

CONSÓRCIO SAÚDE

CONCREMAT | MEP

MEMORIAL DE CÁLCULO DE QUANTITATIVO PROJETO EXECUTIVO DE FUNDAÇÃO

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CONTRATANTE SECRETARIA DA SAÚDE DO ESTADO DA BAHIA (SESAB) CNPJ: 13.937.131/0001-41 Murilo Matos Conceição AUTOR DO MEMORIAL MURILO MATOS CONCEIÇÃO ENG. CIVIL – CREA/BA Nº 3000089290		
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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 - TIPO 03, na BR 367, s/n, Antares, no município de Eunápolis/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 Descritivo 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
ABNT NBR 16868-1:2020	Alvenaria estrutural - Projeto
ABNT NBR 16868-2:2020	Alvenaria estrutural – Execução e controle de obras
ABNT NBR 6136:2016	Blocos vazados de concreto simples para alvenaria

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 ($f_{yk}=500$ Mpa) e CA-60 ($f_{yk} = 600$ Mpa).

3.3. ALVENARIA ESTRUTURAL

Bloco de concreto estrutural

Foi adotado bloco vazado de concreto simples, com função estrutural, com resistência característica à compressão axial: $f_{bk} = 8,0$ MPa, referida à área bruta da seção transversal, conforme critério de aceitação estabelecido pela ABNT NBR 6136.

Esse valor corresponde a uma classe de resistência usual entre os fabricantes nacionais, compatível com paredes estruturais tanto acima quanto abaixo do nível do solo, desde que o fornecedor comprove o atendimento simultâneo aos demais requisitos da norma (absorção de água, retração linear por secagem e tolerâncias dimensionais). As dimensões nominais e a família modular do bloco (espessura, comprimento e altura) devem ser compatibilizadas com a modulação adotada nos desenhos de projeto, atendendo às tolerâncias da ABNT NBR 6136.

O recebimento dos blocos em obra deve ser feito por lote, com amostragem e ensaio de resistência à compressão conforme a própria ABNT NBR 6136 e a ABNT NBR 12118, não sendo aceitos lotes cujo valor estimado da resistência característica ($f_{bk,est}$) seja inferior ao especificado neste memorial.

Argamassa de assentamento

Para o assentamento das fiadas foi especificada argamassa com resistência característica à compressão: $f_a = 6,0$ MPa

A resistência da argamassa deve ser comprovada conforme a ABNT NBR 13279 (corpos de prova prismáticos $4 \times 4 \times 16$ cm, rompidos aos 28 dias). Recomenda-se, adicionalmente, que ao menos parte do controle seja feita com corpos de prova moldados entre meios-blocos (conforme procedimento previsto na ABNT NBR 16868-3), uma vez que a perda de água da argamassa fresca para o bloco poroso, que ocorre efetivamente em obra, eleva sua resistência em relação ao corpo de prova moldado em forma metálica — fornecendo, assim, um valor mais representativo do comportamento real da junta de assentamento.

A relação adotada entre as resistências de argamassa e bloco é: $f_a / f_{bk} = 6,0 / 8,0 = 0,75$. Esse patamar está dentro da faixa usualmente recomendada na literatura técnica e no Anexo F da ABNT NBR 16868-1 (que traz valores de referência para especificação de argamassa e graute em função da resistência do bloco): a argamassa não deve ser excessivamente mais resistente que o bloco — o que tende a gerar fendilhamento do bloco por incompatibilidade de rigidez na junta comprimida — nem excessivamente mais fraca, o que comprometeria a resistência ao cisalhamento das juntas e a aderência das armaduras horizontais.

A argamassa deve ser aplicada em todas as paredes do bloco (longitudinais e transversais), com espessura de junta da ordem de 10 mm, sem descontinuidades, conforme procedimento de execução da ABNT NBR 16868-2.

Graute

Para o preenchimento das células verticais grauteadas (com armadura) e, quando aplicável, de canaletas horizontais, foi especificado graute com resistência característica à compressão: $f_{gk} = 20,0$ MPa

A relação adotada entre as resistências de graute e bloco é: $f_{gk} / f_{bk} = 20,0 / 8,0 = 2,5$. Esse valor atende à recomendação usual de projeto de que o graute apresente resistência característica de pelo menos o dobro da resistência característica do bloco ($f_{gk} \geq 2 \times f_{bk}$). Essa exigência decorre do confinamento próprio das células grauteadas: o graute, ao trabalhar confinado dentro do bloco, desenvolve resistência efetiva superior à do corpo de prova de controle, mas precisa de uma resistência de base suficientemente alta para que o conjunto bloco-graute-armadura atinja a capacidade de aderência e ancoragem previstas em projeto, sem que o graute se torne o elo mais fraco do sistema.

O graute deve ter consistência fluida (alta plasticidade/slump elevado), de modo a preencher integralmente os vazios e envolver a armadura sem segregação dos agregados, sendo lançado e adensado conforme procedimento estabelecido na ABNT NBR 16868-2, em camadas compatíveis com a altura de elevação da parede, evitando pressões excessivas sobre as paredes do bloco durante o lançamento.

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 $\psi_2 F_{Qk}$

$$F_d = \sum_{i=1}^m F_{Gi,k} + \psi_1 \cdot F_{Q1,k} + \sum_{j=2}^n \psi_2 \cdot F_{Qj,k}$$

Combinação Rara De Serviço

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

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

- 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	Coefficiente parcial de segurança das ações permanentes
γ_q	Coefficiente 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 Y_f , calculado conforme $Y_f = Y_{f1} \cdot Y_{f2} \cdot Y_{f3}$. 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 (Y_g)

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 (γ_q)

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, $\gamma_f = 1,00$.

Os fatores de combinação e de redução ψ para ações variáveis que representam o coeficiente γ_{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 estágio 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 EDIFÍCIO PRINCIPAL:

Esforços e pressões

Nome	MB MH (kN.m)	FB FH (kN)	Carga Carga total (kN)	Pressão Sig1 (kgf/cm²)	Pressão Sig2 (kgf/cm²)	Pressão Sig3 (kgf/cm²)	Pressão Sig4 (kgf/cm²)
S1	1.83 2.98	2.99 4.14	94.03 121.81	1.29 (lim = 1.30)	1.19 (lim = 1.30)	0.89 (lim = 1.30)	0.98 (lim = 1.30)
S2	0.61 2.28	0.40 3.45	122.04 157.44	1.19 (lim = 1.30)	1.24 (lim = 1.30)	1.10 (lim = 1.30)	1.05 (lim = 1.30)
S3	2.09 0.57	3.18 0.61	113.16 145.54	1.05 (lim = 1.30)	1.22 (lim = 1.30)	1.26 (lim = 1.30)	1.09 (lim = 1.30)
S4	2.74 3.25	4.76 4.15	162.86 209.68	1.26 (lim = 1.30)	1.18 (lim = 1.30)	1.04 (lim = 1.30)	1.12 (lim = 1.30)
S5	2.93 2.85	4.59 1.95	195.49 249.72	1.20 (lim = 1.30)	1.27 (lim = 1.30)	1.18 (lim = 1.30)	1.10 (lim = 1.30)
S6	1.78 3.51	2.22 4.57	120.68 157.39	1.16 (lim = 1.30)	1.25 (lim = 1.30)	1.02 (lim = 1.30)	0.94 (lim = 1.30)
S7	2.22 2.74	3.15 3.81	70.38 93.06	0.98 (lim = 1.30)	1.29 (lim = 1.30)	1.06 (lim = 1.30)	0.75 (lim = 1.30)
S8	1.55 0.53	2.48 0.66	105.15 134.99	1.21 (lim = 1.30)	1.08 (lim = 1.30)	1.14 (lim = 1.30)	1.27 (lim = 1.30)
S9	0.84 1.68	0.38 2.26	167.94 213.55	1.20 (lim = 1.30)	1.15 (lim = 1.30)	1.23 (lim = 1.30)	1.28 (lim = 1.30)
S10	0.69 1.37	0.37 2.30	137.34 175.90	1.15 (lim = 1.30)	1.10 (lim = 1.30)	1.19 (lim = 1.30)	1.23 (lim = 1.30)
S11	0.97 1.94	0.27 1.84	194.19 247.07	1.27 (lim = 1.30)	1.23 (lim = 1.30)	1.15 (lim = 1.30)	1.19 (lim = 1.30)
S12	0.79 1.59	0.92 1.79	158.71 204.33	1.11 (lim = 1.30)	1.15 (lim = 1.30)	1.23 (lim = 1.30)	1.18 (lim = 1.30)
S13	0.75 0.39	1.04 0.63	65.89 84.05	1.08 (lim = 1.30)	1.20 (lim = 1.30)	1.28 (lim = 1.30)	1.16 (lim = 1.30)
S14	6.38 3.07	11.98 4.22	164.41 214.87	1.27 (lim = 1.30)	1.04 (lim = 1.30)	0.92 (lim = 1.30)	1.15 (lim = 1.30)
S15	5.23 2.16	9.30 2.56	201.31 259.45	1.10 (lim = 1.30)	1.26 (lim = 1.30)	1.19 (lim = 1.30)	1.03 (lim = 1.30)
S16	0.61 1.75	0.52 2.70	121.25 156.65	1.21 (lim = 1.30)	1.16 (lim = 1.30)	1.07 (lim = 1.30)	1.11 (lim = 1.30)
S17	1.80 2.37	2.30 2.96	172.29 219.11	1.29 (lim = 1.30)	1.20 (lim = 1.30)	1.12 (lim = 1.30)	1.20 (lim = 1.30)
S18	2.65 5.57	2.71 7.73	264.70 340.96	1.28 (lim = 1.30)	1.21 (lim = 1.30)	1.08 (lim = 1.30)	1.14 (lim = 1.30)
S19	3.51 2.62	6.11 3.36	137.06 177.01	1.13 (lim = 1.30)	1.28 (lim = 1.30)	1.14 (lim = 1.30)	0.99 (lim = 1.30)
S20	2.17 2.22	1.37 2.73	85.18 110.23	1.00 (lim = 1.30)	1.26 (lim = 1.30)	1.16 (lim = 1.30)	0.90 (lim = 1.30)
S21	5.99 3.15	11.33 5.27	119.33 159.27	1.07 (lim = 1.30)	0.76 (lim = 1.30)	0.95 (lim = 1.30)	1.25 (lim = 1.30)
S22	5.28 1.76	9.28 2.27	175.86 226.33	1.00 (lim = 1.30)	1.21 (lim = 1.30)	1.29 (lim = 1.30)	1.08 (lim = 1.30)

S23	0.55 1.48	0.49 2.47	109.33 139.17	1.19 (lim = 1.30)	1.13 (lim = 1.30)	1.23 (lim = 1.30)	1.29 (lim = 1.30)
S24	1.68 1.94	2.20 2.75	145.52 185.47	1.19 (lim = 1.30)	1.10 (lim = 1.30)	1.19 (lim = 1.30)	1.28 (lim = 1.30)
S25	1.71 1.80	2.18 4.09	146.16 186.10	1.19 (lim = 1.30)	1.10 (lim = 1.30)	1.19 (lim = 1.30)	1.28 (lim = 1.30)
S26	3.07 2.32	5.14 2.75	166.98 213.80	1.15 (lim = 1.30)	1.28 (lim = 1.30)	1.20 (lim = 1.30)	1.07 (lim = 1.30)
S27	2.28 2.03	1.55 2.30	99.99 130.60	1.03 (lim = 1.30)	1.21 (lim = 1.30)	1.12 (lim = 1.30)	0.94 (lim = 1.30)
S28	3.61 4.90	8.42 7.85	99.06 132.97	1.29 (lim = 1.30)	1.11 (lim = 1.30)	0.72 (lim = 1.30)	0.90 (lim = 1.30)
S29	2.08 9.58	1.49 0.86	101.60 141.72	1.16 (lim = 1.30)	1.24 (lim = 1.30)	0.65 (lim = 1.30)	0.57 (lim = 1.30)
S30	4.53 5.15	8.75 8.03	100.05 137.19	1.02 (lim = 1.30)	1.24 (lim = 1.30)	0.89 (lim = 1.30)	0.66 (lim = 1.30)
S31	4.59 4.18	9.60 6.22	116.34 156.29	1.23 (lim = 1.30)	1.00 (lim = 1.30)	0.75 (lim = 1.30)	0.99 (lim = 1.30)
S32	1.20 2.94	2.08 5.33	133.20 171.76	1.19 (lim = 1.30)	1.26 (lim = 1.30)	1.08 (lim = 1.30)	1.02 (lim = 1.30)
S33	1.60 3.03	1.43 4.18	92.59 120.35	1.19 (lim = 1.30)	1.29 (lim = 1.30)	0.98 (lim = 1.30)	0.89 (lim = 1.30)
S34	0.50 2.03	0.68 3.18	100.22 130.06	1.18 (lim = 1.30)	1.23 (lim = 1.30)	1.06 (lim = 1.30)	1.01 (lim = 1.30)
S35	1.44 3.23	1.05 4.12	125.99 162.69	1.19 (lim = 1.30)	1.28 (lim = 1.30)	1.06 (lim = 1.30)	0.97 (lim = 1.30)
S36	0.59 2.79	0.93 4.51	95.94 125.78	1.18 (lim = 1.30)	1.23 (lim = 1.30)	0.99 (lim = 1.30)	0.94 (lim = 1.30)
S37	2.04 5.58	2.32 8.78	101.12 134.71	1.19 (lim = 1.30)	1.27 (lim = 1.30)	0.83 (lim = 1.30)	0.75 (lim = 1.30)
S38	1.03 1.72	1.18 3.20	79.50 103.87	1.16 (lim = 1.30)	1.26 (lim = 1.30)	1.02 (lim = 1.30)	0.92 (lim = 1.30)
S39	2.08 4.41	2.49 6.89	110.68 147.38	1.13 (lim = 1.30)	1.21 (lim = 1.30)	0.91 (lim = 1.30)	0.83 (lim = 1.30)
S40	0.56 4.32	0.40 7.89	112.39 147.79	1.19 (lim = 1.30)	1.23 (lim = 1.30)	0.94 (lim = 1.30)	0.89 (lim = 1.30)
S41	1.91 3.38	2.09 4.82	168.81 215.64	1.21 (lim = 1.30)	1.29 (lim = 1.30)	1.15 (lim = 1.30)	1.07 (lim = 1.30)
S42	2.45 2.07	4.30 2.28	166.98 213.81	1.26 (lim = 1.30)	1.16 (lim = 1.30)	1.08 (lim = 1.30)	1.18 (lim = 1.30)
S43	0.68 2.05	1.11 3.30	117.84 150.61	1.24 (lim = 1.30)	1.29 (lim = 1.30)	1.15 (lim = 1.30)	1.10 (lim = 1.30)
S44	0.54 2.10	0.60 3.40	108.28 141.06	1.21 (lim = 1.30)	1.16 (lim = 1.30)	1.03 (lim = 1.30)	1.08 (lim = 1.30)
S45	0.67 1.94	0.48 3.08	134.23 172.79	1.18 (lim = 1.30)	1.23 (lim = 1.30)	1.13 (lim = 1.30)	1.08 (lim = 1.30)
S46	0.65 1.96	0.49 3.12	130.65 166.06	1.24 (lim = 1.30)	1.29 (lim = 1.30)	1.18 (lim = 1.30)	1.13 (lim = 1.30)
S47	2.98 3.07	4.24 4.48	93.45 124.06	1.06 (lim = 1.30)	1.23 (lim = 1.30)	0.96 (lim = 1.30)	0.79 (lim = 1.30)
S48	7.47 1.84	12.87 1.66	96.90 134.04	1.14 (lim = 1.30)	0.63 (lim = 1.30)	0.72 (lim = 1.30)	1.23 (lim = 1.30)

