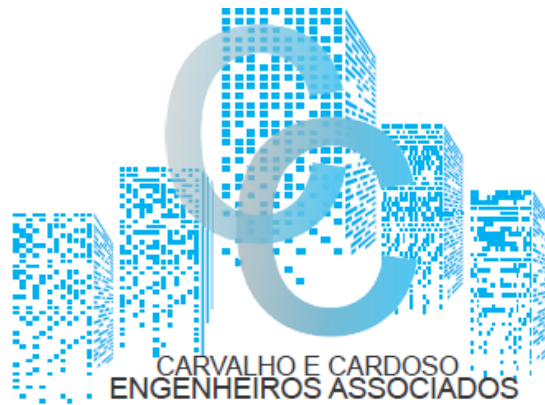


MEMORIAL TÉCNICO DE ESTRUTURA METÁLICA



**OBRA:
NÚCLEO ESCOLAR MUNICIPAL
PROF^a XÊNIA GOEDERT KREMER**



**PREFEITURA MUNICIPAL
DE ANTÔNIO CARLOS - SC**

1. APRESENTAÇÃO

Este memorial descreve os critérios adotados e os cálculos realizados para dimensionar a estrutura metálica da quadra poliesportiva da edificação em questão.

2. DA EDIFICAÇÃO

Razão social: Prefeitura de Antônio Carlos **CNPJ:** 82.892.290/0001-90

Edificação: Núcleo Escolar Municipal Profª Xênia Goedert Kremer

Endereço: Rua Antônio José Zimmermann, 5350, Louro, Antônio Carlos/SC

Classificação: Escolar

3. DO RESPONSÁVEL TÉCNICO

Nome: João Pedro Felipe Carvalho

Formação: Engenheiro Civil **CREA:** 154.224-3

Empresa: Carvalho e Cardoso Engenheiros Associados

Endereço: Rua Ipiranga, nº 547, Centro, 88.820-000, Içara/SC

CNPJ: 34.003.735/0001-90

E-mail: carvalhoecardoso@hotmail.com

Telefone: (48) 9.9625-0883

4. QUALIFICAÇÃO

Todos os trabalhos a serem desenvolvidos na obra serão supervisionados por profissionais qualificados e certificados, a critério do CLIENTE, e deverão sempre estar à disposição quando solicitados. Todas as empresas fornecedoras e executoras deverão possuir profissional devidamente habilitado pelo CREA, para a execução dos trabalhos e possuir acervo de obras do mesmo aspecto quanto ao tipo de instalação.

5. MATERIAIS

Todos os materiais utilizados pelo empreiteiro deverão respeitar as normas brasileiras, seguir as especificações deste memorial e do projeto, e serem aprovados previamente pelo CLIENTE quando fora das especificações, bem como ter certificação dos órgãos competentes. As especificações dos materiais a serem empregados nesta instalação devem ser complementadas com o memorial descritivo das instalações elétricas que deverá fazer parte integrante deste memorial.

6. MATERIAIS DEFEITUOSOS/FUNCIONÁRIO NÃO QUALIFICADO

Quando forem percebidos na obra, materiais com defeito ou mão de obra não qualificada, o empreiteiro deverá substituir imediatamente a peça e/ou equipamento com defeito, e substituir o referido funcionário imediatamente assim que comunicado pelos engenheiros do CLIENTE. O custo da substituição de materiais, equipamentos, funcionários, teste de materiais, etc., será de total responsabilidade do empreiteiro. Os resultados dos testes deverão ser apurados pelos engenheiros do CLIENTE, cabendo ao empreiteiro demonstrar os métodos utilizados para análise, acompanhados das normas referentes ao assunto.

7. CRITÉRIOS DE PROJETO

As recomendações aqui apresentadas visam orientar a execução do projeto no sentido de estabelecer uma instalação funcional e segura. Não implicam, todavia, em qualquer responsabilidade do projetista com relação à qualidade da instalação executada por terceiros em discordância com as normas aplicáveis.

8. SOFTWARE UTILIZADO

O software utilizado para o dimensionamento da cobertura metálica, é o **Tekla Structural Designer**, da empresa internacional Trimble Solutions Corporation. É um software específico para cálculo, dimensionamento e análise de estruturas metálicas e de concreto. Os modelos criados com o software Tekla contêm as informações precisas, confiáveis e detalhadas que são necessárias para o êxito durante a modelagem de informações para construção (BIM) e sua execução.



9. MEMÓRIA DE CÁLCULO

Member End Forces

Beams

End 1/End 2 + Coincident, First-order linear, All combinations

Other

Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
SB 1.1/A/1-1.1/A/2	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z , Max M _z	3 EQU _{4.1} - 0.9G+1.5W	-3.3	3.8	4.8	0.0	0.0	0.6
					Min F _x	6 EQU _{4.4} - 0.9G+1.5W	-	-1.3	-0.9	0.0	0.0	-0.2
					Min F _y , Min F _z , Min M _z	11 EQU _{4.9} - 0.9G+1.5W	-7.5	-4.8	-4.9	0.0	0.0	-0.7
					Max F _x	18 EQU _{4.16} - 0.9G+1.5W	8.0	2.0	2.8	0.0	0.0	0.3
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	3.3	3.1	4.4	0.0	0.0	0.0
					Max F _x	6 EQU _{4.4} - 0.9G+1.5W	12.8	-1.2	-0.9	0.0	0.0	0.0
					Min F _y , Min F _z	11 EQU _{4.9} - 0.9G+1.5W	7.5	-4.0	-4.4	0.0	0.0	0.0
					Min F _x	18 EQU _{4.16} - 0.9G+1.5W	-8.0	1.9	2.8	0.0	0.0	0.0
SB 1.1/A/2-1.1/A/3	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	-4.9	3.0	4.0	0.0	0.0	0.0
					Min F _x	6 EQU _{4.4} - 0.9G+1.5W	-	-1.2	-0.9	0.0	0.0	0.0
					Min F _y , Min F _z	11 EQU _{4.9} - 0.9G+1.5W	-	-3.7	-3.9	0.0	0.0	0.0
					Max F _x	18 EQU _{4.16} - 0.9G+1.5W	14.0	2.0	2.8	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	4.9	3.0	4.0	0.0	0.0	0.0
					Max F _x	6 EQU _{4.4} - 0.9G+1.5W	20.6	-1.2	-0.9	0.0	0.0	0.0
					Min F _x	18 EQU _{4.16} - 0.9G+1.5W	-	2.0	2.9	0.0	0.0	0.0
					Min F _y , Min F _z	21 EQU _{4.19} - 0.9G+1.5W	11.3	-3.7	-3.9	0.0	0.0	0.0
SB 1.1/A/3-1.1/A/4	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	-3.3	3.1	4.4	0.0	0.0	0.0
					Min F _x	6 EQU _{4.4} - 0.9G+1.5W	-	-1.2	-0.9	0.0	0.0	0.0
					Max F _x	8 EQU _{4.6} - 0.9G+1.5W	8.0	1.9	2.8	0.0	0.0	0.0
					Min F _y , Min F _z	21 EQU _{4.19} - 0.9G+1.5W	-7.5	-4.0	-4.4	0.0	0.0	0.0
				2	Max F _y , Max F _z , Min M _z	3 EQU _{4.1} - 0.9G+1.5W	3.3	3.8	4.8	0.0	0.0	-0.6
					Max F _x	6 EQU _{4.4} - 0.9G+1.5W	12.8	-1.3	-0.9	0.0	0.0	0.2
					Min F _x	8 EQU _{4.6} - 0.9G+1.5W	-8.0	2.0	2.8	0.0	0.0	-0.3

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Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
					Min F _y , Min F _z , Max M _z	21 EQU _{4.19} - 0.9G+1.5W	7.5	-4.8	-4.9	0.0	0.0	0.7
SB 1.1/C/1-1.1/C/2	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Min F _z , Max M _z	11 EQU _{4.9} - 0.9G+1.5W	-7.5	4.8	-4.9	0.0	0.0	0.7
					Min F _y , Max F _z , Min M _z	13 EQU _{4.11} - 0.9G+1.5W	-3.3	-3.8	4.8	0.0	0.0	-0.6
					Min F _x	16 EQU _{4.14} - 0.9G+1.5W	-	1.3	-0.9	0.0	0.0	0.2
					Max F _x	18 EQU _{4.16} - 0.9G+1.5W	8.0	-2.0	2.8	0.0	0.0	-0.3
				2	Max F _y , Min F _z	11 EQU _{4.9} - 0.9G+1.5W	7.5	4.0	-4.4	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	3.3	-3.1	4.4	0.0	0.0	0.0
					Max F _x	16 EQU _{4.14} - 0.9G+1.5W	12.8	1.2	-0.9	0.0	0.0	0.0
					Min F _x	18 EQU _{4.16} - 0.9G+1.5W	-8.0	-1.9	2.8	0.0	0.0	0.0
SB 1.1/C/2-1.1/C/3	1	UKPFC 100x50x 10	S27 5	1	Max F _x	8 EQU _{4.6} - 0.9G+1.5W	14.0	-2.0	2.9	0.0	0.0	0.0
					Max F _y , Min F _z	11 EQU _{4.9} - 0.9G+1.5W	-	3.7	-3.9	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	-4.9	-3.0	4.0	0.0	0.0	0.0
					Min F _x	16 EQU _{4.14} - 0.9G+1.5W	-	1.2	-0.9	0.0	0.0	0.0
				2	Min F _x	8 EQU _{4.6} - 0.9G+1.5W	-	-2.0	2.8	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	4.9	-3.0	4.0	0.0	0.0	0.0
					Max F _x	16 EQU _{4.14} - 0.9G+1.5W	20.6	1.2	-0.9	0.0	0.0	0.0
					Max F _y , Min F _z	21 EQU _{4.19} - 0.9G+1.5W	11.3	3.7	-3.9	0.0	0.0	0.0
SB 1.1/C/3-1.1/C/4	1	UKPFC 100x50x 10	S27 5	1	Max F _x	8 EQU _{4.6} - 0.9G+1.5W	8.0	-1.9	2.8	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	-3.3	-3.1	4.4	0.0	0.0	0.0
					Min F _x	16 EQU _{4.14} - 0.9G+1.5W	-	1.2	-0.9	0.0	0.0	0.0
					Max F _y , Min F _z	21 EQU _{4.19} - 0.9G+1.5W	-7.5	4.0	-4.4	0.0	0.0	0.0
				2	Min F _x	8 EQU _{4.6} - 0.9G+1.5W	-8.0	-2.0	2.8	0.0	0.0	0.3
					Min F _y , Max F _z , Max M _z	13 EQU _{4.11} - 0.9G+1.5W	3.3	-3.8	4.8	0.0	0.0	0.6
					Max F _x	16 EQU _{4.14} - 0.9G+1.5W	12.8	1.3	-0.9	0.0	0.0	-0.2
					Max F _y , Min F _z , Min M _z	21 EQU _{4.19} - 0.9G+1.5W	7.5	4.8	-4.9	0.0	0.0	-0.7

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Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
SB 1.2/1/#100-FRM 2/%63	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z , Min M _y , Max M _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	6.2	9.5	0.0	-0.1	0.1
					Max M _y , Min M _z	11 EQU _{4.9} - 0.9G+1.5W	0.0	-8.0	- 10.4	0.0	0.1	-0.1
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-8.8	- 11.8	0.0	0.1	-0.1
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	5.5	8.5	0.0	0.0	0.0
					Min F _y , Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-7.6	- 10.0	0.0	0.0	0.0
SB 1.2/1/#156-FRM 2/%70	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	8.8	- 11.8	0.0	0.1	0.1
					Max M _y , Max M _z	11 EQU _{4.9} - 0.9G+1.5W	0.0	8.0	- 10.4	0.0	0.1	0.1
					Min F _y , Max F _z , Min M _y , Min M _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-6.2	9.5	0.0	-0.1	-0.1
				2	Max F _y , Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	7.6	- 10.0	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-5.5	8.5	0.0	0.0	0.0
SB 1.3/1/#110- 1.3/2/#111	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	3.7	8.2	0.0	0.0	0.0
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-8.1	- 16.3	0.0	0.0	0.0
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	0.0	-8.1	- 16.3	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	3.3	7.4	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-6.5	- 13.0	0.0	0.0	0.0
Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-6.5		- 13.0	0.0	0.0	0.0				
SB 1.3/1/#152- 1.3/2/#153	1	UKPFC 100x50x 10	S27 5	1	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	8.1	- 16.3	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	0.0	8.1	- 16.3	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-3.7	8.2	0.0	0.0	0.0
				2	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	6.5	- 13.0	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	6.5	- 13.0	0.0	0.0	0.0
Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-3.3		7.4	0.0	0.0	0.0				
SB 1.3/2/#111- 1.3/3/#112	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	2.9	6.6	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-4.8	-9.1	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-4.8	-9.1	0.0	0.0	0.0

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Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	2.9	6.6	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-4.8	-9.1	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-4.8	-9.1	0.0	0.0	0.0
SB 1.3/2/#153- 1.3/3/#154	1	UKPFC 100x50x 10	S27 5	1	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	4.8	-9.1	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	4.8	-9.1	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-2.9	6.6	0.0	0.0	0.0
				2	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	4.8	-9.1	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	4.8	-9.1	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-2.9	6.6	0.0	0.0	0.0
SB 1.3/3/#112- 1.3/4/#113	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	3.3	7.4	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-6.5	-	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-6.5	-	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	3.7	8.2	0.0	0.0	0.0
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-8.1	-	0.0	0.0	0.0
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	0.0	-8.1	-	0.0	0.0	0.0
SB 1.3/3/#154- 1.3/4/#155	1	UKPFC 100x50x 10	S27 5	1	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	6.5	-	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	6.5	-	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-3.3	7.4	0.0	0.0	0.0
				2	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	8.1	-	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	0.0	8.1	-	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-3.7	8.2	0.0	0.0	0.0
SB 1.4/1/#118- 1.4/2/#119	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	-3.0	1.6	5.6	0.0	0.0	0.0
					Min F _x	14 EQU _{4.12} - 0.9G+1.5W	-3.4	-5.0	-	0.0	0.0	0.0
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	-2.2	-6.2	-	0.0	0.0	0.0
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	-3.0	-6.2	-	0.0	0.0	0.0
					Max F _x	20 EQU _{4.18} - 0.9G+1.5W	-0.3	0.0	0.6	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	3.0	1.5	5.4	0.0	0.0	0.0
					Max F _x	14 EQU _{4.12} - 0.9G+1.5W	3.4	-3.6	-	0.0	0.0	0.0

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Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	2.2	-4.8	- 15.5	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	3.0	-4.8	- 15.5	0.0	0.0	0.0
					Min F _x	20 EQU _{4.18} - 0.9G+1.5W	0.3	0.0	0.6	0.0	0.0	0.0
SB 1.4/1/#148- 1.4/2/#149	1	UKPFC 100x50x 10	S27 5	1	Min F _x	4 EQU _{4.2} - 0.9G+1.5W	-3.4	5.0	- 16.0	0.0	0.0	0.0
					Min F _z	5 EQU _{4.3} - 0.9G+1.5W	-2.2	6.2	- 20.0	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	-3.0	6.2	- 20.0	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	-3.0	-1.6	5.6	0.0	0.0	0.0
					Max F _x	20 EQU _{4.18} - 0.9G+1.5W	-0.3	0.0	0.6	0.0	0.0	0.0
				2	Max F _x	4 EQU _{4.2} - 0.9G+1.5W	3.4	3.6	- 11.4	0.0	0.0	0.0
					Max F _y	5 EQU _{4.3} - 0.9G+1.5W	2.2	4.8	- 15.5	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	3.0	4.8	- 15.5	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	3.0	-1.5	5.4	0.0	0.0	0.0
					Min F _x	20 EQU _{4.18} - 0.9G+1.5W	0.3	0.0	0.6	0.0	0.0	0.0
SB 1.4/2/#119- 1.4/3/#120	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	-1.2	1.4	5.1	0.0	0.0	0.0
					Min F _x	8 EQU _{4.6} - 0.9G+1.5W	-9.3	1.2	4.7	0.0	0.0	0.0
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	11.0	-3.0	-9.3	0.0	0.0	0.0
					Max F _x	16 EQU _{4.14} - 0.9G+1.5W	13.2	-3.0	-9.3	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	1.2	1.4	5.1	0.0	0.0	0.0
					Max F _x	8 EQU _{4.6} - 0.9G+1.5W	9.3	1.2	4.6	0.0	0.0	0.0
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	-	-3.0	-9.3	0.0	0.0	0.0
					Min F _x	16 EQU _{4.14} - 0.9G+1.5W	-	-3.0	-9.3	0.0	0.0	0.0
SB 1.4/2/#149- 1.4/3/#150	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Min F _z	5 EQU _{4.3} - 0.9G+1.5W	11.0	3.0	-9.3	0.0	0.0	0.0
					Max F _x	6 EQU _{4.4} - 0.9G+1.5W	13.2	3.0	-9.3	0.0	0.0	0.0
					Min F _x	8 EQU _{4.6} - 0.9G+1.5W	-9.3	-1.2	4.7	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	-1.2	-1.4	5.1	0.0	0.0	0.0
				2	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	-	3.0	-9.3	0.0	0.0	0.0
					Min F _x , Max F _y	6 EQU _{4.4} - 0.9G+1.5W	-	3.0	-9.3	0.0	0.0	0.0
					Max F _x	8 EQU _{4.6} - 0.9G+1.5W	9.3	-1.2	4.6	0.0	0.0	0.0

