CONSÓRCIO SAÚDE

CONCREMAT | MEP

MEMORIAL DE CÁLCULO DE QUANTITATIVO

PROJETO EXECUTIVO DE FUNDAÇÃO

CER 2

OUTUBRO/2026

VERSÃO R00

CONSÓRCIO SAÚDE CONCREMAT-MEP – CNPJ 60.255.454/0001-35
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ASSUNTO:	**MEMORIAL DE QUANTITATIVOS – PROJETO EXECUTIVO – ESTRUTURA**	
OBRA:	CER 2	
LOCAL:	LOT. VIVENDAS DO BOSQUE II, BAIRRO ALTO DA VITÓRIA, POÇÕES / BA	
CONTRATANTE:	SECRETARIA DE SAÚDE DO ESTADO DA BAHIA - SESAB	CNPJ: 13.937.131/0001-41
CONTRATADA:	CONSÓRCIO SAÚDE CONCREMAT-MEP	CNPJ: 60.255.454/0001-35

CONTRATANTE
SECRETARIA DA SAÚDE DO ESTADO DA BAHIA (SESAB)
CNPJ: 13.937.131/0001-41



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CONSÓRCIO SAÚDE CONCREMAT-MEP

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1. INTRODUÇÃO

Este documento tem como objetivo estabelecer parâmetros, especificações e critérios a serem considerados na concepção do projeto da estrutura como parte integrante de um projeto executivo para construção do CER 2, em Lot. Vivendas Do Bosque Ii, Bairro Alto Da Vitória, no município de Poções/Ba.

A concepção do projeto estrutural contempla as características e objetivos de uso fornecidos nos documentos de referências informados dos tópicos subsequentes. Quaisquer alterações nas premissas adotadas podem impactar na concepção estrutural e deverão ser devidamente verificadas.

O presente Memorial de Cálculo se refere ao Projeto Executivo Estrutural e compreende informações técnicas relativas ao projeto executivo de FUNDAÇÃO do prédio.

2. DOCUMENTOS DE REFERÊNCIA

2.1. NORMAS DE REFERÊNCIA

ABNT NBR 6118:2023	Projeto de Estruturas de Concreto - Procedimento
ABNT NBR 6120:2019	Cargas para cálculo de estruturas de edificações
ABNT NBR 6122:2022	Projeto e Execução de Fundações
ABNT NBR 6123:2023	Forças Devidas ao Vento em Edificações
ABNT NBR 8681:2003	Ações e Segurança nas Estruturas – Procedimento
ABNT NBR 12655:2022	Controle de cimento Portland
ABNT NBR 5674:2024	Manutenção de edificação – procedimentos
ABNT NBR 14931:2023	Execução de estruturas de concreto armado, protendido e com fibras
ABNT NBR 15575:2024	Edificações habitacionais — Desempenho

3. EXIGENCIAS DE DURABILIDADE

3.1. CONCRETO ARMADO

Na tabela abaixo, seguem propriedades e características do concreto adotado para elementos em geral do projeto.

Tabela 1 – Concreto Adotado na fundação

Propriedade	Valor Adotado
Resistência Característica do concreto (f_{ck})	35 MPa
Módulo de deformação tangente inicial mínimo (E_{ci})	33 GPa
Módulo de deformação secante (E_{cs})	29 GPa
Fator água-cimento máximo (a/c)	0,6
Diâmetro máximo agregado graúdo	19 mm

Para a produção do concreto foi considerada a utilização de agregado graúdo de origem granítica (granito), em especial na avaliação do módulo de elasticidade. Caso sejam utilizados outros tipos de agregados graúdos, o valor do módulo de elasticidade deverá ser ajustado.

3.2. ARMADURA PASSIVA

A ABNT NBR 6118 (2023) define como armadura passiva aquela que não é utilizada para produzir forças de protensão. Nos projetos de estruturas de concreto armado, deve ser utilizado aço classificado pela ABNT NBR 7480, com diâmetros e seções transversais nominais pré-estabelecidos e valor característico de resistência ao escoamento nas categorias CA-50 (fyk=500 Mpa) e CA-60 (fyk = 600 Mpa).

4. COMBINAÇÕES DE AÇÕES

Para as distintas situações de projeto, as combinações de ações serão definidas. Para o ELU será utilizado a combinação última normal. Para o ELS serão utilizadas as combinações quase permanente, combinação frequente e combinação rara.

Combinação última normal

$$F_d = \sum_{i=1}^{m} \gamma_{gi} \cdot F_{Gi,k} + \gamma_q \left[F_{Q1,k} \sum_{j=2}^{n} \psi_{0j} \cdot F_{Qj,k} \right]$$

Combinação Quase Permanente De Serviço

Nas combinações quase permanentes de serviço, todas as ações variáveis são consideradas com seus valores quase permanentes $\psi_2 F_{Qk}$

$$F_d = \sum_{i=1}^{m} F_{Gi,k} + \sum_{j=1}^{n} \psi_{2j} \cdot F_{Qj,k}$$

Combinação Frequente De Serviço

Nas combinações frequentes de serviço, a ação variável principal F_{Q1} é tomada com seu valor frequente $\psi_1 F_{Q1,k}$ e todas as demais ações variáveis são tomadas com seus valores quase-permanentes $\psi_2 F_{Qk}$

$$F_d = \sum_{i=1}^{m} F_{Gi,k} + \psi_1 \cdot F_{Q1,k} + \sum_{j=2}^{n} \psi_{2j} \cdot F_{Qj,k}$$

Combinação Rara De Serviço

Nas combinações raras de serviço, a ação variável principal FQ1 é tomada com seu valor característico $F_{Q1,k}$ e todas as demais ações são tomadas com seus valores frequentes $\psi_1 F_{Qk}$:

$$F_d = \sum_{i=1}^{m} F_{Gi,k} + F_{Q1,k} + \sum_{j=2}^{n} \psi_{1j} \cdot F_{Qj,k}$$

- Onde:

F_{Gk}	Valor característico das ações permanentes
F_{Q1k}	Valor característico da ação variável, considerada como principal
F_{Qjk}	Valor característico das ações variáveis
γ_g	Coeficiente parcial de segurança das ações permanentes
γ_q	Coeficiente parcial de segurança das ações variáveis
ψ_0	Fator de combinação
ψ_1	Fator de redução frequente
ψ_2	Fator de redução quase permanente

As ações devem ser ponderadas pelo coeficiente Yf, calculado conforme $Yf = Y_{f1}. Y_{f2}. Y_{f3}$. Onde, Y_{f1} considera a variabilidade das ações, Y_{f2} considera simultaneidade das ações e Y_{f3} considera possíveis erros da avaliação das ações, seja por problemas construtivos, seja por deficiência do método de cálculo empregado

A seguir são apresentados os coeficientes de ponderação das ações ($Y_{f1}. Y_{f3}$) para combinação normal do ELU.

Tabela 1:Coeficientes de ponderação das ações para cargas permanentes (Yg)

Ação	Exemplo	Desfavorável	Favorável
Peso próprio de estruturas de aço e de equipamentos	PP estrutura metálica	1,25	1,00
Peso próprio de estruturas pré-moldadas, de madeira e de elementos construtivos industrializados	PP concreto pré-moldado PP madeira	1,30	1,00
Peso próprio de estruturas moldadas in loco e empuxos permanentes	PP concreto moldado in loco Empuxo de solo	1,40	1,00
Peso próprio de elementos construtivos em geral	Telha Instalações Fotovoltaica	1,40	1,00
Outras	-	1,40	1,00

Tabela 2:Coeficientes de ponderação das ações para cargas variáveis (ϒq)

Ação	Exemplo	Desfavorável	Favorável
Vento	Vento	1,40	0,00
Ações truncadas	Reservatório de água Boiler	1,20	0,00
Demais ações variáveis	Sobrecargas em geral	1,50	0,00
Efeito de temperatura	Devido variação térmica da atmosfera	1,20	0,00

Em geral para o ELS, Yf = 1,00.

Os fatores de combinação e de redução ψ para ações variáveis que representam o coeficiente Y_{f2} é apresentado na tabela a seguir

Tabela 3: Valores dos fatores de combinação e de redução das ações variáveis

Ação		ψ_0	ψ_1	ψ_2
Ações variáveis causadas pelo uso e ocupação	Locais em que não há predominância de pesos de equipamentos, nem de elevadas concentrações de pessoas	0,5	0,4	0,3
	Locais em que há predominância de pesos de equipamentos ou de elevadas concentrações de pessoas	0,7	0,6	0,4
	Biblioteca, arquivos, oficinas e garagens	0,8	0,7	0,6
Vento	Pressão dinâmica do vento nas estruturas em geral	0,6	0,3	0,0
Temperatura	Variações uniformes de temperatura em relação à média anual local	0,6	0,5	0,3
Cargas móveis e seus efeitos dinâmicos	Passarelas de pedestres	0,6	0,4	0,3
	Vigas de rolamento de pontes rolantes	1,0	0,8	0,5
	Pilares e outros elementos que suportam vigas de pontes rolantes	0,7	0,6	0,4

Em atendimento ao disposto no item 13.3 da ABNT NBR 6118:2014 (revisão 2023), procedeu-se à verificação do Estado Limite de Serviço (ELS) para todos os elementos estruturais da edificação, com análise específica dos deslocamentos verticais (flechas) em comparação com os respectivos limites normativos de serviço.

As verificações foram realizadas considerando as combinações quase permanentes de ações, incluindo os efeitos de fluência e a consideração do estádio II de fissuração do concreto armado, conforme preconizado pela norma. Os deslocamentos obtidos foram comparados com os limites aplicáveis, tais como L/250 para flecha total e L/500 para situações envolvendo

elementos sensíveis, como alvenarias e revestimentos, conforme critérios normativos pertinentes.

Após a análise global e individualizada dos elementos estruturais, conclui-se que todos atendem integralmente aos limites de deslocamentos estabelecidos pela ABNT NBR 6118, não sendo identificada nenhuma situação de não conformidade quanto às flechas de serviço.

Dessa forma, atesto, sob responsabilidade técnica, que foram devidamente realizadas as verificações do Estado Limite de Serviço (ELS) de deslocamentos limites em todos os elementos estruturais, estando a estrutura dimensionada com rigidez adequada para garantir funcionalidade, desempenho e integridade dos elementos estruturais e vedação, em plena conformidade com as exigências normativas vigentes.

5. RESULTADOS DAS SAPATAS DO EDÍFICIO PRINCIPAL:

Relatório de Cálculos das Sapatas

Esforços e pressões

Nome	MB MH (kN.m)	FB FH (kN)	Carga Carga total (kN)	Pressão Sig1 (kN/m²)	Pressão Sig2 (kN/m²)	Pressão Sig3 (kN/m²)	Pressão Sig4 (kN/m²)
S1	5.29 4.06	4.66 4.83	103.34 142.07	157.50 (lim = 200.00)	94.05 (lim = 200.00)	126.63 (lim = 200.00)	190.09 (lim = 200.00)
S2	8.51 2.24	1.05 1.24	105.85 149.06	186.23 (lim = 200.00)	98.00 (lim = 200.00)	83.43 (lim = 200.00)	171.65 (lim = 200.00)
S3	5.84 5.13	4.98 5.26	104.47 147.68	183.83 (lim = 200.00)	123.33 (lim = 200.00)	84.07 (lim = 200.00)	144.57 (lim = 200.00)
S4	5.21 4.63	5.67 3.96	120.00 163.96	192.65 (lim = 200.00)	152.50 (lim = 200.00)	104.55 (lim = 200.00)	144.70 (lim = 200.00)
S5	0.86 3.51	0.88 3.37	131.81 174.85	180.49 (lim = 200.00)	188.38 (lim = 200.00)	151.72 (lim = 200.00)	143.83 (lim = 200.00)
S6	1.81 3.68	1.58 2.95	99.07 130.80	199.54 (lim = 200.00)	183.28 (lim = 200.00)	122.66 (lim = 200.00)	138.92 (lim = 200.00)
S7	0.50 2.35	0.32 2.05	100.29 131.16	186.19 (lim = 200.00)	196.01 (lim = 200.00)	156.95 (lim = 200.00)	147.13 (lim = 200.00)
S8	1.31 3.43	0.94 2.23	131.15 183.22	190.10 (lim = 200.00)	176.57 (lim = 200.00)	141.01 (lim = 200.00)	154.54 (lim = 200.00)
S9	0.48 2.75	0.30 2.08	95.21 136.36	175.25 (lim = 200.00)	183.11 (lim = 200.00)	144.35 (lim = 200.00)	136.49 (lim = 200.00)
S10	1.75 5.47	1.08 4.12	109.13 156.02	181.91 (lim = 200.00)	194.96 (lim = 200.00)	129.32 (lim = 200.00)	116.28 (lim = 200.00)
S11	1.25 0.83	1.08 0.50	78.10 110.38	169.95 (lim = 200.00)	140.27 (lim = 200.00)	155.60 (lim = 200.00)	185.28 (lim = 200.00)
S12	1.82 4.59	1.15 3.38	118.97 171.04	172.33 (lim = 200.00)	184.62 (lim = 200.00)	137.09 (lim = 200.00)	124.80 (lim = 200.00)

