Ponto de marcação

(0.00,0.00)

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinvillle

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	3OI_SED_RDS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - PONTO DE MARCAÇÃO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 01/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Brusque/sc | CEP 89010-140 | Fone: (47) 3211-3677 | e-mail do responsável técnico (leia projeto: fernando@fercongestao.com.br)

Projeto Estrutural de Cobertura Armada (pré-fabricada)
2025-08-25 15:44:08, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

Ponto de marcação
(0.00,0.00)

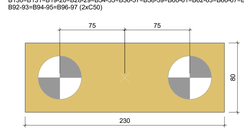
793.25 1029.15 1193.45 1418.45 1633.15 1753.15 1930.67 2213.62 2477.93 2702.75 2955.37 3069.15 3192.65 3420.37 3675.15 3869.06 4037.75 4250.95 4512.10 4812.61 4996.10 5107.70

A -214.84
B -514.83
C -814.83
D -1097.34
E -1389.84
F -1506.34
G -1754.84
H -2054.84
I -2253.34
J -2393.64
K -2543.84
L -2704.75
M -2831.34
N -3080.79
O -3209.84
P -3341.64
Q -3576.24
R -3689.84
S -3821.64
T -4063.24
U -4169.84
V -4316.34
W -4546.14

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

PLANTA DE LOCAÇÃO DAS ESTACAS
Escala 1:75

B1=B3=B7=B18=B21=B23=B27=B32=B33=B34=B43=B44=B45=B46=B50=B70=B72=B73=B74
B76=B84=B88=B89=B8.9=B104=B105=B108=B110=B112=B114=B115=B117=B127=B128
B130=B131=B19-20=B28-29=B54-55=B56-57=B58-59=B60-61=B62-63=B66-67=B90-91
B92-93=B94-95=B96-97 (2xC50)



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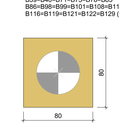
B39=B40=B71=B75=B78=B85
B86=B88=B99=B101=B108=B113
B116=B119=B121=B122=B129 (1xC50)



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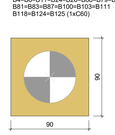
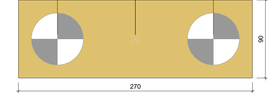
B81=B83=B87=B100=B103=B111
B118=B124=B125 (1xC60)



B5=B10=B12=B25=B30=B31=B47=B48=B69=B77=B82=B102=B107=B109=B120=B123=B126=B37-38=B41-42
B64-65=B51-52-53 (2xC60)



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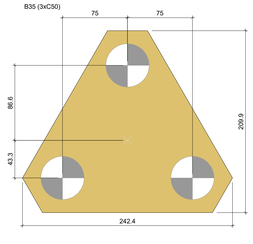

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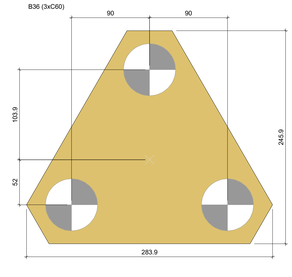

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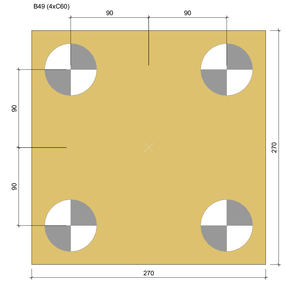

LEGENDA DOS BLOCOS
Escala 1:25

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
83.169.035/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO ESTACAS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	**EST 02/76**

Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Rio Negrinho - SC | CEP 89295-140 | Fone: (47) 3631-0012 | email:fernando@fercontabilidade.com.br

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.664.721/0001-06

Projeto Estrutural em Concreto Armado (pós 07/2025)
SEI 23.0.2000003-91 pg 2
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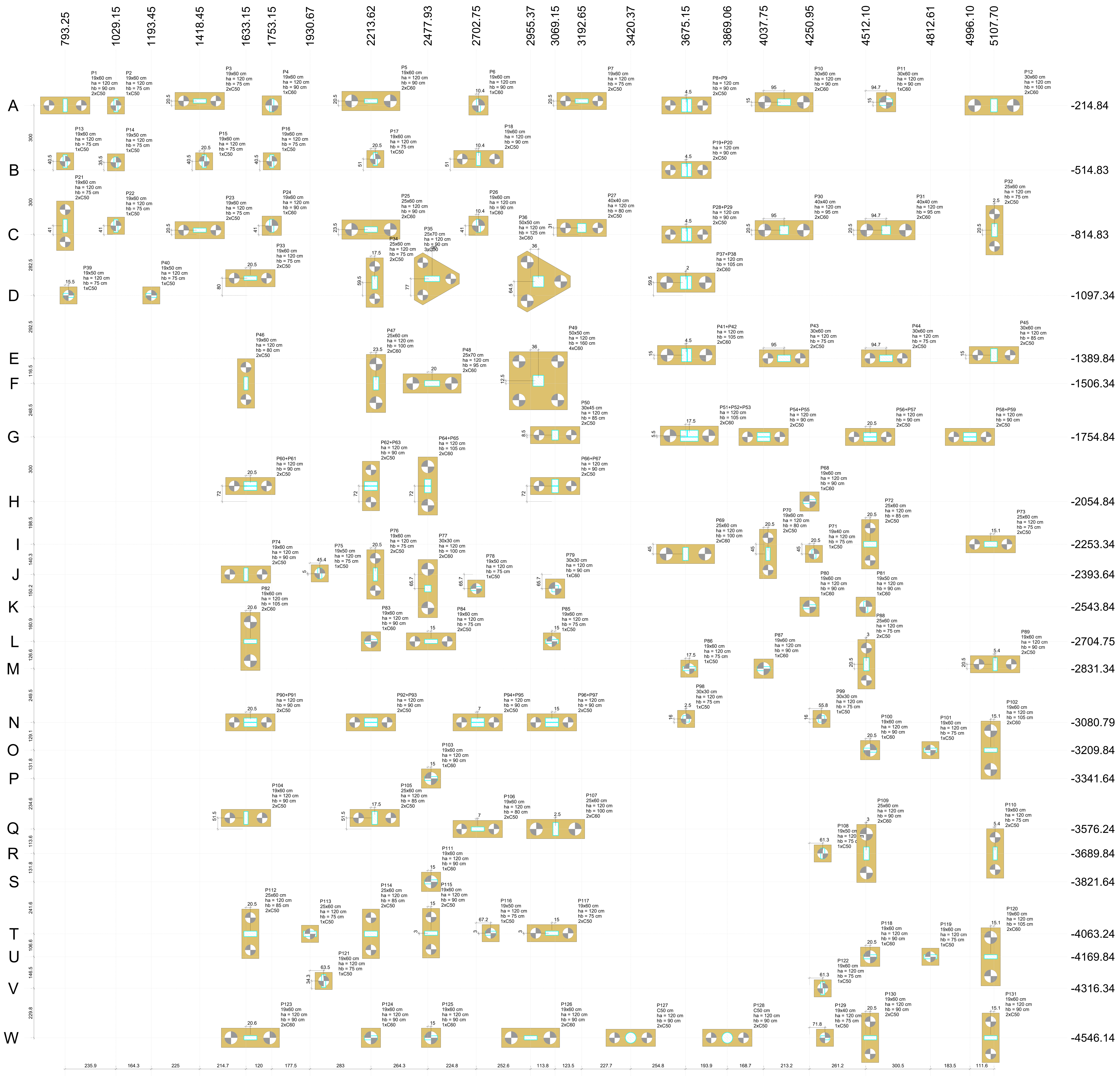
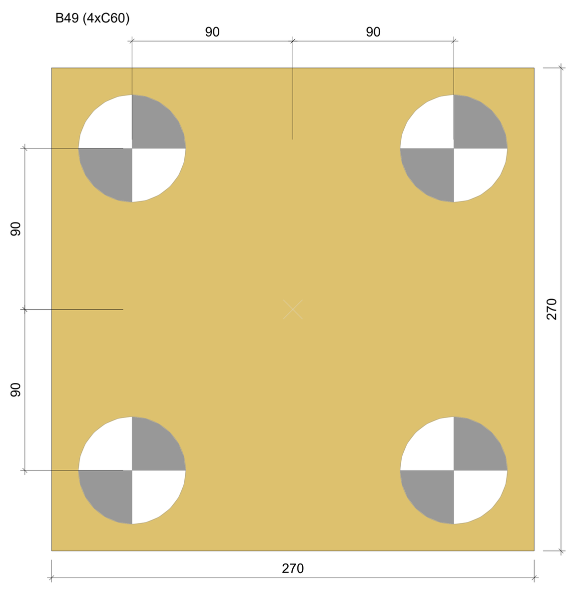


PLANTA DE LOCAÇÃO

Escala 1:75

B49 (4xC60)



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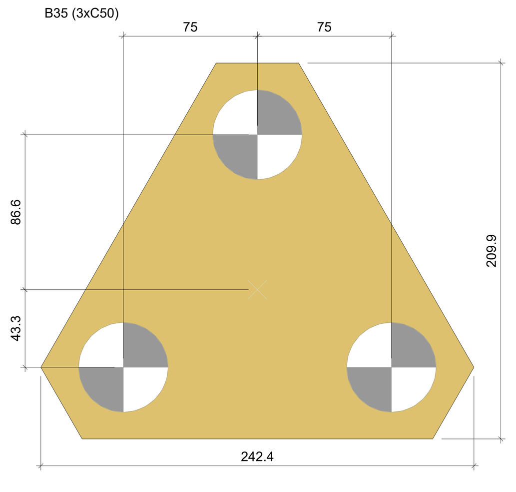
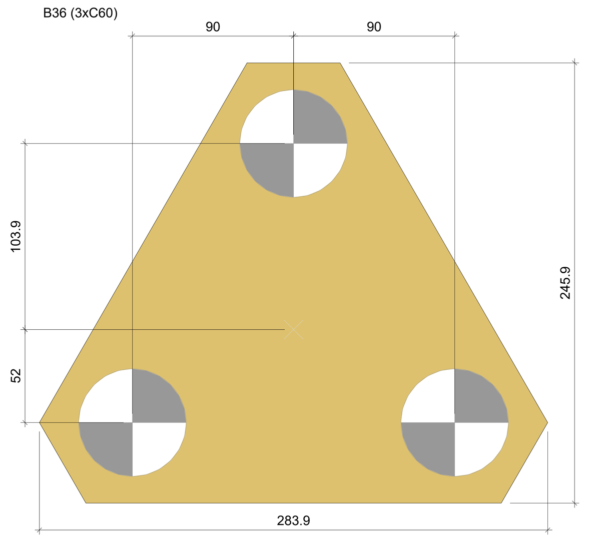


B36 (3xC60)



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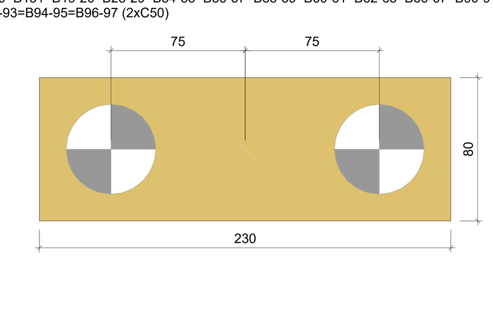
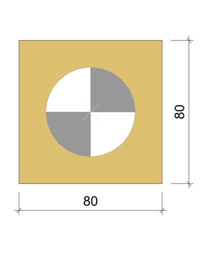
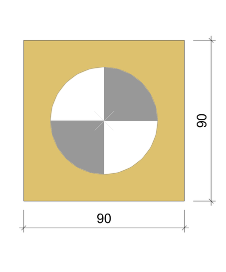
B76=B84=B88=B89=B8-9=B104=B105=B106=B110=B112=B114=B115=B117=B127=B128
B130=B131=B19-20=B28-29=B54-55=B56-57=B58-59=B60-61=B62-63=B66-67=B90-91
B92-93=B94-95=B96-97 (2xC50)



B2=B13=B14=B15=B16=B17=B22
B39=B40=B71=B75=B78=B85
B86=B98=B99=B101=B108=B113
B116=B119=B121=B122=B129 (1xC50)



B4=B6=B11=B24=B26=B68=B79=B80
B81=B83=B87=B100=B103=B111
B118=B124=B125 (1xC60)



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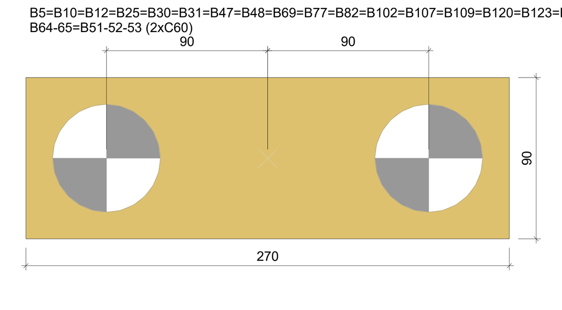
B64-65=B51-52-53 (2xC60)



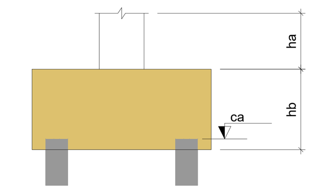
Pilar														Fundação				Bloco			
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m) Positivo	Mx Máximo (kgf.m) Negativo	My Máximo (kgf.m) Positivo	My Máximo (kgf.m) Negativo	Fx Máximo (tf) Positivo	Fx Máximo (tf) Negativo	Fy Máximo (tf) Positivo	Fy Máximo (tf) Negativo	Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	ne	Estaca	ca (cm)	Base tub. (cm)
P1	19x60	793.25	-214.84	29.3	21.7	0	0	0	0	0.2	-0.4	0.5	-0.4	230	80	120	90	2	C50	-175	-
P2	19x60	1029.15	-214.84	20.9	16.7	0	0	0	0	0.2	-0.6	0.7	-0.4	80	80	120	75	1	C50	-160	-
P3	19x60	1418.45	-194.34	39.1	32.8	0	0	0	0	1.7	-0.3	0.5	0.0	230	80	120	75	2	C50	-160	-
P4	19x60	1753.15	-214.84	41.6	32.2	0	0	0	0	0.0	-1.0	0.6	-0.6	90	90	120	90	1	C60	-175	-
P5	19x60	2213.65	-194.34	48.6	40.6	0	0	0	0	0.8	-0.6	0.7	0.0	270	90	120	90	2	C60	-175	-
P6	19x60	2713.15	-214.84	43.8	33.7	0	0	0	0	0.7	-0.2	0.9	-0.8	90	90	120	90	1	C60	-175	-
P7	19x60	3192.65	-194.34	56.6	46.0	0	0	0	0	0.0	-3.7	1.7	0.0	230	80	120	75	2	C50	-160	-
P10	30x60	4132.75	-199.84	53.8	43.6	0	0	0	0	1.4	-0.7	3.4	0.0	270	90	120	90	2	C60	-175	-
P11	30x60	4606.75	-199.84	57.0	46.0	0	0	0	0	1.1	-1.1	3.5	0.0	90	90	120	90	1	C60	-175	-
P12	30x60	5107.70	-214.84	47.1	39.0	0	0	0	0	1.3	0.0	3.4	0.0	270	90	120	100	2	C60	-185	-
P13	19x60	793.25	-474.37	23.7	19.9	0	0	0	0	0.2	-0.4	0.8	-1.0	80	80	120	75	1	C50	-160	-
P14	19x50	1029.15	-479.37	25.2	19.1	0	0	0	0	0.1	-0.5	1.1	-0.5	80	80	120	75	1	C50	-160	-
P15	19x60	1438.95	-474.37	31.9	24.3	0	0	0	0	0.5	-0.2	1.6	0.0	80	80	120	75	1	C50	-160	-
P16	19x60	1753.15	-474.37	33.5	25.7	0	0	0	0	0.6	0.0	1.5	-0.6	80	80	120	75	1	C50	-160	-
P17	19x60	2234.12	-463.87	32.8	23.5	0	0	0	0	0.0	-1.9	1.5	-0.2	80	80	120	75	1	C50	-160	-
P18	19x60	2713.15	-463.87	40.4	29.4	0	0	0	0	1.9	0.0	2.1	-0.4	230	80	120	90	2	C50	-175	-
P21	19x60	793.25	-773.83	36.4	29.0	0	0	0	0	0.2	-0.4	0.5	-0.8	230	80	120	75	2	C50	-160	-
P22	19x60	1029.15	-773.83	29.6	22.0	0	0	0	0	0.2	-0.4	0.2	-0.8	80	80	120	75	1	C50	-160	-
P23	19x60	1418.45	-794.33	42.6	33.5	0	0	0	0	1.9	0.0	0.0	-0.7	230	80	120	75	2	C50	-160	-
P24	19x60	1753.15	-773.83	45.6	34.3	0	0	0	0	0.0	-1.2	0.6	-0.3	90	90	120	90	1	C60	-175	-
P25	25x60	2213.65	-791.33	58.6	46.5	0	0	0	0	0.5	-0.6	0.7	-0.7	270	90	120	90	2	C60	-175	-
P26	19x60	2713.15	-773.83	52.2	40.9	0	0	0	0	0.9	0.0	0.6	-0.8	90	90	120	90	1	C60	-175	-
P27	40x40	3192.65	-783.83	69.3	53.9	0	0	0	0	0.0	-3.4	0.0	-3.1	230	80	120	80	2	C50	-165	-
P30	40x40	4132.75	-794.33	67.2	47.2	0	0	0	0	0.8	-0.6	0.9	-0.6	270	90	120	95	2	C60	-180	-
P31	40x40	4606.75	-794.33	70.6	49.3	0	0	0	0	0.9	-0.6	0.8	-0.9	270	90	120	95	2	C60	-180	-
P32	25x60	5110.20	-794.33	63.3	51.6	0	0	0	0	0.5	-0.2	1.2	-1.3	230	80	120	75	2	C50	-160	-
P33	19x60	1653.65	-1017.34	55.9	45.4	0	0	0	0	0.0	-4.5	0.6	0.0	230	80	120	75	2	C50	-160	-
P34	25x60	2231.15	-1037.84	55.7	42.8	0	0	0	0	2.2	0.0	2.0	0.0	230	80	120	75	2	C50	-160	-
P35	25x70	2497.93	-1020.34	79.0	53.0	0	0	0	0	0.0	-4.4	1.8	0.0	242	210	120	90	3	C50	-175	-
P36	50x50	2991.37	-1032.84	147.8	89.8	100	0	100	0	0.0	-4.7	1.4	-0.6	284	246	120	125	3	C60	-210	-
P39	19x50	808.75	-1097.34	8.0	4.6	0	0	0	0	0.3	-1.2	0.0	-0.5	80	80	120	75	1	C50	-160	-
P40	19x50	1193.45	-1097.34	15.6	10.0	0	0	0	0	0.7	-1.1	0.1	0.0	80	80	120	75	1	C50	-160	-
P43	30x60	4132.75	-1389.84	66.1	50.9	0	0	0	0	0.9	-1.0	0.0	-3.4	230	80	120	75	2	C50	-160	-
P44	30x60	4606.75	-1389.84	68.2	52.2	0	0	0	0	0.1	-1.7	0.0	-3.7	230	80	120	75	2	C50	-160	-
P45	30x60	5107.70	-1374.84	55.2	45.8	0	0	0	0	1.5	0.0	0.0	-3.7	230	80	120	85	2	C50	-170	-
P46	19x60	1633.20	-1506.34	64.0	53.5	0	0	0	0	0.0	-3.1	0.6	-0.5	230	80	120	80	2	C50	-165	-
P47	25x60	2237.15	-1506.34	87.0	66.0	0	0	0	0	4.7	0.0	1.6	0.0	270	90	120	100	2	C60	-185	-
P48	25x70	2497.93	-1506.34	98.4	72.1	0	0	0	0	0.0	-3.1	1.4	0.0	270	90	120	95	2	C60	-180	-
P49	50x50	2991.37	-1493.84	167.9	106.8	100	0	100	0	0.0	-3.2	1.0	-0.5	270	270	120	160	4	C60	-245	-
P50	30x45	3069.15	-1746.34	58.2	45.1	0	0	0	0	2.5	0.0	0.1	-2.3	230	80	120	85	2	C50	-170	-
P68	19x60	4250.95	-2054.84	35.3	26.4	0	0	0	0	1.4	-0.4	0.5	-0.1	90	90	120	90	1	C60	-175	-
P69	25x60	3675.15	-2298.34	55.7	47.0	0	0	0	0	0.0	-1.6	0.0	-1.2	270	90	120	100	2	C60	-185	-
P70	19x60	4058.25	-2298.34	62.1	49.8	0	0	0	0	0.6	0.0	0.5	-0.9	230	80	120	80	2	C50	-165	-
P71	19x40	4271.45	-2298.34	23.3	18.8	0	0	0	0	0.2	-0.3	0.6	-0.9	80	80	120	75	1	C50	-160	-
P72	25x60	4532.60	-2253.34	60.8	48.8	0	0	0	0	0.0	-4.8	0.0	-1.6	230	80	120	85	2	C50	-170	-
P73	25x60	5092.62	-2253.34	66.5	55.4	0	0	0	0	4.3	0.0	1.9	0.0	230	80	120	75	2	C50	-160	-
P74	19x60	1633.15	-2393.64	40.3	34.6	0	0	0	0	0.0	-0.9	0.2	-1.8	230	80	120	90	2	C50	-175	-
P75	19x50	1976.10	-2388.64	32.0	23.6	0	0	0	0	0.4	0.0	0.8	0.0	80	80	120	75	1	C50	-160	-
P76	19x60	2234.12	-2393.64	39.7	32.7	0	0	0	0	0.3	0.0	0.0	-1.8	230	80	120	75	2	C50	-160	-
P77	30x30	2477.93	-2459.34	47.8	38.2	0	0	0	0	0.5	-0.1	0.0	-2.4	270	90	120	100	2	C60	-185	-
P78	19x50	2702.75	-2459.34	31.6	24.0	0	0	0	0	0.0	-1.0	0.8	0.0	80	80	120	75	1	C50	-160	-
P79	30x30	3069.15	-2459.34	42.1	35.6	0	0	0	0	1.0	0.0	0.0	-2.1	90	90	120	90	1	C60	-175	-
P80	19x60	4250.95	-2543.84	25.4	19.2	0	0	0	0	3.2	0.0	0.1	-0.6	90	90	120	90	1	C60	-175	-
P81	19x50	4512.10	-2543.84	43.6	30.0	0	0	0	0	0.0	-1.4	1.0	-1.3	90	90	120	90	1	C60	-175	-
P82	19x60	1653.70	-2704.75	40.5	32.3	0	0	0	0	0.0	-4.0	0.3	-0.6	270	90	120	105	2	C60	-190	-
P83	19x60	2213.65	-2704.75	38.1	28.1	0	0	0	0	3.9	0.0	0.3	-0.4	90	90	120	90	1	C60	-175	-
P84	19x60	2492.93	-2704.75	40.7	31.1	0	0	0	0	0.0	-3.4	0.6	-0.3	230	80	120	75	2	C50	-160	-
P85	19x60	3054.15	-2704.75	33.7	27.5	0	0	0	0	3.2	0.0	0.6	-0.1	80	80	120	75	1	C50	-160	-
P86	19x60	3692.65	-2831.34	38.6	30.8	0	0	0	0	0.0	-1.2	0.0	-1.0	80	80	120	75	1	C50	-160	-
P87	19x60	4037.75	-2831.34	39.3	30.1	0	0	0	0	0.7	-0.8	0.0	-1.5	90	90	120	90	1	C60	-175	-
P88	25x60	4515.10	-2810.84	54.0	38.5	0	0	0	0	0.0	-1.6	2.3	-0.6	230	80	120	75	2	C50	-160	-
P89	19x60	5113.12	-2810.84	53.8	44.2	0	0	0	0	1.9	0.0	0.0	-3.5	230	80	120	90	2	C50	-175	-
P8+P9		3679.65	-214.84	51.2	37.5	0	0	0	0	1.9	0.0	1.3	-0.5	230	80	120	90	2	C50	-175	-
P98	30x30	3677.65	-3064.79	18.0	14.2	0	0	0	0	0.0	-1.3	0.5	-0.5	80	80	120	75	1	C50	-160	-
P99	30x30	4306.75	-3064.79	36.4	29.7	0	0	0	0	0.8	-0.3	1.5	0.0	80	80	120	75	1	C50	-160	-
P100	19x60	4532.60	-3209.84	51.0	40.4	0	0	0	0	1.6	0.0	0.5	-0.3	90	90	120	90	1	C60	-175	-
P101	19x60	4812.61	-3209.84	31.7	23.7	0	0	0	0	0.9	-1.1	0.0	0.0	80	80	120	75	1	C50	-160	-
P102	19x60	5092.62	-3209.84	41.4	32.8	0	0	0	0	1.0	-0.1	0.3	-0.7	270	90	120	105	2	C60	-190	-
P103	19x60	2492.93	-3341.64	44.5	36.3	0	0	0	0	0.0	-2.0	1.4	0.0	90	90	120	90	1	C60	-175	-
P104	19x60	1633.20	-3524.74	61.1	50.4	0	0	0	0	0.0	-3.9	1.3	-0.7	230	80	120	90	2	C50	-175	-
P105	25x60	2231.15	-3524.74	64.5	50.3	0	0	0	0	5.9	0.0	1.9	-0.4	230	80	120	85	2	C50	-170	-
P106	19x60	2709.75	-3576.24	62.4	50.8	0	0	0	0	1.5	0.0	0.3	-0.6	230	80	120	80	2	C50	-165	-
P107	25x60	3071.65	-3576.24	58.9	50.3	0	0	0	0	1.0	0.0	0.3	-2.8	270	90	120	100	2	C60	-185	-
P108	19x50	4312.25	-3689.84	28.7	24.2	0	0	0	0	0.4	0.0	0.5	-1.2	80	80	120	75	1	C50	-160	-
P109	25x60	4515.10	-3689.84	69.0	51.5	0	0	0	0	0.0	-2.4	0.5	-1.0	270	90	120	90	2	C60	-175	-
P110	19x60	5113.12	-3689.84	55.0	44.9	0	0	0	0	2.7	0.0	0.0	-1.7	230	80	120	75	2	C50	-160	-
P111	19x60	2492.93	-3821.64	49.9	41.5	0	0	0	0	0.0	-1.5	0.0	-1.4	90	90	120	90	1	C60	-175	-
P112	25x60	1653.65	-4063.24	51.4	42.1	0	0	0	0	0.3	-1.1	0.6	-0.7	230	80	120	85	2	C50	-170	-
P113	25x60	1930.67	-4063.24	34.8	25.9	0	0	0	0	0.3	-1.7	0.1	-0.1	80	80	120	75	1	C50	-160	-
P114	25x60	2213.62	-4063.24	52.0	43.3	0	0	0	0	0.2	-1.6	0.3	-0.9	230	80	120	85	2	C50	-170	-
P115	19x60	2492.93	-4060.24	40.0	31.5	0	0	0	0	0.0	-1.8	0.8	-0.2	230	80	120	90	2	C50	-175	-
P116	19x50	2769.95	-4060.24	38.0	29.2	0	0	0	0	0.2	-1.0	0.1	-0.2	80	80	120	75	1	C50	-160	-
P117	19x60	3054.15	-4060.24	45.1	38.0	0	0	0	0	1.0	-0.2	0.0	-1.5	230	80	120	75	2	C50	-160	-
P118	19x60	4532.60	-4169.84	45.3	34.2	0	0	0	0	0.6	-0.3	0.4	-0.4	90	90	120	90	1	C60	-175	-
P119	19x60	4812.61	-4169.84	34.2	26.0	0	0	0	0	1.0	-0.6	0.9	0.0	80	80	120	75	1	C50	-160	-
P120	19x60	5092.62	-4169.84	43.4	34.7	0	0	0	0	0.6	-0.3	0.2	-0.7	270	90	120	105	2	C60	-190	-
P121	19x60	1994.15	-4282.04	33.7	26.2	0	0	0	0	0.0	-0.4	1.2	-0.6	80	80	120	75	1	C50	-160	-
P122	19x60	4312.25	-4316.34	26.5	20.1	0	0	0	0	0.0	-0.4	0.6	-1.8	80	80	120	75	1	C50	-160	-
P123	19x60	1653.70	-4546.14	40.1	34.1	0	0	0	0	0.0	-2.4	0.0	-1.2	270	90	120	90	2	C60	-175	-
P124	19x60	2213.65	-4546.14	47.6	39.9	0	0	0	0	2.7	0.0	0.0	-1.3	90	90	120	90	1	C60	-175	-
P125	19x60	2492.93	-4546.14	43.2	35.0	0	0	0	0	0.0	-1.8	0.0	-1.1	90	90	120	90	1	C60	-175	-
P126	19x60	2955.37	-4546.14	50.0	44.0	0	0	0	0	1.8	0.0	0.0	-1.2	270	90	120	90	2	C60	-175	-
P127	C50	3420.37	-4546.14	22.8	22.4	0	0	0	0	1.0	-0.3	0.5	0.0	230	80	120	90	2	C50	-175	-
P128	C50	3869.06	-4546.14	21.0	20.3	0	0	0	0	0.8	-0.5	0.5	0.0	230	80	120	90	2	C50	-175	-
P129	19x40	4322.75	-4546.14	21.8	16.5	0	0	0	0	0.7	-0.3	0.3	-0.4	80	80	120	75	1	C50	-160	-
P130	19x60	4532.60	-4546.14	42.9	35.7	0	0	0	0	0.0	-1.7	0.0	-0.9	230	80	120	90	2	C50	-175	-
P131	19x60	5092.62	-4546.14	36.1	30.7	0	0	0	0	2.3	0.0	0.0	-0.8	230	80	120	90	2	C50	-175	-
P19+P20		3679.65	-514.83	42.8	33.3	0	0	0	0	0.5	0.0	1.9	-1.2	230	80	120	90	2	C50	-175	-
P28+P29		3679.65	-814.83	58.1	43.9	0	0	0	0	3.2	0.0	1.5	-1.7	230	80	120	90	2	C50	-175	-
P37+P38		3677.15	-1037.84	89.7	65.8	0	0	0	0	5.6	0.0	2.0	-1.1	270	90	120	105	2	C60	-190	-
P41+P42		3679.65	-1374.84	98.7	74.1	0	0	0	0	2.6	0.0	2.2	-0.4	270	90	120	105	2	C60	-190	-
P54+P55		4037.75	-1754.84	52.0	40.0	0	0	0	0	0.0	-2.1	1.6	0.0	230	80	120	90	2	C50	-175	-
P56+P57		4532.60	-1754.84	62.2	48.2	0	0	0	0	0.0	-2.1	2.0	0.0	230	80	120	90	2	C50	-175	-
P58+P59		4996.10	-1754.84	57.5	47.2	0	0	0	0	1.2	0.0	1.9	0.0	230	80	120	90	2	C50	-175	-
P60+P61		1653.67	-1982.84	59.2	47.7	0	0	0	0	0.0	-3.4	0.0	-1.3	230	80	120	90	2	C50	-175	-
P62+P63		2213.65	-1982.83	57.6	44.1	0	0	0	0	3.4	0.0	0.0	-1.3	230	80	120	90	2	C50	-175	-
P64+P65		2477.93	-1982.84	74.2	56.2	0	0	0	0	0.0	-2.0	0.0	-1.4	270	90	120	105	2	C60	-190	-
P66+P67		3069.15	-1982.84	59.3	47.1	0	0	0	0	2.3	0.0	1.1	-0.7	230	80	120	90	2	C50	-175	-
P90+P91		1653.65	-3080.79	55.9	45.2	0	0	0	0	0.0	-3.1	1.2	0.0	230	80	120	90	2	C50	-175	-
P92+P93		2213.62	-3080.79	72.3	57.8	0	0	0	0	2.3	0.0	0.9	0.0	230	80	120	90	2	C50	-175	-
P94+P95		2709.75	-3080.79	55.1	43.4	0	0	0	0	0.9	-0.5	1.3	0.0	230	80	120	90	2	C50	-175	-
P96+P97		3054.15	-3080.79	52.3	42.7	0	0	0	0	1.0	0.0	0.9	0.0	230	80	120	90	2	C50	-175	-
P51+P52+P53		3692.65	-1749.34	75.6	60.8	0	0	0	0	3.6	0.0	0.9	-0.7	270	90	120	105	2	C60	-190	-

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Locação no eixo X	
Coordenadas (cm)	Nome
793.25	P1, P13, P21
808.75	P39
1029.15	P2, P14, P22
1193.45	P40
1418.45	P3, P23
1438.95	P15
1633.15	P74
1633.20	P46, P104
1653.65	P33, P90+P91, P112
1653.67	P60+P61
1653.70	P82, P123
1753.15	P4, P16, P24
1930.67	P113
1976.10	P75
1994.15	P121
2213.62	P92+P93, P114
2213.65	P5, P25, P62+P63, P83, P124
2231.15	P34, P105
2234.12	P17, P76
2237.15	P47
2477.93	P64+P65, P77
2492.93	P84, P103, P111, P115, P125
2497.93	P35, P48
2702.75	P78
2709.75	P94+P95, P106
2713.15	P6, P18, P26
2769.95	P116
2955.37	P126
2991.37	P36, P49
3054.15	P85, P96+P97, P117
3069.15	P50, P66+P67, P79
3071.65	P107
3192.65	P7, P27
3420.37	P127
3675.15	P69
3677.15	P37+P38
3677.65	P98
3679.65	P8+P9, P19+P20, P28+P29, P41+P42
3692.65	P51+P52+P53, P86
3869.06	P128
4037.75	P54+P55, P87
4058.25	P70
4132.75	P10, P30, P43
4250.95	P68, P80
4271.45	P71
4306.75	P99
4312.25	P108, P122
4322.75	P129
4512.10	P81
4515.10	P88, P109
4532.60	P56+P57, P72, P100, P118, P130
4606.75	P11, P31, P44
4812.61	P101, P119
4996.10	P58+P59
5092.62	P73, P102, P120, P131
5107.70	P12, P45
5110.20	P32
5113.12	P89, P110

Locação no eixo Y	
Coordenadas (cm)	Nome
-194.34	P3, P5, P7
-199.84	P10, P11
-214.84	P1, P2, P4, P6, P8+P9, P12
-463.87	P17, P18
-474.37	P13, P15, P16
-479.37	P14
-514.83	P19+P20
-773.83	P21, P22, P24, P26
-783.83	P27
-791.33	P25
-794.33	P23, P30, P31, P32
-814.83	P28+P29
-1017.34	P33
-1020.34	P35
-1032.84	P36
-1037.84	P34, P37+P38
-1097.34	P39, P40
-1374.84	P41+P42, P45
-1389.84	P43, P44
-1493.84	P49
-1506.34	P46, P47, P48
-1746.34	P50
-1749.34	P51+P52+P53
-1754.84	P54+P55, P56+P57, P58+P59
-1982.84	P60+P61
-1982.83	P62+P63
-1982.84	P64+P65, P66+P67
-2054.84	P68
-2253.34	P72, P73
-2298.34	P69, P70, P71
-2388.64	P75
-2393.64	P74, P76
-2459.34	P77, P78, P79
-2543.84	P80, P81
-2704.75	P82, P83, P84, P85
-2810.84	P88, P89
-2831.34	P86, P87
-3064.79	P98, P99
-3080.79	P90+P91, P92+P93, P94+P95, P96+P97
-3209.84	P100, P101, P102
-3341.64	P103
-3524.74	P104, P105
-3576.24	P106, P107
-3689.84	P108, P109, P110
-3821.64	P111
-4060.24	P115, P116, P117
-4063.24	P112, P113, P114
-4169.84	P118, P119, P120
-4282.04	P121
-4316.34	P122
-4546.14	P123, P124, P125, P126, P127, P128, P129, P130, P131

Estacas			
Simbologia	Nome	d (cm)	Quantidade
	C50	50.00	123
	C60	60.00	66



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - BLOCOS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 03/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

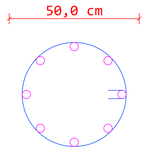
Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 3

2025-08-25 15:44:28, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

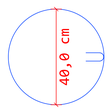
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção



Estribos



172 N2 Ø 6,3
c/9 C=135,66

Armadura longitudinal

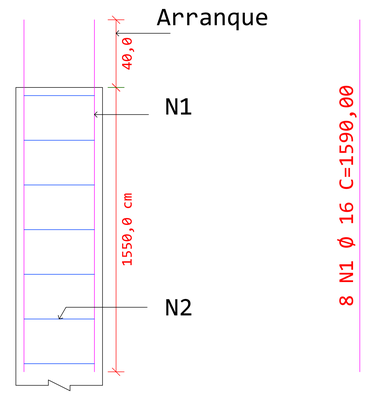


TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20

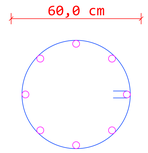
Peso total do aço = 257,89 kg

Volume total de concreto = 3,34 m³

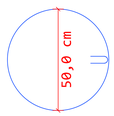
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 60 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção



Estribos



242 N2 Ø 6,3
c/7 C=167,08

Armadura longitudinal

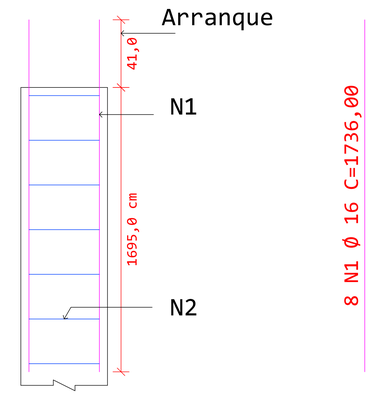


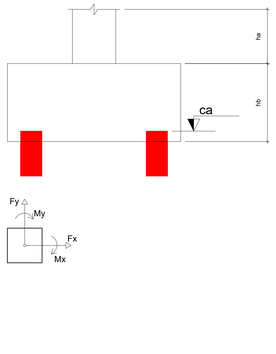
TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1736,00	13888,00
N2	6,3	242	167,08	40433,27

RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	138,88	219,15	12
CA50	6,3	404,33	99,06	34

Peso total do aço = 318,21 kg

Volume total de concreto = 4,81 m³

Estacas			
Simbologia	Nome	d (cm)	Quantidade
	C50	50.00	123
	C60	60.00	66



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

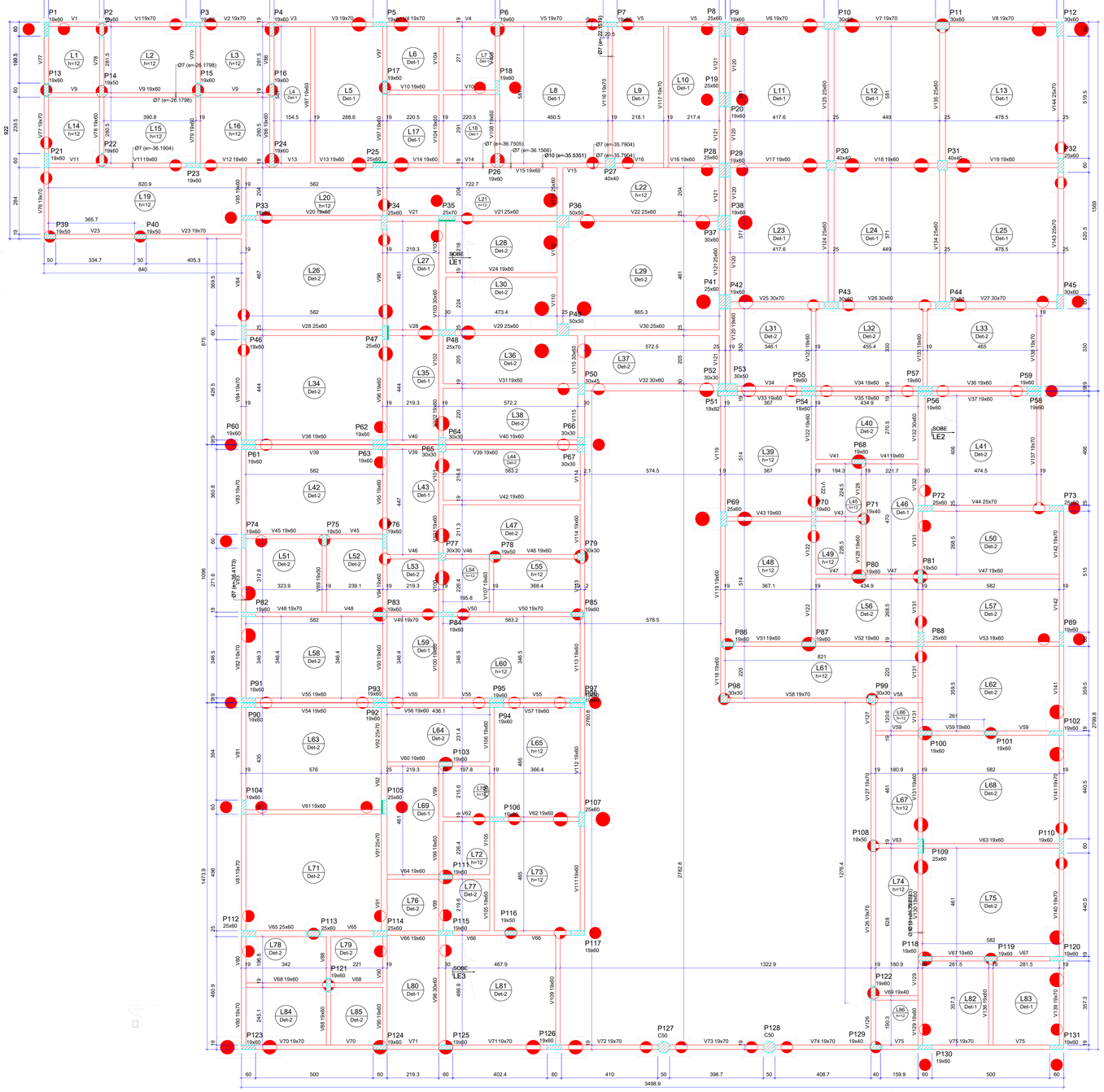
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	ESTACAS
ETAPA	EXECUTIVO
FOLHA	EST 04/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 98413-8013 | e-mail de responsável técnico desta projeto: fernando@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (NBR14931)
SEI 23.0.2000003-9 / pg. 4
2025-08-25 15:44:36, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:75

