Dados						Resultados			
	Esforços			Solo			Dimensões (cm)		Armadura	
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	E Solo (kgf/m³) Coesão (kgf/cm²)	Ângulo atrito (graus)	B H	H0 H1	AsB inf AsB sup	AsH inf AsH sup
	140.46 	0.12 	35.49 		0.60 		130.00 	35.00 	(7.04 cm²) 	(6.03 cm²)
S11	64.35 64.35	0.05 0.05	15.09 16.26	2.50	1900.00 0.60	75	75.00 95.00	30.00 30.00	8 ø 8.0 c/12 (4.02 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S12	72.71 72.71	0.06 0.06	17.05 18.37	2.50	1900.00 0.60	75	80.00 100.00	30.00 30.00	9 ø 8.0 c/11 (4.52 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S13	49.38 49.38	0.04 0.04	11.58 12.48	2.50	1900.00 0.60	75	65.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S14	7.15 7.15	0.01 0.01	1.68 2.29	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S15	56.29 56.29	0.05 0.05	13.20 14.23	2.50	1900.00 0.60	75	70.00 90.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S16	41.91 41.91	0.03 0.03	9.83 10.60	2.50	1900.00 0.60	75	60.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S17	24.17 24.17	0.02 0.02	5.67 6.28	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S18	65.54 65.54	0.05 0.05	15.37 16.62	2.50	1900.00 0.60	75	80.00 95.00	30.00 30.00	8 ø 8.0 c/12 (4.02 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S19	70.49 70.49	0.06 0.06	16.53 17.85	2.50	1900.00 0.60	75	80.00 100.00	30.00 30.00	9 ø 8.0 c/11 (4.52 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S20	49.72 49.72	0.04 0.04	11.66 12.57	2.50	1900.00 0.60	75	70.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S21	43.62 43.62	0.04 0.04	10.23 11.07	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S22	51.25 51.25	0.04 0.04	12.02 12.99	2.50	1900.00 0.60	75	70.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S23	23.19 23.19	0.02 0.02	5.44 6.05	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S24	27.07 27.07	0.02 0.02	6.35 6.96	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S25	26.73 26.73	0.02 0.02	6.27 6.88	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S26	32.10 32.10	0.03 0.03	7.53 8.14	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S27	45.15 45.15	0.04 0.04	10.59 11.43	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S28	28.99 28.99	0.02 0.02	6.80 7.41	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S29	27.28 27.28	0.02 0.02	6.40 7.01	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S30	45.67 45.67	0.04 0.04	10.71 11.55	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S31	33.42 33.42	0.03 0.03	7.84 8.45	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S32	30.65 30.65	0.03 0.03	7.19 7.80	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S33	29.03 29.03	0.02 0.02	6.81 7.42	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S34	36.75 36.75	0.03 0.03	8.62 9.29	2.50	1900.00 0.60	75	60.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S35	22.50 22.50	0.02 0.02	5.28 5.89	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S36	40.50 40.50	0.03 0.03	9.50 10.27	2.50	1900.00 0.60	75	60.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S37	44.30 44.30	0.04 0.04	10.39 11.23	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S38	27.71 27.71	0.02 0.02	6.50 7.11	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)