CARVALHO E CARDOSO

Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	1.2	-1.4	5.1	0.0	0.0	0.0
SB 1.4/3/#120- 1.4/4/#121	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	-3.0	1.5	5.4	0.0	0.0	0.0
					Max F _x	10 EQU _{4.8} - 0.9G+1.5W	-0.3	0.0	0.6	0.0	0.0	0.0
					Min F _x	14 EQU _{4.12} - 0.9G+1.5W	-3.4	-3.6	- 11.4	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	-2.2	-4.8	- 15.5	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	-3.0	-4.8	- 15.5	0.0	0.0	0.0
				2	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	3.0	1.6	5.6	0.0	0.0	0.0
					Min F _x	10 EQU _{4.8} - 0.9G+1.5W	0.3	0.0	0.6	0.0	0.0	0.0
					Max F _x	14 EQU _{4.12} - 0.9G+1.5W	3.4	-5.0	- 16.0	0.0	0.0	0.0
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	2.2	-6.2	- 20.0	0.0	0.0	0.0
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	3.0	-6.2	- 20.0	0.0	0.0	0.0
SB 1.4/3/#150- 1.4/4/#151	1	UKPFC 100x50x 10	S27 5	1	Min F _x	4 EQU _{4.2} - 0.9G+1.5W	-3.4	3.6	- 11.4	0.0	0.0	0.0
					Max F _y	5 EQU _{4.3} - 0.9G+1.5W	-2.2	4.8	- 15.5	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	-3.0	4.8	- 15.5	0.0	0.0	0.0
					Max F _x	10 EQU _{4.8} - 0.9G+1.5W	-0.3	0.0	0.6	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	-3.0	-1.5	5.4	0.0	0.0	0.0
				2	Max F _x	4 EQU _{4.2} - 0.9G+1.5W	3.4	5.0	- 16.0	0.0	0.0	0.0
					Min F _z	5 EQU _{4.3} - 0.9G+1.5W	2.2	6.2	- 20.0	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	3.0	6.2	- 20.0	0.0	0.0	0.0
					Min F _x	10 EQU _{4.8} - 0.9G+1.5W	0.3	0.0	0.6	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	3.0	-1.6	5.6	0.0	0.0	0.0
SB 1.5/1/#126-FRM 2/%66	1	UKPFC 100x50x 10	S27 5	1	Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-3.1	- 19.4	0.0	0.0	0.0
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	0.0	-3.1	- 19.4	0.0	0.0	0.0
					Max F _y , Max F _z	18 EQU _{4.16} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0
				2	Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-2.5	- 16.0	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-2.5	- 16.0	0.0	0.0	0.0
					Max F _y , Max F _z	18 EQU _{4.16} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0
SB 1.5/1/#142-FRM 2/%67	1	UKPFC 100x50x	S27 5	1	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	3.1	- 19.4	0.0	0.0	0.0

CARVALHO E CARDOSO

Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]					
		10			Max F _y	6 EQU _{4.4} - 0.9G+1.5W	0.0	3.1	- 19.4	0.0	0.0	0.0					
						18 EQU _{4.16} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0					
					2	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	2.5	- 16.0	0.0	0.0	0.0				
							6 EQU _{4.4} - 0.9G+1.5W	0.0	2.5	- 16.0	0.0	0.0	0.0				
						Max F _z	18 EQU _{4.16} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0				
SB 3/B/1-3/B/2	1	UKPFC 100x50x 10	S27 5	1	Min F _x	6 EQU _{4.4} - 0.9G+1.5W	-6.6	0.0	- 17.4	0.0	0.0	0.0					
						8 EQU _{4.6} - 0.9G+1.5W	-1.0	0.0	-7.0	0.0	0.1	0.0					
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	-5.2	0.0	- 17.4	0.0	0.0	0.0					
						18 EQU _{4.16} - 0.9G+1.5W	1.2	0.0	4.8	0.0	0.0	0.0					
						21 EQU _{4.19} - 0.9G+1.5W	-2.3	0.0	-2.6	0.0	-0.1	0.0					
					2	Max F _y , Min F _z	6 EQU _{4.4} - 0.9G+1.5W	6.6	0.0	- 15.5	0.0	0.0	0.0				
							18 EQU _{4.16} - 0.9G+1.5W	-1.2	0.0	4.8	0.0	0.0	0.0				
						Min F _x , Max F _z	18 EQU _{4.16} - 0.9G+1.5W	-1.2	0.0	4.8	0.0	0.0	0.0				
					SB 3/B/2-3/B/3	1	UKPFC 100x50x 10	S27 5	1	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	9.1	0.0	- 12.7	0.0	0.0	0.0
											8 EQU _{4.6} - 0.9G+1.5W	-9.3	0.0	3.7	0.0	0.0	0.0
Max F _x	16 EQU _{4.14} - 0.9G+1.5W	13.6	0.0	- 12.7						0.0	0.0	0.0					
	18 EQU _{4.16} - 0.9G+1.5W	-9.3	0.0	4.8						0.0	0.0	0.0					
2	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	-9.1	0.0					- 12.7	0.0	0.0	0.0					
		8 EQU _{4.6} - 0.9G+1.5W	9.3	0.0					4.8	0.0	0.0	0.0					
	Min F _x	16 EQU _{4.14} - 0.9G+1.5W	- 13.6	0.0					- 12.7	0.0	0.0	0.0					
SB 3/B/3-3/B/4	1	UKPFC 100x50x 10	S27 5	1	Min F _x	6 EQU _{4.4} - 0.9G+1.5W	-6.6	0.0	- 15.5	0.0	0.0	0.0					
						8 EQU _{4.6} - 0.9G+1.5W	1.2	0.0	4.8	0.0	0.0	0.0					
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	-6.6	0.0	- 15.5	0.0	0.0	0.0					
				2	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	5.2	0.0	- 17.4	0.0	0.0	0.0					
						6 EQU _{4.4} - 0.9G+1.5W	6.6	0.0	- 17.4	0.0	0.0	0.0					
					Max F _x , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	-1.2	0.0	4.8	0.0	0.0	0.0					
					Max M _y	11 EQU _{4.9} - 0.9G+1.5W	2.3	0.0	-2.6	0.0	0.1	0.0					
					Min M _y	18 EQU _{4.16} - 0.9G+1.5W	1.0	0.0	-7.0	0.0	-0.1	0.0					
					Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	4.9	7.6	0.0	0.0	0.0					

CARVALHO E CARDOSO

Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]
		10			Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-6.5	-8.3	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-6.5	-8.3	0.0	0.0	0.0
					Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	4.9	7.6	0.0	0.0	0.0
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-6.5	-8.3	0.0	0.0	0.0
SB FRM 2/%66-FRM 3/%118	1	UKPFC 100x50x 10	S27 5	1	Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-1.6	- 11.1	0.0	0.0	0.0
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-1.6	- 11.1	0.0	0.0	0.0
					Max F _y , Max F _z	18 EQU _{4.16} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0
					Max F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-1.6	- 11.1	0.0	0.0	0.0
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-1.6	- 11.1	0.0	0.0	0.0
SB FRM 2/%67-FRM 3/%119	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	1.6	- 11.1	0.0	0.0	0.0
					Min F _y , Max F _z	18 EQU _{4.16} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0
					Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	1.6	- 11.1	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	0.0	1.6	- 11.1	0.0	0.0	0.0
					Min F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0
					Min F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0
SB FRM 2/%70-FRM 3/%122	1	UKPFC 100x50x 10	S27 5	1	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	6.5	-8.3	0.0	0.0	0.0
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	6.5	-8.3	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-4.9	7.6	0.0	0.0	0.0
					Max F _y , Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	6.5	-8.3	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-4.9	7.6	0.0	0.0	0.0
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-4.9	7.6	0.0	0.0	0.0
SB FRM 3/%115- 1.2/4/#103	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	5.5	8.5	0.0	0.0	0.0
					Min F _y , Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-7.6	- 10.0	0.0	0.0	0.0
					Max F _y , Max F _z , Max M _y , Min M _z	3 EQU _{4.1} - 0.9G+1.5W	0.0	6.2	9.5	0.0	0.1	-0.1
					Min F _y , Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-8.8	- 11.8	0.0	-0.1	0.1
					Min M _y , Max M _z	21 EQU _{4.19} - 0.9G+1.5W	0.0	-8.0	- 10.4	0.0	-0.1	0.1
					Min M _y , Max M _z	21 EQU _{4.19} - 0.9G+1.5W	0.0	-8.0	- 10.4	0.0	-0.1	0.1
SB FRM 3/%118- 1.5/4/#129	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0
					Min F _y	15 EQU _{4.13} - 0.9G+1.5W	0.0	-2.5	- 16.0	0.0	0.0	0.0

CARVALHO E CARDOSO

Reference	Span	Section	Grade	End	Condition	Combination	F _x [kN]	F _y [kN]	F _z [kN]	M _x [kNm]	M _y [kNm]	M _z [kNm]	
					Min F _z	16 EQU _{4.14} - 0.9G+1.5W	0.0	-2.5	- 16.0	0.0	0.0	0.0	
				2	Max F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	0.6	4.6	0.0	0.0	0.0	
					Min F _z	15 EQU _{4.13} - 0.9G+1.5W	0.0	-3.1	- 19.4	0.0	0.0	0.0	
					Min F _y	16 EQU _{4.14} - 0.9G+1.5W	0.0	-3.1	- 19.4	0.0	0.0	0.0	
SB FRM 3/%119- 1.5/4/#145	1	UKPFC 100x50x 10	S27 5	1	Max F _y	5 EQU _{4.3} - 0.9G+1.5W	0.0	2.5	- 16.0	0.0	0.0	0.0	
					Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	2.5	- 16.0	0.0	0.0	0.0	
					Min F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0	
				2	Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	3.1	- 19.4	0.0	0.0	0.0	0.0
					Max F _y	6 EQU _{4.4} - 0.9G+1.5W	0.0	3.1	- 19.4	0.0	0.0	0.0	0.0
					Min F _y , Max F _z	8 EQU _{4.6} - 0.9G+1.5W	0.0	-0.6	4.6	0.0	0.0	0.0	0.0
SB FRM 3/%122- 1.2/4/#159	1	UKPFC 100x50x 10	S27 5	1	Max F _y , Min F _z	6 EQU _{4.4} - 0.9G+1.5W	0.0	7.6	- 10.0	0.0	0.0	0.0	
					Min F _y , Max F _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-5.5	8.5	0.0	0.0	0.0	
				2	Max F _y , Min F _z	5 EQU _{4.3} - 0.9G+1.5W	0.0	8.8	- 11.8	0.0	-0.1	-0.1	
					Min F _y , Max F _z , Max M _y , Max M _z	13 EQU _{4.11} - 0.9G+1.5W	0.0	-6.2	9.5	0.0	0.1	0.1	
					Min M _y , Min M _z	21 EQU _{4.19} - 0.9G+1.5W	0.0	8.0	- 10.4	0.0	-0.1	-0.1	

Steel

Beam Design

Beam Design Summary

Static

Member Reference	Group Ref.	Span	Section	Grade	Length	No. Connectors	Camber	Utilization	Status
SB 3/B/1-3/B/2	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.448	✓ Pass
SB 3/B/2-3/B/3	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.448	✓ Pass
SB 3/B/3-3/B/4	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.448	✓ Pass
SB 1.5/1/#126-FRM 2/%66	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB FRM 2/%66-FRM 3/%118	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB FRM 3/%118- 1.5/4/#129	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB 1.4/1/#118- 1.4/2/#119	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass

CARVALHO E CARDOSO

Member Reference	Group Ref.	Span	Section	Grade	Length	No. Connectors	Camber	Utilization	Status
SB 1.4/2/#119-1.4/3/#120	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass
SB 1.4/3/#120-1.4/4/#121	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass
SB 1.3/1/#110-1.3/2/#111	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.3/2/#111-1.3/3/#112	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.3/3/#112-1.3/4/#113	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.2/1/#100-FRM 2/%63	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.551	✓ Pass
SB FRM 2/%63-FRM 3/%115	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.552	✓ Pass
SB FRM 3/%115-1.2/4/#103	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.551	✓ Pass
SB 1.1/A/1-1.1/A/2	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.307	✓ Pass
SB 1.1/A/2-1.1/A/3	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.293	✓ Pass
SB 1.1/A/3-1.1/A/4	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.307	✓ Pass
SB 1.5/1/#142-FRM 2/%67	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB FRM 2/%67-FRM 3/%119	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB FRM 3/%119-1.5/4/#145	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.453	✓ Pass
SB 1.4/1/#148-1.4/2/#149	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass
SB 1.4/2/#149-1.4/3/#150	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass
SB 1.4/3/#150-1.4/4/#151	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.468	✓ Pass
SB 1.3/1/#152-1.3/2/#153	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.3/2/#153-1.3/3/#154	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.3/3/#154-1.3/4/#155	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.498	✓ Pass
SB 1.2/1/#156-FRM 2/%70	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.551	✓ Pass
SB FRM 2/%70-FRM 3/%122	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.552	✓ Pass
SB FRM 3/%122-1.2/4/#159	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.551	✓ Pass
SB 1.1/C/1-1.1/C/2	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.307	✓ Pass
SB 1.1/C/2-1.1/C/3	SBR18	1	UKPFC 100x50x10	S275	4.000		0.0	0.293	✓ Pass
SB 1.1/C/3-1.1/C/4	SBR20	1	UKPFC 100x50x10	S275	4.000		0.0	0.307	✓ Pass

Brace Design

Brace Design Summary

Static

Member Reference	Group Ref.	Span	Section	Grade	Length [m]	Utilization	Status
SB 1.4/4/#151-3/B/3	SBR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass

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Member Reference	Group Ref.	Span	Section	Grade	Length [m]	Utilization	Status
SBR 3/B/4-1.4/3/#150	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.4/2/#149-1.1/C/1	SBrR2	1	Flat 6x40	S275	5.010	0.000	✓ Pass
SBR 1.4/1/#148-1.1/C/2	SBrR2	1	Flat 6x40	S275	5.010	0.079	✓ Pass
SBR 3/B/2-1.4/1/#148	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 3/B/1-1.4/2/#149	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.4/4/#151-1.1/C/3	SBrR2	1	Flat 6x40	S275	5.010	0.079	✓ Pass
SBR 1.1/C/4-1.4/3/#150	SBrR2	1	Flat 6x40	S275	5.010	0.000	✓ Pass
SBR 1.1/A/3-1.4/4/#121	SBrR2	1	Flat 6x40	S275	5.010	0.079	✓ Pass
SBR 1.1/A/4-1.4/3/#120	SBrR2	1	Flat 6x40	S275	5.010	0.000	✓ Pass
SBR 3/B/4-1.4/3/#120	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.4/4/#121-3/B/3	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.4/2/#119-3/B/1	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.4/1/#118-3/B/2	SBrR1	1	Flat 6x40	S275	4.361	0.000	✓ Pass
SBR 1.1/A/1-1.4/2/#119	SBrR2	1	Flat 6x40	S275	5.010	0.000	✓ Pass
SBR 1.1/A/2-1.4/1/#118	SBrR2	1	Flat 6x40	S275	5.010	0.079	✓ Pass