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19x60	0	20
P2	19x60	0	20
P3	19x60	0	20
P4	19x60	0	20
P5	19x60	0	20
P6	19x60	0	20
P7	19x60	0	20
P8	25x60	0	20
P9	19x60	0	20
P10	30x60	0	20
P11	30x60	0	20
P12	30x60	0	20
P13	19x60	0	20
P14	19x50	0	20
P15	19x60	0	20
P16	19x60	0	20
P17	19x60	0	20
P18	19x60	0	20
P19	25x60	0	20
P20	19x60	0	20
P21	19x60	0	20
P22	19x60	0	20
P23	19x60	0	20
P24	19x60	0	20
P25	25x60	0	20
P26	19x60	0	20
P27	40x40	0	20
P28	25x60	0	20
P29	19x60	0	20
P30	40x40	0	20
P31	40x40	0	20
P32	25x60	0	20
P33	19x60	0	20
P34	25x60	0	20
P35	25x70	0	20
P36	50x50	0	20
P37	30x60	0	20
P38	19x60	0	20
P39	19x50	0	20
P40	19x50	0	20
P41	25x60	0	20
P42	19x60	0	20
P43	30x60	0	20
P44	30x60	0	20
P45	30x60	0	20
P46	19x60	0	20
P47	25x60	0	20
P48	25x70	0	20
P49	50x50	0	20
P50	30x45	0	20
P51	19x82	0	20
P52	30x30	0	20
P53	30x50	0	20
P54	19x60	0	20
P55	19x60	0	20
P56	19x60	0	20
P57	19x60	0	20
P58	19x60	0	20
P59	19x60	0	20
P60	19x60	0	20
P61	19x60	0	20
P62	19x60	0	20
P63	19x60	0	20
P64	30x30	0	20
P65	30x30	0	20
P66	30x30	0	20
P67	30x30	0	20
P68	19x60	0	20
P69	25x60	0	20
P70	19x60	0	20
P71	19x40	0	20
P72	25x60	0	20
P73	25x60	0	20
P74	19x60	0	20
P75	19x50	0	20
P76	19x60	0	20
P77	30x30	0	20
P78	19x50	0	20
P79	30x30	0	20
P80	19x60	0	20
P81	19x50	0	20
P82	19x60	0	20
P83	19x60	0	20
P84	19x60	0	20
P85	19x60	0	20
P86	19x60	0	20
P87	19x60	0	20
P88	25x60	0	20
P89	19x60	0	20
P90	19x60	0	20
P91	19x60	0	20
P92	19x60	0	20
P93	19x60	0	20
P94	19x60	0	20
P95	19x60	0	20
P96	19x60	0	20
P97	19x60	0	20
P98	30x30	0	20
P99	30x30	0	20
P100	19x60	0	20
P101	19x60	0	20
P102	19x60	0	20
P103	19x60	0	20
P104	19x60	0	20
P105	25x60	0	20
P106	19x60	0	20
P107	25x60	0	20
P108	19x50	0	20
P109	25x60	0	20
P110	19x60	0	20
P111	19x60	0	20
P112	25x60	0	20
P113	25x60	0	20
P114	25x60	0	20
P115	19x60	0	20
P116	19x50	0	20
P117	19x60	0	20
P118	19x60	0	20
P119	19x60	0	20
P120	19x60	0	20
P121	19x60	0	20
P122	19x60	0	20
P123	19x60	0	20
P124	19x60	0	20
P125	19x60	0	20
P126	19x60	0	20
P127	Circ 50	0	20
P128	Circ 50	0	20
P129	19x40	0	20
P130	19x60	0	20
P131	19x60	0	20

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x70	0	20
V2	19x70	0	20
V3	19x70	0	20
V4	19x70	0	20
V5	19x70	0	20
V6	19x70	0	20
V7	19x70	0	20
V8	19x70	0	20
V9	19x60	0	20
V10	19x60	0	20
V11	19x60	0	20
V12	19x60	0	20
V13	19x60	0	20
V14	19x60	0	20
V15	19x60	0	20
V16	19x60	0	20
V17	19x60	0	20
V18	19x60	0	20
V19	19x60	0	20
V20	19x60	0	20
V21	25x60	0	20
V22	25x60	0	20
V23	19x70	0	20
V24	19x60	0	20
V25	30x70	0	20
V26	30x60	0	20
V27	30x70	0	20
V28	25x60	0	20
V29	25x60	0	20
V30	25x60	0	20
V31	40x40	0	20
V32	30x60	0	20
V33	19x60	0	20
V34	19x60	0	20
V35	19x60	0	20
V36	19x60	0	20
V37	19x60	0	20
V38	19x60	0	20
V39	19x60	0	20
V40	19x60	0	20
V41	19x60	0	20
V42	19x60	0	20
V43	19x60	0	20
V44	25x70	0	20
V45	19x60	0	20
V46	19x60	0	20
V47	19x60	0	20
V48	19x60	0	20
V49	19x70	0	20
V50	19x70	0	20
V51	19x60	0	20
V52	19x60	0	20
V53	19x60	0	20
V54	19x60	0	20
V55	19x60	0	20
V56	19x60	0	20
V57	19x60	0	20
V58	19x70	0	20
V59	19x60	0	20
V60	19x60	0	20
V61	19x60	0	20
V62	19x60	0	20
V63	19x60	0	20
V64	19x60	0	20
V65	19x60	0	20
V66	19x60	0	20
V67	19x60	0	20
V68	19x60	0	20
V69	19x40	0	20
V70	19x70	0	20
V71	19x70	0	20
V72	19x70	0	20
V73	19x70	0	20
V74	19x70	0	20
V75	19x70	0	20
V76	19x70	0	20
V77	19x70	0	20
V78	19x60	0	20
V79	19x60	0	20
V80	19x70	0	20
V81	19x70	0	20
V82	19x70	0	20
V83	19x70	0	20
V84	19x70	0	20
V85	19x60	0	20
V86	19x60	0	20
V87	19x60	0	20
V88	25x60	0	20
V89	19x50	0	20
V90	19x60	0	20
V91	25x70	0	20
V92	25x70	0	20
V93	19x60	0	20
V94	19x50	0	20
V95	19x60	0	20
V96	19x60	0	20
V97	19x60	0	20
V98	30x60	0	20
V99	19x60	0	20
V100	19x60	0	20
V101	19x60	0	20
V102	19x60	0	20
V103	30x60	0	20
V104	19x60	0	20
V105	19x60	0	20
V106	19x60	0	20
V107	19x60	0	20
V108	19x60	0	20
V109	19x50	0	20
V110	25x60	0	20
V111	19x60	0	20
V112	19x60	0	20
V113	19x60	0	20
V114	19x60	0	20
V115	30x60	0	20
V116	19x70	0	20
V117	19x70	0	20
V118	19x60	0	20
V119	19x60	0	20
V120	19x60	0	20
V121	25x60	0	20
V122	19x60	0	20
V123	19x60	0	20
V124	25x60	0	20
V125	25x60	0	20
V126	19x70	0	20
V127	19x70	0	20
V128	19x60	0	20
V129	19x60	0	20
V130	19x60	0	20
V131	19x60	0	20
V132	30x60	0	20
V133	19x60	0	20
V134	25x60	0	20
V135	25x60	0	20
V136	19x60	0	20
V137	19x70	0	20
V138	19x70	0	20
V139	19x70	0	20
V140	19x70	0	20
V141	19x70	0	20
V142	19x70	0	20
V143	25x70	0	20
V144	25x70	0	20

Lajes

Nome	Tipo	Dados: Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Sobrecarga (kgf/m²): Adicional	Acidental	Localizada
L1	Maciça	12	0	20	300	154	300	-
L2	Maciça	12	0	20	300	154	300	-
L3	Maciça	12	0	20	300	154	300	-
L4	Vigota protendida	25	0	20	241	154	300	-
L5	Vigota protendida	25	0	20	241	154	300	-
L6	Vigota protendida	25	0	20	241	154	300	-
L7	Vigota protendida	25	0	20	241	154	300	-
L8	Vigota protendida	25	0	20	241	154	300	-
L9	Vigota protendida	25	0	20	241	154	300	-
L10	Vigota protendida	25	0	20	241	154	300	-
L11	Vigota protendida	25	0	20	241	154	300	-
L12	Vigota protendida	25	0	20	241	154	300	-
L13	Vigota protendida	25	0	20	241	154	300	-
L14	Maciça	12	0	20	300	154	300	-
L15	Maciça	12	0	20	300	154	300	-
L16	Maciça	12	0	20	300	154	300	-
L17	Vigota protendida	25	0	20	241	154	300	-
L18	Vigota protendida	25	0	20	241	154	300	-
L19	Maciça	12	0	20	300	154	300	-
L20	Maciça	12	0	20	300	154	300	-
L21	Maciça	12	0	20	300	154	300	-
L22	Maciça	12	0	20	300	154	300	-
L23	Vigota protendida	25	0	20	241	154	300	-
L24	Vigota protendida	25	0	20	241	154	300	-
L25	Vigota protendida	25	0	20	241	154	300	-
L26	Vigota protendida	25	0	20	241	154	300	-
L27	Vigota protendida	25	0	20	241	154	300	-
L28	Vigota protendida	25	0	20	241	154	300	-
L29	Vigota protendida	25	0	20	241	154	300	-
L30	Vigota protendida	25	0	20	241	154	300	-
L31	Vigota protendida	25	0	20	241	154	300	-
L32	Vigota protendida	25	0	20	241	154	300	-
L33	Vigota protendida	25	0	20	241	154	300	-
L34	Vigota protendida	25	0	20	241	154	300	-
L35	Vigota protendida	25	0	20	241	154	300	-
L36	Vigota protendida	25	0	20	241	154	300	-
L37	Vigota protendida	25	0	20	241	154	300	-
L38	Vigota protendida	25	0	20	241	154	300	-
L39	Maciça	12	0	20	300	154	300	-
L40	Vigota protendida	25	0	20	241	154	300	-
L41	Vigota protendida	25	0	20	241	154	300	-
L42	Vigota protendida	25	0	20	241	154	300	-
L43	Vigota protendida	25	0	20	241	154	300	-
L44	Vigota protendida	25	0	20	241	154	300	-
L45	Maciça	12	0	20	300	154	300	-
L46	Vigota protendida	25	0	20	241	154	300	-
L47	Vigota protendida	25	0	20	241	154	300	-
L48	Maciça	12	0	20	300	154	300	-
L49	Maciça	12	0	20	300	154	300	-
L50	Vigota protendida	25	0	20	241	154	300	-
L51	Vigota protendida	25	0	20	241	154	300	-
L52	Vigota protendida	25	0	20	241	154	300	-
L53	Vigota protendida	25	0	20	241	154	300	-
L54	Maciça	12	0	20	300	154	300	-
L55	Maciça	12	0	20	300	154	300	-
L56	Vigota protendida	25	0	20	241	154	300	-
L57	Vigota protendida	25	0	20	241	154	300	-
L58	Vigota protendida	25	0	20	241	154	300	-
L59	Vigota protendida	25	0	20	241	154	300	-
L60	Maciça	12	0	20	300	154	300	-
L61	Maciça	12	0	20	300	154	300	-
L62	Vigota protendida	25	0	20	241	154	300	-
L63	Vigota protendida	25	0	20	241	154	300	-
L64	Vigota protendida	25	0	20	241	154	300	-
L65	Maciça	12	0	20	300	154	300	-
L66	Maciça	12	0	20	300	154	300	-
L67	Vigota protendida	25	0	20	241	154	300	-
L68	Vigota protendida	25	0	20	241	154	300	-
L69	Vigota protendida	25	0	20	241	154	300	-
L70	Maciça	12	0	20	300	154	300	-
L71	Vigota protendida	25	0	20	241	154	300	-
L72	Maciça	12	0	20	300	154	300	-
L73	Maciça	12	0	20	300	154	300	-
L74	Maciça	12	0	20	300	154	300	-
L75	Vigota protendida	25	0	20	241	154	300	-
L76	Vigota protendida	25	0	20	241	154	300	-
L77	Vigota protendida	25	0	20	241	154	300	-
L78	Vigota protendida	25	0	20	241	154	300	-
L79	Vigota protendida	25	0	20	241	154	300	-
L80	Vigota protendida	25	0	20	241	154	300	-
L81	Vigota protendida	25	0	20	241	154	300	-
L82	Vigota protendida	25	0	20	241	154	300	-
L83	Vigota protendida	25	0	20	241	154	300	-
L84	Vigota protendida	25	0	20	241	154	300	-
L85	Vigota protendida	25	0	20	241	154	300	-
L86	Maciça	12	0	20	300	154	300	-

Área de lajes: Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Maciça	12	-	272.37
Vigota protendida	25	B20/30/125	887.22

Características dos materiais: fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

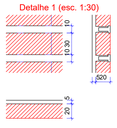
Dimensão máxima do agregado = 19 mm

Legenda dos pilares
- Pilar que passa
- Pilar com mudança de seção

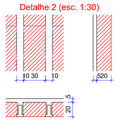
Legenda das vigas e paredes
- Viga

Legenda das lajes
- Laje

Detalhe 1 (esc. 1:30)



Detalhe 2 (esc. 1:30)



Blocos de enchimento

Detalhe	Tipo	Nome	Dimensões(cm) hb	bx	by	Quantidade
1/2	EPS Unidirecional	B20/30/125	20	30	125	2139

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS TÉRREO
ETAPA	EXECUTIVO
FOLHA	EST 05/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA. nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau. | CEP 89010-140 | Fone: (47) 98131-8113 | E-mail do responsável técnico desta projeto: fernandostroisch@fercongroup.com.br

Projeto Executivo de Concreto Armado (NBR 14931)
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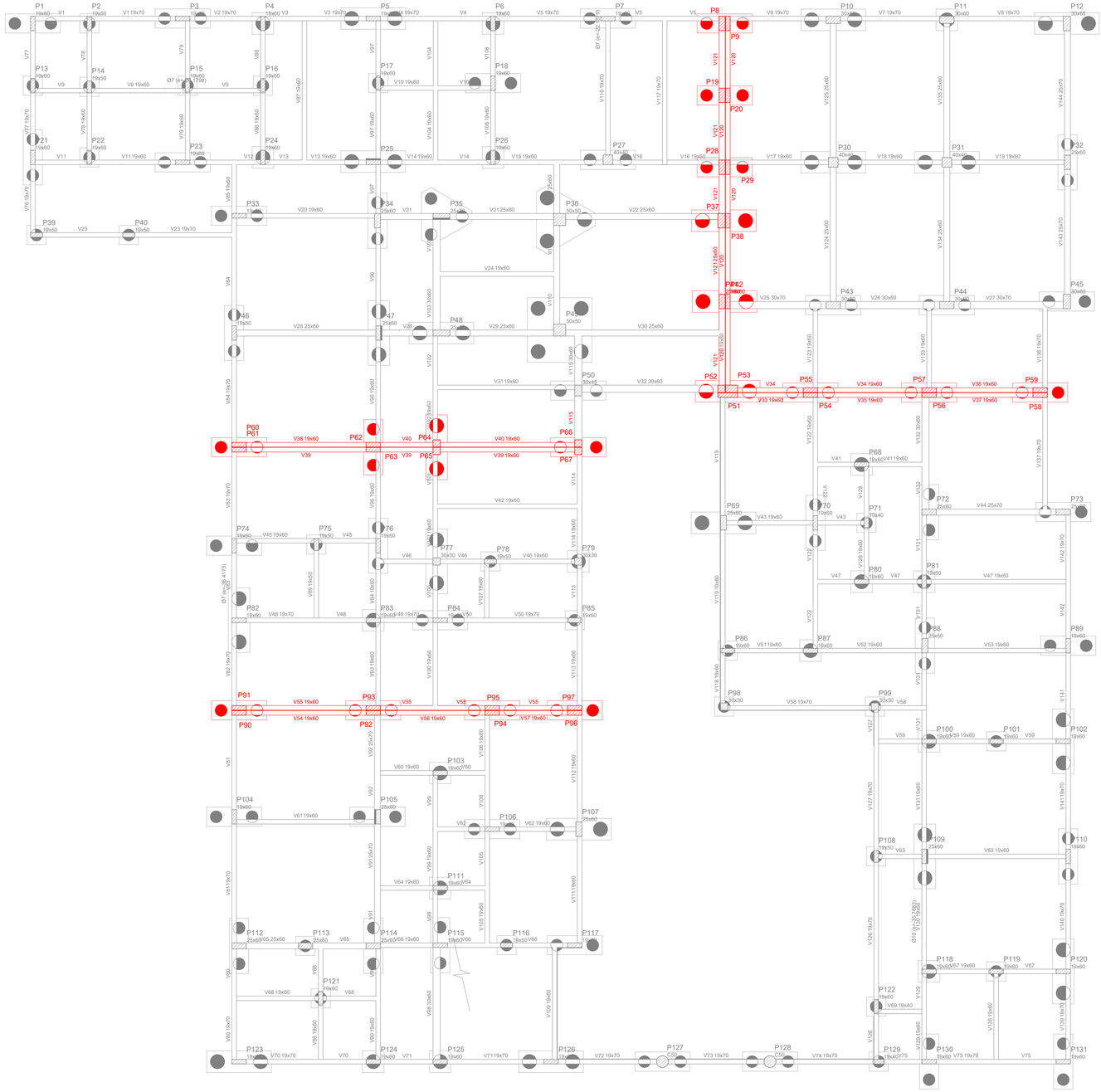

FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:75

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.194.625/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENG° CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	3OE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	JUNTA DE DILATAÇÃO TÉRREO
ESCALA	EXECUTIVO
FOLHA	INDICADA
	EST 06/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 24.966.721/0001-06
Rua Presidente Getulio Vargas, 260, sala 33 - Centro - Illumenau | CEP 89010-140 | Fone: (47) 3611-0074 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com

Projeto Estrutural de Concreto Armado (NBR 6118:2023)
SEI 23.0.2000003-9 | pg. 5
2025-08-25 15:44:50, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

B1
2xC50
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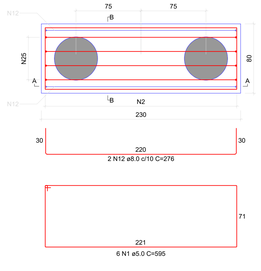
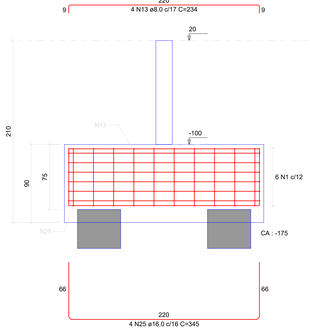
ESC 1:25



CORTE A-A
ESC 1:25



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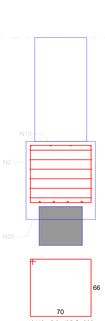

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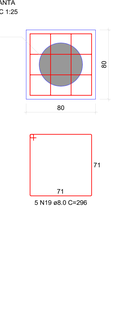
PLANTA
ESC 1:25



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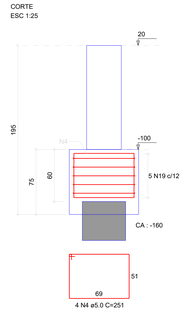

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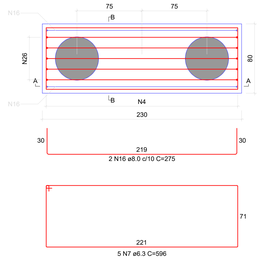
ESC 1:25



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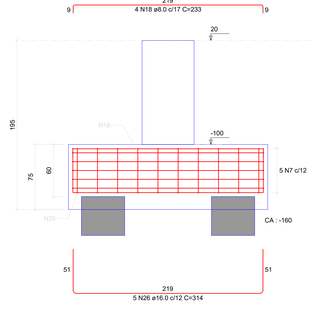

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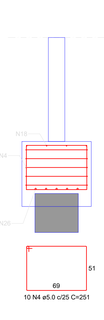
ESC 1:25



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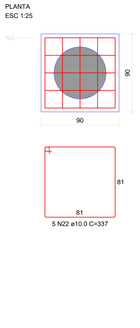
PLANTA
ESC 1:25



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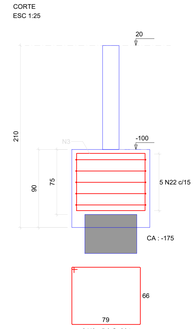

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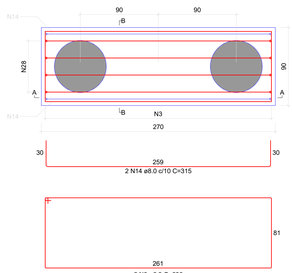
PLANTA
ESC 1:25



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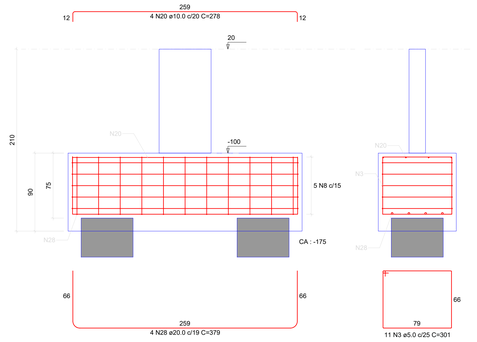

CORTE B-B
ESC 1:25

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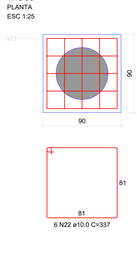
1xC60
PLANTA
ESC 1:25



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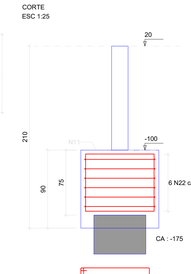

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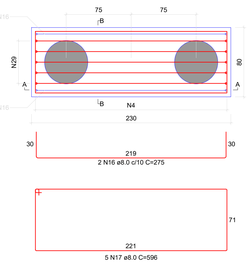
2xC50
PLANTA
ESC 1:25



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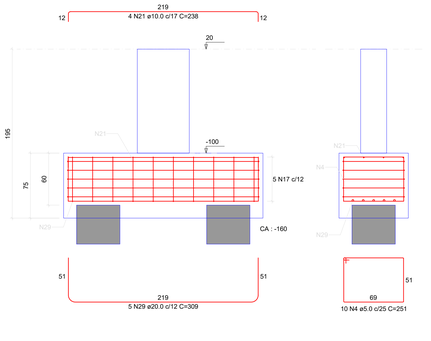
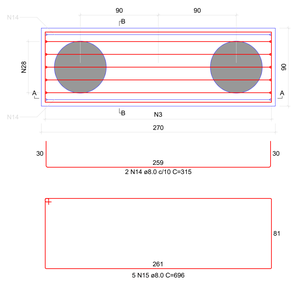
ESC 1:25



CORTE B-B
ESC 1:25

B10=B25
2xC60
PLANTA
ESC 1:25



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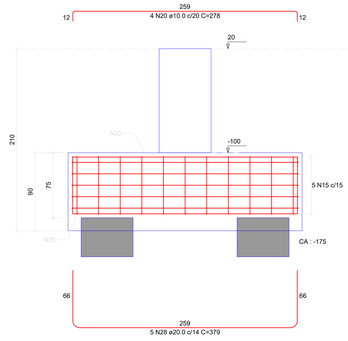
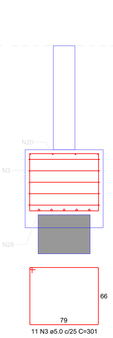
ESC 1:25



CORTE B-B
ESC 1:25



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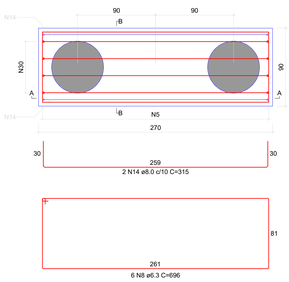
2xC60
PLANTA
ESC 1:25



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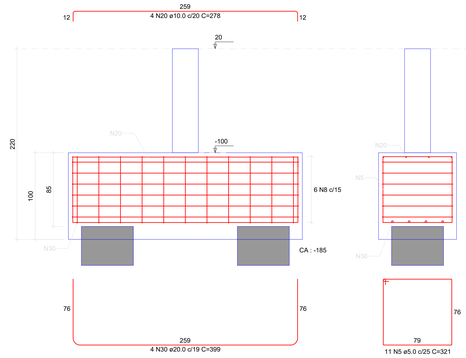

CORTE B-B
ESC 1:25

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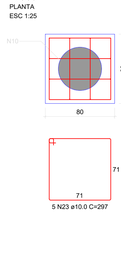
1xC50
PLANTA
ESC 1:25



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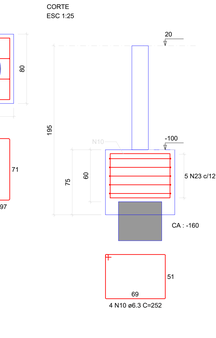
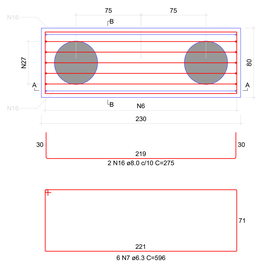


B18=B74=B115=B130=B131
2xC50
PLANTA
ESC 1:25



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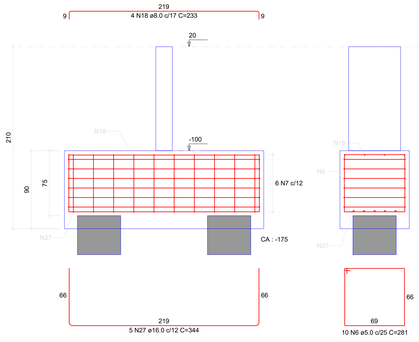
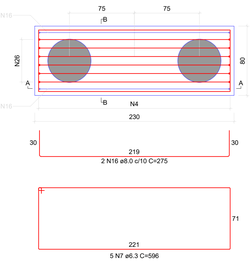


CORTE B-B
ESC 1:25

B23=B84
2xC50
PLANTA
ESC 1:25



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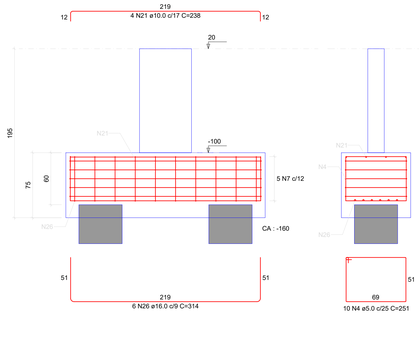
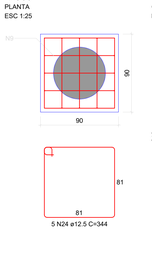
ESC 1:25

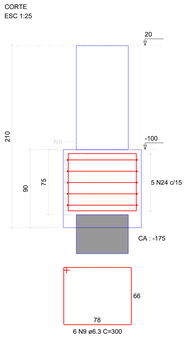


CORTE B-B
ESC 1:25

B26=B100
1xC60
PLANTA
ESC 1:25



CORTE
ESC 1:25



RELAÇÃO DO AÇO

B1	2xB25	5xB43	
3xB76	2xB77	2xB84	
4xB87	2xB100	15xB121	
8xB124	2xB126	5xB129	
5xB131			

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	6	595	3570
	2	5.0	10	283	2830
	3	5.0	68	301	20468
	4	5.0	120	251	30120
	5	5.0	22	321	7062
	6	5.0	50	281	14050
CA50	7	6.3	55	596	32780
	8	6.3	22	696	15312
	9	6.3	12	300	3600
	10	6.3	60	252	15120
	11	6.3	48	302	14496
	12	8.0	2	276	552
	13	8.0	4	234	936
	14	8.0	12	315	3780
	15	8.0	10	696	6960
	16	8.0	30	275	8250
	17	8.0	25	596	14900
	18	8.0	32	233	7456
	19	8.0	25	296	7400
	20	10.0	24	278	6672
	21	10.0	28	238	6664
	22	10.0	68	337	22916
	23	10.0	75	297	22275
	24	12.5	10	344	3440
	25	16.0	4	345	1380
	26	16.0	27	314	8478
	27	16.0	25	344	8600
	28	20.0	18	379	6822
	29	20.0	25	309	7725
	30	20.0	8	399	3192

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	813.1	199
	8.0	502.3	198.2
	10.0	585.3	360.8
	12.5	34.4	33.1
	16.0	184.6	291.3
	20.0	177.4	437.5
CA60	5.0	781	120.4
PESO TOTAL (kg)			
CA50	1520		
CA60	120.4		

Volume de concreto (C-35) = 54.52 m³
Área de forma = 213.66 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENG° CIVIL, FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

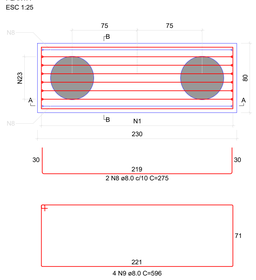
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	**EST 07/76**

FERCON ENGENHARIA | CREA. nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 98413.8013 | e-mail do responsável técnico desta projeto: fernando@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2023)
SID 25.0.000003-01 pg 7

2025-08-25 15:44:56, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

B27
2xC50
PLANTA
ESC 1:25



CORTE A-A
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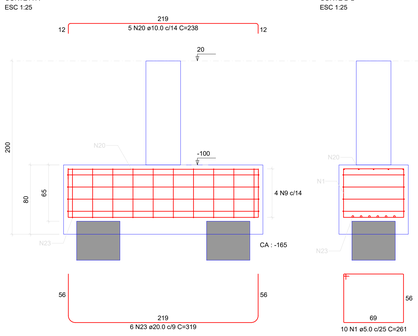
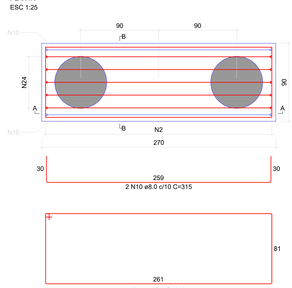


CORTE B-B
ESC 1:25

B30
2xC60
PLANTA
ESC 1:25



CORTE A-A
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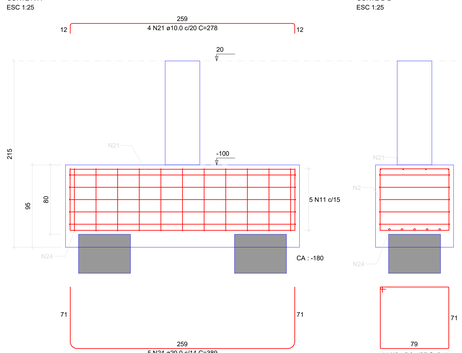
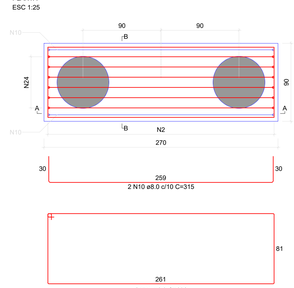


CORTE B-B
ESC 1:25

B31
2xC60
PLANTA
ESC 1:25



CORTE A-A
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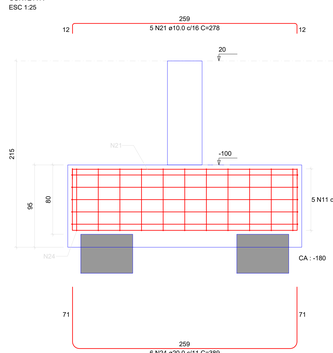

CORTE B-B
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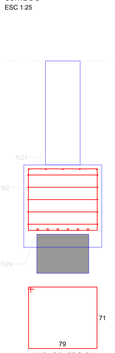
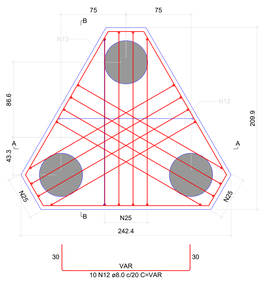


B35
3xC50
PLANTA
ESC 1:25



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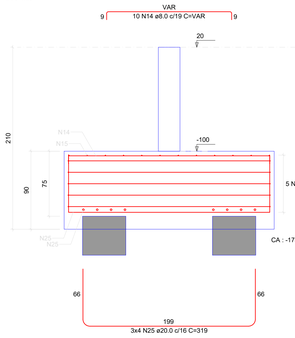

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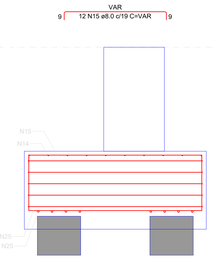
ESC 1:25



ARMADURA COM COMPRIMENTO VARIÁVEL				
N12	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	51	107	107
B	1	75	131	131
C	1	98	154	154
D	1	121	177	177
E	1	144	200	200
F	1	167	223	223
G	1	190	246	246
H	1	201	257	257
I	1	213	269	269
J	1	225	281	281

ARMADURA COM COMPRIMENTO VARIÁVEL				
N13	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	2	40	96	192
B	2	94	150	300
C	2	134	190	380
D	2	174	230	460
E	2	199	255	510

ARMADURA COM COMPRIMENTO VARIÁVEL				
N14	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	41	57	57
B	1	67	83	83
C	1	92	108	108
D	1	117	133	133
E	1	143	159	159
F	1	168	184	184
G	1	191	207	207
H	1	193	209	209
I	1	217	233	233
J	1	218	234	234

ARMADURA COM COMPRIMENTO VARIÁVEL				
N15	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	4	20	20
B	1	5	21	21
C	2	73	89	178
D	1	108	124	124
E	1	109	125	125
F	1	144	160	160
G	1	145	161	161
H	1	180	196	196
I	1	181	197	197
J	2	199	215	430

RELAÇÃO DO AÇO

B27 B30 B31
B35 B36 B39
2xB98

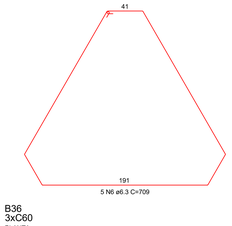
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	10	261	2610
	2	5.0	22	311	6842
	3	5.0	5	295	1475
	4	5.0	4	253	1012
	5	5.0	8	251	2008
CA50	6	6.3	5	709	3545
	7	6.3	10	296	2960
	8	8.0	2	275	550
	9	8.0	4	596	2384
	10	8.0	4	315	1260
	11	8.0	10	696	6960
	12	8.0	10	VAR	VAR
	13	8.0	12	VAR	VAR
	14	8.0	10	VAR	VAR
	15	8.0	12	VAR	VAR
	16	8.0	12	VAR	VAR
	17	8.0	14	VAR	VAR
	18	8.0	12	VAR	VAR
	19	8.0	14	VAR	VAR
	20	10.0	5	238	1190
	21	10.0	9	239	2151
	22	10.0	2	477	954
	23	20.0	6	319	1914
	24	20.0	11	389	4279
	25	20.0	12	319	3828
	26	20.0	18	425	7650

RESUMO DO AÇO

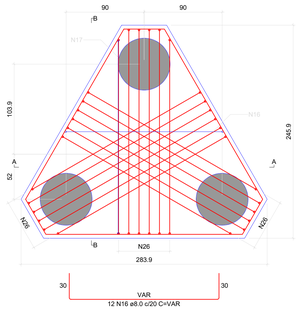
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	65	15.9
	8.0	285.6	112.7
	10.0	95.5	58.9
	20.0	176.7	435.8
CA60	5.0	139.5	21.5

PESO TOTAL (kg)	
CA50	623.3
CA60	21.5

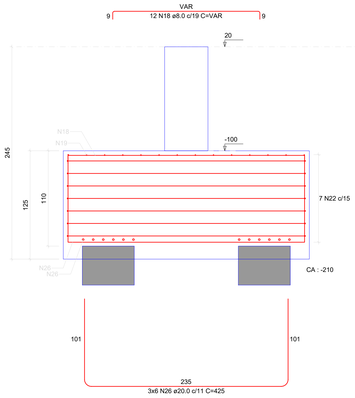
Volume de concreto (C-35) = 15.66 m³
Área de forma = 43.03 m²



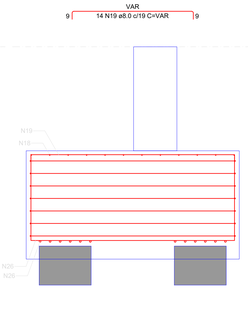
B36
3xC60
PLANTA
ESC 1:25

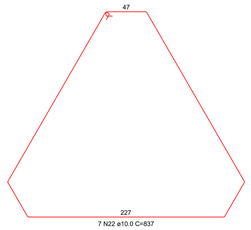


CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25





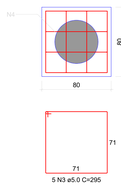
ARMADURA COM COMPRIMENTO VARIÁVEL				
N16	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	57	113	113
B	1	79	135	135
C	1	102	158	158
D	1	124	180	180
E	1	147	203	203
F	1	170	226	226
G	1	192	248	248
H	1	215	271	271
I	2	237	293	586
J	1	259	315	315
K	1	260	316	316

ARMADURA COM COMPRIMENTO VARIÁVEL				
N17	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	2	39	95	190
B	2	98	154	308
C	2	137	193	386
D	2	176	232	464
E	2	215	271	542
F	2	235	291	582

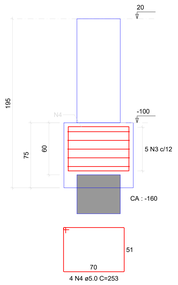
ARMADURA COM COMPRIMENTO VARIÁVEL				
N18	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	47	63	63
B	1	71	87	87
C	1	96	112	112
D	1	120	136	136
E	1	144	160	160
F	1	169	185	185
G	1	193	209	209
H	1	218	234	234
I	1	227	243	243
J	1	242	258	258
K	1	251	267	267
L	1	266	282	282

ARMADURA COM COMPRIMENTO VARIÁVEL				
N19	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	1	4	20	20
B	1	5	21	21
C	1	75	91	91
D	1	77	93	93
E	2	113	129	258
F	2	149	165	330
G	1	184	200	200
H	1	185	201	201
I	1	220	236	236
J	1	221	237	237
K	2	235	251	502

B39
1xC50
PLANTA
ESC 1:25



CORTE
ESC 1:25



B40=B98
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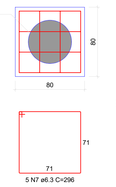
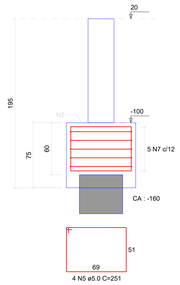
PLANTA
ESC 1:25



CORTE
ESC 1:25



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
DN: C=BR, O=ICP-Brasil, OU=Secretaria da Receita Federal do Brasil - RFB, OU=RFB e-CPF A1, OU=videoconferencia, OU=07414980901, CN=ADEMAR STRINGARI JUNIOR:07414980901
Razão: Eu sou o autor deste documento
Localização: Minha localização geográfica
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14980901
MUNICÍPIO DE JOINVILLE
83.169.629/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:94134518920
Assinado digitalmente por FERNANDO STROISCH:94134518920
DN: C=BR, O=ICP-Brasil, OU=Videoconferência, OU=AR SOLUTI v5, OU=AC SOLUTI Multipla, OU=FERNANDO STROISCH:94134518920
Razão: Eu sou o autor deste documento
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ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 08/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brunerau | CEP 89010-540 | Fone (47) 99141-2113 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

Projeto Estrutural de Concreto Armado (pilar)
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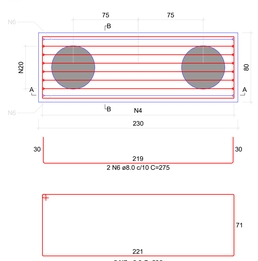

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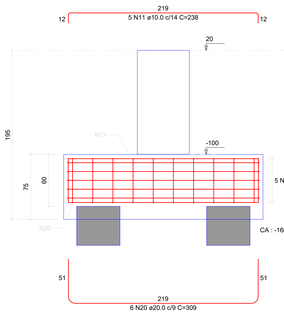
ESC 1:25



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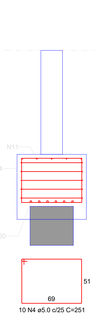
ESC 1:25



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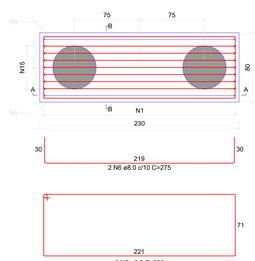
PLANTA
ESC 1:25



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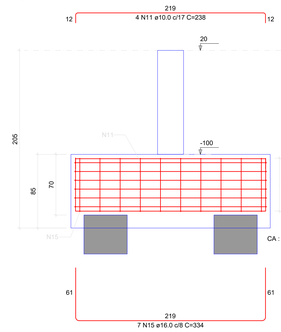
ESC 1:25



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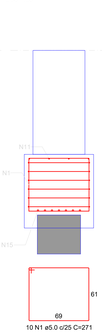
ESC 1:25



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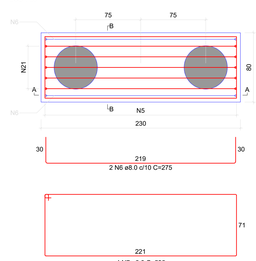
PLANTA
ESC 1:25



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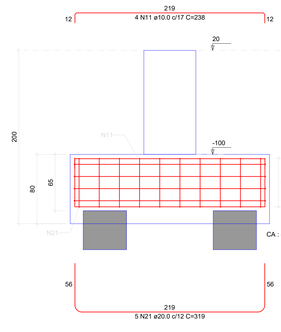
ESC 1:25



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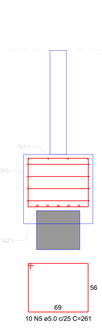
ESC 1:25



B47
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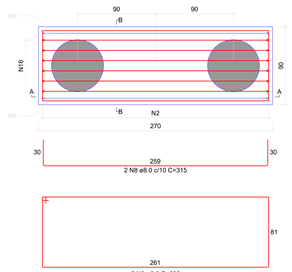
PLANTA
ESC 1:25



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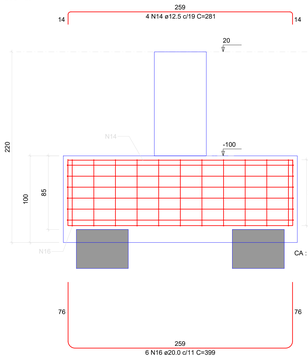
ESC 1:25



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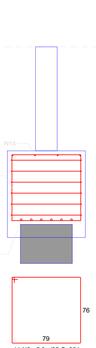
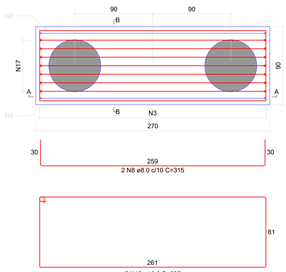
ESC 1:25



B48
2xC60
PLANTA
ESC 1:25



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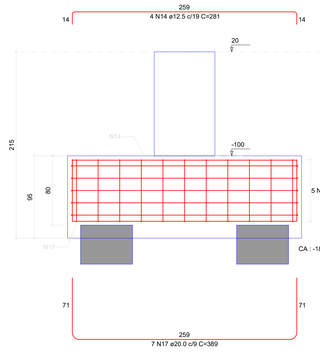

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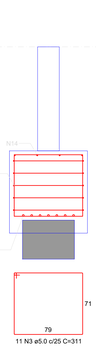

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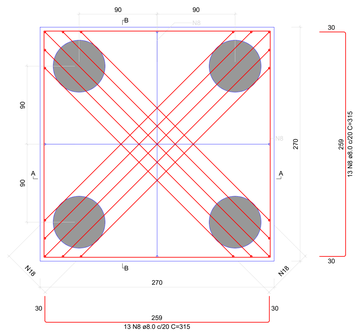