S49	1.78 0.61	2.48 0.41	29.52 41.25	1.22 (lim = 1.30)	0.60 (lim = 1.30)	0.46 (lim = 1.30)	1.08 (lim = 1.30)
S50	1.66 5.90	1.54 13.40	96.13 130.05	0.81 (lim = 1.30)	0.71 (lim = 1.30)	1.16 (lim = 1.30)	1.26 (lim = 1.30)
S51	4.68 2.83	9.02 5.01	159.33 206.16	1.20 (lim = 1.30)	0.98 (lim = 1.30)	1.06 (lim = 1.30)	1.28 (lim = 1.30)
S52	3.58 1.62	6.38 3.00	159.50 205.11	1.06 (lim = 1.30)	1.20 (lim = 1.30)	1.28 (lim = 1.30)	1.14 (lim = 1.30)
S53	1.20 2.33	1.79 3.59	91.17 118.93	0.99 (lim = 1.30)	0.90 (lim = 1.30)	1.13 (lim = 1.30)	1.22 (lim = 1.30)
S54	0.58 1.55	0.47 2.64	115.28 146.66	1.13 (lim = 1.30)	1.19 (lim = 1.30)	1.29 (lim = 1.30)	1.24 (lim = 1.30)
S55	1.44 1.72	1.78 2.66	143.89 183.84	1.17 (lim = 1.30)	1.08 (lim = 1.30)	1.17 (lim = 1.30)	1.26 (lim = 1.30)
S56	0.57 2.19	0.94 4.12	114.12 146.90	1.07 (lim = 1.30)	1.12 (lim = 1.30)	1.27 (lim = 1.30)	1.21 (lim = 1.30)
S57	1.19 4.21	1.36 7.97	108.61 142.20	0.85 (lim = 1.30)	0.93 (lim = 1.30)	1.26 (lim = 1.30)	1.18 (lim = 1.30)
S58	1.02 1.56	1.35 3.01	81.10 105.46	0.96 (lim = 1.30)	1.06 (lim = 1.30)	1.27 (lim = 1.30)	1.17 (lim = 1.30)
S59	1.16 3.69	1.25 6.49	111.20 144.79	0.89 (lim = 1.30)	0.97 (lim = 1.30)	1.26 (lim = 1.30)	1.17 (lim = 1.30)
S60	0.56 4.07	0.34 7.60	112.58 147.99	0.92 (lim = 1.30)	0.97 (lim = 1.30)	1.23 (lim = 1.30)	1.19 (lim = 1.30)
S61	1.91 3.40	2.46 6.08	117.72 154.43	0.93 (lim = 1.30)	1.01 (lim = 1.30)	1.22 (lim = 1.30)	1.13 (lim = 1.30)
S62	2.36 2.22	4.36 3.44	136.15 176.10	1.14 (lim = 1.30)	1.02 (lim = 1.30)	1.11 (lim = 1.30)	1.22 (lim = 1.30)
S63	0.70 1.71	1.12 2.89	136.09 174.64	1.10 (lim = 1.30)	1.14 (lim = 1.30)	1.23 (lim = 1.30)	1.18 (lim = 1.30)
S64	0.62 1.77	0.51 3.01	123.30 158.70	1.13 (lim = 1.30)	1.08 (lim = 1.30)	1.18 (lim = 1.30)	1.23 (lim = 1.30)
S65	0.78 1.62	0.51 2.68	155.66 197.50	1.15 (lim = 1.30)	1.19 (lim = 1.30)	1.28 (lim = 1.30)	1.23 (lim = 1.30)
S66	0.77 1.67	0.60 2.77	153.09 194.94	1.13 (lim = 1.30)	1.18 (lim = 1.30)	1.26 (lim = 1.30)	1.22 (lim = 1.30)
S67	2.87 2.15	3.78 3.13	120.19 156.89	0.96 (lim = 1.30)	1.14 (lim = 1.30)	1.22 (lim = 1.30)	1.04 (lim = 1.30)
S68	7.47 1.84	12.87 1.66	96.90 134.04	1.23 (lim = 1.30)	0.72 (lim = 1.30)	0.63 (lim = 1.30)	1.14 (lim = 1.30)
S69	1.78 0.61	2.48 0.41	29.52 41.25	1.08 (lim = 1.30)	0.46 (lim = 1.30)	0.60 (lim = 1.30)	1.22 (lim = 1.30)
S72	2.83 2.69	4.97 5.08	186.27 239.16	1.27 (lim = 1.30)	1.18 (lim = 1.30)	1.07 (lim = 1.30)	1.16 (lim = 1.30)
S73	3.09 5.35	5.66 9.40	262.68 338.94	1.20 (lim = 1.30)	1.26 (lim = 1.30)	1.15 (lim = 1.30)	1.09 (lim = 1.30)
S74	0.73 5.25	1.25 9.79	119.12 157.68	1.23 (lim = 1.30)	1.18 (lim = 1.30)	0.88 (lim = 1.30)	0.93 (lim = 1.30)
S75	3.89 5.70	7.25 1.60	248.89 320.10	1.20 (lim = 1.30)	1.29 (lim = 1.30)	1.14 (lim = 1.30)	1.06 (lim = 1.30)
S76	2.45 3.57	3.71 5.94	236.65 303.53	1.26 (lim = 1.30)	1.19 (lim = 1.30)	1.11 (lim = 1.30)	1.18 (lim = 1.30)

S77	1.50 6.02	1.73 2.18	149.70 196.53	1.18 (lim = 1.30)	1.25 (lim = 1.30)	0.98 (lim = 1.30)	0.91 (lim = 1.30)
S78	1.88 5.98	2.36 2.17	185.19 239.42	1.28 (lim = 1.30)	1.21 (lim = 1.30)	0.99 (lim = 1.30)	1.07 (lim = 1.30)
S79	1.80 4.38	2.10 7.84	180.45 230.92	1.22 (lim = 1.30)	1.30 (lim = 1.30)	1.13 (lim = 1.30)	1.05 (lim = 1.30)
S80	1.78 4.91	2.02 8.28	178.04 228.51	1.22 (lim = 1.30)	1.30 (lim = 1.30)	1.11 (lim = 1.30)	1.04 (lim = 1.30)
S81	4.75 2.10	8.83 2.32	209.75 267.89	1.30 (lim = 1.30)	1.15 (lim = 1.30)	1.07 (lim = 1.30)	1.22 (lim = 1.30)
S82	3.08 2.34	4.52 1.72	234.35 301.23	1.17 (lim = 1.30)	1.24 (lim = 1.30)	1.17 (lim = 1.30)	1.10 (lim = 1.30)
S83	3.70 4.20	5.97 6.65	178.91 229.37	1.15 (lim = 1.30)	1.29 (lim = 1.30)	1.19 (lim = 1.30)	1.05 (lim = 1.30)
S84	0.86 1.72	0.09 1.64	172.24 222.16	1.12 (lim = 1.30)	1.16 (lim = 1.30)	1.23 (lim = 1.30)	1.19 (lim = 1.30)
S85	0.85 1.70	0.06 1.69	169.92 219.84	1.10 (lim = 1.30)	1.15 (lim = 1.30)	1.22 (lim = 1.30)	1.18 (lim = 1.30)
S86	3.61 4.90	8.42 7.85	99.06 132.97	0.90 (lim = 1.30)	0.72 (lim = 1.30)	1.11 (lim = 1.30)	1.29 (lim = 1.30)
S87	2.09 9.58	1.49 0.86	101.60 141.72	0.57 (lim = 1.30)	0.65 (lim = 1.30)	1.24 (lim = 1.30)	1.16 (lim = 1.30)
S90	2.46 2.43	4.44 4.79	142.54 182.61	1.14 (lim = 1.30)	1.04 (lim = 1.30)	1.19 (lim = 1.30)	1.30 (lim = 1.30)
S91	3.33 5.93	5.89 9.97	168.14 218.61	0.93 (lim = 1.30)	1.03 (lim = 1.30)	1.28 (lim = 1.30)	1.17 (lim = 1.30)
S92	0.59 5.11	1.04 9.56	101.02 133.80	0.88 (lim = 1.30)	0.84 (lim = 1.30)	1.23 (lim = 1.30)	1.27 (lim = 1.30)
S93	2.30 2.30	0.95 3.02	229.67 292.36	1.21 (lim = 1.30)	1.28 (lim = 1.30)	1.21 (lim = 1.30)	1.14 (lim = 1.30)
S94	2.83 2.61	4.88 3.73	261.23 332.44	1.15 (lim = 1.30)	1.22 (lim = 1.30)	1.29 (lim = 1.30)	1.22 (lim = 1.30)
S95	1.89 3.81	1.06 8.38	188.90 243.13	1.19 (lim = 1.30)	1.27 (lim = 1.30)	1.12 (lim = 1.30)	1.05 (lim = 1.30)
S96	1.99 3.72	1.77 8.15	199.26 257.40	1.24 (lim = 1.30)	1.17 (lim = 1.30)	1.04 (lim = 1.30)	1.12 (lim = 1.30)
S97	2.01 3.22	2.20 5.02	201.22 255.46	1.13 (lim = 1.30)	1.21 (lim = 1.30)	1.29 (lim = 1.30)	1.21 (lim = 1.30)
S98	3.46 2.99	6.21 4.62	212.86 271.00	1.22 (lim = 1.30)	1.11 (lim = 1.30)	1.19 (lim = 1.30)	1.29 (lim = 1.30)
S99	2.13 1.90	3.35 2.19	189.96 244.20	1.16 (lim = 1.30)	1.09 (lim = 1.30)	1.16 (lim = 1.30)	1.24 (lim = 1.30)
S100	2.34 1.87	3.40 2.06	187.19 237.66	1.13 (lim = 1.30)	1.21 (lim = 1.30)	1.29 (lim = 1.30)	1.21 (lim = 1.30)
S101	4.18 4.47	7.35 8.02	137.40 180.72	0.87 (lim = 1.30)	1.08 (lim = 1.30)	1.27 (lim = 1.30)	1.05 (lim = 1.30)
S102	1.40 1.40	1.80 1.73	140.12 179.69	1.14 (lim = 1.30)	1.06 (lim = 1.30)	1.14 (lim = 1.30)	1.23 (lim = 1.30)
S103	0.41 0.82	0.47 1.33	6.98 14.37	0.52 (lim = 1.30)	0.50 (lim = 1.30)	0.16 (lim = 1.30)	0.19 (lim = 1.30)
S104	0.37 1.44	0.38 2.62	10.55 17.94	0.56 (lim = 1.30)	0.73 (lim = 1.30)	0.28 (lim = 1.30)	0.11 (lim = 1.30)

S105	0.41 0.82	0.47 1.33	6.98 14.37	0.50 (lim = 1.30)	0.52 (lim = 1.30)	0.19 (lim = 1.30)	0.16 (lim = 1.30)
S106	0.41 0.82	0.47 1.33	6.98 14.37	0.52 (lim = 1.30)	0.50 (lim = 1.30)	0.16 (lim = 1.30)	0.19 (lim = 1.30)
S107	0.37 1.44	0.38 2.62	10.55 17.94	0.56 (lim = 1.30)	0.73 (lim = 1.30)	0.28 (lim = 1.30)	0.11 (lim = 1.30)
S108	0.41 0.82	0.47 1.33	6.98 14.37	0.50 (lim = 1.30)	0.52 (lim = 1.30)	0.19 (lim = 1.30)	0.16 (lim = 1.30)
S109	2.49 2.49	2.14 2.42	249.14 320.35	1.24 (lim = 1.30)	1.17 (lim = 1.30)	1.11 (lim = 1.30)	1.17 (lim = 1.30)
S116	2.17 2.18	1.35 3.21	216.75 274.89	1.30 (lim = 1.30)	1.22 (lim = 1.30)	1.14 (lim = 1.30)	1.22 (lim = 1.30)
S117	2.89 3.91	4.99 5.81	223.25 285.94	1.26 (lim = 1.30)	1.19 (lim = 1.30)	1.11 (lim = 1.30)	1.19 (lim = 1.30)
S118	2.43 6.51	3.24 9.16	203.93 266.62	1.17 (lim = 1.30)	1.23 (lim = 1.30)	1.05 (lim = 1.30)	0.99 (lim = 1.30)
S119	0.86 4.68	0.45 7.76	172.44 221.62	1.29 (lim = 1.30)	1.25 (lim = 1.30)	1.06 (lim = 1.30)	1.10 (lim = 1.30)
S120	3.23 5.89	4.98 10.03	124.10 164.04	1.14 (lim = 1.30)	1.29 (lim = 1.30)	0.96 (lim = 1.30)	0.81 (lim = 1.30)
S127	0.41 0.82	0.47 1.33	6.98 14.37	0.19 (lim = 1.30)	0.16 (lim = 1.30)	0.50 (lim = 1.30)	0.52 (lim = 1.30)
S128	0.37 1.44	0.38 2.62	10.55 17.94	0.11 (lim = 1.30)	0.28 (lim = 1.30)	0.73 (lim = 1.30)	0.56 (lim = 1.30)
S129	0.41 0.82	0.47 1.33	6.98 14.37	0.16 (lim = 1.30)	0.19 (lim = 1.30)	0.52 (lim = 1.30)	0.50 (lim = 1.30)
S130	0.41 0.82	0.47 1.33	6.98 14.37	0.19 (lim = 1.30)	0.16 (lim = 1.30)	0.50 (lim = 1.30)	0.52 (lim = 1.30)
S131	0.37 1.44	0.38 2.62	10.55 17.94	0.11 (lim = 1.30)	0.28 (lim = 1.30)	0.73 (lim = 1.30)	0.56 (lim = 1.30)
S132	0.41 0.82	0.47 1.33	6.98 14.37	0.16 (lim = 1.30)	0.19 (lim = 1.30)	0.52 (lim = 1.30)	0.50 (lim = 1.30)
S135	1.59 1.59	2.10 1.01	158.98 201.90	1.19 (lim = 1.30)	1.11 (lim = 1.30)	1.19 (lim = 1.30)	1.28 (lim = 1.30)
S138	2.10 2.48	3.61 2.70	70.58 93.26	1.30 (lim = 1.30)	1.12 (lim = 1.30)	0.77 (lim = 1.30)	0.95 (lim = 1.30)
S139	1.74 1.64	2.08 1.80	110.72 141.33	1.19 (lim = 1.30)	1.29 (lim = 1.30)	1.14 (lim = 1.30)	1.04 (lim = 1.30)
S140	2.13 2.12	3.66 2.49	119.66 153.25	1.29 (lim = 1.30)	1.20 (lim = 1.30)	1.03 (lim = 1.30)	1.12 (lim = 1.30)
S141	3.17 2.80	5.05 3.45	116.64 153.34	1.09 (lim = 1.30)	1.24 (lim = 1.30)	1.04 (lim = 1.30)	0.89 (lim = 1.30)
S142	3.60 2.01	6.55 2.30	123.51 160.21	1.28 (lim = 1.30)	1.09 (lim = 1.30)	0.95 (lim = 1.30)	1.14 (lim = 1.30)
S143	4.88 1.62	8.80 1.76	95.53 126.15	0.94 (lim = 1.30)	1.29 (lim = 1.30)	1.14 (lim = 1.30)	0.79 (lim = 1.30)
S144	4.68 1.58	8.57 1.62	129.24 169.19	1.23 (lim = 1.30)	0.95 (lim = 1.30)	0.87 (lim = 1.30)	1.15 (lim = 1.30)
S145	3.51 4.51	6.13 7.52	225.91 292.79	1.05 (lim = 1.30)	1.12 (lim = 1.30)	1.24 (lim = 1.30)	1.17 (lim = 1.30)
S149	1.55 1.91	1.28 3.96	155.42 198.74	1.08 (lim = 1.30)	1.17 (lim = 1.30)	1.26 (lim = 1.30)	1.18 (lim = 1.30)