S13	0.51 3.84	0.15 3.22	102.12 143.27	190.65 (lim = 200.00)	199.08 (lim = 200.00)	144.94 (lim = 200.00)	136.51 (lim = 200.00)
S14	2.19 5.33	1.51 3.99	113.57 160.46	183.55 (lim = 200.00)	196.92 (lim = 200.00)	132.99 (lim = 200.00)	119.63 (lim = 200.00)
S15	1.99 4.04	1.60 2.72	133.53 185.59	192.16 (lim = 200.00)	178.76 (lim = 200.00)	136.90 (lim = 200.00)	150.30 (lim = 200.00)
S16	0.59 2.34	0.30 1.73	117.76 163.72	180.92 (lim = 200.00)	189.23 (lim = 200.00)	165.58 (lim = 200.00)	157.28 (lim = 200.00)
S17	0.56 2.36	0.19 1.75	111.92 153.07	198.55 (lim = 200.00)	189.26 (lim = 200.00)	161.62 (lim = 200.00)	170.91 (lim = 200.00)
S18	0.68 2.28	0.16 1.66	136.44 187.48	185.08 (lim = 200.00)	193.32 (lim = 200.00)	173.73 (lim = 200.00)	165.49 (lim = 200.00)
S19	0.66 2.29	0.19 1.67	132.00 183.04	181.00 (lim = 200.00)	188.97 (lim = 200.00)	169.31 (lim = 200.00)	161.34 (lim = 200.00)
S20	2.62 3.68	1.94 2.53	98.37 140.55	169.57 (lim = 200.00)	189.00 (lim = 200.00)	138.23 (lim = 200.00)	118.80 (lim = 200.00)
S21	1.94 7.31	0.91 7.22	100.43 139.16	103.92 (lim = 200.00)	87.86 (lim = 200.00)	174.28 (lim = 200.00)	190.33 (lim = 200.00)
S22	0.93 1.59	0.40 1.35	32.99 51.13	86.09 (lim = 200.00)	66.80 (lim = 200.00)	122.31 (lim = 200.00)	141.60 (lim = 200.00)
S23	2.45 5.79	1.22 7.21	99.67 134.15	199.92 (lim = 200.00)	165.69 (lim = 200.00)	96.17 (lim = 200.00)	130.40 (lim = 200.00)
S24	4.76 2.16	5.07 2.28	161.42 214.73	173.34 (lim = 200.00)	138.66 (lim = 200.00)	151.39 (lim = 200.00)	186.08 (lim = 200.00)
S25	1.02 2.90	1.13 3.02	156.35 203.87	183.39 (lim = 200.00)	191.45 (lim = 200.00)	167.74 (lim = 200.00)	159.69 (lim = 200.00)
S26	1.66 2.23	1.34 2.01	98.82 130.55	133.88 (lim = 200.00)	149.81 (lim = 200.00)	183.48 (lim = 200.00)	167.55 (lim = 200.00)
S27	0.57 1.47	0.25 1.42	113.71 148.42	161.87 (lim = 200.00)	171.31 (lim = 200.00)	187.36 (lim = 200.00)	177.92 (lim = 200.00)
S28	1.88 2.83	1.57 1.60	149.17 193.13	191.29 (lim = 200.00)	176.17 (lim = 200.00)	152.96 (lim = 200.00)	168.07 (lim = 200.00)
S29	0.56 1.89	0.30 1.63	111.47 152.62	165.02 (lim = 200.00)	174.28 (lim = 200.00)	194.09 (lim = 200.00)	184.83 (lim = 200.00)
S30	1.26 3.88	0.71 3.36	116.79 163.68	131.68 (lim = 200.00)	145.36 (lim = 200.00)	190.11 (lim = 200.00)	176.43 (lim = 200.00)
S31	1.02 0.82	0.93 0.55	79.02 111.30	162.23 (lim = 200.00)	183.17 (lim = 200.00)	167.56 (lim = 200.00)	146.62 (lim = 200.00)
S32	1.18 3.49	0.75 2.85	117.59 164.48	134.84 (lim = 200.00)	148.64 (lim = 200.00)	188.92 (lim = 200.00)	175.12 (lim = 200.00)
S33	0.56 3.06	0.13 2.72	112.85 158.82	143.30 (lim = 200.00)	151.07 (lim = 200.00)	187.17 (lim = 200.00)	179.40 (lim = 200.00)
S34	1.83 3.44	1.27 2.86	131.72 183.79	138.84 (lim = 200.00)	151.97 (lim = 200.00)	185.40 (lim = 200.00)	172.27 (lim = 200.00)
S35	2.39 2.23	2.03 1.69	145.69 197.76	195.33 (lim = 200.00)	175.68 (lim = 200.00)	160.73 (lim = 200.00)	180.38 (lim = 200.00)
S36	0.68 1.59	0.36 1.24	136.55 187.58	168.25 (lim = 200.00)	176.50 (lim = 200.00)	190.76 (lim = 200.00)	182.51 (lim = 200.00)
S37	0.63 1.66	0.18 1.30	125.79 171.76	193.80 (lim = 200.00)	184.92 (lim = 200.00)	169.71 (lim = 200.00)	178.59 (lim = 200.00)
S38	0.79 1.57	0.19 1.20	157.11 213.47	174.40 (lim = 200.00)	182.60 (lim = 200.00)	196.85 (lim = 200.00)	188.66 (lim = 200.00)

S39	0.77 1.60	0.24 1.22	153.73 210.09	193.67 (lim = 200.00)	185.65 (lim = 200.00)	171.70 (lim = 200.00)	179.72 (lim = 200.00)
S40	2.77 2.53	1.91 1.50	124.73 171.62	164.22 (lim = 200.00)	193.99 (lim = 200.00)	179.02 (lim = 200.00)	149.26 (lim = 200.00)
S41	3.36 6.39	2.53 8.51	98.60 130.61	118.59 (lim = 200.00)	78.28 (lim = 200.00)	142.50 (lim = 200.00)	182.81 (lim = 200.00)
S42	1.21 0.87	1.34 0.46	31.63 46.56	107.12 (lim = 200.00)	64.93 (lim = 200.00)	82.58 (lim = 200.00)	124.77 (lim = 200.00)
S45	2.15 2.22	2.30 2.33	183.54 240.22	175.62 (lim = 200.00)	160.98 (lim = 200.00)	173.80 (lim = 200.00)	188.44 (lim = 200.00)
S46	5.63 3.18	5.43 3.21	265.33 345.71	192.74 (lim = 200.00)	171.63 (lim = 200.00)	160.03 (lim = 200.00)	181.14 (lim = 200.00)
S47	0.60 4.93	0.49 5.13	120.71 163.75	183.94 (lim = 200.00)	176.65 (lim = 200.00)	129.46 (lim = 200.00)	136.75 (lim = 200.00)
S48	3.79 3.58	3.88 0.41	250.39 324.93	175.60 (lim = 200.00)	192.88 (lim = 200.00)	180.68 (lim = 200.00)	163.40 (lim = 200.00)
S49	2.38 3.12	1.78 2.95	238.17 307.09	195.43 (lim = 200.00)	182.43 (lim = 200.00)	167.75 (lim = 200.00)	180.75 (lim = 200.00)
S50	1.77 5.10	1.44 1.54	153.43 201.96	180.93 (lim = 200.00)	194.76 (lim = 200.00)	152.90 (lim = 200.00)	139.07 (lim = 200.00)
S51	1.87 5.10	1.28 1.56	187.28 245.58	193.15 (lim = 200.00)	180.15 (lim = 200.00)	147.93 (lim = 200.00)	160.93 (lim = 200.00)
S52	1.82 3.88	1.49 3.90	181.62 234.93	183.80 (lim = 200.00)	198.09 (lim = 200.00)	170.72 (lim = 200.00)	156.43 (lim = 200.00)
S53	2.70 4.86	2.04 4.57	179.49 232.81	185.05 (lim = 200.00)	199.21 (lim = 200.00)	167.02 (lim = 200.00)	152.86 (lim = 200.00)
S54	3.72 2.76	4.09 2.12	214.84 278.35	192.77 (lim = 200.00)	174.33 (lim = 200.00)	161.24 (lim = 200.00)	179.68 (lim = 200.00)
S55	2.77 2.39	2.01 1.11	239.18 327.58	178.90 (lim = 200.00)	190.49 (lim = 200.00)	178.90 (lim = 200.00)	167.31 (lim = 200.00)
S56	3.27 4.46	2.55 3.29	181.12 250.22	177.28 (lim = 200.00)	192.64 (lim = 200.00)	167.21 (lim = 200.00)	151.86 (lim = 200.00)
S57	0.85 1.71	0.05 1.16	170.89 223.10	165.91 (lim = 200.00)	173.63 (lim = 200.00)	187.14 (lim = 200.00)	179.42 (lim = 200.00)
S58	0.85 1.70	0.08 1.36	170.18 222.40	165.23 (lim = 200.00)	172.91 (lim = 200.00)	186.34 (lim = 200.00)	178.66 (lim = 200.00)
S59	5.50 3.93	6.10 6.24	101.30 133.31	84.01 (lim = 200.00)	150.00 (lim = 200.00)	182.62 (lim = 200.00)	116.62 (lim = 200.00)
S60	2.09 9.35	1.31 1.02	103.74 135.76	71.01 (lim = 200.00)	87.55 (lim = 200.00)	199.71 (lim = 200.00)	183.18 (lim = 200.00)
S63	1.83 2.14	2.78 2.89	141.29 176.33	149.95 (lim = 200.00)	170.10 (lim = 200.00)	185.61 (lim = 200.00)	165.46 (lim = 200.00)
S64	4.89 3.24	6.41 4.14	170.54 213.99	149.87 (lim = 200.00)	187.97 (lim = 200.00)	170.25 (lim = 200.00)	132.14 (lim = 200.00)
S65	0.51 4.02	0.63 5.88	101.15 129.42	127.56 (lim = 200.00)	119.22 (lim = 200.00)	175.36 (lim = 200.00)	183.70 (lim = 200.00)
S66	2.32 2.53	1.00 2.47	232.01 283.74	181.59 (lim = 200.00)	195.85 (lim = 200.00)	181.59 (lim = 200.00)	167.34 (lim = 200.00)
S67	2.66 2.66	1.94 1.44	265.67 340.22	173.21 (lim = 200.00)	186.12 (lim = 200.00)	199.03 (lim = 200.00)	186.12 (lim = 200.00)
S68	1.97 3.62	0.76 4.68	197.21 255.51	182.87 (lim = 200.00)	196.56 (lim = 200.00)	171.81 (lim = 200.00)	158.12 (lim = 200.00)

S69	3.53 2.07	4.58 0.89	207.32 270.83	168.95 (lim = 200.00)	190.28 (lim = 200.00)	177.55 (lim = 200.00)	156.22 (lim = 200.00)
S70	2.06 2.13	1.50 2.02	206.34 264.64	168.84 (lim = 200.00)	183.10 (lim = 200.00)	197.37 (lim = 200.00)	183.10 (lim = 200.00)
S71	3.09 2.47	3.19 2.31	214.95 278.46	179.26 (lim = 200.00)	162.98 (lim = 200.00)	176.14 (lim = 200.00)	192.41 (lim = 200.00)
S72	1.94 2.43	1.70 1.83	193.79 252.09	175.06 (lim = 200.00)	161.61 (lim = 200.00)	175.06 (lim = 200.00)	188.52 (lim = 200.00)
S73	2.42 2.71	2.05 2.01	190.49 248.79	158.88 (lim = 200.00)	172.10 (lim = 200.00)	186.67 (lim = 200.00)	173.44 (lim = 200.00)
S74	4.02 4.86	4.01 4.76	139.94 188.48	117.77 (lim = 200.00)	144.44 (lim = 200.00)	187.51 (lim = 200.00)	160.84 (lim = 200.00)
S75	1.41 1.41	1.23 1.15	141.35 173.60	173.60 (lim = 200.00)	156.64 (lim = 200.00)	173.60 (lim = 200.00)	190.56 (lim = 200.00)
S76	0.44 1.07	0.39 1.21	7.84 18.25	66.30 (lim = 200.00)	64.27 (lim = 200.00)	20.60 (lim = 200.00)	22.63 (lim = 200.00)
S77	0.40 1.59	0.32 2.01	10.96 21.37	81.70 (lim = 200.00)	84.11 (lim = 200.00)	19.33 (lim = 200.00)	16.93 (lim = 200.00)
S78	0.44 1.07	0.39 1.21	7.84 18.25	64.27 (lim = 200.00)	66.30 (lim = 200.00)	22.63 (lim = 200.00)	20.60 (lim = 200.00)
S79	0.44 1.07	0.39 1.21	7.84 18.25	66.30 (lim = 200.00)	64.27 (lim = 200.00)	20.60 (lim = 200.00)	22.63 (lim = 200.00)
S80	0.40 1.59	0.32 2.01	10.96 21.37	81.70 (lim = 200.00)	84.10 (lim = 200.00)	19.33 (lim = 200.00)	16.93 (lim = 200.00)
S81	0.44 1.07	0.39 1.21	7.84 18.25	64.27 (lim = 200.00)	66.30 (lim = 200.00)	22.63 (lim = 200.00)	20.60 (lim = 200.00)
S82	2.65 3.10	0.86 3.29	264.65 325.33	191.02 (lim = 200.00)	178.14 (lim = 200.00)	165.27 (lim = 200.00)	178.14 (lim = 200.00)
S89	2.31 3.46	1.10 3.80	231.07 282.79	195.82 (lim = 200.00)	181.72 (lim = 200.00)	164.25 (lim = 200.00)	178.35 (lim = 200.00)
S90	2.61 5.40	3.37 5.62	224.62 276.35	194.78 (lim = 200.00)	181.12 (lim = 200.00)	156.10 (lim = 200.00)	169.76 (lim = 200.00)
S91	2.56 6.92	2.57 7.14	206.23 257.95	177.27 (lim = 200.00)	189.94 (lim = 200.00)	152.91 (lim = 200.00)	140.24 (lim = 200.00)
S92	0.86 4.91	0.26 5.81	172.83 215.33	185.20 (lim = 200.00)	193.04 (lim = 200.00)	156.60 (lim = 200.00)	148.76 (lim = 200.00)
S93	3.38 6.79	3.85 7.92	126.23 162.09	166.67 (lim = 200.00)	191.45 (lim = 200.00)	127.38 (lim = 200.00)	102.60 (lim = 200.00)
S100	0.44 1.07	0.39 1.21	7.84 18.25	22.63 (lim = 200.00)	20.60 (lim = 200.00)	64.27 (lim = 200.00)	66.29 (lim = 200.00)
S101	0.40 1.59	0.32 2.01	10.96 21.37	19.33 (lim = 200.00)	16.93 (lim = 200.00)	81.70 (lim = 200.00)	84.11 (lim = 200.00)
S102	0.44 1.07	0.39 1.21	7.84 18.25	20.60 (lim = 200.00)	22.63 (lim = 200.00)	66.29 (lim = 200.00)	64.27 (lim = 200.00)
S103	0.44 1.07	0.39 1.21	7.84 18.25	22.63 (lim = 200.00)	20.60 (lim = 200.00)	64.27 (lim = 200.00)	66.29 (lim = 200.00)
S104	0.40 1.59	0.32 2.01	10.96 21.37	16.93 (lim = 200.00)	19.33 (lim = 200.00)	84.11 (lim = 200.00)	81.70 (lim = 200.00)
S105	0.44 1.07	0.39 1.21	7.84 18.25	20.60 (lim = 200.00)	22.63 (lim = 200.00)	66.29 (lim = 200.00)	64.27 (lim = 200.00)
S108	1.60 1.60	1.56 0.89	159.73 195.54	193.49 (lim = 200.00)	176.98 (lim = 200.00)	160.46 (lim = 200.00)	176.98 (lim = 200.00)