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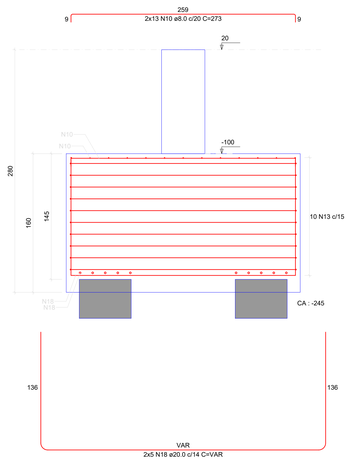
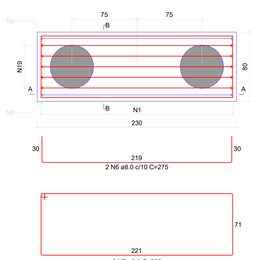
ESC 1:25

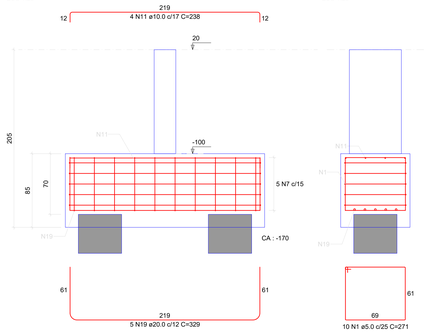


ARMADURA COM COMPRIMENTO VARIÁVEL				
N18	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)
A	4	306	566	2264
B	4	335	590	2340
C	2	364	624	1248

B50=B72
2xC50
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

RELAÇÃO DO AÇO

B45
B49
2xB106

B47
2xB72

B48
2xB73

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	30	271	8130
	2	5.0	11	321	3531
	3	5.0	11	311	3421
	4	5.0	20	251	5020
	5	5.0	20	261	5220
CA50	6	8.0	14	273	3822
	7	8.0	34	596	20264
	8	8.0	30	315	9450
	9	8.0	6	696	4176
	10	8.0	26	273	7098
	11	10.0	30	238	7140
	12	10.0	5	697	3485
	13	10.0	10	1057	10570
	14	12.5	8	281	2248
	15	16.0	7	334	2338
	16	20.0	6	399	2394
	17	20.0	7	389	2723
	18	20.0	10	VAR	VAR
	19	20.0	10	329	3290
	20	20.0	12	309	3708
	21	20.0	10	319	3190

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	448.4	176.9
	10.0	212	130.7
	12.5	22.5	21.7
	16.0	23.4	36.9
	20.0	212	522.7
CA60	5.0	253.2	39

PESO TOTAL (kg)	
CA50	888.9
CA60	39

Volume de concreto (C-35) = 26.05 m³
Área de forma = 66.35 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.823/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	BLOCOS DE FUNDAÇÃO(3)

ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 09/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Blumenau | CEP 89010-300 | Fone (47) 3031-3513 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com.br

Projeto Estrutura de Concreto Armado
SED 25.0.2000003-31 pg 9
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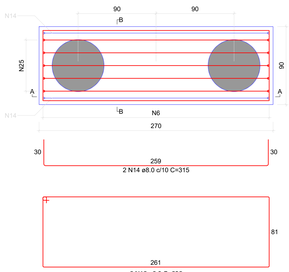
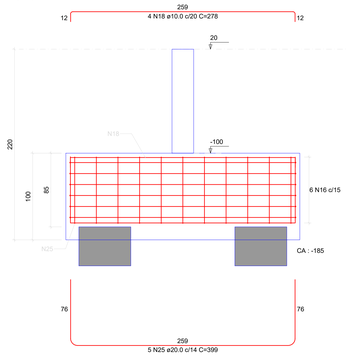
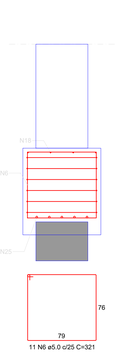
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25

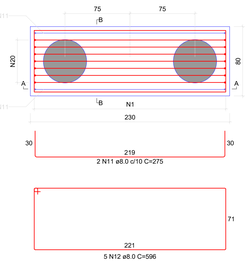


CORTE B-B
ESC 1:25



B70
2xC50

PLANTA
ESC 1:25



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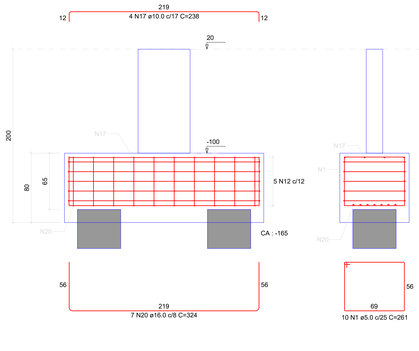
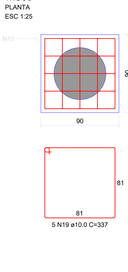
ESC 1:25



CORTE B-B
ESC 1:25

B79=B125
1xC60

PLANTA
ESC 1:25



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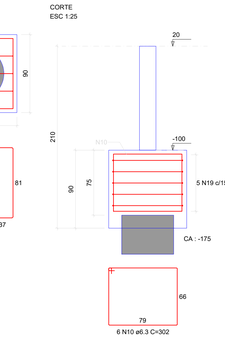
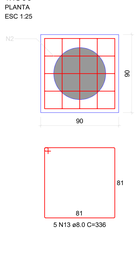
ESC 1:25

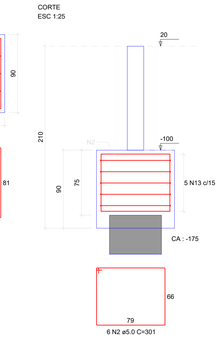


B80
1xC60

PLANTA
ESC 1:25



CORTE
ESC 1:25



RELAÇÃO DO AÇO

B70	B80	B89
B8-9	B102	B104
B105	2xB107	B109
2xB110	2xB114	2xB120
2xB125		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	5.0	10	261	2610
	2	5.0	17	301	5117
	3	5.0	30	281	8430
	4	5.0	33	331	10923
	5	5.0	30	271	8130
	6	5.0	22	321	7052
	7	6.3	10	596	5960
	8	6.3	15	596	8940
	9	6.3	21	696	14616
	10	6.3	12	302	3624
	11	8.0	18	275	4950
	12	8.0	30	596	17880
	13	8.0	5	336	1680
	14	8.0	12	315	3780
	15	8.0	4	273	1092
	16	8.0	17	696	11832
	17	10.0	37	238	8806
	18	10.0	21	278	5838
	19	10.0	10	337	3370
	20	16.0	7	324	2268
	21	16.0	17	414	7038
	22	16.0	14	314	4396
	23	20.0	13	339	4407
	24	20.0	14	329	4606
	25	20.0	10	399	3990
	26	20.0	6	379	2274

RESUMO DO AÇO

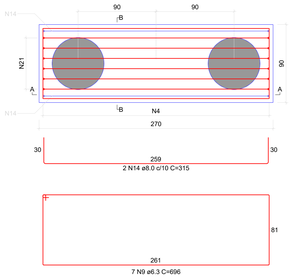
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	271.8	66.5
	8.0	412.1	162.6
	10.0	180.1	111.1
	16.0	137	216.3
	20.0	152.8	376.6
CA60	5.0	472.9	72.9

PESO TOTAL (kg)	
CA50	933.2
CA60	72.9

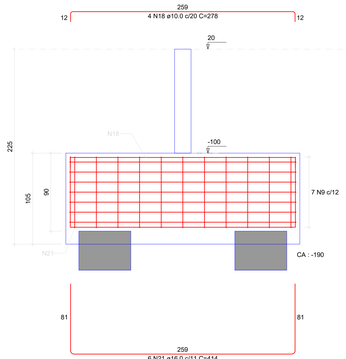
Volume de concreto (C-35) = 29.61 m³
Área de forma = 100.09 m²

B82=B120
2xC60

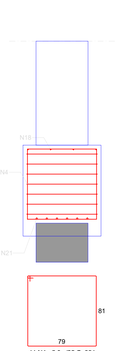
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25

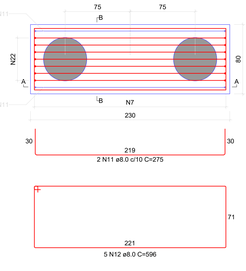


CORTE B-B
ESC 1:25

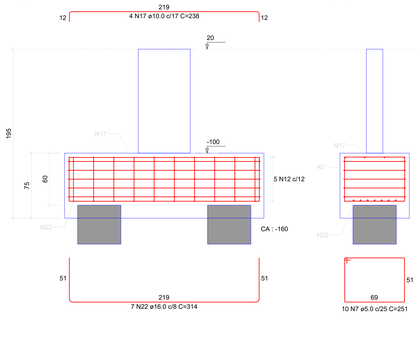


B88=B110
2xC50

PLANTA
ESC 1:25



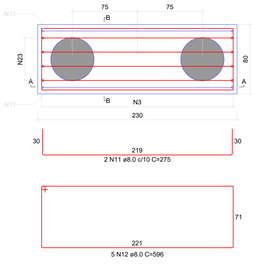
CORTE A-A
ESC 1:25



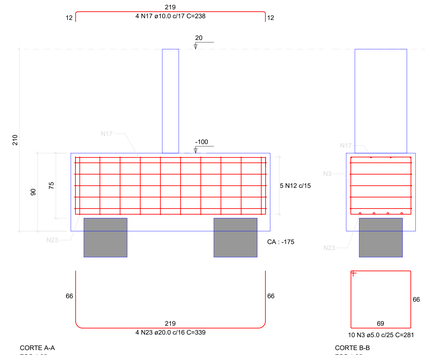
CORTE B-B
ESC 1:25

B89
2xC50

PLANTA
ESC 1:25



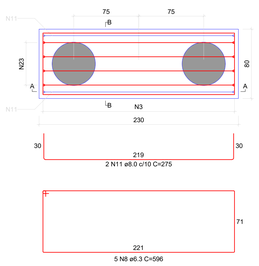
CORTE A-A
ESC 1:25



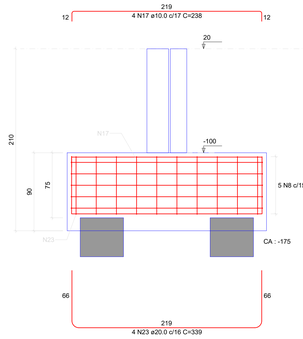
CORTE B-B
ESC 1:25

B8-9
2xC50

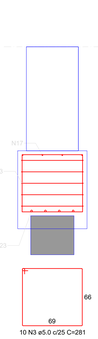
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25

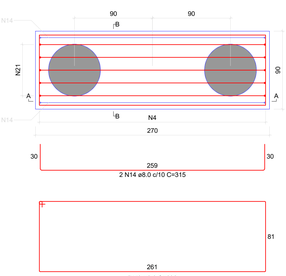


CORTE B-B
ESC 1:25

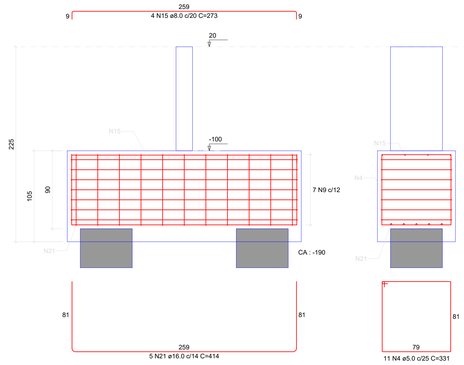


B102
2xC60

PLANTA
ESC 1:25



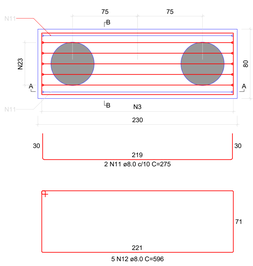
CORTE A-A
ESC 1:25

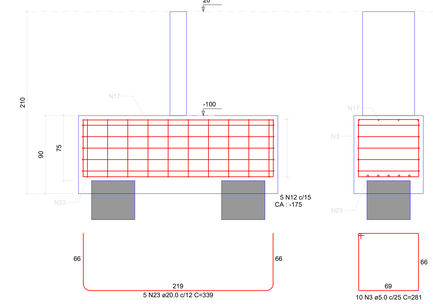


CORTE B-B
ESC 1:25

B104
2xC50

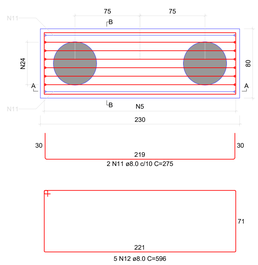
PLANTA
ESC 1:25



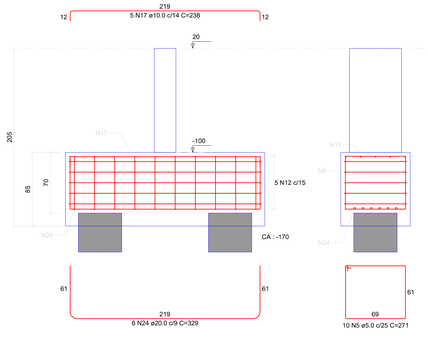


B105
2xC50

PLANTA
ESC 1:25



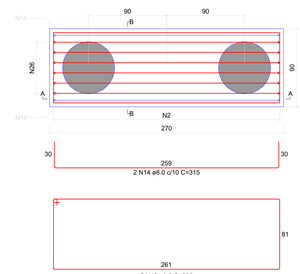
CORTE A-A
ESC 1:25



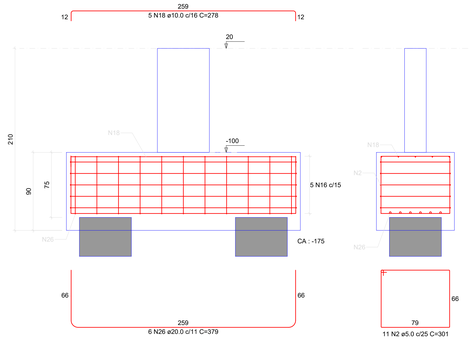
CORTE B-B
ESC 1:25

B109
2xC60

PLANTA
ESC 1:25



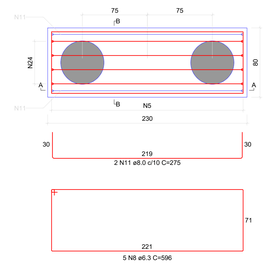
CORTE A-A
ESC 1:25



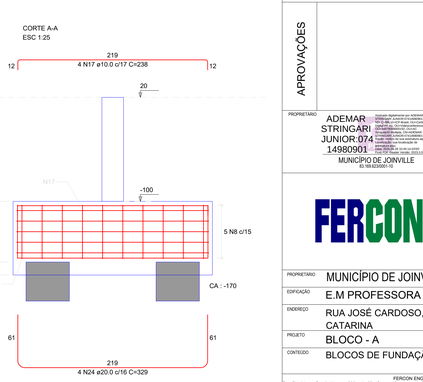
CORTE B-B
ESC 1:25

B112=B114
2xC50

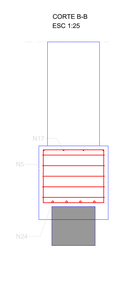
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.149.035/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	BLOCOS DE FUNDAÇÃO(4)

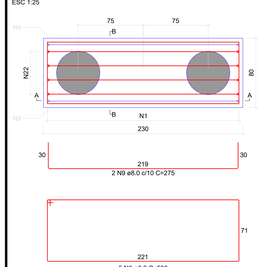
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 10/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-06
Rua Presidente Getúlio Vargas, 260, sala 33 - Centro - Brusque/sc. | CEP 88353-140 | Fone: (47) 3511-3011 | E-mail do responsável técnico deste projeto: fernando@fercongenharia.com

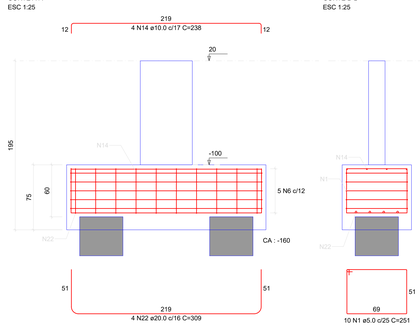
Projeto Estrutural de Concreto Armado (pilar) 14980...

2025-08-25 15:45:16, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

B117
2xC50
PLANTA
ESC 1:25

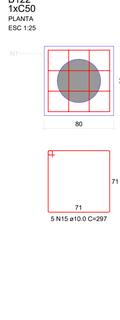


CORTE A-A
ESC 1:25

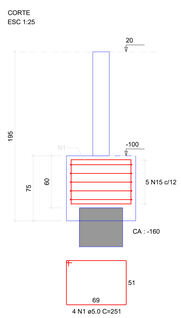


CORTE B-B
ESC 1:25

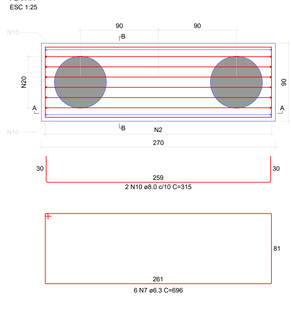
B122
1xC50
PLANTA
ESC 1:25



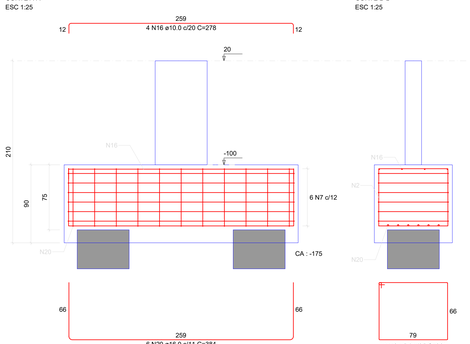
CORTE
ESC 1:25



B123
2xC60
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

RELAÇÃO DO AÇO

B117 2xB128 B37-38 B56-57		B122 B19-20 B41-42 B58-59		B123 B28-29 B54-55 B60-61	

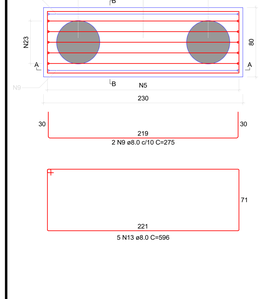
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	14	251	3514
	2	5.0	11	301	3311
	3	5.0	16	595	9520
	4	5.0	20	283	5660
	5	5.0	60	281	16860
CA50	6	6.3	11	596	6556
	7	6.3	6	696	4176
	8	6.3	22	332	7304
	9	8.0	14	275	3850
	10	8.0	6	315	1890
	11	8.0	4	276	1104
	12	8.0	8	234	1872
	13	8.0	26	596	15496
	14	10.0	28	238	6664
	15	10.0	5	297	1485
	16	10.0	4	278	1112
	17	10.0	12	697	8364
	18	12.5	10	346	3460
	19	12.5	10	281	2810
	20	16.0	6	384	2304
	21	16.0	13	344	4472
	22	20.0	4	309	1236
	23	20.0	20	339	6780
	24	20.0	16	409	6544

RESUMO DO AÇO

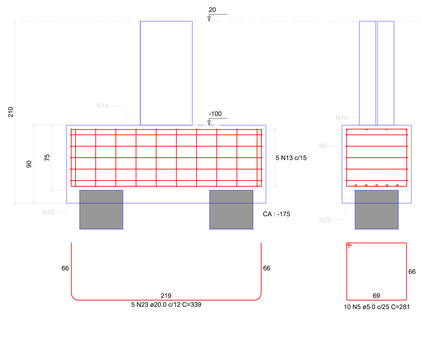
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	180.4	44.1
	8.0	242.1	95.5
	10.0	176.3	108.7
	12.5	62.7	60.4
	16.0	67.8	106.9
	20.0	145.6	359.1
CA60	5.0	388.7	59.9
PESO TOTAL (kg)			
CA50	774.8		
CA60	59.9		

Volume de concreto (C-35) = 21.58 m³
Área de forma = 73.29 m²

B127=B128
2xC50
PLANTA
ESC 1:25

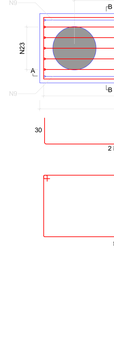


CORTE A-A
ESC 1:25

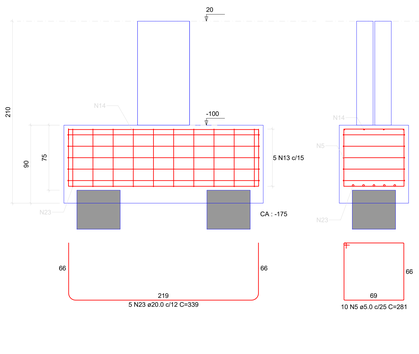


CORTE B-B
ESC 1:25

B19-20
2xC50
PLANTA
ESC 1:25

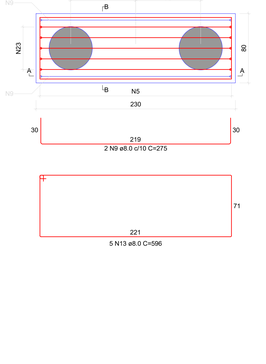


CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

B28-29
2xC50
PLANTA
ESC 1:25



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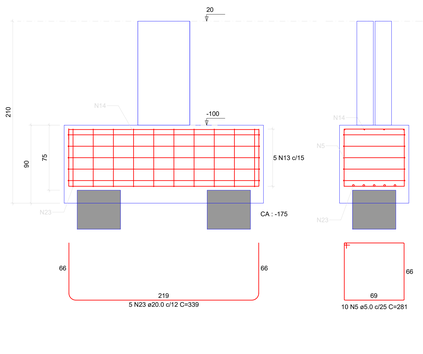
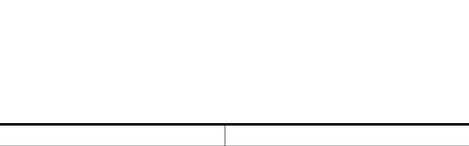
ESC 1:25



CORTE B-B
ESC 1:25

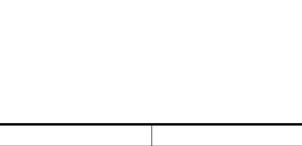
B37-38
2xC60
PLANTA
ESC 1:25

CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

B41-42
2xC60
PLANTA
ESC 1:25



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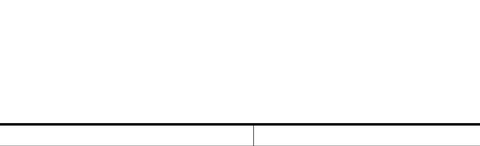

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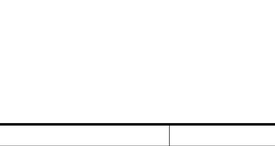
ESC 1:25

B54-55
2xC50
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25

CORTE B-B
ESC 1:25

B56-57
2xC50
PLANTA
ESC 1:25

CORTE A-A
ESC 1:25

CORTE B-B
ESC 1:25

B58-59
2xC50
PLANTA
ESC 1:25

CORTE A-A
ESC 1:25

CORTE B-B
ESC 1:25

B60-61
2xC50
PLANTA
ESC 1:25

CORTE A-A
ESC 1:25

CORTE B-B
ESC 1:25

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980001
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE		
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA		
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA		
PROJETO	BLOCO - A	ARQUIVO ICE_SED_ROS_EST_EX.DWG	DATA 02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO(5)	ETAPA EXECUTIVO ESCALA INDICADA	FOLHA EST 11/76

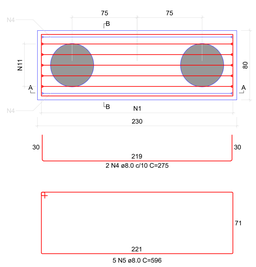
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Blumenau - | 47 3041-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

2025-08-25 15:45:23, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

SEST-3.0-20000038 (pg) 11
Projeto Estrutura de Concreto Armado (2547.0/R0)

B62-63
2xC50

PLANTA
ESC 1:25



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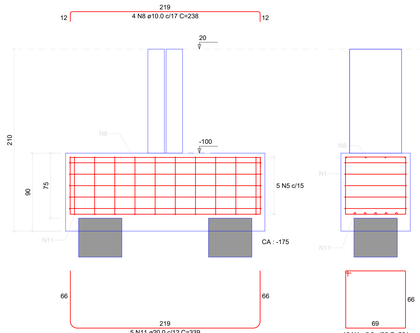
ESC 1:25



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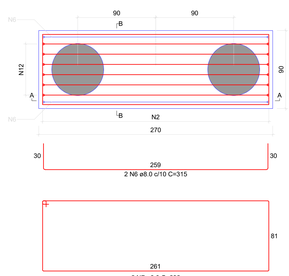
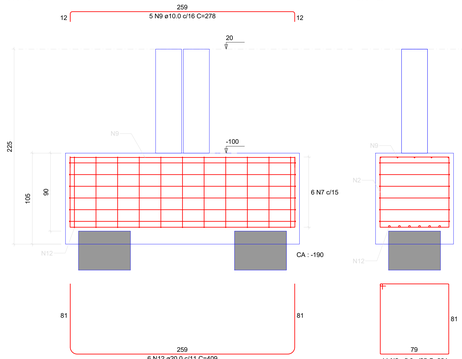
ESC 1:25

B64-65
2xC60

PLANTA
ESC 1:25



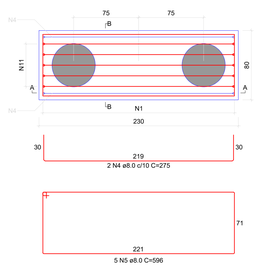
CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

B66-67
2xC50

PLANTA
ESC 1:25



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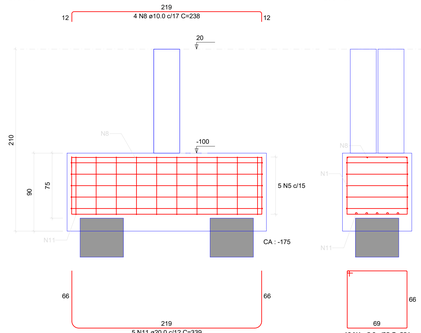

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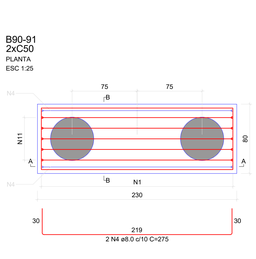
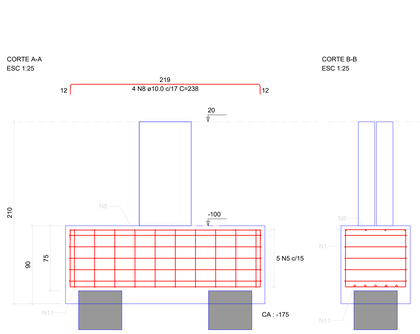
ESC 1:25

B90-91
2xC50

PLANTA
ESC 1:25



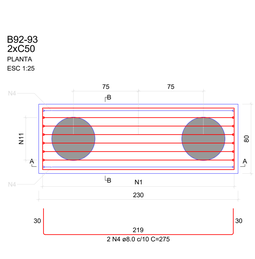
CORTE A-A
ESC 1:25



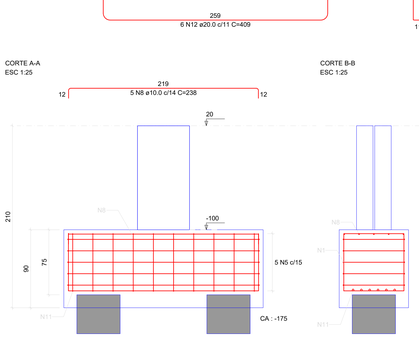
CORTE B-B
ESC 1:25

B92-93
2xC50

PLANTA
ESC 1:25



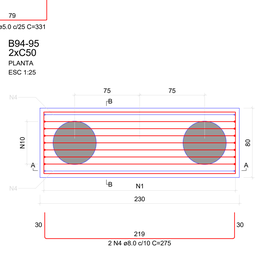
CORTE A-A
ESC 1:25



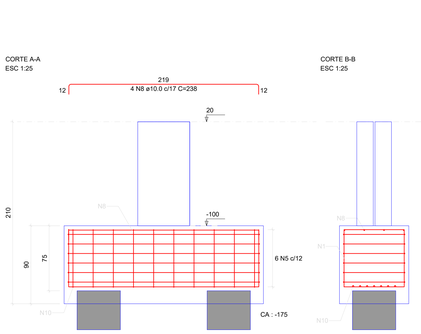
CORTE B-B
ESC 1:25

B94-95
2xC50

PLANTA
ESC 1:25



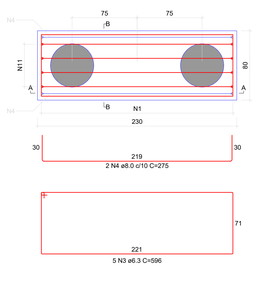
CORTE A-A
ESC 1:25



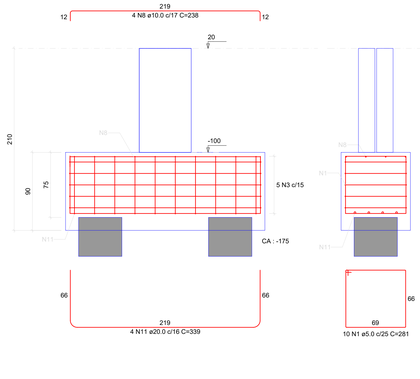
CORTE B-B
ESC 1:25

B96-97
2xC50

PLANTA
ESC 1:25



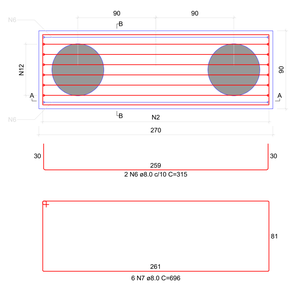
CORTE A-A
ESC 1:25



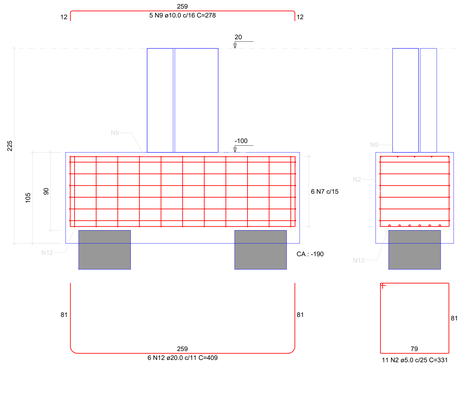
CORTE B-B
ESC 1:25

B51-52-53
2xC60

PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

RELAÇÃO DO AÇO

B62-63
B90-91
B96-97

B64-65
B92-93
B51-52-53

B66-67
B94-95

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	60	281	16860
	2	5.0	22	331	7282
CA50	3	6.3	5	596	2980
	4	8.0	12	275	3300
	5	8.0	26	596	15496
	6	8.0	4	315	1260
	7	8.0	12	696	8352
	8	10.0	25	238	5950
	9	10.0	10	278	2780
	10	16.0	7	344	2408
	11	20.0	25	339	8475
	12	20.0	12	409	4908

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	29.8	7.3
	8.0	284.1	112.1
	10.0	87.3	53.8
	16.0	24.1	38
	20.0	133.8	330
CA60	5.0	241.4	37.2
PESO TOTAL (kg)			
CA50	541.3		
CA60	37.2		

Volume de concreto (C-35) = 14.52 m³
Área de forma = 48.60 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENG° CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinvillo

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	BLOCOS DE FUNDAÇÃO(6)

ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
ESCALA: EXECUTIVO
FOLHA: INDICADA

EST 12/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.466.721/0001-66
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Iturnanga | CEP 89010-140 | Fone: (47) 3411-0074 | E-mail do responsável técnico desta projeto: fernando@fercongroup.com

SEI 24.0.000003-8 | pg 12
Projeto Estrutura de Concreto Armado (0047145)
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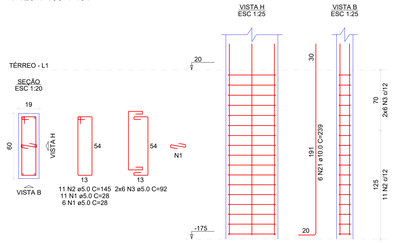
P1=P4=P5=P6=P9=P58=P59=P60=P61=P74= =P83=P89=P90=P91=P92=P123=P124=P125= =P126=P130=P131



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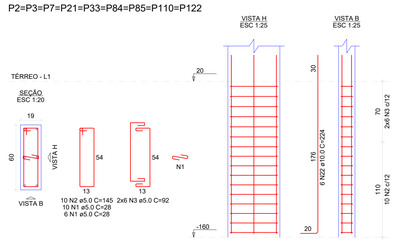

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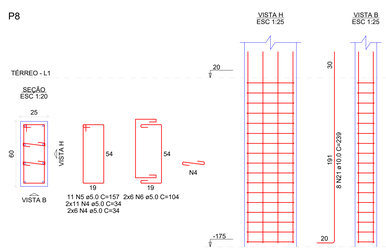

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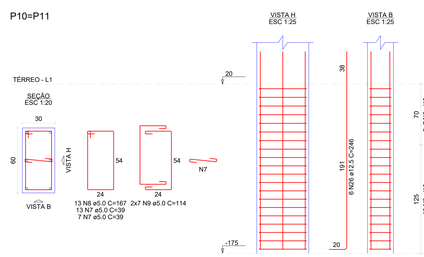

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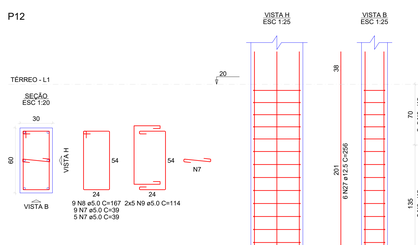


RELAÇÃO DO AÇO

21xP1	9xP2	P8	
2xP10	P12	P13	
4xP14	10xP15	20xP18	
2xP19	2xP25	P27	
2xP30	2xP32	3xP34	
P35	P36	P37	
P38	3xP39	P41	
4xP42	P43	P44	
P45	P46	P47	
P48	P49		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1237	28	34636
	2	5.0	742	145	107590
	3	5.0	742	92	68264
	4	5.0	369	34	12512
	5	5.0	132	157	20724
	6	5.0	132	104	13728
	7	5.0	182	39	7098
	8	5.0	77	167	12859
	9	5.0	84	114	9576
	10	5.0	70	125	8750
	11	5.0	76	82	6232
	12	5.0	110	49	5390
	13	5.0	37	147	5439
	14	5.0	98	44	4312
	15	5.0	137	14	1918
	16	5.0	19	177	3363
	17	5.0	28	114	3192
	18	5.0	136	59	8024
	19	5.0	26	187	4862
	20	5.0	16	144	2304
CA50	21	10.0	286	239	68354
	22	10.0	204	224	45696
	23	10.0	30	254	7620
	24	10.0	6	229	1374
	25	10.0	8	249	1992
	26	12.5	22	246	5412
	27	12.5	6	256	1536
	28	12.5	8	236	1888
	29	12.5	22	251	5522
	30	12.5	12	281	3372
	31	12.5	24	261	6264
	32	12.5	12	231	2772
	33	12.5	6	241	1446
	34	12.5	12	316	3792

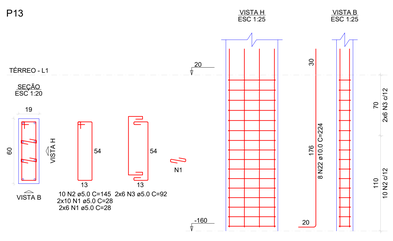
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	1250.4	770.9
	12.5	320	308.3
CA60	5.0	3429.7	528.6

PESO TOTAL (kg)	
CA50	1079.2
CA60	528.6

Volume de concreto (C-35) = 15.23 m³
Área de forma = 193.34 m²

P13



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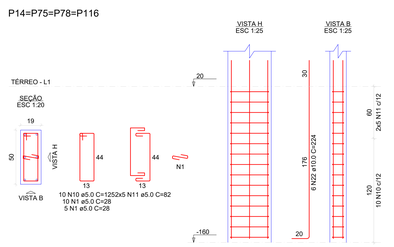

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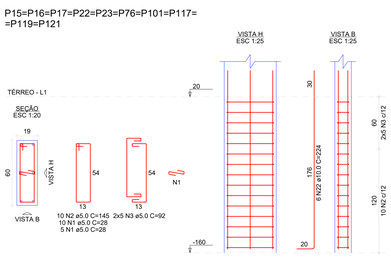

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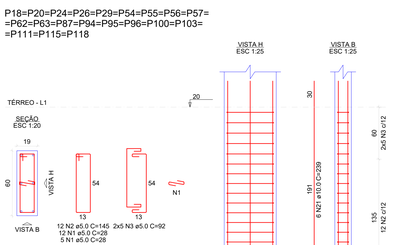

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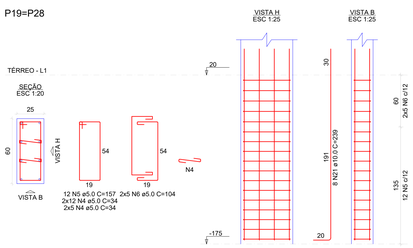

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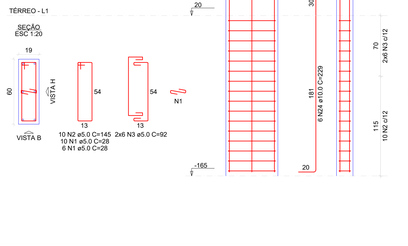

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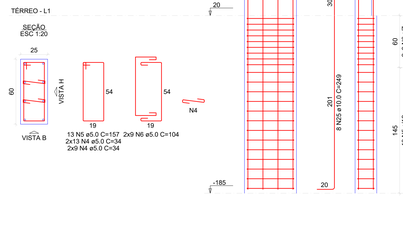

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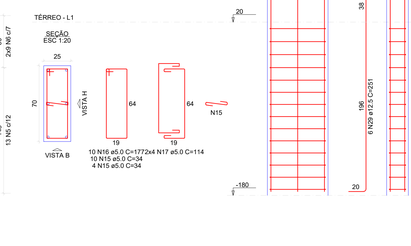

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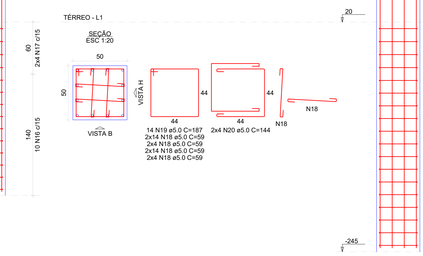

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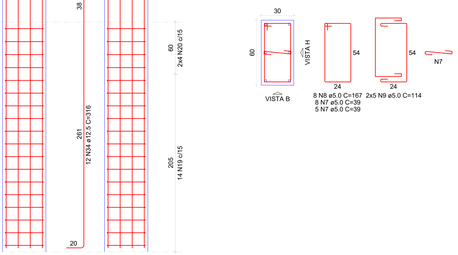

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P38

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P44

P45

P46

P47

P48

P49

P50

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901 MUNICÍPIO DE JOINVILLE 83.169.629/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH CREA 062522-0

FERCON

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES SUPERIRO(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 13/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 13 - Centro - Brunerau | CEP 89010-540 | Fone (47) 9911-8313 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

Projeto Estrutural de Concreto Armado (pdf)
SEI 25.0.20003-8 / pg. 13
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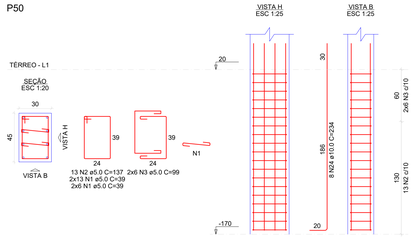

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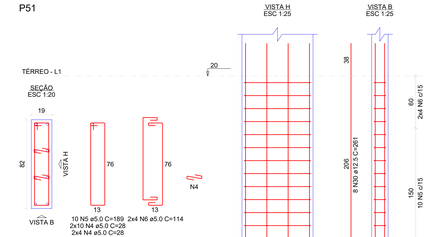

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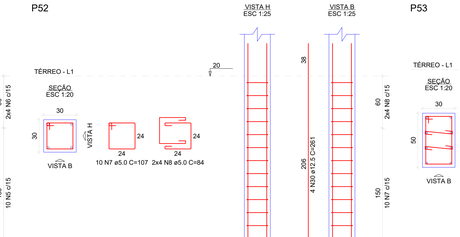

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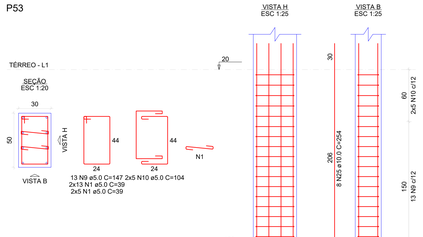

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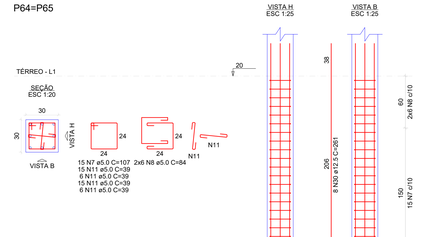

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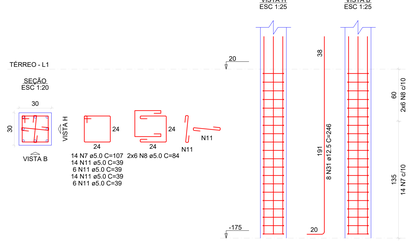

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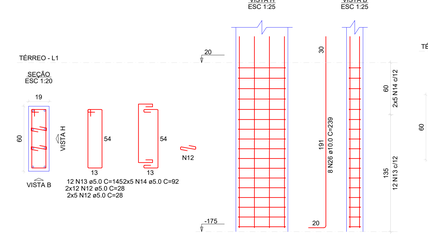

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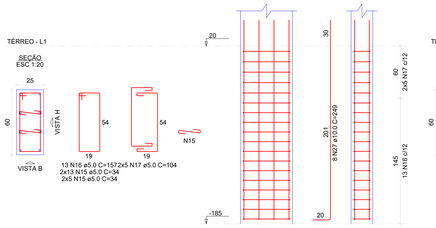

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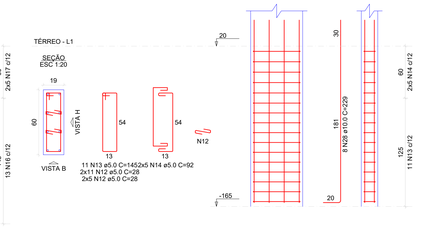

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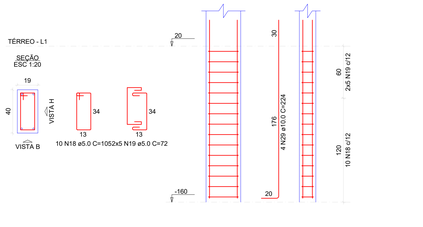

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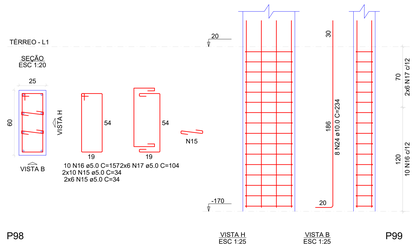