S150	1.63 2.32	1.86 3.37	163.15 209.97	1.15 (lim = 1.30)	1.07 (lim = 1.30)	1.15 (lim = 1.30)	1.23 (lim = 1.30)
S154	2.19 4.38	3.55 7.36	151.46 198.29	0.95 (lim = 1.30)	1.05 (lim = 1.30)	1.22 (lim = 1.30)	1.12 (lim = 1.30)
S155	2.56 4.94	4.67 9.00	186.52 240.76	1.10 (lim = 1.30)	1.02 (lim = 1.30)	1.19 (lim = 1.30)	1.26 (lim = 1.30)
S156	2.52 3.24	3.28 6.97	234.64 301.52	1.11 (lim = 1.30)	1.18 (lim = 1.30)	1.24 (lim = 1.30)	1.18 (lim = 1.30)
S157	1.17 2.82	0.42 5.77	234.70 297.95	1.18 (lim = 1.30)	1.22 (lim = 1.30)	1.30 (lim = 1.30)	1.26 (lim = 1.30)
S158	2.99 4.48	4.22 8.17	153.64 200.47	0.96 (lim = 1.30)	1.10 (lim = 1.30)	1.23 (lim = 1.30)	1.10 (lim = 1.30)
S159	3.20 4.89	0.72 7.56	121.75 161.69	1.21 (lim = 1.30)	1.02 (lim = 1.30)	0.82 (lim = 1.30)	1.01 (lim = 1.30)
S160	1.68 2.37	1.31 3.20	147.00 186.95	1.11 (lim = 1.30)	1.20 (lim = 1.30)	1.29 (lim = 1.30)	1.20 (lim = 1.30)
S161	2.87 3.88	2.03 5.73	207.07 265.21	1.25 (lim = 1.30)	1.16 (lim = 1.30)	1.09 (lim = 1.30)	1.18 (lim = 1.30)
S162	3.17 4.53	0.69 6.72	202.24 260.38	1.14 (lim = 1.30)	1.24 (lim = 1.30)	1.15 (lim = 1.30)	1.05 (lim = 1.30)
S163	3.76 3.91	2.48 5.82	231.40 298.28	1.24 (lim = 1.30)	1.14 (lim = 1.30)	1.07 (lim = 1.30)	1.18 (lim = 1.30)
S164	2.09 3.71	1.45 6.05	209.36 267.50	1.25 (lim = 1.30)	1.18 (lim = 1.30)	1.11 (lim = 1.30)	1.18 (lim = 1.30)
S165	6.57 4.00	12.72 6.31	243.84 315.05	1.25 (lim = 1.30)	1.11 (lim = 1.30)	1.05 (lim = 1.30)	1.19 (lim = 1.30)
S166	6.79 8.34	12.74 14.68	239.90 316.17	1.11 (lim = 1.30)	1.25 (lim = 1.30)	1.08 (lim = 1.30)	0.94 (lim = 1.30)
S167	1.17 1.94	1.34 1.30	99.04 126.80	1.17 (lim = 1.30)	1.27 (lim = 1.30)	1.07 (lim = 1.30)	0.97 (lim = 1.30)
S168	1.65 2.33	1.91 3.68	164.97 211.80	1.15 (lim = 1.30)	1.07 (lim = 1.30)	1.17 (lim = 1.30)	1.25 (lim = 1.30)
S169	1.69 4.40	1.78 7.42	168.73 219.20	1.16 (lim = 1.30)	1.23 (lim = 1.30)	1.07 (lim = 1.30)	0.99 (lim = 1.30)
S170	2.12 2.12	2.76 6.45	212.31 270.45	1.27 (lim = 1.30)	1.20 (lim = 1.30)	1.12 (lim = 1.30)	1.20 (lim = 1.30)
S171	2.29 3.22	1.41 5.54	228.70 291.39	1.21 (lim = 1.30)	1.28 (lim = 1.30)	1.21 (lim = 1.30)	1.14 (lim = 1.30)
S172	0.64 1.28	0.57 1.38	128.42 163.82	1.25 (lim = 1.30)	1.20 (lim = 1.30)	1.11 (lim = 1.30)	1.16 (lim = 1.30)
S173	3.05 7.66	5.17 13.26	163.93 214.39	1.16 (lim = 1.30)	1.28 (lim = 1.30)	1.03 (lim = 1.30)	0.91 (lim = 1.30)
S174	1.56 0.70	3.67 0.78	139.78 178.46	1.17 (lim = 1.30)	1.25 (lim = 1.30)	1.20 (lim = 1.30)	1.13 (lim = 1.30)
S175	1.60 0.80	6.14 0.57	160.25 204.01	1.23 (lim = 1.30)	1.15 (lim = 1.30)	1.19 (lim = 1.30)	1.27 (lim = 1.30)
S176	1.91 0.56	3.25 0.95	82.90 107.27	1.27 (lim = 1.30)	1.06 (lim = 1.30)	1.00 (lim = 1.30)	1.21 (lim = 1.30)
S177	1.51 0.59	2.70 0.71	118.56 151.34	1.17 (lim = 1.30)	1.28 (lim = 1.30)	1.23 (lim = 1.30)	1.12 (lim = 1.30)
S178	0.57 0.26	0.99 0.13	9.22 18.91	0.38 (lim = 1.30)	0.65 (lim = 1.30)	0.58 (lim = 1.30)	0.32 (lim = 1.30)

S179	1.32 2.24	2.73 2.27	224.05 285.17	1.21 (lim = 1.30)	1.17 (lim = 1.30)	1.24 (lim = 1.30)	1.28 (lim = 1.30)
S180	2.60 2.67	4.16 5.22	132.85 172.80	1.14 (lim = 1.30)	0.99 (lim = 1.30)	1.07 (lim = 1.30)	1.22 (lim = 1.30)
S181	1.52 1.45	1.92 1.21	120.85 154.44	1.26 (lim = 1.30)	1.16 (lim = 1.30)	1.07 (lim = 1.30)	1.16 (lim = 1.30)
S182	2.49 3.25	3.64 5.63	249.20 320.41	1.18 (lim = 1.30)	1.11 (lim = 1.30)	1.18 (lim = 1.30)	1.24 (lim = 1.30)
S183	2.57 3.32	3.05 6.33	256.96 328.17	1.14 (lim = 1.30)	1.20 (lim = 1.30)	1.27 (lim = 1.30)	1.20 (lim = 1.30)
S184	4.31 3.26	7.19 5.54	273.88 350.14	1.21 (lim = 1.30)	1.14 (lim = 1.30)	1.21 (lim = 1.30)	1.28 (lim = 1.30)
S185	5.41 4.69	10.41 8.02	211.17 273.86	1.00 (lim = 1.30)	1.14 (lim = 1.30)	1.28 (lim = 1.30)	1.14 (lim = 1.30)
S186	1.62 1.62	2.37 1.83	162.33 209.16	1.15 (lim = 1.30)	1.07 (lim = 1.30)	1.15 (lim = 1.30)	1.23 (lim = 1.30)
S187	7.17 7.59	12.01 14.10	200.67 267.56	1.06 (lim = 1.30)	0.86 (lim = 1.30)	1.03 (lim = 1.30)	1.23 (lim = 1.30)
S188	4.98 2.56	10.54 1.39	256.48 327.69	1.11 (lim = 1.30)	1.23 (lim = 1.30)	1.30 (lim = 1.30)	1.18 (lim = 1.30)
S189	4.16 3.98	9.91 6.44	309.38 395.02	1.22 (lim = 1.30)	1.15 (lim = 1.30)	1.21 (lim = 1.30)	1.28 (lim = 1.30)
S190	7.59 8.69	12.25 3.13	158.65 216.79	0.69 (lim = 1.30)	0.95 (lim = 1.30)	1.23 (lim = 1.30)	0.97 (lim = 1.30)
S191	2.24 4.91	5.23 7.34	200.46 258.60	1.11 (lim = 1.30)	1.04 (lim = 1.30)	1.19 (lim = 1.30)	1.26 (lim = 1.30)
S192	1.34 1.64	2.33 4.08	153.73 195.58	1.13 (lim = 1.30)	1.20 (lim = 1.30)	1.28 (lim = 1.30)	1.21 (lim = 1.30)
S193	2.68 6.88	2.50 13.60	85.30 118.89	0.55 (lim = 1.30)	0.76 (lim = 1.30)	1.22 (lim = 1.30)	1.01 (lim = 1.30)
S194	2.62 5.97	4.66 9.34	114.24 150.94	1.30 (lim = 1.30)	1.16 (lim = 1.30)	0.75 (lim = 1.30)	0.88 (lim = 1.30)
S195	2.77 7.12	4.20 12.69	155.65 206.11	1.15 (lim = 1.30)	1.23 (lim = 1.30)	0.92 (lim = 1.30)	0.84 (lim = 1.30)
S196	1.46 4.63	2.31 7.05	130.84 170.78	1.24 (lim = 1.30)	1.17 (lim = 1.30)	0.91 (lim = 1.30)	0.99 (lim = 1.30)
S197	1.85 2.29	3.20 4.58	184.93 235.79	1.28 (lim = 1.30)	1.20 (lim = 1.30)	1.13 (lim = 1.30)	1.20 (lim = 1.30)
S198	3.75 3.94	6.44 5.86	174.35 224.82	1.14 (lim = 1.30)	1.27 (lim = 1.30)	1.12 (lim = 1.30)	0.99 (lim = 1.30)
S199	1.25 1.67	1.85 3.32	124.62 160.02	1.26 (lim = 1.30)	1.17 (lim = 1.30)	1.07 (lim = 1.30)	1.16 (lim = 1.30)
S200	1.93 4.92	0.98 8.72	193.17 247.41	1.22 (lim = 1.30)	1.30 (lim = 1.30)	1.13 (lim = 1.30)	1.06 (lim = 1.30)
S201	1.27 0.69	0.66 1.19	126.98 160.74	1.30 (lim = 1.30)	1.21 (lim = 1.30)	1.15 (lim = 1.30)	1.24 (lim = 1.30)
S202	0.71 1.23	1.42 2.06	82.29 106.65	1.02 (lim = 1.30)	1.12 (lim = 1.30)	1.21 (lim = 1.30)	1.12 (lim = 1.30)
S203	0.47 0.94	1.43 1.82	93.58 120.62	1.13 (lim = 1.30)	1.07 (lim = 1.30)	1.17 (lim = 1.30)	1.23 (lim = 1.30)
S204	1.74 2.52	1.71 4.15	173.91 220.73	1.21 (lim = 1.30)	1.13 (lim = 1.30)	1.21 (lim = 1.30)	1.30 (lim = 1.30)

S205	2.48 2.40	4.01 5.64	132.03 168.73	1.13 (lim = 1.30)	1.03 (lim = 1.30)	1.19 (lim = 1.30)	1.29 (lim = 1.30)
S206	1.93 2.10	3.09 3.15	122.72 159.43	0.99 (lim = 1.30)	1.08 (lim = 1.30)	1.22 (lim = 1.30)	1.14 (lim = 1.30)
S207	1.53 3.68	2.15 1.19	98.83 129.44	0.85 (lim = 1.30)	0.94 (lim = 1.30)	1.27 (lim = 1.30)	1.18 (lim = 1.30)
S208	1.34 2.73	1.61 1.07	93.48 121.25	0.99 (lim = 1.30)	0.90 (lim = 1.30)	1.18 (lim = 1.30)	1.27 (lim = 1.30)
S209	1.21 2.58	1.01 2.91	76.98 100.33	0.83 (lim = 1.30)	0.94 (lim = 1.30)	1.28 (lim = 1.30)	1.17 (lim = 1.30)
S210	2.32 4.25	3.74 8.81	95.65 129.25	0.93 (lim = 1.30)	0.75 (lim = 1.30)	1.02 (lim = 1.30)	1.20 (lim = 1.30)
S211	2.03 6.77	2.90 12.38	131.15 174.47	0.81 (lim = 1.30)	0.88 (lim = 1.30)	1.23 (lim = 1.30)	1.16 (lim = 1.30)
S212	1.68 3.84	2.49 6.59	131.58 171.53	1.02 (lim = 1.30)	0.94 (lim = 1.30)	1.15 (lim = 1.30)	1.23 (lim = 1.30)
S213	2.66 6.13	4.40 8.86	211.58 274.27	1.08 (lim = 1.30)	1.01 (lim = 1.30)	1.20 (lim = 1.30)	1.27 (lim = 1.30)
S214	3.77 3.47	6.85 5.68	183.75 237.98	1.00 (lim = 1.30)	1.11 (lim = 1.30)	1.23 (lim = 1.30)	1.12 (lim = 1.30)
S215	2.31 7.24	3.48 10.67	157.73 208.20	0.94 (lim = 1.30)	0.87 (lim = 1.30)	1.18 (lim = 1.30)	1.25 (lim = 1.30)
S216	1.79 5.97	3.06 9.87	151.60 198.43	0.90 (lim = 1.30)	0.97 (lim = 1.30)	1.25 (lim = 1.30)	1.18 (lim = 1.30)
S217	1.15 1.86	1.67 2.81	69.34 92.02	0.84 (lim = 1.30)	0.94 (lim = 1.30)	1.20 (lim = 1.30)	1.10 (lim = 1.30)
S70-71	18.54 18.34	12.85 9.50	205.69 289.76	0.91 (lim = 1.30)	1.27 (lim = 1.30)	0.89 (lim = 1.30)	0.53 (lim = 1.30)
S88-89	7.81 21.87	8.37 16.60	179.17 260.00	0.53 (lim = 1.30)	0.68 (lim = 1.30)	1.29 (lim = 1.30)	1.15 (lim = 1.30)
SM1	18.45 2.68	3.64 5.23	61.95 102.24	0.07 (lim = 1.30)	1.00 (lim = 1.30)	0.92 (lim = 1.30)	-0.01 (lim = 1.30)
SM2	10.15 3.79	4.26 5.31	87.40 127.69	0.43 (lim = 1.30)	0.92 (lim = 1.30)	0.80 (lim = 1.30)	0.31 (lim = 1.30)

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	59.53 1.83	32.46 (lim = 1.50)	59.91 2.95	20.28 (lim = 1.50)	41.76 4.78	8.74 lim = (1.50)		
S2	86.59 0.61	141.91 (lim = 1.50)	89.34 2.21	40.49 (lim = 1.50)	52.31 3.38	15.46 lim = (1.50)		
S3	69.44 2.07	33.61 (lim = 1.50)	87.32 0.57	154.34 (lim = 1.50)	48.40 3.20	15.14 lim = (1.50)		
S4	126.55 2.74	46.24 (lim = 1.50)	128.27 3.06	41.89 (lim = 1.50)	68.61 5.69	12.06 lim = (1.50)		