S111	2.13 2.89	3.66 3.06	71.98 87.63	184.19 (lim = 200.00)	157.43 (lim = 200.00)	89.66 (lim = 200.00)	116.42 (lim = 200.00)
S112	2.06 2.09	2.48 2.20	112.22 132.43	171.42 (lim = 200.00)	189.89 (lim = 200.00)	155.56 (lim = 200.00)	137.08 (lim = 200.00)
S113	2.18 2.62	3.75 2.94	121.27 143.95	186.30 (lim = 200.00)	169.33 (lim = 200.00)	132.70 (lim = 200.00)	149.68 (lim = 200.00)
S114	3.61 3.33	5.59 3.93	118.27 140.95	163.07 (lim = 200.00)	195.86 (lim = 200.00)	149.28 (lim = 200.00)	116.49 (lim = 200.00)
S115	3.76 2.57	6.80 2.80	125.58 150.63	181.47 (lim = 200.00)	150.64 (lim = 200.00)	119.80 (lim = 200.00)	150.62 (lim = 200.00)
S116	4.19 1.43	5.62 1.09	97.75 123.71	136.89 (lim = 200.00)	192.16 (lim = 200.00)	168.57 (lim = 200.00)	113.30 (lim = 200.00)
S117	3.83 1.63	5.32 1.21	130.69 163.02	189.17 (lim = 200.00)	154.49 (lim = 200.00)	134.93 (lim = 200.00)	169.61 (lim = 200.00)
S118	5.36 2.83	6.96 3.58	235.69 291.81	165.58 (lim = 200.00)	192.62 (lim = 200.00)	179.75 (lim = 200.00)	152.71 (lim = 200.00)
S122	1.63 1.90	1.31 2.91	163.13 199.00	162.93 (lim = 200.00)	179.75 (lim = 200.00)	196.58 (lim = 200.00)	179.75 (lim = 200.00)
S123	1.72 2.41	1.43 2.66	171.82 211.39	174.70 (lim = 200.00)	159.21 (lim = 200.00)	174.70 (lim = 200.00)	190.19 (lim = 200.00)
S127	2.50 5.23	3.13 6.80	160.89 200.46	136.92 (lim = 200.00)	158.03 (lim = 200.00)	194.42 (lim = 200.00)	173.32 (lim = 200.00)
S128	2.36 5.19	3.21 6.63	187.33 230.78	165.63 (lim = 200.00)	150.87 (lim = 200.00)	182.93 (lim = 200.00)	197.69 (lim = 200.00)
S129	2.53 3.32	2.44 4.91	236.28 288.01	183.92 (lim = 200.00)	198.40 (lim = 200.00)	183.92 (lim = 200.00)	169.44 (lim = 200.00)
S130	1.17 2.53	0.32 3.78	234.12 288.57	167.69 (lim = 200.00)	174.89 (lim = 200.00)	187.70 (lim = 200.00)	180.50 (lim = 200.00)
S131	3.15 3.34	3.34 4.73	155.86 191.72	149.65 (lim = 200.00)	180.45 (lim = 200.00)	196.51 (lim = 200.00)	165.71 (lim = 200.00)
S132	3.12 5.38	0.70 8.09	121.67 146.72	183.90 (lim = 200.00)	148.90 (lim = 200.00)	106.42 (lim = 200.00)	141.41 (lim = 200.00)
S133	1.69 2.88	1.30 3.73	146.97 172.02	171.94 (lim = 200.00)	188.89 (lim = 200.00)	160.66 (lim = 200.00)	143.71 (lim = 200.00)
S134	2.79 4.46	2.00 6.36	207.11 240.70	198.41 (lim = 200.00)	178.09 (lim = 200.00)	161.94 (lim = 200.00)	182.26 (lim = 200.00)
S135	3.18 5.14	0.70 7.39	202.30 235.89	175.83 (lim = 200.00)	198.78 (lim = 200.00)	176.51 (lim = 200.00)	153.57 (lim = 200.00)
S136	3.67 4.57	2.45 6.55	231.49 271.43	189.78 (lim = 200.00)	168.30 (lim = 200.00)	154.24 (lim = 200.00)	175.72 (lim = 200.00)
S137	2.10 4.79	1.50 7.22	209.68 246.39	185.11 (lim = 200.00)	170.60 (lim = 200.00)	156.09 (lim = 200.00)	170.60 (lim = 200.00)
S138	6.61 5.24	12.78 7.64	244.40 287.72	193.96 (lim = 200.00)	165.70 (lim = 200.00)	141.99 (lim = 200.00)	170.26 (lim = 200.00)
S139	7.10 8.94	13.12 15.11	240.66 287.49	161.41 (lim = 200.00)	190.45 (lim = 200.00)	149.26 (lim = 200.00)	120.23 (lim = 200.00)
S140	1.58 2.68	1.86 1.40	99.38 117.25	174.08 (lim = 200.00)	192.79 (lim = 200.00)	140.51 (lim = 200.00)	121.80 (lim = 200.00)
S141	1.66 3.40	2.14 4.93	165.92 193.68	161.70 (lim = 200.00)	145.03 (lim = 200.00)	180.27 (lim = 200.00)	196.93 (lim = 200.00)
S142	1.69 4.35	1.06 5.15	169.22 208.80	181.51 (lim = 200.00)	196.70 (lim = 200.00)	162.36 (lim = 200.00)	147.17 (lim = 200.00)

S143	2.13 4.33	1.54 6.24	213.26 264.98	187.40 (lim = 200.00)	174.36 (lim = 200.00)	150.47 (lim = 200.00)	163.51 (lim = 200.00)
S144	2.30 3.76	1.01 4.31	230.25 281.98	179.95 (lim = 200.00)	194.05 (lim = 200.00)	179.95 (lim = 200.00)	165.85 (lim = 200.00)
S145	0.65 1.62	0.30 1.50	130.19 161.75	183.83 (lim = 200.00)	174.64 (lim = 200.00)	158.51 (lim = 200.00)	167.69 (lim = 200.00)
S146	2.79 8.30	3.54 10.09	164.54 207.99	176.73 (lim = 200.00)	193.83 (lim = 200.00)	134.68 (lim = 200.00)	117.58 (lim = 200.00)
S147	0.70 1.61	0.95 3.72	139.61 162.92	195.20 (lim = 200.00)	184.94 (lim = 200.00)	164.60 (lim = 200.00)	174.87 (lim = 200.00)
S148	0.80 3.04	0.38 5.42	159.85 198.53	162.59 (lim = 200.00)	154.29 (lim = 200.00)	181.60 (lim = 200.00)	189.90 (lim = 200.00)
S149	0.65 1.87	1.06 3.21	82.87 97.90	149.55 (lim = 200.00)	137.62 (lim = 200.00)	179.51 (lim = 200.00)	191.45 (lim = 200.00)
S150	0.59 1.51	0.84 2.69	118.67 138.10	198.81 (lim = 200.00)	187.10 (lim = 200.00)	164.60 (lim = 200.00)	176.31 (lim = 200.00)
S151	0.29 0.57	0.16 0.99	9.22 18.05	71.26 (lim = 200.00)	53.72 (lim = 200.00)	29.55 (lim = 200.00)	47.09 (lim = 200.00)
S152	1.32 2.24	2.73 2.39	224.19 262.74	186.25 (lim = 200.00)	178.43 (lim = 200.00)	164.62 (lim = 200.00)	172.44 (lim = 200.00)
S153	2.53 2.74	4.10 5.30	133.32 156.00	178.87 (lim = 200.00)	147.03 (lim = 200.00)	165.62 (lim = 200.00)	197.45 (lim = 200.00)
S154	1.43 1.94	1.83 1.30	120.94 141.14	195.52 (lim = 200.00)	176.19 (lim = 200.00)	144.32 (lim = 200.00)	163.65 (lim = 200.00)
S155	2.49 3.33	3.57 5.67	249.19 292.51	172.33 (lim = 200.00)	158.72 (lim = 200.00)	173.84 (lim = 200.00)	187.45 (lim = 200.00)
S156	2.57 3.41	3.05 6.38	256.93 300.25	191.42 (lim = 200.00)	177.41 (lim = 200.00)	163.40 (lim = 200.00)	177.41 (lim = 200.00)
S157	4.23 3.37	7.10 5.60	273.82 320.64	177.91 (lim = 200.00)	159.88 (lim = 200.00)	173.20 (lim = 200.00)	191.23 (lim = 200.00)
S158	5.40 4.97	10.42 8.26	211.14 251.08	133.82 (lim = 200.00)	160.87 (lim = 200.00)	187.57 (lim = 200.00)	160.51 (lim = 200.00)
S159	1.62 2.38	2.31 2.17	162.36 190.12	189.05 (lim = 200.00)	172.66 (lim = 200.00)	148.00 (lim = 200.00)	164.38 (lim = 200.00)
S160	7.10 7.79	11.95 14.24	200.39 240.33	152.25 (lim = 200.00)	113.83 (lim = 200.00)	155.24 (lim = 200.00)	193.66 (lim = 200.00)
S161	4.98 2.81	10.56 1.66	256.62 299.94	171.93 (lim = 200.00)	197.04 (lim = 200.00)	183.03 (lim = 200.00)	157.91 (lim = 200.00)
S162	4.13 3.86	9.91 6.28	309.77 360.23	185.67 (lim = 200.00)	168.37 (lim = 200.00)	181.91 (lim = 200.00)	199.22 (lim = 200.00)
S163	8.90 7.61	3.20 12.27	158.73 195.43	128.03 (lim = 200.00)	188.77 (lim = 200.00)	143.41 (lim = 200.00)	82.66 (lim = 200.00)
S164	2.15 4.98	5.14 7.31	200.78 237.48	157.19 (lim = 200.00)	143.25 (lim = 200.00)	172.64 (lim = 200.00)	186.58 (lim = 200.00)
S165	1.34 1.82	2.33 4.33	154.13 181.17	158.48 (lim = 200.00)	172.15 (lim = 200.00)	188.26 (lim = 200.00)	174.59 (lim = 200.00)
S166	2.64 6.60	2.45 13.23	85.33 105.54	60.65 (lim = 200.00)	89.38 (lim = 200.00)	196.30 (lim = 200.00)	167.57 (lim = 200.00)
S167	2.57 6.48	4.64 9.88	113.98 139.03	184.99 (lim = 200.00)	162.12 (lim = 200.00)	84.37 (lim = 200.00)	107.24 (lim = 200.00)
S168	2.77 7.57	4.21 13.00	155.81 186.42	176.71 (lim = 200.00)	193.29 (lim = 200.00)	126.17 (lim = 200.00)	109.59 (lim = 200.00)

S169	1.37 5.08	2.21 7.36	131.05 156.10	190.74 (lim = 200.00)	175.27 (lim = 200.00)	117.19 (lim = 200.00)	132.66 (lim = 200.00)
S170	2.47 1.85	4.78 3.14	185.18 216.26	179.87 (lim = 200.00)	162.33 (lim = 200.00)	178.33 (lim = 200.00)	195.88 (lim = 200.00)
S171	4.42 3.75	6.18 6.45	174.58 205.19	199.14 (lim = 200.00)	161.78 (lim = 200.00)	135.24 (lim = 200.00)	172.60 (lim = 200.00)
S172	1.79 1.25	3.47 1.78	124.89 146.73	175.40 (lim = 200.00)	152.20 (lim = 200.00)	169.83 (lim = 200.00)	193.03 (lim = 200.00)
S173	5.51 1.94	9.14 0.98	193.52 227.11	197.24 (lim = 200.00)	155.02 (lim = 200.00)	140.07 (lim = 200.00)	182.29 (lim = 200.00)
S174	0.79 1.28	1.31 0.66	127.90 148.60	179.87 (lim = 200.00)	168.16 (lim = 200.00)	188.17 (lim = 200.00)	199.88 (lim = 200.00)
S175	0.72 1.41	1.43 2.24	82.58 96.67	180.74 (lim = 200.00)	199.20 (lim = 200.00)	161.79 (lim = 200.00)	143.33 (lim = 200.00)
S176	0.47 0.94	1.41 1.86	93.53 110.69	159.45 (lim = 200.00)	148.43 (lim = 200.00)	166.79 (lim = 200.00)	177.81 (lim = 200.00)
S177	2.84 1.74	4.50 1.72	173.96 204.57	158.65 (lim = 200.00)	184.23 (lim = 200.00)	169.11 (lim = 200.00)	143.54 (lim = 200.00)
S178	2.55 2.38	5.75 3.89	131.83 154.52	142.54 (lim = 200.00)	178.22 (lim = 200.00)	198.35 (lim = 200.00)	162.67 (lim = 200.00)
S179	2.27 1.94	3.28 3.09	123.07 145.76	154.20 (lim = 200.00)	186.03 (lim = 200.00)	168.80 (lim = 200.00)	136.98 (lim = 200.00)
S180	3.90 1.53	1.25 2.14	98.87 119.08	121.83 (lim = 200.00)	186.06 (lim = 200.00)	169.94 (lim = 200.00)	105.71 (lim = 200.00)
S181	2.92 1.24	1.13 1.49	93.44 111.30	114.32 (lim = 200.00)	171.42 (lim = 200.00)	189.36 (lim = 200.00)	132.27 (lim = 200.00)
S182	2.37 1.19	2.52 0.99	77.24 91.25	132.46 (lim = 200.00)	194.23 (lim = 200.00)	171.70 (lim = 200.00)	109.93 (lim = 200.00)
S183	2.25 4.30	3.70 8.84	95.55 115.76	121.03 (lim = 200.00)	94.57 (lim = 200.00)	164.80 (lim = 200.00)	191.25 (lim = 200.00)
S184	2.02 6.86	2.90 12.46	131.13 158.89	101.20 (lim = 200.00)	114.67 (lim = 200.00)	184.86 (lim = 200.00)	171.39 (lim = 200.00)
S185	3.94 1.57	6.68 2.37	131.55 156.60	125.46 (lim = 200.00)	169.17 (lim = 200.00)	184.78 (lim = 200.00)	141.07 (lim = 200.00)
S186	6.19 2.57	8.92 4.32	211.58 251.53	136.43 (lim = 200.00)	172.52 (lim = 200.00)	185.52 (lim = 200.00)	149.43 (lim = 200.00)
S187	3.61 3.76	5.80 6.84	183.77 217.36	160.27 (lim = 200.00)	186.44 (lim = 200.00)	164.67 (lim = 200.00)	138.50 (lim = 200.00)
S188	7.33 2.21	10.73 3.38	157.68 188.29	116.37 (lim = 200.00)	180.64 (lim = 200.00)	194.85 (lim = 200.00)	130.58 (lim = 200.00)
S189	6.13 1.78	10.02 3.05	151.64 182.25	128.57 (lim = 200.00)	183.88 (lim = 200.00)	170.34 (lim = 200.00)	115.03 (lim = 200.00)
S190	1.15 2.11	1.66 3.06	69.71 83.40	108.30 (lim = 200.00)	128.13 (lim = 200.00)	188.25 (lim = 200.00)	168.42 (lim = 200.00)
S43-44	17.93 18.25	7.65 6.07	214.48 292.29	136.88 (lim = 200.00)	196.80 (lim = 200.00)	127.36 (lim = 200.00)	67.45 (lim = 200.00)
S61-62	7.58 20.61	6.39 12.38	184.08 247.78	63.52 (lim = 200.00)	87.44 (lim = 200.00)	194.59 (lim = 200.00)	170.67 (lim = 200.00)
SM1	10.14 3.79	4.25 5.32	87.40 127.69	43.19 (lim = 200.00)	92.39 (lim = 200.00)	80.19 (lim = 200.00)	30.99 (lim = 200.00)
SM2	10.14 3.79	4.25 5.32	87.40 127.69	43.19 (lim = 200.00)	92.39 (lim = 200.00)	80.19 (lim = 200.00)	30.99 (lim = 200.00)