Nome	Dados						Resultados			
	Esforços			Solo			Dimensões (cm)		Armadura	
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	E Solo (kgf/m³) Coesão (kgf/cm²)	Ângulo atrito (graus)	B H	H0 H1	AsB inf AsB sup	AsH inf AsH sup
S39	44.04 44.04	0.04 0.04	10.33 11.17	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S40	43.02 43.02	0.04 0.04	10.09 10.87	2.50	1900.00 0.60	75	65.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S41	39.69 39.69	0.03 0.03	9.31 10.03	2.50	1900.00 0.60	75	60.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S42	37.43 37.43	0.03 0.03	8.78 9.50	2.50	1900.00 0.60	75	60.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S43	46.69 46.69	0.04 0.04	10.95 11.85	2.50	1900.00 0.60	75	65.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S44	22.67 22.67	0.02 0.02	5.32 5.93	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S45	40.25 40.25	0.03 0.03	9.44 10.21	2.50	1900.00 0.60	75	60.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S46	43.11 43.11	0.04 0.04	10.11 10.89	2.50	1900.00 0.60	75	65.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S47	32.19 32.19	0.03 0.03	7.55 8.16	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S48	45.24 45.24	0.04 0.04	10.61 11.45	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S49	34.87 34.87	0.03 0.03	8.18 8.84	2.50	1900.00 0.60	75	55.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S50	35.30 35.30	0.03 0.03	8.28 8.94	2.50	1900.00 0.60	75	55.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S51	34.49 34.49	0.03 0.03	8.09 8.75	2.50	1900.00 0.60	75	55.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S52	43.92 43.92	0.04 0.04	10.30 11.14	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S53	47.12 47.12	0.04 0.04	11.05 11.95	2.50	1900.00 0.60	75	65.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S54	45.88 45.88	0.04 0.04	10.76 11.60	2.50	1900.00 0.60	75	65.00 80.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S55	36.96 36.96	0.03 0.03	8.67 9.34	2.50	1900.00 0.60	75	60.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S56	47.54 47.54	0.04 0.04	11.15 12.05	2.50	1900.00 0.60	75	65.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S57	30.22 30.22	0.03 0.03	7.09 7.70	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S58	37.43 37.43	0.03 0.03	8.78 9.50	2.50	1900.00 0.60	75	60.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/10 (3.02 cm²)
S59	34.11 34.11	0.03 0.03	8.00 8.66	2.50	1900.00 0.60	75	55.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S60	33.55 33.55	0.03 0.03	7.87 8.48	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S61	58.42 58.42	0.05 0.05	13.70 14.80	2.50	1900.00 0.60	75	75.00 90.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S62	78.89 78.89	0.07 0.07	18.50 19.97	2.50	1900.00 0.60	75	85.00 105.00	30.00 30.00	9 ø 8.0 c/11 (4.52 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S63	46.82 46.82	0.04 0.04	10.98 11.88	2.50	1900.00 0.60	75	65.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/11 (3.02 cm²)
S64	12.74 12.74	0.01 0.01	2.99 3.60	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S65	55.82 55.82	0.05 0.05	13.09 14.12	2.50	1900.00 0.60	75	70.00 90.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	6 ø 8.0 c/12 (3.02 cm²)
S66	35.68 35.68	0.03 0.03	8.37 9.03	2.50	1900.00 0.60	75	55.00 75.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S67	6.81	0.01	1.60	2.50	1900.00	75	55.00	30.00	6 ø 8.0 c/12	6 ø 8.0 c/9

Nome	Dados						Resultados			
	Esforços			Solo			Dimensões (cm)		Armadura	
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	E Solo (kgf/m³) Coesão (kgf/cm²)	Ângulo atrito (graus)	B H	H0 H1	AsB inf AsB sup	AsH inf AsH sup
	6.81	0.01	2.21		0.60		70.00	30.00	(3.02 cm²)	(3.02 cm²)
S91	9.50 9.50	0.01 0.01	2.23 3.26	2.50	1900.00 0.60	75	85.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S92	9.50 9.50	0.01 0.01	2.23 3.26	2.50	1900.00 0.60	75	85.00 85.00	30.00 30.00	7 ø 8.0 c/12 (3.52 cm²)	7 ø 8.0 c/12 (3.52 cm²)
S101	7.49 7.49	0.01 0.01	1.76 2.37	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S102	11.37 11.37	0.01 0.01	2.67 3.28	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S103	9.32 9.32	0.01 0.01	2.19 2.80	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S104	9.20 9.20	0.01 0.01	2.16 2.77	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S105	11.46 11.46	0.01 0.01	2.69 3.30	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S106	8.98 8.98	0.01 0.01	2.11 2.72	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S107	10.60 10.60	0.01 0.01	2.49 3.10	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)
S108	15.34 15.34	0.01 0.01	3.60 4.21	2.50	1900.00 0.60	75	55.00 70.00	30.00 30.00	6 ø 8.0 c/12 (3.02 cm²)	6 ø 8.0 c/9 (3.02 cm²)

Relatório de cálculo das sapatas

Fundação fck = 250.00 kgf/cm² E = 238000 kgf/cm² Peso Espec = 2500.00 kgf/m³
Lance 1 cobr = 3.00 cm