S5	157.24 2.93	53.71 (lim = 1.50)	158.62 2.85	55.68 (lim = 1.50)	79.37 4.77	16.65 lim = (1.50)		
S6	84.20 1.73	48.69 (lim = 1.50)	86.52 3.39	25.52 (lim = 1.50)	52.77 4.56	11.56 lim = (1.50)		
S7	42.05 2.20	19.15 (lim = 1.50)	41.34 2.74	15.09 (lim = 1.50)	31.85 4.45	7.16 lim = (1.50)		
S8	70.77 1.45	48.71 (lim = 1.50)	67.49 0.53	128.38 (lim = 1.50)	45.04 2.39	18.88 lim = (1.50)		
S9	133.47 0.84	158.95 (lim = 1.50)	149.48 1.68	89.01 (lim = 1.50)	66.02 2.26	29.24 lim = (1.50)		
S10	101.14 0.69	147.29 (lim = 1.50)	98.29 1.33	74.02 (lim = 1.50)	55.34 2.30	24.04 lim = (1.50)		
S11	166.77 0.97	171.77 (lim = 1.50)	185.30 1.94	95.43 (lim = 1.50)	74.43 1.84	40.54 lim = (1.50)		
S12	127.70 0.79	160.92 (lim = 1.50)	143.03 1.59	90.12 (lim = 1.50)	63.05 1.91	33.04 lim = (1.50)		
S13	37.64 0.75	50.44 (lim = 1.50)	29.24 0.39	75.57 (lim = 1.50)	30.34 1.06	28.60 lim = (1.50)		
S14	138.23 6.38	21.67 (lim = 1.50)	138.30 3.06	45.13 (lim = 1.50)	72.27 12.24	5.91 lim = (1.50)		
S15	168.75 5.23	32.24 (lim = 1.50)	170.38 2.16	78.82 (lim = 1.50)	82.34 9.42	8.74 lim = (1.50)		
S16	86.16 0.61	142.12 (lim = 1.50)	84.69 1.75	48.28 (lim = 1.50)	49.59 2.70	18.33 lim = (1.50)		
S17	125.01 1.74	71.75 (lim = 1.50)	126.87 2.37	53.57 (lim = 1.50)	68.78 3.21	21.43 lim = (1.50)		
S18	289.81 2.65	109.49 (lim = 1.50)	277.14 5.57	49.74 (lim = 1.50)	119.32 7.73	15.43 lim = (1.50)		
S19	94.20 3.51	26.85 (lim = 1.50)	95.45 2.62	36.46 (lim = 1.50)	55.15 6.53	8.45 lim = (1.50)		
S20	54.11 2.17	24.94 (lim = 1.50)	51.13 2.22	23.01 (lim = 1.50)	37.42 2.84	13.17 lim = (1.50)		
S21	93.10 5.99	15.55 (lim = 1.50)	93.91 3.15	29.79 (lim = 1.50)	54.39 12.06	4.51 lim = (1.50)		
S22	143.55 5.28	27.20 (lim = 1.50)	145.28 1.65	87.88 (lim = 1.50)	75.05 9.34	8.04 lim = (1.50)		
S23	69.58 0.55	127.30 (lim = 1.50)	72.21 1.48	48.67 (lim = 1.50)	45.96 2.47	18.58 lim = (1.50)		
S24	103.79 1.67	62.03 (lim = 1.50)	105.45 1.94	54.39 (lim = 1.50)	61.75 2.96	20.84 lim = (1.50)		
S25	107.18 1.67	64.26 (lim = 1.50)	108.36 1.80	60.08 (lim = 1.50)	63.45 4.15	15.30 lim = (1.50)		
S26	127.61 3.07	41.57 (lim = 1.50)	126.52 2.25	56.16 (lim = 1.50)	69.18 5.24	13.21 lim = (1.50)		
S27	70.27 2.28	30.77 (lim = 1.50)	65.45 1.99	32.89 (lim = 1.50)	43.55 2.41	18.08 lim = (1.50)		
S28	76.27 3.61	21.10 (lim = 1.50)	76.46 4.90	15.61 (lim = 1.50)	48.54 11.00	4.41 lim = (1.50)		
S29	88.49 2.08	42.44 (lim = 1.50)	88.39 9.58	9.22 (lim = 1.50)	51.81 1.52	34.17 lim = (1.50)		
S30	82.11 4.53	18.14 (lim = 1.50)	82.31 5.15	15.98 (lim = 1.50)	50.08 11.37	4.40 lim = (1.50)		

S31	94.61 4.59	20.62 (lim = 1.50)	95.72 4.16	23.01 (lim = 1.50)	55.35 10.97	5.05 lim = (1.50)		
S32	94.42 1.20	78.91 (lim = 1.50)	107.98 2.87	37.63 (lim = 1.50)	60.79 5.57	10.92 lim = (1.50)		
S33	60.36 1.60	37.75 (lim = 1.50)	61.36 3.03	20.22 (lim = 1.50)	42.77 4.19	10.20 lim = (1.50)		
S34	61.91 0.48	129.28 (lim = 1.50)	72.25 2.03	35.58 (lim = 1.50)	45.98 3.20	14.38 lim = (1.50)		
S35	93.26 1.44	64.67 (lim = 1.50)	94.67 3.19	29.66 (lim = 1.50)	57.74 4.12	14.02 lim = (1.50)		
S36	59.84 0.59	102.03 (lim = 1.50)	70.21 2.79	25.12 (lim = 1.50)	44.68 4.55	9.81 lim = (1.50)		
S37	73.76 2.04	36.24 (lim = 1.50)	75.52 5.55	13.62 (lim = 1.50)	48.06 8.85	5.43 lim = (1.50)		
S38	52.60 1.03	50.86 (lim = 1.50)	45.47 1.72	26.49 (lim = 1.50)	36.98 3.20	11.56 lim = (1.50)		
S39	85.38 2.08	40.97 (lim = 1.50)	86.30 4.41	19.56 (lim = 1.50)	52.64 7.01	7.51 lim = (1.50)		
S40	81.28 0.56	144.65 (lim = 1.50)	89.02 4.32	20.61 (lim = 1.50)	52.12 7.89	6.61 lim = (1.50)		
S41	130.70 1.91	68.39 (lim = 1.50)	130.10 3.37	38.61 (lim = 1.50)	70.54 5.06	13.94 lim = (1.50)		
S42	127.66 2.45	52.12 (lim = 1.50)	127.31 2.07	61.42 (lim = 1.50)	69.18 4.34	15.94 lim = (1.50)		
S43	70.91 0.67	105.67 (lim = 1.50)	81.71 2.05	39.79 (lim = 1.50)	49.84 3.38	14.75 lim = (1.50)		
S44	74.05 0.54	136.79 (lim = 1.50)	76.68 2.10	36.46 (lim = 1.50)	46.77 3.42	13.69 lim = (1.50)		
S45	99.35 0.67	148.03 (lim = 1.50)	100.82 1.94	52.00 (lim = 1.50)	56.76 3.08	18.43 lim = (1.50)		
S46	91.33 0.65	139.81 (lim = 1.50)	93.08 1.96	47.56 (lim = 1.50)	54.50 3.13	17.44 lim = (1.50)		
S47	63.20 2.93	21.60 (lim = 1.50)	63.90 3.07	20.80 (lim = 1.50)	42.51 5.60	7.59 lim = (1.50)		
S48	80.42 7.47	10.77 (lim = 1.50)	80.34 1.84	43.76 (lim = 1.50)	48.90 12.87	3.80 lim = (1.50)		
S49	14.43 1.78	8.12 (lim = 1.50)	14.44 0.61	23.73 (lim = 1.50)	15.09 2.50	6.03 lim = (1.50)		
S50	74.70 1.66	45.05 (lim = 1.50)	74.78 5.90	12.68 (lim = 1.50)	47.44 13.41	3.54 lim = (1.50)		
S51	132.02 4.68	28.22 (lim = 1.50)	130.88 2.83	46.25 (lim = 1.50)	70.95 9.88	7.18 lim = (1.50)		
S52	130.02 3.58	36.27 (lim = 1.50)	117.90 1.62	72.69 (lim = 1.50)	67.97 6.91	9.84 lim = (1.50)		
S53	55.89 1.17	47.96 (lim = 1.50)	57.97 2.33	24.87 (lim = 1.50)	40.41 3.65	11.07 lim = (1.50)		
S54	76.99 0.58	133.58 (lim = 1.50)	76.70 1.55	49.42 (lim = 1.50)	48.81 2.65	18.41 lim = (1.50)		
S55	114.90 1.44	79.85 (lim = 1.50)	104.38 1.72	60.80 (lim = 1.50)	61.12 2.81	21.74 lim = (1.50)		
S56	69.14 0.56	123.72 (lim = 1.50)	80.41 2.19	36.66 (lim = 1.50)	49.04 4.17	11.77 lim = (1.50)		

S57	74.66 1.19	62.59 (lim = 1.50)	75.93 4.21	18.03 (lim = 1.50)	48.32 7.97	6.06 lim = (1.50)		
S58	50.66 1.02	49.83 (lim = 1.50)	43.68 1.56	27.94 (lim = 1.50)	35.31 3.03	11.64 lim = (1.50)		
S59	76.21 1.16	65.90 (lim = 1.50)	76.99 3.69	20.87 (lim = 1.50)	49.00 6.49	7.55 lim = (1.50)		
S60	81.39 0.56	144.59 (lim = 1.50)	85.99 4.07	21.11 (lim = 1.50)	50.35 7.60	6.63 lim = (1.50)		
S61	82.34 1.91	43.10 (lim = 1.50)	82.63 3.40	24.28 (lim = 1.50)	50.40 6.37	7.92 lim = (1.50)		
S62	92.72 2.36	39.26 (lim = 1.50)	93.35 2.22	42.10 (lim = 1.50)	54.30 5.09	10.68 lim = (1.50)		
S63	85.62 0.69	123.42 (lim = 1.50)	97.34 1.71	57.00 (lim = 1.50)	54.80 2.99	18.32 lim = (1.50)		
S64	87.29 0.62	141.58 (lim = 1.50)	85.22 1.77	48.09 (lim = 1.50)	49.90 3.02	16.51 lim = (1.50)		
S65	118.50 0.78	152.26 (lim = 1.50)	113.24 1.62	70.02 (lim = 1.50)	61.39 2.69	22.79 lim = (1.50)		
S66	116.96 0.77	152.80 (lim = 1.50)	111.83 1.67	66.94 (lim = 1.50)	60.63 2.78	21.80 lim = (1.50)		
S67	85.98 2.85	30.18 (lim = 1.50)	84.78 2.15	39.51 (lim = 1.50)	51.71 4.35	11.89 lim = (1.50)		
S68	80.42 7.47	10.77 (lim = 1.50)	80.34 1.84	43.76 (lim = 1.50)	48.90 12.87	3.80 lim = (1.50)		
S69	14.43 1.78	8.12 (lim = 1.50)	14.44 0.61	23.73 (lim = 1.50)	15.09 2.50	6.03 lim = (1.50)		
S72	154.21 2.82	54.66 (lim = 1.50)	141.27 2.69	52.60 (lim = 1.50)	75.25 6.86	10.97 lim = (1.50)		
S73	253.23 3.07	82.59 (lim = 1.50)	255.18 5.35	47.71 (lim = 1.50)	109.86 10.50	10.47 lim = (1.50)		
S74	82.48 0.73	113.67 (lim = 1.50)	94.65 5.25	18.02 (lim = 1.50)	53.29 9.83	5.42 lim = (1.50)		
S75	229.69 3.72	61.76 (lim = 1.50)	229.34 5.35	42.88 (lim = 1.50)	101.88 7.03	14.49 lim = (1.50)		
S76	211.21 2.44	86.53 (lim = 1.50)	210.74 3.57	59.01 (lim = 1.50)	96.61 6.70	14.42 lim = (1.50)		
S77	132.66 1.50	88.61 (lim = 1.50)	116.97 5.71	20.49 (lim = 1.50)	69.21 2.30	30.10 lim = (1.50)		
S78	151.63 1.88	80.66 (lim = 1.50)	151.86 5.66	26.81 (lim = 1.50)	76.54 2.73	28.02 lim = (1.50)		
S79	161.64 1.80	89.58 (lim = 1.50)	139.40 4.38	31.81 (lim = 1.50)	72.88 7.98	9.13 lim = (1.50)		
S80	130.78 1.55	84.42 (lim = 1.50)	130.87 4.91	26.66 (lim = 1.50)	68.42 8.35	8.20 lim = (1.50)		
S81	166.24 4.75	34.98 (lim = 1.50)	167.76 1.79	93.67 (lim = 1.50)	81.12 8.94	9.07 lim = (1.50)		
S82	201.98 2.86	70.50 (lim = 1.50)	240.99 2.34	102.83 (lim = 1.50)	92.39 4.33	21.32 lim = (1.50)		
S83	143.72 3.70	38.86 (lim = 1.50)	141.73 4.20	33.72 (lim = 1.50)	74.10 8.49	8.72 lim = (1.50)		
S84	144.41 0.86	167.68 (lim = 1.50)	161.07 1.72	93.51 (lim = 1.50)	65.34 1.51	43.37 lim = (1.50)		

S85	142.90 0.85	168.19 (lim = 1.50)	159.39 1.70	93.80 (lim = 1.50)	64.74 1.51	42.90 lim = (1.50)		
S86	76.27 3.61	21.10 (lim = 1.50)	76.46 4.90	15.61 (lim = 1.50)	48.54 11.00	4.41 lim = (1.50)		
S87	88.49 2.09	42.44 (lim = 1.50)	88.39 9.58	9.22 (lim = 1.50)	51.81 1.52	34.17 lim = (1.50)		
S90	114.80 2.44	47.13 (lim = 1.50)	99.71 2.43	40.98 (lim = 1.50)	62.24 6.30	9.87 lim = (1.50)		
S91	144.64 3.33	43.40 (lim = 1.50)	146.38 5.93	24.69 (lim = 1.50)	76.52 11.19	6.84 lim = (1.50)		
S92	67.91 0.59	115.33 (lim = 1.50)	78.44 5.11	15.34 (lim = 1.50)	47.84 9.59	4.99 lim = (1.50)		
S93	226.58 2.30	98.65 (lim = 1.50)	226.58 2.30	98.65 (lim = 1.50)	100.69 2.93	34.35 lim = (1.50)		
S94	255.47 2.83	90.21 (lim = 1.50)	255.27 2.60	98.24 (lim = 1.50)	113.23 5.50	20.57 lim = (1.50)		
S95	176.27 1.89	93.32 (lim = 1.50)	172.17 3.76	45.82 (lim = 1.50)	87.00 8.30	10.48 lim = (1.50)		
S96	193.00 1.99	96.89 (lim = 1.50)	188.56 3.67	51.40 (lim = 1.50)	92.07 8.11	11.35 lim = (1.50)		
S97	185.15 2.01	92.05 (lim = 1.50)	164.64 3.22	51.16 (lim = 1.50)	83.10 5.32	15.62 lim = (1.50)		
S98	176.65 3.46	51.01 (lim = 1.50)	175.20 2.99	58.50 (lim = 1.50)	85.48 7.27	11.75 lim = (1.50)		
S99	158.08 2.13	74.18 (lim = 1.50)	172.60 1.90	90.72 (lim = 1.50)	79.79 3.49	22.87 lim = (1.50)		
S100	148.34 2.27	65.36 (lim = 1.50)	162.21 1.83	88.87 (lim = 1.50)	77.55 3.46	22.41 lim = (1.50)		
S101	107.67 4.18	25.76 (lim = 1.50)	107.85 4.47	24.13 (lim = 1.50)	60.51 10.43	5.80 lim = (1.50)		
S102	112.31 1.40	80.15 (lim = 1.50)	112.31 1.40	80.15 (lim = 1.50)	61.35 2.32	26.45 lim = (1.50)		
S103	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S104	5.06 0.37	13.85 (lim = 1.50)	6.20 1.44	4.31 (lim = 1.50)	6.48 2.62	2.47 lim = (1.50)		
S105	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S106	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S107	5.06 0.37	13.85 (lim = 1.50)	6.20 1.44	4.31 (lim = 1.50)	6.48 2.62	2.47 lim = (1.50)		
S108	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S109	264.29 2.49	106.08 (lim = 1.50)	264.29 2.49	106.08 (lim = 1.50)	108.10 2.74	39.52 lim = (1.50)		
S116	206.17 2.17	95.12 (lim = 1.50)	184.78 2.18	84.59 (lim = 1.50)	90.16 3.26	27.62 lim = (1.50)		
S117	191.47 2.89	66.20 (lim = 1.50)	189.91 3.91	48.57 (lim = 1.50)	89.67 7.22	12.42 lim = (1.50)		
S118	182.43 2.30	79.43 (lim = 1.50)	182.72 6.51	28.06 (lim = 1.50)	86.28 9.37	9.21 lim = (1.50)		