Estabilidade

Nome	Tombamento B		Tombamento H		Deslizamento		Arrancamento	
	Mrd Msd (kN.m)	Mrd / Msd	Mrd Msd (kN.m)	Mrd / Msd	Frd Fsd (kN)	Frd / Fsd	Nt (kN)	Ns (kN)
S1	71.03 5.29	13.43 (lim = 1.50)	70.67 4.06	17.42 (lim = 1.50)	51.72 6.33	8.17 lim = (1.50)		
S2	78.04 8.51	9.17 (lim = 1.50)	78.15 2.24	34.90 (lim = 1.50)	54.47 1.31	41.53 lim = (1.50)		
S3	77.53 5.84	13.28 (lim = 1.50)	77.12 5.13	15.04 (lim = 1.50)	54.04 6.82	7.93 lim = (1.50)		
S4	83.21 5.21	15.98 (lim = 1.50)	84.49 4.59	18.41 (lim = 1.50)	57.97 6.40	9.05 lim = (1.50)		
S5	79.51 0.86	92.02 (lim = 1.50)	95.47 3.51	27.19 (lim = 1.50)	62.01 3.38	18.35 lim = (1.50)		
S6	55.55 1.81	30.69 (lim = 1.50)	57.28 3.67	15.61 (lim = 1.50)	46.58 2.98	15.61 lim = (1.50)		
S7	52.46 0.50	104.62 (lim = 1.50)	60.29 2.33	25.86 (lim = 1.50)	46.45 2.06	22.60 lim = (1.50)		
S8	91.88 1.30	70.70 (lim = 1.50)	93.66 3.36	27.89 (lim = 1.50)	65.29 2.23	29.24 lim = (1.50)		
S9	57.95 0.48	121.74 (lim = 1.50)	66.44 2.70	24.61 (lim = 1.50)	48.62 2.06	23.55 lim = (1.50)		
S10	74.60 1.74	42.78 (lim = 1.50)	76.30 5.38	14.19 (lim = 1.50)	55.84 4.08	13.68 lim = (1.50)		
S11	40.40 1.24	32.57 (lim = 1.50)	48.01 0.83	57.83 (lim = 1.50)	39.43 1.07	36.78 lim = (1.50)		
S12	86.68 1.82	47.68 (lim = 1.50)	87.81 4.56	19.26 (lim = 1.50)	61.20 3.39	18.07 lim = (1.50)		
S13	60.89 0.51	119.25 (lim = 1.50)	69.79 3.80	18.36 (lim = 1.50)	51.08 3.20	15.97 lim = (1.50)		
S14	73.19 2.19	33.50 (lim = 1.50)	75.35 5.28	14.27 (lim = 1.50)	55.15 4.04	13.65 lim = (1.50)		
S15	86.65 1.99	43.62 (lim = 1.50)	88.81 4.01	22.16 (lim = 1.50)	61.91 2.86	21.66 lim = (1.50)		
S16	73.68 0.59	125.13 (lim = 1.50)	78.57 2.34	33.57 (lim = 1.50)	54.77 1.73	31.61 lim = (1.50)		
S17	65.06 0.56	116.25 (lim = 1.50)	69.84 2.36	29.59 (lim = 1.50)	51.12 1.75	29.25 lim = (1.50)		
S18	89.05 0.68	130.54 (lim = 1.50)	93.42 2.28	40.98 (lim = 1.50)	62.16 1.66	37.53 lim = (1.50)		
S19	86.94 0.66	131.73 (lim = 1.50)	91.41 2.29	39.92 (lim = 1.50)	60.82 1.67	36.41 lim = (1.50)		
S20	61.99 2.61	23.79 (lim = 1.50)	62.98 3.68	17.10 (lim = 1.50)	48.52 2.83	17.14 lim = (1.50)		
S21	69.33 1.94	35.71 (lim = 1.50)	69.58 7.31	9.52 (lim = 1.50)	50.90 7.22	7.05 lim = (1.50)		

S22	17.89 0.93	19.20 (lim = 1.50)	17.87 1.59	11.26 (lim = 1.50)	18.68 1.38	13.59 lim = (1.50)		
S23	63.46 2.45	25.95 (lim = 1.50)	63.72 5.79	11.00 (lim = 1.50)	49.07 7.21	6.80 lim = (1.50)		
S24	117.36 4.76	24.65 (lim = 1.50)	116.39 2.16	53.89 (lim = 1.50)	74.69 5.16	14.48 lim = (1.50)		
S25	94.10 1.02	92.39 (lim = 1.50)	106.58 2.90	36.71 (lim = 1.50)	67.83 3.14	21.57 lim = (1.50)		
S26	52.74 1.64	32.14 (lim = 1.50)	54.72 2.23	24.54 (lim = 1.50)	44.50 2.01	22.13 lim = (1.50)		
S27	63.08 0.57	110.95 (lim = 1.50)	67.83 1.47	46.08 (lim = 1.50)	49.65 1.43	34.83 lim = (1.50)		
S28	91.08 1.81	50.23 (lim = 1.50)	96.37 2.83	34.02 (lim = 1.50)	64.48 1.66	38.83 lim = (1.50)		
S29	64.86 0.56	116.38 (lim = 1.50)	70.21 1.89	37.08 (lim = 1.50)	51.39 1.64	31.29 lim = (1.50)		
S30	75.30 1.26	59.89 (lim = 1.50)	76.51 3.88	19.73 (lim = 1.50)	55.99 3.36	16.68 lim = (1.50)		
S31	38.78 1.02	38.14 (lim = 1.50)	46.19 0.82	56.15 (lim = 1.50)	37.84 0.94	40.32 lim = (1.50)		
S32	75.80 1.18	64.00 (lim = 1.50)	76.81 3.49	22.03 (lim = 1.50)	56.22 2.85	19.69 lim = (1.50)		
S33	71.47 0.56	126.66 (lim = 1.50)	77.95 3.06	25.48 (lim = 1.50)	54.34 2.72	19.98 lim = (1.50)		
S34	86.13 1.83	46.97 (lim = 1.50)	86.87 3.44	25.26 (lim = 1.50)	60.55 2.97	20.39 lim = (1.50)		
S35	88.13 2.39	36.81 (lim = 1.50)	89.30 2.23	40.04 (lim = 1.50)	62.25 2.14	29.06 lim = (1.50)		
S36	89.10 0.68	130.51 (lim = 1.50)	89.77 1.59	56.53 (lim = 1.50)	59.73 1.26	47.54 lim = (1.50)		
S37	77.29 0.63	122.89 (lim = 1.50)	78.44 1.66	47.33 (lim = 1.50)	54.68 1.30	42.09 lim = (1.50)		
S38	106.73 0.79	135.87 (lim = 1.50)	105.80 1.57	67.34 (lim = 1.50)	67.34 1.20	56.17 lim = (1.50)		
S39	105.04 0.77	136.66 (lim = 1.50)	104.25 1.60	65.10 (lim = 1.50)	66.35 1.23	54.09 lim = (1.50)		
S40	78.73 2.71	29.10 (lim = 1.50)	78.53 2.48	31.67 (lim = 1.50)	57.05 1.96	29.07 lim = (1.50)		
S41	65.27 3.36	19.43 (lim = 1.50)	65.31 6.39	10.21 (lim = 1.50)	47.77 8.54	5.59 lim = (1.50)		
S42	16.27 1.21	13.49 (lim = 1.50)	16.30 0.87	18.76 (lim = 1.50)	17.01 1.37	12.39 lim = (1.50)		
S45	116.18 2.15	54.05 (lim = 1.50)	130.05 2.19	59.47 (lim = 1.50)	76.15 3.09	24.63 lim = (1.50)		
S46	215.12 5.63	38.23 (lim = 1.50)	213.31 3.14	67.90 (lim = 1.50)	112.46 5.89	19.09 lim = (1.50)		
S47	77.78 0.60	128.87 (lim = 1.50)	83.29 4.93	16.89 (lim = 1.50)	55.42 5.14	10.78 lim = (1.50)		
S48	191.39 3.67	52.15 (lim = 1.50)	191.13 3.36	56.83 (lim = 1.50)	103.76 3.76	27.56 lim = (1.50)		
S49	199.61 2.38	83.81 (lim = 1.50)	173.84 3.12	55.64 (lim = 1.50)	97.96 3.29	29.79 lim = (1.50)		

S50	97.94 1.68	58.25 (lim = 1.50)	98.21 4.82	20.39 (lim = 1.50)	65.16 1.62	40.29 lim = (1.50)		
S51	147.35 1.87	78.68 (lim = 1.50)	129.50 4.80	26.96 (lim = 1.50)	78.86 1.57	50.31 lim = (1.50)		
S52	117.47 1.77	66.31 (lim = 1.50)	117.09 3.88	30.14 (lim = 1.50)	74.76 4.01	18.62 lim = (1.50)		
S53	109.88 2.44	45.07 (lim = 1.50)	110.28 4.86	22.71 (lim = 1.50)	70.19 4.67	15.02 lim = (1.50)		
S54	144.45 3.72	38.83 (lim = 1.50)	146.07 2.75	53.07 (lim = 1.50)	84.58 4.20	20.15 lim = (1.50)		
S55	187.81 2.62	71.81 (lim = 1.50)	221.12 2.39	92.45 (lim = 1.50)	101.82 1.93	52.88 lim = (1.50)		
S56	135.70 3.27	41.49 (lim = 1.50)	134.00 4.46	30.08 (lim = 1.50)	81.73 3.90	20.96 lim = (1.50)		
S57	117.13 0.85	137.09 (lim = 1.50)	109.35 1.49	73.57 (lim = 1.50)	66.70 1.16	57.51 lim = (1.50)		
S58	116.76 0.85	137.22 (lim = 1.50)	109.38 1.58	69.08 (lim = 1.50)	65.67 1.26	52.28 lim = (1.50)		
S59	66.66 5.50	12.12 (lim = 1.50)	66.22 3.93	16.84 (lim = 1.50)	48.78 8.31	5.87 lim = (1.50)		
S60	67.78 2.09	32.39 (lim = 1.50)	67.68 9.35	7.24 (lim = 1.50)	49.61 1.36	36.49 lim = (1.50)		
S63	79.64 1.83	43.55 (lim = 1.50)	90.30 2.11	42.79 (lim = 1.50)	60.08 3.72	16.15 lim = (1.50)		
S64	117.68 4.89	24.06 (lim = 1.50)	116.06 3.24	35.79 (lim = 1.50)	74.89 7.24	10.35 lim = (1.50)		
S65	55.01 0.51	108.76 (lim = 1.50)	63.18 4.02	15.70 (lim = 1.50)	46.24 5.89	7.85 lim = (1.50)		
S66	177.34 2.32	76.43 (lim = 1.50)	166.70 2.48	67.18 (lim = 1.50)	97.60 2.40	40.62 lim = (1.50)		
S67	229.65 2.66	86.44 (lim = 1.50)	229.65 2.66	86.44 (lim = 1.50)	115.81 2.12	54.67 lim = (1.50)		
S68	153.31 1.97	77.74 (lim = 1.50)	153.25 3.62	42.30 (lim = 1.50)	91.44 4.70	19.48 lim = (1.50)		
S69	169.22 3.53	47.89 (lim = 1.50)	169.27 2.07	81.64 (lim = 1.50)	96.88 4.60	21.08 lim = (1.50)		
S70	158.79 2.06	76.95 (lim = 1.50)	141.39 2.13	66.26 (lim = 1.50)	86.23 2.38	36.16 lim = (1.50)		
S71	151.77 3.09	49.05 (lim = 1.50)	150.31 2.47	60.74 (lim = 1.50)	88.01 3.47	25.39 lim = (1.50)		
S72	135.00 1.86	72.63 (lim = 1.50)	147.68 2.43	60.68 (lim = 1.50)	90.07 1.95	46.22 lim = (1.50)		
S73	133.37 2.35	56.77 (lim = 1.50)	145.89 2.71	53.78 (lim = 1.50)	88.98 2.33	38.16 lim = (1.50)		
S74	95.09 4.01	23.69 (lim = 1.50)	95.63 4.86	19.69 (lim = 1.50)	63.63 5.84	10.90 lim = (1.50)		
S75	86.80 1.41	61.41 (lim = 1.50)	86.80 1.41	61.41 (lim = 1.50)	57.36 1.53	37.55 lim = (1.50)		
S76	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S77	6.06 0.40	15.13 (lim = 1.50)	7.43 1.59	4.68 (lim = 1.50)	7.76 2.01	3.86 lim = (1.50)		

S78	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S79	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S80	6.06 0.40	15.13 (lim = 1.50)	7.43 1.59	4.68 (lim = 1.50)	7.76 2.01	3.86 lim = (1.50)		
S81	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S82	219.60 2.65	82.98 (lim = 1.50)	201.45 3.10	65.05 (lim = 1.50)	109.21 3.31	32.95 lim = (1.50)		
S89	176.75 2.31	76.49 (lim = 1.50)	157.65 3.46	45.61 (lim = 1.50)	92.31 3.86	23.91 lim = (1.50)		
S90	148.33 2.61	56.87 (lim = 1.50)	146.87 5.40	27.20 (lim = 1.50)	86.00 6.23	13.80 lim = (1.50)		
S91	141.40 2.43	58.07 (lim = 1.50)	141.96 6.92	20.52 (lim = 1.50)	83.12 7.28	11.42 lim = (1.50)		
S92	113.05 0.86	130.82 (lim = 1.50)	113.33 4.88	23.22 (lim = 1.50)	69.12 5.81	11.90 lim = (1.50)		
S93	76.91 3.29	23.40 (lim = 1.50)	77.67 6.79	11.43 (lim = 1.50)	54.14 8.51	6.36 lim = (1.50)		
S100	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S101	6.06 0.40	15.13 (lim = 1.50)	7.43 1.59	4.68 (lim = 1.50)	7.76 2.01	3.86 lim = (1.50)		
S102	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S103	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S104	6.06 0.40	15.13 (lim = 1.50)	7.43 1.59	4.68 (lim = 1.50)	7.76 2.01	3.86 lim = (1.50)		
S105	5.26 0.44	11.99 (lim = 1.50)	6.28 1.06	5.92 (lim = 1.50)	6.57 1.20	5.47 lim = (1.50)		
S108	102.66 1.60	64.27 (lim = 1.50)	102.66 1.60	64.27 (lim = 1.50)	65.87 1.75	37.65 lim = (1.50)		
S111	33.00 2.12	15.54 (lim = 1.50)	35.05 2.89	12.12 (lim = 1.50)	30.19 3.98	7.58 lim = (1.50)		
S112	56.61 2.06	27.46 (lim = 1.50)	59.59 2.09	28.57 (lim = 1.50)	46.04 2.57	17.90 lim = (1.50)		
S113	64.94 2.17	29.95 (lim = 1.50)	67.67 2.60	26.05 (lim = 1.50)	50.57 3.97	12.74 lim = (1.50)		
S114	63.88 3.61	17.72 (lim = 1.50)	66.95 3.33	20.12 (lim = 1.50)	49.21 6.05	8.13 lim = (1.50)		
S115	71.60 3.75	19.07 (lim = 1.50)	75.32 2.57	29.30 (lim = 1.50)	52.40 6.87	7.63 lim = (1.50)		
S116	52.54 4.19	12.55 (lim = 1.50)	55.67 1.43	38.85 (lim = 1.50)	42.73 5.64	7.58 lim = (1.50)		
S117	76.70 3.83	20.04 (lim = 1.50)	78.94 1.59	49.54 (lim = 1.50)	56.13 5.33	10.54 lim = (1.50)		
S118	178.51 5.22	34.19 (lim = 1.50)	176.19 2.83	62.32 (lim = 1.50)	100.50 7.41	13.56 lim = (1.50)		
S122	104.47 1.63	64.04 (lim = 1.50)	95.81 1.81	52.85 (lim = 1.50)	67.65 2.81	24.04 lim = (1.50)		