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
S1	25.13 53.86	0.02 0.02	5.39 6.00	2.50	1.37 1.51 1.75 1.61	25.13 1650.17 65.65	53.86 2100.21 38.99	0.02 2.08 108.60	0.02 2.08 108.60		2858.10 4.26 0.00	2858.10 4.26 0.00
S1GA	4.27 9.16	0.00 0.00	0.92 1.53	2.50	0.37 0.39 0.43 0.41	4.27 420.92 98.47	9.16 535.71 58.48	0.00 2.08 638.53	0.00 2.08 638.53		2858.10 4.26 0.00	2858.10 4.26 0.00
S1RE	0.00 0.00	0.02 0.02	5.20 6.23	2.50	0.00 0.00 2.50 2.50			0.02 2.43 131.57	0.02 2.43 131.57		2858.10 4.26 0.00	2858.10 4.26 0.00
S1VC	11.37 24.36	0.01 0.01	2.44 3.05	2.50	0.71 0.77 0.88 0.81	11.37 838.92 73.80	24.36 1067.71 43.83	0.01 2.08 240.10	0.01 2.08 240.10		2858.10 4.26 0.00	2858.10 4.26 0.00
S2	47.21 101.16	0.04 0.04	10.12 10.90	2.50	1.98 2.16 2.49 2.31	47.21 3544.08 75.07	101.16 4089.32 40.42	0.04 2.63 73.21	0.04 2.63 73.21		2858.10 4.26 0.00	2858.10 4.26 0.00
S2GA	27.75 59.46	0.02 0.02	5.95 6.56	2.50	1.49 1.65 1.92 1.76	27.75 1804.16 65.02	59.46 2296.21 38.62	0.02 2.08 98.37	0.02 2.08 98.37		2858.10 4.26 0.00	2858.10 4.26 0.00
S2RE	21.31 45.66	0.02 0.02	4.57 5.18	2.50	1.18 1.30 1.51 1.39	21.31 1424.66 66.86	45.66 1813.21 39.71	0.02 2.08 128.10	0.02 2.08 128.10		2858.10 4.26 0.00	2858.10 4.26 0.00
S2VC	10.99 23.56	0.01 0.01	2.36 2.97	2.50	0.69 0.75 0.86 0.79	10.99 816.91 74.30	23.56 1039.71 44.13	0.01 2.08 248.26	0.01 2.08 248.26		2858.10 4.26 0.00	2858.10 4.26 0.00
S3	55.14 118.16	0.04 0.04	11.82 12.79	2.50	1.93 2.09 2.37 2.21	55.14 4475.66 81.17	118.16 5434.73 45.99	0.04 3.21 76.50	0.04 3.21 76.50		2858.10 4.26 0.00	2858.10 4.26 0.00
S3GA	18.65 39.96	0.01 0.01	4.00 4.61	2.50	1.06 1.16 1.34 1.23	18.65 1267.92 67.99	39.96 1613.71 40.38	0.01 2.08 146.37	0.01 2.08 146.37		2858.10 4.26 0.00	2858.10 4.26 0.00
S3RE	0.00 0.00	0.02 0.02	5.75 6.85	2.50	0.00 0.00 2.50 2.50			0.02 2.59 126.91	0.02 2.59 126.91		2858.10 4.26 0.00	2858.10 4.26 0.00
S3VC	11.37 24.36	0.01 0.01	2.44 3.05	2.50	0.71 0.77 0.88 0.81	11.37 838.92 73.80	24.36 1067.71 43.83	0.01 2.08 240.10	0.01 2.08 240.10		2858.10 4.26 0.00	2858.10 4.26 0.00

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
S4	55.98 119.96	0.04 0.04	12.00 12.97	2.50	1.96 2.12 2.40 2.24	55.98 4538.66 81.07	119.96 5511.23 45.94	0.04 3.21 75.35	0.04 3.21 75.35		2858.10 4.26 0.00	2858.10 4.26 0.00
S4GA	5.91 12.66	0.00 0.00	1.27 1.88	2.50	0.44 0.48 0.53 0.50	5.91 517.16 87.54	12.66 658.21 51.99	0.00 2.08 462.00	0.00 2.08 462.00		2858.10 4.26 0.00	2858.10 4.26 0.00
S4RE	25.88 55.46	0.02 0.02	5.55 6.16	2.50	1.40 1.55 1.80 1.65	25.88 1694.17 65.46	55.46 2156.21 38.88	0.02 2.08 105.46	0.02 2.08 105.46		2858.10 4.26 0.00	2858.10 4.26 0.00
S4VC	11.37 24.36	0.01 0.01	2.44 3.05	2.50	0.71 0.77 0.88 0.81	11.37 838.92 73.80	24.36 1067.71 43.83	0.01 2.08 240.10	0.01 2.08 240.10		2858.10 4.26 0.00	2858.10 4.26 0.00
S5	55.42 118.76	0.04 0.04	11.88 12.85	2.50	1.94 2.10 2.38 2.22	55.42 4496.66 81.14	118.76 5460.23 45.98	0.04 3.21 76.11	0.04 3.21 76.11		2858.10 4.26 0.00	2858.10 4.26 0.00
S5GA	33.11 70.96	0.03 0.03	7.10 7.71	2.50	1.75 1.94 2.25 2.07	33.11 2120.42 64.03	70.96 2698.71 38.03	0.03 2.08 82.43	0.03 2.08 82.43		2858.10 4.26 0.00	2858.10 4.26 0.00
S6	27.56 59.06	0.02 0.02	5.91 6.52	2.50	1.48 1.64 1.90 1.75	27.56 1793.17 65.06	59.06 2282.21 38.64	0.02 2.08 99.03	0.02 2.08 99.03		2858.10 4.26 0.00	2858.10 4.26 0.00
S6GA	23.41 50.16	0.02 0.02	5.02 5.63	2.50	1.28 1.42 1.64 1.51	23.41 1548.41 66.15	50.16 1970.71 39.29	0.02 2.08 116.61	0.02 2.08 116.61		2858.10 4.26 0.00	2858.10 4.26 0.00
S7	42.45 90.96	0.03 0.03	9.10 9.82	2.50	1.93 2.12 2.44 2.25	42.45 2946.33 69.41	90.96 3682.91 40.49	0.03 2.43 75.16	0.03 2.43 75.16		2858.10 4.26 0.00	2858.10 4.26 0.00
S7GA	3.20 6.86	0.00 0.00	0.69 1.30	2.50	0.31 0.33 0.36 0.34	3.20 357.67 111.72	6.86 455.21 66.36	0.00 2.08 852.61	0.00 2.08 852.61		2858.10 4.26 0.00	2858.10 4.26 0.00
S8	28.54 61.16	0.02 0.02	6.12 6.73	2.50	1.53 1.69 1.97 1.80	28.54 1850.91 64.85	61.16 2355.71 38.52	0.02 2.08 95.63	0.02 2.08 95.63		2858.10 4.26 0.00	2858.10 4.26 0.00
S8GA	3.15 6.76	0.00 0.00	0.68 1.29	2.50	0.31 0.33 0.36 0.34	3.15 354.92 112.50	6.76 451.71 66.82	0.00 2.08 865.23	0.00 2.08 865.23		2858.10 4.26 0.00	2858.10 4.26 0.00
S9	105.69 301.97	0.08 0.08	22.65 24.43	2.50	2.06 2.19 2.47 2.34	105.69 10993.86 104.02	301.97 14658.48 48.54	0.08 5.83 72.45	0.08 5.83 72.45		2858.10 5.40 0.00	2858.10 4.26 0.00
S10	219.53 329.30	0.12	32.93 35.49	2.50	2.11 2.25	219.53	329.30	0.12 8.42	0.12 8.42		3586.99 5.70	3621.30 5.17