Bracing Forces

Braces, First-order linear, All combinations

Other

Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
SBR 1.1/A/1-1.4/2/#119	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	6.9
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	6.4
				3 EQU _{4,1} -0.9G+1.5W	-4.1
				4 EQU _{4,2} -0.9G+1.5W	-8.1
				5 EQU _{4,3} -0.9G+1.5W	-12.0
				6 EQU _{4,4} -0.9G+1.5W	-16.1
				7 EQU _{4,5} -0.9G+1.5W	-11.9
				8 EQU _{4,6} -0.9G+1.5W	9.6
				9 EQU _{4,7} -0.9G+1.5W	-1.5
				10 EQU _{4,8} -0.9G+1.5W	1.7
				11 EQU _{4,9} -0.9G+1.5W	-9.4
				12 EQU _{4,10} -0.9G+1.5W	-5.8
				13 EQU _{4,11} -0.9G+1.5W	-1.0
				14 EQU _{4,12} -0.9G+1.5W	-7.2
				15 EQU _{4,13} -0.9G+1.5W	-8.9
				16 EQU _{4,14} -0.9G+1.5W	-15.2
				17 EQU _{4,15} -0.9G+1.5W	-11.1
				18 EQU _{4,16} -0.9G+1.5W	10.1
				19 EQU _{4,17} -0.9G+1.5W	-0.8
				20 EQU _{4,18} -0.9G+1.5W	2.2
				21 EQU _{4,19} -0.9G+1.5W	-8.7
				22 EQU _{4,20} -0.9G+1.5W	-5.1
SBR 1.1/A/2-1.4/1/#118	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	-5.2
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	-4.9
				3 EQU _{4,1} -0.9G+1.5W	2.0
				4 EQU _{4,2} -0.9G+1.5W	4.0
				5 EQU _{4,3} -0.9G+1.5W	7.8
				6 EQU _{4,4} -0.9G+1.5W	9.7
				7 EQU _{4,5} -0.9G+1.5W	6.9
				8 EQU _{4,6} -0.9G+1.5W	-8.0
				9 EQU _{4,7} -0.9G+1.5W	-1.0

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Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
				10 EQU _{4,8} -0.9G+1.5W	-2.2
				11 EQU _{4,9} -0.9G+1.5W	4.7
				12 EQU _{4,10} -0.9G+1.5W	2.2
				13 EQU _{4,11} -0.9G+1.5W	-1.6
				14 EQU _{4,12} -0.9G+1.5W	3.0
				15 EQU _{4,13} -0.9G+1.5W	4.1
				16 EQU _{4,14} -0.9G+1.5W	8.8
				17 EQU _{4,15} -0.9G+1.5W	5.9
				18 EQU _{4,16} -0.9G+1.5W	-7.5
				19 EQU _{4,17} -0.9G+1.5W	-0.3
				20 EQU _{4,18} -0.9G+1.5W	-1.7
				21 EQU _{4,19} -0.9G+1.5W	5.4
22 EQU _{4,20} -0.9G+1.5W	2.9				
SBR 1.1/A/3-1.4/4/#121	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	-5.2
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	-4.9
				3 EQU _{4,1} -0.9G+1.5W	2.0
				4 EQU _{4,2} -0.9G+1.5W	4.0
				5 EQU _{4,3} -0.9G+1.5W	7.8
				6 EQU _{4,4} -0.9G+1.5W	9.7
				7 EQU _{4,5} -0.9G+1.5W	6.9
				8 EQU _{4,6} -0.9G+1.5W	-7.5
				9 EQU _{4,7} -0.9G+1.5W	-0.3
				10 EQU _{4,8} -0.9G+1.5W	-1.7
				11 EQU _{4,9} -0.9G+1.5W	5.4
				12 EQU _{4,10} -0.9G+1.5W	2.9
				13 EQU _{4,11} -0.9G+1.5W	-1.6
				14 EQU _{4,12} -0.9G+1.5W	3.0
				15 EQU _{4,13} -0.9G+1.5W	4.1
				16 EQU _{4,14} -0.9G+1.5W	8.8
				17 EQU _{4,15} -0.9G+1.5W	5.9
				18 EQU _{4,16} -0.9G+1.5W	-8.0
				19 EQU _{4,17} -0.9G+1.5W	-1.0
				20 EQU _{4,18} -0.9G+1.5W	-2.2
				21 EQU _{4,19} -0.9G+1.5W	4.7
				22 EQU _{4,20} -0.9G+1.5W	2.2
SBR 1.1/A/4-1.4/3/#120	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	6.9
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	6.4
				3 EQU _{4,1} -0.9G+1.5W	-4.1
				4 EQU _{4,2} -0.9G+1.5W	-8.1
				5 EQU _{4,3} -0.9G+1.5W	-12.0
				6 EQU _{4,4} -0.9G+1.5W	-16.1
				7 EQU _{4,5} -0.9G+1.5W	-11.9
				8 EQU _{4,6} -0.9G+1.5W	10.1
				9 EQU _{4,7} -0.9G+1.5W	-0.8
				10 EQU _{4,8} -0.9G+1.5W	2.2
				11 EQU _{4,9} -0.9G+1.5W	-8.7
				12 EQU _{4,10} -0.9G+1.5W	-5.1
				13 EQU _{4,11} -0.9G+1.5W	-1.0
				14 EQU _{4,12} -0.9G+1.5W	-7.2
				15 EQU _{4,13} -0.9G+1.5W	-8.9
				16 EQU _{4,14} -0.9G+1.5W	-15.2
				17 EQU _{4,15} -0.9G+1.5W	-11.1

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Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
				18 EQU _{4.16} -0.9G+1.5W	9.6
				19 EQU _{4.17} -0.9G+1.5W	-1.5
				20 EQU _{4.18} -0.9G+1.5W	1.7
				21 EQU _{4.19} -0.9G+1.5W	-9.4
				22 EQU _{4.20} -0.9G+1.5W	-5.8
SBR 1.1/C/4-1.4/3/#150	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	6.9
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	6.4
				3 EQU _{4.1} -0.9G+1.5W	-1.0
				4 EQU _{4.2} -0.9G+1.5W	-7.2
				5 EQU _{4.3} -0.9G+1.5W	-8.9
				6 EQU _{4.4} -0.9G+1.5W	-15.2
				7 EQU _{4.5} -0.9G+1.5W	-11.1
				8 EQU _{4.6} -0.9G+1.5W	10.1
				9 EQU _{4.7} -0.9G+1.5W	-0.8
				10 EQU _{4.8} -0.9G+1.5W	2.2
				11 EQU _{4.9} -0.9G+1.5W	-8.7
				12 EQU _{4.10} -0.9G+1.5W	-5.1
				13 EQU _{4.11} -0.9G+1.5W	-4.1
				14 EQU _{4.12} -0.9G+1.5W	-8.1
				15 EQU _{4.13} -0.9G+1.5W	-12.0
				16 EQU _{4.14} -0.9G+1.5W	-16.1
				17 EQU _{4.15} -0.9G+1.5W	-11.9
				18 EQU _{4.16} -0.9G+1.5W	9.6
				19 EQU _{4.17} -0.9G+1.5W	-1.5
				20 EQU _{4.18} -0.9G+1.5W	1.7
				21 EQU _{4.19} -0.9G+1.5W	-9.4
				22 EQU _{4.20} -0.9G+1.5W	-5.8
SBR 1.4/1/#118-3/B/2	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	4.1
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	3.8
				3 EQU _{4.1} -0.9G+1.5W	-5.1
				4 EQU _{4.2} -0.9G+1.5W	-6.5
				5 EQU _{4.3} -0.9G+1.5W	-9.6
				6 EQU _{4.4} -0.9G+1.5W	-11.1
				7 EQU _{4.5} -0.9G+1.5W	-8.6
				8 EQU _{4.6} -0.9G+1.5W	4.5
				9 EQU _{4.7} -0.9G+1.5W	-2.2
				10 EQU _{4.8} -0.9G+1.5W	0.0
				11 EQU _{4.9} -0.9G+1.5W	-6.7
				12 EQU _{4.10} -0.9G+1.5W	-4.5
				13 EQU _{4.11} -0.9G+1.5W	-1.5
				14 EQU _{4.12} -0.9G+1.5W	-6.3
				15 EQU _{4.13} -0.9G+1.5W	-6.0
				16 EQU _{4.14} -0.9G+1.5W	-10.9
				17 EQU _{4.15} -0.9G+1.5W	-8.4
				18 EQU _{4.16} -0.9G+1.5W	5.7
				19 EQU _{4.17} -0.9G+1.5W	-0.8
				20 EQU _{4.18} -0.9G+1.5W	1.2
				21 EQU _{4.19} -0.9G+1.5W	-5.3
				22 EQU _{4.20} -0.9G+1.5W	-3.2
SBR 1.4/1/#148-1.1/C/2	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	-5.2
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	-4.9
				3 EQU _{4.1} -0.9G+1.5W	-1.6

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Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]				
				4 EQU _{4,2} -0.9G+1.5W	3.0				
				5 EQU _{4,3} -0.9G+1.5W	4.1				
				6 EQU _{4,4} -0.9G+1.5W	8.8				
				7 EQU _{4,5} -0.9G+1.5W	5.9				
				8 EQU _{4,6} -0.9G+1.5W	-8.0				
				9 EQU _{4,7} -0.9G+1.5W	-1.0				
				10 EQU _{4,8} -0.9G+1.5W	-2.2				
				11 EQU _{4,9} -0.9G+1.5W	4.7				
				12 EQU _{4,10} -0.9G+1.5W	2.2				
				13 EQU _{4,11} -0.9G+1.5W	2.0				
				14 EQU _{4,12} -0.9G+1.5W	4.0				
				15 EQU _{4,13} -0.9G+1.5W	7.8				
				16 EQU _{4,14} -0.9G+1.5W	9.7				
				17 EQU _{4,15} -0.9G+1.5W	6.9				
				18 EQU _{4,16} -0.9G+1.5W	-7.5				
				19 EQU _{4,17} -0.9G+1.5W	-0.3				
				20 EQU _{4,18} -0.9G+1.5W	-1.7				
				21 EQU _{4,19} -0.9G+1.5W	5.4				
				22 EQU _{4,20} -0.9G+1.5W	2.9				
				SBR 1.4/2/#119-3/B/1	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	0.6
								2 EQU ₁ -1.1G+1.5Q+1.5RQ	0.5
								3 EQU _{4,1} -0.9G+1.5W	1.6
4 EQU _{4,2} -0.9G+1.5W	-2.1								
5 EQU _{4,3} -0.9G+1.5W	1.0								
6 EQU _{4,4} -0.9G+1.5W	-2.7								
7 EQU _{4,5} -0.9G+1.5W	-2.3								
8 EQU _{4,6} -0.9G+1.5W	-0.6								
9 EQU _{4,7} -0.9G+1.5W	-2.1								
10 EQU _{4,8} -0.9G+1.5W	-1.1								
11 EQU _{4,9} -0.9G+1.5W	-2.7								
12 EQU _{4,10} -0.9G+1.5W	-2.3								
13 EQU _{4,11} -0.9G+1.5W	-6.1								
14 EQU _{4,12} -0.9G+1.5W	-3.9								
15 EQU _{4,13} -0.9G+1.5W	-6.7								
16 EQU _{4,14} -0.9G+1.5W	-4.5								
17 EQU _{4,15} -0.9G+1.5W	-4.0								
18 EQU _{4,16} -0.9G+1.5W	0.6								
19 EQU _{4,17} -0.9G+1.5W	-0.7								
20 EQU _{4,18} -0.9G+1.5W	0.1								
21 EQU _{4,19} -0.9G+1.5W	-1.2								
22 EQU _{4,20} -0.9G+1.5W	-0.9								
SBR 1.4/2/#149-1.1/C/1	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	6.9				
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	6.4				
				3 EQU _{4,1} -0.9G+1.5W	-1.0				
				4 EQU _{4,2} -0.9G+1.5W	-7.2				
				5 EQU _{4,3} -0.9G+1.5W	-8.9				
				6 EQU _{4,4} -0.9G+1.5W	-15.2				
				7 EQU _{4,5} -0.9G+1.5W	-11.1				
				8 EQU _{4,6} -0.9G+1.5W	9.6				
				9 EQU _{4,7} -0.9G+1.5W	-1.5				
				10 EQU _{4,8} -0.9G+1.5W	1.7				
				11 EQU _{4,9} -0.9G+1.5W	-9.4				

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Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
				12 EQU _{4.10} -0.9G+1.5W	-5.8
				13 EQU _{4.11} -0.9G+1.5W	-4.1
				14 EQU _{4.12} -0.9G+1.5W	-8.1
				15 EQU _{4.13} -0.9G+1.5W	-12.0
				16 EQU _{4.14} -0.9G+1.5W	-16.1
				17 EQU _{4.15} -0.9G+1.5W	-11.9
				18 EQU _{4.16} -0.9G+1.5W	10.1
				19 EQU _{4.17} -0.9G+1.5W	-0.8
				20 EQU _{4.18} -0.9G+1.5W	2.2
				21 EQU _{4.19} -0.9G+1.5W	-8.7
				22 EQU _{4.20} -0.9G+1.5W	-5.1
SBR 1.4/4/#121-3/B/3	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	4.1
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	3.8
				3 EQU _{4.1} -0.9G+1.5W	-5.1
				4 EQU _{4.2} -0.9G+1.5W	-6.5
				5 EQU _{4.3} -0.9G+1.5W	-9.6
				6 EQU _{4.4} -0.9G+1.5W	-11.1
				7 EQU _{4.5} -0.9G+1.5W	-8.6
				8 EQU _{4.6} -0.9G+1.5W	5.7
				9 EQU _{4.7} -0.9G+1.5W	-0.8
				10 EQU _{4.8} -0.9G+1.5W	1.2
				11 EQU _{4.9} -0.9G+1.5W	-5.3
				12 EQU _{4.10} -0.9G+1.5W	-3.2
				13 EQU _{4.11} -0.9G+1.5W	-1.5
				14 EQU _{4.12} -0.9G+1.5W	-6.3
				15 EQU _{4.13} -0.9G+1.5W	-6.0
				16 EQU _{4.14} -0.9G+1.5W	-10.9
				17 EQU _{4.15} -0.9G+1.5W	-8.4
				18 EQU _{4.16} -0.9G+1.5W	4.5
				19 EQU _{4.17} -0.9G+1.5W	-2.2
				20 EQU _{4.18} -0.9G+1.5W	0.0
				21 EQU _{4.19} -0.9G+1.5W	-6.7
				22 EQU _{4.20} -0.9G+1.5W	-4.5
SBR 1.4/4/#151-1.1/C/3	Flat 6x40	S275	5.010	1 STR ₁ -1.35G+1.5Q+1.5RQ	-5.2
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	-4.9
				3 EQU _{4.1} -0.9G+1.5W	-1.6
				4 EQU _{4.2} -0.9G+1.5W	3.0
				5 EQU _{4.3} -0.9G+1.5W	4.1
				6 EQU _{4.4} -0.9G+1.5W	8.8
				7 EQU _{4.5} -0.9G+1.5W	5.9
				8 EQU _{4.6} -0.9G+1.5W	-7.5
				9 EQU _{4.7} -0.9G+1.5W	-0.3
				10 EQU _{4.8} -0.9G+1.5W	-1.7
				11 EQU _{4.9} -0.9G+1.5W	5.4
				12 EQU _{4.10} -0.9G+1.5W	2.9
				13 EQU _{4.11} -0.9G+1.5W	2.0
				14 EQU _{4.12} -0.9G+1.5W	4.0
				15 EQU _{4.13} -0.9G+1.5W	7.8
				16 EQU _{4.14} -0.9G+1.5W	9.7
				17 EQU _{4.15} -0.9G+1.5W	6.9
				18 EQU _{4.16} -0.9G+1.5W	-8.0
				19 EQU _{4.17} -0.9G+1.5W	-1.0