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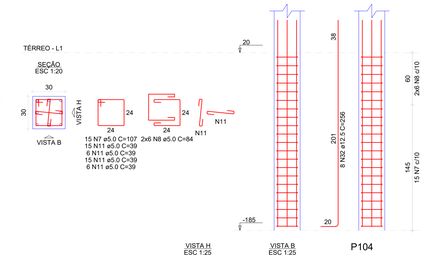

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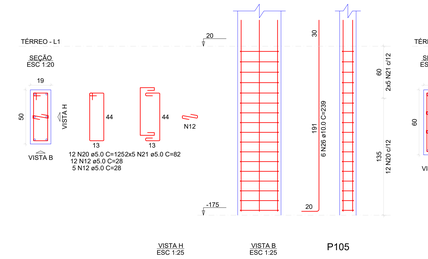

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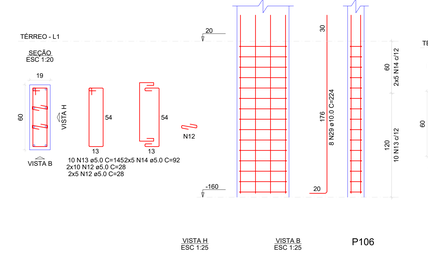

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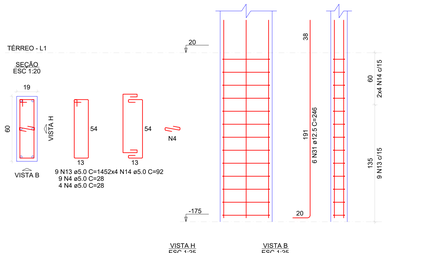

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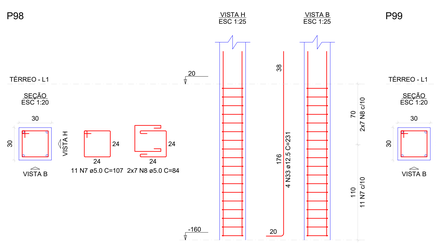

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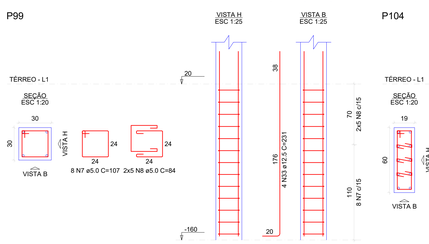

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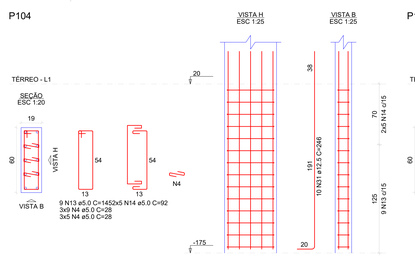

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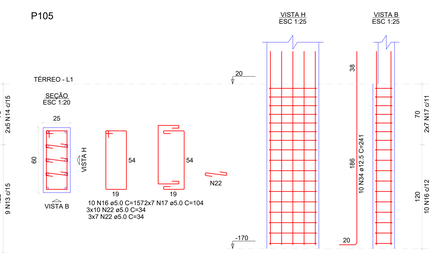

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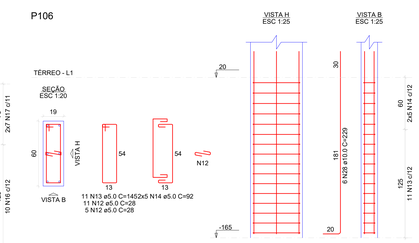

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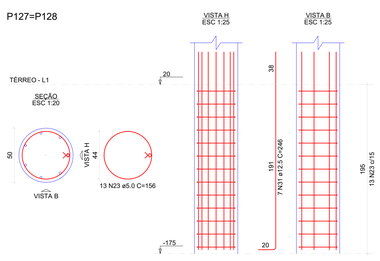

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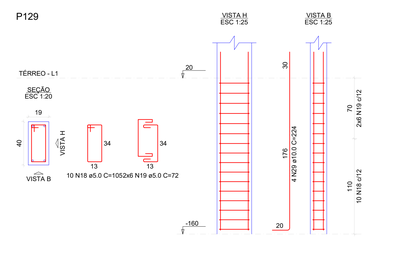

RELAÇÃO DO AÇO

P50	P51	P52
P53	2xP64	3xP66
3xP68	2xP69	P70
P71	3xP72	P77
P81	P86	P93
P98	P99	P104
P105	P106	2xP127
P129		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	74	39	2886
	2	5.0	13	137	1781
	3	5.0	12	99	1188
	4	5.0	83	28	2324
	5	5.0	10	189	1890
	6	5.0	6	114	912
	7	5.0	116	107	12412
	8	5.0	104	84	8736
	9	5.0	13	147	1911
	10	5.0	10	104	1040
	11	5.0	246	39	9594
	12	5.0	197	28	5516
	13	5.0	86	145	12470
	14	5.0	78	92	7176
	15	5.0	168	34	5712
	16	5.0	66	157	10362
	17	5.0	70	104	7280
	18	5.0	20	105	2100
	19	5.0	22	72	1584
	20	5.0	12	125	1500
	21	5.0	10	82	820
	22	5.0	51	34	1734
	23	5.0	26	156	4056
CA50	24	10.0	32	234	7488
	25	10.0	8	254	2032
	26	10.0	30	239	7170
	27	10.0	16	249	3984
	28	10.0	14	229	3206
	29	10.0	16	224	3584
	30	12.5	28	261	7308
	31	12.5	54	246	13284
	32	12.5	8	256	2048
	33	12.5	8	231	1848
	34	12.5	10	241	2410

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	274.6	169.3
	12.5	269	259.1
CA60	5.0	1049.8	161.8
PESO TOTAL (kg)			
CA50	428.4		
CA60	161.8		

Volume de concreto (C-35) = 4.43 m³
Área de forma = 54.66 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.168.823/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL, FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES SUPERIOR(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 14/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Brusque - | CEP 89010-140 | Fone (47) 9631-3013 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com.br

Projeto Executivo Armado (0247/2025)
SED 25.0.000003-8 pag. 14
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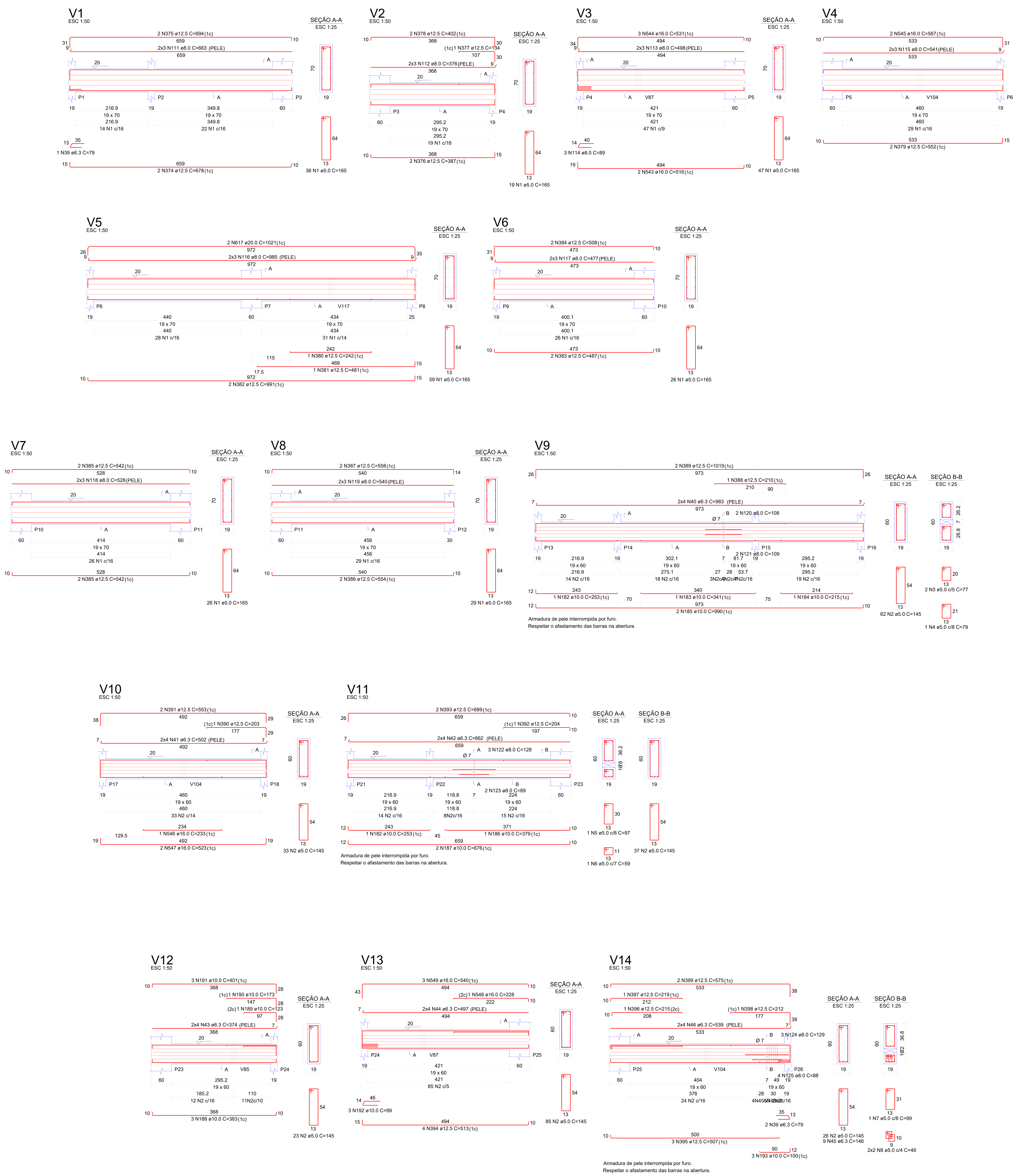

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
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	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
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	135	8.0	6	547	3282
	136	8.0	6	717	4302
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	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(1)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 15/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 15

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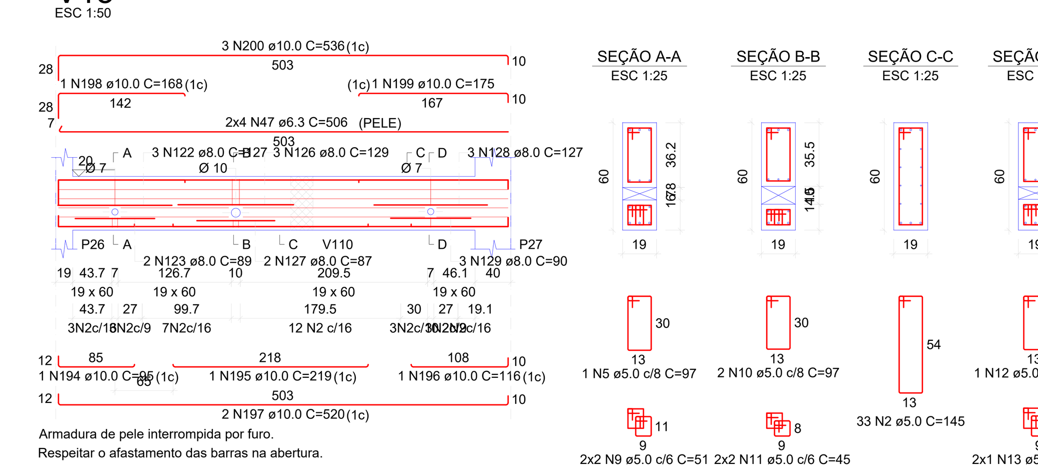

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

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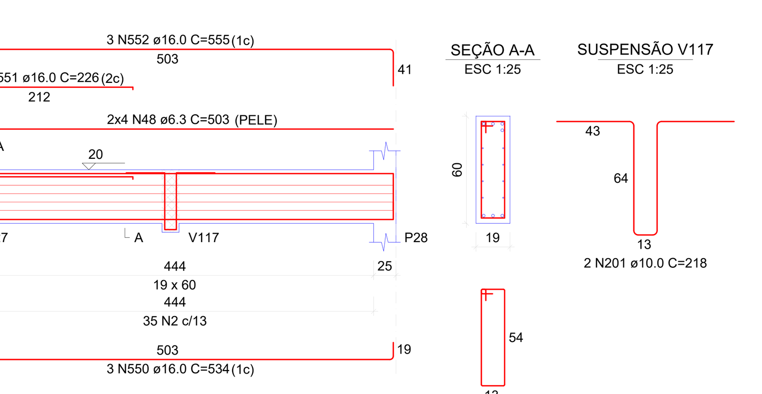

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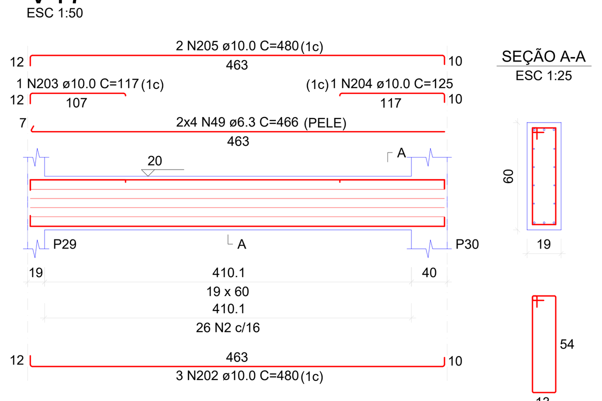

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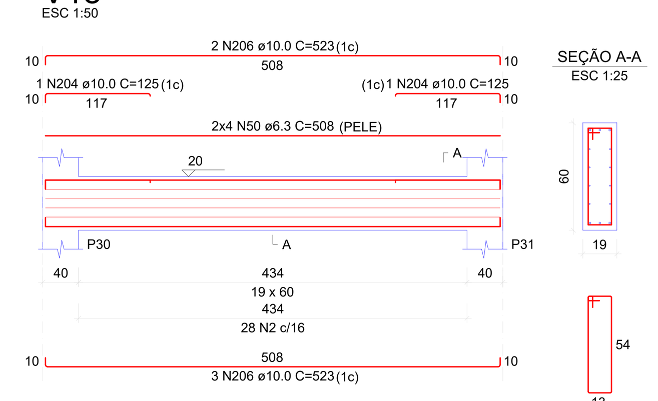

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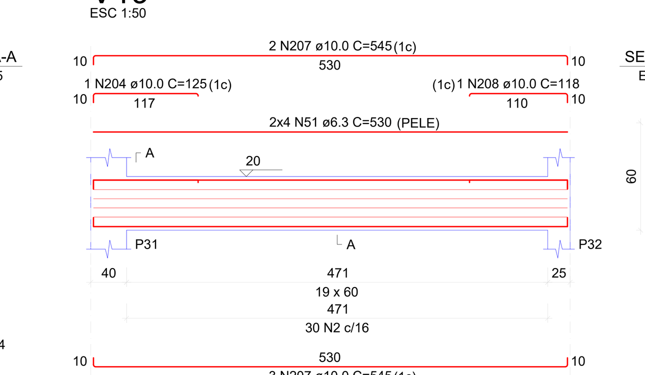

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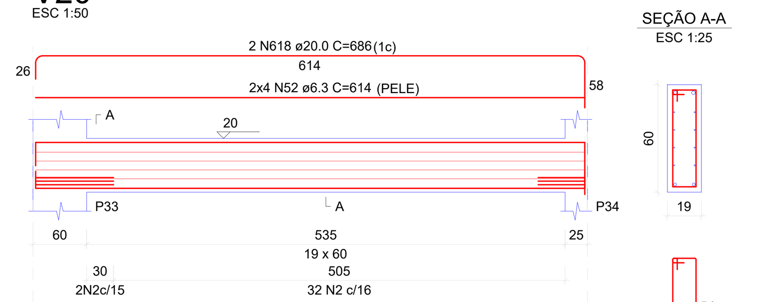

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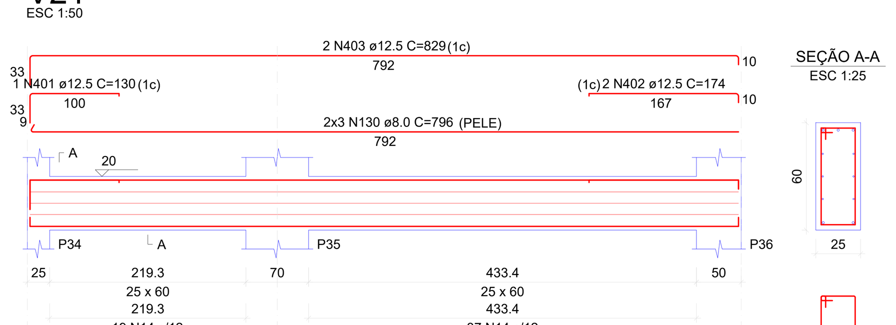

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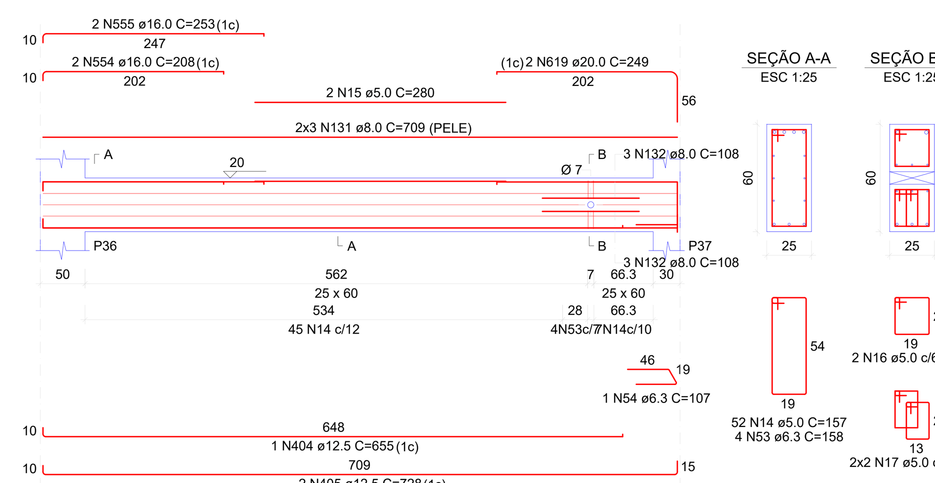

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

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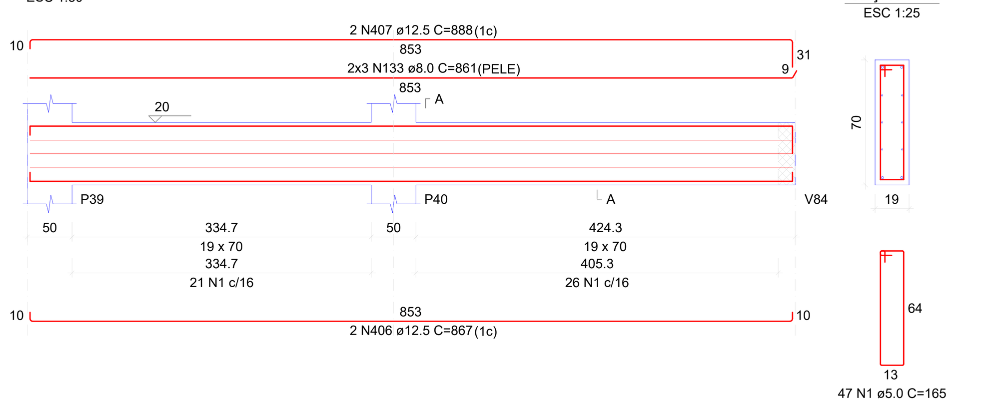

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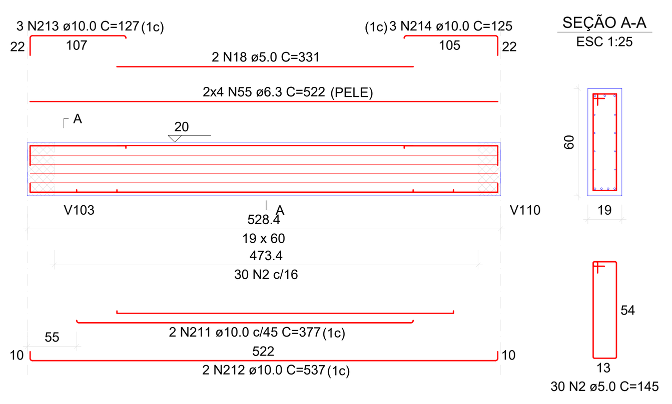

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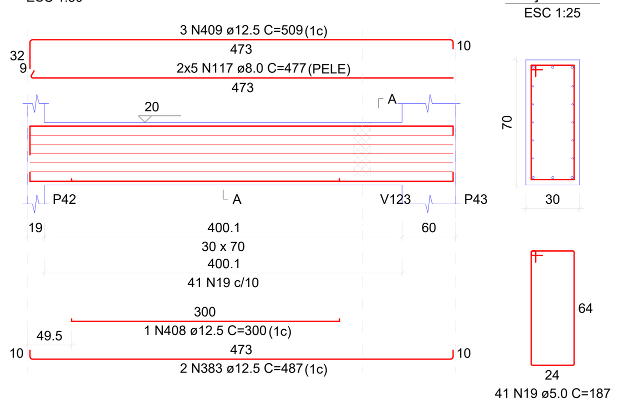

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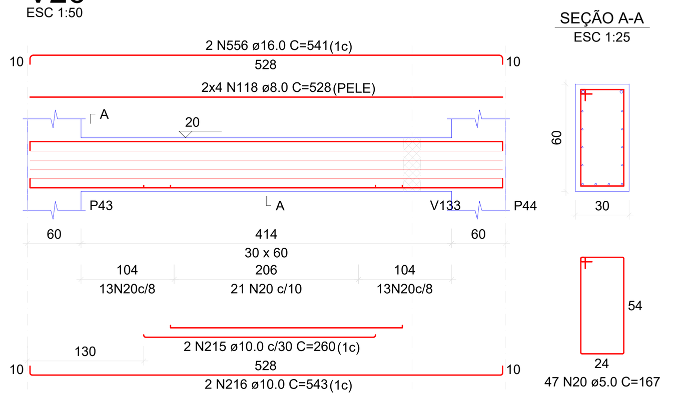

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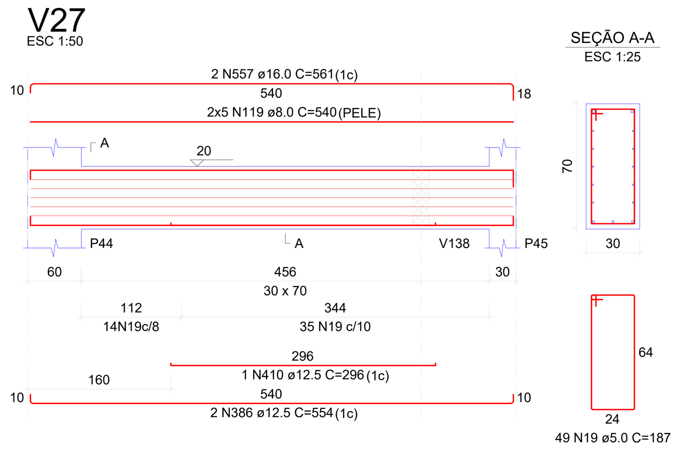

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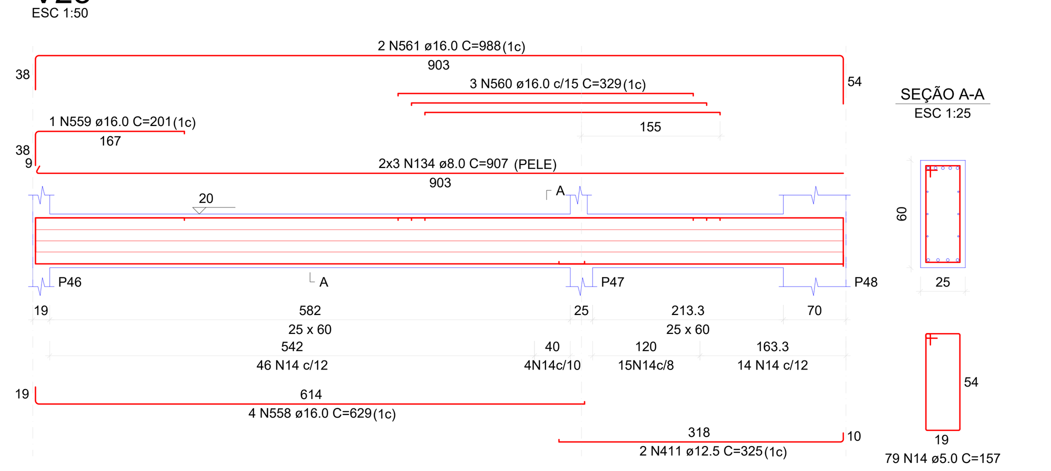

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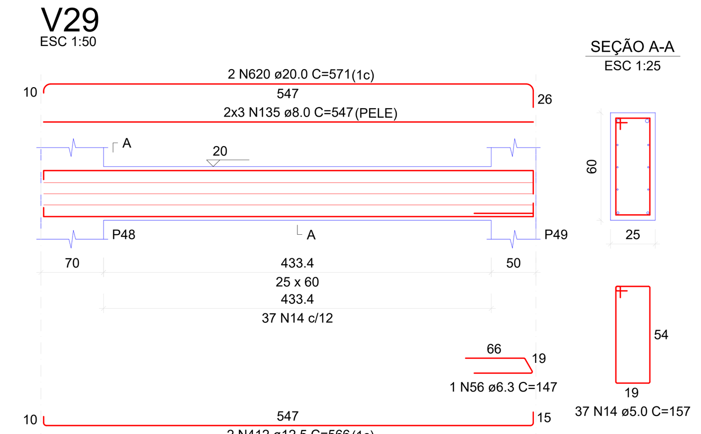

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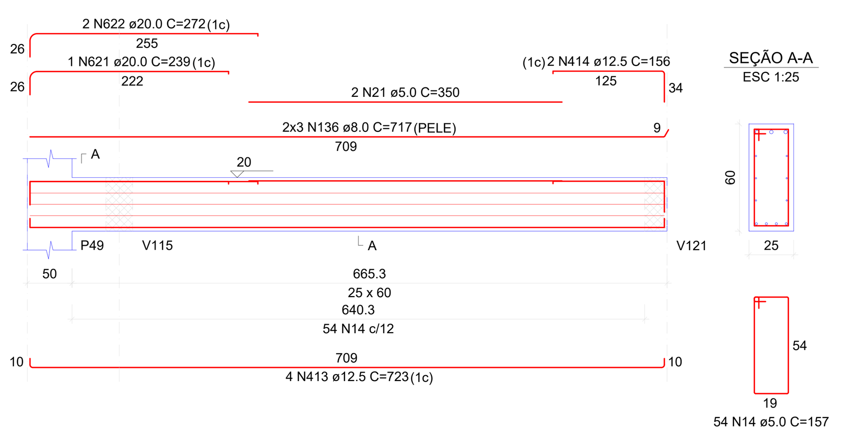

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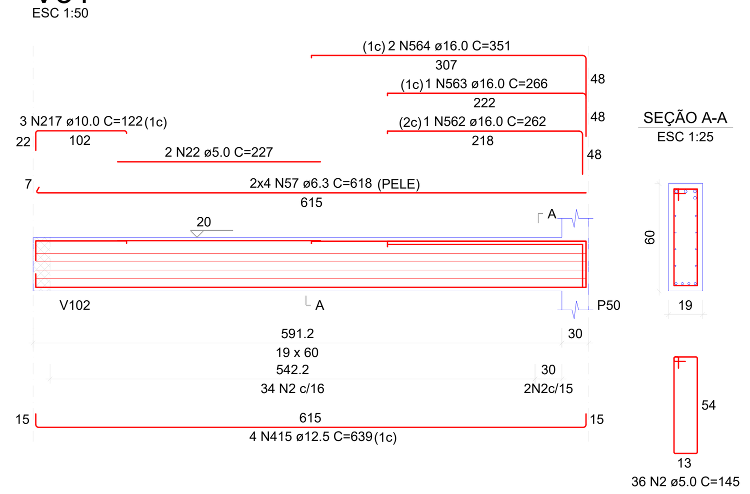

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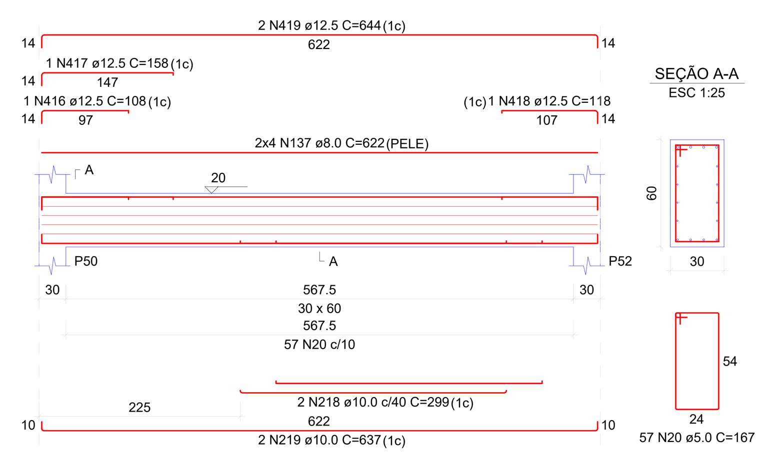

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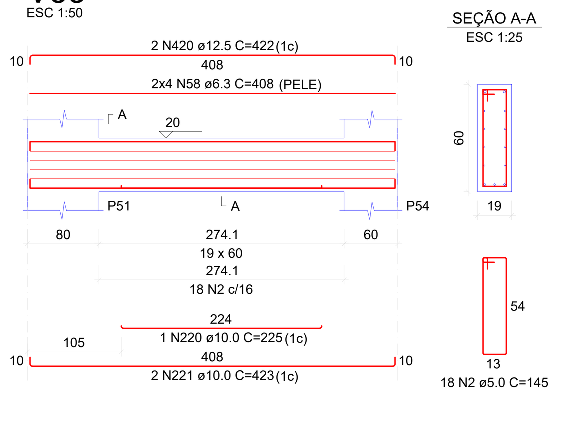

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	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
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	76	6.3	8	550	4400
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	84	6.3	8	246	1968
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	167	8.0	6	412	2472
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	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
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	325	10.0	1	217	217
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	328	10.0	1	177	177
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	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
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	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
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	411	12.5	2	325	650
	412	12.5	2	566	1132
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	414	12.5	2	156	312
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	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
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	421	12.5	2	887	1774
	422	12.5	2	532	1064
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	426	12.5	11	628	6908
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	435	12.5	2	403	806
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	462	12.5	2	376	752
	463	12.5	2	392	784
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	467	12.5	1	151	151
	468	12.5	2	538	1076
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	470	12.5	1	131	131
	471	12.5	1	220	220
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	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
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	495	12.5	2	516	1032
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	497	12.5	1	197	197
	498	12.5	2	550	1100
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	501	12.5	1	234	234
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	503	12.5	2	205	410
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	506	12.5	2	537	1074
	507	12.5	2	537	1074
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	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
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	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
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	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901. ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901. Razão: motivo da sua assinatura aqui. Localização: sua localização de assinatura aqui. Data: 2025.08.28 10:45:14-03'00'. Foxit PDF Reader Versão: 2023.3.0

MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920. ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920. Razão: motivo da sua assinatura aqui. Localização: sua localização de assinatura aqui. Data: 2025.08.26 14:13:32-03'00'. Foxit PDF Editor Versão: 13.1.7

ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(2)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 16/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 16

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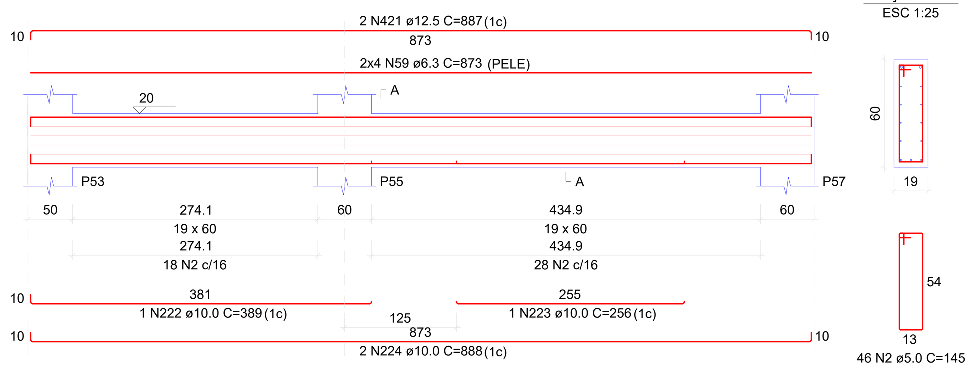

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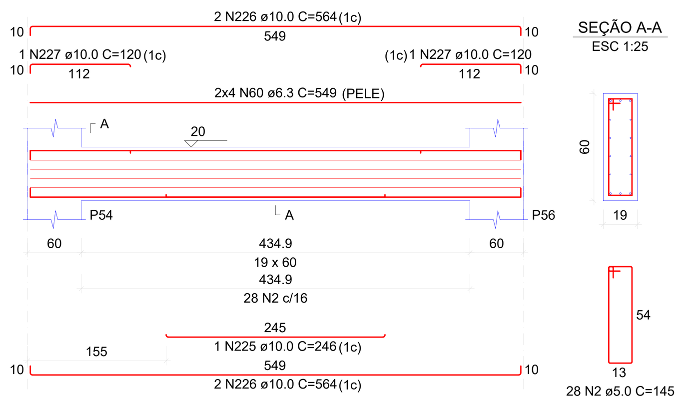

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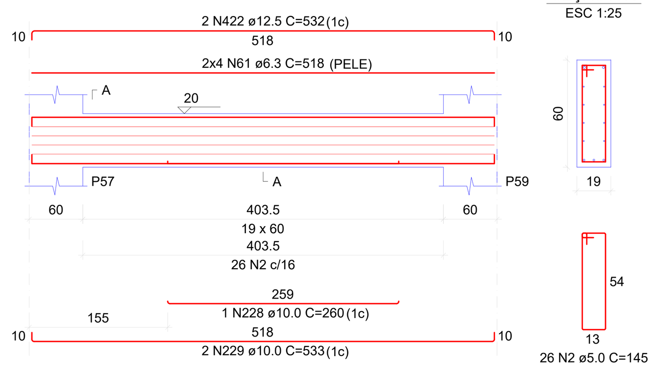

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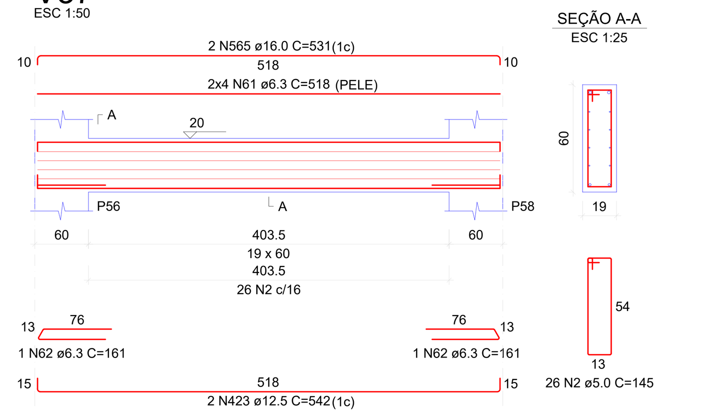

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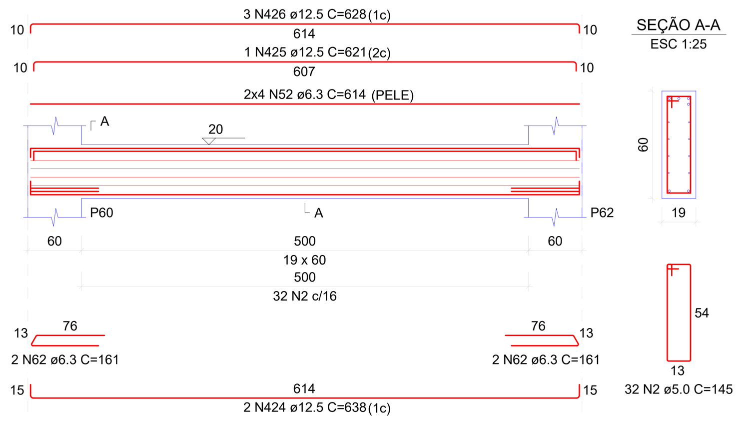

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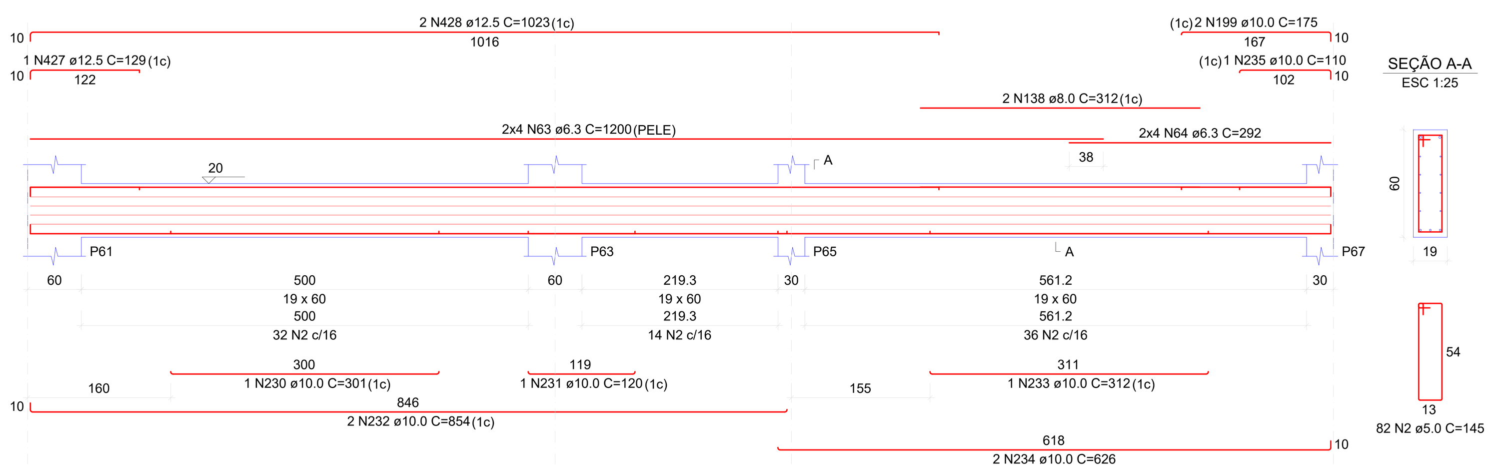

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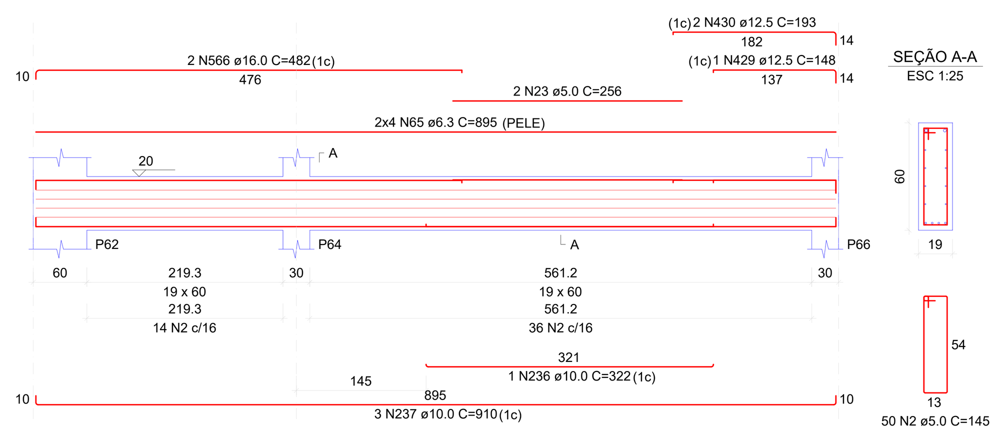

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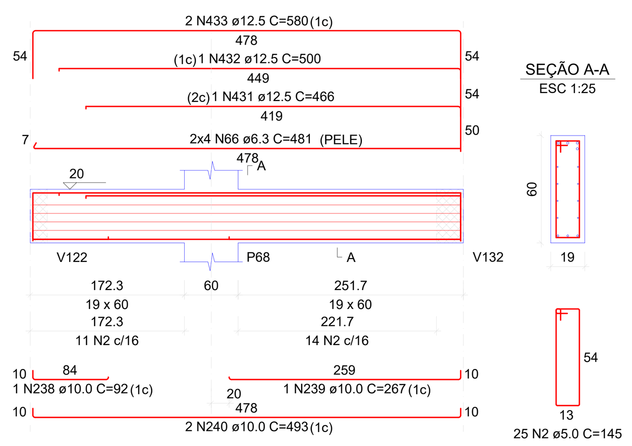

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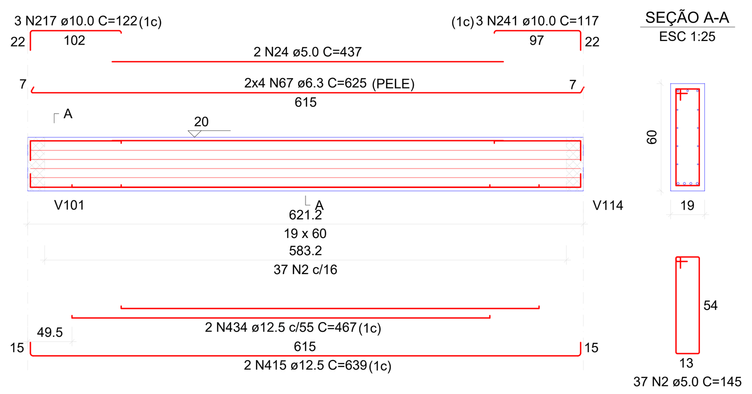

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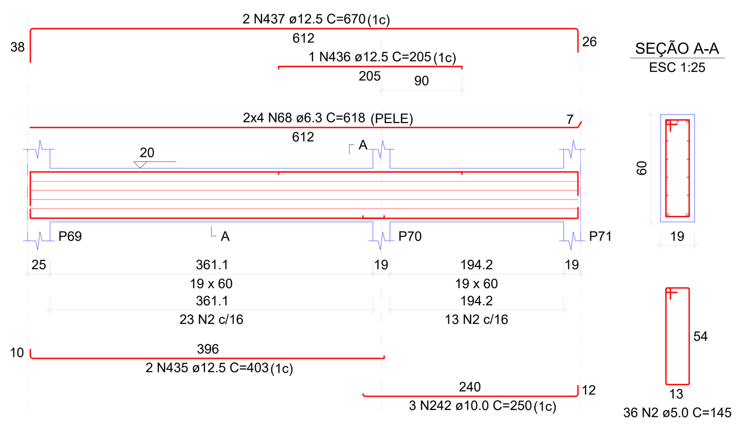