S123	116.26 1.72	67.67 (lim = 1.50)	106.30 2.33	45.60 (lim = 1.50)	74.34 2.76	26.89 lim = (1.50)		
S127	101.32 2.41	42.09 (lim = 1.50)	100.92 5.12	19.70 (lim = 1.50)	67.15 7.12	9.44 lim = (1.50)		
S128	109.97 2.36	46.60 (lim = 1.50)	109.72 5.19	21.15 (lim = 1.50)	69.83 7.10	9.83 lim = (1.50)		
S129	149.53 2.44	61.22 (lim = 1.50)	149.65 3.32	45.12 (lim = 1.50)	87.62 5.12	17.10 lim = (1.50)		
S130	173.14 1.17	147.91 (lim = 1.50)	160.39 2.53	63.28 (lim = 1.50)	86.95 3.78	23.03 lim = (1.50)		
S131	88.53 3.02	29.36 (lim = 1.50)	87.12 3.34	26.11 (lim = 1.50)	60.73 5.48	11.07 lim = (1.50)		
S132	71.65 3.12	22.98 (lim = 1.50)	66.83 5.34	12.50 (lim = 1.50)	48.91 8.06	6.06 lim = (1.50)		
S133	77.23 1.60	48.13 (lim = 1.50)	75.03 2.81	26.72 (lim = 1.50)	54.91 3.75	14.63 lim = (1.50)		
S134	132.37 2.79	47.51 (lim = 1.50)	118.97 4.46	26.70 (lim = 1.50)	75.71 6.51	11.63 lim = (1.50)		
S135	118.21 3.05	38.75 (lim = 1.50)	116.12 5.14	22.58 (lim = 1.50)	73.90 7.39	10.00 lim = (1.50)		
S136	161.92 3.67	44.09 (lim = 1.50)	145.09 4.57	31.72 (lim = 1.50)	84.95 6.78	12.53 lim = (1.50)		
S137	147.83 2.10	70.50 (lim = 1.50)	127.21 4.79	26.56 (lim = 1.50)	77.59 7.23	10.73 lim = (1.50)		
S138	172.08 6.61	26.05 (lim = 1.50)	171.45 5.24	32.72 (lim = 1.50)	96.53 13.86	6.96 lim = (1.50)		
S139	180.35 7.10	25.39 (lim = 1.50)	182.86 8.94	20.46 (lim = 1.50)	97.80 18.99	5.15 lim = (1.50)		
S140	48.58 1.58	30.81 (lim = 1.50)	45.92 2.55	18.04 (lim = 1.50)	41.83 2.07	20.17 lim = (1.50)		
S141	89.80 1.57	57.23 (lim = 1.50)	91.55 3.24	28.26 (lim = 1.50)	68.98 4.98	13.86 lim = (1.50)		
S142	114.84 1.69	67.86 (lim = 1.50)	102.00 4.35	23.43 (lim = 1.50)	67.87 5.17	13.13 lim = (1.50)		
S143	165.61 2.13	77.66 (lim = 1.50)	140.15 4.00	35.07 (lim = 1.50)	82.06 6.23	13.17 lim = (1.50)		
S144	176.24 2.30	76.54 (lim = 1.50)	148.26 3.76	39.39 (lim = 1.50)	86.81 4.35	19.96 lim = (1.50)		
S145	72.79 0.65	111.82 (lim = 1.50)	75.15 1.59	47.11 (lim = 1.50)	52.38 1.46	35.98 lim = (1.50)		
S146	109.63 2.79	39.32 (lim = 1.50)	108.01 8.30	13.01 (lim = 1.50)	68.74 10.62	6.47 lim = (1.50)		
S147	63.12 0.66	96.08 (lim = 1.50)	70.97 1.60	44.27 (lim = 1.50)	51.94 3.74	13.88 lim = (1.50)		
S148	99.26 0.80	124.20 (lim = 1.50)	95.06 2.83	33.59 (lim = 1.50)	60.49 5.32	11.37 lim = (1.50)		
S149	29.93 0.63	47.17 (lim = 1.50)	36.73 1.79	20.47 (lim = 1.50)	31.63 3.14	10.07 lim = (1.50)		
S150	46.70 0.55	84.74 (lim = 1.50)	55.98 1.51	37.12 (lim = 1.50)	43.13 2.72	15.86 lim = (1.50)		
S151	4.96 0.29	17.24 (lim = 1.50)	5.83 0.57	10.27 (lim = 1.50)	6.60 0.99	6.68 lim = (1.50)		

S152	133.61 1.32	101.50 (lim = 1.50)	170.76 2.24	76.18 (lim = 1.50)	84.98 3.37	25.25 lim = (1.50)		
S153	69.02 2.53	27.31 (lim = 1.50)	67.12 2.74	24.49 (lim = 1.50)	51.71 6.39	8.09 lim = (1.50)		
S154	61.43 1.43	42.93 (lim = 1.50)	58.28 1.89	30.83 (lim = 1.50)	49.95 2.03	24.66 lim = (1.50)		
S155	165.09 2.34	70.53 (lim = 1.50)	165.70 3.33	49.79 (lim = 1.50)	93.29 6.25	14.92 lim = (1.50)		
S156	195.11 2.57	75.96 (lim = 1.50)	169.09 3.41	49.59 (lim = 1.50)	95.20 6.70	14.22 lim = (1.50)		
S157	186.55 4.23	44.12 (lim = 1.50)	187.19 3.37	55.60 (lim = 1.50)	101.14 8.64	11.71 lim = (1.50)		
S158	135.39 5.40	25.06 (lim = 1.50)	136.04 4.97	27.38 (lim = 1.50)	79.65 13.02	6.12 lim = (1.50)		
S159	99.81 1.62	61.48 (lim = 1.50)	92.08 2.31	39.84 (lim = 1.50)	63.91 2.57	24.83 lim = (1.50)		
S160	135.08 6.76	19.99 (lim = 1.50)	135.05 7.79	17.34 (lim = 1.50)	79.07 17.70	4.47 lim = (1.50)		
S161	168.40 4.98	33.84 (lim = 1.50)	168.25 2.81	59.96 (lim = 1.50)	94.78 10.54	8.99 lim = (1.50)		
S162	222.75 4.06	54.88 (lim = 1.50)	221.23 3.86	57.38 (lim = 1.50)	115.66 11.18	10.35 lim = (1.50)		
S163	113.19 8.90	12.71 (lim = 1.50)	102.62 7.46	13.76 (lim = 1.50)	62.59 12.25	5.11 lim = (1.50)		
S164	123.00 2.15	57.18 (lim = 1.50)	125.16 4.91	25.48 (lim = 1.50)	76.34 8.46	9.02 lim = (1.50)		
S165	76.03 1.32	57.43 (lim = 1.50)	96.84 1.82	53.15 (lim = 1.50)	59.59 4.64	12.85 lim = (1.50)		
S166	44.51 2.54	17.54 (lim = 1.50)	44.56 6.60	6.75 (lim = 1.50)	36.23 13.32	2.72 lim = (1.50)		
S167	68.04 2.57	26.50 (lim = 1.50)	66.14 6.46	10.24 (lim = 1.50)	48.41 10.78	4.49 lim = (1.50)		
S168	95.65 2.77	34.54 (lim = 1.50)	96.30 7.57	12.72 (lim = 1.50)	64.07 13.40	4.78 lim = (1.50)		
S169	72.67 1.36	53.25 (lim = 1.50)	73.96 5.08	14.57 (lim = 1.50)	54.13 7.44	7.27 lim = (1.50)		
S170	106.55 2.47	43.07 (lim = 1.50)	115.91 1.77	65.42 (lim = 1.50)	74.27 5.34	13.90 lim = (1.50)		
S171	107.03 4.42	24.19 (lim = 1.50)	106.02 3.75	28.29 (lim = 1.50)	71.21 8.44	8.44 lim = (1.50)		
S172	58.83 1.79	32.95 (lim = 1.50)	73.36 1.25	58.74 (lim = 1.50)	50.66 3.61	14.03 lim = (1.50)		
S173	122.21 5.51	22.19 (lim = 1.50)	130.59 1.94	67.48 (lim = 1.50)	77.78 9.14	8.51 lim = (1.50)		
S174	59.98 0.79	75.96 (lim = 1.50)	70.58 1.28	55.19 (lim = 1.50)	51.64 1.31	39.49 lim = (1.50)		
S175	32.50 0.72	45.40 (lim = 1.50)	37.37 1.41	26.44 (lim = 1.50)	33.50 2.47	13.54 lim = (1.50)		
S176	41.51 0.47	88.76 (lim = 1.50)	46.40 0.90	51.48 (lim = 1.50)	37.73 2.24	16.84 lim = (1.50)		
S177	105.28 2.77	37.97 (lim = 1.50)	112.51 1.74	64.68 (lim = 1.50)	70.05 4.46	15.70 lim = (1.50)		

S178	73.07 2.55	28.66 (lim = 1.50)	70.15 2.38	29.52 (lim = 1.50)	56.29 6.41	8.78 lim = (1.50)		
S179	69.23 2.27	30.45 (lim = 1.50)	66.45 1.92	34.56 (lim = 1.50)	53.34 3.88	13.74 lim = (1.50)		
S180	53.18 3.90	13.63 (lim = 1.50)	50.95 1.51	33.65 (lim = 1.50)	41.43 2.21	18.71 lim = (1.50)		
S181	44.99 2.87	15.65 (lim = 1.50)	44.99 1.24	36.32 (lim = 1.50)	38.74 1.59	24.29 lim = (1.50)		
S182	33.68 2.37	14.23 (lim = 1.50)	35.58 1.18	30.08 (lim = 1.50)	32.87 2.56	12.84 lim = (1.50)		
S183	51.11 2.25	22.76 (lim = 1.50)	51.31 4.30	11.94 (lim = 1.50)	41.72 9.41	4.43 lim = (1.50)		
S184	79.23 2.02	39.18 (lim = 1.50)	80.55 6.86	11.75 (lim = 1.50)	56.15 12.56	4.47 lim = (1.50)		
S185	75.10 3.94	19.04 (lim = 1.50)	73.77 1.56	47.20 (lim = 1.50)	54.96 6.83	8.05 lim = (1.50)		
S186	148.96 5.97	24.94 (lim = 1.50)	147.92 2.57	57.54 (lim = 1.50)	87.22 9.63	9.06 lim = (1.50)		
S187	119.19 3.61	33.05 (lim = 1.50)	117.22 3.76	31.17 (lim = 1.50)	74.61 8.15	9.15 lim = (1.50)		
S188	102.21 7.33	13.94 (lim = 1.50)	97.65 2.21	44.12 (lim = 1.50)	65.63 10.77	6.10 lim = (1.50)		
S189	96.68 6.11	15.83 (lim = 1.50)	94.73 1.78	53.28 (lim = 1.50)	64.32 10.20	6.31 lim = (1.50)		
S190	30.20 1.15	26.33 (lim = 1.50)	31.28 2.11	14.80 (lim = 1.50)	30.52 3.19	9.56 lim = (1.50)		
S43-44	213.90 17.88	11.96 (lim = 1.50)	208.34 18.25	11.42 (lim = 1.50)	103.63 9.32	11.11 lim = (1.50)		
S61-62	193.39 7.58	25.51 (lim = 1.50)	147.50 20.61	7.16 (lim = 1.50)	89.96 13.54	6.65 lim = (1.50)		
SM1	73.42 10.14	7.24 (lim = 1.50)	114.92 3.79	30.34 (lim = 1.50)	46.73 6.66	7.02 lim = (1.50)		
SM2	73.42 10.14	7.24 (lim = 1.50)	114.92 3.79	30.34 (lim = 1.50)	46.73 6.66	7.02 lim = (1.50)		

Verificação de tensão em área reduzida

Nome	Interface pilar-fundação		
	Força solicitante (kN)	Força resistente (kN)	Condição
S1	144.02	4000.00	OK
S2	148.11	4000.00	OK
S3	145.58	4000.00	OK
S4	167.15	2250.00	OK
S5	184.13	3712.50	OK
S6	137.86	2250.00	OK
S7	139.84	3562.50	OK
S8	182.77	2250.00	OK
S9	132.70	3712.50	OK

S10	152.07	2250.00	OK
S11	109.02	2812.50	OK
S12	165.80	2250.00	OK
S13	142.44	3712.50	OK
S14	158.14	2250.00	OK
S15	186.12	2250.00	OK
S16	164.27	3712.50	OK
S17	156.09	3712.50	OK
S18	190.41	3712.50	OK
S19	184.18	3712.50	OK
S20	136.90	2250.00	OK
S21	140.47	4000.00	OK
S22	46.16	2250.00	OK
S23	139.42	4000.00	OK
S24	225.67	2250.00	OK
S25	218.50	3712.50	OK
S26	137.59	2250.00	OK
S27	158.66	3712.50	OK
S28	208.16	2250.00	OK
S29	155.54	3712.50	OK
S30	163.04	2250.00	OK
S31	110.39	2812.50	OK
S32	163.86	2250.00	OK
S33	157.51	3712.50	OK
S34	183.89	2250.00	OK
S35	203.38	2250.00	OK
S36	190.64	3712.50	OK
S37	175.57	3712.50	OK
S38	219.40	3712.50	OK
S39	214.75	3712.50	OK
S40	174.31	2250.00	OK
S41	137.91	4000.00	OK
S42	44.25	2250.00	OK
S45	256.14	1125.00	OK
S46	371.00	2250.00	OK
S47	168.61	3712.50	OK
S48	350.43	2250.00	OK
S49	333.23	2250.00	OK
S50	214.73	2250.00	OK
S51	262.10	2250.00	OK
S52	254.03	2250.00	OK
S53	251.18	2250.00	OK
S54	300.16	2250.00	OK
S55	334.23	2250.00	OK
S56	253.12	2250.00	OK
S57	238.97	3712.50	OK
S58	237.89	3712.50	OK
S59	141.14	4000.00	OK
S60	145.16	4000.00	OK
S63	197.12	3562.50	OK
S64	238.22	2250.00	OK