S119	144.06 0.86	167.08 (lim = 1.50)	141.34 4.68	30.22 (lim = 1.50)	71.34 7.77	9.19 lim = (1.50)		
S120	93.15 3.17	29.38 (lim = 1.50)	93.62 5.89	15.91 (lim = 1.50)	54.82 10.93	5.02 lim = (1.50)		
S127	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S128	5.06 0.37	13.85 (lim = 1.50)	6.20 1.44	4.31 (lim = 1.50)	6.48 2.62	2.47 lim = (1.50)		
S129	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S130	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S131	5.06 0.37	13.85 (lim = 1.50)	6.20 1.44	4.31 (lim = 1.50)	6.48 2.62	2.47 lim = (1.50)		
S132	4.16 0.40	10.29 (lim = 1.50)	4.93 0.81	6.10 (lim = 1.50)	5.15 1.31	3.93 lim = (1.50)		
S135	131.21 1.59	82.55 (lim = 1.50)	131.21 1.59	82.55 (lim = 1.50)	67.79 2.26	30.00 lim = (1.50)		
S138	42.37 2.10	20.20 (lim = 1.50)	44.30 2.48	17.86 (lim = 1.50)	32.64 3.89	8.39 lim = (1.50)		
S139	74.56 1.74	42.73 (lim = 1.50)	77.73 1.64	47.54 (lim = 1.50)	49.61 2.14	23.15 lim = (1.50)		
S140	84.60 2.12	39.87 (lim = 1.50)	87.29 2.12	41.24 (lim = 1.50)	54.37 3.84	14.16 lim = (1.50)		
S141	88.79 3.17	28.01 (lim = 1.50)	92.01 2.80	32.88 (lim = 1.50)	54.60 5.52	9.88 lim = (1.50)		
S142	92.44 3.60	25.66 (lim = 1.50)	95.51 2.00	47.75 (lim = 1.50)	56.38 6.60	8.54 lim = (1.50)		
S143	66.00 4.88	13.53 (lim = 1.50)	69.38 1.62	42.80 (lim = 1.50)	43.91 8.82	4.98 lim = (1.50)		
S144	99.82 4.68	21.31 (lim = 1.50)	102.37 1.57	65.34 (lim = 1.50)	58.45 8.57	6.82 lim = (1.50)		
S145	218.25 3.51	62.23 (lim = 1.50)	220.96 4.43	49.91 (lim = 1.50)	99.84 9.12	10.94 lim = (1.50)		
S149	129.18 1.55	83.12 (lim = 1.50)	119.62 1.81	65.92 (lim = 1.50)	67.91 3.81	17.81 lim = (1.50)		
S150	141.73 1.63	86.87 (lim = 1.50)	131.34 2.23	58.93 (lim = 1.50)	75.08 3.77	19.91 lim = (1.50)		
S154	123.41 2.13	57.93 (lim = 1.50)	122.94 4.32	28.48 (lim = 1.50)	66.65 7.83	8.51 lim = (1.50)		
S155	145.84 2.56	56.94 (lim = 1.50)	145.46 4.94	29.45 (lim = 1.50)	73.42 9.86	7.45 lim = (1.50)		
S156	202.37 2.46	82.13 (lim = 1.50)	202.30 3.24	62.37 (lim = 1.50)	92.54 7.28	12.71 lim = (1.50)		
S157	223.46 1.17	190.43 (lim = 1.50)	197.24 2.82	70.03 (lim = 1.50)	90.23 5.77	15.63 lim = (1.50)		
S158	120.06 2.87	41.82 (lim = 1.50)	118.49 4.48	26.45 (lim = 1.50)	64.24 8.96	7.17 lim = (1.50)		
S159	99.12 3.20	31.00 (lim = 1.50)	93.48 4.86	19.22 (lim = 1.50)	54.74 7.55	7.25 lim = (1.50)		
S160	106.20 1.60	66.48 (lim = 1.50)	103.88 2.31	44.96 (lim = 1.50)	60.82 3.25	18.70 lim = (1.50)		

S161	191.35 2.87	66.61 (lim = 1.50)	174.48 3.88	44.99 (lim = 1.50)	85.13 5.90	14.43 lim = (1.50)		
S162	172.92 3.04	56.85 (lim = 1.50)	170.81 4.53	37.72 (lim = 1.50)	83.34 6.72	12.40 lim = (1.50)		
S163	229.16 3.76	60.98 (lim = 1.50)	208.32 3.91	53.27 (lim = 1.50)	95.29 6.09	15.64 lim = (1.50)		
S164	200.62 2.09	95.83 (lim = 1.50)	175.72 3.71	47.43 (lim = 1.50)	85.74 6.07	14.13 lim = (1.50)		
S165	241.22 6.57	36.72 (lim = 1.50)	240.89 4.00	60.19 (lim = 1.50)	107.00 13.56	7.89 lim = (1.50)		
S166	251.87 6.79	37.08 (lim = 1.50)	254.51 8.34	30.53 (lim = 1.50)	108.44 18.63	5.82 lim = (1.50)		
S167	65.06 1.17	55.40 (lim = 1.50)	64.74 1.94	33.39 (lim = 1.50)	45.35 1.64	27.68 lim = (1.50)		
S168	142.96 1.65	86.66 (lim = 1.50)	139.26 2.33	59.89 (lim = 1.50)	75.50 3.76	20.08 lim = (1.50)		
S169	153.44 1.69	90.94 (lim = 1.50)	137.08 4.40	31.18 (lim = 1.50)	71.66 7.44	9.63 lim = (1.50)		
S170	171.93 1.92	89.75 (lim = 1.50)	173.06 1.87	92.58 (lim = 1.50)	84.03 6.52	12.89 lim = (1.50)		
S171	225.83 2.29	98.74 (lim = 1.50)	191.05 3.22	59.35 (lim = 1.50)	90.21 5.57	16.18 lim = (1.50)		
S172	90.10 0.64	140.32 (lim = 1.50)	102.39 1.28	79.73 (lim = 1.50)	53.16 1.38	38.38 lim = (1.50)		
S173	138.08 3.05	45.25 (lim = 1.50)	136.11 7.66	17.77 (lim = 1.50)	71.16 14.09	5.05 lim = (1.50)		
S174	102.49 1.56	65.80 (lim = 1.50)	102.62 0.70	146.82 (lim = 1.50)	57.70 3.68	15.66 lim = (1.50)		
S175	142.80 1.60	89.11 (lim = 1.50)	122.40 0.80	152.77 (lim = 1.50)	62.49 5.96	10.48 lim = (1.50)		
S176	50.32 1.84	27.41 (lim = 1.50)	42.67 0.54	78.31 (lim = 1.50)	35.07 3.18	11.02 lim = (1.50)		
S177	78.69 1.51	51.95 (lim = 1.50)	79.45 0.59	134.03 (lim = 1.50)	47.99 2.72	17.64 lim = (1.50)		
S178	6.11 0.57	10.65 (lim = 1.50)	5.66 0.26	22.10 (lim = 1.50)	6.92 1.00	6.95 lim = (1.50)		
S179	184.72 1.32	139.78 (lim = 1.50)	228.14 2.24	101.83 (lim = 1.50)	93.27 3.28	28.42 lim = (1.50)		
S180	101.55 2.60	39.03 (lim = 1.50)	99.20 2.67	37.22 (lim = 1.50)	58.08 6.32	9.18 lim = (1.50)		
S181	86.12 1.52	56.65 (lim = 1.50)	82.07 1.42	57.98 (lim = 1.50)	54.81 2.10	26.10 lim = (1.50)		
S182	232.58 2.42	96.18 (lim = 1.50)	233.30 3.25	71.74 (lim = 1.50)	103.17 6.28	16.43 lim = (1.50)		
S183	270.74 2.57	105.36 (lim = 1.50)	237.59 3.32	71.65 (lim = 1.50)	105.39 6.65	15.84 lim = (1.50)		
S184	259.96 4.31	60.25 (lim = 1.50)	260.72 3.26	80.10 (lim = 1.50)	111.92 8.75	12.79 lim = (1.50)		
S185	185.65 5.41	34.34 (lim = 1.50)	186.27 4.69	39.73 (lim = 1.50)	87.95 12.87	6.83 lim = (1.50)		
S186	141.17 1.62	86.97 (lim = 1.50)	141.17 1.62	86.97 (lim = 1.50)	74.93 2.43	30.87 lim = (1.50)		

S187	194.68 6.83	28.50 (lim = 1.50)	194.28 7.59	25.61 (lim = 1.50)	88.87 17.59	5.05 lim = (1.50)		
S188	236.69 4.98	47.57 (lim = 1.50)	270.34 2.56	105.41 (lim = 1.50)	104.99 10.54	9.96 lim = (1.50)		
S189	317.74 4.10	77.52 (lim = 1.50)	316.02 3.98	79.33 (lim = 1.50)	128.50 11.25	11.42 lim = (1.50)		
S190	144.37 7.44	19.40 (lim = 1.50)	157.44 8.58	18.35 (lim = 1.50)	70.44 12.26	5.75 lim = (1.50)		
S191	169.82 2.24	75.77 (lim = 1.50)	172.13 4.91	35.08 (lim = 1.50)	83.99 8.50	9.88 lim = (1.50)		
S192	104.83 1.33	79.07 (lim = 1.50)	128.41 1.64	78.45 (lim = 1.50)	64.79 4.42	14.66 lim = (1.50)		
S193	64.55 2.58	25.01 (lim = 1.50)	64.26 6.88	9.34 (lim = 1.50)	40.77 13.63	2.99 lim = (1.50)		
S194	88.82 2.62	33.92 (lim = 1.50)	86.77 5.96	14.55 (lim = 1.50)	52.92 10.29	5.14 lim = (1.50)		
S195	135.56 2.77	48.99 (lim = 1.50)	136.31 7.12	19.14 (lim = 1.50)	71.26 13.07	5.45 lim = (1.50)		
S196	100.00 1.45	68.93 (lim = 1.50)	101.45 4.63	21.92 (lim = 1.50)	59.40 7.15	8.31 lim = (1.50)		
S197	160.40 1.83	87.69 (lim = 1.50)	150.13 2.29	65.42 (lim = 1.50)	81.39 5.20	15.66 lim = (1.50)		
S198	148.74 3.75	39.67 (lim = 1.50)	149.90 3.94	38.04 (lim = 1.50)	77.76 8.20	9.49 lim = (1.50)		
S199	100.01 1.25	80.26 (lim = 1.50)	83.41 1.67	49.94 (lim = 1.50)	55.04 3.46	15.89 lim = (1.50)		
S200	179.37 1.93	92.86 (lim = 1.50)	168.74 4.92	34.31 (lim = 1.50)	85.17 8.72	9.76 lim = (1.50)		
S201	100.46 1.27	79.12 (lim = 1.50)	80.35 0.69	116.62 (lim = 1.50)	56.01 1.19	47.15 lim = (1.50)		
S202	46.36 0.71	64.94 (lim = 1.50)	54.82 1.23	44.66 (lim = 1.50)	38.21 2.37	16.14 lim = (1.50)		
S203	57.29 0.47	122.45 (lim = 1.50)	66.34 0.94	70.89 (lim = 1.50)	41.34 2.20	18.77 lim = (1.50)		
S204	149.00 1.74	85.68 (lim = 1.50)	144.94 2.52	57.42 (lim = 1.50)	78.58 4.23	18.59 lim = (1.50)		
S205	97.06 2.48	39.09 (lim = 1.50)	100.61 2.40	41.95 (lim = 1.50)	60.27 6.26	9.63 lim = (1.50)		
S206	92.58 1.92	48.12 (lim = 1.50)	95.61 2.10	45.56 (lim = 1.50)	57.29 3.77	15.20 lim = (1.50)		
S207	68.07 1.52	44.71 (lim = 1.50)	70.62 3.68	19.17 (lim = 1.50)	45.29 2.25	20.17 lim = (1.50)		
S208	60.79 1.34	45.24 (lim = 1.50)	60.75 2.66	22.86 (lim = 1.50)	42.38 1.73	24.51 lim = (1.50)		
S209	49.36 1.21	40.85 (lim = 1.50)	46.96 2.58	18.23 (lim = 1.50)	36.18 2.95	12.28 lim = (1.50)		
S210	73.19 2.32	31.60 (lim = 1.50)	73.11 4.25	17.22 (lim = 1.50)	46.53 9.38	4.96 lim = (1.50)		
S211	108.36 2.03	53.45 (lim = 1.50)	109.75 6.77	16.22 (lim = 1.50)	61.79 12.49	4.95 lim = (1.50)		
S212	101.58 1.67	60.97 (lim = 1.50)	103.12 3.84	26.82 (lim = 1.50)	60.38 6.73	8.97 lim = (1.50)		

S213	201.12 2.66	75.66 (lim = 1.50)	209.67 6.13	34.20 (lim = 1.50)	95.50 9.56	9.99 lim = (1.50)		
S214	162.95 3.77	43.24 (lim = 1.50)	165.05 3.47	47.55 (lim = 1.50)	82.25 8.24	9.98 lim = (1.50)		
S215	138.20 2.31	59.78 (lim = 1.50)	143.93 7.24	19.89 (lim = 1.50)	72.87 10.69	6.81 lim = (1.50)		
S216	127.36 1.79	71.28 (lim = 1.50)	129.39 5.93	21.84 (lim = 1.50)	70.15 10.06	6.97 lim = (1.50)		
S217	42.74 1.15	37.06 (lim = 1.50)	43.71 1.86	23.56 (lim = 1.50)	33.68 2.96	11.38 lim = (1.50)		
S70-71	254.01 18.54	13.70 (lim = 1.50)	248.93 18.34	13.58 (lim = 1.50)	102.76 15.41	6.67 lim = (1.50)		
S88-89	241.80 7.81	30.96 (lim = 1.50)	193.54 21.87	8.85 (lim = 1.50)	94.44 18.16	5.20 lim = (1.50)		
SM1	58.79 18.45	3.19 (lim = 1.50)	92.02 2.68	34.28 (lim = 1.50)	37.42 6.27	5.97 lim = (1.50)		
SM2	73.42 10.15	7.23 (lim = 1.50)	114.92 3.79	30.34 (lim = 1.50)	46.73 6.65	7.03 lim = (1.50)		

Verificação de tensão em área reduzida

Nome	Interface pilar-fundação		
	Força solicitante (kN)	Força resistente (kN)	Condição
S1	131.07	2250.00	OK
S2	170.36	1125.00	OK
S3	157.89	1125.00	OK
S4	227.30	2250.00	OK
S5	273.35	2250.00	OK
S6	168.27	2250.00	OK
S7	97.66	2250.00	OK
S8	146.90	3712.50	OK
S9	234.65	1125.00	OK
S10	191.81	1125.00	OK
S11	271.15	1125.00	OK
S12	221.48	1125.00	OK
S13	91.88	3562.50	OK
S14	229.77	2250.00	OK
S15	281.02	2250.00	OK
S16	169.25	1125.00	OK
S17	240.34	2250.00	OK
S18	370.07	2250.00	OK
S19	191.22	2250.00	OK
S20	118.90	2250.00	OK
S21	166.24	2250.00	OK
S22	245.34	2250.00	OK
S23	152.52	3712.50	OK
S24	202.85	2250.00	OK

S25	203.95	2250.00	OK
S26	233.45	2250.00	OK
S27	139.70	2250.00	OK
S28	138.20	4000.00	OK
S29	142.18	4000.00	OK
S30	139.59	4000.00	OK
S31	162.18	2250.00	OK
S32	186.15	1125.00	OK
S33	128.90	2250.00	OK
S34	139.83	3712.50	OK
S35	175.68	2250.00	OK
S36	133.80	3712.50	OK
S37	140.97	2250.00	OK
S38	111.01	3712.50	OK
S39	154.27	2250.00	OK
S40	156.97	1125.00	OK
S41	236.15	2250.00	OK
S42	233.68	2250.00	OK
S43	164.50	3712.50	OK
S44	151.08	3712.50	OK
S45	187.42	1125.00	OK
S46	182.43	1125.00	OK
S47	130.15	2250.00	OK
S48	135.55	4000.00	OK
S49	41.31	2250.00	OK
S50	134.48	4000.00	OK
S51	222.75	2250.00	OK
S52	222.87	1125.00	OK
S53	127.05	2250.00	OK
S54	160.94	3712.50	OK
S55	200.93	2250.00	OK
S56	159.30	3712.50	OK
S57	151.67	2250.00	OK
S58	113.33	3712.50	OK
S59	155.06	2250.00	OK
S60	157.23	1125.00	OK
S61	164.59	2250.00	OK
S62	190.38	2250.00	OK
S63	190.10	1125.00	OK
S64	172.17	1125.00	OK
S65	217.47	1125.00	OK
S66	213.93	1125.00	OK
S67	167.91	2250.00	OK
S68	135.55	4000.00	OK
S69	41.31	2250.00	OK
S72	259.88	1125.00	OK
S73	367.41	2250.00	OK
S74	166.44	1125.00	OK
S75	348.33	2250.00	OK
S76	331.09	2250.00	OK
S77	209.51	2250.00	OK