CARVALHO E CARDOSO

Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
				20 EQU _{4.18} -0.9G+1.5W	-2.2
				21 EQU _{4.19} -0.9G+1.5W	4.7
				22 EQU _{4.20} -0.9G+1.5W	2.2
SBR 1.4/4/#151-3/B/3	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	4.1
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	3.8
				3 EQU _{4.1} -0.9G+1.5W	-1.5
				4 EQU _{4.2} -0.9G+1.5W	-6.3
				5 EQU _{4.3} -0.9G+1.5W	-6.0
				6 EQU _{4.4} -0.9G+1.5W	-10.9
				7 EQU _{4.5} -0.9G+1.5W	-8.4
				8 EQU _{4.6} -0.9G+1.5W	5.7
				9 EQU _{4.7} -0.9G+1.5W	-0.8
				10 EQU _{4.8} -0.9G+1.5W	1.2
				11 EQU _{4.9} -0.9G+1.5W	-5.3
				12 EQU _{4.10} -0.9G+1.5W	-3.2
				13 EQU _{4.11} -0.9G+1.5W	-5.1
				14 EQU _{4.12} -0.9G+1.5W	-6.5
				15 EQU _{4.13} -0.9G+1.5W	-9.6
				16 EQU _{4.14} -0.9G+1.5W	-11.1
				17 EQU _{4.15} -0.9G+1.5W	-8.6
				18 EQU _{4.16} -0.9G+1.5W	4.5
				19 EQU _{4.17} -0.9G+1.5W	-2.2
				20 EQU _{4.18} -0.9G+1.5W	0.0
				21 EQU _{4.19} -0.9G+1.5W	-6.7
				22 EQU _{4.20} -0.9G+1.5W	-4.5
SBR 3/B/1-1.4/2/#149	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	0.6
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	0.5
				3 EQU _{4.1} -0.9G+1.5W	-6.1
				4 EQU _{4.2} -0.9G+1.5W	-3.9
				5 EQU _{4.3} -0.9G+1.5W	-6.7
				6 EQU _{4.4} -0.9G+1.5W	-4.5
				7 EQU _{4.5} -0.9G+1.5W	-4.0
				8 EQU _{4.6} -0.9G+1.5W	-0.6
				9 EQU _{4.7} -0.9G+1.5W	-2.1
				10 EQU _{4.8} -0.9G+1.5W	-1.1
				11 EQU _{4.9} -0.9G+1.5W	-2.7
				12 EQU _{4.10} -0.9G+1.5W	-2.3
				13 EQU _{4.11} -0.9G+1.5W	1.6
				14 EQU _{4.12} -0.9G+1.5W	-2.1
				15 EQU _{4.13} -0.9G+1.5W	1.0
				16 EQU _{4.14} -0.9G+1.5W	-2.7
				17 EQU _{4.15} -0.9G+1.5W	-2.3
				18 EQU _{4.16} -0.9G+1.5W	0.6
				19 EQU _{4.17} -0.9G+1.5W	-0.7
				20 EQU _{4.18} -0.9G+1.5W	0.1
				21 EQU _{4.19} -0.9G+1.5W	-1.2
				22 EQU _{4.20} -0.9G+1.5W	-0.9
SBR 3/B/2-1.4/1/#148	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	4.1
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	3.8
				3 EQU _{4.1} -0.9G+1.5W	-1.5
				4 EQU _{4.2} -0.9G+1.5W	-6.3
				5 EQU _{4.3} -0.9G+1.5W	-6.0

CARVALHO E CARDOSO

Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]				
				6 EQU _{4,4} -0.9G+1.5W	-10.9				
				7 EQU _{4,5} -0.9G+1.5W	-8.4				
				8 EQU _{4,6} -0.9G+1.5W	4.5				
				9 EQU _{4,7} -0.9G+1.5W	-2.2				
				10 EQU _{4,8} -0.9G+1.5W	0.0				
				11 EQU _{4,9} -0.9G+1.5W	-6.7				
				12 EQU _{4,10} -0.9G+1.5W	-4.5				
				13 EQU _{4,11} -0.9G+1.5W	-5.1				
				14 EQU _{4,12} -0.9G+1.5W	-6.5				
				15 EQU _{4,13} -0.9G+1.5W	-9.6				
				16 EQU _{4,14} -0.9G+1.5W	-11.1				
				17 EQU _{4,15} -0.9G+1.5W	-8.6				
				18 EQU _{4,16} -0.9G+1.5W	5.7				
				19 EQU _{4,17} -0.9G+1.5W	-0.8				
				20 EQU _{4,18} -0.9G+1.5W	1.2				
				21 EQU _{4,19} -0.9G+1.5W	-5.3				
				22 EQU _{4,20} -0.9G+1.5W	-3.2				
				SBR 3/B/4-1.4/3/#120	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	0.6
								2 EQU ₁ -1.1G+1.5Q+1.5RQ	0.5
								3 EQU _{4,1} -0.9G+1.5W	1.6
								4 EQU _{4,2} -0.9G+1.5W	-2.1
								5 EQU _{4,3} -0.9G+1.5W	1.0
6 EQU _{4,4} -0.9G+1.5W	-2.7								
7 EQU _{4,5} -0.9G+1.5W	-2.3								
8 EQU _{4,6} -0.9G+1.5W	0.6								
9 EQU _{4,7} -0.9G+1.5W	-0.7								
10 EQU _{4,8} -0.9G+1.5W	0.1								
11 EQU _{4,9} -0.9G+1.5W	-1.2								
12 EQU _{4,10} -0.9G+1.5W	-0.9								
13 EQU _{4,11} -0.9G+1.5W	-6.1								
14 EQU _{4,12} -0.9G+1.5W	-3.9								
15 EQU _{4,13} -0.9G+1.5W	-6.7								
16 EQU _{4,14} -0.9G+1.5W	-4.5								
17 EQU _{4,15} -0.9G+1.5W	-4.0								
18 EQU _{4,16} -0.9G+1.5W	-0.6								
19 EQU _{4,17} -0.9G+1.5W	-2.1								
20 EQU _{4,18} -0.9G+1.5W	-1.1								
21 EQU _{4,19} -0.9G+1.5W	-2.7								
22 EQU _{4,20} -0.9G+1.5W	-2.3								
SBR 3/B/4-1.4/3/#150	Flat 6x40	S275	4.361	1 STR ₁ -1.35G+1.5Q+1.5RQ	0.6				
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	0.5				
				3 EQU _{4,1} -0.9G+1.5W	-6.1				
				4 EQU _{4,2} -0.9G+1.5W	-3.9				
				5 EQU _{4,3} -0.9G+1.5W	-6.7				
				6 EQU _{4,4} -0.9G+1.5W	-4.5				
				7 EQU _{4,5} -0.9G+1.5W	-4.0				
				8 EQU _{4,6} -0.9G+1.5W	0.6				
				9 EQU _{4,7} -0.9G+1.5W	-0.7				
				10 EQU _{4,8} -0.9G+1.5W	0.1				
				11 EQU _{4,9} -0.9G+1.5W	-1.2				
				12 EQU _{4,10} -0.9G+1.5W	-0.9				
				13 EQU _{4,11} -0.9G+1.5W	1.6				

CARVALHO E CARDOSO

Reference	Section	Grade	Length [m]	Combination	Axial Force [kN]
				14 EQU _{4.12} -0.9G+1.5W	-2.1
				15 EQU _{4.13} -0.9G+1.5W	1.0
				16 EQU _{4.14} -0.9G+1.5W	-2.7
				17 EQU _{4.15} -0.9G+1.5W	-2.3
				18 EQU _{4.16} -0.9G+1.5W	-0.6
				19 EQU _{4.17} -0.9G+1.5W	-2.1
				20 EQU _{4.18} -0.9G+1.5W	-1.1
				21 EQU _{4.19} -0.9G+1.5W	-2.7
				22 EQU _{4.20} -0.9G+1.5W	-2.3

Foundation Reactions

Foundation Reactions, First-order linear, Strength Factors

Supports

Support	Support rotation [°]	Column Ref.	Column rotation [°]	Combination	Reactions					
					F _{vert} [kN]	F _{major} [kN]	F _{minor} [kN]	M _{major} [kNm]	M _{minor} [kNm]	M _{tor} [kNm]
SUP A/1	0.0000	C1 (400x400)	0.0000	1 STR ₁ - 1.35G+1.5Q+1.5RQ	44.8	0.0	4.3	0.0	17.0	0.0
				2 EQU ₁ - 1.1G+1.5Q+1.5RQ	39.0	0.0	3.9	0.0	15.7	0.0
				3 EQU _{4.1} -0.9G+1.5W	8.4	0.0	-28.4	0.1	-113.8	0.6
				4 EQU _{4.2} -0.9G+1.5W	-21.6	0.0	-19.4	0.0	-77.6	0.1
				5 EQU _{4.3} -0.9G+1.5W	-16.4	0.0	-32.7	0.0	-130.6	0.3
				6 EQU _{4.4} -0.9G+1.5W	-46.3	0.0	-23.6	0.0	-94.5	-0.2
				7 EQU _{4.5} -0.9G+1.5W	-32.7	0.0	-20.4	0.0	-81.7	-0.1
				8 EQU _{4.6} -0.9G+1.5W	38.1	0.0	2.5	0.0	10.0	0.4
				9 EQU _{4.7} -0.9G+1.5W	-18.7	0.0	-5.4	0.0	-21.7	-0.5
				10 EQU _{4.8} -0.9G+1.5W	13.3	0.0	-1.7	0.0	-6.8	0.1
				11 EQU _{4.9} -0.9G+1.5W	-43.5	0.0	-9.6	-0.1	-38.6	-0.8
				12 EQU _{4.10} -0.9G+1.5W	-30.4	0.0	-7.4	-0.1	-29.7	-0.6
				13 EQU _{4.11} -0.9G+1.5W	-21.8	0.0	16.8	-0.1	67.4	-0.5
				14 EQU _{4.12} -0.9G+1.5W	-37.5	0.0	0.7	-0.1	2.6	-0.5
				15 EQU _{4.13} -0.9G+1.5W	-46.6	0.0	12.6	-0.1	50.5	-0.8
				16 EQU _{4.14} -0.9G+1.5W	-62.3	0.0	-3.6	-0.1	-14.3	-0.8
				17 EQU _{4.15} -0.9G+1.5W	-47.5	0.0	-1.7	-0.1	-6.6	-0.6
				18 EQU _{4.16} -0.9G+1.5W	46.4	0.0	5.4	0.0	21.7	0.3
				19 EQU _{4.17} -0.9G+1.5W	3.5	0.0	-1.0	0.0	-4.0	-0.3
				20 EQU _{4.18} -0.9G+1.5W	21.6	0.0	1.2	0.0	4.9	0.0
				21 EQU _{4.19} -0.9G+1.5W	-21.3	0.0	-5.2	-0.1	-20.9	-0.7
				22 EQU _{4.20} -0.9G+1.5W	-9.5	0.0	-3.3	0.0	-13.0	-0.5
SUP A/2	0.0000	C2 (400x400)	0.0000	1 STR ₁ - 1.35G+1.5Q+1.5RQ	53.6	0.0	5.3	0.0	21.2	0.0
				2 EQU ₁ - 1.1G+1.5Q+1.5RQ	47.2	0.0	4.9	0.0	19.6	0.0
				3 EQU _{4.1} -0.9G+1.5W	24.0	0.0	-28.8	0.0	-115.3	0.0
				4 EQU _{4.2} -0.9G+1.5W	-23.0	0.0	-20.4	0.0	-81.7	0.0
				5 EQU _{4.3} -0.9G+1.5W	-12.0	0.0	-34.2	0.0	-137.0	0.0
				6 EQU _{4.4} -0.9G+1.5W	-59.1	0.0	-25.8	0.0	-103.4	0.0
				7 EQU _{4.5} -0.9G+1.5W	-40.2	0.0	-22.0	0.0	-88.1	0.0
				8 EQU _{4.6} -0.9G+1.5W	52.7	0.0	4.4	0.0	17.5	0.0
				9 EQU _{4.7} -0.9G+1.5W	-19.0	0.0	-4.2	0.0	-17.0	0.0

CARVALHO E CARDOSO

Support	Support rotation [°]	Column Ref.	Column rotation [°]	Combination	Reactions									
					F _{vert} [kN]	F _{major} [kN]	F _{minor} [kN]	M _{major} [kNm]	M _{minor} [kNm]	M _{tor} [kNm]				
				10 EQU _{4,8} -0.9G+1.5W	16.7	0.0	-1.0	0.0	-4.2	0.0				
				11 EQU _{4,9} -0.9G+1.5W	-55.1	0.0	-9.7	0.0	-38.6	0.0				
				12 EQU _{4,10} -0.9G+1.5W	-36.9	0.0	-7.0	0.0	-27.9	0.0				
				13 EQU _{4,11} -0.9G+1.5W	-30.3	0.0	16.8	0.0	67.2	0.0				
				14 EQU _{4,12} -0.9G+1.5W	-44.6	0.0	-0.2	0.0	-0.9	0.0				
				15 EQU _{4,13} -0.9G+1.5W	-66.4	0.0	11.4	0.0	45.6	0.0				
				16 EQU _{4,14} -0.9G+1.5W	-80.6	0.0	-5.6	0.0	-22.6	0.0				
				17 EQU _{4,15} -0.9G+1.5W	-60.4	0.0	-3.1	0.0	-12.6	0.0				
				18 EQU _{4,16} -0.9G+1.5W	59.5	0.0	6.7	0.0	26.6	0.0				
				19 EQU _{4,17} -0.9G+1.5W	-8.6	0.0	-2.3	0.0	-9.1	0.0				
				20 EQU _{4,18} -0.9G+1.5W	23.4	0.0	1.2	0.0	5.0	0.0				
				21 EQU _{4,19} -0.9G+1.5W	-44.7	0.0	-7.7	0.0	-30.7	0.0				
				22 EQU _{4,20} -0.9G+1.5W	-27.1	0.0	-5.1	0.0	-20.4	0.0				
				SUP A/3	0.0000	C3 (400x400)	0.0000	1 STR ₁ - 1.35G+1.5Q+1.5RQ	53.6	0.0	5.3	0.0	21.2	0.0
								2 EQU ₁ - 1.1G+1.5Q+1.5RQ	47.2	0.0	4.9	0.0	19.6	0.0
								3 EQU _{4,1} -0.9G+1.5W	24.0	0.0	-28.8	0.0	-115.3	0.0
								4 EQU _{4,2} -0.9G+1.5W	-23.0	0.0	-20.4	0.0	-81.7	0.0
								5 EQU _{4,3} -0.9G+1.5W	-12.0	0.0	-34.2	0.0	-137.0	0.0
								6 EQU _{4,4} -0.9G+1.5W	-59.1	0.0	-25.8	0.0	-103.4	0.0
								7 EQU _{4,5} -0.9G+1.5W	-40.2	0.0	-22.0	0.0	-88.1	0.0
								8 EQU _{4,6} -0.9G+1.5W	59.5	0.0	6.7	0.0	26.6	0.0
								9 EQU _{4,7} -0.9G+1.5W	-8.6	0.0	-2.3	0.0	-9.1	0.0
10 EQU _{4,8} -0.9G+1.5W	23.4	0.0	1.2					0.0	5.0	0.0				
11 EQU _{4,9} -0.9G+1.5W	-44.7	0.0	-7.7					0.0	-30.7	0.0				
12 EQU _{4,10} -0.9G+1.5W	-27.1	0.0	-5.1					0.0	-20.4	0.0				
13 EQU _{4,11} -0.9G+1.5W	-30.3	0.0	16.8					0.0	67.2	0.0				
14 EQU _{4,12} -0.9G+1.5W	-44.6	0.0	-0.2					0.0	-0.9	0.0				
15 EQU _{4,13} -0.9G+1.5W	-66.4	0.0	11.4					0.0	45.6	0.0				
16 EQU _{4,14} -0.9G+1.5W	-80.6	0.0	-5.6					0.0	-22.6	0.0				
17 EQU _{4,15} -0.9G+1.5W	-60.4	0.0	-3.1					0.0	-12.6	0.0				
18 EQU _{4,16} -0.9G+1.5W	52.7	0.0	4.4					0.0	17.5	0.0				
19 EQU _{4,17} -0.9G+1.5W	-19.0	0.0	-4.2					0.0	-17.0	0.0				
20 EQU _{4,18} -0.9G+1.5W	16.7	0.0	-1.0					0.0	-4.2	0.0				
21 EQU _{4,19} -0.9G+1.5W	-55.1	0.0	-9.7					0.0	-38.6	0.0				
22 EQU _{4,20} -0.9G+1.5W	-36.9	0.0	-7.0					0.0	-27.9	0.0				
SUP A/4	0.0000	C4 (400x400)	0.0000	1 STR ₁ - 1.35G+1.5Q+1.5RQ	44.8	0.0	4.3	0.0	17.0	0.0				
				2 EQU ₁ - 1.1G+1.5Q+1.5RQ	39.0	0.0	3.9	0.0	15.7	0.0				
				3 EQU _{4,1} -0.9G+1.5W	8.4	0.0	-28.4	-0.1	-113.8	-0.6				
				4 EQU _{4,2} -0.9G+1.5W	-21.6	0.0	-19.4	0.0	-77.6	-0.1				
				5 EQU _{4,3} -0.9G+1.5W	-16.4	0.0	-32.7	0.0	-130.6	-0.3				
				6 EQU _{4,4} -0.9G+1.5W	-46.3	0.0	-23.6	0.0	-94.5	0.2				
				7 EQU _{4,5} -0.9G+1.5W	-32.7	0.0	-20.4	0.0	-81.7	0.1				
				8 EQU _{4,6} -0.9G+1.5W	46.4	0.0	5.4	0.0	21.7	-0.3				
				9 EQU _{4,7} -0.9G+1.5W	3.5	0.0	-1.0	0.0	-4.0	0.3				
				10 EQU _{4,8} -0.9G+1.5W	21.6	0.0	1.2	0.0	4.9	0.0				
				11 EQU _{4,9} -0.9G+1.5W	-21.3	0.0	-5.2	0.1	-20.9	0.7				
				12 EQU _{4,10} -0.9G+1.5W	-9.5	0.0	-3.3	0.0	-13.0	0.5				
				13 EQU _{4,11} -0.9G+1.5W	-21.8	0.0	16.8	0.1	67.4	0.5				