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
		0.12			2.44 2.30	21297.00 97.01	23071.75 70.06	71.97	71.97		0.00	0.00
S11	70.40 150.86	0.05 0.05	15.09 16.26	2.50	2.07 2.23 2.49 2.34	70.40 6096.51 86.60	150.86 7722.24 51.19	0.05 3.85 71.75	0.05 3.85 71.75		2858.10 4.28 0.00	2858.10 4.26 0.00
S12	79.55 170.46	0.06 0.06	17.05 18.37	2.50	2.09 2.24 2.50 2.35	79.55 7346.44 92.35	170.46 9183.05 53.87	0.06 4.32 71.30	0.06 4.32 71.30		2858.10 4.50 0.00	2858.10 4.26 0.00
S13	54.02 115.76	0.04 0.04	11.58 12.48	2.50	2.02 2.20 2.50 2.32	54.02 4054.49 75.05	115.76 5302.02 45.80	0.04 2.98 72.51	0.04 2.98 72.51		2858.10 4.26 0.00	2858.10 4.26 0.00
S14	7.82 16.76	0.01 0.01	1.68 2.29	2.50	0.54 0.58 0.65 0.61	7.82 629.92 80.54	16.76 801.71 47.83	0.01 2.08 348.98	0.01 2.08 348.98		2858.10 4.26 0.00	2858.10 4.26 0.00
S15	61.58 131.96	0.05 0.05	13.20 14.23	2.50	2.03 2.20 2.48 2.31	61.58 4979.49 80.86	131.96 6402.20 48.52	0.05 3.40 72.53	0.05 3.40 72.53		2858.10 4.26 0.00	2858.10 4.26 0.00
S16	45.85 98.26	0.03 0.03	9.83 10.60	2.50	1.96 2.15 2.46 2.27	45.85 3180.63 69.36	98.26 4240.84 43.16	0.03 2.59 74.21	0.03 2.59 74.21		2858.10 4.26 0.00	2858.10 4.26 0.00
S17	26.44 56.66	0.02 0.02	5.67 6.28	2.50	1.43 1.58 1.83 1.68	26.44 1727.17 65.32	56.66 2198.21 38.80	0.02 2.08 103.23	0.02 2.08 103.23		2858.10 4.26 0.00	2858.10 4.26 0.00
S18	71.71 153.66	0.05 0.05	15.37 16.62	2.50	1.99 2.13 2.39 2.24	71.71 6647.24 92.70	153.66 7893.60 51.37	0.05 4.10 75.14	0.05 4.10 75.14		2858.10 4.28 0.00	2858.10 4.26 0.00
S19	77.12 165.26	0.06 0.06	16.53 17.85	2.50	2.03 2.18 2.43 2.28	77.12 7138.44 92.56	165.26 8923.05 53.99	0.06 4.32 73.54	0.06 4.32 73.54		2858.10 4.50 0.00	2858.10 4.26 0.00
S20	54.39 116.56	0.04 0.04	11.66 12.57	2.50	2.00 2.17 2.48 2.32	54.39 4398.84 80.87	116.56 5027.24 43.13	0.04 3.02 72.99	0.04 3.02 72.99		2858.10 4.26 0.00	2858.10 4.26 0.00
S21	47.72 102.26	0.04 0.04	10.23 11.07	2.50	1.90 2.07 2.36 2.19	47.72 3597.78 75.39	102.26 4428.04 43.30	0.04 2.81 77.25	0.04 2.81 77.25		2858.10 4.26 0.00	2858.10 4.26 0.00
S22	56.07 120.16	0.04 0.04	12.02 12.99	2.50	1.96 2.12 2.41 2.24	56.07 4545.66 81.06	120.16 5519.73 45.94	0.04 3.21 75.23	0.04 3.21 75.23		2858.10 4.26 0.00	2858.10 4.26 0.00
S23	25.37 54.36	0.02	5.44 6.05	2.50	1.38 1.52	25.37 1663.91 65.59	54.36 2117.71 38.96	0.02 2.08	0.02 2.08		2858.10 4.26 0.00	2858.10 4.26 0.00