S78	259.20	2250.00	OK
S79	252.42	2250.00	OK
S80	249.23	2250.00	OK
S81	293.18	2250.00	OK
S82	327.62	2250.00	OK
S83	250.06	2250.00	OK
S84	240.90	1125.00	OK
S85	237.62	1125.00	OK
S86	138.20	4000.00	OK
S87	142.18	4000.00	OK
S90	198.84	1125.00	OK
S91	234.96	2250.00	OK
S92	141.19	3712.50	OK
S93	320.82	2250.00	OK
S94	365.36	2250.00	OK
S95	264.39	2250.00	OK
S96	278.94	2250.00	OK
S97	281.36	2250.00	OK
S98	297.63	2250.00	OK
S99	265.17	2250.00	OK
S100	261.22	2250.00	OK
S101	191.86	2250.00	OK
S102	195.62	1757.06	OK
S103	9.68	2450.00	OK
S104	14.73	2450.00	OK
S105	9.68	2450.00	OK
S106	9.68	2450.00	OK
S107	14.73	2450.00	OK
S108	9.68	2450.00	OK
S109	348.57	2250.00	OK
S116	303.18	2250.00	OK
S117	312.17	2250.00	OK
S118	285.15	2250.00	OK
S119	241.12	1125.00	OK
S120	173.28	2250.00	OK
S127	9.68	2450.00	OK
S128	14.73	2450.00	OK
S129	9.68	2450.00	OK
S130	9.68	2450.00	OK
S131	14.73	2450.00	OK
S132	9.68	2450.00	OK
S135	222.44	1757.06	OK
S138	97.15	2250.00	OK
S139	153.68	2250.00	OK
S140	165.88	2250.00	OK
S141	161.65	2250.00	OK
S142	171.19	2250.00	OK
S143	132.17	2250.00	OK
S144	180.36	2250.00	OK
S145	315.72	2250.00	OK
S149	217.37	2250.00	OK

S150	228.01	2250.00	OK
S154	211.69	2250.00	OK
S155	261.04	2250.00	OK
S156	328.27	2250.00	OK
S157	328.37	1125.00	OK
S158	214.67	2250.00	OK
S159	169.68	2250.00	OK
S160	204.86	2250.00	OK
S161	289.05	2250.00	OK
S162	282.29	2250.00	OK
S163	323.09	2250.00	OK
S164	292.30	2250.00	OK
S165	340.75	2250.00	OK
S166	335.33	2250.00	OK
S167	138.47	2250.00	OK
S168	230.48	2250.00	OK
S169	236.02	2250.00	OK
S170	296.96	2250.00	OK
S171	319.95	2250.00	OK
S172	179.38	1125.00	OK
S173	229.07	2250.00	OK
S174	195.37	937.50	OK
S175	224.07	1125.00	OK
S176	115.67	3712.50	OK
S177	165.51	3712.50	OK
S178	12.89	2437.50	OK
S179	313.49	1125.00	OK
S180	185.43	2250.00	OK
S181	169.00	2250.00	OK
S182	348.74	2250.00	OK
S183	359.61	2250.00	OK
S184	383.29	2250.00	OK
S185	295.45	2250.00	OK
S186	227.19	2250.00	OK
S187	280.51	2250.00	OK
S188	358.63	2250.00	OK
S189	432.81	2250.00	OK
S190	221.96	2250.00	OK
S191	280.20	2250.00	OK
S192	214.89	1125.00	OK
S193	118.84	2250.00	OK
S194	159.42	2250.00	OK
S195	217.69	2250.00	OK
S196	182.81	2250.00	OK
S197	258.70	1500.00	OK
S198	243.83	2250.00	OK
S199	174.27	1125.00	OK
S200	270.17	2250.00	OK
S201	177.11	1125.00	OK
S202	115.01	3712.50	OK
S203	130.82	3712.50	OK

S204	242.81	2250.00	OK
S205	184.38	2250.00	OK
S206	171.06	2250.00	OK
S207	138.07	2250.00	OK
S208	130.81	2250.00	OK
S209	107.12	7500.00	OK
S210	133.40	2250.00	OK
S211	183.21	2250.00	OK
S212	183.79	2250.00	OK
S213	295.90	2250.00	OK
S214	256.78	2250.00	OK
S215	220.58	2250.00	OK
S216	211.78	2250.00	OK
S217	95.97	2250.00	OK
S70-71	152.97	7425.00	OK
S88-89	139.59	13200.00	OK
SM1	86.73	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 (cm ² /m)	Md (kN.m/m) As (cm ² /m)	Md (kN.m/m) A's (cm ² /m)	Md (kN.m/m) A's (cm ² /m)
S1	50.60	50.60	0.00	0.00
	5.82	5.82	0.00	0.00
S2	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S3	36.36	39.39	0.00	0.00
	4.88	5.28	0.00	0.00
S4	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S5	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S6	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S7	52.87	52.87	0.00	0.00
	6.08	6.08	0.00	0.00
S8	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S9	48.72	45.99	0.00	0.00
	5.60	5.29	0.00	0.00
S10	38.41	36.48	0.00	0.00
	5.15	4.89	0.00	0.00
S11	48.33	45.72	0.00	0.00
	5.56	5.26	0.00	0.00
S12	48.72	45.99	0.00	0.00

	5.60	5.29	0.00	0.00
S13	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S14	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S15	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S16	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S17	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S18	72.54	72.54	0.00	0.00
	6.49	6.49	0.00	0.00
S19	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S20	50.95	50.95	0.00	0.00
	5.86	5.86	0.00	0.00
S21	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S22	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S23	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S24	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S25	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S26	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S27	50.27	50.27	0.00	0.00
	5.78	5.78	0.00	0.00
S28	83.07	83.07	0.00	0.00
	7.43	7.43	0.00	0.00
S29	80.38	80.38	0.00	0.00
	7.19	7.19	0.00	0.00
S30	82.60	82.60	0.00	0.00
	7.39	7.39	0.00	0.00
S31	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S32	38.41	36.48	0.00	0.00
	5.15	4.89	0.00	0.00
S33	50.60	50.60	0.00	0.00
	5.82	5.82	0.00	0.00
S34	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S35	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S36	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S37	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S38	35.77	35.77	0.00	0.00

	5.76	5.76	0.00	0.00
S39	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S40	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S41	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S42	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S43	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S44	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S45	38.41	36.48	0.00	0.00
	5.15	4.89	0.00	0.00
S46	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S47	50.27	50.27	0.00	0.00
	5.78	5.78	0.00	0.00
S48	82.60	82.60	0.00	0.00
	7.39	7.39	0.00	0.00
S49	56.85	56.85	0.00	0.00
	7.63	7.63	0.00	0.00
S50	83.07	83.07	0.00	0.00
	7.43	7.43	0.00	0.00
S51	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S52	45.99	48.72	0.00	0.00
	5.29	5.60	0.00	0.00
S53	50.60	50.60	0.00	0.00
	5.82	5.82	0.00	0.00
S54	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S55	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S56	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S57	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S58	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S59	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S60	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S61	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S62	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S63	38.41	36.48	0.00	0.00
	5.15	4.89	0.00	0.00
S64	38.58	36.60	0.00	0.00

	5.18	4.91	0.00	0.00
S65	38.25	36.36	0.00	0.00
	5.13	4.88	0.00	0.00
S66	38.25	36.36	0.00	0.00
	5.13	4.88	0.00	0.00
S67	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S68	82.60	82.60	0.00	0.00
	7.39	7.39	0.00	0.00
S69	56.85	56.85	0.00	0.00
	7.63	7.63	0.00	0.00
S72	45.72	48.33	0.00	0.00
	5.26	5.56	0.00	0.00
S73	72.54	72.54	0.00	0.00
	6.49	6.49	0.00	0.00
S74	38.41	36.48	0.00	0.00
	5.15	4.89	0.00	0.00
S75	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S76	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S77	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S78	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S79	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S80	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S81	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S82	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S83	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S84	74.05	69.28	0.00	0.00
	6.62	6.20	0.00	0.00
S85	74.05	69.28	0.00	0.00
	6.62	6.20	0.00	0.00
S86	83.07	83.07	0.00	0.00
	7.43	7.43	0.00	0.00
S87	80.38	80.38	0.00	0.00
	7.19	7.19	0.00	0.00
S90	36.48	38.25	0.00	0.00
	4.89	5.13	0.00	0.00
S91	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S92	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S93	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S94	59.60	59.60	0.00	0.00

	6.00	6.00	0.00	0.00
S95	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S96	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S97	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S98	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S99	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S100	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S101	49.17	49.17	0.00	0.00
	5.65	5.65	0.00	0.00
S102	38.58	38.58	0.00	0.00
	5.18	5.18	0.00	0.00
S103	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S104	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S105	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S106	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S107	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S108	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S109	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S116	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S117	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S118	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S119	48.52	45.85	0.00	0.00
	5.58	5.27	0.00	0.00
S120	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S127	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S128	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S129	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S130	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S131	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S132	35.77	35.77	0.00	0.00

	5.76	5.76	0.00	0.00
S135	38.41	38.41	0.00	0.00
	5.15	5.15	0.00	0.00
S138	52.87	52.87	0.00	0.00
	6.08	6.08	0.00	0.00
S139	50.27	50.27	0.00	0.00
	5.78	5.78	0.00	0.00
S140	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S141	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S142	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S143	50.27	50.27	0.00	0.00
	5.78	5.78	0.00	0.00
S144	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S145	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S149	49.17	49.17	0.00	0.00
	5.65	5.65	0.00	0.00
S150	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S154	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S155	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S156	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S157	59.82	56.24	0.00	0.00
	6.02	5.66	0.00	0.00
S158	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S159	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S160	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S161	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S162	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S163	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S164	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S165	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S166	72.54	72.54	0.00	0.00
	6.49	6.49	0.00	0.00
S167	50.60	50.60	0.00	0.00
	5.82	5.82	0.00	0.00
S168	48.94	48.94	0.00	0.00

	5.63	5.63	0.00	0.00
S169	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S170	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S171	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S172	38.58	36.60	0.00	0.00
	5.18	4.91	0.00	0.00
S173	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S174	36.48	37.69	0.00	0.00
	4.89	5.06	0.00	0.00
S175	46.14	48.72	0.00	0.00
	5.31	5.60	0.00	0.00
S176	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S177	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S178	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S179	59.82	56.39	0.00	0.00
	6.02	5.67	0.00	0.00
S180	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S181	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S182	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S183	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S184	72.54	72.54	0.00	0.00
	6.49	6.49	0.00	0.00
S185	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S186	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S187	59.82	59.82	0.00	0.00
	6.02	6.02	0.00	0.00
S188	59.60	59.60	0.00	0.00
	6.00	6.00	0.00	0.00
S189	72.03	72.03	0.00	0.00
	6.44	6.44	0.00	0.00
S190	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S191	48.33	48.33	0.00	0.00
	5.56	5.56	0.00	0.00
S192	38.25	36.36	0.00	0.00
	5.13	4.88	0.00	0.00
S193	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S194	49.68	49.68	0.00	0.00

	5.71	5.71	0.00	0.00
S195	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S196	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S197	46.84	48.52	0.00	0.00
	5.39	5.58	0.00	0.00
S198	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S199	36.60	38.58	0.00	0.00
	4.91	5.18	0.00	0.00
S200	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S201	36.73	38.58	0.00	0.00
	4.93	5.18	0.00	0.00
S202	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S203	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S204	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S205	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S206	49.68	49.68	0.00	0.00
	5.71	5.71	0.00	0.00
S207	50.27	50.27	0.00	0.00
	5.78	5.78	0.00	0.00
S208	50.60	50.60	0.00	0.00
	5.82	5.82	0.00	0.00
S209	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S210	49.96	49.96	0.00	0.00
	5.75	5.75	0.00	0.00
S211	49.17	49.17	0.00	0.00
	5.65	5.65	0.00	0.00
S212	49.41	49.41	0.00	0.00
	5.68	5.68	0.00	0.00
S213	60.05	60.05	0.00	0.00
	6.04	6.04	0.00	0.00
S214	48.52	48.52	0.00	0.00
	5.58	5.58	0.00	0.00
S215	48.72	48.72	0.00	0.00
	5.60	5.60	0.00	0.00
S216	48.94	48.94	0.00	0.00
	5.63	5.63	0.00	0.00
S217	52.87	52.87	0.00	0.00
	6.08	6.08	0.00	0.00
S70-71	143.07	143.07	0.00	0.00
	10.47	10.47	9.00	9.00
S88-89	167.91	167.91	0.00	0.00
	11.26	11.26	9.75	9.75
SM1	35.77	35.77	1.21	0.00

	5.76	5.76	4.50	4.50
SM2	35.77	35.77	1.21	0.00
	5.76	5.76	4.50	4.50

Cálculos do Radier

ARMADURAS (RADIER)						
Radier	Seção	Direção	Flexão Positiva		Flexão Negativa	
LA1	h = 18 cm	X	Md = 2.51 kN.m/m	As = 0,44 cm ¹ /m As,min = 1,81 cm ² /m	Md = 2.53 kN.m/m	As = 0,44 cm ¹ /m As,min = 1,81 cm ² /m
		Y	Md = 2.02 kN.m/m	As = 0,35 cm ¹ /m As,min = 1,81 cm ² /m	Md = 2.87 kN.m/m	As = 0,50 cm ¹ /m As,min = 1,81 cm ² /m

6. RESULTADOS DOS PILARES DO EDIFÍCIO PRINCIPAL:

Resultados dos Pilares

Dados				Resultados					
Pilar	Seção (cm)	Nível Altura (cm)	leb vñc leh vñc (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	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	131.07 78.56	3.80 2.21	4.68 3.73	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
P2 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	170.36 102.13	0.32 0.34	3.90 2.91	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
P3 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	157.89 94.26	0.63 0.48	3.63 2.64	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
P4 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	227.30 134.65	4.10 4.09	6.00 3.39	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
P5 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	273.35 158.67	5.31 3.63	2.32 3.57	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
P6 1:20	30.00 X 30.00	15.00 150.00	150.00 RR	168.27 99.04	1.81 1.96	4.67 4.45	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