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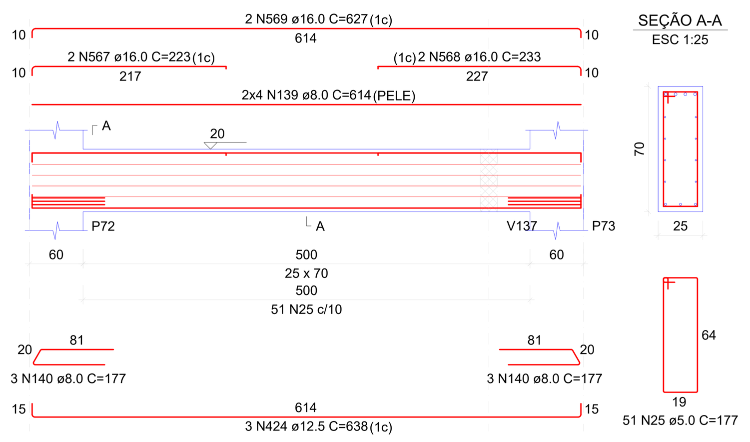

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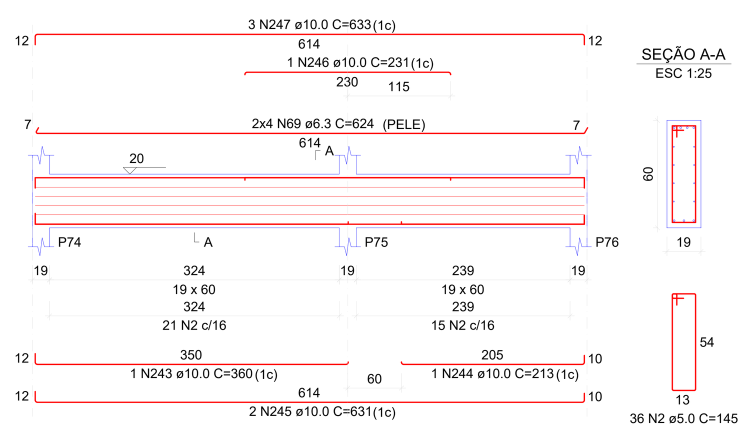

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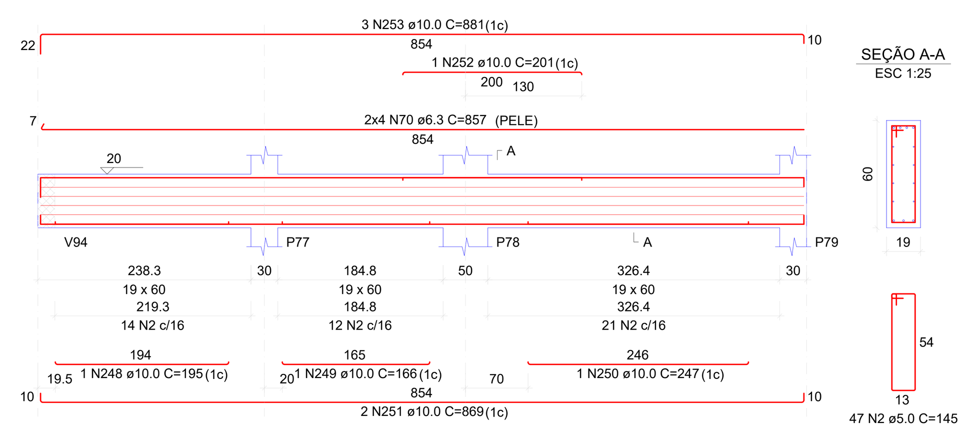

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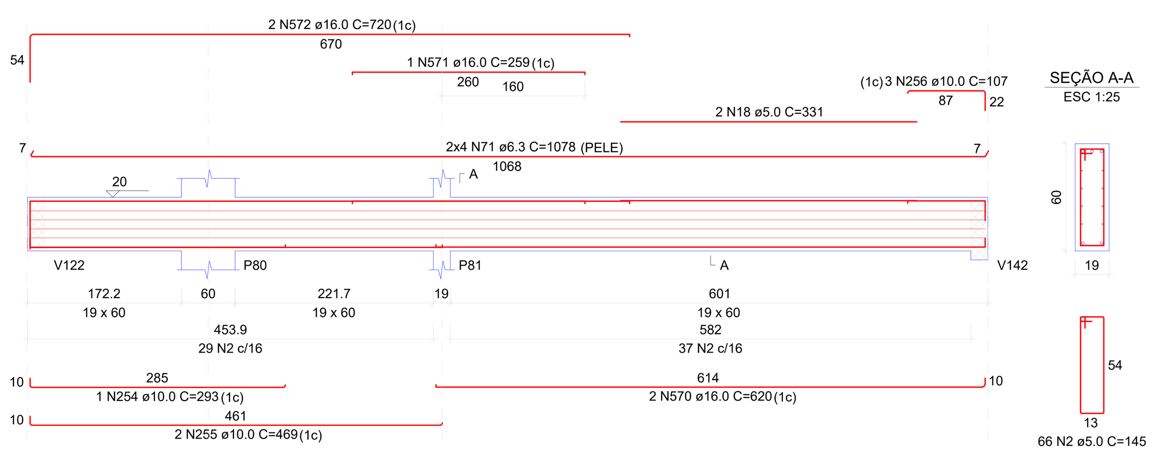

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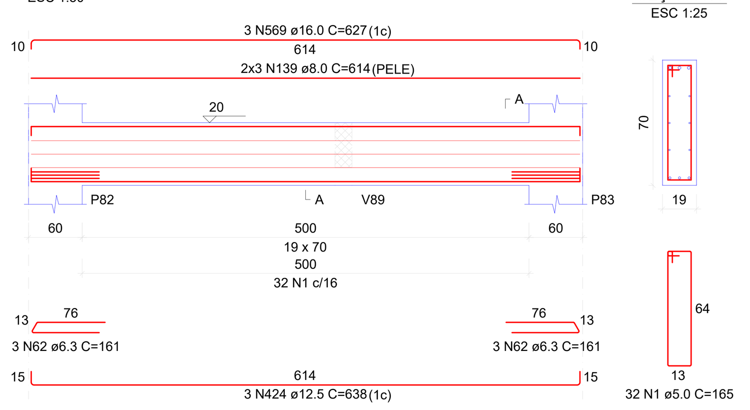

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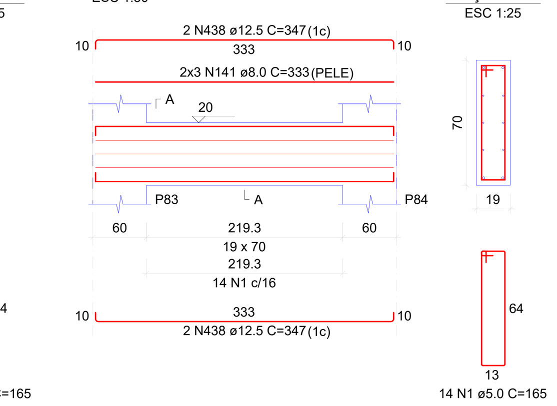

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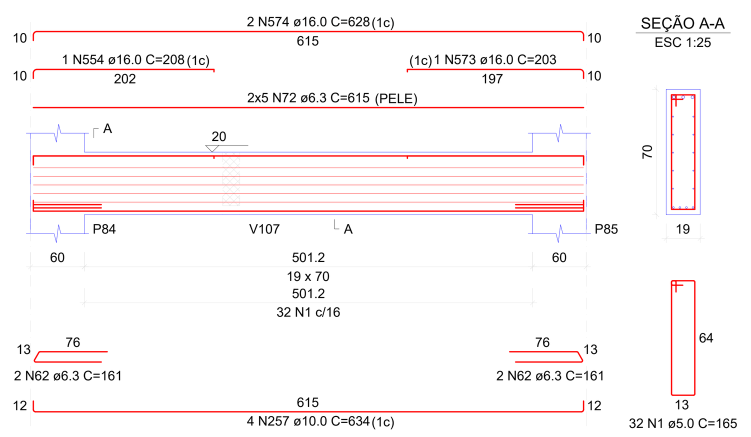

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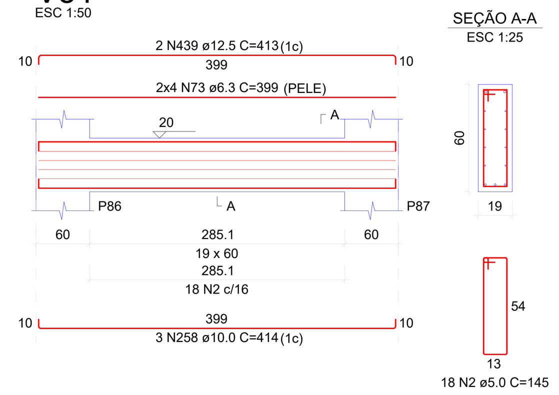

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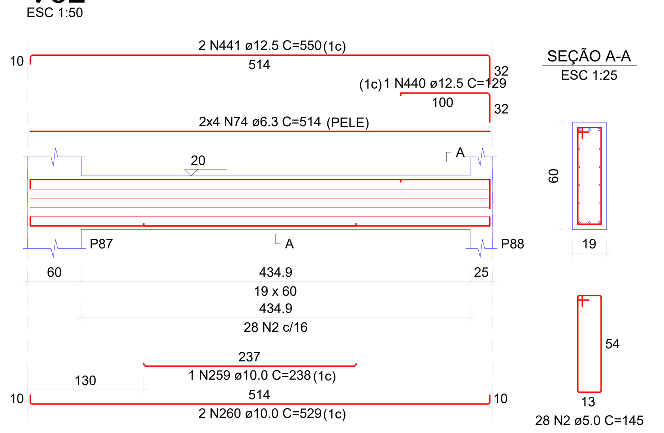

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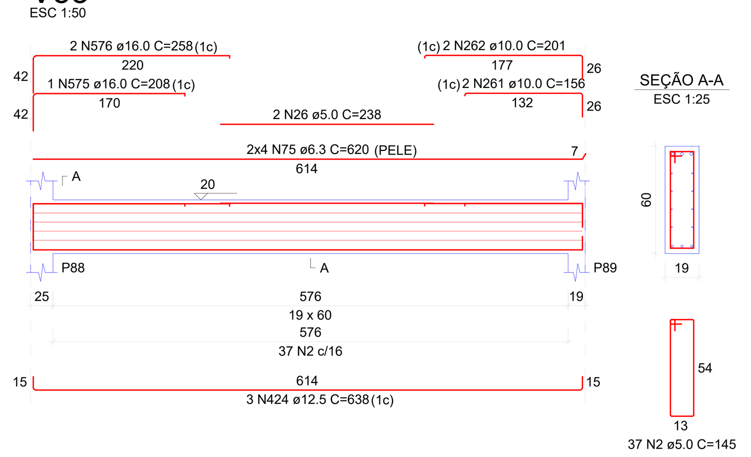

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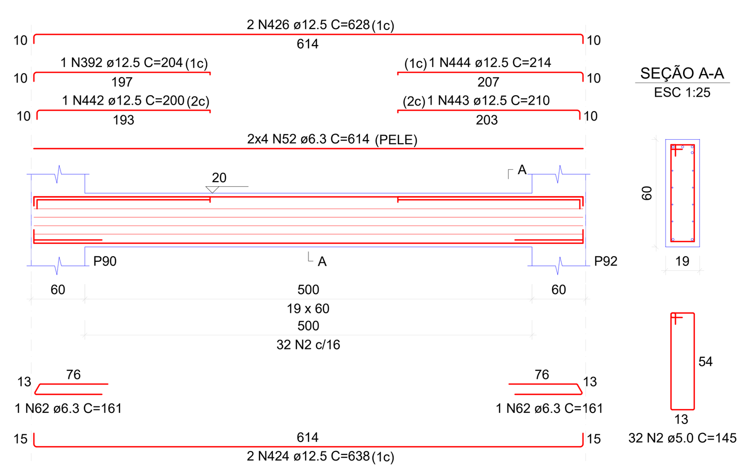


AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

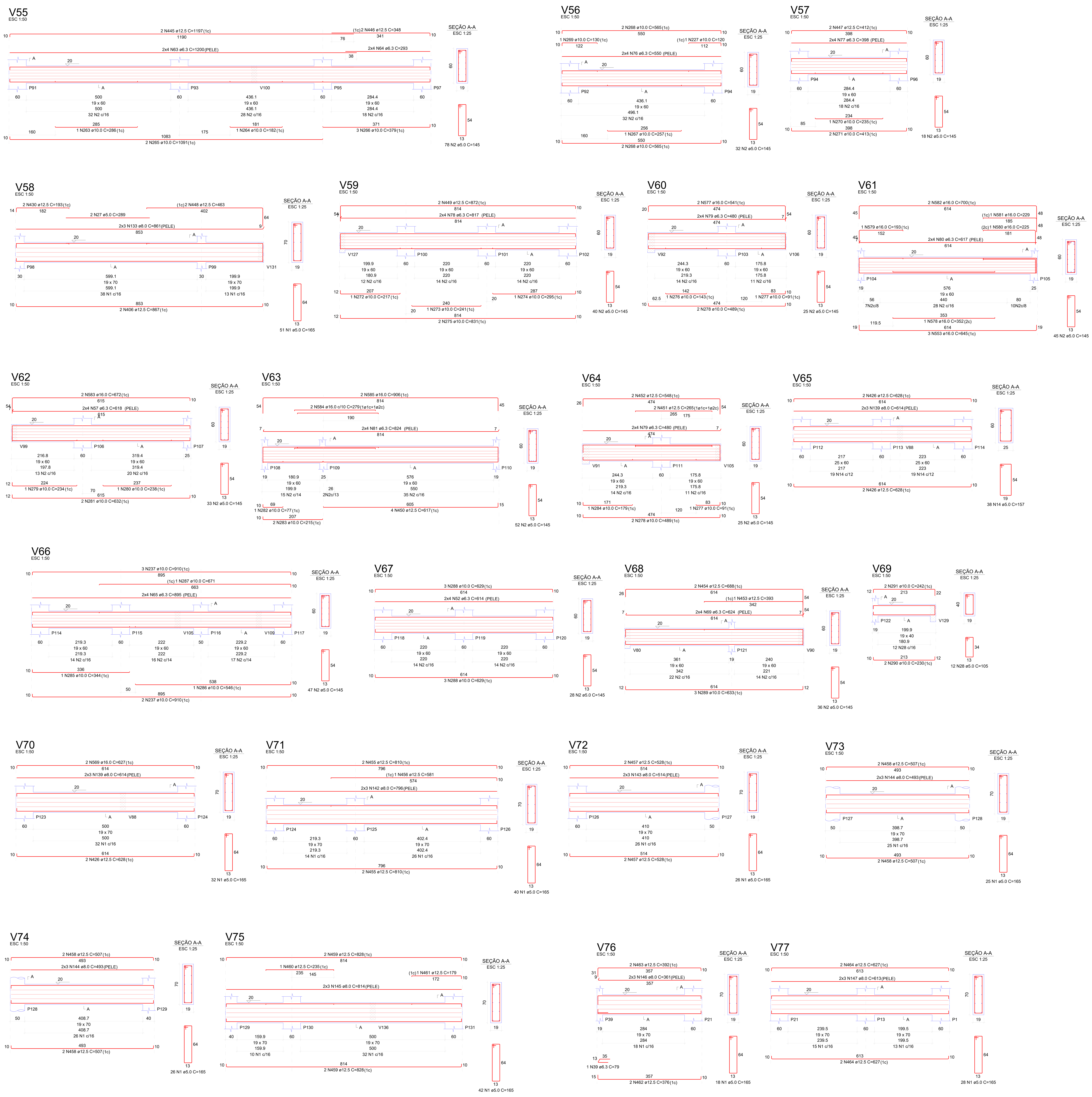
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(3)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 17/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 17
2025-08-25 15:46:03, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(4)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 18/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 18

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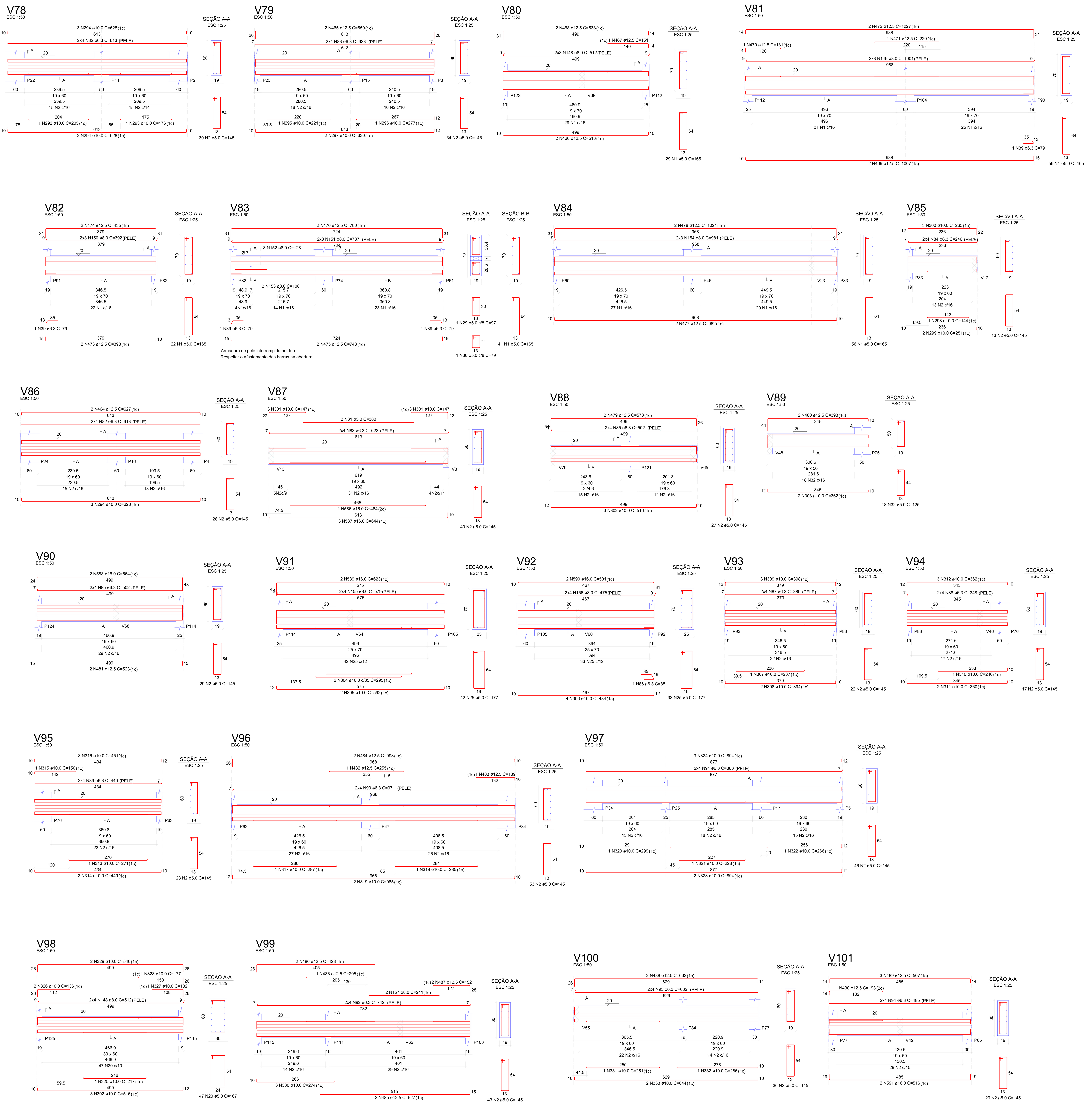

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³

Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE

EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA

ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA

PROJETO: VIGAS SUPERIOR(5)

ARQUIVO: JOI_SED_ROS_EST_EX.DWG

DATA: 02/07/2025

CONTEÚDO: COIFA- DETALHES

ETAPA: EXECUTIVO

ESCALA: INDICADA

FOLHA: EST 19/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460)   SEI 25.0.200003-8 / pg. 19

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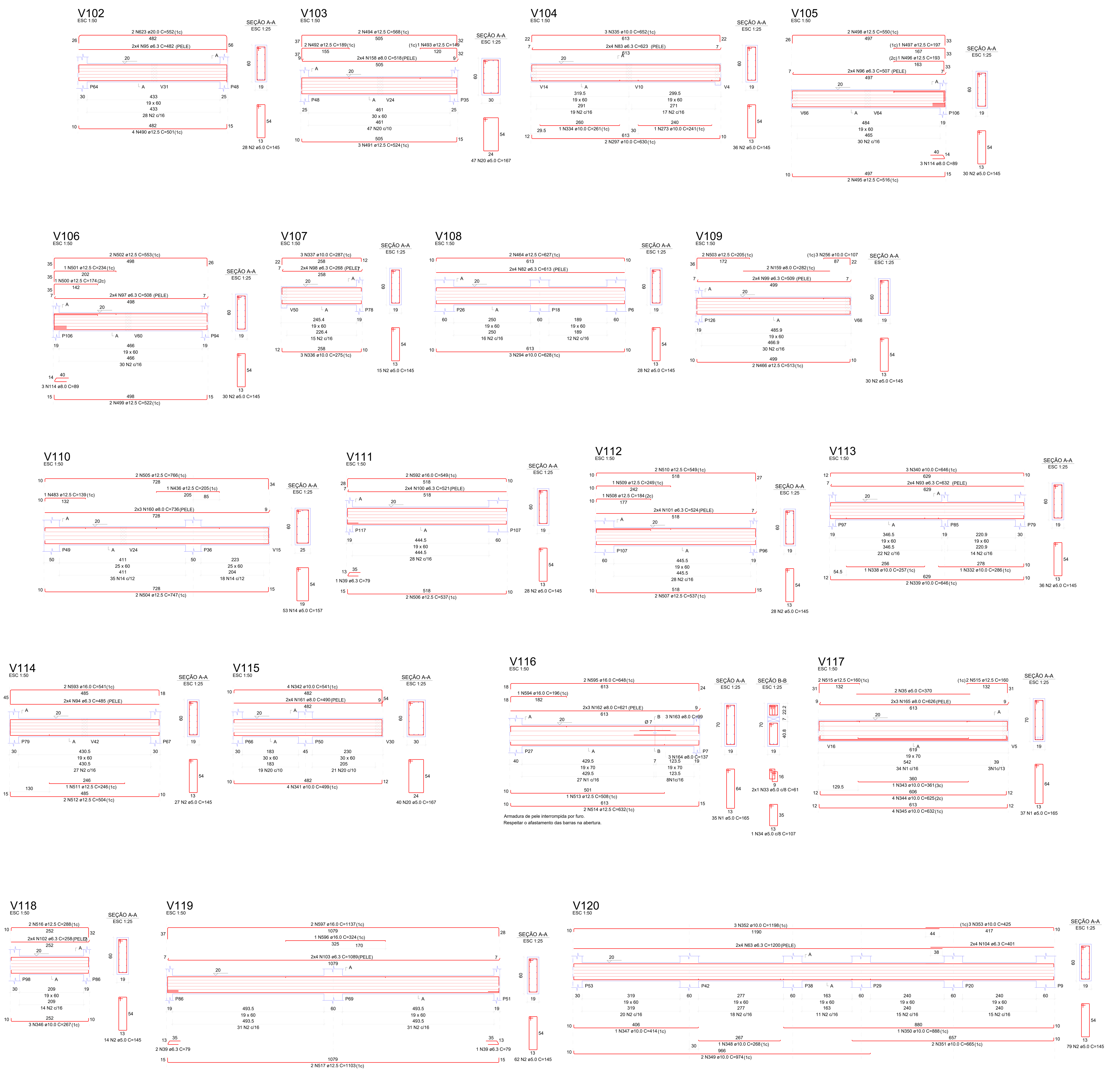

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: VIGAS SUPERIOR(6)
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: COIFA- DETALHES
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 20/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 20

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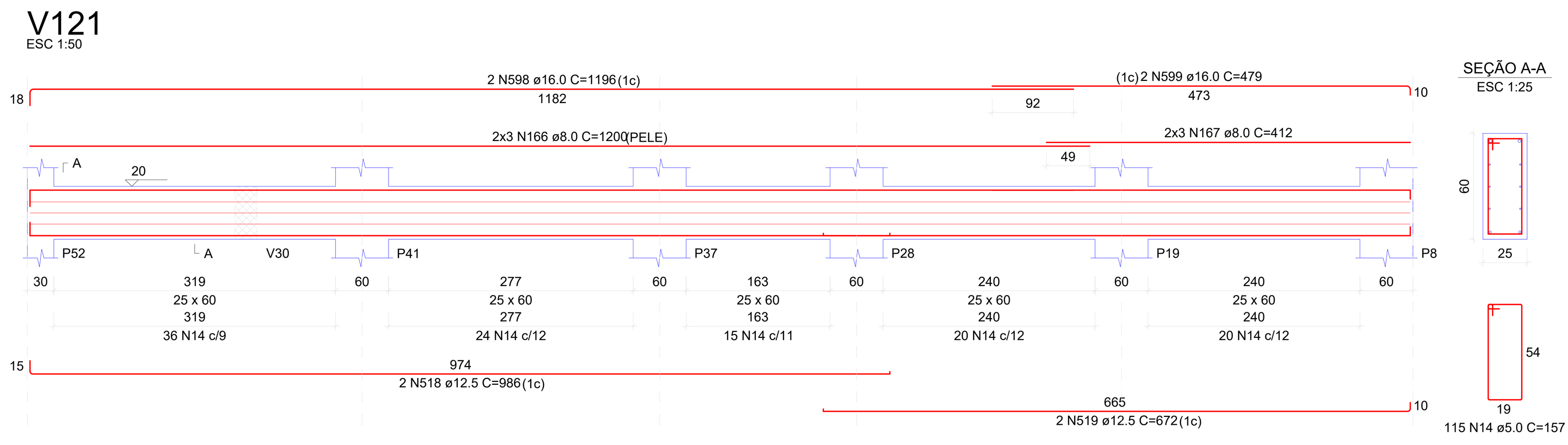

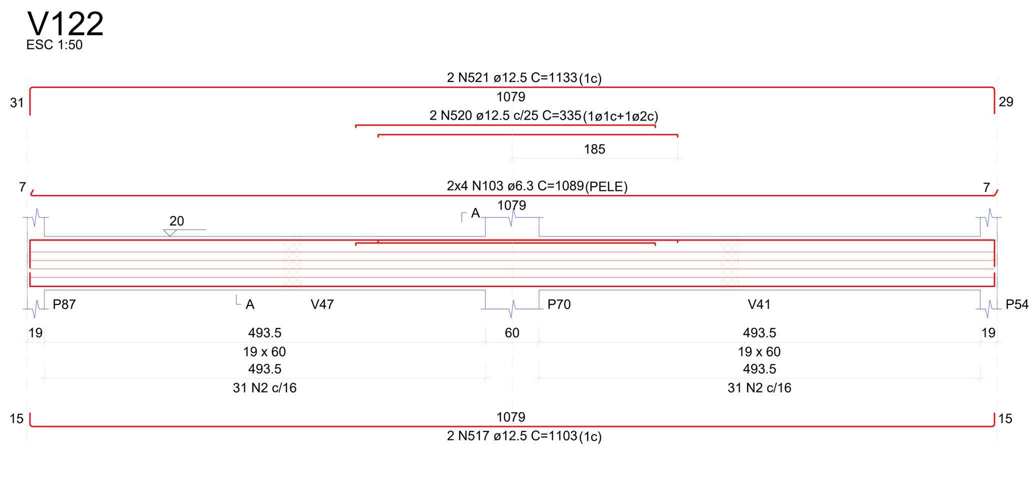

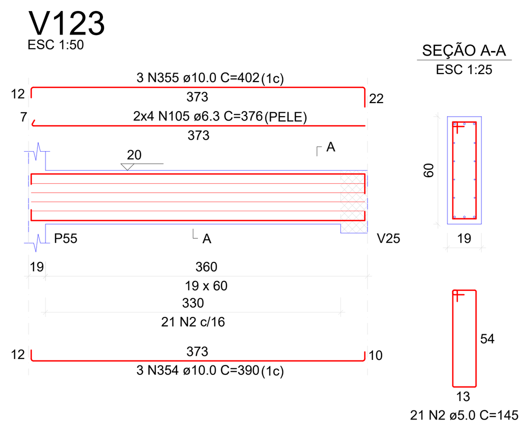

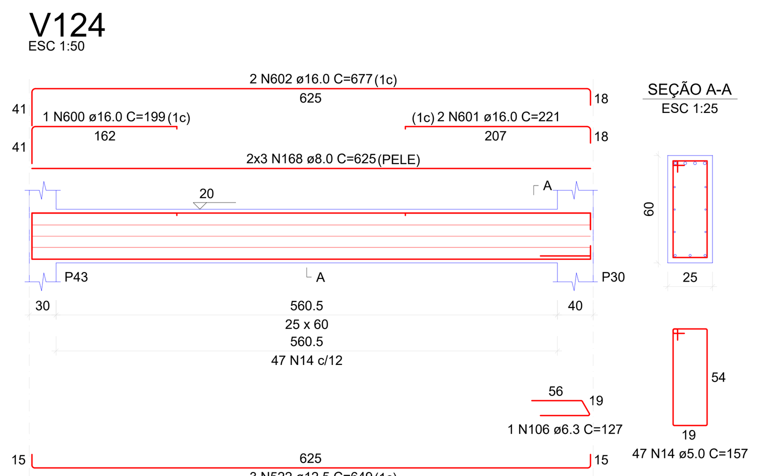

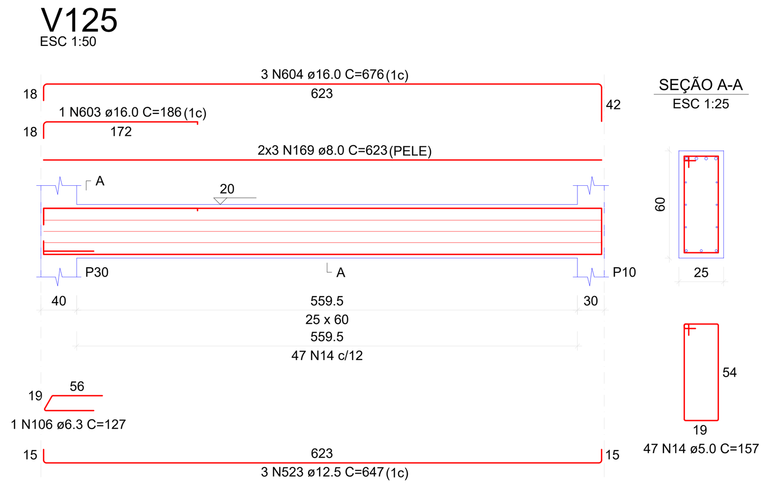

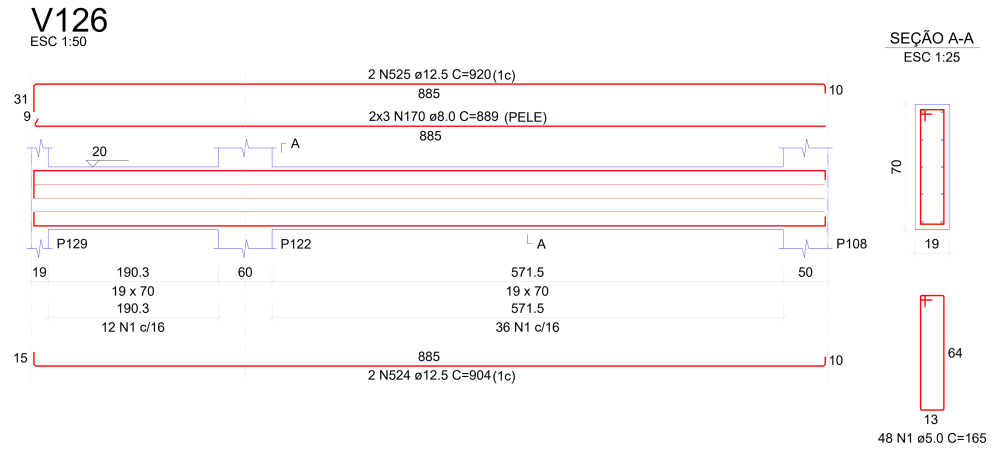

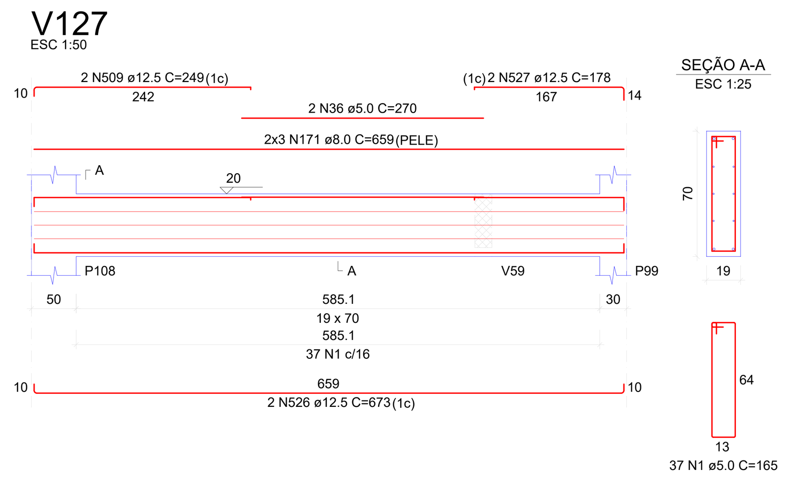

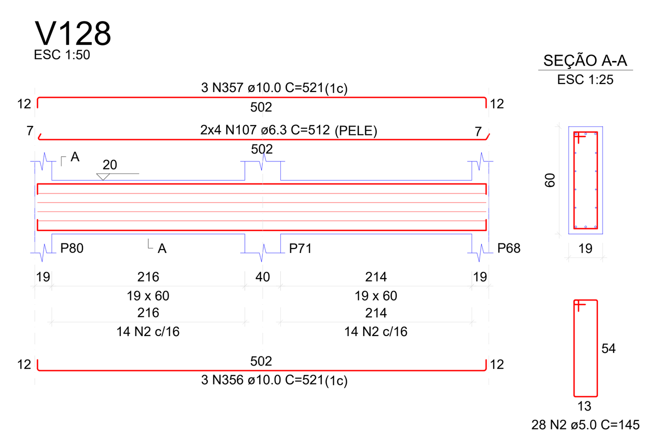

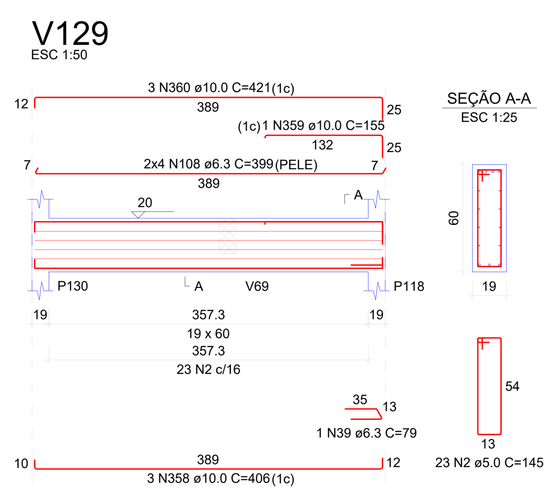

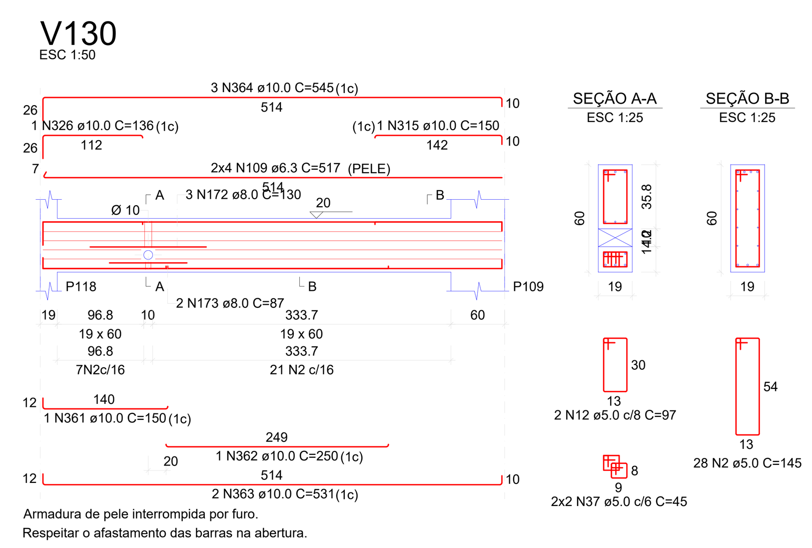

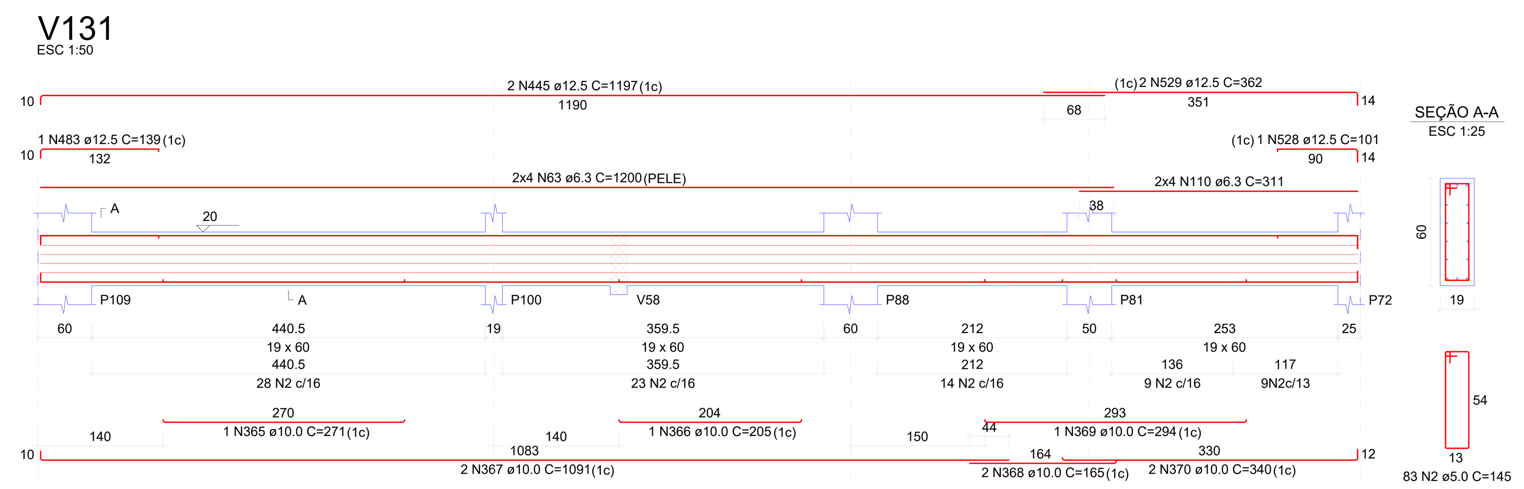

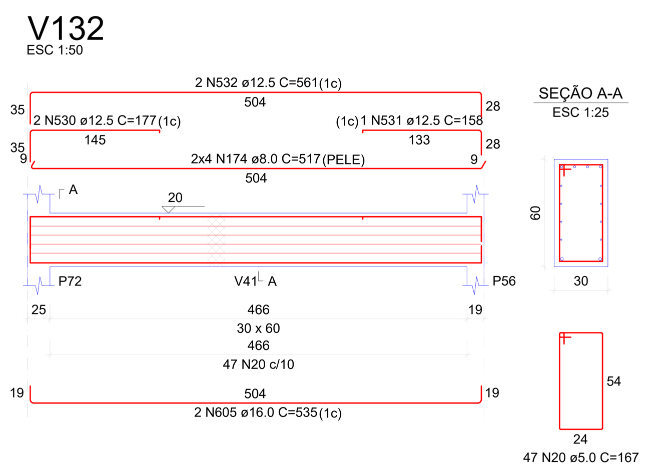

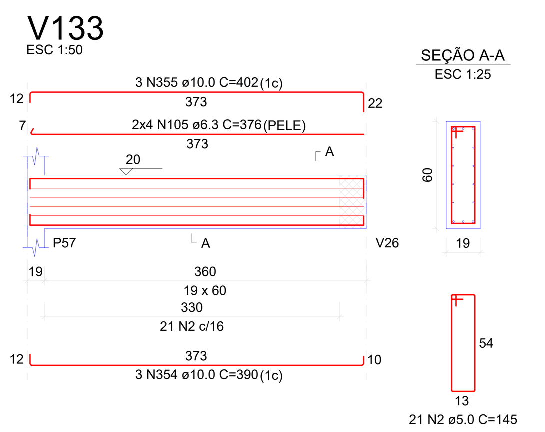

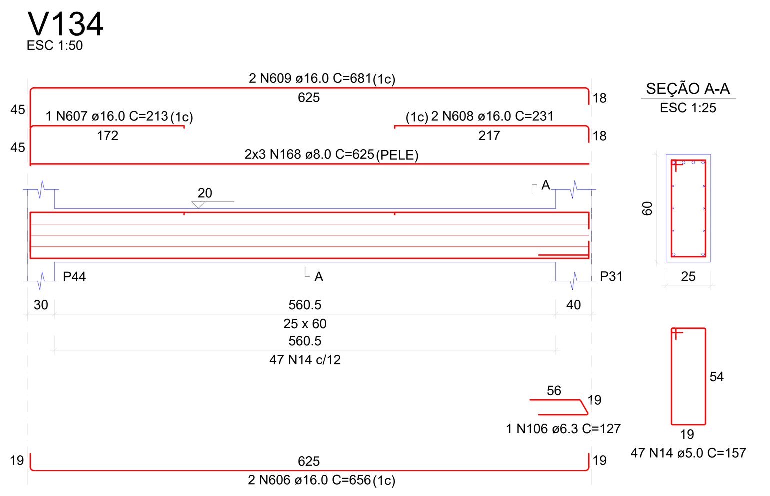

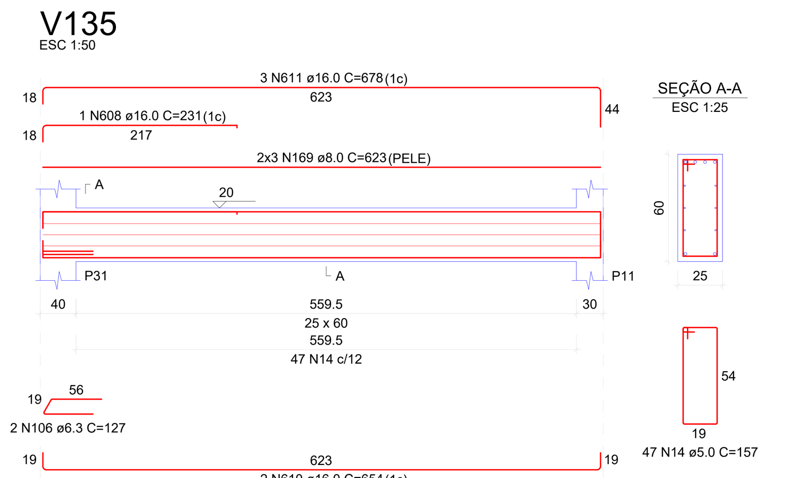

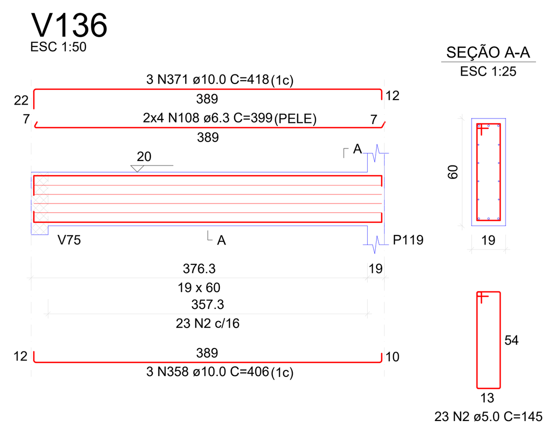

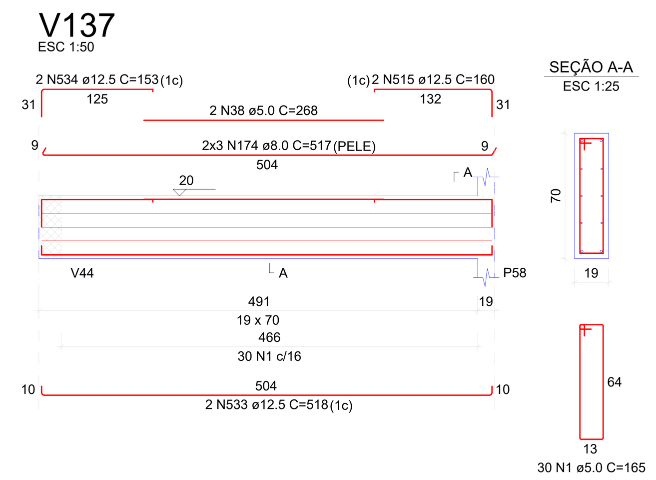

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³
Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(7)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 21/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 21