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
		0.02			1.76 1.62			107.60	107.60			
S24	29.61 63.46	0.02 0.02	6.35 6.96	2.50	1.58 1.75 2.03 1.87	29.61 1914.17 64.64	63.46 2436.21 38.39	0.02 2.08 92.17	0.02 2.08 92.17		2858.10 4.26 0.00	2858.10 4.26 0.00
S25	29.24 62.66	0.02 0.02	6.27 6.88	2.50	1.56 1.73 2.01 1.84	29.24 1892.16 64.71	62.66 2408.21 38.43	0.02 2.08 93.34	0.02 2.08 93.34		2858.10 4.26 0.00	2858.10 4.26 0.00
S26	35.12 75.26	0.03 0.03	7.53 8.14	2.50	1.85 2.05 2.38 2.18	35.12 2238.66 63.74	75.26 2849.21 37.86	0.03 2.08 77.72	0.03 2.08 77.72		2858.10 4.26 0.00	2858.10 4.26 0.00
S27	49.40 105.86	0.04 0.04	10.59 11.43	2.50	1.96 2.13 2.44 2.26	49.40 3714.78 75.20	105.86 4572.04 43.19	0.04 2.81 74.63	0.04 2.81 74.63		2858.10 4.26 0.00	2858.10 4.26 0.00
S28	31.71 67.96	0.02 0.02	6.80 7.41	2.50	1.68 1.86 2.17 1.99	31.71 2037.91 64.26	67.96 2593.71 38.17	0.02 2.08 86.06	0.02 2.08 86.06		2858.10 4.26 0.00	2858.10 4.26 0.00
S29	29.85 63.96	0.02 0.02	6.40 7.01	2.50	1.59 1.76 2.05 1.88	29.85 1927.91 64.59	63.96 2453.71 38.36	0.02 2.08 91.45	0.02 2.08 91.45		2858.10 4.26 0.00	2858.10 4.26 0.00
S30	49.96 107.06	0.04 0.04	10.71 11.55	2.50	1.98 2.16 2.46 2.29	49.96 3753.78 75.13	107.06 4620.04 43.15	0.04 2.81 73.79	0.04 2.81 73.79		2858.10 4.26 0.00	2858.10 4.26 0.00
S31	36.57 78.36	0.03 0.03	7.84 8.45	2.50	1.92 2.12 2.47 2.27	36.57 2323.91 63.55	78.36 2957.71 37.75	0.03 2.08 74.64	0.03 2.08 74.64		2858.10 4.26 0.00	2858.10 4.26 0.00
S32	33.53 71.86	0.03 0.03	7.19 7.80	2.50	1.77 1.96 2.28 2.09	33.53 2145.16 63.97	71.86 2730.21 37.99	0.03 2.08 81.39	0.03 2.08 81.39		2858.10 4.26 0.00	2858.10 4.26 0.00
S33	31.76 68.06	0.02 0.02	6.81 7.42	2.50	1.69 1.87 2.17 1.99	31.76 2040.67 64.25	68.06 2597.21 38.16	0.02 2.08 85.94	0.02 2.08 85.94		2858.10 4.26 0.00	2858.10 4.26 0.00
S34	40.21 86.16	0.03 0.03	8.62 9.29	2.50	1.94 2.13 2.48 2.29	40.21 2787.03 69.32	86.16 3251.54 37.74	0.03 2.27 74.06	0.03 2.27 74.06		2858.10 4.26 0.00	2858.10 4.26 0.00
S35	24.62 52.76	0.02 0.02	5.28 5.89	2.50	1.34 1.48 1.72 1.58	24.62 1619.92 65.79	52.76 2061.71 39.08	0.02 2.08 110.86	0.02 2.08 110.86		2858.10 4.26 0.00	2858.10 4.26 0.00
S36	44.31 94.96	0.03 0.03	9.50 10.27	2.50	1.90 2.08 2.38 2.20	44.31 3081.63 69.54	94.96 4108.84 43.27	0.03 2.59 76.79	0.03 2.59 76.79		2858.10 4.26 0.00	2858.10 4.26 0.00