			150.00 RR						
P7 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	97.66 56.22	3.41 2.70	4.43 3.42	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
P8 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	146.90 89.33	0.70 0.44	3.00 1.96	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
P9 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	234.65 129.68	0.35 0.29	2.84 1.50	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
P10 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	191.81 107.45	0.33 0.29	2.84 1.59	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
P11 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	271.15 143.48	0.23 0.21	2.21 1.19	2.45 2 ø 12.5 3.68 3 ø 12.5 1.6 6 ø 12.5	ø 5.0 c/15	34.60 17.30
P12 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	221.48 119.61	1.12 0.66	2.13 1.14	1.57 2 ø 10.0 2.36 3 ø 10.0 1.0 6 ø 10.0	ø 5.0 c/12	34.60 17.30
P13 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	91.88 56.71	0.66 0.42	1.07 0.82	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
P14 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	229.77 140.76	16.20 8.55	4.21 3.67	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
P15 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	281.02 159.65	12.01 6.87	2.23 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
P16 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	169.25 94.68	0.53 0.38	3.08 2.19	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
P17 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	240.34 131.40	2.80 2.82	2.13 2.07	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
P18 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	370.07 206.46	2.62 2.26	8.34 7.28	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
P19 1:20	30.00 X	15.00 150.00	150.00 RR	191.22 104.51	7.88 4.52	3.31 3.19	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P20 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	118.90 71.66	1.45 2.50	2.32 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	66.32 17.30
P21 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	166.24 100.77	15.46 8.01	6.55 3.91	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
P22 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	245.34 147.25	11.89 6.92	2.28 1.78	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
P23 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	152.52 90.11	0.49 0.34	2.95 1.80	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
P24 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	202.85 118.84	2.88 2.19	2.07 1.90	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
P25 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	203.95 125.13	1.87 1.87	5.93 2.03	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
P26 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	233.45 136.59	6.44 3.90	2.17 2.64	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
P27 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	139.70 84.28	1.64 2.65	1.64 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	66.32 17.30
P28 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	138.20 90.66	10.51 6.29	13.35 4.59	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	12.97 12.97
P29 1:20	40.00 X 40.00	20.00 150.00	1472.00 EL 150.00 RR	142.18 95.31	12.01 12.34	0.19 2.40	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	127.33 12.97
P30 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	139.59 91.66	10.54 6.64	12.77 5.87	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	12.97 12.97
P31 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	162.18 104.60	14.15 6.11	7.19 5.39	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
P32 1:20	15.00 X	20.00 150.00	150.00 RR	186.15 123.44	2.61 1.58	6.98 3.83	1.57 2 ø 10.0 1.57 2 ø 10.0	ø 5.0 c/12	34.60 17.30

	30.00		150.00 RR				0.7 4 ø 10.0		
P33 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	128.90 80.43	1.84 1.79	4.39 3.73	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
P34 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	139.83 90.57	0.67 0.58	3.68 2.56	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
P35 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	175.68 112.47	1.19 1.61	3.99 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	17.30 17.30
P36 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	133.80 86.73	1.05 0.73	5.41 3.63	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
P37 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	140.97 89.99	1.73 2.38	10.50 7.26	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
P38 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	111.01 72.83	4.23 2.31	0.74 1.14	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
P39 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	154.27 98.78	2.06 2.46	8.14 5.65	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
P40 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	156.97 102.64	0.31 0.34	10.36 5.76	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
P41 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	236.15 142.13	1.82 2.34	5.04 4.11	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
P42 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	233.68 138.26	5.72 3.03	1.53 2.29	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
P43 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	164.50 98.22	1.28 0.85	3.89 2.59	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
P44 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	151.08 89.53	0.69 0.39	4.05 2.66	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
P45 1:20	15.00 X	20.00 150.00	150.00 RR	187.42 111.12	0.44 0.41	3.59 2.43	1.57 2 ø 10.0 1.57 2 ø 10.0	ø 5.0 c/12	34.60 17.30

	30.00		150.00 RR				0.7 4 ø 10.0		
P46 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	182.43 108.22	0.42 0.40	3.67 2.46	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
P47 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	130.15 77.15	4.73 3.75	5.06 3.84	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
P48 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	135.55 90.35	0.88 1.95	18.27 10.12	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	12.97 12.97
P49 1:20	30.00 X 30.00	20.00 150.00	300.00 EL 150.00 RR	41.31 26.08	0.07 0.77	2.37 2.16	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 17.30
P50 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	134.48 89.58	0.87 1.71	21.58 7.92	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	12.97 12.97
P51 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	222.75 143.12	12.48 6.23	6.14 3.32	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
P52 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	222.87 138.45	3.94 2.16	8.12 4.73	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
P53 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	127.05 74.88	1.89 1.24	4.17 2.76	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
P54 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	160.94 96.94	0.44 0.38	3.25 1.90	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
P55 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	200.93 119.81	1.91 1.34	3.10 1.90	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
P56 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	159.30 96.02	1.11 0.70	5.44 2.79	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
P57 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	151.67 92.17	1.11 1.22	10.74 5.38	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
P58 1:20	15.00 X	20.00 150.00	150.00 RR	113.33 69.48	4.06 2.09	1.14 1.13	1.57 2 ø 10.0 1.57 2 ø 10.0	ø 5.0 c/12	34.60 17.30

	30.00		150.00 RR				0.7 4 ø 10.0		
P59 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	155.06 92.36	0.97 1.19	8.34 4.65	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
P60 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	157.23 97.64	0.26 0.27	10.11 5.42	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
P61 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	164.59 96.04	2.58 2.35	7.99 4.32	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
P62 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	190.38 104.32	5.98 2.92	4.13 2.66	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
P63 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	190.10 106.38	1.29 0.88	3.55 2.12	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
P64 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	172.17 95.94	0.60 0.31	3.73 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	34.60 17.30
P65 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	217.47 120.91	0.46 0.46	3.25 1.99	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
P66 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	213.93 119.15	0.57 0.50	3.36 2.06	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
P67 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	167.91 100.64	3.93 3.61	3.15 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
P68 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	135.55 90.35	0.88 1.95	18.27 10.12	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	12.97 12.97
P69 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 300.00 EL	41.31 26.08	2.37 2.16	0.07 0.77	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 34.60
P70 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	134.48 89.58	0.87 1.71	21.58 7.92	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	12.97 12.97
P71 1:20	30.00 X	20.00 150.00	150.00 RR	152.97 94.96	1.89 2.08	9.68 6.71	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P72 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	259.88 151.05	6.84 3.66	6.23 3.69	1.57 2 ø 10.0 3.14 4 ø 10.0 1.4 8 ø 10.0	ø 5.0 c/12	34.60 17.30
P73 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	367.41 217.97	12.34 6.98	7.43 3.93	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
P74 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	166.44 102.92	1.52 0.93	13.09 7.06	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
P75 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	348.33 203.40	9.79 5.07	4.23 7.33	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
P76 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	331.09 192.21	4.17 3.02	8.33 4.67	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
P77 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	209.51 122.65	1.57 1.35	3.48 7.69	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
P78 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	259.20 151.41	2.04 2.17	3.44 7.64	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
P79 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	252.42 144.58	2.37 1.72	11.18 5.80	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
P80 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	249.23 132.99	2.07 2.11	10.77 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	17.30 17.30
P81 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	293.18 158.78	11.67 6.17	2.39 2.06	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
P82 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	327.62 181.28	5.00 3.84	1.58 1.63	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
P83 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	250.06 148.63	7.32 4.79	7.72 5.26	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
P84 1:20	15.00 X	20.00 150.00	570.00 RR	240.90 126.94	0.12 0.28	1.37 1.31	4.02 2 ø 16.0 8.04 4 ø 16.0	ø 5.0 c/15	131.48 17.30

	30.00		150.00 RR				3.6 8 ø 16.0		
P85 1:20	15.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	237.62 125.31	0.06 0.18	1.44 1.33	4.02 2 ø 16.0 8.04 4 ø 16.0 3.6 8 ø 16.0	ø 5.0 c/15	131.48 17.30
P86 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	138.20 90.66	10.51 6.29	13.35 4.59	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	12.97 12.97
P87 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 1472.00 EL	142.18 95.31	0.19 2.40	12.01 12.34	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	12.97 127.33
P88 1:20	40.00 X 40.00	20.00 150.00	150.00 RR 150.00 RR	139.59 91.66	10.54 6.64	12.77 5.87	4.02 2 ø 16.0 4.02 2 ø 16.0 0.5 4 ø 16.0	ø 5.0 c/19	12.97 12.97
P89 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	112.22 68.74	1.42 1.48	12.49 5.97	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
P90 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	198.84 128.32	6.59 3.31	5.68 3.19	1.57 2 ø 10.0 2.36 3 ø 10.0 1.0 6 ø 10.0	ø 5.0 c/12	34.60 17.30
P91 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	234.96 151.97	12.53 7.74	7.59 4.32	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
P92 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	141.19 94.55	1.28 0.75	12.78 6.86	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
P93 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	320.82 203.76	0.69 1.02	3.53 2.49	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
P94 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	365.36 234.83	6.15 3.63	3.94 3.12	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
P95 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	264.39 167.22	0.75 0.92	12.25 5.28	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
P96 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	278.94 176.28	11.90 5.15	1.60 1.53	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
P97 1:20	30.00 X	15.00 150.00	150.00 RR	281.36 169.48	2.71 1.81	5.77 3.99	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P98 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	297.63 172.08	8.28 4.47	5.15 3.53	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
P99 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	265.17 158.15	3.81 2.48	1.89 2.20	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
P100 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	261.22 155.28	3.65 2.78	1.73 2.09	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
P101 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	191.86 115.52	9.60 5.46	10.93 5.84	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
P102 1:20	Circ 0.00 30.00	20.00 150.00	150.00 RR	195.62 121.38	2.66 1.50	1.51 1.41	4.71 6 ø 10.0 0.7	ø 5.0 c/12	20.00
P103 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P104 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	14.73 8.24	0.02 0.37	1.74 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	35.59 16.61
P105 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P106 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P107 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	14.73 8.24	0.02 0.37	1.74 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	35.59 16.61
P108 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P109 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	348.57 220.82	3.21 1.45	2.35 1.94	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	20.00 150.00	150.00 RR	303.18 184.86	1.99 0.51	3.41 2.53	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P117 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	312.17 178.97	6.45 3.66	6.35 4.81	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
P118 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	285.15 167.10	3.18 2.91	10.01 8.54	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
P119 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	241.12 141.88	0.43 0.31	9.63 6.25	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
P120 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	173.28 103.09	6.09 4.15	13.15 7.81	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
P127 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P128 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	14.73 8.24	0.02 0.37	1.74 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	35.59 16.61
P129 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P130 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P131 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	14.73 8.24	0.02 0.37	1.74 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	35.59 16.61
P132 1:20	14.00 X 30.00	20.00 100.00	144.00 RR 144.00 RR	9.68 4.94	0.09 0.43	0.66 0.95	1.57 2 ø 10.0 1.57 2 ø 10.0 0.7 4 ø 10.0	ø 5.0 c/12	35.59 16.61
P135 1:20	Circ 0.00 30.00	20.00 150.00	150.00 RR	222.44 139.68	3.10 1.72	0.64 0.98	4.71 6 ø 10.0 0.7	ø 5.0 c/12	20.00
P138 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	97.15 57.61	4.62 2.62	2.05 2.99	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	15.00 150.00	150.00 RR	153.68 96.73	1.69 2.01	1.30 1.78	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P140 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	165.88 106.61	4.57 2.59	2.06 2.44	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
P141 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	161.65 103.79	6.01 4.05	3.12 3.39	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
P142 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	171.19 110.49	8.58 4.68	1.81 2.27	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
P143 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	132.17 82.36	11.44 6.44	1.28 1.74	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
P144 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	180.36 116.39	11.24 6.18	1.00 1.68	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
P145 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	315.72 201.85	9.59 5.93	7.81 4.56	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
P149 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	217.37 137.33	0.95 1.12	5.74 2.57	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
P150 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	228.01 144.38	1.71 1.56	5.06 2.97	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	20.00 150.00	150.00 RR 150.00 RR	211.69 130.11	4.44 2.78	9.57 5.76	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
P155 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	261.04 142.92	6.28 3.23	12.31 6.46	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	15.00 150.00	150.00 RR 150.00 RR	328.27 181.14	3.23 3.08	10.19 4.02	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
P157 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	328.37 180.07	0.35 0.37	8.10 3.67	1.57 2 ø 10.0 3.14 4 ø 10.0 1.4 8 ø 10.0	ø 5.0 c/12	34.60 17.30
P158 1:20	30.00 X	20.00 150.00	150.00 RR	214.67 125.34	4.89 3.84	10.48 5.62	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P159 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	169.68 106.25	2.74 4.02	8.71 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	66.32 17.30
P160 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	204.86 122.89	1.84 1.83	3.09 2.74	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
P161 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	289.05 171.12	1.69 3.52	6.21 4.80	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
P162 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	282.29 166.23	2.74 3.94	7.36 5.71	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
P163 1:20	30.00 X 30.00	15.00 150.00	575.00 RR 150.00 RR	323.09 190.14	1.44 4.76	6.33 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	66.32 17.30
P164 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	292.30 172.78	1.80 0.98	7.12 4.55	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	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	340.75 217.40	17.26 8.77	7.31 5.00	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
P166 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	335.33 215.88	17.09 9.13	19.11 11.12	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 575.00 RR	138.47 86.60	0.91 1.22	3.56 2.12	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
P168 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	230.48 138.46	1.78 1.57	4.91 2.88	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
P169 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	236.02 141.65	1.61 1.45	9.65 5.68	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	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	296.96 167.72	2.87 2.26	11.53 1.97	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
P171 1:20	30.00 X	15.00 150.00	150.00 RR	319.95 178.72	1.18 1.33	7.23 3.98	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P172 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	179.38 105.15	0.63 0.40	1.20 1.29	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	229.07 140.36	6.73 3.98	16.70 10.05	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
P174 1:20	15.00 X 25.00	20.00 150.00	150.00 RR 150.00 RR	195.37 116.33	0.78 0.66	5.45 2.06	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
P175 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	224.07 123.89	0.64 0.37	10.80 1.88	1.57 2 ø 10.0 2.36 3 ø 10.0 1.0 6 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	115.67 66.99	1.13 0.68	4.03 2.47	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	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	165.51 93.34	0.77 0.49	3.42 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
P178 1:20	15.00 X 25.00	20.00 150.00	300.00 EL 150.00 RR	12.89 7.70	0.12 0.31	2.46 0.75	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
P179 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	313.49 191.97	3.84 1.77	3.26 0.98	1.57 2 ø 10.0 3.14 4 ø 10.0 1.4 8 ø 10.0	ø 5.0 c/12	34.60 17.30
P180 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	185.43 115.39	5.03 3.30	6.92 3.17	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
P181 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	169.00 104.71	1.67 1.70	2.62 1.47	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 66.32
P182 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	348.74 207.15	4.09 2.99	7.72 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	17.30 17.30
P183 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	359.61 212.42	3.53 2.28	9.10 4.24	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
P184 1:20	30.00 X	20.00 150.00	150.00 RR	383.29 226.19	8.85 5.62	7.53 4.14	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/15	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P185 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	295.45 172.89	14.74 7.29	10.60 6.15	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
P186 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	227.19 143.61	3.17 1.41	1.66 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
P187 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	280.51 170.05	15.24 9.63	18.92 10.07	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
P188 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 575.00 RR	358.63 209.17	15.23 6.56	2.28 2.07	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
P189 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	432.81 261.74	15.19 5.51	7.57 4.89	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	20.00 150.00	570.00 RR 150.00 RR	221.96 130.87	5.34 11.74	14.79 10.16	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
P191 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	280.20 164.76	7.68 2.74	8.43 6.29	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
P192 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	214.89 131.19	2.94 1.79	6.21 2.02	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
P193 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	118.84 71.15	1.54 3.41	19.29 9.21	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
P194 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	159.42 104.26	6.21 3.37	10.91 7.77	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
P195 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	217.69 139.30	4.69 3.46	16.73 9.45	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
P196 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	182.81 116.68	2.56 1.64	8.33 5.97	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
P197 1:20	20.00 X	20.00 150.00	150.00 RR	258.70 167.80	6.29 3.01	4.00 2.29	1.57 2 ø 10.0 1.57 2 ø 10.0	ø 5.0 c/12	25.95 17.30

	30.00		150.00 RR				0.5 4 ø 10.0		
P198 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	243.83 158.40	6.88 5.02	8.14 4.90	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
P199 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	174.27 113.17	4.53 2.22	2.11 1.32	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
P200 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	270.17 173.09	11.41 6.33	0.53 1.09	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
P201 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	177.11 112.73	1.46 0.86	0.77 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	34.60 17.30
P202 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	115.01 75.89	1.93 0.93	2.30 1.29	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
P203 1:20	15.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	130.82 82.80	2.38 0.51	2.50 0.95	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
P204 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	242.81 156.74	4.85 2.94	1.66 1.45	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
P205 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	184.38 121.69	8.65 2.89	4.66 3.05	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
P206 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	171.06 111.47	3.60 2.41	3.59 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	17.30 17.30
P207 1:20	30.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	138.07 88.98	2.34 4.57	2.14 1.74	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
P208 1:20	30.00 X 30.00	20.00 150.00	570.00 RR 150.00 RR	130.81 84.21	1.28 3.32	1.20 1.45	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
P209 1:20	30.00 X 35.00	20.00 150.00	150.00 RR 150.00 RR	107.12 67.35	2.54 3.03	1.04 1.28	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
P210 1:20	30.00 X	15.00 150.00	150.00 RR	133.40 86.63	4.65 2.96	13.10 5.57	2.45 2 ø 12.5 2.45 2 ø 12.5	ø 5.0 c/10	17.30 17.30