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V138
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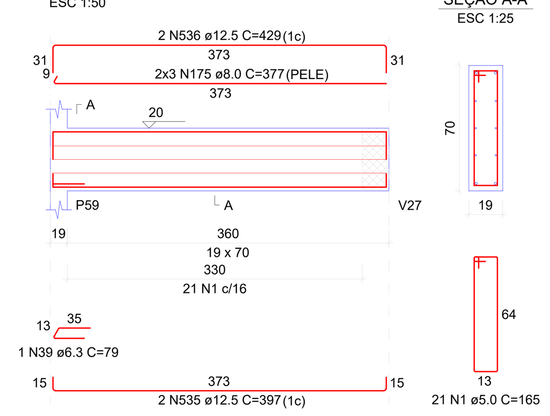
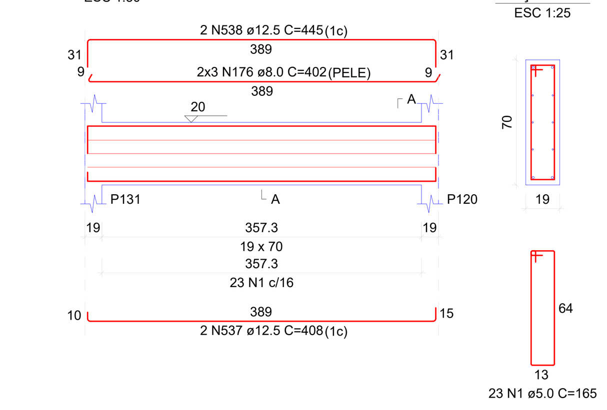


V139
ESC 1:50



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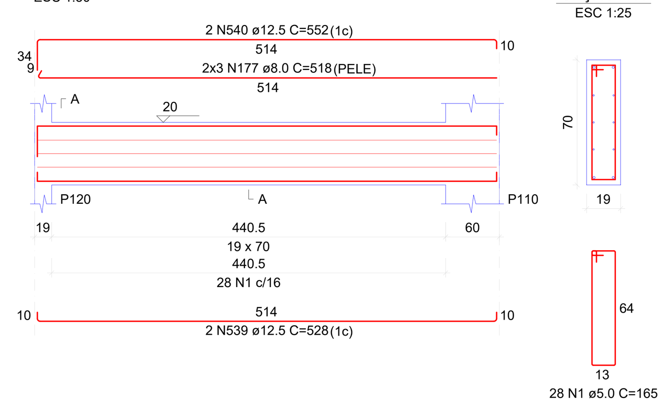

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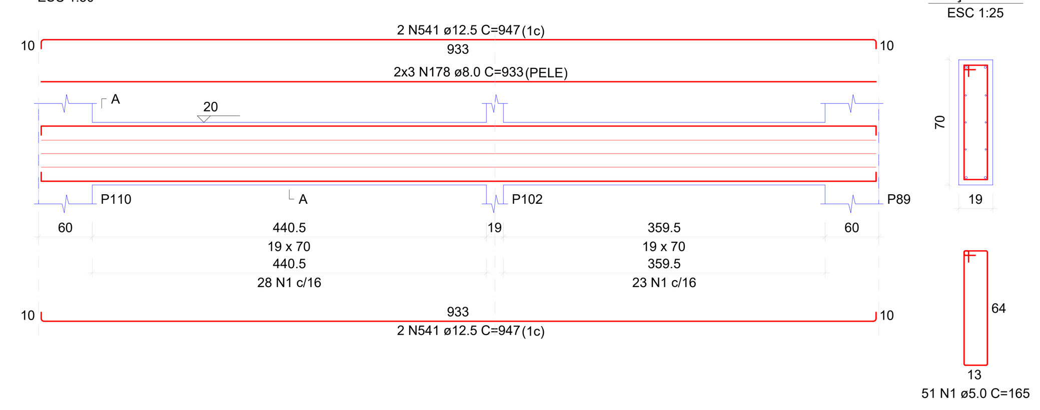

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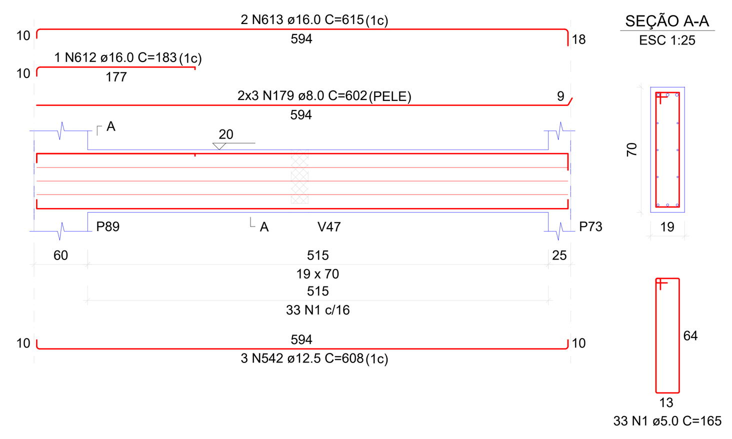
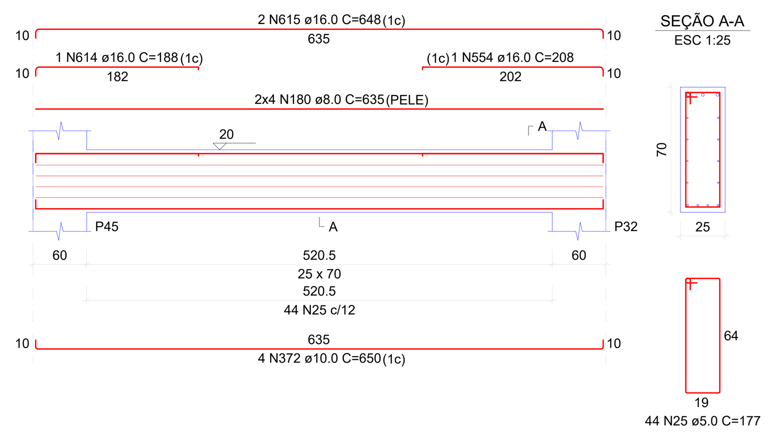
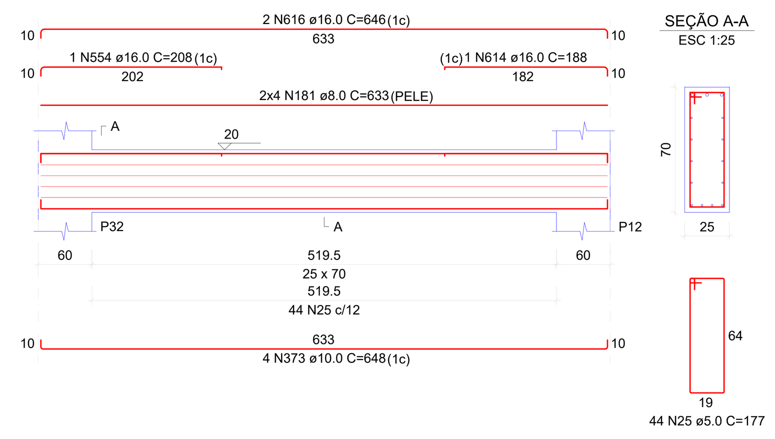


V143
ESC 1:50



V144
ESC 1:50



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1231	165	203115
	2	5.0	2877	145	417165
	3	5.0	2	77	154
	4	5.0	1	79	79
	5	5.0	2	97	194
	6	5.0	1	59	59
	7	5.0	1	99	99
	8	5.0	4	49	196
	9	5.0	4	51	204
	10	5.0	2	97	194
	11	5.0	4	45	180
	12	5.0	3	97	291
	13	5.0	2	51	102
	14	5.0	672	157	105504
	15	5.0	2	280	560
	16	5.0	2	91	182
	17	5.0	4	77	308
	18	5.0	4	331	1324
	19	5.0	90	187	16830
	20	5.0	285	167	47595
	21	5.0	2	350	700
	22	5.0	2	227	454
	23	5.0	2	256	512
	24	5.0	2	437	874
	25	5.0	214	177	37878
	26	5.0	2	238	476
	27	5.0	2	289	578
	28	5.0	12	105	1260
	29	5.0	1	97	97
	30	5.0	1	79	79
	31	5.0	2	380	760
	32	5.0	18	125	2250
	33	5.0	2	61	122
	34	5.0	1	107	107
	35	5.0	2	370	740
	36	5.0	2	270	540
	37	5.0	4	45	180
	38	5.0	2	268	536
CA50	39	6.3	14	79	1106
	40	6.3	8	983	7864
	41	6.3	8	502	4016
	42	6.3	8	662	5296
	43	6.3	8	374	2992
	44	6.3	8	497	3976
	45	6.3	9	146	1314
	46	6.3	8	539	4312
	47	6.3	8	506	4048
	48	6.3	8	503	4024
	49	6.3	8	466	3728
	50	6.3	8	508	4064
	51	6.3	8	530	4240
	52	6.3	32	614	19648
	53	6.3	4	158	632
	54	6.3	1	107	107
	55	6.3	8	522	4176
	56	6.3	1	147	147
	57	6.3	16	618	9888
	58	6.3	8	408	3264
	59	6.3	8	873	6984
	60	6.3	8	549	4392
	61	6.3	16	518	8288
	62	6.3	18	161	2898
	63	6.3	32	1200	38400
	64	6.3	16	292	4672
	65	6.3	16	895	14320
	66	6.3	8	481	3848
	67	6.3	8	625	5000
	68	6.3	8	618	4944
	69	6.3	16	624	9984
	70	6.3	8	857	6856
	71	6.3	8	1078	8624
	72	6.3	10	615	6150
	73	6.3	8	399	3192
	74	6.3	8	514	4112
	75	6.3	8	620	4960
	76	6.3	8	550	4400
	77	6.3	8	398	3184
	78	6.3	8	817	6536
	79	6.3	16	480	7680
	80	6.3	8	617	4936
	81	6.3	8	824	6592
	82	6.3	24	613	14712
	83	6.3	24	623	14952
	84	6.3	8	246	1968
	85	6.3	16	502	8032
	86	6.3	1	85	85
	87	6.3	8	389	3112
	88	6.3	8	348	2784
	89	6.3	8	440	3520
	90	6.3	8	971	7768
	91	6.3	8	883	7064
	92	6.3	8	742	5936
	93	6.3	16	632	10112
	94	6.3	16	485	7760
	95	6.3	8	482	3856
	96	6.3	8	507	4056
	97	6.3	8	508	4064
	98	6.3	8	268	2144
	99	6.3	8	509	4072
	100	6.3	8	521	4168
	101	6.3	8	524	4192
	102	6.3	8	258	2064
	103	6.3	16	1089	17424
	104	6.3	8	401	3208
	105	6.3	16	376	6016
	106	6.3	5	127	635
	107	6.3	8	512	4096
	108	6.3	16	399	6384
	109	6.3	8	517	4136
	110	6.3	8	311	2488
	111	8.0	6	663	3978
	112	8.0	6	376	2256
	113	8.0	6	498	2988
	114	8.0	9	89	801
	115	8.0	6	541	3246
	116	8.0	6	985	5910
	117	8.0	16	477	7632
	118	8.0	14	528	7392
	119	8.0	16	540	8640
	120	8.0	2	108	216
	121	8.0	2	109	218
	122	8.0	6	128	768
	123	8.0	4	89	356
	124	8.0	3	129	387
	125	8.0	4	88	352
	126	8.0	3	129	387
	127	8.0	2	87	174
	128	8.0	3	127	381
	129	8.0	3	90	270
	130	8.0	6	796	4776
	131	8.0	6	709	4254
	132	8.0	6	108	648
	133	8.0	12	861	10332
	134	8.0	6	907	5442
	135	8.0	6	547	3282
	136	8.0	6	717	4302
	137	8.0	8	622	4976
	138	8.0	2	312	624
	139	8.0	26	614	15964
	140	8.0	6	177	1062
	141	8.0	6	333	1998
	142	8.0	6	796	4776
	143	8.0	6	514	3084
	144	8.0	12	493	5916
	145	8.0	6	814	4884
	146	8.0	6	361	2166
	147	8.0	6	613	3678
	148	8.0	14	512	7168
	149	8.0	6	1001	6006
	150	8.0	6	392	2352
	151	8.0	6	737	4422
	152	8.0	3	128	384
	153	8.0	2	108	216
	154	8.0	6	981	5886

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	155	8.0	8	579	4632
	156	8.0	8	475	3800
	157	8.0	2	241	482
	158	8.0	8	518	4144
	159	8.0	2	282	564
	160	8.0	6	736	4416
	161	8.0	8	490	3920
	162	8.0	6	621	3726
	163	8.0	3	99	297
	164	8.0	3	137	411
	165	8.0	6	626	3756
	166	8.0	6	1200	7200
	167	8.0	6	412	2472
	168	8.0	12	625	7500
	169	8.0	12	623	7476
	170	8.0	6	889	5334
	171	8.0	6	659	3954
	172	8.0	3	130	390
	173	8.0	2	87	174
	174	8.0	14	517	7238
	175	8.0	6	377	2262
	176	8.0	6	402	2412
	177	8.0	6	518	3108
	178	8.0	6	933	5598
	179	8.0	6	602	3612
	180	8.0	8	635	5080
	181	8.0	8	633	5064
	182	10.0	2	253	506
	183	10.0	1	341	341
	184	10.0	1	215	215
	185	10.0	2	990	1980
	186	10.0	1	379	379
	187	10.0	2	676	1352
	188	10.0	3	383	1149
	189	10.0	1	123	123
	190	10.0	1	173	173
	191	10.0	3	401	1203
	192	10.0	3	99	297
	193	10.0	3	100	300
	194	10.0	1	95	95
	195	10.0	1	219	219
	196	10.0	1	116	116
	197	10.0	2	520	1040
	198	10.0	1	168	168
	199	10.0	3	175	525
	200	10.0	3	536	1608
	201	10.0	2	218	436
	202	10.0	3	480	1440
	203	10.0	1	117	117
	204	10.0	4	125	500
	205	10.0	2	480	960
	206	10.0	5	523	2615
	207	10.0	5	545	2725
	208	10.0	1	118	118
	209	10.0	3	181	543
	210	10.0	3	111	333
	211	10.0	2	377	754
	212	10.0	2	537	1074
	213	10.0	3	127	381
	214	10.0	3	125	375
	215	10.0	2	260	520
	216	10.0	2	543	1086
	217	10.0	6	122	732
	218	10.0	2	299	598
	219	10.0	2	637	1274
	220	10.0	1	225	225
	221	10.0	2	423	846
	222	10.0	1	389	389
	223	10.0	1	256	256
	224	10.0	2	888	1776
	225	10.0	1	246	246
	226	10.0	4	564	2256
	227	10.0	3	120	360
	228	10.0	1	260	260
	229	10.0	2	533	1066
	230	10.0	1	301	301
	231	10.0	1	120	120
	232	10.0	2	854	1708
	233	10.0	1	312	312
	234	10.0	2	626	1252
	235	10.0	1	110	110
	236	10.0	1	322	322
	237	10.0	8	910	7280
	238	10.0	1	92	92
	239	10.0	1	267	267
	240	10.0	2	493	986
	241	10.0	3	117	351
	242	10.0	3	250	750
	243	10.0	1	360	360
	244	10.0	1	213	213
	245	10.0	2	631	1262
	246	10.0	1	231	231
	247	10.0	3	633	1899
	248	10.0	1	195	195
	249	10.0	1	166	166
	250	10.0	1	247	247
	251	10.0	2	869	1738
	252	10.0	1	201	201
	253	10.0	3	881	2643
	254	10.0	1	293	293
	255	10.0	2	469	938
	256	10.0	6	107	642
	257	10.0	4	634	2536
	258	10.0	3	414	1242
	259	10.0	1	238	238
	260	10.0	2	529	1058
	261	10.0	2	156	312
	262	10.0	2	201	402
	263	10.0	1	286	286
	264	10.0	1	182	182
	265	10.0	2	1091	2182
	266	10.0	3	379	1137
	267	10.0	1	257	257
	268	10.0	4	565	2260
	269	10.0	1	130	130
	270	10.0	1	235	235
	271	10.0	2	413	826
	272	10.0	1	217	217
	273	10.0	2	241	482
	274	10.0	1	295	295
	275	10.0	2	831	1662
	276	10.0	1	143	143
	277	10.0	2	91	182
	278	10.0	4	489	1956
	279	10.0	1	234	234
	280	10.0	1	238	238
	281	10.0	2	632	1264
	282	10.0	1	77	77
	283	10.0	2	215	430
	284	10.0	1	179	179
	285	10.0	1	344	344
	286	10.0	1	546	546
	287	10.0	1	671	671
	288	10.0	6	629	3774
	289	10.0	3	633	1899
	290	10.0	2	230	460
	291	10.0	2	242	484
	292	10.0	1	205	205
	293	10.0	1	176	176
	294	10.0	11	628	6908
	295	10.0	1	221	221
	296	10.0	1	277	277
	297	10.0	4	630	2520
	298	10.0	1	144	144
	299	10.0	2	251	502
	300	10.0	3	265	795
	301	10.0	6	147	882
	302	10.0	6	516	3096
	303	10.0	2	362	724
	304	10.0	2	295	590
	305	10.0	2	592	1184
	306	10.0	4	484	1936
	307	10.0	1	237	237
	308	10.0	2	394	788
	309	10.0	3	398	1194
	310	10.0	1	246	246

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	311	10.0	2	360	720
	312	10.0	3	362	1086
	313	10.0	1	271	271
	314	10.0	2	449	898
	315	10.0	2	150	300
	316	10.0	3	451	1353
	317	10.0	1	287	287
	318	10.0	1	285	285
	319	10.0	2	985	1970
	320	10.0	1	299	299
	321	10.0	1	228	228
	322	10.0	1	266	266
	323	10.0	2	894	1788
	324	10.0	3	894	2682
	325	10.0	1	217	217
	326	10.0	3	136	408
	327	10.0	1	132	132
	328	10.0	1	177	177
	329	10.0	2	546	1092
	330	10.0	3	274	822
	331	10.0	1	251	251
	332	10.0	2	286	572
	333	10.0	2	644	1288
	334	10.0	1	261	261
	335	10.0	3	652	1956
	336	10.0	3	275	825
	337	10.0	3	287	861
	338	10.0	1	257	257
	339	10.0	2	646	1292
	340	10.0	3	646	1938
	341	10.0	4	499	1996
	342	10.0	4	541	2164
	343	10.0	1	361	361
	344	10.0	4	625	2500
	345	10.0	4	632	2528
	346	10.0	3	267	801
	347	10.0	1	414	414
	348	10.0	1	268	268
	349	10.0	2	974	1948
	350	10.0	1	888	888
	351	10.0	2	665	1330
	352	10.0	3	1198	3594
	353	10.0	3	425	1275
	354	10.0	6	390	2340
	355	10.0	6	402	2412
	356	10.0	3	521	1563
	357	10.0	3	521	1563
	358	10.0	6	406	2436
	359	10.0	1	155	155
	360	10.0	3	421	1263
	361	10.0	1	150	150
	362	10.0	1	250	250
	363	10.0	2	531	1062
	364	10.0	3	545	1635
	365	10.0	1	271	271
	366	10.0	1	205	205
	367	10.0	2	1091	2182
	368	10.0	2	165	330
	369	10.0	1	294	294
	370	10.0	2	340	680
	371	10.0	3	418	1254
	372	10.0	4	650	2600
	373	10.0	4	648	2592
	374	12.5	2	678	1356
	375	12.5	2	694	1388
	376	12.5	2	387	774
	377	12.5	1	134	134
	378	12.5	2	402	804
	379	12.5	2	552	1104
	380	12.5	1	242	242
	381	12.5	1	481	481
	382	12.5	2	991	1982
	383	12.5	4	487	1948
	384	12.5	2	508	1016
	385	12.5	4	542	2168
	386	12.5	4	554	2216
	387	12.5	2	558	1116
	388	12.5	1	210	210
	389	12.5	2	1019	2038
	390	12.5	1	203	203
	391	12.5	2	553	1106
	392	12.5	2	204	408
	393	12.5	2	689	1378
	394	12.5	4	513	2052
	395	12.5	3	507	1521
	396	12.5	1	215	215
	397	12.5	1	219	219
	398	12.5	1	212	212
	399	12.5	2	575	1150
	400	12.5	2	806	1612
	401	12.5	1	130	130
	402	12.5	2	174	348
	403	12.5	2	829	1658
	404	12.5	1	655	655
	405	12.5	2	728	1456
	406	12.5	4	867	3468
	407	12.5	2	888	1776
	408	12.5	1	300	300
	409	12.5	3	509	1527
	410	12.5	1	296	296
	411	12.5	2	325	650
	412	12.5	2	566	1132
	413	12.5	4	723	2892
	414	12.5	2	156	312
	415	12.5	6	639	3834
	416	12.5	1	108	108
	417	12.5	1	158	158
	418	12.5	1	118	118
	419	12.5	2	644	1288
	420	12.5	2	422	844
	421	12.5	2	887	1774
	422	12.5	2	532	1064
	423	12.5	2	542	1084
	424	12.5	13	638	8294
	425	12.5	1	621	621
	426	12.5	11	628	6908
	427	12.5	1	129	129
	428	12.5	2	1023	2046
	429	12.5	1	148	148
	430	12.5	5	193	965
	431	12.5	1	466	466
	432	12.5	1	500	500
	433	12.5	2	580	1160
	434	12.5	2	467	934
	435	12.5	2	403	806
	436	12.5	3	205	615
	437	12.5	2	670	1340
	438	12.5	4	347	1388
	439	12.5	2	413	826
	440	12.5	1	129	129
	441	12.5	2	550	1100
	442	12.5	1	200	200
	443	12.5	1	210	210
	444	12.5	1	214	214
	445	12.5	4	1197	4788
	446	12.5	2	348	696
	447	12.5	2	412	824
	448	12.5	2	463	926
	449	12.5	2	872	1744
	450	12.5	4	617	2468
	451	12.5	2	265	530
	452	12.5	2	548	1096
	453	12.5	1	393	393
	454	12.5	2	688	1376
	455	12.5	4	810	3240
	456	12.5	1	581	581
	457	12.5	4	528	2112
	458	12.5	8	507	4056
	459	12.5	4	828	3312
	460	12.5	1	235	235
	461	12.5	1	179	179
	462	12.5	2	376	752
	463	12.5	2	392	784
	464	12.5	8	627	5016
	465	12.5	2	659	1318
	466	12.5	4	513	2052
	467	12.5	1	151	151

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	468	12.5	2	538	1076
	469	12.5	2	1007	2014
	470	12.5	1	131	131
	471	12.5	1	220	220
	472	12.5	2	1027	2054
	473	12.5	2	398	796
	474	12.5	2	435	870
	475	12.5	2	748	1496
	476	12.5	2	780	1560
	477	12.5	2	982	1964
	478	12.5	2	1024	2048
	479	12.5	2	573	1146
	480	12.5	2	393	786
	481	12.5	2	523	1046
	482	12.5	1	255	255
	483	12.5	3	139	417
	484	12.5	2	998	1996
	485	12.5	2	527	1054
	486	12.5	2	428	856
	487	12.5	2	152	304
	488	12.5	2	663	1326
	489	12.5	3	507	1521
	490	12.5	4	501	2004
	491	12.5	3	524	1572
	492	12.5	2	189	378
	493	12.5	1	149	149
	494	12.5	2	568	1136
	495	12.5	2	516	1032
	496	12.5	1	193	193
	497	12.5	1	197	197
	498	12.5	2	550	1100
	499	12.5	2	522	1044
	500	12.5	1	174	174
	501	12.5	1	234	234
	502	12.5	2	553	1106
	503	12.5	2	205	410
	504	12.5	2	747	1494
	505	12.5	2	766	1532
	506	12.5	2	537	1074
	507	12.5	2	537	1074
	508	12.5	1	184	184
	509	12.5	3	249	747
	510	12.5	2	549	1098
	511	12.5	1	246	246
	512	12.5	2	504	1008
	513	12.5	1	508	508
	514	12.5	2	632	1264
	515	12.5	6	160	960
	516	12.5	2	288	576
	517	12.5	4	1103	4412
	518	12.5	2	986	1972
	519	12.5	2	672	1344
	520	12.5	2	335	670
	521	12.5	2	1133	2266
	522	12.5	3	649	1947
	523	12.5	3	647	1941
	524	12.5	2	904	1808
	525	12.5	2	920	1840
	526	12.5	2	673	1346
	527	12.5	2	178	356
	528	12.5	1	101	101
	529	12.5	2	362	724
	530	12.5	2	177	354
	531	12.5	1	158	158
	532	12.5	2	561	1122
	533	12.5	2	518	1036
	534	12.5	2	153	306
	535	12.5	2	397	794
	536	12.5	2	429	858
	537	12.5	2	408	816
	538	12.5	2	445	890
	539	12.5	2	528	1056
	540	12.5	2	552	1104
	541	12.5	4	947	3788
	542	12.5	3	608	1824
	543	16.0	2	516	1032
	544	16.0	3	531	1593
	545	16.0	2	567	1134
	546	16.0	1	233	233
	547	16.0	2	523	1046
	548	16.0	1	228	228
	549	16.0	3	540	1620
	550	16.0	3	534	1602
	551	16.0	1	226	226
	552	16.0	3	555	1665
	553	16.0	5	645	3225
	554	16.0	5	208	1040
	555	16.0	2	253	506
	556	16.0	2	541	1082
	557	16.0	2	561	1122
	558	16.0	4	629	2516
	559	16.0	1	201	201
	560	16.0	3	329	987
	561	16.0	2	988	1976
	562	16.0	1	262	262
	563	16.0	1	266	266
	564	16.0	2	351	702
	565	16.0	2	531	1062
	566	16.0	2	482	964
	567	16.0	2	223	446
	568	16.0	2	233	466
	569	16.0	7	627	4389
	570	16.0	2	620	1240
	571	16.0	1	259	259
	572	16.0	2	720	1440
	573	16.0	1	203	203
	574	16.0	2	628	1256
	575	16.0	1	208	208
	576	16.0	2	258	516
	577	16.0	2	541	1082
	578	16.0	1	352	352
	579	16.0	1	193	193
	580	16.0	1	225	225
	581	16.0	1	229	229
	582	16.0	2	700	1400
	583	16.0	2	672	1344
	584	16.0	2	279	558
	585	16.0	2	906	1812
	586	16.0	1	464	464
	587	16.0	3	644	1932
	588	16.0	2	564	1128
	589	16.0	2	623	1246
	590	16.0	2	501	1002
	591	16.0	2	516	1032
	592	16.0	2	549	1098
	593	16.0	2	541	1082
	594	16.0	1	196	196
	595	16.0	2	648	1296
	596	16.0	1	324	324
	597	16.0	2	1137	2274
	598	16.0	2	1196	2392
	599	16.0	2	479	958
	600	16.0	1	199	199
	601	16.0	2	221	442
	602	16.0	2	677	1354
	603	16.0	1	186	186
	604	16.0	3	676	2028
	605	16.0	2	535	1070
	606	16.0	2	656	1312
	607	16.0	1	213	213
	608	16.0	3	231	693
	609	16.0	2	681	1362
	610	16.0	2	654	1308
	611	16.0	3	678	2034
	612	16.0	1	183	183
	613	16.0	2	615	1230
	614	16.0	2	188	376
	615	16.0	2	648	1296
	616	16.0	2	646	1292
	617	20.0	2	1021	2042
	618	20.0	2	686	1372
	619	20.0	2	249	498
	620	20.0	2	571	1142
	621	20.0	1	239	239
	622	20.0	2	272	544
	623	20.0	2	552	1104

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	4206.1	1029.2
	8.0	2539.7	1002.1
	10.0	1824.6	1124.9
	12.5	2058.2	1982.7
	16.0	769.1	1213.9
	20.0	69.4	171.2
CA60	5.0	8424.8	1298.5

PESO TOTAL (kg)	
CA50	6524.1
CA60	1298.5

Volume de concreto (C-35) = 98.16 m³

Área de forma = 862.47 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE

EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA

ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA

PROJETO: BLOCO - A

ARQUIVO: JOI_SED_ROS_EST_EX.DWG

DATA: 02/07/2025

CONTEÚDO: VIGAS SUPERIOR(8)

ETAPA: EXECUTIVO

ESCALA: INDICADA

FOLHA: EST 22/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 22

2025-08-25 15:46:36, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	202	87	17574
	2	5.0	7	136	952
	3	5.0	26	95	2470
	4	5.0	5	43	215
	5	5.0	12	53	636
	6	5.0	5	563	2815
	7	5.0	4	471	1892
	9	5.0	4	472	1888
	10	5.0	4	486	1944
	11	5.0	3	245	735
	12	5.0	7	521	3647
	13	5.0	4	488	1952
	14	5.0	8	471	3768
	15	5.0	4	390	1560
	16	5.0	3	315	945
	17	5.0	3	614	1842
	18	5.0	3	233	699
	19	5.0	3	281	843
	20	5.0	3	242	726
	21	5.0	7	366	2562
	22	5.0	4	352	1408
	23	5.0	6	199	1194
	24	5.0	9	313	2817
	25	5.0	16	276	4416
	26	5.0	3	221	663
	27	5.0	4	391	1564
	28	5.0	5	216	1080
	29	5.0	4	233	932
	30	5.0	4	355	1420
	31	5.0	8	230	1840
	32	5.0	4	258	1032
	33	5.0	4	291	1164
	34	5.0	4	264	1056
	35	5.0	4	219	876
	36	5.0	3	476	1428
	37	5.0	3	145	435
	38	5.0	4	376	1504
	39	5.0	4	240	960
	40	5.0	4	62	248
	41	5.0	4	424	1696
	42	5.0	4	457	1828
	43	5.0	4	400	1600
	44	5.0	5	120	600
	45	5.0	5	530	2650
	46	5.0	14	50	700
	47	5.0	4	471	1884
	48	5.0	5	91	455
	49	5.0	5	492	2460
	50	5.0	4	456	1824
	51	5.0	4	472	1888
	52	5.0	7	320	2240
	53	5.0	4	72	288
	54	5.0	4	261	1044
	55	5.0	4	444	1776
	56	5.0	4	251	1004
	57	5.0	4	240	960
	58	5.0	4	228	912
	59	5.0	8	471	3768
	60	5.0	8	440	3520
	61	5.0	3	377	1131
	62	5.0	1	VAR	VAR
	63	5.0	15	200	3000
	64	5.0	3	629	1887
	65	5.0	3	380	1140
	67	5.0	3	236	708
	68	5.0	4	173	692
	69	5.0	4	278	1112
	70	5.0	4	211	844
	71	5.0	16	536	8576
	72	5.0	4	247	988
	73	5.0	3	225	675
	74	5.0	8	310	2480
	75	5.0	4	246	984
	76	5.0	4	185	740
	77	5.0	3	201	603
	78	5.0	4	239	956
	79	5.0	8	591	4728
	80	5.0	8	252	2016
	81	5.0	5	598	2990
	82	5.0	4	67	268
	83	5.0	4	331	1324
	84	5.0	8	271	2168
CA50	85	8.0	10	134	1340
	86	8.0	60	134	8040
	87	8.0	15	137	2055
	88	8.0	8	101	808
	89	8.0	5	100	500
	90	8.0	5	100	500
	91	8.0	56	86	4816
	92	8.0	68	75	5100
	93	8.0	66	80	5280
	94	8.0	234	64	14976
	95	8.0	42	75	3150
	96	8.0	46	80	3680
	97	8.0	72	79	5688
	98	8.0	681	74	50394
	99	8.0	12	63	756
	100	8.0	45	72	3240
	101	8.0	43	80	3440
	102	8.0	41	85	3485
	103	8.0	26	VAR	VAR
	104	8.0	10	VAR	VAR
	105	8.0	48	75	3600
	106	8.0	50	76	3800
	107	8.0	22	82	1804
	108	8.0	26	84	2184
	109	8.0	25	182	4550
	110	8.0	46	133	6118
	111	8.0	6	92	552
	112	8.0	6	98	588
	113	8.0	6	144	864
	114	8.0	2	108	216
	115	8.0	3	98	294
	116	8.0	5	146	730
	117	8.0	5	88	440
	118	8.0	25	83	2075
	119	8.0	23	78	1794
	120	8.0	22	VAR	VAR
	121	8.0	10	306	3060
	122	8.0	28	249	6972
	123	8.0	28	423	11844
	124	8.0	2	328	656
	125	8.0	22	327	7194
	126	8.0	1	324	324
	127	8.0	19	853	16207
	128	8.0	5	79	395
	129	8.0	5	740	3700
	130	8.0	40	178	7120
	131	8.0	11	614	6754
	132	8.0	6	761	4566
	133	8.0	5	186	930
	134	8.0	5	412	2060
	135	8.0	4	308	1232
	136	8.0	4	709	2836
	137	8.0	5	184	920
	138	8.0	5	492	2460
	139	8.0	2	710	1420
	140	8.0	62	399	24738
	141	8.0	24	226	5424
	142	8.0	12	228	2736
	143	8.0	12	400	4800
	144	8.0	18	615	11070
	145	8.0	3	72	216
	146	8.0	3	409	1227
	147	8.0	3	69	207
	148	8.0	4	175	700
	149	8.0	3	307	921
	150	8.0	3	401	1203
	151	8.0	3	80	240
	152	8.0	52	398	20696
	153	8.0	66	213	14058
	154	8.0	23	230	5290
	155	8.0	5	123	615
	156	8.0	5	57	285
	157	8.0	4	163	652
	158	8.0	46	314	14444
	159	8.0	46	312	14352
	160	8.0	38	316	12008
	161	8.0	5	190	950
	162	8.0	5	93	465
	163	8.0	29	236	6844
	164	8.0	53	242	12826
	165	8.0	10	144	1440
	166	8.0	10	60	600
	167	8.0	3	243	729
	168	8.0	4	171	684
	169	8.0	5	112	560
	170	8.0	5	97	485
	171	8.0	42	546	22932
	172	8.0	10	257	2570
	173	8.0	47	259	12173
	174	8.0	2	380	760
	175	8.0	6	115	690
	176	8.0	6	231	1386
	177	8.0	10	379	3790
	178	8.0	10	381	3810
	179	8.0	3	379	1137
	180	8.0	33	252	8316
	181	8.0	8	153	1224
	182	8.0	8	66	528
	183	8.0	2	252	504
	184	8.0	6	172	1376
	185	8.0	18	583	10494
	186	8.0	9	153	1377
	187	8.0	9	493	4437
	188	8.0	10	248	2480
	189	8.0	3	259	777
	190	8.0	4	498	1992
	191	8.0	15	497	7455
	192	8.0	7	660	4620
	193	8.0	3	289	867
	194	8.0	3	338	1014
	195	8.0	9	222	1998

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	4897.1	1932.3
CA60	5.0	1529.7	235.8

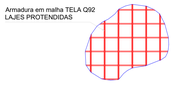
PESO TOTAL (kg)	
CA50	1932.3
CA60	235.8

Volume de concreto (C-35) = 106.71 m³
Área de forma = 270.75 m²

ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:75

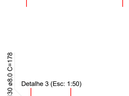
Armadura em malha TELA Q92
LAJES PROTENDIDAS



Detalhe 1 (Esc: 1:50)

Detalhe 2 (Esc: 1:50)

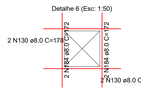
Detalhe 3 (Esc: 1:50)



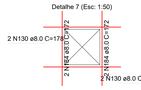
Detalhe 4 (Esc: 1:50)

Detalhe 5 (Esc: 1:50)

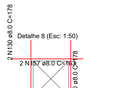
Detalhe 6 (Esc: 1:50)



Detalhe 7 (Esc: 1:50)



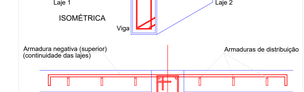
Detalhe 8 (Esc: 1:50)



Armaduras de distribuição	
Armadura	Armadura de distribuição
N85	7 N1 ø5.0 c/20 C=87
N85	7 N1 ø5.0 c/20 C=87
N86	7 N2 ø5.0 c/20 C=136
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N87	7 N3 ø5.0 c/20 C=95
N88	5 N3 ø5.0 c/20 C=95
N88	5 N4 ø5.0 c/20 C=43
N87	7 N3 ø5.0 c/20 C=95
N87	7 N3 ø5.0 c/20 C=95
N86	7 N1 ø5.0 c/20 C=87
N89	5 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N5 ø5.0 c/20 C=48
N90	5 N1 ø5.0 c/20 C=87
N91	5 N6 ø5.0 c/20 C=563
N91	5 N7 ø5.0 c/20 C=561
N92	4 N8 ø5.0 c/20 C=473
N92	4 N9 ø5.0 c/20 C=472
N93	4 N10 ø5.0 c/20 C=486
N94	3 N11 ø5.0 c/20 C=245
N95	4 N12 ø5.0 c/20 C=521
N96	4 N13 ø5.0 c/20 C=488
N97	4 N14 ø5.0 c/20 C=471
N97	4 N14 ø5.0 c/20 C=471
N98	4 N15 ø5.0 c/20 C=390
N94	3 N16 ø5.0 c/20 C=315
N94	3 N17 ø5.0 c/20 C=614
N99	3 N18 ø5.0 c/20 C=233
N94	3 N19 ø5.0 c/20 C=281
N94	3 N20 ø5.0 c/20 C=242
N98	4 N21 ø5.0 c/20 C=366
N100	3 N21 ø5.0 c/20 C=366
N98	4 N22 ø5.0 c/20 C=352
N98	4 N23 ø5.0 c/20 C=199
N98	4 N24 ø5.0 c/20 C=313
N98	4 N25 ø5.0 c/20 C=276
N98	4 N25 ø5.0 c/20 C=276
N94	3 N26 ø5.0 c/20 C=221
N101	4 N25 ø5.0 c/20 C=276
N101	4 N25 ø5.0 c/20 C=276
N103	3 N12 ø5.0 c/20 C=VAR
N98	4 N30 ø5.0 c/20 C=355
N98	4 N31 ø5.0 c/20 C=230
N98	4 N31 ø5.0 c/20 C=230
N98	4 N32 ø5.0 c/20 C=258
N98	4 N33 ø5.0 c/20 C=291
N98	4 N34 ø5.0 c/20 C=264
N98	4 N35 ø5.0 c/20 C=219
N94	3 N36 ø5.0 c/20 C=476
N94	3 N37 ø5.0 c/20 C=145
N98	4 N38 ø5.0 c/20 C=376
N98	4 N39 ø5.0 c/20 C=240
N98	4 N40 ø5.0 c/20 C=62
N104	2 N23 ø5.0 c/20 C=VAR
N105	4 N41 ø5.0 c/20 C=424
N106	4 N42 ø5.0 c/20 C=457
N93	4 N43 ø5.0 c/20 C=400
N107	5 N24 ø5.0 c/20 C=313
N107	5 N45 ø5.0 c/20 C=129
N108	5 N45 ø5.0 c/20 C=530
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N113	7 N46 ø5.0 c/20 C=50
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N115	5 N5 ø5.0 c/20 C=48
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N116	7 N1 ø5.0 c/20 C=87
N97	4 N47 ø5.0 c/20 C=471
N117	5 N48 ø5.0 c/20 C=91
N118	5 N49 ø5.0 c/20 C=492
N119	4 N50 ø5.0 c/20 C=456
N98	4 N51 ø5.0 c/20 C=472
N92	4 N52 ø5.0 c/20 C=320
N92	4 N53 ø5.0 c/20 C=72
N98	4 N54 ø5.0 c/20 C=261
N93	4 N55 ø5.0 c/20 C=444
N98	4 N56 ø5.0 c/20 C=251
N98	4 N57 ø5.0 c/20 C=240
N98	4 N58 ø5.0 c/20 C=228
N98	4 N59 ø5.0 c/20 C=471
N96	4 N60 ø5.0 c/20 C=440
N94	3 N61 ø5.0 c/20 C=377
N120	1 N62 ø5.0 c/20 C=VAR
N121	15 N63 ø5.0 c/20 C=200
N94	3 N64 ø5.0 c/20 C=629
N94	3 N65 ø5.0 c/20 C=380
N94	3 N66 ø5.0 c/20 C=236
N94	3 N67 ø5.0 c/20 C=326
N98	4 N68 ø5.0 c/20 C=173
N98	4 N69 ø5.0 c/20 C=278
N98	4 N70 ø5.0 c/20 C=211
N98	4 N71 ø5.0 c/20 C=536
N98	4 N72 ø5.0 c/20 C=247
N100	3 N73 ø5.0 c/20 C=225
N100	3 N52 ø5.0 c/20 C=320
N98	4 N74 ø5.0 c/20 C=310
N98	4 N75 ø5.0 c/20 C=246
N98	4 N76 ø5.0 c/20 C=185
N94	3 N77 ø5.0 c/20 C=201
N98	4 N78 ø5.0 c/20 C=239
N98	4 N79 ø5.0 c/20 C=536
N98	4 N79 ø5.0 c/20 C=591
N98	4 N80 ø5.0 c/20 C=252
N102	5 N81 ø5.0 c/20 C=598
N95	4 N74 ø5.0 c/20 C=310
N98	4 N59 ø5.0 c/20 C=471
N98	4 N60 ø5.0 c/20 C=440
N98	4 N79 ø5.0 c/20 C=591
N101	4 N82 ø5.0 c/20 C=67
N98	4 N83 ø5.0 c/20 C=331
N98	4 N80 ø5.0 c/20 C=252
N98	4 N84 ø5.0 c/20 C=271
N98	4 N84 ø5.0 c/20 C=271
N105	4 N71 ø5.0 c/20 C=536
N106	4 N71 ø5.0 c/20 C=536