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
S37	48.47 103.86	0.04 0.04	10.39 11.23	2.50	1.92 2.10 2.40 2.22	48.47 3649.78 75.30	103.86 4492.04 43.25	0.04 2.81 76.06	0.04 2.81 76.06		2858.10 4.26 0.00	2858.10 4.26 0.00
S38	30.31 64.96	0.02 0.02	6.50 7.11	2.50	1.62 1.79 2.08 1.91	30.31 1955.41 64.50	64.96 2488.71 38.31	0.02 2.08 90.04	0.02 2.08 90.04		2858.10 4.26 0.00	2858.10 4.26 0.00
S39	48.19 103.26	0.04 0.04	10.33 11.17	2.50	1.91 2.08 2.38 2.21	48.19 3630.28 75.34	103.26 4468.04 43.27	0.04 2.81 76.50	0.04 2.81 76.50		2858.10 4.26 0.00	2858.10 4.26 0.00
S40	47.07 100.86	0.04 0.04	10.09 10.87	2.50	1.98 2.15 2.49 2.31	47.07 3534.33 75.09	100.86 4078.07 40.43	0.04 2.63 73.43	0.04 2.63 73.43		2858.10 4.26 0.00	2858.10 4.26 0.00
S41	43.43 93.06	0.03 0.03	9.31 10.03	2.50	1.97 2.16 2.49 2.30	43.43 3009.33 69.29	93.06 3761.66 40.42	0.03 2.43 73.46	0.03 2.43 73.46		2858.10 4.26 0.00	2858.10 4.26 0.00
S42	40.95 87.76	0.03 0.03	8.78 9.50	2.50	1.86 2.05 2.36 2.18	40.95 2850.33 69.60	87.76 3562.91 40.60	0.03 2.43 77.90	0.03 2.43 77.90		2858.10 4.26 0.00	2858.10 4.26 0.00
S43	51.08 109.46	0.04 0.04	10.95 11.85	2.50	1.92 2.09 2.37 2.20	51.08 3849.74 75.36	109.46 5034.27 45.99	0.04 2.98 76.68	0.04 2.98 76.68		2858.10 4.26 0.00	2858.10 4.26 0.00
S44	24.81 53.16	0.02 0.02	5.32 5.93	2.50	1.35 1.49 1.73 1.59	24.81 1630.91 65.74	53.16 2075.71 39.05	0.02 2.08 110.03	0.02 2.08 110.03		2858.10 4.26 0.00	2858.10 4.26 0.00
S45	44.03 94.36	0.03 0.03	9.44 10.21	2.50	1.89 2.07 2.37 2.18	44.03 3063.63 69.57	94.36 4084.84 43.29	0.03 2.59 77.28	0.03 2.59 77.28		2858.10 4.26 0.00	2858.10 4.26 0.00
S46	47.16 101.06	0.04 0.04	10.11 10.89	2.50	1.98 2.16 2.49 2.31	47.16 3540.83 75.08	101.06 4085.57 40.43	0.04 2.63 73.28	0.04 2.63 73.28		2858.10 4.26 0.00	2858.10 4.26 0.00
S47	35.21 75.46	0.03 0.03	7.55 8.16	2.50	1.85 2.05 2.39 2.19	35.21 2244.16 63.73	75.46 2856.21 37.85	0.03 2.08 77.51	0.03 2.08 77.51		2858.10 4.26 0.00	2858.10 4.26 0.00
S48	49.49 106.06	0.04 0.04	10.61 11.45	2.50	1.96 2.14 2.44 2.27	49.49 3721.28 75.19	106.06 4580.04 43.18	0.04 2.81 74.48	0.04 2.81 74.48		2858.10 4.26 0.00	2858.10 4.26 0.00
S49	38.15 81.76	0.03 0.03	8.18 8.84	2.50	1.88 2.08 2.40 2.20	38.15 2430.27 63.70	81.76 3314.01 40.53	0.03 2.23 76.65	0.03 2.23 76.65		2858.10 4.26 0.00	2858.10 4.26 0.00
S50	38.62 82.76	0.03	8.28 8.94	2.50	1.90 2.11	38.62 2457.77	82.76 3351.51	0.03 2.23	0.03 2.23		2858.10 4.26	2858.10 4.26