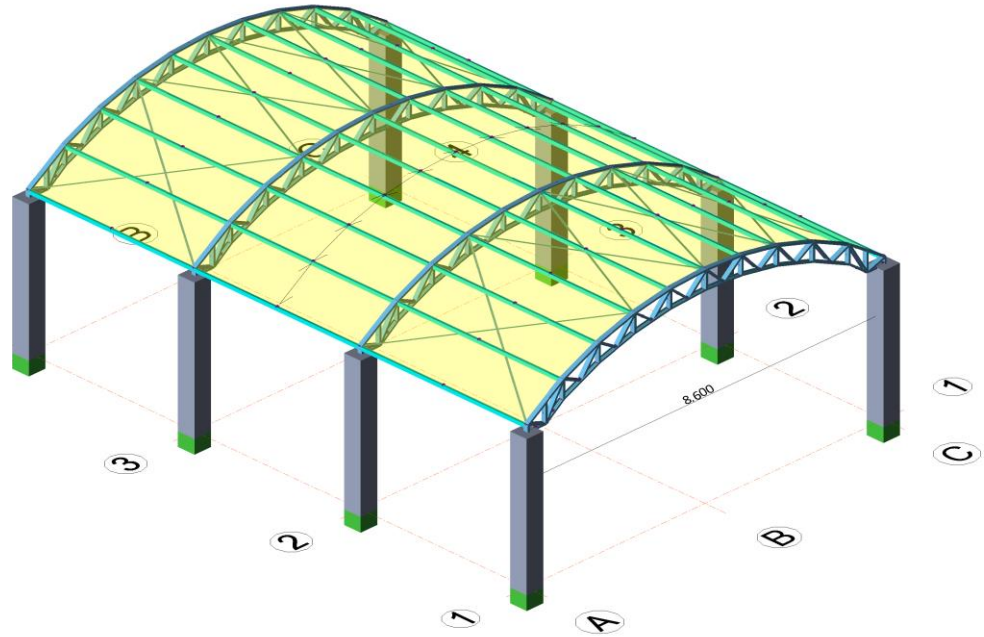
CARVALHO E CARDOSO

Support	Support rotation [°]	Column Ref.	Column rotation [°]	Combination	Reactions					
					F _{vert} [kN]	F _{major} [kN]	F _{minor} [kN]	M _{major} [kNm]	M _{minor} [kNm]	M _{tor} [kNm]
				14 EQU _{4,12} -0.9G+1.5W	-37.5	0.0	0.7	0.1	2.6	0.5
				15 EQU _{4,13} -0.9G+1.5W	-46.6	0.0	12.6	0.1	50.5	0.8
				16 EQU _{4,14} -0.9G+1.5W	-62.3	0.0	-3.6	0.1	-14.3	0.8
				17 EQU _{4,15} -0.9G+1.5W	-47.5	0.0	-1.7	0.1	-6.6	0.6
				18 EQU _{4,16} -0.9G+1.5W	38.1	0.0	2.5	0.0	10.0	-0.4
				19 EQU _{4,17} -0.9G+1.5W	-18.7	0.0	-5.4	0.0	-21.7	0.5
				20 EQU _{4,18} -0.9G+1.5W	13.3	0.0	-1.7	0.0	-6.8	-0.1
				21 EQU _{4,19} -0.9G+1.5W	-43.5	0.0	-9.6	0.1	-38.6	0.8
				22 EQU _{4,20} -0.9G+1.5W	-30.4	0.0	-7.4	0.1	-29.7	0.6
SUP C/1	0.0000	C8 (400x400)	0.0000	1 STR ₁ -1.35G+1.5Q+1.5RQ	44.8	0.0	-4.3	0.0	-17.0	0.0
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	39.0	0.0	-3.9	0.0	-15.7	0.0
				3 EQU _{4,1} -0.9G+1.5W	-21.8	0.0	-16.8	-0.1	-67.4	0.5
				4 EQU _{4,2} -0.9G+1.5W	-37.5	0.0	-0.7	-0.1	-2.6	0.5
				5 EQU _{4,3} -0.9G+1.5W	-46.6	0.0	-12.6	-0.1	-50.5	0.8
				6 EQU _{4,4} -0.9G+1.5W	-62.3	0.0	3.6	-0.1	14.3	0.8
				7 EQU _{4,5} -0.9G+1.5W	-47.5	0.0	1.7	-0.1	6.6	0.6
				8 EQU _{4,6} -0.9G+1.5W	38.1	0.0	-2.5	0.0	-10.0	-0.4
				9 EQU _{4,7} -0.9G+1.5W	-18.7	0.0	5.4	0.0	21.7	0.5
				10 EQU _{4,8} -0.9G+1.5W	13.3	0.0	1.7	0.0	6.8	-0.1
				11 EQU _{4,9} -0.9G+1.5W	-43.5	0.0	9.6	-0.1	38.6	0.8
				12 EQU _{4,10} -0.9G+1.5W	-30.4	0.0	7.4	-0.1	29.7	0.6
				13 EQU _{4,11} -0.9G+1.5W	8.4	0.0	28.4	0.1	113.8	-0.6
				14 EQU _{4,12} -0.9G+1.5W	-21.6	0.0	19.4	0.0	77.6	-0.1
				15 EQU _{4,13} -0.9G+1.5W	-16.4	0.0	32.7	0.0	130.6	-0.3
				16 EQU _{4,14} -0.9G+1.5W	-46.3	0.0	23.6	0.0	94.5	0.2
				17 EQU _{4,15} -0.9G+1.5W	-32.7	0.0	20.4	0.0	81.7	0.1
				18 EQU _{4,16} -0.9G+1.5W	46.4	0.0	-5.4	0.0	-21.7	-0.3
				19 EQU _{4,17} -0.9G+1.5W	3.5	0.0	1.0	0.0	4.0	0.3
				20 EQU _{4,18} -0.9G+1.5W	21.6	0.0	-1.2	0.0	-4.9	0.0
				21 EQU _{4,19} -0.9G+1.5W	-21.3	0.0	5.2	-0.1	20.9	0.7
				22 EQU _{4,20} -0.9G+1.5W	-9.5	0.0	3.3	0.0	13.0	0.5
SUP C/2	0.0000	C7 (400x400)	0.0000	1 STR ₁ -1.35G+1.5Q+1.5RQ	53.6	0.0	-5.3	0.0	-21.2	0.0
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	47.2	0.0	-4.9	0.0	-19.6	0.0
				3 EQU _{4,1} -0.9G+1.5W	-30.3	0.0	-16.8	0.0	-67.2	0.0
				4 EQU _{4,2} -0.9G+1.5W	-44.6	0.0	0.2	0.0	0.9	0.0
				5 EQU _{4,3} -0.9G+1.5W	-66.4	0.0	-11.4	0.0	-45.6	0.0
				6 EQU _{4,4} -0.9G+1.5W	-80.6	0.0	5.6	0.0	22.6	0.0
				7 EQU _{4,5} -0.9G+1.5W	-60.4	0.0	3.1	0.0	12.6	0.0
				8 EQU _{4,6} -0.9G+1.5W	52.7	0.0	-4.4	0.0	-17.5	0.0
				9 EQU _{4,7} -0.9G+1.5W	-19.0	0.0	4.2	0.0	17.0	0.0
				10 EQU _{4,8} -0.9G+1.5W	16.7	0.0	1.0	0.0	4.2	0.0
				11 EQU _{4,9} -0.9G+1.5W	-55.1	0.0	9.7	0.0	38.6	0.0
				12 EQU _{4,10} -0.9G+1.5W	-36.9	0.0	7.0	0.0	27.9	0.0
				13 EQU _{4,11} -0.9G+1.5W	24.0	0.0	28.8	0.0	115.3	0.0
				14 EQU _{4,12} -0.9G+1.5W	-23.0	0.0	20.4	0.0	81.7	0.0
				15 EQU _{4,13} -0.9G+1.5W	-12.0	0.0	34.2	0.0	137.0	0.0
				16 EQU _{4,14} -0.9G+1.5W	-59.1	0.0	25.8	0.0	103.4	0.0
				17 EQU _{4,15} -0.9G+1.5W	-40.2	0.0	22.0	0.0	88.1	0.0

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Support	Support rotation [°]	Column Ref.	Column rotation [°]	Combination	Reactions					
					F _{vert} [kN]	F _{major} [kN]	F _{minor} [kN]	M _{major} [kNm]	M _{minor} [kNm]	M _{tor} [kNm]
				18 EQU _{4,16} -0.9G+1.5W	59.5	0.0	-6.7	0.0	-26.6	0.0
				19 EQU _{4,17} -0.9G+1.5W	-8.6	0.0	2.3	0.0	9.1	0.0
				20 EQU _{4,18} -0.9G+1.5W	23.4	0.0	-1.2	0.0	-5.0	0.0
				21 EQU _{4,19} -0.9G+1.5W	-44.7	0.0	7.7	0.0	30.7	0.0
				22 EQU _{4,20} -0.9G+1.5W	-27.1	0.0	5.1	0.0	20.4	0.0
SUP C/3	0.0000	C6 (400x400)	0.0000	1 STR ₁ -1.35G+1.5Q+1.5RQ	53.6	0.0	-5.3	0.0	-21.2	0.0
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	47.2	0.0	-4.9	0.0	-19.6	0.0
				3 EQU _{4,1} -0.9G+1.5W	-30.3	0.0	-16.8	0.0	-67.2	0.0
				4 EQU _{4,2} -0.9G+1.5W	-44.6	0.0	0.2	0.0	0.9	0.0
				5 EQU _{4,3} -0.9G+1.5W	-66.4	0.0	-11.4	0.0	-45.6	0.0
				6 EQU _{4,4} -0.9G+1.5W	-80.6	0.0	5.6	0.0	22.6	0.0
				7 EQU _{4,5} -0.9G+1.5W	-60.4	0.0	3.1	0.0	12.6	0.0
				8 EQU _{4,6} -0.9G+1.5W	59.5	0.0	-6.7	0.0	-26.6	0.0
				9 EQU _{4,7} -0.9G+1.5W	-8.6	0.0	2.3	0.0	9.1	0.0
				10 EQU _{4,8} -0.9G+1.5W	23.4	0.0	-1.2	0.0	-5.0	0.0
				11 EQU _{4,9} -0.9G+1.5W	-44.7	0.0	7.7	0.0	30.7	0.0
				12 EQU _{4,10} -0.9G+1.5W	-27.1	0.0	5.1	0.0	20.4	0.0
				13 EQU _{4,11} -0.9G+1.5W	24.0	0.0	28.8	0.0	115.3	0.0
				14 EQU _{4,12} -0.9G+1.5W	-23.0	0.0	20.4	0.0	81.7	0.0
				15 EQU _{4,13} -0.9G+1.5W	-12.0	0.0	34.2	0.0	137.0	0.0
				16 EQU _{4,14} -0.9G+1.5W	-59.1	0.0	25.8	0.0	103.4	0.0
				17 EQU _{4,15} -0.9G+1.5W	-40.2	0.0	22.0	0.0	88.1	0.0
				18 EQU _{4,16} -0.9G+1.5W	52.7	0.0	-4.4	0.0	-17.5	0.0
				19 EQU _{4,17} -0.9G+1.5W	-19.0	0.0	4.2	0.0	17.0	0.0
				20 EQU _{4,18} -0.9G+1.5W	16.7	0.0	1.0	0.0	4.2	0.0
				21 EQU _{4,19} -0.9G+1.5W	-55.1	0.0	9.7	0.0	38.6	0.0
				22 EQU _{4,20} -0.9G+1.5W	-36.9	0.0	7.0	0.0	27.9	0.0
SUP C/4	0.0000	C5 (400x400)	0.0000	1 STR ₁ -1.35G+1.5Q+1.5RQ	44.8	0.0	-4.3	0.0	-17.0	0.0
				2 EQU ₁ -1.1G+1.5Q+1.5RQ	39.0	0.0	-3.9	0.0	-15.7	0.0
				3 EQU _{4,1} -0.9G+1.5W	-21.8	0.0	-16.8	0.1	-67.4	-0.5
				4 EQU _{4,2} -0.9G+1.5W	-37.5	0.0	-0.7	0.1	-2.6	-0.5
				5 EQU _{4,3} -0.9G+1.5W	-46.6	0.0	-12.6	0.1	-50.5	-0.8
				6 EQU _{4,4} -0.9G+1.5W	-62.3	0.0	3.6	0.1	14.3	-0.8
				7 EQU _{4,5} -0.9G+1.5W	-47.5	0.0	1.7	0.1	6.6	-0.6
				8 EQU _{4,6} -0.9G+1.5W	46.4	0.0	-5.4	0.0	-21.7	0.3
				9 EQU _{4,7} -0.9G+1.5W	3.5	0.0	1.0	0.0	4.0	-0.3
				10 EQU _{4,8} -0.9G+1.5W	21.6	0.0	-1.2	0.0	-4.9	0.0
				11 EQU _{4,9} -0.9G+1.5W	-21.3	0.0	5.2	0.1	20.9	-0.7
				12 EQU _{4,10} -0.9G+1.5W	-9.5	0.0	3.3	0.0	13.0	-0.5
				13 EQU _{4,11} -0.9G+1.5W	8.4	0.0	28.4	-0.1	113.8	0.6
				14 EQU _{4,12} -0.9G+1.5W	-21.6	0.0	19.4	0.0	77.6	0.1
				15 EQU _{4,13} -0.9G+1.5W	-16.4	0.0	32.7	0.0	130.6	0.3
				16 EQU _{4,14} -0.9G+1.5W	-46.3	0.0	23.6	0.0	94.5	-0.2
				17 EQU _{4,15} -0.9G+1.5W	-32.7	0.0	20.4	0.0	81.7	-0.1
				18 EQU _{4,16} -0.9G+1.5W	38.1	0.0	-2.5	0.0	-10.0	0.4
				19 EQU _{4,17} -0.9G+1.5W	-18.7	0.0	5.4	0.0	21.7	-0.5
				20 EQU _{4,18} -0.9G+1.5W	13.3	0.0	1.7	0.0	6.8	0.1
				21 EQU _{4,19} -0.9G+1.5W	-43.5	0.0	9.6	0.1	38.6	-0.8

Support	Support rotation [°]	Column Ref.	Column rotation [°]	Combination	Reactions					
					F _{vert} [kN]	F _{major} [kN]	F _{minor} [kN]	M _{major} [kNm]	M _{minor} [kNm]	M _{tor} [kNm]
				22 EQU _{4,20} -0.9G+1.5W	-30.4	0.0	7.4	0.1	29.7	-0.6



Structure

Action Codes

General Loading	BS EN 1991-1-1 + UK NA (2002)
Wind Loading	BS EN 1991-1-4 + UK NA (2005)
Snow Loading	BS EN 1991-1-3 + UK NA (2003)
Seismic Loading	BS EN 1998-1 + UK NA (2004)
Combinations	BS EN 1990 + UK NA (2002)

Resistance Codes

Steel Design	BS EN 1993-1-1 + UK NA (2005)
Concrete Design	BS EN 1992-1-1 + UK NA (2004)
Composite Design	BS EN 1994-1-1 + UK NA (2004)
Timber Design	BS EN 1995-1-1 + UK NA (2004)
Masonry Design	BS EN 1996-1-1 + UK NA (2005)
Foundation Design	BS EN 1997-1 + UK NA (2004)
Seismic Design and Detailing	BS EN 1998-1 + UK NA (2004)
Steel Fire Design	BS EN 1993-1-2 + UK NA (2005)

Combinations

Name	Class	Active	Strength	Service
1 STR ₁ -1.35G+1.5Q+1.5RQ	Gravity	•	•	•

Name	Class	Active	Strength	Service
2 EQU ₁ -1.1G+1.5Q+1.5RQ	Gravity	•	•	
3 EQU _{4,1} -0.9G+1.5W	Lateral	•	•	
4 EQU _{4,2} -0.9G+1.5W	Lateral	•	•	
5 EQU _{4,3} -0.9G+1.5W	Lateral	•	•	
6 EQU _{4,4} -0.9G+1.5W	Lateral	•	•	
7 EQU _{4,5} -0.9G+1.5W	Lateral	•	•	
8 EQU _{4,6} -0.9G+1.5W	Lateral	•	•	
9 EQU _{4,7} -0.9G+1.5W	Lateral	•	•	
10 EQU _{4,8} -0.9G+1.5W	Lateral	•	•	
11 EQU _{4,9} -0.9G+1.5W	Lateral	•	•	
12 EQU _{4,10} -0.9G+1.5W	Lateral	•	•	
13 EQU _{4,11} -0.9G+1.5W	Lateral	•	•	
14 EQU _{4,12} -0.9G+1.5W	Lateral	•	•	
15 EQU _{4,13} -0.9G+1.5W	Lateral	•	•	
16 EQU _{4,14} -0.9G+1.5W	Lateral	•	•	
17 EQU _{4,15} -0.9G+1.5W	Lateral	•	•	
18 EQU _{4,16} -0.9G+1.5W	Lateral	•	•	
19 EQU _{4,17} -0.9G+1.5W	Lateral	•	•	
20 EQU _{4,18} -0.9G+1.5W	Lateral	•	•	
21 EQU _{4,19} -0.9G+1.5W	Lateral	•	•	
22 EQU _{4,20} -0.9G+1.5W	Lateral	•	•	