S65	141.32	3712.50	OK
S66	323.92	2250.00	OK
S67	371.53	2250.00	OK
S68	276.04	2250.00	OK
S69	290.20	2250.00	OK
S70	288.49	2250.00	OK
S71	300.47	2250.00	OK
S72	270.31	2250.00	OK
S73	265.58	2250.00	OK
S74	195.26	2250.00	OK
S75	197.21	5831.58	OK
S76	10.75	2450.00	OK
S77	15.25	2450.00	OK
S78	10.75	2450.00	OK
S79	10.75	2450.00	OK
S80	15.25	2450.00	OK
S81	10.75	2450.00	OK
S82	370.24	2250.00	OK
S89	323.20	2250.00	OK
S90	314.03	2250.00	OK
S91	288.25	2250.00	OK
S92	241.56	3712.50	OK
S93	176.11	2250.00	OK
S100	10.75	2450.00	OK
S101	15.25	2450.00	OK
S102	10.75	2450.00	OK
S103	10.75	2450.00	OK
S104	15.25	2450.00	OK
S105	10.75	2450.00	OK
S108	223.46	5831.58	OK
S111	98.74	2250.00	OK
S112	155.16	2250.00	OK
S113	167.73	2250.00	OK
S114	163.50	2250.00	OK
S115	173.62	2250.00	OK
S116	134.86	2250.00	OK
S117	182.26	2250.00	OK
S118	329.34	2250.00	OK
S122	228.06	2250.00	OK
S123	239.90	2250.00	OK
S127	224.91	2250.00	OK
S128	262.16	2250.00	OK
S129	330.54	2250.00	OK
S130	327.49	1125.00	OK
S131	217.65	2250.00	OK
S132	169.42	2250.00	OK
S133	204.61	2250.00	OK
S134	288.91	2250.00	OK
S135	282.16	2250.00	OK
S136	322.99	2250.00	OK
S137	292.56	2250.00	OK

S138	341.39	2250.00	OK
S139	336.23	2250.00	OK
S140	138.94	2250.00	OK
S141	231.58	2250.00	OK
S142	236.74	2250.00	OK
S143	298.32	2250.00	OK
S144	322.03	2250.00	OK
S145	181.72	3712.50	OK
S146	229.93	2250.00	OK
S147	195.03	3093.75	OK
S148	223.43	3712.50	OK
S149	115.68	2625.00	OK
S150	165.67	3000.00	OK
S151	12.89	2062.50	OK
S152	313.67	1125.00	OK
S153	185.99	2250.00	OK
S154	169.12	2250.00	OK
S155	348.70	2250.00	OK
S156	359.53	2250.00	OK
S157	383.21	2250.00	OK
S158	295.34	2250.00	OK
S159	227.20	2250.00	OK
S160	280.13	2250.00	OK
S161	358.86	2250.00	OK
S162	433.36	2250.00	OK
S163	222.02	2250.00	OK
S164	280.51	2250.00	OK
S165	215.34	3712.50	OK
S166	118.88	2250.00	OK
S167	159.04	2250.00	OK
S168	217.89	2250.00	OK
S169	183.15	2250.00	OK
S170	258.99	4950.00	OK
S171	244.11	2250.00	OK
S172	174.61	3187.50	OK
S173	270.57	2250.00	OK
S174	178.20	3187.50	OK
S175	115.36	3000.00	OK
S176	130.71	3375.00	OK
S177	242.90	2250.00	OK
S178	184.12	2250.00	OK
S179	170.95	2250.00	OK
S180	138.03	2250.00	OK
S181	130.76	2250.00	OK
S182	107.03	5625.00	OK
S183	133.17	2250.00	OK
S184	183.09	2250.00	OK
S185	183.68	2250.00	OK
S186	295.85	2250.00	OK
S187	256.67	2250.00	OK
S188	220.49	2250.00	OK

S189	211.69	2250.00	OK
S190	96.18	2250.00	OK
S43-44	160.43	7425.00	OK
S61-62	142.77	12000.00	OK
SM1	122.36	27000.00	OK
SM2	122.36	27000.00	OK

Dimensionamento

Nome	Armaduras inferiores		Armaduras superiores	
	Dir. B	Dir. H	Dir. B	Dir. H
	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) A's (cm²/m)	Md (kN.m/m) A's (cm²/m)
S1	86.82 7.77	86.82 7.77	0.00 0.00	0.00 0.00
S2	86.35 7.72	86.35 7.72	0.00 0.00	0.00 0.00
S3	86.35 7.72	86.35 7.72	0.00 0.00	0.00 0.00
S4	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S5	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S6	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S7	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S8	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S9	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S10	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S11	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S12	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S13	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S14	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S15	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S16	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S17	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S18	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00

S19	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S20	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S21	86.82 7.77	86.82 7.77	0.00 0.00	0.00 0.00
S22	56.85 7.63	56.85 7.63	0.00 0.00	0.00 0.00
S23	87.34 8.52	87.34 8.52	0.00 0.00	0.00 0.00
S24	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S25	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S26	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S27	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S28	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S29	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S30	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S31	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S32	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S33	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S34	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S35	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S36	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S37	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S38	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S39	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S40	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S41	86.82 7.77	86.82 7.77	0.00 0.00	0.00 0.00
S42	56.85 7.63	56.85 7.63	0.00 0.00	0.00 0.00
S45	38.58 5.18	36.60 4.91	0.00 0.00	0.00 0.00
S46	48.72 5.60	48.72 5.60	0.00 0.00	0.00 0.00

S47	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S48	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S49	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S50	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S51	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S52	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S53	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S54	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S55	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S56	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S57	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S58	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S59	86.82 7.77	86.82 7.77	0.00 0.00	0.00 0.00
S60	86.82 7.77	86.82 7.77	0.00 0.00	0.00 0.00
S63	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S64	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S65	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S66	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S67	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S68	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S69	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S70	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S71	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S72	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S73	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S74	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00

S75	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S76	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S77	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S78	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S79	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S80	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S81	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S82	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S89	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S90	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S91	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S92	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S93	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S100	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S101	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S102	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S103	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S104	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S105	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S108	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S111	54.02 6.21	54.02 6.21	0.00 0.00	0.00 0.00
S112	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S113	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S114	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S115	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S116	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00

S117	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S118	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S122	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S123	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S127	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S128	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S129	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S130	38.25 5.13	36.36 4.88	0.00 0.00	0.00 0.00
S131	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S132	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S133	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S134	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S135	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S136	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S137	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S138	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S139	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S140	53.60 6.16	53.60 6.16	0.00 0.00	0.00 0.00
S141	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S142	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S143	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S144	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S145	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S146	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S147	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S148	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00

S149	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S150	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S151	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S152	38.41 5.15	36.48 4.89	0.00 0.00	0.00 0.00
S153	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S154	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S155	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S156	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S157	48.94 5.63	48.94 5.63	0.00 0.00	0.00 0.00
S158	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S159	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S160	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S161	49.17 5.65	49.17 5.65	0.00 0.00	0.00 0.00
S162	48.72 5.60	48.72 5.60	0.00 0.00	0.00 0.00
S163	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S164	49.68 5.71	49.68 5.71	0.00 0.00	0.00 0.00
S165	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S166	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S167	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S168	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S169	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S170	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S171	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S172	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S173	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S174	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00

S175	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S176	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S177	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S178	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S179	52.87 6.08	52.87 6.08	0.00 0.00	0.00 0.00
S180	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S181	53.60 6.16	53.60 6.16	0.00 0.00	0.00 0.00
S182	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S183	53.22 6.12	53.22 6.12	0.00 0.00	0.00 0.00
S184	50.60 5.82	50.60 5.82	0.00 0.00	0.00 0.00
S185	50.95 5.86	50.95 5.86	0.00 0.00	0.00 0.00
S186	49.41 5.68	49.41 5.68	0.00 0.00	0.00 0.00
S187	49.96 5.75	49.96 5.75	0.00 0.00	0.00 0.00
S188	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S189	50.27 5.78	50.27 5.78	0.00 0.00	0.00 0.00
S190	56.46 6.73	56.46 6.73	0.00 0.00	0.00 0.00
S43-44	99.36 8.89	99.36 8.89	0.00 7.50	0.00 7.50
S61-62	120.22 9.68	120.22 9.68	0.00 8.25	0.00 8.25
SM1	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
SM2	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00

6. RESULTADOS DOS PILARES DO EDIFÍCIO PRINCIPAL:

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**leb vínc leh vínc (cm)**	**Nd máx Nd mín (kN)**	**MBd topo MBd base (kN.m)**	**MHd topo MHd base (kN.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
P1 1:20	40.00 X 40.00	20.00 250.00	250.00 RR 250.00 RR	144.02 90.06	9.23 6.80	11.25 5.19	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	21.63 21.63
P2 1:20	40.00 X 40.00	20.00 250.00	836.00 RR 250.00 RR	148.11 95.44	10.62 10.62	0.97 2.57	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	72.31 21.63
P3 1:20	40.00 X 40.00	20.00 250.00	250.00 RR 250.00 RR	145.58 91.09	9.34 7.46	11.23 6.69	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	21.63 21.63
P4 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	167.15 104.89	12.31 6.71	7.12 5.86	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	28.83 28.83
P5 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	184.13 120.60	1.80 1.10	6.64 4.50	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P6 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	137.86 83.59	2.46 1.82	4.77 4.40	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P7 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	139.84 88.94	0.47 0.43	3.62 2.85	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P8 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	182.77 113.22	1.79 1.34	4.18 4.15	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P9 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	132.70 83.92	0.65 0.46	4.58 3.40	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P10 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	152.07 93.62	1.69 1.92	9.10 6.82	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P11 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	109.02 69.65	2.69 1.62	0.85 0.86	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60

P12 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	165.80 102.71	1.88 2.02	7.28 5.60	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P13 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	142.44 91.06	0.24 0.26	7.80 4.90	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P14 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	158.14 90.66	2.88 2.53	8.85 6.61	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P15 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	186.12 104.15	3.55 2.25	5.30 4.82	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P16 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	164.27 95.89	0.67 0.47	3.63 2.80	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P17 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	156.09 90.60	0.42 0.27	3.68 2.82	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P18 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	190.41 110.89	0.29 0.28	3.43 2.70	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P19 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	184.18 107.14	0.35 0.31	3.47 2.71	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P20 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	136.90 77.48	4.25 3.23	5.05 4.40	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P21 1:20	40.00 X 40.00	20.00 250.00	250.00 RR 250.00 RR	140.47 89.80	0.74 2.04	15.68 9.87	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 8.0 c/19 ø 8.0 c/19 0	21.63 21.63
P22 1:20	30.00 X 30.00	20.00 250.00	500.00 EL 250.00 RR	46.16 27.23	0.12 1.15	2.18 1.92	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	57.67 28.83
P23 1:20	40.00 X 40.00	20.00 250.00	250.00 RR 250.00 RR	139.42 89.05	0.81 2.63	17.77 7.75	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 8.0 c/19 ø 8.0 c/19 0	21.63 21.63
P24 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	225.67 142.95	10.82 6.13	4.38 2.24	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83

P25 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	218.50 134.79	2.45 1.29	6.19 3.69	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P26 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	137.59 78.54	1.90 1.69	3.52 2.39	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P27 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	158.66 94.08	0.37 0.34	2.64 1.64	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P28 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	208.16 121.52	2.46 2.02	2.64 3.09	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P29 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	155.54 91.97	0.69 0.45	3.90 2.21	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P30 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	163.04 95.87	1.02 1.30	8.19 4.62	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P31 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	110.39 65.91	2.39 1.29	0.90 0.88	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P32 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	163.86 94.29	1.21 1.20	6.62 4.08	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P33 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	157.51 95.48	0.23 0.20	6.82 3.82	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P34 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	183.89 102.77	2.62 2.18	6.72 3.99	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P35 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	203.38 106.81	4.92 2.86	3.52 2.33	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P36 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	190.64 104.84	0.79 0.57	2.67 1.76	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P37 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	175.57 96.02	0.40 0.25	2.82 1.85	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60

P38 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	219.40 120.11	0.33 0.34	2.52 1.72	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P39 1:20	15.00 X 30.00	20.00 300.00	300.00 RR 300.00 RR	214.75 118.05	0.48 0.42	2.59 1.76	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	69.20 34.60
P40 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	174.31 101.73	3.88 3.37	2.60 2.62	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P41 1:20	40.00 X 40.00	20.00 200.00	200.00 RR 200.00 RR	137.91 89.97	2.03 3.65	15.78 8.55	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 8.0 c/19 ø 8.0 c/19 0	17.30 17.30
P42 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 400.00 EL	44.25 27.02	1.71 1.36	0.12 1.07	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 46.13
P43 1:20	40.00 X 40.00	20.00 250.00	250.00 RR 250.00 RR	139.43 89.10	1.77 2.78	19.20 9.23	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 8.0 c/19 ø 8.0 c/19 0	21.63 21.63
P44 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	160.43 97.90	2.60 2.11	8.78 6.69	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P45 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	256.14 148.58	4.98 2.90	4.78 2.81	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P46 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	371.00 217.80	11.03 7.36	6.48 3.97	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P47 1:20	15.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	168.61 102.69	0.98 0.60	10.88 6.59	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	57.67 28.83
P48 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 675.00 RR	350.43 202.99	8.03 4.85	3.19 4.52	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 77.85
P49 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	333.23 191.73	3.16 2.26	6.72 4.12	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P50 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 675.00 RR	214.73 123.85	2.17 1.95	1.53 6.42	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 77.85

P51 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 675.00 RR	262.10 151.24	1.81 1.74	1.46 6.41	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 77.85
P52 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	254.03 143.64	2.55 2.05	8.98 5.18	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P53 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	251.18 132.02	3.28 3.28	9.13 6.27	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P54 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	300.16 160.01	8.69 4.60	3.21 3.10	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P55 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	334.23 181.54	4.32 3.46	1.76 2.04	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P56 1:20	30.00 X 30.00	15.00 300.00	300.00 RR 300.00 RR	253.12 147.48	5.99 4.22	6.94 5.33	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	34.60 34.60
P57 1:20	15.00 X 30.00	20.00 250.00	469.00 RR 250.00 RR	238.97 125.08	0.08 0.18	1.48 1.52	1.57 2 ø 10.0 3.14 4 ø 10.0 1.4 8 ø 10.0	ø 5.0 c/12	108.18 28.83
P58 1:20	15.00 X 30.00	20.00 250.00	469.00 RR 250.00 RR	237.89 124.42	0.08 0.22	1.89 1.70	1.57 2 ø 10.0 3.14 4 ø 10.0 1.4 8 ø 10.0	ø 5.0 c/12	108.18 28.83
P59 1:20	40.00 X 40.00	20.00 200.00	200.00 RR 200.00 RR	141.14 89.89	9.35 6.76	12.13 5.05	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	17.30 17.30
P60 1:20	40.00 X 40.00	20.00 200.00	200.00 RR 1572.00 EL	145.16 95.35	0.61 2.42	11.45 11.76	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	17.30 135.98
P61 1:20	40.00 X 40.00	20.00 200.00	200.00 RR 200.00 RR	142.77 91.02	9.52 7.27	11.85 6.49	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	17.30 17.30
P62 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	115.45 70.01	1.91 1.62	10.85 5.34	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P63 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	197.12 126.89	5.10 2.39	4.87 2.74	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07