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
		0.03			2.43 2.22	63.64	40.50	75.72	75.72		0.00	0.00
S51	37.73 80.86	0.03 0.03	8.09 8.75	2.50	1.86 2.06 2.38 2.18	37.73 2405.52 63.75	80.86 3280.26 40.57	0.03 2.23 77.50	0.03 2.23 77.50		2858.10 4.26 0.00	2858.10 4.26 0.00
S52	48.05 102.96	0.04 0.04	10.30 11.14	2.50	1.91 2.08 2.38 2.21	48.05 3620.53 75.35	102.96 4456.04 43.28	0.04 2.81 76.73	0.04 2.81 76.73		2858.10 4.26 0.00	2858.10 4.26 0.00
S53	51.55 110.46	0.04 0.04	11.05 11.95	2.50	1.93 2.11 2.39 2.22	51.55 3882.24 75.31	110.46 5076.77 45.96	0.04 2.98 75.99	0.04 2.98 75.99		2858.10 4.26 0.00	2858.10 4.26 0.00
S54	50.19 107.56	0.04 0.04	10.76 11.60	2.50	1.99 2.16 2.48 2.30	50.19 3770.03 75.11	107.56 4640.04 43.14	0.04 2.81 73.45	0.04 2.81 73.45		2858.10 4.26 0.00	2858.10 4.26 0.00
S55	40.44 86.66	0.03 0.03	8.67 9.34	2.50	1.95 2.14 2.50 2.30	40.44 2802.03 69.29	86.66 3269.03 37.72	0.03 2.27 73.63	0.03 2.27 73.63		2858.10 4.26 0.00	2858.10 4.26 0.00
S56	52.01 111.46	0.04 0.04	11.15 12.05	2.50	1.95 2.12 2.41 2.24	52.01 3914.74 75.26	111.46 5119.27 45.93	0.04 2.98 75.31	0.04 2.98 75.31		2858.10 4.26 0.00	2858.10 4.26 0.00
S57	33.07 70.86	0.03 0.03	7.09 7.70	2.50	1.75 1.94 2.25 2.06	33.07 2117.67 64.04	70.86 2695.21 38.04	0.03 2.08 82.54	0.03 2.08 82.54		2858.10 4.26 0.00	2858.10 4.26 0.00
S58	40.95 87.76	0.03 0.03	8.78 9.50	2.50	1.86 2.05 2.36 2.18	40.95 2850.33 69.60	87.76 3562.91 40.60	0.03 2.43 77.90	0.03 2.43 77.90		2858.10 4.26 0.00	2858.10 4.26 0.00
S59	37.31 79.96	0.03 0.03	8.00 8.66	2.50	1.84 2.04 2.35 2.16	37.31 2380.77 63.80	79.96 3246.51 40.60	0.03 2.23 78.37	0.03 2.23 78.37		2858.10 4.26 0.00	2858.10 4.26 0.00
S60	36.71 78.66	0.03 0.03	7.87 8.48	2.50	1.92 2.13 2.48 2.27	36.71 2332.16 63.53	78.66 2968.21 37.73	0.03 2.08 74.36	0.03 2.08 74.36		2858.10 4.26 0.00	2858.10 4.26 0.00
S61	63.91 136.96	0.05 0.05	13.70 14.80	2.50	1.98 2.13 2.40 2.25	63.91 5551.35 86.86	136.96 6661.62 48.64	0.05 3.65 74.87	0.05 3.65 74.87		2858.10 4.26 0.00	2858.10 4.26 0.00
S62	86.31 184.96	0.07 0.07	18.50 19.97	2.50	2.05 2.19 2.42 2.29	86.31 8488.67 98.35	184.96 10486.01 56.69	0.07 4.82 73.31	0.07 4.82 73.31		2858.10 4.73 0.00	2858.10 4.26 0.00
S63	51.22 109.76	0.04 0.04	10.98 11.88	2.50	1.92 2.09 2.38 2.20	51.22 3859.49 75.35	109.76 5047.02 45.98	0.04 2.98 76.47	0.04 2.98 76.47		2858.10 4.26 0.00	2858.10 4.26 0.00