1 STR₁-1.35G+1.5Q+1.5RQ

Loadcase Title	Strength	Service	SLS Quasi
1 Self weight - excluding slabs	1.350	1.000	1.000
2 Slab self weight	1.350	1.000	1.000
3 Dead	1.350	1.000	1.000
4 Services	1.350	1.000	1.000
5 Imposed	1.500	1.000	0.300

2 EQU₁-1.1G+1.5Q+1.5RQ

Loadcase Title	Strength	Service	SLS Quasi
1 Self weight - excluding slabs	1.100	0.000	0.000
2 Slab self weight	1.100	0.000	0.000
3 Dead	1.100	0.000	0.000
4 Services	1.100	0.000	0.000
5 Imposed	1.500	0.000	0.000

3 EQU_{4,1}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
6 Wind 0,Cpi -0.3,+Cpe	1.500	0.000

4 EQU_{4,2}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
7 Wind 0,Cpi -0.3,-Cpe	1.500	0.000

5 EQU_{4,3}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
8 Wind 0,Cpi 0.2,+Cpe	1.500	0.000

6 EQU_{4,4}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
9 Wind 0,Cpi 0.2,-Cpe	1.500	0.000

7 EQU_{4,5}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
10 Wind 0,-Cpe, All	1.500	0.000

8 EQU_{4,6}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
11 Wind 90,Cpi -0.3,+Cpe	1.500	0.000

9 EQU_{4,7}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
12 Wind 90,Cpi -0.3,-Cpe	1.500	0.000

10 EQU_{4,8}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
13 Wind 90,Cpi 0.2,+Cpe	1.500	0.000

11 EQU_{4,9}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000

Loadcase Title	Strength	Service
3 Dead	0.900	0.000
4 Services	0.900	0.000
14 Wind 90,Cpi 0.2,-Cpe	1.500	0.000

12 EQU_{4,10}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
15 Wind 90,-Cpe, All	1.500	0.000

13 EQU_{4,11}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
16 Wind 180,Cpi -0.3,+Cpe	1.500	0.000

14 EQU_{4,12}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
17 Wind 180,Cpi -0.3,-Cpe	1.500	0.000

15 EQU_{4,13}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
18 Wind 180,Cpi 0.2,+Cpe	1.500	0.000

16 EQU_{4,14}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
19 Wind 180,Cpi 0.2,-Cpe	1.500	0.000

17 EQU_{4,15}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
20 Wind 180,-Cpe, All	1.500	0.000

18 EQU_{4,16}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
21 Wind 270,Cpi -0.3,+Cpe	1.500	0.000

19 EQU_{4,17}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
22 Wind 270,Cpi -0.3,-Cpe	1.500	0.000

20 EQU_{4,18}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
23 Wind 270,Cpi 0.2,+Cpe	1.500	0.000

21 EQU_{4,19}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
24 Wind 270,Cpi 0.2,-Cpe	1.500	0.000

22 EQU_{4,20}-0.9G+1.5W

Loadcase Title	Strength	Service
1 Self weight - excluding slabs	0.900	0.000
2 Slab self weight	0.900	0.000
3 Dead	0.900	0.000
4 Services	0.900	0.000
25 Wind 270,-Cpe, All	1.500	0.000

Wind Data

General

Method
BS EN 1991-1-4:2005 UK NA

Site Details

Air Density	1.226	kg/m ³
Site Ground Level	0.000	m
Tall neighbouring buildings not considered		
Orography considered		
Shelter effect from obstructions is not included		
Basic wind speed, $v_{b,map}$	45.0	m/s
Probability Factor, C_{prob}	1.000	
Seasonal Factor, C_{season}	1.000	

Default Height for Internal Pressure, z_i	6.000	m
Building Direction	0.0000	°
Average height of roof tops of upwind buildings, h_{ave}	N/A	
Upwind spacing of surrounding buildings, x	N/A	
Upwind distance from sea to site	0.0	km
Upwind distance from edge of town to site	N/A	
Orographic Feature	None	
Building Direction	90.0000	°
Average height of roof tops of upwind buildings, h_{ave}	N/A	
Upwind spacing of surrounding buildings, x	N/A	
Upwind distance from sea to site	0.0	km
Upwind distance from edge of town to site	N/A	
Orographic Feature	None	
Building Direction	180.0000	°
Average height of roof tops of upwind buildings, h_{ave}	N/A	
Upwind spacing of surrounding buildings, x	N/A	
Upwind distance from sea to site	0.0	km
Upwind distance from edge of town to site	N/A	
Orographic Feature	None	
Building Direction	270.0000	°
Average height of roof tops of upwind buildings, h_{ave}	N/A	
Upwind spacing of surrounding buildings, x	N/A	
Upwind distance from sea to site	0.0	km
Upwind distance from edge of town to site	N/A	
Orographic Feature	None	

Intermediate Factors

0°

Height above ground	4.916	m
Effective Height, $z - h_{dis}$	4.916	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.424	
Height above ground	5.417	m
Effective Height, $z - h_{dis}$	5.417	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.477	
Height above ground	5.749	m
Effective Height, $z - h_{dis}$	5.749	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.509	
Height above ground	5.939	m
Effective Height, $z - h_{dis}$	5.939	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.527	
Height above ground	6.000	m
Effective Height, $z - h_{dis}$	6.000	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.533	

90°

Height above ground	4.916	m
Effective Height, $z - h_{dis}$	4.916	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.424	
Height above ground	5.417	m
Effective Height, $z - h_{dis}$	5.417	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.477	
Height above ground	5.749	m
Effective Height, $z - h_{dis}$	5.749	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.509	
Height above ground	5.939	m
Effective Height, $z - h_{dis}$	5.939	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.527	
Height above ground	6.000	m
Effective Height, $z - h_{dis}$	6.000	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.533	

180°

Height above ground	4.916	m
Effective Height, $z - h_{dis}$	4.916	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.424	
Height above ground	5.417	m
Effective Height, $z - h_{dis}$	5.417	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.477	
Height above ground	5.749	m
Effective Height, $z - h_{dis}$	5.749	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.509	
Height above ground	5.939	m
Effective Height, $z - h_{dis}$	5.939	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.527	
Height above ground	6.000	m
Effective Height, $z - h_{dis}$	6.000	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.533	

270°

Height above ground	4.916	m
Effective Height, $z - h_{dis}$	4.916	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.424	
Height above ground	5.417	m
Effective Height, $z - h_{dis}$	5.417	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.477	
Height above ground	5.749	m
Effective Height, $z - h_{dis}$	5.749	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.509	
Height above ground	5.939	m
Effective Height, $z - h_{dis}$	5.939	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.527	
Height above ground	6.000	m
Effective Height, $z - h_{dis}$	6.000	m
Altitude factor, C_{alt}	1.000	
Orography factor, C_o	1.000	
Exposure factor, C_e	2.533	

Building Directions

0°

Direction Factor, C_{dir}	1.000	
Height above ground	4.916	m
Peak wind velocity, v_p	70.1	m/s
Peak velocity pressure, q_p	3.008	kN/m ²
Height above ground	5.417	m
Peak wind velocity, v_p	70.8	m/s
Peak velocity pressure, q_p	3.074	kN/m ²
Height above ground	5.749	m
Peak wind velocity, v_p	71.3	m/s
Peak velocity pressure, q_p	3.115	kN/m ²
Height above ground	5.939	m
Peak wind velocity, v_p	71.5	m/s
Peak velocity pressure, q_p	3.137	kN/m ²
Height above ground	6.000	m
Peak wind velocity, v_p	71.6	m/s
Peak velocity pressure, q_p	3.144	kN/m ²

90°

Direction Factor, C_{dir}	1.000	
Height above ground	4.916	m
Peak wind velocity, v_p	70.1	m/s
Peak velocity pressure, q_p	3.008	kN/m ²
Height above ground	5.417	m
Peak wind velocity, v_p	70.8	m/s
Peak velocity pressure, q_p	3.074	kN/m ²
Height above ground	5.749	m

Peak wind velocity, v_p	71.3	m/s
Peak velocity pressure, q_p	3.115	kN/m ²
Height above ground	5.939	m
Peak wind velocity, v_p	71.5	m/s
Peak velocity pressure, q_p	3.137	kN/m ²
Height above ground	6.000	m
Peak wind velocity, v_p	71.6	m/s
Peak velocity pressure, q_p	3.144	kN/m ²

180°

Direction Factor, c_{dir}	1.000	
Height above ground	4.916	m
Peak wind velocity, v_p	70.1	m/s
Peak velocity pressure, q_p	3.008	kN/m ²
Height above ground	5.417	m
Peak wind velocity, v_p	70.8	m/s
Peak velocity pressure, q_p	3.074	kN/m ²
Height above ground	5.749	m
Peak wind velocity, v_p	71.3	m/s
Peak velocity pressure, q_p	3.115	kN/m ²
Height above ground	5.939	m
Peak wind velocity, v_p	71.5	m/s
Peak velocity pressure, q_p	3.137	kN/m ²
Height above ground	6.000	m
Peak wind velocity, v_p	71.6	m/s
Peak velocity pressure, q_p	3.144	kN/m ²

270°

Direction Factor, c_{dir}	1.000	
Height above ground	4.916	m
Peak wind velocity, v_p	70.1	m/s
Peak velocity pressure, q_p	3.008	kN/m ²
Height above ground	5.417	m
Peak wind velocity, v_p	70.8	m/s
Peak velocity pressure, q_p	3.074	kN/m ²
Height above ground	5.749	m
Peak wind velocity, v_p	71.3	m/s
Peak velocity pressure, q_p	3.115	kN/m ²
Height above ground	5.939	m
Peak wind velocity, v_p	71.5	m/s
Peak velocity pressure, q_p	3.137	kN/m ²
Height above ground	6.000	m
Peak wind velocity, v_p	71.6	m/s
Peak velocity pressure, q_p	3.144	kN/m ²

Generated Loadcases

6 Wind 0,Cpi -0.3,+Cpe

Average Wall Loads

Windward	0.000	kN/m ²
Leeward	0.000	kN/m ²
Left	0.000	kN/m ²
Right	0.000	kN/m ²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F0	3.420	3	9.5
	F0	3.420	3	9.5
	G0	2.706	8	21.6
RI 2	F0	3.481	3	9.4
	F0	3.481	3	9.4
	G0	2.534	7	16.6
RI 3	F0	2.369	3	6.3
	F0	2.369	3	6.3
	G0	1.978	6	11.4
RI 4	F0	1.427	3	3.7
	F0	1.427	3	3.7
	G0	1.427	5	7.6
RI 5	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 6	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 7	F180	-7.331	3	-19.2
	F180	-7.331	3	-19.2
	G180	-2.385	5	-12.7
RI 8	F180	-6.256	3	-16.6
	F180	-6.256	3	-16.6
	G180	-2.276	6	-13.1
RI 9	F180	-4.410	3	-11.9
	F180	-4.410	3	-11.9
	G180	-2.219	7	-14.5
RI 10	F180	-2.604	3	-7.2
	F180	-2.604	3	-7.2
	G180	-1.723	8	-13.8

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	54.2	0.0	0.000	-6.000
St. 2 (2)	67.0	0.0	0.000	-6.000
Total	121.2	0.0	-	-

Total Loads

X 121.2 kN
Y 0.0 kN
Z -143.8 kN

7 Wind 0,Cpi -0.3,-Cpe

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
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Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F0	0.468	3	1.3
	F0	0.468	3	1.3
	G0	0.468	8	3.7
RI 2	F0	-0.618	3	-1.7
	F0	-0.618	3	-1.7
	G0	-0.618	7	-4.1
RI 3	F0	-1.817	3	-4.8
	F0	-1.817	3	-4.8
	G0	-1.242	6	-7.2
RI 4	F0	-3.206	3	-8.4
	F0	-3.206	3	-8.4
	G0	-1.984	5	-10.6
RI 5	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 6	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 7	F180	-7.331	3	-19.2
	F180	-7.331	3	-19.2
	G180	-2.385	5	-12.7
RI 8	F180	-6.256	3	-16.6
	F180	-6.256	3	-16.6
	G180	-2.276	6	-13.1
RI 9	F180	-4.410	3	-11.9
	F180	-4.410	3	-11.9
	G180	-2.219	7	-14.5
RI 10	F180	-2.604	3	-7.2
	F180	-2.604	3	-7.2
	G180	-1.723	8	-13.8

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	25.3	0.0	0.000	-6.000
St. 2 (2)	28.4	0.0	0.000	-6.000
Total	53.7	0.0	-	-

Total Loads

X 53.7 kN
Y 0.0 kN
Z -286.3 kN

8 Wind 0,Cpi 0.2,+Cpe

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
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Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F0	1.848	3	5.1
	F0	1.848	3	5.1
	G0	1.133	8	9.1
RI 2	F0	1.909	3	5.1
	F0	1.909	3	5.1
	G0	0.962	7	6.3
RI 3	F0	0.796	3	2.1
	F0	0.796	3	2.1
	G0	0.406	6	2.3
RI 4	F0	-0.145	3	-0.4
	F0	-0.145	3	-0.4
	G0	-0.145	5	-0.8
RI 5	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 6	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 7	F180	-8.903	3	-23.3
	F180	-8.903	3	-23.3
	G180	-3.958	5	-21.1
RI 8	F180	-7.828	3	-20.7
	F180	-7.828	3	-20.7
	G180	-3.849	6	-22.2
RI 9	F180	-5.982	3	-16.1
	F180	-5.982	3	-16.1
	G180	-3.791	7	-24.8
RI 10	F180	-4.176	3	-11.6
	F180	-4.176	3	-11.6
	G180	-3.296	8	-26.4

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	54.2	0.0	0.000	-6.000
St. 2 (2)	67.0	0.0	0.000	-6.000
Total	121.2	0.0	-	-

Total Loads

X 121.2 kN
 Y 0.0 kN
 Z -306.1 kN

9 Wind 0,Cpi 0.2,-Cpe

Average Wall Loads

Windward 0.000 kN/m²
 Leeward 0.000 kN/m²
 Left 0.000 kN/m²
 Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
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Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F0	-1.104	3	-3.1
	F0	-1.104	3	-3.1
	G0	-1.104	8	-8.8
RI 2	F0	-2.190	3	-5.9
	F0	-2.190	3	-5.9
	G0	-2.190	7	-14.4
RI 3	F0	-3.389	3	-9.0
	F0	-3.389	3	-9.0
	G0	-2.814	6	-16.2
RI 4	F0	-4.778	3	-12.5
	F0	-4.778	3	-12.5
	G0	-3.557	5	-19.0
RI 5	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 6	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 7	F180	-8.903	3	-23.3
	F180	-8.903	3	-23.3
	G180	-3.958	5	-21.1
RI 8	F180	-7.828	3	-20.7
	F180	-7.828	3	-20.7
	G180	-3.849	6	-22.2
RI 9	F180	-5.982	3	-16.1
	F180	-5.982	3	-16.1
	G180	-3.791	7	-24.8
RI 10	F180	-4.176	3	-11.6
	F180	-4.176	3	-11.6
	G180	-3.296	8	-26.4

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	25.3	0.0	0.000	-6.000
St. 2 (2)	28.4	0.0	0.000	-6.000
Total	53.7	0.0	-	-