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO

ISOMÉTRICA



VISTA FRONTAL

Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eiX.X c/xx

PLANTA BAIXA

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE TÉRREO(1)
ETAPA	EXECUTIVO
FOLHA	EST 23/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 98411-8013 | e-mail de responsável técnico desta projeto: fernando@fercongenharia.com

Projeto Estrutural de Concreto Armado (NBR 6118:2023)

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

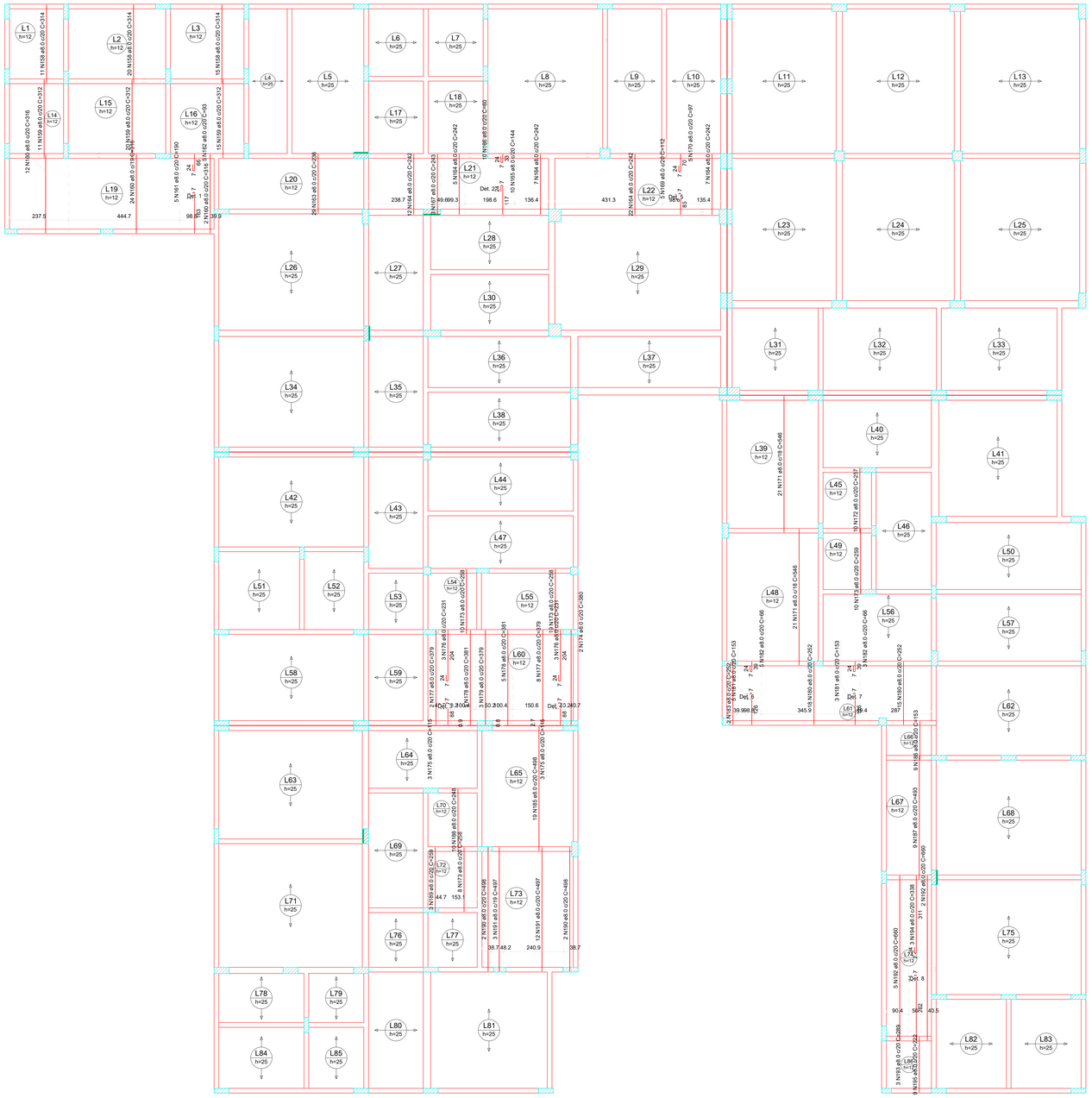
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	202	87	17574
	2	5.0	8	136	952
	3	5.0	26	95	2470
	4	5.0	5	43	215
	5	5.0	12	143	1716
	6	5.0	5	563	2815
	7	5.0	4	473	1892
	9	5.0	4	472	1888
	10	5.0	4	486	1944
	11	5.0	3	245	735
	12	5.0	7	521	3647
	13	5.0	4	488	1952
	14	5.0	8	471	3768
	15	5.0	4	390	1560
	16	5.0	3	315	945
	17	5.0	3	614	1842
	18	5.0	3	233	699
	19	5.0	3	281	843
	20	5.0	3	242	726
	21	5.0	7	366	2562
	22	5.0	4	352	1408
	23	5.0	6	199	1194
	24	5.0	9	313	2817
	25	5.0	16	276	4416
	26	5.0	3	221	663
	27	5.0	4	391	1564
	28	5.0	5	216	1080
	29	5.0	4	233	932
	30	5.0	4	355	1420
	31	5.0	8	230	1840
	32	5.0	4	258	1032
	33	5.0	4	291	1164
	34	5.0	4	264	1056
	35	5.0	4	219	876
	36	5.0	3	476	1428
	37	5.0	3	145	435
	38	5.0	4	376	1504
	39	5.0	4	240	960
	40	5.0	4	62	248
	41	5.0	4	424	1696
	42	5.0	4	457	1828
	43	5.0	4	400	1600
	44	5.0	5	120	600
	45	5.0	5	530	2650
	46	5.0	14	50	700
	47	5.0	4	471	1884
	48	5.0	3	91	455
	49	5.0	5	492	2460
	50	5.0	4	456	1824
	51	5.0	4	472	1888
	52	5.0	7	320	2240
	53	5.0	4	72	288
	54	5.0	4	261	1044
	55	5.0	4	444	1776
	56	5.0	4	251	1004
	57	5.0	4	240	960
	58	5.0	4	228	912
	59	5.0	8	471	3768
	60	5.0	8	440	3520
	61	5.0	3	377	1131
	62	5.0	1	VAR	VAR
	63	5.0	15	200	3000
	64	5.0	3	629	1887
	65	5.0	3	380	1140
	66	5.0	3	236	708
	67	5.0	4	173	692
	68	5.0	4	278	1112
	70	5.0	4	211	844
	71	5.0	16	536	8576
	72	5.0	4	247	988
	73	5.0	3	225	675
	74	5.0	8	310	2480
	75	5.0	4	246	984
	76	5.0	4	185	740
	77	5.0	3	201	603
	78	5.0	4	239	956
	79	5.0	8	591	4728
	80	5.0	8	252	2016
	81	5.0	5	598	2990
	82	5.0	4	67	268
	83	5.0	4	331	1324
	84	5.0	8	271	2168
CA50	85	8.0	10	134	1340
	86	8.0	60	134	8040
	87	8.0	15	137	2055
	88	8.0	8	101	808
	89	8.0	5	100	500
	90	8.0	5	100	500
	91	8.0	56	86	4816
	92	8.0	68	75	5100
	93	8.0	66	80	5280
	94	8.0	234	64	14976
	95	8.0	42	75	3150
	96	8.0	46	80	3680
	97	8.0	72	79	5688
	98	8.0	681	74	50394
	99	8.0	12	63	756
	100	8.0	45	72	3240
	101	8.0	43	80	3440
	102	8.0	41	85	3485
	103	8.0	26	VAR	VAR
	104	8.0	10	VAR	VAR
	105	8.0	48	75	3600
	106	8.0	50	76	3800
	107	8.0	22	82	1804
	108	8.0	26	84	2184
	109	8.0	25	182	4550
	110	8.0	46	133	6118
	111	8.0	6	99	594
	112	8.0	8	98	784
	113	8.0	6	144	864
	114	8.0	2	108	216
	115	8.0	3	98	294
	116	8.0	5	146	730
	117	8.0	5	88	440
	118	8.0	25	83	2075
	119	8.0	23	78	1794
	120	8.0	22	VAR	VAR
	121	8.0	10	306	3060
	122	8.0	28	249	6972
	123	8.0	28	423	11844
	124	8.0	2	328	656
	125	8.0	22	327	7194
	126	8.0	4	328	1312
	127	8.0	19	853	16207
	128	8.0	5	79	395
	129	8.0	5	740	3700
	130	8.0	40	178	7120
	131	8.0	11	614	6754
	132	8.0	6	761	4566
	133	8.0	5	186	930
	134	8.0	5	412	2060
	135	8.0	4	308	1232
	136	8.0	4	709	2836
	137	8.0	5	184	920
	138	8.0	5	492	2460
	139	8.0	2	710	1420
	140	8.0	62	399	24738
	141	8.0	24	226	5424
	142	8.0	12	228	2736
	143	8.0	12	400	4800
	144	8.0	18	615	11070
	145	8.0	3	72	216
	146	8.0	3	409	1227
	147	8.0	3	69	207
	148	8.0	4	175	700
	149	8.0	3	307	921
	150	8.0	3	401	1203
	151	8.0	3	80	240
	152	8.0	52	398	20696
	153	8.0	66	213	14058
	154	8.0	23	230	5290
	155	8.0	5	123	615
	156	8.0	5	57	285
	157	8.0	4	163	652
	158	8.0	46	314	14444
	159	8.0	46	312	14352
	160	8.0	38	316	12008
	161	8.0	5	190	950
	162	8.0	5	93	465
	163	8.0	29	236	6844
	164	8.0	53	242	12826
	165	8.0	10	144	1440
	166	8.0	10	60	600
	167	8.0	3	243	729
	168	8.0	3	171	513
	169	8.0	5	112	560
	170	8.0	4	97	388
	171	8.0	42	546	22932
	172	8.0	10	257	2570
	173	8.0	47	259	12173
	174	8.0	2	380	760
	175	8.0	6	115	690
	176	8.0	6	231	1386
	177	8.0	10	379	3790
	178	8.0	10	381	3810
	179	8.0	3	379	1137
	180	8.0	33	252	8316
	181	8.0	8	153	1224
	182	8.0	8	66	528
	183	8.0	2	252	504
	184	8.0	8	172	1376
	185	8.0	19	498	9462
	186	8.0	9	153	1377
	187	8.0	9	493	4437
	188	8.0	10	248	2480
	189	8.0	3	259	777
	190	8.0	4	498	1992
	191	8.0	15	497	7455
	192	8.0	7	660	4620
	193	8.0	3	289	867
	194	8.0	3	338	1014
	195	8.0	9	222	1998

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	4897.1	1932.3
CA60	5.0	1529.7	235.8

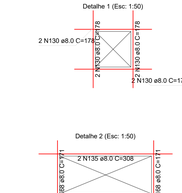
PESO TOTAL (kg)	
CA50	1932.3
CA60	235.8

Volume de concreto (C-35) = 106.71 m³
Área de forma = 270.75 m²



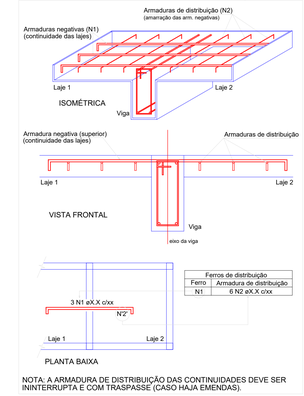
ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:75



Armaduras de distribuição	
Armadura	Armadura de distribuição
N85	7 N1 ø5.0 c/20 C=87
N85	7 N1 ø5.0 c/20 C=87
N86	7 N2 ø5.0 c/20 C=136
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N87	7 N3 ø5.0 c/20 C=95
N88	5 N3 ø5.0 c/20 C=95
N88	5 N4 ø5.0 c/20 C=43
N87	7 N3 ø5.0 c/20 C=95
N87	7 N3 ø5.0 c/20 C=95
N86	7 N1 ø5.0 c/20 C=87
N89	5 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N5 ø5.0 c/20 C=48
N90	5 N1 ø5.0 c/20 C=87
N91	5 N6 ø5.0 c/20 C=563
N91	5 N7 ø5.0 c/20 C=561
N92	4 N8 ø5.0 c/20 C=473
N92	4 N9 ø5.0 c/20 C=472
N93	4 N10 ø5.0 c/20 C=486
N94	3 N11 ø5.0 c/20 C=245
N95	4 N12 ø5.0 c/20 C=521
N96	4 N13 ø5.0 c/20 C=488
N97	4 N14 ø5.0 c/20 C=471
N97	4 N14 ø5.0 c/20 C=471
N98	4 N15 ø5.0 c/20 C=390
N94	3 N16 ø5.0 c/20 C=315
N94	3 N17 ø5.0 c/20 C=614
N99	3 N18 ø5.0 c/20 C=233
N94	3 N19 ø5.0 c/20 C=281
N94	3 N20 ø5.0 c/20 C=242
N98	4 N21 ø5.0 c/20 C=366
N100	3 N21 ø5.0 c/20 C=366
N98	4 N22 ø5.0 c/20 C=352
N98	4 N23 ø5.0 c/20 C=199
N98	4 N24 ø5.0 c/20 C=313
N98	4 N25 ø5.0 c/20 C=276
N98	4 N25 ø5.0 c/20 C=276
N94	3 N26 ø5.0 c/20 C=221
N101	4 N25 ø5.0 c/20 C=276
N101	4 N25 ø5.0 c/20 C=276
N98	4 N27 ø5.0 c/20 C=391
N102	5 N28 ø5.0 c/20 C=216
N101	4 N29 ø5.0 c/20 C=233
N103	3 N12 ø5.0 c/20 C=VAR
N98	4 N30 ø5.0 c/20 C=355
N98	4 N31 ø5.0 c/20 C=230
N98	4 N31 ø5.0 c/20 C=230
N98	4 N32 ø5.0 c/20 C=258
N98	4 N33 ø5.0 c/20 C=291
N98	4 N34 ø5.0 c/20 C=264
N98	4 N35 ø5.0 c/20 C=219
N94	3 N36 ø5.0 c/20 C=476
N94	3 N37 ø5.0 c/20 C=145
N98	4 N38 ø5.0 c/20 C=376
N98	4 N39 ø5.0 c/20 C=240
N98	4 N40 ø5.0 c/20 C=62
N104	2 N23 ø5.0 c/20 C=VAR
N105	4 N41 ø5.0 c/20 C=424
N106	4 N42 ø5.0 c/20 C=457
N93	4 N43 ø5.0 c/20 C=400
N107	5 N24 ø5.0 c/20 C=313
N107	5 N44 ø5.0 c/20 C=120
N108	5 N45 ø5.0 c/20 C=530
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N115	5 N5 ø5.0 c/20 C=48
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N116	7 N1 ø5.0 c/20 C=87
N97	4 N47 ø5.0 c/20 C=471
N117	5 N48 ø5.0 c/20 C=91
N118	5 N49 ø5.0 c/20 C=492
N119	4 N50 ø5.0 c/20 C=456
N98	4 N51 ø5.0 c/20 C=472
N92	4 N52 ø5.0 c/20 C=320
N92	4 N53 ø5.0 c/20 C=72
N98	4 N54 ø5.0 c/20 C=351
N93	4 N55 ø5.0 c/20 C=444
N98	4 N56 ø5.0 c/20 C=251
N98	4 N57 ø5.0 c/20 C=240
N98	4 N58 ø5.0 c/20 C=228
N98	4 N59 ø5.0 c/20 C=471
N96	4 N60 ø5.0 c/20 C=440
N94	3 N61 ø5.0 c/20 C=377
N120	1 N62 ø5.0 c/20 C=VAR
N121	15 N63 ø5.0 c/20 C=200
N94	3 N64 ø5.0 c/20 C=629
N94	3 N65 ø5.0 c/20 C=380
N94	3 N66 ø5.0 c/20 C=236
N94	3 N67 ø5.0 c/20 C=326
N98	4 N68 ø5.0 c/20 C=173
N98	4 N69 ø5.0 c/20 C=278
N98	4 N70 ø5.0 c/20 C=211
N98	4 N71 ø5.0 c/20 C=536
N98	4 N72 ø5.0 c/20 C=247
N100	3 N73 ø5.0 c/20 C=225
N100	3 N52 ø5.0 c/20 C=320
N98	4 N74 ø5.0 c/20 C=310
N98	4 N75 ø5.0 c/20 C=246
N98	4 N76 ø5.0 c/20 C=185
N94	3 N77 ø5.0 c/20 C=201
N98	4 N78 ø5.0 c/20 C=239
N98	4 N71 ø5.0 c/20 C=536
N98	4 N79 ø5.0 c/20 C=591
N98	4 N80 ø5.0 c/20 C=252
N102	5 N81 ø5.0 c/20 C=598
N95	4 N74 ø5.0 c/20 C=310
N98	4 N59 ø5.0 c/20 C=471
N98	4 N60 ø5.0 c/20 C=440
N98	4 N79 ø5.0 c/20 C=591
N101	4 N82 ø5.0 c/20 C=67
N98	4 N83 ø5.0 c/20 C=331
N98	4 N80 ø5.0 c/20 C=252
N98	4 N84 ø5.0 c/20 C=271
N98	4 N84 ø5.0 c/20 C=271
N105	4 N71 ø5.0 c/20 C=536
N106	4 N71 ø5.0 c/20 C=536

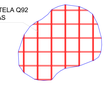
DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eiX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE
01.199.023/0001-15

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	XX_SEO_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE TÉRREO(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 24/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Brusque/sc | CEP 89010-140 | Fone: (47) 3211-3677 | e-mail do responsável técnico: Mostre desde projeto: fernando@fercongenharia.com.br

Projeto Estrutural de concreto Armado (DP-0471/2025)
SEI 25.0.20003-8 | pg. 24
2025-08-25 15:46:50, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

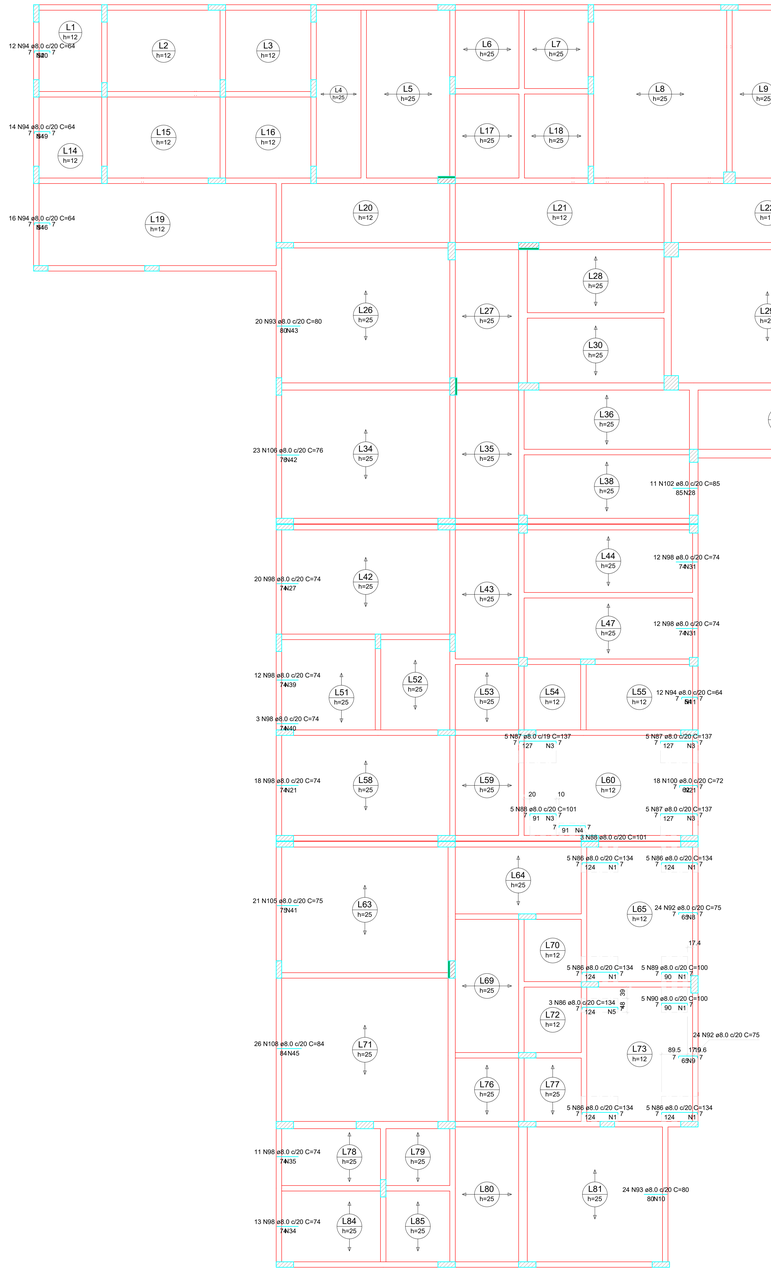
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	202	87	17574
	2	5.0	2	136	952
	3	5.0	26	95	2470
	4	5.0	5	43	215
	5	5.0	12	63	756
	6	5.0	5	563	2815
	7	5.0	4	473	1892
	9	5.0	4	472	1888
	10	5.0	4	486	1944
	11	5.0	3	245	735
	12	5.0	7	521	3647
	13	5.0	4	488	1952
	14	5.0	8	471	3768
	15	5.0	4	390	1560
	16	5.0	3	315	945
	17	5.0	3	614	1842
	18	5.0	3	233	699
	19	5.0	3	281	843
	20	5.0	3	242	726
	21	5.0	7	366	2562
	22	5.0	4	352	1408
	23	5.0	6	199	1194
	24	5.0	9	313	2817
	25	5.0	16	276	4416
	26	5.0	3	221	663
	27	5.0	4	391	1564
	28	5.0	5	216	1080
	29	5.0	4	233	932
	30	5.0	4	355	1420
	31	5.0	8	230	1840
	32	5.0	4	258	1032
	33	5.0	4	291	1164
	34	5.0	4	264	1056
	35	5.0	4	219	876
	36	5.0	3	476	1428
	37	5.0	3	145	435
	38	5.0	4	376	1504
	39	5.0	4	240	960
	40	5.0	4	62	248
	41	5.0	4	424	1696
	42	5.0	4	457	1828
	43	5.0	4	400	1600
	44	5.0	5	120	600
	45	5.0	5	530	2650
	46	5.0	14	50	700
	47	5.0	4	471	1884
	48	5.0	5	91	455
	49	5.0	5	492	2460
	50	5.0	4	456	1824
	51	5.0	4	472	1888
	52	5.0	7	320	2240
	53	5.0	4	72	288
	54	5.0	4	261	1044
	55	5.0	4	444	1776
	56	5.0	4	251	1004
	57	5.0	4	240	960
	58	5.0	4	228	912
	59	5.0	8	471	3768
	60	5.0	8	440	3520
	61	5.0	3	377	1131
	62	5.0	1	VAR	VAR
	63	5.0	15	200	3000
	64	5.0	3	629	1887
	65	5.0	3	380	1140
	67	5.0	3	236	708
	68	5.0	4	173	692
	69	5.0	4	278	1112
	70	5.0	4	211	844
	71	5.0	16	536	8576
	72	5.0	4	247	988
	73	5.0	3	225	675
	74	5.0	8	310	2480
	75	5.0	4	246	984
	76	5.0	4	185	740
	77	5.0	3	201	603
	78	5.0	4	239	956
	79	5.0	8	591	4728
	80	5.0	8	252	2016
	81	5.0	5	598	2990
	82	5.0	4	67	268
	83	5.0	4	331	1324
	84	5.0	8	271	2168
CA50	85	8.0	10	134	1340
	86	8.0	60	134	8040
	87	8.0	15	137	2055
	88	8.0	8	101	808
	89	8.0	5	100	500
	90	8.0	5	100	500
	91	8.0	56	86	4816
	92	8.0	68	75	5100
	93	8.0	66	80	5280
	94	8.0	234	64	14976
	95	8.0	42	75	3150
	96	8.0	46	80	3680
	97	8.0	72	79	5688
	98	8.0	681	74	50394
	99	8.0	12	63	756
	100	8.0	45	72	3240
	101	8.0	43	80	3440
	102	8.0	41	85	3485
	103	8.0	26	VAR	VAR
	104	8.0	10	VAR	VAR
	105	8.0	48	75	3600
	106	8.0	50	76	3800
	107	8.0	22	82	1804
	108	8.0	26	84	2184
	109	8.0	25	182	4550
	110	8.0	46	133	6118
	111	8.0	6	99	594
	112	8.0	6	98	588
	113	8.0	6	144	864
	114	8.0	2	108	216
	115	8.0	3	98	294
	116	8.0	5	146	730
	117	8.0	5	88	440
	118	8.0	25	83	2075
	119	8.0	23	78	1794
	120	8.0	22	VAR	VAR
	121	8.0	10	306	3060
	122	8.0	28	249	6972
	123	8.0	28	423	11844
	124	8.0	2	328	656
	125	8.0	22	327	7194
	126	8.0	4	328	1312
	127	8.0	19	853	16207
	128	8.0	5	79	395
	129	8.0	5	740	3700
	130	8.0	40	178	7120
	131	8.0	11	614	6754
	132	8.0	6	761	4566
	133	8.0	5	186	930
	134	8.0	5	412	2060
	135	8.0	4	308	1232
	136	8.0	4	709	2836
	137	8.0	5	184	920
	138	8.0	5	492	2460
	139	8.0	2	710	1420
	140	8.0	62	399	24738
	141	8.0	24	226	5424
	142	8.0	12	228	2736
	143	8.0	12	400	4800
	144	8.0	18	615	11070
	145	8.0	3	72	216
	146	8.0	3	409	1227
	147	8.0	3	69	207
	148	8.0	4	175	700
	149	8.0	3	307	921
	150	8.0	3	401	1203
	151	8.0	3	80	240
	152	8.0	52	398	20696
	153	8.0	66	213	14058
	154	8.0	23	230	5290
	155	8.0	5	123	615
	156	8.0	5	57	285
	157	8.0	4	163	652
	158	8.0	46	314	14444
	159	8.0	46	312	14352
	160	8.0	38	316	12008
	161	8.0	5	190	950
	162	8.0	5	93	465
	163	8.0	29	236	6844
	164	8.0	53	242	12826
	165	8.0	10	144	1440
	166	8.0	10	60	600
	167	8.0	3	243	729
	168	8.0	4	171	684
	169	8.0	5	112	560
	170	8.0	4	98	392
	171	8.0	42	546	22932
	172	8.0	10	257	2570
	173	8.0	47	259	12173
	174	8.0	2	380	760
	175	8.0	6	115	690
	176	8.0	6	231	1386
	177	8.0	10	379	3790
	178	8.0	10	381	3810
	179	8.0	3	379	1137
	180	8.0	33	252	8316
	181	8.0	8	153	1224
	182	8.0	8	66	528
	183	8.0	2	252	504
	184	8.0	8	172	1376
	185	8.0	19	498	9462
	186	8.0	9	153	1377
	187	8.0	9	493	4437
	188	8.0	10	248	2480
	189	8.0	3	259	777
	190	8.0	4	498	1992
	191	8.0	15	497	7455
	192	8.0	7	660	4620
	193	8.0	3	289	867
	194	8.0	3	338	1014
	195	8.0	9	222	1998

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	4897.1	1932.3
CA60	5.0	1529.7	235.8

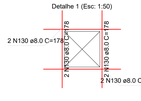
PESO TOTAL (kg)	
CA50	1932.3
CA60	235.8

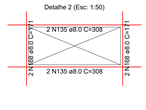
Volume de concreto (C-35) = 106.71 m³
Área de forma = 270.75 m²

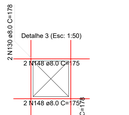


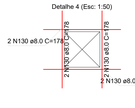
ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

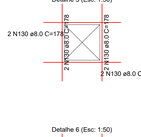
Escala 1:75

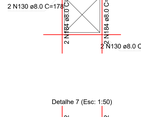






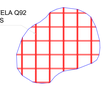




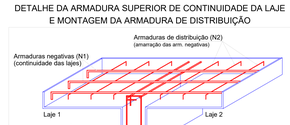


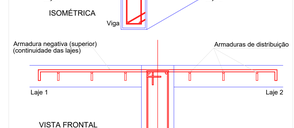
Armaduras de distribuição	
Armadura	Armadura de distribuição
N85	7 N1 ø5.0 c/20 C=87
N85	7 N1 ø5.0 c/20 C=87
N86	7 N2 ø5.0 c/20 C=136
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N87	7 N3 ø5.0 c/20 C=95
N88	5 N3 ø5.0 c/20 C=95
N88	5 N4 ø5.0 c/20 C=43
N87	7 N3 ø5.0 c/20 C=95
N87	7 N3 ø5.0 c/20 C=95
N86	7 N1 ø5.0 c/20 C=87
N89	5 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N90	5 N1 ø5.0 c/20 C=87
N91	5 N6 ø5.0 c/20 C=563
N91	5 N7 ø5.0 c/20 C=561
N92	4 N8 ø5.0 c/20 C=473
N92	4 N9 ø5.0 c/20 C=472
N93	4 N10 ø5.0 c/20 C=486
N94	3 N11 ø5.0 c/20 C=245
N95	4 N12 ø5.0 c/20 C=521
N96	4 N13 ø5.0 c/20 C=488
N97	4 N14 ø5.0 c/20 C=471
N97	4 N14 ø5.0 c/20 C=471
N98	4 N15 ø5.0 c/20 C=390
N94	3 N16 ø5.0 c/20 C=315
N94	3 N17 ø5.0 c/20 C=614
N99	3 N18 ø5.0 c/20 C=233
N94	3 N19 ø5.0 c/20 C=281
N94	3 N20 ø5.0 c/20 C=242
N98	4 N21 ø5.0 c/20 C=366
N100	3 N21 ø5.0 c/20 C=366
N98	4 N22 ø5.0 c/20 C=352
N98	4 N23 ø5.0 c/20 C=199
N98	4 N24 ø5.0 c/20 C=313
N98	4 N25 ø5.0 c/20 C=276
N98	4 N25 ø5.0 c/20 C=276
N94	3 N26 ø5.0 c/20 C=221
N101	4 N25 ø5.0 c/20 C=276
N101	4 N25 ø5.0 c/20 C=276
N103	3 N12 ø5.0 c/20 C=VAR
N98	4 N30 ø5.0 c/20 C=355
N98	4 N31 ø5.0 c/20 C=230
N98	4 N31 ø5.0 c/20 C=230
N98	4 N32 ø5.0 c/20 C=258
N98	4 N33 ø5.0 c/20 C=291
N98	4 N34 ø5.0 c/20 C=264
N98	4 N35 ø5.0 c/20 C=219
N94	3 N36 ø5.0 c/20 C=476
N94	3 N37 ø5.0 c/20 C=145
N98	4 N38 ø5.0 c/20 C=376
N98	4 N39 ø5.0 c/20 C=240
N98	4 N40 ø5.0 c/20 C=62
N104	2 N23 ø5.0 c/20 C=VAR
N105	4 N41 ø5.0 c/20 C=424
N106	4 N42 ø5.0 c/20 C=457
N93	4 N43 ø5.0 c/20 C=400
N107	5 N24 ø5.0 c/20 C=313
N107	5 N44 ø5.0 c/20 C=120
N108	5 N45 ø5.0 c/20 C=530
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N115	5 N5 ø5.0 c/20 C=48
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N116	7 N1 ø5.0 c/20 C=87
N97	4 N47 ø5.0 c/20 C=471
N117	5 N48 ø5.0 c/20 C=91
N118	5 N49 ø5.0 c/20 C=492
N119	4 N50 ø5.0 c/20 C=456
N98	4 N51 ø5.0 c/20 C=472
N92	4 N52 ø5.0 c/20 C=320
N92	4 N53 ø5.0 c/20 C=72
N98	4 N54 ø5.0 c/20 C=351
N93	4 N55 ø5.0 c/20 C=444
N98	4 N56 ø5.0 c/20 C=251
N98	4 N57 ø5.0 c/20 C=240
N98	4 N58 ø5.0 c/20 C=228
N98	4 N59 ø5.0 c/20 C=471
N96	4 N60 ø5.0 c/20 C=440
N94	3 N61 ø5.0 c/20 C=377
N120	1 N62 ø5.0 c/20 C=VAR
N121	15 N63 ø5.0 c/20 C=200
N94	3 N64 ø5.0 c/20 C=629
N94	3 N65 ø5.0 c/20 C=380
N94	3 N66 ø5.0 c/20 C=236
N94	3 N67 ø5.0 c/20 C=326
N98	4 N68 ø5.0 c/20 C=173
N98	4 N69 ø5.0 c/20 C=278
N98	4 N70 ø5.0 c/20 C=211
N98	4 N71 ø5.0 c/20 C=536
N98	4 N72 ø5.0 c/20 C=247
N100	3 N73 ø5.0 c/20 C=225
N100	3 N52 ø5.0 c/20 C=320
N98	4 N74 ø5.0 c/20 C=310
N98	4 N75 ø5.0 c/20 C=246
N98	4 N76 ø5.0 c/20 C=185
N98	4 N77 ø5.0 c/20 C=201
N98	4 N78 ø5.0 c/20 C=239
N98	4 N71 ø5.0 c/20 C=536
N98	4 N79 ø5.0 c/20 C=591
N98	4 N80 ø5.0 c/20 C=252
N102	5 N81 ø5.0 c/20 C=598
N95	4 N74 ø5.0 c/20 C=310
N98	4 N59 ø5.0 c/20 C=471
N98	4 N60 ø5.0 c/20 C=440
N98	4 N79 ø5.0 c/20 C=591
N101	4 N82 ø5.0 c/20 C=67
N98	4 N83 ø5.0 c/20 C=331
N98	4 N80 ø5.0 c/20 C=252
N98	4 N84 ø5.0 c/20 C=271
N98	4 N84 ø5.0 c/20 C=271
N105	4 N71 ø5.0 c/20 C=536
N106	4 N71 ø5.0 c/20 C=536

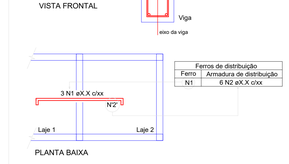
Armadura em malha TELA Q92
LAJES PROTENDIDAS



DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO







Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE
82.189.023/0001-15

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

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ESCALA	INDICADA

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Rua Presidente Getulio Vargas, 250, sala 33 - Centro - Brusque/sc | CEP 89010-140 | Fone: (47) 3211-3077 | e-mail do responsável técnico: Mobile (estágio): fernandofc@fercongenharia.com.br

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RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

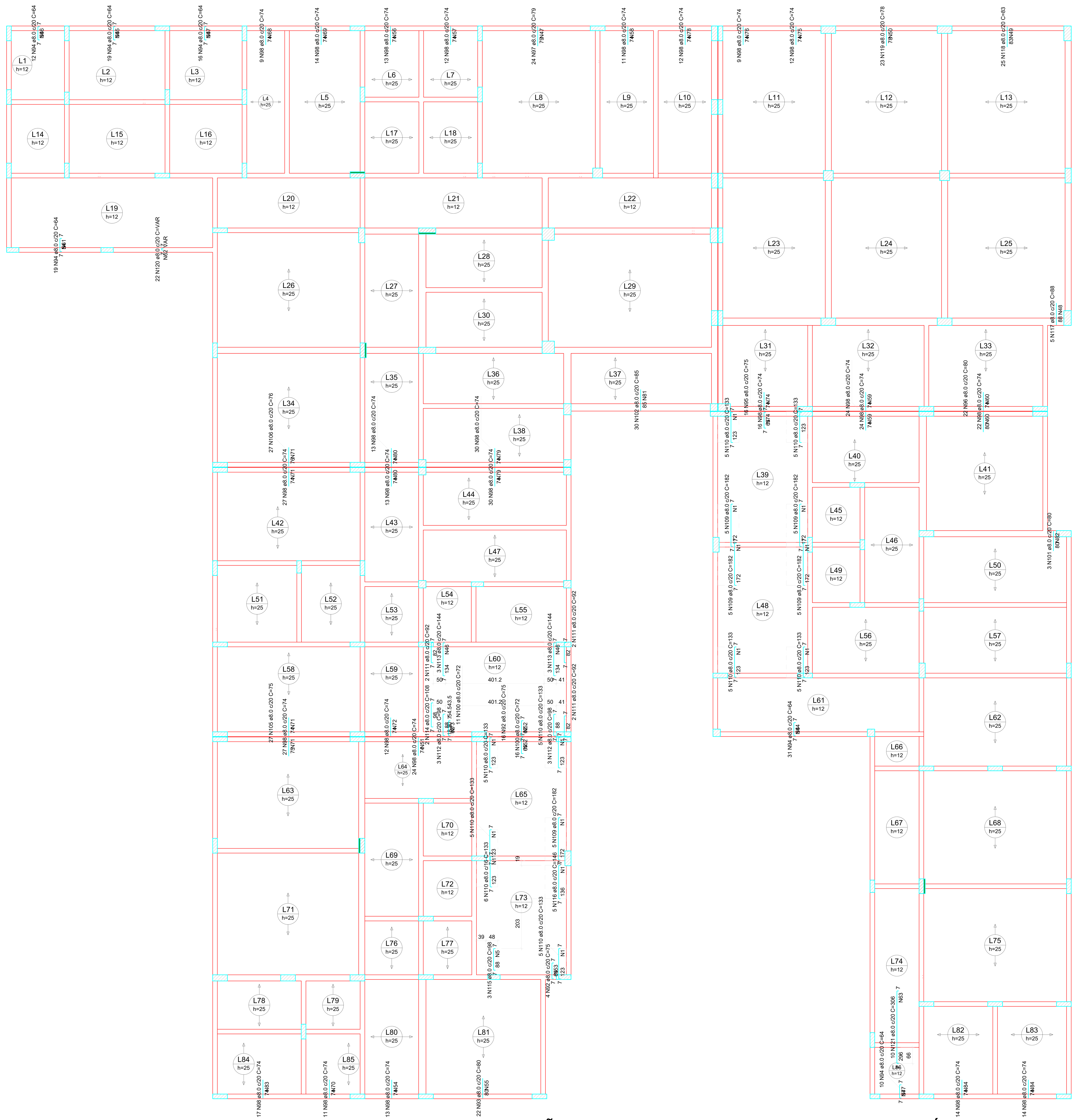
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	202	87	17574
	2	5.0	7	136	952
	3	5.0	26	95	2470
	4	5.0	5	43	215
	5	5.0	12	48	576
	6	5.0	5	563	2815
	7	5.0	5	561	2805
	8	5.0	4	473	1892
	9	5.0	4	472	1888
	10	5.0	4	486	1944
	11	5.0	3	245	735
	12	5.0	7	521	3647
	13	5.0	4	488	1952
	14	5.0	8	471	3768
	15	5.0	4	390	1560
	16	5.0	3	315	945
	17	5.0	3	614	1842
	18	5.0	3	233	699
	19	5.0	3	281	843
	20	5.0	3	242	726
	21	5.0	7	366	2562
	22	5.0	4	352	1408
	23	5.0	6	199	1194
	24	5.0	9	313	2817
	25	5.0	16	276	4416
	26	5.0	3	221	663
	27	5.0	4	391	1564
	28	5.0	5	216	1080
	29	5.0	4	233	932
	30	5.0	4	355	1420
	31	5.0	8	230	1840
	32	5.0	4	258	1032
	33	5.0	4	291	1164
	34	5.0	4	264	1056
	35	5.0	4	219	876
	36	5.0	3	476	1428
	37	5.0	3	145	435
	38	5.0	4	376	1504
	39	5.0	4	240	960
	40	5.0	4	62	248
	41	5.0	4	424	1696
	42	5.0	4	457	1828
	43	5.0	4	400	1600
	44	5.0	5	120	600
	45	5.0	5	530	2650
	46	5.0	14	50	700
	47	5.0	4	471	1884
	48	5.0	5	91	455
	49	5.0	5	492	2460
	50	5.0	4	456	1824
	51	5.0	4	472	1888
	52	5.0	7	320	2240
	53	5.0	4	72	288
	54	5.0	4	261	1044
	55	5.0	4	444	1776
	56	5.0	4	251	1004
	57	5.0	4	240	960
	58	5.0	4	228	912
	59	5.0	8	471	3768
	60	5.0	8	440	3520
	61	5.0	3	377	1131
	62	5.0	1	VAR	VAR
	63	5.0	15	200	3000
	64	5.0	3	629	1887
	65	5.0	3	380	1140
	66	5.0	3	236	708
	67	5.0	3	326	978
	68	5.0	4	173	692
	69	5.0	4	278	1112
	70	5.0	4	211	844
	71	5.0	16	536	8576
	72	5.0	4	247	988
	73	5.0	3	225	675
	74	5.0	8	310	2480
	75	5.0	4	246	984
	76	5.0	4	185	740
	77	5.0	3	201	603
	78	5.0	4	239	956
	79	5.0	8	591	4728
	80	5.0	8	252	2016
	81	5.0	5	598	2990
	82	5.0	4	67	268
	83	5.0	4	331	1324
	84	5.0	8	271	2168
CA50	85	8.0	10	134	1340
	86	8.0	60	134	8040
	87	8.0	15	137	2055
	88	8.0	8	101	808
	89	8.0	5	100	500
	90	8.0	5	100	500
	91	8.0	56	86	4816
	92	8.0	68	75	5100
	93	8.0	66	80	5280
	94	8.0	234	64	14976
	95	8.0	42	75	3150
	96	8.0	46	80	3680
	97	8.0	72	79	5688
	98	8.0	681	74	50394
	99	8.0	12	63	756
	100	8.0	45	72	3240
	101	8.0	43	80	3440
	102	8.0	41	85	3485
	103	8.0	26	VAR	VAR
	104	8.0	10	VAR	VAR
	105	8.0	48	75	3600
	106	8.0	50	76	3800
	107	8.0	22	82	1804
	108	8.0	26	84	2184
	109	8.0	25	182	4550
	110	8.0	46	133	6118
	111	8.0	6	92	552
	112	8.0	6	98	588
	113	8.0	6	144	864
	114	8.0	2	108	216
	115	8.0	3	98	294
	116	8.0	5	146	730
	117	8.0	5	88	440
	118	8.0	25	83	2075
	119	8.0	23	78	1794
	120	8.0	22	VAR	VAR
	121	8.0	10	306	3060
	122	8.0	28	249	6972
	123	8.0	28	423	11844
	124	8.0	2	328	656
	125	8.0	22	327	7194
	126	8.0	4	328	1312
	127	8.0	19	853	16207
	128	8.0	5	79	395
	129	8.0	5	740	3700
	130	8.0	40	178	7120
	131	8.0	11	614	6754
	132	8.0	6	761	4566
	133	8.0	5	186	930
	134	8.0	5	412	2060
	135	8.0	4	308	1232
	136	8.0	4	709	2836
	137	8.0	5	184	920
	138	8.0	5	492	2460
	139	8.0	2	710	1420
	140	8.0	62	399	24738
	141	8.0	24	226	5424
	142	8.0	12	228	2736
	143	8.0	12	400	4800
	144	8.0	18	615	11070
	145	8.0	3	72	216
	146	8.0	3	409	1227
	147	8.0	3	69	207
	148	8.0	4	175	700
	149	8.0	3	307	921
	150	8.0	3	401	1203
	151	8.0	3	80	240
	152	8.0	52	398	20696
	153	8.0	66	213	14058
	154	8.0	23	230	5290
	155	8.0	5	123	615
	156	8.0	5	57	285
	157	8.0	4	163	652
	158	8.0	46	314	14444
	159	8.0	46	312	14352
	160	8.0	38	316	12008
	161	8.0	5	190	950
	162	8.0	5	93	465
	163	8.0	29	236	6844
	164	8.0	53	242	12826
	165	8.0	10	144	1440
	166	8.0	10	60	600
	167	8.0	3	243	729
	168	8.0	4	171	684
	169	8.0	5	112	560
	170	8.0	5	97	485
	171	8.0	42	546	22932
	172	8.0	10	257	2570
	173	8.0	47	259	12173
	174	8.0	2	380	760
	175	8.0	6	115	690
	176	8.0	6	231	1386
	177	8.0	10	379	3790
	178	8.0	10	381	3810
	179	8.0	3	379	1137
	180	8.0	33	252	8316
	181	8.0	8	153	1224
	182	8.0	8	66	528
	183	8.0	2	252	504
	184	8.0	8	172	1376
	185	8.0	19	498	9462
	186	8.0	9	153	1377
	187	8.0	9	493	4437
	188	8.0	10	248	2480
	189	8.0	3	259	777
	190	8.0	4	498	1992
	191	8.0	15	497	7455
	192	8.0	7	660	4620
	193	8.0	3	289	867
	194	8.0	3	338	1014
	195	8.0	9	222	1998