P64 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	238.22 152.64	10.72 5.96	6.83 4.15	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P65 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	141.32 93.71	1.01 0.59	10.52 5.13	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07
P66 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	323.92 203.76	0.96 1.36	3.34 3.03	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P67 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	371.53 236.30	3.96 2.49	2.53 1.87	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P68 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	276.04 172.27	1.18 1.06	10.94 5.07	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P69 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	290.20 180.93	10.67 4.95	1.54 1.16	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P70 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	288.49 171.72	3.16 1.99	3.87 2.54	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P71 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	300.47 171.37	6.70 3.90	4.14 2.72	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P72 1:20	30.00 X 30.00	20.00 250.00	250.00 RR 250.00 RR	270.31 157.96	3.00 2.07	2.62 2.62	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P73 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	265.58 154.47	3.46 2.87	2.76 2.89	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P74 1:20	30.00 X 30.00	15.00 250.00	250.00 RR 250.00 RR	195.26 114.73	8.25 5.19	9.41 5.79	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	28.83 28.83
P75 1:20	Circ 0.00 30.00	20.00 200.00	200.00 RR	197.21 120.95	2.22 1.36	1.30 1.26	4.71 6 ø 10.0 0.7	ø 5.0 c/12	26.67
P76 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37

P77 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	15.25 7.86	0.09 0.40	2.02 2.01	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P78 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P79 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P80 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	15.25 7.86	0.09 0.40	2.02 2.01	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P81 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P82 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	370.24 233.25	1.92 0.89	4.46 3.64	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P89 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	323.20 196.01	2.32 0.79	5.36 4.12	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P90 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	314.03 178.77	5.67 3.23	7.41 6.42	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P91 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	288.25 167.39	3.32 3.07	10.01 8.88	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P92 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	241.56 141.10	0.33 0.28	9.20 6.44	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07
P93 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	176.11 102.98	5.99 4.33	12.71 8.97	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	23.07 23.07
P100 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P101 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	15.25 7.86	0.09 0.40	2.02 2.01	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37

P102 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P103 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P104 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	15.25 7.86	0.09 0.40	2.02 2.01	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P105 1:20	14.00 X 30.00	20.00 150.00	194.00 RR 194.00 RR	10.75 4.82	0.17 0.46	0.91 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	47.95 22.37
P108 1:20	Circ 0.00 30.00	20.00 200.00	200.00 RR	223.46 139.38	2.95 1.66	0.68 1.24	4.71 6 ø 10.0 0.7	ø 5.0 c/12	26.67
P111 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	98.74 57.15	4.64 2.60	2.19 3.47	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P112 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	155.16 96.41	2.02 2.39	1.48 2.31	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P113 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	167.73 106.17	4.60 2.59	2.27 3.02	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P114 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	163.50 103.22	6.44 4.56	3.35 4.00	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P115 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	173.62 110.13	8.78 4.77	2.03 2.91	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P116 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	134.86 81.56	9.70 5.55	1.01 1.57	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P117 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	182.26 115.89	9.36 5.05	0.92 1.79	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P118 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	329.34 209.31	11.94 6.96	5.92 3.65	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07

P122 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	228.06 142.13	1.62 1.47	6.07 2.48	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P123 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	239.90 149.21	1.95 1.46	4.89 2.96	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P127 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	224.91 137.77	5.27 3.24	11.71 6.79	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P128 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	262.16 142.61	5.57 2.92	11.08 6.40	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P129 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	330.54 181.28	3.16 3.08	8.97 3.91	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P130 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	327.49 178.80	0.36 0.38	6.85 3.13	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07
P131 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	217.65 125.58	4.97 4.04	8.03 3.86	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P132 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	169.42 105.23	2.68 3.93	9.05 6.85	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	66.32 17.30
P133 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	204.61 121.63	1.77 1.86	3.42 3.34	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	66.32 17.30
P134 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	288.91 169.93	1.69 3.41	6.65 5.47	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	66.32 17.30
P135 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	282.16 164.98	2.74 3.96	7.83 6.41	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	66.32 17.30
P136 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	322.99 188.82	1.44 4.65	6.83 5.58	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	66.32 17.30
P137 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	292.56 171.95	1.82 1.27	7.87 5.77	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30

P138 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	341.39 217.08	17.29 8.76	8.14 6.39	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P139 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	336.23 215.57	17.40 9.49	19.16 11.80	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P140 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	138.94 86.82	1.35 1.69	4.08 2.95	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 66.32
P141 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	231.58 137.95	2.00 1.68	5.27 3.76	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P142 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	236.74 141.24	1.27 1.19	9.05 5.73	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P143 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	298.32 167.77	2.22 1.59	11.70 5.32	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P144 1:20	30.00 X 30.00	15.00 200.00	200.00 RR 200.00 RR	322.03 178.54	1.22 1.27	6.97 4.79	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	23.07 23.07
P145 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	181.72 105.32	0.45 0.28	1.69 1.88	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07
P146 1:20	30.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	229.93 139.89	6.07 3.68	16.07 10.79	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	23.07 23.07
P147 1:20	15.00 X 25.00	20.00 150.00	150.00 RR 150.00 RR	195.03 115.56	0.92 0.82	5.49 2.12	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	34.60 20.76
P148 1:20	15.00 X 30.00	20.00 200.00	200.00 RR 200.00 RR	223.43 122.75	0.52 0.37	10.87 4.12	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	46.13 23.07
P149 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	115.68 67.05	1.22 0.78	3.99 2.42	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P150 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	165.67 93.52	0.88 0.62	3.41 1.92	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30

P151 1:20	15.00 X 25.00	20.00 150.00	300.00 EL 150.00 RR	12.89 7.70	0.13 0.35	2.47 0.74	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	69.20 20.76
P152 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	313.67 191.98	3.84 1.76	3.30 1.36	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P153 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	185.99 115.24	5.00 3.21	6.92 3.16	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P154 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	169.12 104.81	1.66 1.59	2.61 2.04	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 66.32
P155 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	348.70 206.99	4.05 2.89	7.82 4.17	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P156 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	359.53 212.19	3.54 2.30	9.21 4.28	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P157 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	383.21 226.17	8.80 5.52	7.65 4.20	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P158 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	295.34 172.47	14.72 7.30	10.46 6.31	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P159 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	227.20 143.50	3.15 1.31	1.75 2.52	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P160 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	280.13 169.89	15.26 9.56	18.92 10.19	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P161 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	358.86 209.38	15.29 6.58	2.34 3.00	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 66.32
P162 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	433.36 262.15	15.22 5.47	7.19 4.36	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P163 1:20	30.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	222.02 130.60	5.35 11.62	14.83 10.22	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	65.74 17.30

P164 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	280.51 164.22	7.64 2.63	8.19 5.98	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P165 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	215.34 130.75	2.94 1.79	6.38 2.08	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P166 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	118.88 71.13	1.51 3.36	18.35 8.23	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P167 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	159.04 103.85	6.29 3.31	11.27 8.36	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P168 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	217.89 139.23	4.71 3.48	16.75 9.97	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P169 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	183.15 116.79	2.50 1.54	8.35 6.49	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P170 1:20	20.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	258.99 167.70	6.43 3.22	3.96 2.22	1.57 2 ø 10.0 1.57 2 ø 10.0 0.5 4 ø 10.0	ø 5.0 c/12	25.95 17.30
P171 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	244.11 158.27	6.91 5.58	8.17 4.91	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P172 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	174.61 113.07	4.66 2.36	2.05 1.26	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P173 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	270.57 172.94	11.45 7.00	0.54 1.11	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P174 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	178.20 112.32	1.55 0.98	0.77 0.81	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P175 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	115.36 75.77	1.95 0.94	2.37 1.42	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30
P176 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	130.71 82.53	2.37 0.49	2.51 0.94	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	34.60 17.30

P177 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	242.90 156.95	4.96 3.09	1.68 1.48	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P178 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	184.12 121.50	8.65 2.96	4.56 2.92	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P179 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	170.95 110.17	3.61 2.50	3.60 2.35	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P180 1:20	30.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	138.03 88.44	2.39 4.68	2.13 1.76	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	65.74 17.30
P181 1:20	30.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	130.76 84.19	1.34 3.41	1.12 1.33	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	65.74 17.30
P182 1:20	30.00 X 35.00	20.00 150.00	150.00 RR 150.00 RR	107.03 66.32	1.92 2.41	1.01 1.27	1.57 2 ø 10.0 2.36 3 ø 10.0 0.4 6 ø 10.0	ø 5.0 c/12	17.30 14.83
P183 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	133.17 86.00	4.66 2.87	13.22 5.57	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P184 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	183.09 118.60	2.98 2.43	16.43 8.92	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/10	17.30 17.30
P185 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	183.68 118.06	8.41 4.88	2.55 1.80	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P186 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	295.85 192.25	10.47 8.13	5.36 3.27	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P187 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	256.67 165.79	7.02 4.39	8.93 4.91	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P188 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	220.49 143.40	12.71 9.69	3.80 2.73	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
P189 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	211.69 137.22	12.36 7.85	3.69 2.11	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30

P190 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	96.18 58.04	1.83 1.30	3.29 2.25	2.45 2 ø 12.5 2.45 2 ø 12.5 0.5 4 ø 12.5	ø 5.0 c/15	17.30 17.30
PM1 1:20	60.00 X 130.00	20.00 150.00	300.00 EL 300.00 EL	122.36 58.15	5.26 14.14	9.88 1.17	5.50 7 ø 10.0 11.78 15 ø 10.0 0.4 40 ø 10.0	ø 5.0 c/12	17.30 7.98
PM2 1:20	60.00 X 130.00	20.00 150.00	300.00 EL 300.00 EL	122.36 58.15	5.26 14.14	9.88 1.17	5.50 7 ø 10.0 11.78 15 ø 10.0 0.4 40 ø 10.0	ø 5.0 c/12	17.30 7.98

7. RESULTADOS DO RADIER DO EDIFÍCIO PRINCIPAL:

Nome	Espessura (cm)	Carga (kN/m²)	Mdx (kN.m/m)	Mdy (kN.m/m)	Asx	Asy
LA1	18	7.36	8.48	5.15	As = 2.16 cm²/m (ø8.0 c/10 - 5.03 cm²/m)	As = 2.30 cm²/m (ø8.0 c/10 - 5.03 cm²/m)

8. RESULTADOS DAS SAPATAS DA EDÍCULA:

Relatório de Cálculos das Sapatas

Esforços e pressões

Nome	MB MH (kN.m)	FB FH (kN)	Carga Carga total (kN)	Pressão Sig1 (kN/m²)	Pressão Sig2 (kN/m²)	Pressão Sig3 (kN/m²)	Pressão Sig4 (kN/m²)
S1	0.85 0.80	0.99 1.41	24.31 34.00	90.17 (lim = 200.00)	49.85 (lim = 200.00)	84.21 (lim = 200.00)	124.53 (lim = 200.00)
S2	0.88 0.50	1.04 0.81	24.08 33.78	116.12 (lim = 200.00)	74.49 (lim = 200.00)	57.10 (lim = 200.00)	98.73 (lim = 200.00)
S3	1.13 0.64	1.14 0.99	50.28 61.37	145.11 (lim = 200.00)	109.31 (lim = 200.00)	127.65 (lim = 200.00)	163.45 (lim = 200.00)
S4	1.21 0.53	1.22 0.79	52.99 64.08	119.44 (lim = 200.00)	152.82 (lim = 200.00)	165.38 (lim = 200.00)	132.00 (lim = 200.00)
S5	0.90 1.11	1.01 2.17	28.23 37.92	50.62 (lim = 200.00)	93.45 (lim = 200.00)	143.85 (lim = 200.00)	101.01 (lim = 200.00)
S6	0.84 0.60	1.03 1.14	22.83 32.53	75.77 (lim = 200.00)	115.72 (lim = 200.00)	91.04 (lim = 200.00)	51.09 (lim = 200.00)

Estabilidade

Nome	Tombamento B		Tombamento H		Deslizamento		Arrancamento	
	Mrd Msd (kN.m)	Mrd / Msd	Mrd Msd (kN.m)	Mrd / Msd	Frd Fsd (kN)	Frd / Fsd	Nt (kN)	Ns (kN)
S1	11.05 0.85	12.97 (lim = 1.50)	9.44 0.80	11.77 (lim = 1.50)	10.42 1.36	7.68 lim = (1.50)		
S2	10.98 0.88	12.48 (lim = 1.50)	9.41 0.50	18.95 (lim = 1.50)	12.36 1.21	10.19 lim = (1.50)		
S3	20.48 1.13	18.10 (lim = 1.50)	17.38 0.64	27.07 (lim = 1.50)	19.99 1.35	14.81 lim = (1.50)		
S4	21.50 1.21	17.72 (lim = 1.50)	18.18 0.53	34.26 (lim = 1.50)	20.98 1.30	16.12 lim = (1.50)		
S5	12.32 0.90	13.62 (lim = 1.50)	10.58 1.11	9.56 (lim = 1.50)	11.82 2.10	5.63 lim = (1.50)		
S6	10.57 0.84	12.53 (lim = 1.50)	8.98 0.60	15.01 (lim = 1.50)	11.90 1.46	8.18 lim = (1.50)		

Verificação de tensão em área reduzida

Nome	Interface pilar-fundação		
	Força solicitante (kN)	Força resistente (kN)	Condição
S1	34.04	2250.00	OK
S2	33.72	2250.00	OK
S3	70.39	2400.00	OK
S4	74.19	2400.00	OK
S5	39.52	2250.00	OK
S6	31.97	2250.00	OK

Dimensionamento

Nome	Armaduras inferiores		Armaduras superiores	
	Dir. B	Dir. H	Dir. B	Dir. H
	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) A's (cm²/m)	Md (kN.m/m) A's (cm²/m)
S1	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S2	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S3	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S4	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S5	35.77 5.76	35.77 5.76	0.00 0.00	0.00 0.00
S6	35.77	35.77	0.00	0.00

	5.76	5.76	0.00	0.00

9. RESULTADOS DOS PILARES DA EDÍCULA:

Dados				Resultados					
Pilar	**Seção (cm)**	**Nível Altura (cm)**	**leb vínc leh vínc (cm)**	**Nd máx Nd mín (kN)**	**MBd topo MBd base (kN.m)**	**MHd topo MHd base (kN.m)**	**As b Armaduras As h % armad total**	**Estribo Topo Base cota**	**Esb b Esb h**
P1 1:20	15.00 X 25.00	25.00 150.00	150.00 RR 150.00 RR	34.04 16.45	1.84 1.12	0.89 1.19	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	34.60 20.76
P2 1:20	15.00 X 25.00	25.00 150.00	150.00 RR 150.00 RR	33.72 16.23	1.01 0.69	0.97 1.23	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	34.60 20.76
P3 1:20	16.00 X 30.00	25.00 150.00	150.00 RR 150.00 RR	70.39 41.05	1.18 0.90	0.82 1.58	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	32.44 17.30
P4 1:20	16.00 X 30.00	25.00 150.00	150.00 RR 150.00 RR	74.19 43.75	0.93 0.74	0.86 1.70	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	32.44 17.30
P5 1:20	15.00 X 25.00	25.00 150.00	150.00 RR 150.00 RR	39.52 20.30	3.01 1.55	0.86 1.27	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	34.60 20.76
P6 1:20	15.00 X 25.00	25.00 150.00	150.00 RR 150.00 RR	31.97 14.92	1.57 0.84	0.98 1.18	1.57 2 ø 10.0 1.57 2 ø 10.0 0.8 4 ø 10.0	ø 5.0 c/12	34.60 20.76