	30.00		150.00 RR				0.5 4 ø 12.5		
P211 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	183.21 119.21	2.97 2.41	16.41 8.91	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
P212 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	183.79 118.51	8.38 4.85	2.63 1.94	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
P213 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	295.90 192.63	10.45 8.14	5.39 3.37	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
P214 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	256.78 166.63	6.97 4.33	8.92 4.90	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
P215 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	220.58 143.58	12.67 9.67	3.86 2.84	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
P216 1:20	30.00 X 30.00	20.00 150.00	150.00 RR 150.00 RR	211.78 138.11	12.33 7.78	3.69 2.10	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
P217 1:20	30.00 X 30.00	15.00 150.00	150.00 RR 150.00 RR	95.97 59.10	1.82 1.29	3.23 2.13	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	86.73 32.70	18.17 25.75	8.90 1.99	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 DAS SAPATAS DA EDÍCULA:

Esforços e pressões

Nome	MB MH (kN.m)	FB FH (kN)	Carga Carga total (kN)	Pressão Sig1 (kgf/cm²)	Pressão Sig2 (kgf/cm²)	Pressão Sig3 (kgf/cm²)	Pressão Sig4 (kgf/cm²)
S1	0.80 0.85	1.41 0.99	24.06 36.36	0.76 (lim = 1.30)	1.01 (lim = 1.30)	0.73 (lim = 1.30)	0.48 (lim = 1.30)
S2	0.50 0.88	0.81 1.04	23.83 36.13	0.53 (lim = 1.30)	0.66 (lim = 1.30)	0.95 (lim = 1.30)	0.82 (lim = 1.30)

S3	0.64 1.13	0.99 1.13	50.63 66.73	1.11 (lim = 1.30)	1.21 (lim = 1.30)	0.99 (lim = 1.30)	0.88 (lim = 1.30)
S4	0.53 1.21	0.79 1.21	53.35 69.44	0.95 (lim = 1.30)	1.02 (lim = 1.30)	1.23 (lim = 1.30)	1.16 (lim = 1.30)
S5	1.11 0.91	2.17 1.01	28.13 40.42	1.16 (lim = 1.30)	0.79 (lim = 1.30)	0.49 (lim = 1.30)	0.87 (lim = 1.30)
S6	0.60 0.84	1.14 1.03	22.73 35.03	0.67 (lim = 1.30)	0.49 (lim = 1.30)	0.77 (lim = 1.30)	0.95 (lim = 1.30)

Estabilidade

Nome	Tombamento B		Tombamento H		Deslizamento		Arrancamento	
	Mrd Msd (kN.m)	Mrd / Msd	Mrd Msd (kN.m)	Mrd / Msd	Frđ Fsd (kN)	Frđ / Fsd	Nt (kN)	Ns (kN)
S1	10.99 0.80	13.66 (lim = 1.50)	13.63 0.85	16.01 (lim = 1.50)	13.30 1.62	8.24 lim = (1.50)		
S2	10.95 0.50	22.02 (lim = 1.50)	13.55 0.88	15.41 (lim = 1.50)	13.22 1.21	10.89 lim = (1.50)		
S3	23.73 0.64	37.11 (lim = 1.50)	25.49 1.13	22.57 (lim = 1.50)	21.95 1.34	16.34 lim = (1.50)		
S4	24.73 0.53	46.76 (lim = 1.50)	26.64 1.21	22.00 (lim = 1.50)	22.94 1.30	17.70 lim = (1.50)		
S5	12.27 1.11	11.10 (lim = 1.50)	15.16 0.91	16.75 (lim = 1.50)	12.73 2.10	6.07 lim = (1.50)		
S6	10.55 0.60	17.63 (lim = 1.50)	13.14 0.84	15.56 (lim = 1.50)	12.82 1.45	8.82 lim = (1.50)		

Verificação de tensão em área reduzida

Nome	Interface pilar-fundação		
	Força solicitante (kN)	Força resistente (kN)	Condição
S1	33.68	2812.50	OK
S2	33.36	2812.50	OK
S3	70.88	3400.00	OK
S4	74.68	3400.00	OK
S5	39.38	2812.50	OK
S6	31.83	2812.50	OK

Dimensionamento

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

S3	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S4	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S5	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00
S6	35.77	35.77	0.00	0.00
	5.76	5.76	0.00	0.00

8. RESULTADOS DOS PILARES DA EDÍCULA:

Dados				Resultados					
Pilar	Seção (cm)	Nível Altura (cm)	le b vñc le h vñc (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	33.68 16.18	1.84 1.13	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	33.36 15.96	1.01 0.70	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	70.88 41.43	1.18 0.90	0.81 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	74.68 44.13	0.92 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	39.38 20.19	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	31.83 14.81	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

9. RESULTADOS DO RADIER DA CASA DE GASES:

ARMADURAS (RADIER)						
Radier	Seção	Direção	Flexão Positiva		Flexão Negativa	
R1	h = 13 cm	X	Md = 1,03 kN.m/m	As = 0,29 cm ¹ /m As,min = 1,31 cm ² /m	Md = 1,45 kN.m/m	As = 0,41 cm ¹ /m As,min = 1,31 cm ² /m

		Y	Md = 1,38 kN.m/m	As = 0,39 cm ¹ /m As,min = 1,31 cm ² /m	Md = 3,39 kN.m/m	As = 0,94 cm ¹ /m As,min = 1,31 cm ² /m
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10. RESULTADOS DO RADIER DO RESERVATÓRIO:

ARMADURAS (RADIÉR)					
Seção	Direção	Flexão Positiva		Flexão Negativa	
h = 60 cm	X	Md = 17,37 kN.m/m	As = 0,73 cm ² /m As,min = 6,03 cm ² /m	Md = 0,66 kN.m/m	As = 0,03 cm ² /m As,min = 6,03 cm ² /m
	Y	Md = 23,42 kN.m/m	As = 0,99 cm ² /m As,min = 6,03 cm ² /m	Md = 0,70 kN.m/m	As = 0,03 cm ² /m As,min = 6,03 cm ² /m

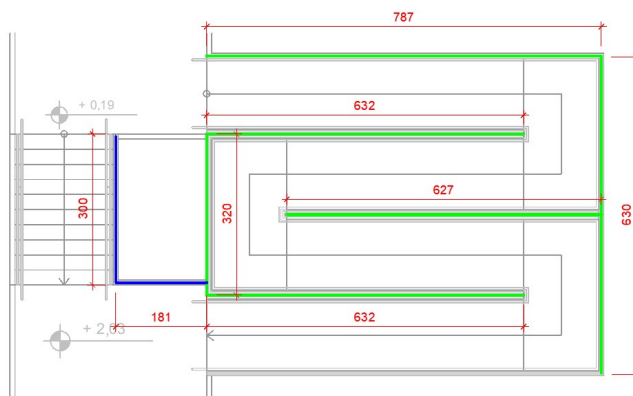
Pressão de contato mínima: 0,36 kgf/cm²

Pressão de contato máxima: 0,58 kgf/cm²

11. RESULTADOS DAS CONTENÇÕES

A contenção possui altura variável, para o dimensionamento e detalhamento as contenções foi consideradas duas seções, a primeira que fica na rampa que possui uma altura máxima de 90 cm e outra na região do jardim que possui altura máxima de 190 cm.

As contenções foram concebidas em alvenaria estrutural com bloco de concreto com dimensões de 19x19x39 cm e sapata corrida de concreto armado.

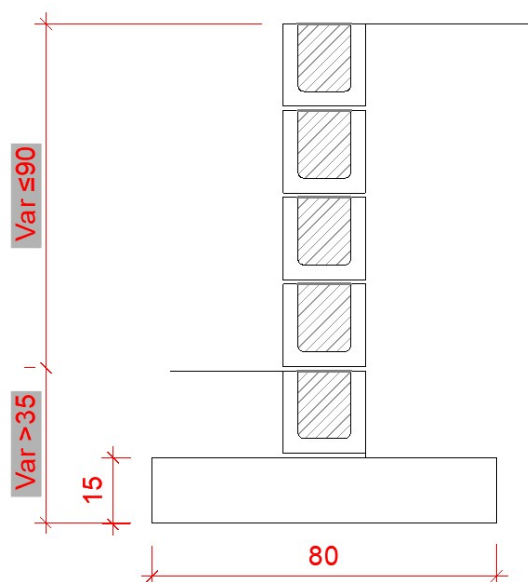


Para a contenção foi considerado:

- Carga acidental uniformemente distribuída: $q = 3,0 \text{ kN/m}^2$;
- Ângulo de atrito do solo: $\varphi = 30^\circ$;
- Coesão do solo: $c = 0$ (Não considerado);
- Coeficiente de atrito solo x sapata: $\mu = 0.4$

Contenção tipo 01

A contenção tipo 01 possui altura máxima de 90 cm, altura mínima enterrada de 35 cm e sapata corrida com seção de 15 cm x 80 cm.



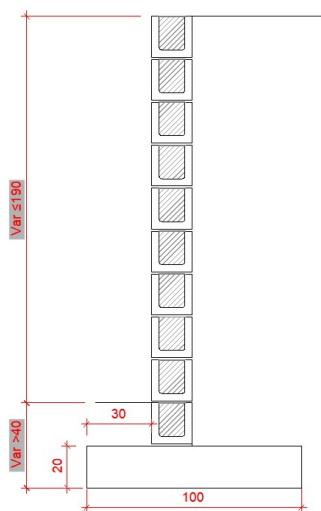
Geometria - TIPO 1			
Altura de contenção	h1	Variável (máx = 0,8)	m
Altura enterrada	h2	0,35	m
Largura da Sapata	bs1	0,60	m
	bs2	0,20	m
	B	0,80	m
Espessura da Sapata	bs	0,15	m
Espessura do bloco	b	0,19	m

Resultados			
Coef. De empuxo ativo	Ka	0,34	-
Momento resistente	Mr	6,31	kN.m/m
Momento de tombamento	M	0,99	kN.m/m
FS Tombamento	FS_Tomb	6,37	-
Força Resistente de deslizamento	Fr	5,14	kN/m
Força de Deslizamento	F	2,48	kN/m
FS Deslizamento	FS_Des	2,08	-
Momento de cálculo da parede	Msd.par	1,39	kN.m/m
Momento de cálculo da Sapata	Msd.sap	1,31	kN.m/m

Armadura da parede		
Posição	Diâm	espaç
Armadura Vertical	8,0	c/40
Armadura horizontal	8,0	-
Armadura da Sapata		
Posição	Diâm	espaç
Armadura Superior	6,3	c/20
Armadura Inferior	6,3	c/20
Armadura sec. Superior	5,0	c/20
Armadura sec. Inferior	5,0	c/20

Contenção tipo 02

A contenção tipo 02 possui altura máxima de 190 cm, altura mínima enterrada de 40 cm e sapata corrida com seção de 20 cm x 100 cm.



Geometria - TIPO 2			
Altura de contenção	h1	Variável (máx = 1,9)	m
Altura enterrada	h2	0,40	m
Largura da Sapata	bs1	0,70	m
	bs2	0,30	m
	B	1,00	m
Espessura da Sapata	bs	0,20	m
Espessura do bloco	b	0,19	m

Resultados			
Coef. De empuxo ativo	Ka	0,34	-
Momento resistente	Mr	18,40	kN.m/m
Momento de tombamento	M	9,50	kN.m/m
FS Tombamento	FS_Tomb	1,94	-
Força Resistente de deslizamento	Fr	19,52	kN/m
Força de Deslizamento	F	12,82	kN/m
FS Deslizamento	FS_Des	1,52	-
Momento de cálculo da parede	Msd.par	1,39	kN.m/m
Momento de cálculo da Sapata	Msd.sap	1,31	kN.m/m

Armadura da parede		
Posição	Diâm	espaç
Armadura Vertical	2x 10,0	c/20
Armadura horizontal	3x 8,0	-
Armadura da Sapata		
Posição	Diâm	espaç
Armadura Superior	6,3	c/15
Armadura Inferior	6,3	c/15
Armadura sec. Superior	6,3	c/20
Armadura sec. Inferior	6,3	c/20

12. RESULTADOS DA ESTAÇÃO ELEVATÓRIA

ARMADURAS NAS LAJES E PAREDES								
Trecho	Esforços				Resultados			
	Ndx Rdx (kN)	Ndy Rdy (kN)	Mdx (kN.m/m)	Mdy (kN.m/m)	Armadura inferior		Armadura superior	
					Asx	Asy	Asx	Asy
L2	-	-	2.85	2.85	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
L2	13.46 -34.47	13.61 -34.41	4.51	4.51	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
L3	13.35 -9.01	13.33 -8.74	0.95	0.96	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR1	8.00 -26.50	33.94 -10.41	3.05	3.06	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR2	16.72 -47.08	62.78 -36.62	9.41	2.12	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR3	15.93 -26.89	38.82 -10.19	3.05	3.29	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR4	17.32 -45.78	63.77 -36.62	9.42	2.10	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR5	16.09 -26.41	39.41 -10.41	3.07	3.29	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR6	7.82 -26.14	34.30 -10.19	3.05	3.06	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR7	31.65 -75.96	62.78 -29.51	2.17	1.61	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)
PAR8	31.56 -76.75	63.77 -29.37	2.17	1.66	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.16 cm ² /m ø8.0 c/20 (2.51 cm ² /m)	As = 2.29 cm ² /m ø8.0 c/20 (2.51 cm ² /m)

ARMADURAS NA CONTINUIDADE			
Viga Trecho	Laje 1 Laje 2	Md negativo	Armaduras
Barra	PAR7 L3	-1.22	ø8.0 c/20 (2.51 cm ² /m)
Barra	L3 PAR7	-0.78	ø8.0 c/20 (2.51 cm ² /m)

Barra	PAR8 L3	-1.22	ø8.0 c/20 (2.51 cm ² /m)
Barra	L3 PAR8	-0.79	ø8.0 c/20 (2.51 cm ² /m)
Barra	L3 PAR4	-0.79	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR4 L3	-1.20	ø8.0 c/20 (2.51 cm ² /m)
Barra	L3 PAR2	-0.78	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR2 L3	-1.20	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR2 PAR4	-2.43	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR4 PAR2	-0.73	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR7 PAR2	-1.51	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR2 PAR7	-1.93	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR8 PAR4	-1.91	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR4 PAR8	-1.50	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR8	-1.66	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR8 L2	-2.13	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR8 PAR7	-6.18	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR7 PAR8	-0.84	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR7	-1.61	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR7 L2	-2.12	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR6	-0.20	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR6 L2	-4.48	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR1	-0.13	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR1 L2	-4.47	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR5	-2.22	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR5 L2	-4.51	ø8.0 c/20 (2.51 cm ² /m)
Barra	L2 PAR3	-2.21	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR3 L2	-4.51	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR1 PAR6	-7.50	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR6 PAR1		ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR1 PAR5		ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR5 PAR1	-7.34	ø8.0 c/20 (2.51 cm ² /m)

Barra	PAR6 PAR3	-7.32	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR3 PAR6		ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR2 PAR4	-7.46	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR4 PAR2	-0.07	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR3 PAR2		ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR2 PAR3	-2.15	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR5 PAR4	-2.15	ø8.0 c/20 (2.51 cm ² /m)
Barra	PAR4 PAR5		ø8.0 c/20 (2.51 cm ² /m)