Total Loads

X 53.7 kN
Y 0.0 kN
Z -448.6 kN

10 Wind 0,-Cpe, All

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
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Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F0	-0.445	3	-1.2
	F0	-0.445	3	-1.2
	G0	-0.445	8	-3.6
RI 2	F0	-1.460	3	-3.9
	F0	-1.460	3	-3.9
	G0	-1.460	7	-9.6
RI 3	F0	-2.580	3	-6.8
	F0	-2.580	3	-6.8
	G0	-2.042	6	-11.8
RI 4	F0	-3.876	3	-10.1
	F0	-3.876	3	-10.1
	G0	-2.735	5	-14.6
RI 5	F	-6.079	3	-15.7
	F	-6.079	3	-15.7
	G	-4.256	5	-22.0
RI 6	F	-6.079	3	-15.7
	F	-6.079	3	-15.7
	G	-4.256	5	-22.0
RI 7	F180	-7.729	3	-20.2
	F180	-7.729	3	-20.2
	G180	-3.109	5	-16.6
RI 8	F180	-6.728	3	-17.8
	F180	-6.728	3	-17.8
	G180	-3.009	6	-17.3
RI 9	F180	-5.006	3	-13.5
	F180	-5.006	3	-13.5
	G180	-2.957	7	-19.4
RI 10	F180	-3.321	3	-9.2
	F180	-3.321	3	-9.2
	G180	-2.497	8	-20.0

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	23.7	0.0	0.000	-6.000
St. 2 (2)	26.5	0.0	0.000	-6.000
Total	50.2	0.0	-	-

Total Loads

X 50.2 kN
Y 0.0 kN
Z -358.5 kN

11 Wind 90,Cpi -0.3,+Cpe

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
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Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FL	2.721	0	1.3
	FU	2.721	0	1.3
	H	2.096	4	8.1
	I	1.784	9	15.5
RI 2	FL	2.547	0	1.1
	FU	2.547	0	1.1
	H	1.908	3	6.5
	I	1.588	8	12.2
RI 3	FL	1.986	0	0.8
	FU	1.986	0	0.8
	H	1.724	3	5.5
	I	1.592	7	11.3
RI 4	FL	1.431	0	0.5
	FU	1.431	0	0.5
	H	1.431	3	4.3
	I	1.431	7	9.7
RI 5	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	1.599	7	10.6
RI 6	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	1.599	7	10.6
RI 7	FU	1.431	0	0.5
	FL	1.431	0	0.5
	H	1.431	3	4.3
	I	1.431	7	9.7
RI 8	FU	1.986	0	0.8
	FL	1.986	0	0.8
	H	1.724	3	5.5
	I	1.592	7	11.3
RI 9	FU	2.547	0	1.1
	FL	2.547	0	1.1
	H	1.908	3	6.5
	I	1.588	8	12.2
RI 10	FU	2.721	0	1.3
	FL	2.721	0	1.3
	H	2.096	4	8.1
	I	1.784	9	15.5

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
Y 0.0 kN
Z 144.8 kN

12 Wind 90,Cpi -0.3,-Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²
 Left 0.000 kN/m²
 Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FL	-3.116	0	-1.5
	FU	-3.932	0	-1.9
	H	-2.179	4	-8.5
	I	-1.771	9	-15.4
RI 2	FL	-3.214	0	-1.4
	FU	-4.483	0	-1.9
	H	-2.255	3	-7.7
	I	-1.620	8	-12.4
RI 3	FL	-3.855	0	-1.5
	FU	-6.312	0	-2.5
	H	-1.915	3	-6.1
	I	-1.653	7	-11.7
RI 4	FL	-4.707	0	-1.8
	FU	-7.228	0	-2.7
	H	-1.590	3	-4.8
	I	-1.590	7	-10.8
RI 5	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	0.287	7	1.9
RI 6	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	0.287	7	1.9
RI 7	FU	-7.228	0	-2.7
	FL	-4.707	0	-1.8
	H	-1.590	3	-4.8
	I	-1.590	7	-10.8
RI 8	FU	-6.312	0	-2.5
	FL	-3.855	0	-1.5
	H	-1.915	3	-6.1
	I	-1.653	7	-11.7
RI 9	FU	-4.483	0	-1.9
	FL	-3.214	0	-1.4
	H	-2.255	3	-7.7
	I	-1.620	8	-12.4
RI 10	FU	-3.932	0	-1.9
	FL	-3.116	0	-1.5
	H	-2.179	4	-8.5
	I	-1.771	9	-15.4

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
 Y 0.0 kN

Z -174.6 kN

13 Wind 90,Cpi 0.2,+Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FL	1.149	0	0.6
	FU	1.149	0	0.6
	H	0.524	4	2.0
	I	0.212	9	1.8
RI 2	FL	0.975	0	0.4
	FU	0.975	0	0.4
	H	0.335	3	1.1
	I	0.016	8	0.1
RI 3	FL	0.414	0	0.2
	FU	0.414	0	0.2
	H	0.151	3	0.5
	I	0.020	7	0.1
RI 4	FL	-0.141	0	-0.1
	FU	-0.141	0	-0.1
	H	-0.141	3	-0.4
	I	-0.141	7	-1.0
RI 5	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	0.027	7	0.2
RI 6	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	0.027	7	0.2
RI 7	FU	-0.141	0	-0.1
	FL	-0.141	0	-0.1
	H	-0.141	3	-0.4
	I	-0.141	7	-1.0
RI 8	FU	0.414	0	0.2
	FL	0.414	0	0.2
	H	0.151	3	0.5
	I	0.020	7	0.1
RI 9	FU	0.975	0	0.4
	FL	0.975	0	0.4
	H	0.335	3	1.1
	I	0.016	8	0.1
RI 10	FU	1.149	0	0.6
	FL	1.149	0	0.6
	H	0.524	4	2.0
	I	0.212	9	1.8

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN

Y 0.0 kN

Z -17.5 kN

14 Wind 90,Cpi 0.2,-Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FL	-4.688	0	-2.3
	FU	-5.504	0	-2.7
	H	-3.751	4	-14.6
	I	-3.343	9	-29.1
RI 2	FL	-4.786	0	-2.0
	FU	-6.056	0	-2.6
	H	-3.827	3	-13.1
	I	-3.192	8	-24.5
RI 3	FL	-5.427	0	-2.2
	FU	-7.885	0	-3.1
	H	-3.487	3	-11.1
	I	-3.225	7	-22.9
RI 4	FL	-6.279	0	-2.4
	FU	-8.800	0	-3.3
	H	-3.162	3	-9.6
	I	-3.162	7	-21.4
RI 5	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	-1.285	7	-8.5
RI 6	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	-1.285	7	-8.5
RI 7	FU	-8.800	0	-3.3
	FL	-6.279	0	-2.4
	H	-3.162	3	-9.6
	I	-3.162	7	-21.4
RI 8	FU	-7.885	0	-3.1
	FL	-5.427	0	-2.2
	H	-3.487	3	-11.1
	I	-3.225	7	-22.9
RI 9	FU	-6.056	0	-2.6
	FL	-4.786	0	-2.0
	H	-3.827	3	-13.1
	I	-3.192	8	-24.5
RI 10	FU	-5.504	0	-2.7
	FL	-4.688	0	-2.3
	H	-3.751	4	-14.6

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
	I	-3.343	9	-29.1

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
Y 0.0 kN
Z -336.8 kN

15 Wind 90,-Cpe, All

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FL	-3.828	0	-1.9
	FU	-4.597	0	-2.2
	H	-2.944	4	-11.4
	I	-2.559	9	-22.3
RI 2	FL	-3.916	0	-1.7
	FU	-5.112	0	-2.2
	H	-3.012	3	-10.3
	I	-2.415	8	-18.5
RI 3	FL	-4.517	0	-1.8
	FU	-6.830	0	-2.7
	H	-2.691	3	-8.5
	I	-2.444	7	-17.3
RI 4	FL	-5.317	0	-2.0
	FU	-7.688	0	-2.9
	H	-2.384	3	-7.2
	I	-2.384	7	-16.2
RI 5	F	-6.170	1	-4.6
	H	-2.160	3	-6.4
	I	-0.617	7	-4.1
RI 6	F	-6.170	1	-4.6
	H	-2.160	3	-6.4
	I	-0.617	7	-4.1
RI 7	FU	-7.688	0	-2.9
	FL	-5.317	0	-2.0
	H	-2.384	3	-7.2
	I	-2.384	7	-16.2
RI 8	FU	-6.830	0	-2.7
	FL	-4.517	0	-1.8
	H	-2.691	3	-8.5

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
	I	-2.444	7	-17.3
RI 9	FU	-5.112	0	-2.2
	FL	-3.916	0	-1.7
	H	-3.012	3	-10.3
	I	-2.415	8	-18.5
RI 10	FU	-4.597	0	-2.2
	FL	-3.828	0	-1.9
	H	-2.944	4	-11.4
	I	-2.559	9	-22.3

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
 Y 0.0 kN
 Z -256.1 kN

16 Wind 180,Cpi -0.3,+Cpe

Average Wall Loads

Windward 0.000 kN/m²
 Leeward 0.000 kN/m²
 Left 0.000 kN/m²
 Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F180	-2.604	3	-7.2
	F180	-2.604	3	-7.2
	G180	-1.723	8	-13.8
RI 2	F180	-4.410	3	-11.9
	F180	-4.410	3	-11.9
	G180	-2.219	7	-14.5
RI 3	F180	-6.256	3	-16.6
	F180	-6.256	3	-16.6
	G180	-2.276	6	-13.1
RI 4	F180	-7.331	3	-19.2
	F180	-7.331	3	-19.2
	G180	-2.385	5	-12.7
RI 5	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 6	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 7	F0	1.427	3	3.7
	F0	1.427	3	3.7
	G0	1.427	5	7.6

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 8	F0	2.369	3	6.3
	F0	2.369	3	6.3
	G0	1.978	6	11.4
RI 9	F0	3.481	3	9.4
	F0	3.481	3	9.4
	G0	2.534	7	16.6
RI 10	F0	3.420	3	9.5
	F0	3.420	3	9.5
	G0	2.706	8	21.6

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	-54.2	0.0	0.000	-6.000
St. 2 (2)	-67.0	0.0	0.000	-6.000
Total	-121.2	0.0	-	-

Total Loads

X -121.2 kN

Y 0.0 kN

Z -143.8 kN

17 Wind 180,Cpi -0.3,-Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F180	-2.604	3	-7.2
	F180	-2.604	3	-7.2
	G180	-1.723	8	-13.8
RI 2	F180	-4.410	3	-11.9
	F180	-4.410	3	-11.9
	G180	-2.219	7	-14.5
RI 3	F180	-6.256	3	-16.6
	F180	-6.256	3	-16.6
	G180	-2.276	6	-13.1
RI 4	F180	-7.331	3	-19.2
	F180	-7.331	3	-19.2
	G180	-2.385	5	-12.7
RI 5	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 6	F	-5.566	3	-14.4
	F	-5.566	3	-14.4
	G	-3.613	5	-18.7
RI 7	F0	-3.206	3	-8.4
	F0	-3.206	3	-8.4
	G0	-1.984	5	-10.6

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 8	F0	-1.817	3	-4.8
	F0	-1.817	3	-4.8
	G0	-1.242	6	-7.2
RI 9	F0	-0.618	3	-1.7
	F0	-0.618	3	-1.7
	G0	-0.618	7	-4.1
RI 10	F0	0.468	3	1.3
	F0	0.468	3	1.3
	G0	0.468	8	3.7

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	-25.3	0.0	0.000	-6.000
St. 2 (2)	-28.4	0.0	0.000	-6.000
Total	-53.7	0.0	-	-

Total Loads

X -53.7 kN

Y 0.0 kN

Z -286.3 kN

18 Wind 180,Cpi 0.2,+Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F180	-4.176	3	-11.6
	F180	-4.176	3	-11.6
	G180	-3.296	8	-26.4
RI 2	F180	-5.982	3	-16.1
	F180	-5.982	3	-16.1
	G180	-3.791	7	-24.8
RI 3	F180	-7.828	3	-20.7
	F180	-7.828	3	-20.7
	G180	-3.849	6	-22.2
RI 4	F180	-8.903	3	-23.3
	F180	-8.903	3	-23.3
	G180	-3.958	5	-21.1
RI 5	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 6	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 7	F0	-0.145	3	-0.4
	F0	-0.145	3	-0.4
	G0	-0.145	5	-0.8

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 8	F0	0.796	3	2.1
	F0	0.796	3	2.1
	G0	0.406	6	2.3
RI 9	F0	1.909	3	5.1
	F0	1.909	3	5.1
	G0	0.962	7	6.3
RI 10	F0	1.848	3	5.1
	F0	1.848	3	5.1
	G0	1.133	8	9.1

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	-54.2	0.0	0.000	-6.000
St. 2 (2)	-67.0	0.0	0.000	-6.000
Total	-121.2	0.0	-	-

Total Loads

X -121.2 kN

Y 0.0 kN

Z -306.1 kN

19 Wind 180,Cpi 0.2,-Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F180	-4.176	3	-11.6
	F180	-4.176	3	-11.6
	G180	-3.296	8	-26.4
RI 2	F180	-5.982	3	-16.1
	F180	-5.982	3	-16.1
	G180	-3.791	7	-24.8
RI 3	F180	-7.828	3	-20.7
	F180	-7.828	3	-20.7
	G180	-3.849	6	-22.2
RI 4	F180	-8.903	3	-23.3
	F180	-8.903	3	-23.3
	G180	-3.958	5	-21.1
RI 5	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 6	F	-7.138	3	-18.5
	F	-7.138	3	-18.5
	G	-5.185	5	-26.8
RI 7	F0	-4.778	3	-12.5
	F0	-4.778	3	-12.5
	G0	-3.557	5	-19.0

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 8	F0	-3.389	3	-9.0
	F0	-3.389	3	-9.0
	G0	-2.814	6	-16.2
RI 9	F0	-2.190	3	-5.9
	F0	-2.190	3	-5.9
	G0	-2.190	7	-14.4
RI 10	F0	-1.104	3	-3.1
	F0	-1.104	3	-3.1
	G0	-1.104	8	-8.8

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	-25.3	0.0	0.000	-6.000
St. 2 (2)	-28.4	0.0	0.000	-6.000
Total	-53.7	0.0	-	-

Total Loads

X -53.7 kN

Y 0.0 kN

Z -448.6 kN

20 Wind 180,-Cpe, All

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	F180	-3.321	3	-9.2
	F180	-3.321	3	-9.2
	G180	-2.497	8	-20.0
RI 2	F180	-5.006	3	-13.5
	F180	-5.006	3	-13.5
	G180	-2.957	7	-19.4
RI 3	F180	-6.728	3	-17.8
	F180	-6.728	3	-17.8
	G180	-3.009	6	-17.3
RI 4	F180	-7.729	3	-20.2
	F180	-7.729	3	-20.2
	G180	-3.109	5	-16.6
RI 5	F	-6.079	3	-15.7
	F	-6.079	3	-15.7
	G	-4.256	5	-22.0
RI 6	F	-6.079	3	-15.7
	F	-6.079	3	-15.7
	G	-4.256	5	-22.0
RI 7	F0	-3.876	3	-10.1
	F0	-3.876	3	-10.1
	G0	-2.735	5	-14.6

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 8	F0	-2.580	3	-6.8
	F0	-2.580	3	-6.8
	G0	-2.042	6	-11.8
RI 9	F0	-1.460	3	-3.9
	F0	-1.460	3	-3.9
	G0	-1.460	7	-9.6
RI 10	F0	-0.445	3	-1.2
	F0	-0.445	3	-1.2
	G0	-0.445	8	-3.6

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	-23.7	0.0	0.000	-6.000
St. 2 (2)	-26.5	0.0	0.000	-6.000
Total	-50.2	0.0	-	-

Total Loads

X -50.2 kN

Y 0.0 kN

Z -358.5 kN

21 Wind 270,Cpi -0.3,+Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FU	2.721	0	1.3
	FL	2.721	0	1.3
	H	2.096	4	8.1
	I	1.784	9	15.5
RI 2	FU	2.547	0	1.1
	FL	2.547	0	1.1
	H	1.908	3	6.5
	I	1.588	8	12.2
RI 3	FU	1.986	0	0.8
	FL	1.986	0	0.8
	H	1.724	3	5.5
	I	1.592	7	11.3
RI 4	FU	1.431	0	0.5
	FL	1.431	0	0.5
	H	1.431	3	4.3
	I	1.431	7	9.7
RI 5	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	1.599	7	10.6
RI 6	F	-5.615	1	-4.2
	H	-1.352	3	-4.0

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
	I	1.599	7	10.6
RI 7	FL	1.431	0	0.5
	FU	1.431	0	0.5
	H	1.431	3	4.3
	I	1.431	7	9.7
RI 8	FL	1.986	0	0.8
	FU	1.986	0	0.8
	H	1.724	3	5.5
	I	1.592	7	11.3
RI 9	FL	2.547	0	1.1
	FU	2.547	0	1.1
	H	1.908	3	6.5
	I	1.588	8	12.2
RI 10	FL	2.721	0	1.3
	FU	2.721	0	1.3
	H	2.096	4	8.1
	I	1.784	9	15.5