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
S64	13.93 29.86	0.01 0.01	2.99 3.60	2.50	0.83 0.91 1.04 0.96	13.93 990.17 71.06	29.86 1260.21 42.20	0.01 2.08 195.88	0.01 2.08 195.88		2858.10 4.26 0.00	2858.10 4.26 0.00
S65	61.07 130.86	0.05 0.05	13.09 14.12	2.50	2.02 2.19 2.46 2.30	61.07 4940.99 80.91	130.86 6352.70 48.55	0.05 3.40 73.14	0.05 3.40 73.14		2858.10 4.26 0.00	2858.10 4.26 0.00
S66	39.04 83.66	0.03 0.03	8.37 9.03	2.50	1.92 2.13 2.45 2.25	39.04 2482.52 63.59	83.66 3385.26 40.46	0.03 2.23 74.91	0.03 2.23 74.91		2858.10 4.26 0.00	2858.10 4.26 0.00
S67	7.45 15.96	0.01 0.01	1.60 2.21	2.50	0.52 0.56 0.63 0.59	7.45 607.92 81.62	15.96 773.71 48.48	0.01 2.08 366.47	0.01 2.08 366.47		2858.10 4.26 0.00	2858.10 4.26 0.00
S91	33.41 33.41	0.01 0.01	2.23 3.26	2.50	0.39 0.45 0.52 0.45	33.41 1386.93 41.51	33.41 1386.93 41.51	0.01 3.90 492.76	0.01 3.90 492.76		2858.10 4.26 0.00	2858.10 4.26 0.00
S92	33.41 33.41	0.01 0.01	2.23 3.26	2.50	0.39 0.45 0.52 0.45	33.41 1386.93 41.51	33.41 1386.93 41.51	0.01 3.90 492.76	0.01 3.90 492.76		2858.10 4.26 0.00	2858.10 4.26 0.00
S101	8.19 17.56	0.01 0.01	1.76 2.37	2.50	0.55 0.60 0.68 0.63	8.19 651.92 79.55	17.56 829.71 47.25	0.01 2.08 333.08	0.01 2.08 333.08		2858.10 4.26 0.00	2858.10 4.26 0.00
S102	12.44 26.66	0.01 0.01	2.67 3.28	2.50	0.76 0.83 0.95 0.88	12.44 902.16 72.51	26.66 1148.21 43.07	0.01 2.08 219.39	0.01 2.08 219.39		2858.10 4.26 0.00	2858.10 4.26 0.00
S103	10.20 21.86	0.01 0.01	2.19 2.80	2.50	0.65 0.71 0.81 0.75	10.20 770.16 75.50	21.86 980.21 44.84	0.01 2.08 267.56	0.01 2.08 267.56		2858.10 4.26 0.00	2858.10 4.26 0.00
S104	10.06 21.56	0.01 0.01	2.16 2.77	2.50	0.64 0.70 0.80 0.74	10.06 761.91 75.73	21.56 969.71 44.98	0.01 2.08 271.29	0.01 2.08 271.29		2858.10 4.26 0.00	2858.10 4.26 0.00
S105	12.53 26.86	0.01 0.01	2.69 3.30	2.50	0.76 0.83 0.95 0.88	12.53 907.67 72.41	26.86 1155.21 43.01	0.01 2.08 217.76	0.01 2.08 217.76		2858.10 4.26 0.00	2858.10 4.26 0.00
S106	9.83 21.06	0.01 0.01	2.11 2.72	2.50	0.63 0.69 0.78 0.73	9.83 748.16 76.13	21.06 952.21 45.21	0.01 2.08 277.73	0.01 2.08 277.73		2858.10 4.26 0.00	2858.10 4.26 0.00
S107	11.60 24.86	0.01 0.01	2.49 3.10	2.50	0.72 0.78 0.89 0.83	11.60 852.66 73.50	24.86 1085.21 43.65	0.01 2.08 235.28	0.01 2.08 235.28		2858.10 4.26 0.00	2858.10 4.26 0.00
S108	16.78 35.96	0.01	3.60 4.21	2.50	0.97 1.06	16.78 1157.92	35.96 1473.71	0.01 2.08	0.01 2.08		2858.10 4.26	2858.10 4.26

Nome	Esforços			Pressões(kgf/cm²)		Estabilidade					Dimensionamento	
						Tombamento		Deslizamento		Arranc.	Dir. B	Dir. H
	MB MH (kgf.m)	FB FH (tf)	Carga Carga total (tf)	Padm	Psolo Sig1 Sig2 Sig3 Sig4	Dir. B Msd Mrd Cond. (1.5)	Dir. H Msd Mrd Cond. (1.5)	Dir. B Fsd Frd Cond. (1.5)	Dir. H Fsd Frd Cond. (1.5)	Nt Ns Ns>Nt	Md As (cm²/m) A's (cm²/m)	Md As (cm²/m) A's (cm²/m)
		0.01			1.22 1.13	69.00	40.98	162.65	162.65		0.00	0.00

5. ANÁLISE GLOBAL

Todas as sapatas apresentam:

Tensões aplicadas inferiores à tensão admissível adotada
Margem de segurança elevada
Compatibilidade com solo rijo identificado no SPT

6. Recalques

Devido a:

NSPT ≥ 8
Solo argiloso rijo
Tensões baixas aplicadas

Os recalques são considerados pequenos e admissíveis, não comprometendo a estrutura.

7. Considerações executivas

Profundidade mínima: 1,50 m
Apoio em solo natural não remexido
Regularização do fundo Concretagem imediata após escavação

8. Conclusão

As fundações em sapatas isoladas:

- ✔ Atendem à capacidade de carga do solo
- ✔ Estão compatíveis com o método de Décourt-Quaresma
- ✔ Apresentam tensões muito inferiores ao limite admissível
- ✔ São adequadas para a edificação proposta

As dimensões finais das sapatas foram obtidas por meio de software de cálculo estrutural, sendo verificadas manualmente quanto às tensões transmitidas ao solo.

LILIAN GISELI ALBERTON:03406573916
Assinado de forma digital por LILIAN GISELI ALBERTON:03406573916 Dados: 2026.06.15 10:40:23 -03'00'

LILIAN GISELI ABERTON
Engenheira Civil
CREA/SC - 812135-D