10. RESULTADOS DO RADIER DA CASA DE GASES:

11. ARMADURAS (RADIER)						
Radier	**Seção**	**Direção**	**Flexão Positiva**		**Flexão Negativa**	
R1	h = 13 cm	X	Md = 1,03 kN.m/m	As = 0,29 cm¹/m As,min = 1,31 cm²/m	Md = 1,45 kN.m/m	As = 0,41 cm¹/m As,min = 1,31 cm²/m
		Y	Md = 1,38 kN.m/m	As = 0,39 cm¹/m As,min = 1,31 cm²/m	Md = 3,39 kN.m/m	As = 0,94 cm¹/m As,min = 1,31 cm²/m

12. RESULTADOS DO RESERVATÓRIO:

Relatório de Cálculos das Sapatas

Esforços e pressões

Nome	MB MH (kN.m)	FB FH (kN)	Carga Carga total (kN)	Pressão Sig1 (kN/m²)	Pressão Sig2 (kN/m²)	Pressão Sig3 (kN/m²)	Pressão Sig4 (kN/m²)
S1	0.34 0.34	1.23 1.20	33.98 85.27	85.27 (lim = 200.00)	89.35 (lim = 200.00)	85.27 (lim = 200.00)	81.20 (lim = 200.00)
S2	1.19 1.19	0.38 2.06	119.24 170.53	169.81 (lim = 200.00)	184.04 (lim = 200.00)	169.81 (lim = 200.00)	155.59 (lim = 200.00)
S3	0.34 0.34	1.20 1.23	33.98 85.27	85.27 (lim = 200.00)	89.35 (lim = 200.00)	85.27 (lim = 200.00)	81.20 (lim = 200.00)
S4	1.05 1.05	0.48 2.82	105.23 156.53	155.80 (lim = 200.00)	168.35 (lim = 200.00)	155.80 (lim = 200.00)	143.26 (lim = 200.00)
S5	2.02 2.02	0.35 0.66	202.43 307.95	157.12 (lim = 200.00)	165.97 (lim = 200.00)	157.12 (lim = 200.00)	148.27 (lim = 200.00)
S6	1.05 1.05	2.82 0.48	105.23 156.53	155.80 (lim = 200.00)	168.35 (lim = 200.00)	155.80 (lim = 200.00)	143.26 (lim = 200.00)
S7	0.24 0.24	0.91 0.86	23.71 75.01	75.01 (lim = 200.00)	77.85 (lim = 200.00)	75.01 (lim = 200.00)	72.16 (lim = 200.00)
S8	0.89 0.89	2.73 0.35	88.86 140.15	139.43 (lim = 200.00)	150.01 (lim = 200.00)	139.43 (lim = 200.00)	128.86 (lim = 200.00)
S9	0.24 0.24	0.91 0.86	23.71 75.01	75.01 (lim = 200.00)	77.85 (lim = 200.00)	75.01 (lim = 200.00)	72.16 (lim = 200.00)

Estabilidade

Nome	Tombamento B		Tombamento H		Deslizamento		Arrancamento	
	Mrd	Mrd / Msd	Mrd	Mrd / Msd	Frd	Frd / Fsd	Nt	Ns

	Msd (kN.m)		Msd (kN.m)		Fsd (kN)		(kN)	(kN)
S1	42.64 0.34	125.48 (lim = 1.50)	42.64 0.34	125.48 (lim = 1.50)	66.62 1.52	43.71 lim = (1.50)		
S2	85.27 1.19	71.51 (lim = 1.50)	85.27 1.19	71.51 (lim = 1.50)	133.24 2.06	64.68 lim = (1.50)		
S3	42.64 0.34	125.48 (lim = 1.50)	42.64 0.34	125.48 (lim = 1.50)	66.62 1.52	43.71 lim = (1.50)		
S4	78.26 1.05	74.37 (lim = 1.50)	78.26 1.05	74.37 (lim = 1.50)	122.29 2.83	43.27 lim = (1.50)		
S5	215.57 2.02	106.49 (lim = 1.50)	215.57 2.02	106.49 (lim = 1.50)	222.68 0.63	352.12 lim = (1.50)		
S6	78.26 1.05	74.37 (lim = 1.50)	78.26 1.05	74.37 (lim = 1.50)	122.29 2.83	43.27 lim = (1.50)		
S7	37.50 0.24	158.16 (lim = 1.50)	37.50 0.24	158.16 (lim = 1.50)	58.60 1.09	53.93 lim = (1.50)		
S8	70.08 0.89	78.86 (lim = 1.50)	70.08 0.89	78.86 (lim = 1.50)	109.50 2.73	40.18 lim = (1.50)		
S9	37.50 0.24	158.16 (lim = 1.50)	37.50 0.24	158.16 (lim = 1.50)	58.60 1.09	53.93 lim = (1.50)		

Verificação de tensão em área reduzida

Nome	Interface pilar-fundação		
	Força solicitante (kN)	Força resistente (kN)	Condição
S1	45.79	6364.29	OK
S2	163.01	6364.29	OK
S3	45.79	6364.29	OK
S4	143.66	6364.29	OK
S5	276.87	1928.57	OK
S6	143.66	6364.29	OK
S7	31.60	6364.29	OK
S8	121.03	6364.29	OK
S9	31.60	6364.29	OK

Dimensionamento

Nome	Armaduras inferiores		Armaduras superiores	
	Dir. B	Dir. H	Dir. B	Dir. H
	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) As (cm²/m)	Md (kN.m/m) A's (cm²/m)	Md (kN.m/m) A's (cm²/m)
S1	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S2	22.41	22.41	0.00	0.00

	4.51	4.51	0.00	0.00
S3	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S4	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S5	43.96 5.06	43.96 5.06	0.00 0.00	0.00 0.00
S6	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S7	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S8	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00
S9	22.41 4.51	22.41 4.51	0.00 0.00	0.00 0.00

Cálculo dos Pilares

Pilar	Seção (cm)	vínc esb B vínc esb H	Nd máx Nd mín (kN)	Msd(x) Msd(y) (kN.m)	Mrd(x) Mrd(y) (kN.m)	Mrd/Msd	As b As h (cm²)
P1	30.00 X 30.00	RR 34.60 RR 34.60	45.79 22.60	4.92 3.72	28.00 21.18	5.69	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P2	30.00 X 30.00	RR 34.60 RR 34.60	163.01 99.07	0.00 8.40	0.00 43.28	5.15	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P3	30.00 X 30.00	RR 34.60 RR 34.60	45.79 22.60	3.72 4.92	21.18 28.00	5.69	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P4	30.00 X 30.00	RR 34.60 RR 34.60	143.66 86.33	0.54 11.55	1.92 40.96	3.55	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P5	30.00 X 30.00	RR 34.60 RR 34.60	276.87 172.74	4.65 4.75	36.53 37.27	7.85	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P6	30.00 X 30.00	RR 34.60 RR 34.60	143.66 86.33	11.55 0.54	40.96 1.92	3.55	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P7	30.00 X 30.00	RR 34.60 RR 34.60	31.60 13.27	3.60 2.43	26.94 18.23	7.49	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P8	30.00 X 30.00	RR 34.60 RR 34.60	121.03 71.45	11.14 0.00	38.95 0.00	3.50	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)
P9	30.00 X 30.00	RR 34.60 RR 34.60	31.60 13.27	3.60 2.43	26.94 18.23	7.49	2.45 (2 ø 12.5) 2.45 (2 ø 12.5)

Resultados da Viga V1

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P1	30.00			2 ø 10.0 1.20					0.01
1	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.02
P2	30.00			2 ø 10.0 1.20					0.05
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.02
P3	30.00			2 ø 10.0 1.20					0.01

Resultados da Viga V2

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P4	30.00			2 ø 12.5 1.20					0.02
1	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.10
P5	30.00			2 ø 12.5 1.66					0.11
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.10
P6	30.00			2 ø 12.5 1.20					0.02

Resultados da Viga V3

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P7	30.00			2 ø 10.0 1.20					0.00
1	155.00	20.00 x	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01

		40.00							
P8	30.00			2 ø 10.0 1.20					0.01
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01
P9	30.00			2 ø 10.0 1.20					0.00

Resultados da Viga V4

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P7	30.00			2 ø 10.0 1.20					0.00
1	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01
P4	30.00			2 ø 10.0 1.20					0.03
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01
P1	30.00			2 ø 10.0 1.20					0.01

Resultados da Viga V5

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P8	30.00			2 ø 12.5 1.20					0.02
1	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.09
P5	30.00			2 ø 12.5 1.48					0.09
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.04
P2	30.00			2 ø 12.5 1.20					0.02

Resultados da Viga V6

Dados			Resultados						
Pilar Trecho	**Apoio 1 e 1o (cm)**	**Seção (cm)**	**As Inf (cm²)**	**As Sup (cm²)**	**As esq trecho (cm²)**	**Asw min (cm²)**	**As dir trecho (cm²)**	**Asw Pele (cm²)**	**Fissura (mm)**
P9	30.00			2 ø 10.0 1.20					0.00
1	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01
P6	30.00			2 ø 10.0 1.20					0.03
2	155.00	20.00 x 40.00	2 ø 10.0 1.20			ø 5.0 c/ 17			0.01
P3	30.00			2 ø 10.0 1.20					0.01

Cálculos das Lajes

ARMADURAS POSITIVAS (LAJE)												
Laje	Direção	Momento positivo				Momento negativo				Armadura inferior	Armadura superior	Cisalhamento
		Seção	Flexão	Verificação axial (compressão)	Verificação axial (tração)	Seção	Flexão	Verificação axial (compressão)	Verificação axial (tração)			
L1	X	bw = 100.0 cm h = 20.0 cm	Md = 19.09 kN.m/m As = 2.78 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 18.05 kN.m/m As = 2.65 cm²/m A's = 0.00 cm²/m			As = 2.78 cm²/m ø8.0 c/18 (2.79 cm²/m) M = 13.74 kN.m/m F = 0.00 kN fiss = 0.15 mm		vsd = 67.52 kN/m vrd1 = 106.48 kN/m Modelo I vrd2 = 794.26 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
	Y	bw = 100.0 cm h = 20.0 cm	Md = 13.54 kN.m/m As = 2.07 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 20.05 kN.m/m As = 3.15 cm²/m A's = 0.00 cm²/m			As = 2.07 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 9.73 kN.m/m F = 0.00 kN fiss = 0.10 mm		vsd = 81.23 kN/m vrd1 = 101.45 kN/m vrd2 = 753.53 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
L2	X	bw = 100.0 cm h = 20.0 cm	Md = 19.09 kN.m/m As = 2.78			bw = 100.0 cm h = 20.0 cm	Md = 18.05 kN.m/m As = 2.65			As = 2.78 cm²/m ø8.0 c/18 (2.79 cm²/m) M = 13.74		vsd = 67.52 kN/m vrd1 = 106.48 kN/m Modelo I

			cm²/m A's = 0.00 cm²/m				cm²/m A's = 0.00 cm²/m			kN.m/m F = 0.00 kN fiss = 0.15 mm		vrd2 = 794.26 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
	Y	bw = 100.0 cm h = 20.0 cm	Md = 13.54 kN.m/m As = 2.07 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 20.05 kN.m/m As = 3.15 cm²/m A's = 0.00 cm²/m			As = 2.07 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 9.73 kN.m/m F = 0.00 kN fiss = 0.10 mm		vsd = 81.23 kN/m vrd1 = 101.45 kN/m vrd2 = 753.53 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
L3	X	bw = 100.0 cm h = 20.0 cm	Md = 16.89 kN.m/m As = 2.46 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 16.66 kN.m/m As = 2.42 cm²/m A's = 0.00 cm²/m			As = 2.46 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 12.16 kN.m/m F = 0.00 kN fiss = 0.14 mm		vsd = 61.97 kN/m vrd1 = 105.90 kN/m Modelo I vrd2 = 794.26 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
	Y	bw = 100.0 cm h = 20.0 cm	Md = 13.46 kN.m/m As = 2.06			bw = 100.0 cm h = 20.0 cm	Md = 19.78 kN.m/m As = 3.07			As = 2.06 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 9.36		vsd = 76.51 kN/m vrd1 = 101.45 kN/m vrd2 = 753.53 kN/m

			cm²/m A's = 0.00 cm²/m				cm²/m A's = 0.00 cm²/m			kN.m/m F = 0.00 kN fiss = 0.09 mm		vsw = 0.00 kN/m asw = 0.00 cm²/m
L4	X	bw = 100.0 cm h = 20.0 cm	Md = 16.90 kN.m/m As = 2.46 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 16.66 kN.m/m As = 2.42 cm²/m A's = 0.00 cm²/m			As = 2.46 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 12.16 kN.m/m F = 0.00 kN fiss = 0.14 mm		vsd = 61.97 kN/m vrd1 = 105.90 kN/m Modelo I vrd2 = 794.26 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m
	Y	bw = 100.0 cm h = 20.0 cm	Md = 13.46 kN.m/m As = 2.06 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm	Md = 19.78 kN.m/m As = 3.07 cm²/m A's = 0.00 cm²/m			As = 2.06 cm²/m ø8.0 c/20 (2.51 cm²/m) M = 9.36 kN.m/m F = 0.00 kN fiss = 0.09 mm		vsd = 76.51 kN/m vrd1 = 101.45 kN/m vrd2 = 753.53 kN/m vsw = 0.00 kN/m asw = 0.00 cm²/m

ARMADURAS NEGATIVAS (NA CONTINUIDADE)										
Viga Trecho	Laje 1 Laje 2	Momento negativo				Momento positivo				Armaduras finais
		Seção	Flexão	Flexo compressão	Flexo tração	Seção	Flexão	Flexo compressão	Flexo tração	
V5 1	L3 L4	bw = 100.0 cm	Md = 20.08 kN.m/m			bw = 100.0 cm				As = 3.00 cm²/m

		h = 20.0 cm	As = 2.93 cm²/m A's = 0.00 cm²/m			h = 20.0 cm				(ø8.0 c/16 - 3.14 cm²/m) fiss = 0.09 mm
V2 1	L3 L1	bw = 100.0 cm h = 20.0 cm	Md = 20.08 kN.m/m As = 2.93 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm				As = 3.00 cm²/m (ø8.0 c/16 - 3.14 cm²/m) fiss = 0.13 mm
V5 2	L1 L2	bw = 100.0 cm h = 20.0 cm	Md = 20.08 kN.m/m As = 2.93 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm				As = 3.00 cm²/m (ø8.0 c/16 - 3.14 cm²/m) fiss = 0.10 mm
V2 2	L2 L4	bw = 100.0 cm h = 20.0 cm	Md = 20.08 kN.m/m As = 2.93 cm²/m A's = 0.00 cm²/m			bw = 100.0 cm h = 20.0 cm				As = 3.00 cm²/m (ø8.0 c/16 - 3.14 cm²/m) fiss = 0.13 mm