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
Y 0.0 kN
Z 144.8 kN

22 Wind 270,Cpi -0.3,-Cpe

Average Wall Loads

Windward 0.000 kN/m²
Leeward 0.000 kN/m²
Left 0.000 kN/m²
Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FU	-3.932	0	-1.9
	FL	-3.116	0	-1.5
	H	-2.179	4	-8.5
	I	-1.771	9	-15.4
RI 2	FU	-4.483	0	-1.9
	FL	-3.214	0	-1.4
	H	-2.255	3	-7.7
	I	-1.620	8	-12.4
RI 3	FU	-6.312	0	-2.5
	FL	-3.855	0	-1.5
	H	-1.915	3	-6.1
	I	-1.653	7	-11.7
RI 4	FU	-7.228	0	-2.7

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
	FL	-4.707	0	-1.8
	H	-1.590	3	-4.8
	I	-1.590	7	-10.8
RI 5	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	0.287	7	1.9
RI 6	F	-5.615	1	-4.2
	H	-1.352	3	-4.0
	I	0.287	7	1.9
RI 7	FL	-4.707	0	-1.8
	FU	-7.228	0	-2.7
	H	-1.590	3	-4.8
	I	-1.590	7	-10.8
RI 8	FL	-3.855	0	-1.5
	FU	-6.312	0	-2.5
	H	-1.915	3	-6.1
	I	-1.653	7	-11.7
RI 9	FL	-3.214	0	-1.4
	FU	-4.483	0	-1.9
	H	-2.255	3	-7.7
	I	-1.620	8	-12.4
RI 10	FL	-3.116	0	-1.5
	FU	-3.932	0	-1.9
	H	-2.179	4	-8.5
	I	-1.771	9	-15.4

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
 Y 0.0 kN
 Z -174.6 kN

23 Wind 270,Cpi 0.2,+Cpe

Average Wall Loads

Windward 0.000 kN/m²
 Leeward 0.000 kN/m²
 Left 0.000 kN/m²
 Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FU	1.149	0	0.6
	FL	1.149	0	0.6
	H	0.524	4	2.0
	I	0.212	9	1.8
RI 2	FU	0.975	0	0.4

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
	FL	0.975	0	0.4
	H	0.335	3	1.1
	I	0.016	8	0.1
RI 3	FU	0.414	0	0.2
	FL	0.414	0	0.2
	H	0.151	3	0.5
	I	0.020	7	0.1
RI 4	FU	-0.141	0	-0.1
	FL	-0.141	0	-0.1
	H	-0.141	3	-0.4
	I	-0.141	7	-1.0
RI 5	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	0.027	7	0.2
RI 6	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	0.027	7	0.2
RI 7	FL	-0.141	0	-0.1
	FU	-0.141	0	-0.1
	H	-0.141	3	-0.4
	I	-0.141	7	-1.0
RI 8	FL	0.414	0	0.2
	FU	0.414	0	0.2
	H	0.151	3	0.5
	I	0.020	7	0.1
RI 9	FL	0.975	0	0.4
	FU	0.975	0	0.4
	H	0.335	3	1.1
	I	0.016	8	0.1
RI 10	FL	1.149	0	0.6
	FU	1.149	0	0.6
	H	0.524	4	2.0
	I	0.212	9	1.8

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN

Y 0.0 kN

Z -17.5 kN

24 Wind 270,Cpi 0.2,-Cpe

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²

Left 0.000 kN/m²

Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FU	-5.504	0	-2.7
	FL	-4.688	0	-2.3
	H	-3.751	4	-14.6
	I	-3.343	9	-29.1
RI 2	FU	-6.056	0	-2.6
	FL	-4.786	0	-2.0
	H	-3.827	3	-13.1
	I	-3.192	8	-24.5
RI 3	FU	-7.885	0	-3.1
	FL	-5.427	0	-2.2
	H	-3.487	3	-11.1
	I	-3.225	7	-22.9
RI 4	FU	-8.800	0	-3.3
	FL	-6.279	0	-2.4
	H	-3.162	3	-9.6
	I	-3.162	7	-21.4
RI 5	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	-1.285	7	-8.5
RI 6	F	-7.188	1	-5.3
	H	-2.924	3	-8.7
	I	-1.285	7	-8.5
RI 7	FL	-6.279	0	-2.4
	FU	-8.800	0	-3.3
	H	-3.162	3	-9.6
	I	-3.162	7	-21.4
RI 8	FL	-5.427	0	-2.2
	FU	-7.885	0	-3.1
	H	-3.487	3	-11.1
	I	-3.225	7	-22.9
RI 9	FL	-4.786	0	-2.0
	FU	-6.056	0	-2.6
	H	-3.827	3	-13.1
	I	-3.192	8	-24.5
RI 10	FL	-4.688	0	-2.3
	FU	-5.504	0	-2.7
	H	-3.751	4	-14.6
	I	-3.343	9	-29.1

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
 Y 0.0 kN
 Z -336.8 kN

25 Wind 270,-Cpe, All

Average Wall Loads

Windward 0.000 kN/m²

Leeward 0.000 kN/m²
 Left 0.000 kN/m²
 Right 0.000 kN/m²

Roof Zone Loads

Reference	Zone	Nett Pressure [kN/m ²]	Area [m ²]	Applied Load [kN]
RI 1	FU	-4.597	0	-2.2
	FL	-3.828	0	-1.9
	H	-2.944	4	-11.4
	I	-2.559	9	-22.3
RI 2	FU	-5.112	0	-2.2
	FL	-3.916	0	-1.7
	H	-3.012	3	-10.3
	I	-2.415	8	-18.5
RI 3	FU	-6.830	0	-2.7
	FL	-4.517	0	-1.8
	H	-2.691	3	-8.5
	I	-2.444	7	-17.3
RI 4	FU	-7.688	0	-2.9
	FL	-5.317	0	-2.0
	H	-2.384	3	-7.2
	I	-2.384	7	-16.2
RI 5	F	-6.170	1	-4.6
	H	-2.160	3	-6.4
	I	-0.617	7	-4.1
RI 6	F	-6.170	1	-4.6
	H	-2.160	3	-6.4
	I	-0.617	7	-4.1
RI 7	FL	-5.317	0	-2.0
	FU	-7.688	0	-2.9
	H	-2.384	3	-7.2
	I	-2.384	7	-16.2
RI 8	FL	-4.517	0	-1.8
	FU	-6.830	0	-2.7
	H	-2.691	3	-8.5
	I	-2.444	7	-17.3
RI 9	FL	-3.916	0	-1.7
	FU	-5.112	0	-2.2
	H	-3.012	3	-10.3
	I	-2.415	8	-18.5
RI 10	FL	-3.828	0	-1.9
	FU	-4.597	0	-2.2
	H	-2.944	4	-11.4
	I	-2.559	9	-22.3

Lateral Loads by Level

Level	Total [kN]		Centre [m]	
	X	Y	X	Y
St. 1 (1)	0.0	0.0	-	-
St. 2 (2)	0.0	0.0	-	-
Total	0.0	0.0	-	-

Total Loads

X 0.0 kN
 Y 0.0 kN

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Z -256.1 kN

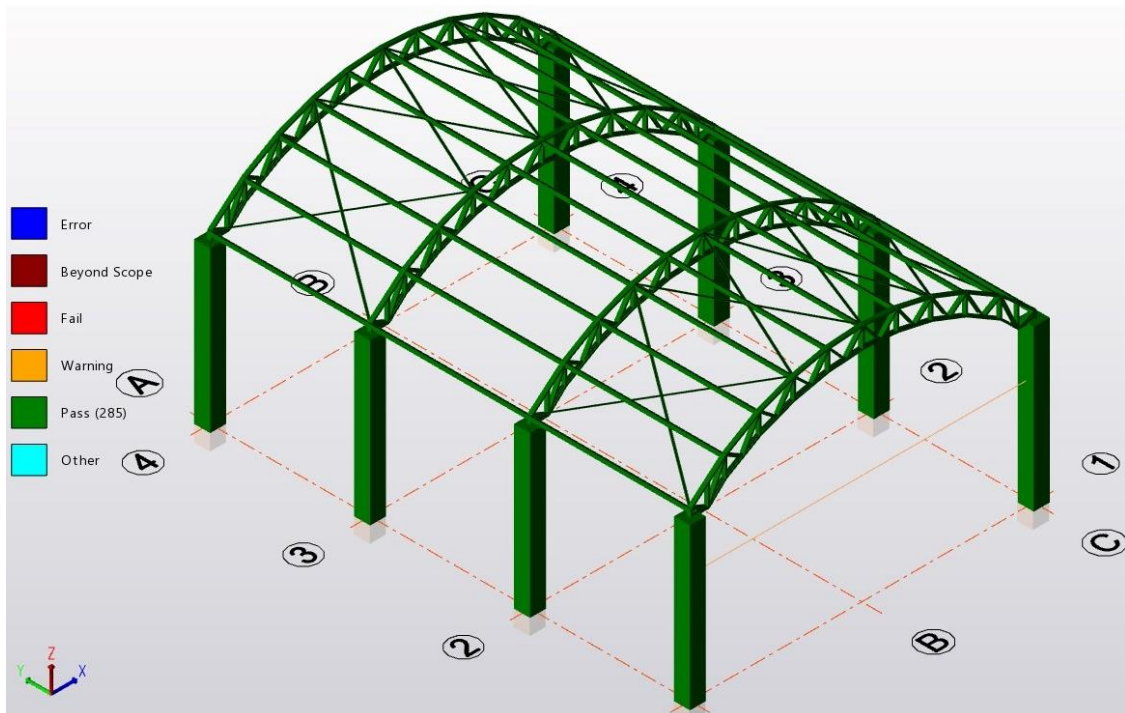


ST 5

Member Summary

Reference	Section	Grade	Utilization	Status
STMT FRM 1/A/#17-FRM 1/%88	UKPFC 100x50x10	S275	0.059	✓ Pass
STMT FRM 1/%88-FRM 1/%89	UKPFC 100x50x10	S275	0.059	✓ Pass
STMT FRM 1/%89-FRM 1/%90	UKPFC 100x50x10	S275	0.198	✓ Pass
STMT FRM 1/%90-FRM 1/%91	UKPFC 100x50x10	S275	0.262	✓ Pass
STMT FRM 1/%91-FRM 1/%92	UKPFC 100x50x10	S275	0.282	✓ Pass
STMT FRM 1/%92-FRM 1/B/#19	UKPFC 100x50x10	S275	0.299	✓ Pass
STMT FRM 1/B/#19-FRM 1/%93	UKPFC 100x50x10	S275	0.299	✓ Pass
STMT FRM 1/%93-FRM 1/%94	UKPFC 100x50x10	S275	0.282	✓ Pass
STMT FRM 1/%94-FRM 1/%95	UKPFC 100x50x10	S275	0.262	✓ Pass
STMT FRM 1/%95-FRM 1/%96	UKPFC 100x50x10	S275	0.198	✓ Pass
STMT FRM 1/%96-FRM 1/%97	UKPFC 100x50x10	S275	0.059	✓ Pass
STMT FRM 1/%97-FRM 1/C/#17	UKPFC 100x50x10	S275	0.059	✓ Pass
STMT FRM 1/C/#17-1/1/C	UKPFC 100x50x10	S275	0.066	✓ Pass
STMT 1/C/1-1/1/#36	UKPFC 100x50x10	S275	0.013	✓ Pass
STMT 1/1/#35-FRM 1/%98	UKPFC 100x50x10	S275	0.117	✓ Pass
STMT FRM 1/%98-FRM 1/%99	UKPFC 100x50x10	S275	0.178	✓ Pass
STMT FRM 1/%99-FRM 1/%100	UKPFC 100x50x10	S275	0.220	✓ Pass
STMT FRM 1/%100-FRM 1/%101	UKPFC 100x50x10	S275	0.240	✓ Pass
STMT FRM 1/%101-FRM 1/B/#29	UKPFC 100x50x10	S275	0.245	✓ Pass
STMT FRM 1/B/#29-FRM 1/%102	UKPFC 100x50x10	S275	0.245	✓ Pass
STMT FRM 1/%102-FRM 1/%103	UKPFC 100x50x10	S275	0.240	✓ Pass
STMT FRM 1/%103-FRM 1/%104	UKPFC 100x50x10	S275	0.220	✓ Pass
STMT FRM 1/%104-FRM 1/%105	UKPFC 100x50x10	S275	0.178	✓ Pass
STMT FRM 1/%105-1/1/#31	UKPFC 100x50x10	S275	0.117	✓ Pass
STMT 1/1/#32-1/A/1	UKPFC 100x50x10	S275	0.013	✓ Pass
STMT 1/1/A-FRM 1/A/#17	UKPFC 100x50x10	S275	0.066	✓ Pass
STMT 1/1/#31-FRM 1/%88	UKPFC 100x50x10	S275	0.000	✓ Pass
STMT FRM 1/%105-FRM 1/%89	UKPFC 100x50x10	S275	0.033	✓ Pass
STMT FRM 1/%104-FRM 1/%90	UKPFC 100x50x10	S275	0.031	✓ Pass
STMT FRM 1/%103-FRM 1/%91	UKPFC 100x50x10	S275	0.035	✓ Pass
STMT FRM 1/%102-FRM 1/%92	UKPFC 100x50x10	S275	0.036	✓ Pass
STMT FRM 1/B/#29-FRM 1/B/#19	UKPFC 100x50x10	S275	0.037	✓ Pass
STMT FRM 1/%101-FRM 1/%93	UKPFC 100x50x10	S275	0.036	✓ Pass
STMT FRM 1/%100-FRM 1/%94	UKPFC 100x50x10	S275	0.035	✓ Pass
STMT FRM 1/%99-FRM 1/%95	UKPFC 100x50x10	S275	0.031	✓ Pass
STMT FRM 1/%98-FRM 1/%96	UKPFC 100x50x10	S275	0.033	✓ Pass

Reference	Section	Grade	Utilization	Status
STMT 1/1/#35-FRM 1/%97	UKPFC 100x50x10	S275	0.000	✓ Pass
STMT 1/1/#31-FRM 1/A/#17	UKPFC 100x50x10	S275	0.053	✓ Pass
STMT 1/1/#35-FRM 1/C/#17	UKPFC 100x50x10	S275	0.053	✓ Pass
STMT FRM 1/B/#19-FRM 1/%106	UKPFC 100x50x10	S275	0.010	✓ Pass
STMT FRM 1/%106-FRM 1/%93	UKPFC 100x50x10	S275	0.007	✓ Pass
STMT FRM 1/%93-FRM 1/%107	UKPFC 100x50x10	S275	0.031	✓ Pass
STMT FRM 1/%107-FRM 1/%94	UKPFC 100x50x10	S275	0.020	✓ Pass
STMT FRM 1/%94-FRM 1/%108	UKPFC 100x50x10	S275	0.060	✓ Pass
STMT FRM 1/%108-FRM 1/%95	UKPFC 100x50x10	S275	0.032	✓ Pass
STMT FRM 1/%95-FRM 1/%109	UKPFC 100x50x10	S275	0.090	✓ Pass
STMT FRM 1/%109-FRM 1/%96	UKPFC 100x50x10	S275	0.040	✓ Pass
STMT FRM 1/%96-1/1/#35	UKPFC 100x50x10	S275	0.160	✓ Pass
STMT FRM 1/B/#19-FRM 1/%110	UKPFC 100x50x10	S275	0.010	✓ Pass
STMT FRM 1/%110-FRM 1/%92	UKPFC 100x50x10	S275	0.007	✓ Pass
STMT FRM 1/%92-FRM 1/%111	UKPFC 100x50x10	S275	0.031	✓ Pass
STMT FRM 1/%111-FRM 1/%91	UKPFC 100x50x10	S275	0.020	✓ Pass
STMT FRM 1/%91-FRM 1/%112	UKPFC 100x50x10	S275	0.060	✓ Pass
STMT FRM 1/%112-FRM 1/%90	UKPFC 100x50x10	S275	0.032	✓ Pass
STMT FRM 1/%90-FRM 1/%113	UKPFC 100x50x10	S275	0.090	✓ Pass
STMT FRM 1/%113-FRM 1/%89	UKPFC 100x50x10	S275	0.040	✓ Pass
STMT FRM 1/%89-1/1/#31	UKPFC 100x50x10	S275	0.160	✓ Pass



10. CONCLUSÕES

Conforme exposto, todas as verificações foram realizadas e estão em conformidade com as normas vigentes para a cobertura em estrutura metálica da edificação.

O presente Memorial Técnico Descritivo está vinculado a Anotação de Responsabilidade técnica (ART).

Responsável técnico:



João Pedro Felipe Carvalho
Engenheiro civil
CREA/SC 154224-3

30 de novembro de 2021