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	4897.1	1932.3
CA60	5.0	1529.7	235.8

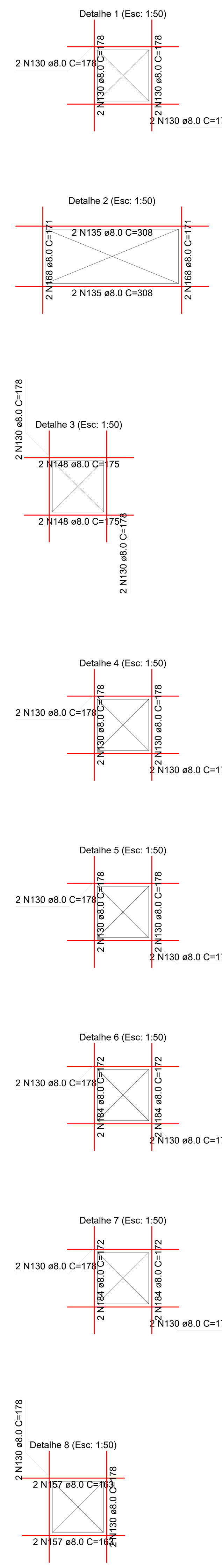
PESO TOTAL (kg)	
CA50	1932.3
CA60	235.8

Volume de concreto (C-35) = 106.71 m³
Área de forma = 270.75 m²



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

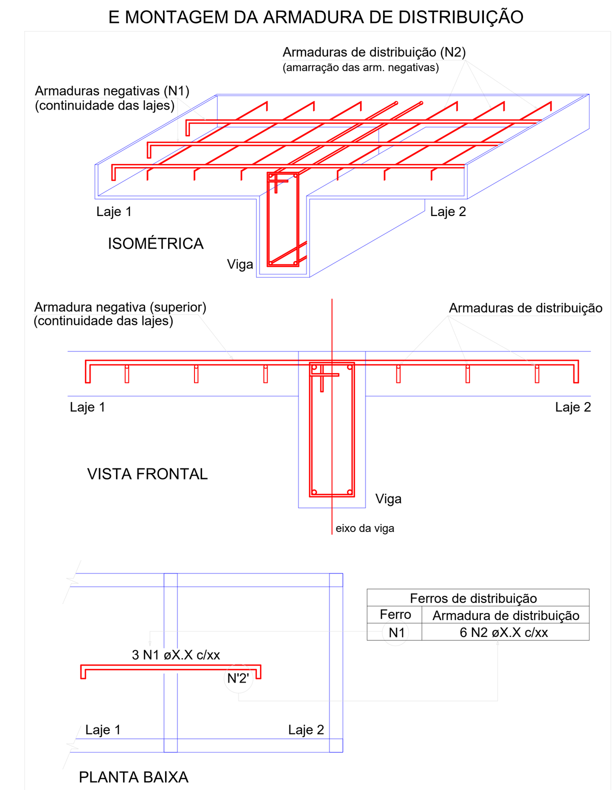
Escala 1:75



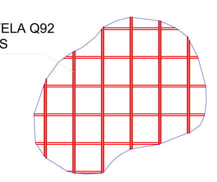
Armaduras de distribuição

Armadura	Armadura de distribuição
N85	7 N1 ø5.0 c/20 C=87
N85	7 N1 ø5.0 c/20 C=87
N86	7 N2 ø5.0 c/20 C=136
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N87	7 N3 ø5.0 c/20 C=95
N88	5 N3 ø5.0 c/20 C=95
N88	5 N4 ø5.0 c/20 C=43
N87	7 N3 ø5.0 c/20 C=95
N87	7 N3 ø5.0 c/20 C=95
N86	7 N1 ø5.0 c/20 C=87
N89	5 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N1 ø5.0 c/20 C=87
N86	7 N5 ø5.0 c/20 C=48
N90	5 N1 ø5.0 c/20 C=87
N91	5 N6 ø5.0 c/20 C=563
N91	5 N7 ø5.0 c/20 C=561
N92	4 N8 ø5.0 c/20 C=473
N92	4 N9 ø5.0 c/20 C=472
N93	4 N10 ø5.0 c/20 C=486
N94	3 N11 ø5.0 c/20 C=245
N95	4 N12 ø5.0 c/20 C=521
N96	4 N13 ø5.0 c/20 C=488
N97	4 N14 ø5.0 c/20 C=471
N97	4 N14 ø5.0 c/20 C=471
N98	4 N15 ø5.0 c/20 C=390
N94	3 N16 ø5.0 c/20 C=315
N94	3 N17 ø5.0 c/20 C=614
N99	3 N18 ø5.0 c/20 C=233
N94	3 N19 ø5.0 c/20 C=281
N94	3 N20 ø5.0 c/20 C=242
N98	4 N21 ø5.0 c/20 C=366
N100	3 N21 ø5.0 c/20 C=366
N98	4 N22 ø5.0 c/20 C=352
N98	4 N23 ø5.0 c/20 C=199
N98	4 N24 ø5.0 c/20 C=313
N98	4 N25 ø5.0 c/20 C=276
N98	4 N25 ø5.0 c/20 C=276
N94	3 N26 ø5.0 c/20 C=221
N101	4 N25 ø5.0 c/20 C=276
N101	4 N25 ø5.0 c/20 C=276
N98	4 N27 ø5.0 c/20 C=391
N102	5 N28 ø5.0 c/20 C=216
N101	4 N29 ø5.0 c/20 C=233
N103	3 N12 ø5.0 c/20 C=VAR
N98	4 N30 ø5.0 c/20 C=355
N98	4 N31 ø5.0 c/20 C=230
N98	4 N31 ø5.0 c/20 C=230
N98	4 N32 ø5.0 c/20 C=258
N98	4 N33 ø5.0 c/20 C=291
N98	4 N34 ø5.0 c/20 C=264
N98	4 N35 ø5.0 c/20 C=219
N94	3 N36 ø5.0 c/20 C=476
N94	3 N37 ø5.0 c/20 C=145
N98	4 N38 ø5.0 c/20 C=376
N98	4 N39 ø5.0 c/20 C=240
N98	4 N40 ø5.0 c/20 C=62
N104	2 N23 ø5.0 c/20 C=VAR
N105	4 N41 ø5.0 c/20 C=424
N106	4 N42 ø5.0 c/20 C=457
N93	4 N43 ø5.0 c/20 C=400
N107	5 N24 ø5.0 c/20 C=313
N107	5 N44 ø5.0 c/20 C=120
N108	5 N45 ø5.0 c/20 C=530
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N113	7 N46 ø5.0 c/20 C=50
N113	7 N46 ø5.0 c/20 C=50
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N109	9 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N115	5 N5 ø5.0 c/20 C=48
N110	7 N1 ø5.0 c/20 C=87
N110	7 N1 ø5.0 c/20 C=87
N116	7 N1 ø5.0 c/20 C=87
N97	4 N47 ø5.0 c/20 C=471
N117	5 N48 ø5.0 c/20 C=91
N118	5 N49 ø5.0 c/20 C=492
N119	4 N50 ø5.0 c/20 C=456
N98	4 N51 ø5.0 c/20 C=472
N92	4 N52 ø5.0 c/20 C=320
N92	4 N53 ø5.0 c/20 C=72
N98	4 N54 ø5.0 c/20 C=261
N93	4 N55 ø5.0 c/20 C=444
N98	4 N56 ø5.0 c/20 C=251
N98	4 N57 ø5.0 c/20 C=240
N98	4 N58 ø5.0 c/20 C=228
N98	4 N59 ø5.0 c/20 C=471
N96	4 N60 ø5.0 c/20 C=440
N94	3 N61 ø5.0 c/20 C=377
N120	1 N62 ø5.0 c/20 C=VAR
N121	15 N63 ø5.0 c/20 C=200
N94	3 N64 ø5.0 c/20 C=629
N94	3 N65 ø5.0 c/20 C=380
N94	3 N66 ø5.0 c/20 C=236
N94	3 N67 ø5.0 c/20 C=326
N98	4 N68 ø5.0 c/20 C=173
N98	4 N69 ø5.0 c/20 C=278
N98	4 N70 ø5.0 c/20 C=211
N98	4 N71 ø5.0 c/20 C=536
N98	4 N72 ø5.0 c/20 C=247
N100	3 N73 ø5.0 c/20 C=225
N100	3 N52 ø5.0 c/20 C=320
N98	4 N74 ø5.0 c/20 C=310
N98	4 N75 ø5.0 c/20 C=246
N98	4 N76 ø5.0 c/20 C=185
N94	3 N77 ø5.0 c/20 C=201
N98	4 N78 ø5.0 c/20 C=239
N98	4 N71 ø5.0 c/20 C=536
N98	4 N79 ø5.0 c/20 C=591
N98	4 N80 ø5.0 c/20 C=252
N102	5 N81 ø5.0 c/20 C=598
N95	4 N74 ø5.0 c/20 C=310
N98	4 N59 ø5.0 c/20 C=471
N98	4 N60 ø5.0 c/20 C=440
N98	4 N79 ø5.0 c/20 C=591
N101	4 N82 ø5.0 c/20 C=67
N98	4 N83 ø5.0 c/20 C=331
N98	4 N80 ø5.0 c/20 C=252
N98	4 N84 ø5.0 c/20 C=271
N98	4 N84 ø5.0 c/20 C=271
N105	4 N71 ø5.0 c/20 C=536
N106	4 N71 ø5.0 c/20 C=536

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
Data: 2025.08.28 10:45:14-03'00'
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920
Data: 2025.08.26 14:13:32-03'00'
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

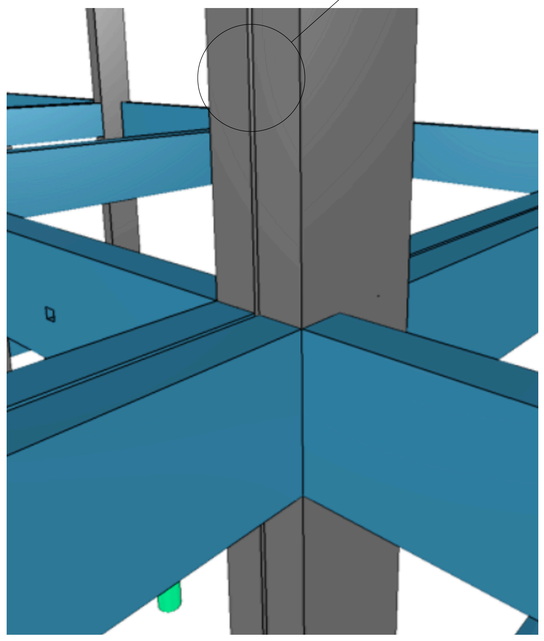
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: LAJE TÉRREO(4)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 26/76

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 26
2025-08-25 15:47:03, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

DILATAÇÃO PILARES (2cm)



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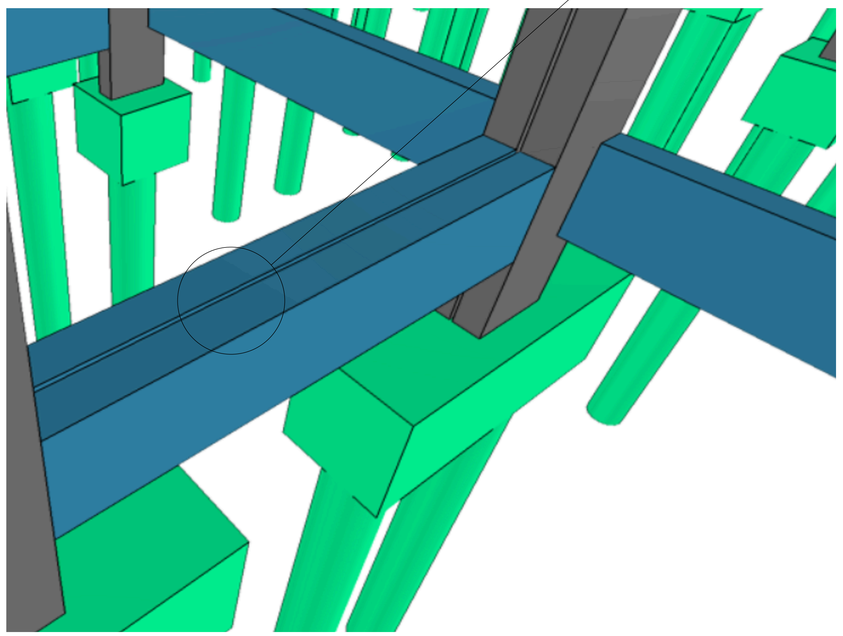
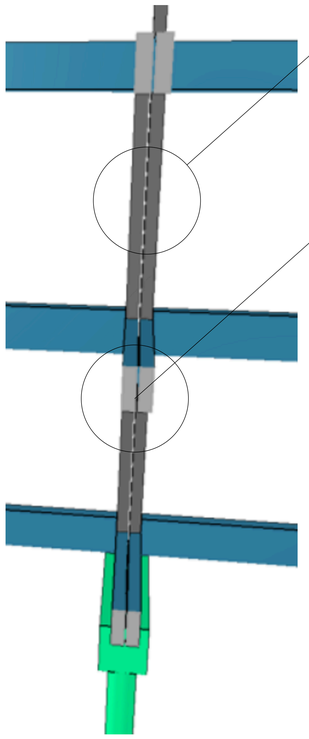
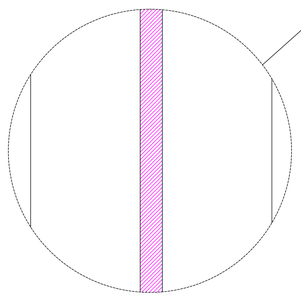


DILATAÇÃO PILARES (2cm)

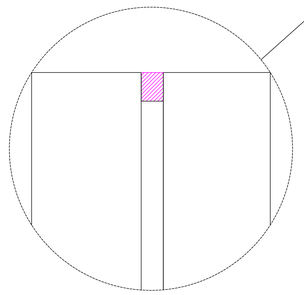
DILATAÇÃO VIGAS (2cm)



JUNTA (2cmX2cm)
selante PU



JUNTA (2cmX2cm)
selante PU



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

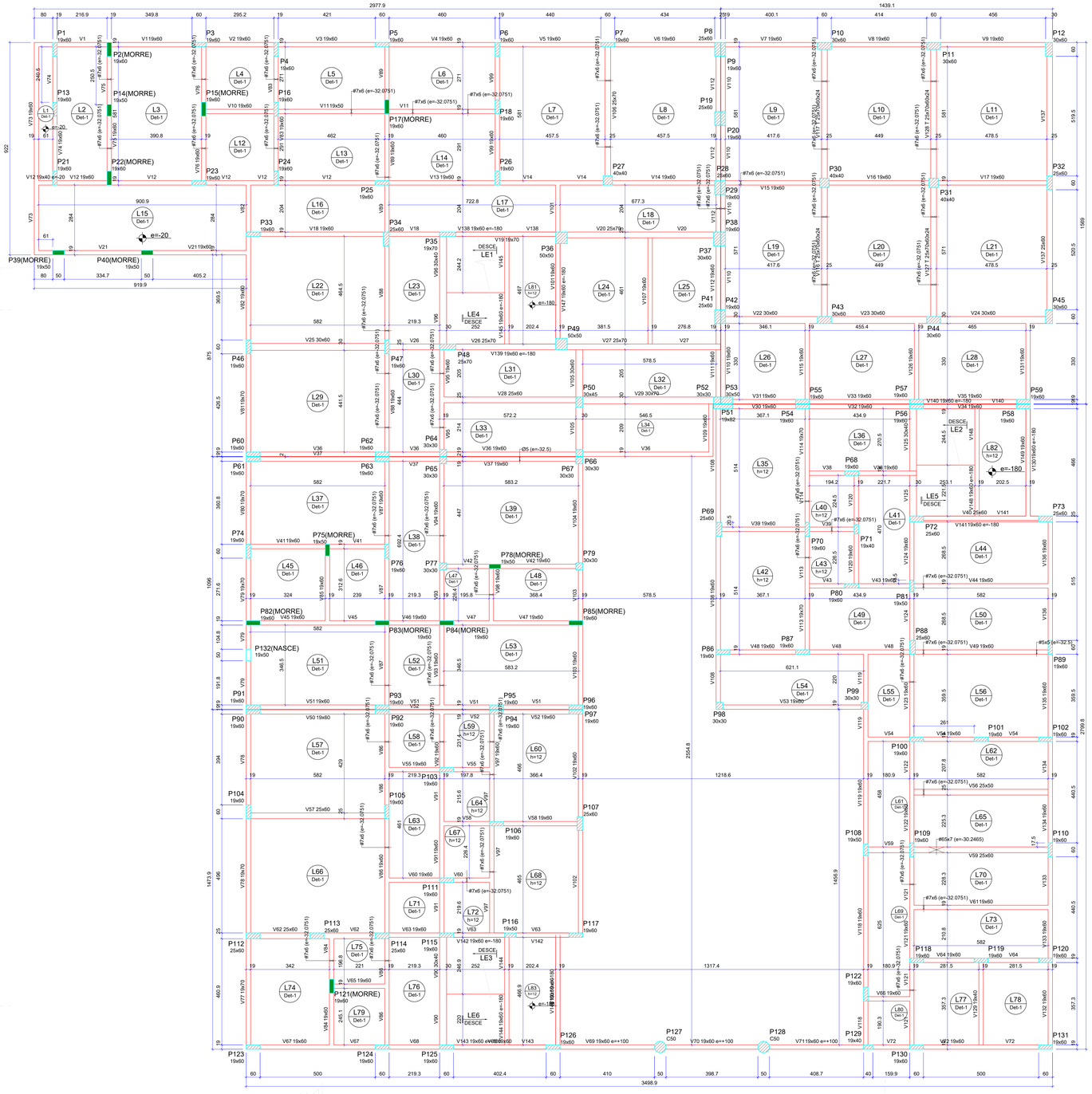
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	DETALHE JUNTAS DE DILATAÇÃO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 27/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc + EDP 990-10.142 | Fone (47) 98813-8015 | e-mail de responsável técnico desta projeto: jean@fercongroup.com

Projeto Executivo de Concreto Armado (pilar)
SEI 25.0.2000038-7 pg. 27
2025-08-26 14:11:45, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 380)

Escala 1:75

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19x60	0	380
P2	19x60	0	380
P3	19x60	0	380
P4	19x60	0	380
P5	19x60	0	380
P6	19x60	0	380
P7	19x60	0	380
P8	25x60	0	380
P9	19x60	0	380
P10	30x60	0	380
P11	30x60	0	380
P12	30x60	0	380
P13	19x60	0	380
P14	19x50	0	380
P15	19x60	0	380
P16	19x60	0	380
P17	19x60	0	380
P18	19x60	0	380
P19	25x60	0	380
P20	19x60	0	380
P21	19x60	0	380
P22	19x60	0	380
P23	19x60	0	380
P24	19x60	0	380
P25	19x60	0	380
P26	19x60	0	380
P27	40x40	0	380
P28	25x60	0	380
P29	19x60	0	380
P30	40x40	0	380
P31	40x40	0	380
P32	25x60	0	380
P33	19x60	0	380
P34	25x60	0	380
P35	19x70	0	380
P36	50x50	0	380
P37	30x60	0	380
P38	19x60	0	380
P39	19x50	0	380
P40	19x50	0	380
P41	25x60	0	380
P42	19x60	0	380
P43	30x60	0	380
P44	30x60	0	380
P45	30x60	0	380
P46	19x60	0	380
P47	19x60	0	380
P48	25x70	0	380
P49	50x50	0	380
P50	30x45	0	380
P51	19x82	0	380
P52	30x30	0	380
P53	30x50	0	380
P54	19x60	0	380
P55	19x60	0	380
P56	19x60	0	380
P57	19x60	0	380
P58	19x60	0	380
P59	19x60	0	380
P60	19x60	0	380
P61	19x60	0	380
P62	19x60	0	380
P63	19x60	0	380
P64	30x30	0	380
P65	30x30	0	380
P66	30x30	0	380
P67	30x30	0	380
P68	19x60	0	380
P69	25x60	0	380
P70	19x60	0	380
P71	19x40	0	380
P72	25x60	0	380
P73	25x60	0	380
P74	19x60	0	380
P75	19x50	0	380
P76	19x60	0	380
P77	30x30	0	380
P78	19x50	0	380
P79	30x30	0	380
P80	19x60	0	380
P81	19x50	0	380
P82	19x60	0	380
P83	19x60	0	380
P84	19x60	0	380
P85	19x60	0	380
P86	19x60	0	380
P87	19x60	0	380
P88	25x60	0	380
P89	19x60	0	380
P90	19x60	0	380
P91	19x60	0	380
P92	19x60	0	380
P93	19x60	0	380
P94	19x60	0	380
P95	19x60	0	380
P96	19x60	0	380
P97	19x60	0	380
P98	30x30	0	380
P99	30x30	0	380
P100	19x60	0	380
P101	19x60	0	380
P102	19x60	0	380
P103	19x60	0	380
P104	19x60	0	380
P105	19x60	0	380
P106	19x60	0	380
P107	25x60	0	380
P108	19x50	0	380
P109	19x60	0	380
P110	19x60	0	380
P111	19x60	0	380
P112	25x60	0	380
P113	25x60	0	380
P114	25x60	0	380
P116	19x50	0	380
P117	19x60	0	380
P118	19x60	0	380
P119	19x60	0	380
P120	19x60	0	380
P121	19x60	0	380
P122	19x60	0	380
P123	19x60	0	380
P124	19x60	0	380
P125	19x60	0	380
P126	19x60	0	380
P127	Circ 50	0	380
P128	Circ 50	0	380
P129	19x40	0	380
P130	19x60	0	380
P131	19x60	0	380
P132	19x50	0	380

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x60	0	380
V2	19x60	0	380
V3	19x60	0	380
V4	19x60	0	380
V5	19x60	0	380
V6	19x60	0	380
V7	19x60	0	380
V8	19x60	0	380
V9	19x60	0	380
V10	19x60	0	380
V11	19x50	0	380
V12	19x40	-20	360
	19x60	0	380
V13	19x60	0	380
V14	19x60	0	380
V15	19x60	0	380
V16	19x60	0	380
V17	19x60	0	380
V18	19x60	0	380
V19	19x70	0	380
V20	25x70	0	380
V21	19x60	0	380
V22	30x60	0	380
V23	30x60	0	380
V24	30x60	0	380
V25	30x60	0	380
V26	25x70	0	380
V27	25x70	0	380
V28	25x60	0	380
V29	30x70	0	380
V30	19x60	0	380
V31	19x60	0	380
V32	19x60	0	380
V33	19x60	0	380
V34	19x60	0	380
V35	19x60	0	380
V36	19x60	0	380
V37	19x60	0	380
V38	19x60	0	380
V39	19x60	0	380
V40	25x60	0	380
V41	19x60	0	380
V42	19x60	0	380
V43	19x60	0	380
V44	19x60	0	380
V45	19x60	0	380
V46	19x60	0	380
V47	19x60	0	380
V48	19x60	0	380
V49	19x60	0	380
V50	19x60	0	380
V51	19x60	0	380
V52	19x60	0	380
V53	19x60	0	380
V54	19x60	0	380
V55	19x60	0	380
V56	25x50	0	380
V57	25x60	0	380
V58	19x60	0	380
V59	25x60	0	380
V60	19x60	0	380
V61	19x60	0	380
V62	25x60	0	380
V63	19x60	0	380
V64	19x60	0	380
V65	19x60	0	380
V66	19x60	0	380
V67	19x60	0	380
V68	19x60	0	380
V69	19x60	100	480
V70	19x60	100	480
V71	19x60	100	480
V72	19x60	0	380
V73	19x60	0	380
V74	19x60	0	380
V75	19x60	0	380
V76	19x60	0	380
V77	19x60	0	380
V78	19x70	0	380
V79	19x70	0	380
V80	19x70	0	380
V81	19x70	0	380
V82	19x60	0	380
V83	19x60	0	380
V84	19x60	0	380
V85	19x60	0	380
V86	19x60	0	380
V87	19x60	0	380
V88	19x60	0	380
V89	19x60	0	380
V90	30x40	0	380
V91	19x60	0	380
V92	19x60	0	380
V93	19x60	0	380
V94	19x60	0	380
V95	19x60	0	380
V96	30x40	0	380
V97	19x60	0	380
V98	19x60	0	380
V99	19x60	0	380
V100	19x60	0	380
V101	19x60	0	380
V102	19x60	0	380
V103	19x60	0	380
V104	19x60	0	380
V105	30x60	0	380
V106	25x70	0	380
V107	19x60	0	380
V108	19x60	0	380
V109	19x60	0	380
V110	19x60	0	380
V111	19x60	0	380
V112	19x60	0	380
V113	19x70	0	380
V114	19x70	0	380
V115	19x60	0	380
V116	T 25x70x60x24	0	380
V117	T 25x70x60x24	0	380
V118	19x60	0	380
V119	19x60	0	380
V120	19x60	0	380
V121	19x60	0	380
V122	19x60	0	380
V123	19x60	0	380
V124	19x60	0	380
V125	30x40	0	380
V126	19x60	0	380
V127	T 25x70x60x24	0	380
V128	T 25x70x60x24	0	380
V129	19x40	0	380
V130	19x60	0	380
V131	19x60	0	380
V132	19x60	0	380
V133	19x60	0	380
V134	19x60	0	380
V135	19x60	0	380
V136	19x60	0	380
V137	25x60	0	380
V138	19x60	-180	200
V139	19x60	-180	200
V140	19x60	-180	200
V141	19x60	-180	200
V142	19x60	-180	200
V143	19x60	-180	200
V144	19x60	-180	200
V145	19x60	-180	200
V146	19x60	-180	200
V147	19x60	-180	200
V148	19x60	-180	200
V149	19x60	-180	200

Lajes							
Dados						Sobrecarga (kgf/m²)	
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Vigota protendida	25	-20	360	241	154	300	-
L2	Vigota protendida	25	0	380	241	154	300	-
L3	Vigota protendida	25	0	380	241	154	300	-
L4	Vigota protendida	25	0	380	241	154	300	-
L5	Vigota protendida	25	0	380	241	154	300	-
L6	Vigota protendida	25	0	380	241	154	300	-
L7	Vigota protendida	25	0	380	241	154	300	-
L8	Vigota protendida	25	0	380	241	154	300	-
L9	Vigota protendida	25	0	380	241	154	300	-
L10	Vigota protendida	25	0	380	241	154	300	-
L11	Vigota protendida	25	0	380	241	154	300	-
L12	Vigota protendida	25	0	380	241	154	300	-
L13	Vigota protendida	25	0	380	241	154	300	-
L14	Vigota protendida	25	0	380	241	154	300	-
L15	Vigota protendida	25	-20	360	241	154	300	-
L16	Vigota protendida	25	0	380	241	154	300	-
L17	Vigota protendida	25	0	380	241	154	300	-
L18	Vigota protendida	25	0	380	241	154	300	-
L19	Vigota protendida	25	0	380	241	154	300	-
L20	Vigota protendida	25	0	380	241	154	300	-
L21	Vigota protendida	25	0	380	241	154	300	-
L22	Vigota protendida	25	0	380	241	154	300	-
L23	Vigota protendida	25	0	380	241	154	300	-
L24	Vigota protendida	25	0	380	241	154	300	-
L25	Vigota protendida	25	0	380	241	154	300	-
L26	Vigota protendida	25	0	380	241	154	300	-
L27	Vigota protendida	25	0	380	241	154	300	-
L28	Vigota protendida	25	0	380	241	154	300	-
L29	Vigota protendida	25	0	380	241	154	300	-
L30	Vigota protendida	25	0	380	241	154	300	-
L31	Vigota protendida	25	0	380	241	154	300	-
L32	Vigota protendida	25	0	380	241	154	300	-
L33	Vigota protendida	25	0	380	241	154	300	-
L34	Vigota protendida	25	0	380	241	154	300	-
L35	Maciça	12	0	380	300	154	300	-
L36	Vigota protendida	25	0	380	241	154	300	-
L37	Vigota protendida	25	0	380	241	154	300	-
L38	Vigota protendida	25	0	380	241	154	300	-
L39	Vigota protendida	25	0	380	241	154	300	-
L40	Maciça	12	0	380	300	154	300	-
L41	Vigota protendida	25	0	380	241	154	300	-
L42	Maciça	12	0	380	300	154	300	-
L43	Maciça	12	0	380	300	154	300	-
L44	Vigota protendida	25	0	380	241	154	300	-
L45	Vigota protendida	25	0	380	241	154	300	-
L46	Vigota protendida	25	0	380	241	154	300	-
L47	Vigota protendida	25	0	380	241	154	300	-
L48	Vigota protendida	25	0	380	241	154	300	-
L49	Vigota protendida	25	0	380	241	154	300	-
L50	Vigota protendida	25	0	380	241	154	300	-
L51	Vigota protendida	25	0	380	241	154	300	-
L52	Vigota protendida	25	0	380	241	154	300	-
L53	Vigota protendida	25	0	380	241	154	300	-
L54	Vigota protendida	25	0	380	241	154	300	-
L55	Vigota protendida	25	0	380	241	154	300	-
L56	Vigota protendida	25	0	380	241	154	300	-
L57	Vigota protendida	25	0	380	241	154	300	-
L58	Vigota protendida	25	0	380	241	154	300	-
L59	Maciça	12	0	380	300	154	300	-
L60	Maciça	12	0	380	300	154	300	-
L61	Vigota protendida	25	0	380	241	154	300	-
L62	Vigota protendida	25	0	380	241	154	300	-
L63	Vigota protendida	25	0	380	241	154	300	-
L64	Maciça	12	0	380	300	154	300	-
L65	Vigota protendida	25	0	380	241	154	300	-
L66	Vigota protendida	25	0	380	241	154	300	-
L67	Maciça	12	0	380	300	154	300	-
L68	Maciça	12	0	380	300	154	300	-
L69	Vigota protendida	25	0	380	241	154	300	-
L70	Vigota protendida	25	0	380	241	154	300	-
L71	Vigota protendida	25	0	380	241	154	300	-
L72	Maciça	12	0	380	300	154	300	-
L73	Vigota protendida	25	0	380	241	154	300	-
L74	Vigota protendida	25	0	380	241	154	300	-
L75	Vigota protendida	25	0	380	241	154	300	-
L76	Vigota protendida	25	0	380	241	154	300	-
L77	Vigota protendida	25	0	380	241	154	300	-
L78	Vigota protendida	25	0	380	241	154	300	-
L79	Vigota protendida	25	0	380	241	154	300	-
L80	Vigota protendida	25	0	380	241	154	300	-
L81	Maciça	12	-180	200	300	154	300	-
L82	Maciça	12	-180	200	300	154	300	-
LE1	Maciça	18	-180	200	763	0	0	-
LE2	Maciça	18	-180	200	762	0	0	-
LE3	Maciça	18	-180	200	763	0	0	-
LE4	Maciça	12	0	380	584	0	0	-
LE5	Maciça	12	0	380	583	0	0	-
LE6	Maciça	12	0	380	584	0	0	-

Área de lajes			
Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Maciça	12	-	143.22
Maciça	18	-	16.90
Vigota protendida	25	B20/30/125	1023.07

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

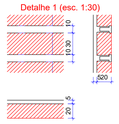
Dimensão máxima do agregado = 19 mm

Legenda dos pilares
- Pilar de morre
- Pilar que passa
- Pilar que nasce
- Pilar com mudança de seção

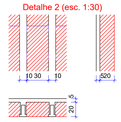
Legenda das vigas e paredes
- Viga

Legenda das lajes
- Laje

Detalhe 1 (esc. 1:30)



Detalhe 2 (esc. 1:30)



Blocos de enchimento						
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1	EPS Unidirecional	B20/30/125	20	30	125	2547

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.823/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062222-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062222-0

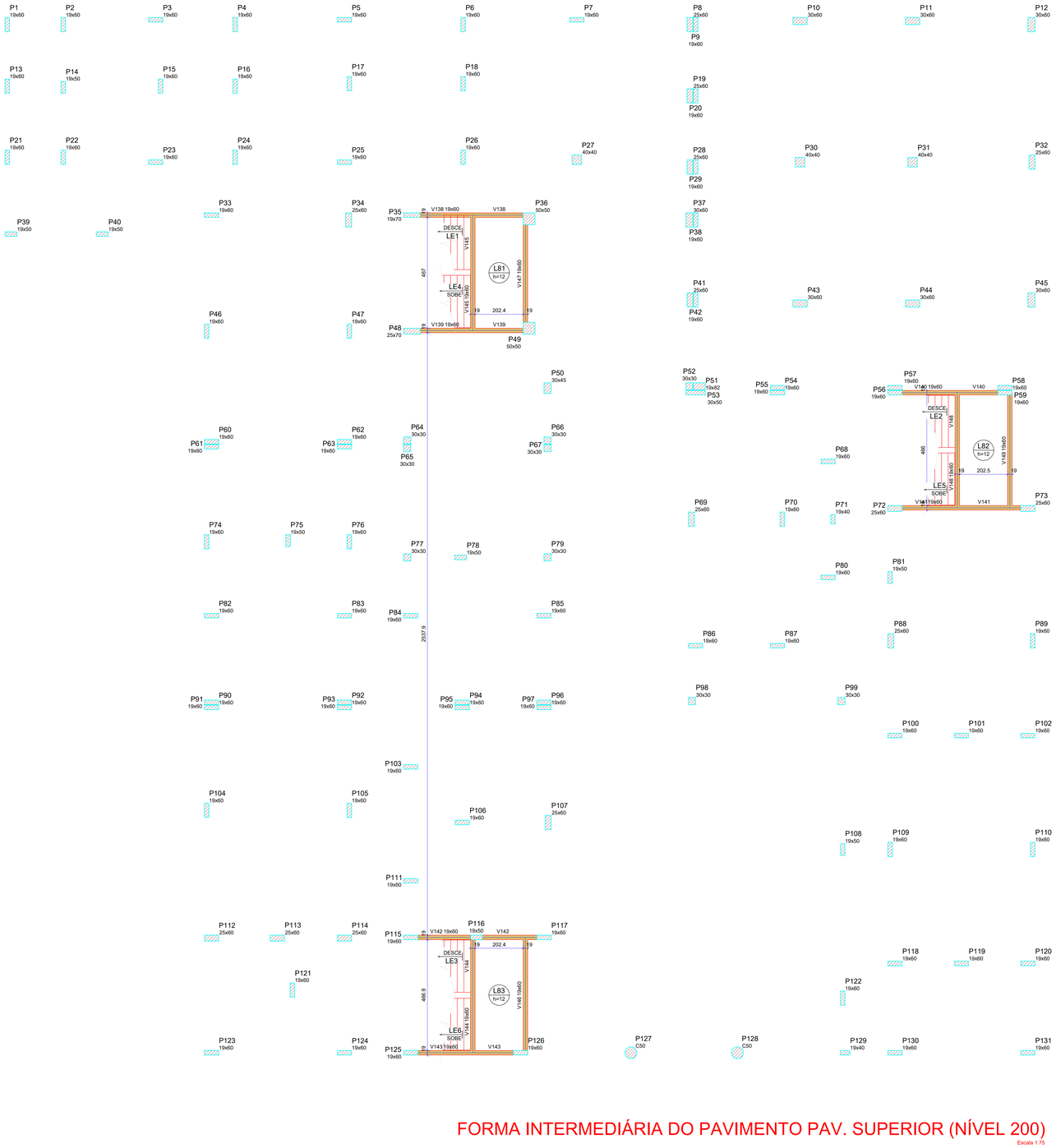
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS SUPERIOR(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 28/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Brusque - | CEP 89010-140 | Fone (47) 9631-9013 | e-mail do responsável técnico desde projeto: fernando@fercongenharia.com.br

Projeto Executivo Joinville (2025) - Sistema Estrutural - Concreto Armado
SEI 23.0.000013-5 pg 28 de 76

2025-08-25 15:47:24, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 200)

Escala 1:75

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19x60	0	200
P2	19x60	0	200
P3	19x60	0	200
P4	19x60	0	200
P5	19x50	0	200
P6	19x60	0	200
P7	19x60	0	200
P8	25x60	0	200
P9	19x60	0	200
P10	30x60	0	200
P11	30x60	0	200
P12	30x60	0	200
P13	19x60	0	200
P14	19x50	0	200
P15	19x60	0	200
P16	19x60	0	200
P17	19x60	0	200
P18	19x60	0	200
P19	25x60	0	200
P20	19x60	0	200
P21	19x60	0	200
P22	19x60	0	200
P23	19x60	0	200
P24	19x60	0	200
P25	19x60	0	200
P26	19x60	0	200
P27	40x40	0	200
P28	25x60	0	200
P29	19x60	0	200
P30	40x40	0	200
P31	40x40	0	200
P32	25x60	0	200
P33	19x60	0	200
P34	25x60	0	200
P35	19x70	0	200
P36	50x50	0	200
P37	30x60	0	200
P38	19x60	0	200
P39	19x50	0	200
P40	19x50	0	200
P41	25x60	0	200
P42	19x60	0	200
P43	30x60	0	200
P44	30x60	0	200
P45	30x60	0	200
P46	19x60	0	200
P47	19x60	0	200
P48	25x70	0	200
P49	50x50	0	200
P50	30x45	0	200
P51	19x82	0	200
P52	30x30	0	200
P53	30x50	0	200
P54	19x60	0	200
P55	19x60	0	200
P56	19x60	0	200
P57	19x60	0	200
P58	19x60	0	200
P59	19x60	0	200
P60	19x60	0	200
P61	19x60	0	200
P62	19x60	0	200
P63	19x60	0	200
P64	30x30	0	200
P65	30x30	0	200
P66	30x30	0	200
P67	30x30	0	200
P68	19x60	0	200
P69	25x60	0	200
P70	19x60	0	200
P71	19x40	0	200
P72	25x60	0	200
P73	25x60	0	200
P74	19x60	0	200
P75	19x50	0	200
P76	19x60	0	200
P77	30x30	0	200
P78	19x50	0	200
P79	30x30	0	200
P80	19x60	0	200
P81	19x50	0	200
P82	19x60	0	200
P83	19x60	0	200
P84	19x60	0	200
P85	19x60	0	200
P86	19x60	0	200
P87	19x60	0	200
P88	25x60	0	200
P89	19x60	0	200
P90	19x60	0	200
P91	19x60	0	200
P92	19x60	0	200
P93	19x60	0	200
P94	19x60	0	200
P95	19x60	0	200
P96	19x60	0	200
P97	19x60	0	200
P98	30x30	0	200
P99	30x30	0	200
P100	19x60	0	200
P101	19x60	0	200
P102	19x60	0	200
P103	19x60	0	200
P104	19x60	0	200
P105	19x60	0	200
P106	19x60	0	200
P107	25x60	0	200
P108	19x50	0	200
P109	19x60	0	200
P110	19x60	0	200
P111	19x60	0	200
P112	25x60	0	200
P113	25x60	0	200
P114	25x60	0	200
P115	19x60	0	200
P116	19x50	0	200
P117	19x60	0	200
P118	19x60	0	200
P119	19x60	0	200
P120	19x60	0	200
P121	19x60	0	200
P122	19x60	0	200
P123	19x60	0	200
P124	19x60	0	200
P125	19x60	0	200
P126	19x60	0	200
P127	Circ 50	0	200
P128	Circ 50	0	200
P129	19x40	0	200
P130	19x50	0	200
P131	19x60	0	200

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V138	19x60	0	200
V139	19x60	0	200
V140	19x50	0	200
V141	19x50	0	200
V142	19x50	0	200
V143	19x50	0	200
V144	19x60	0	200
V145	19x50	0	200
V146	19x60	0	200
V147	19x60	0	200
V148	19x60	0	200
V149	19x60	0	200

Lajes							
		Dados				Sobrecarga (kgf/m²)	
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L81	Maciça	12	0	200	300	154	300	-
L82	Maciça	12	0	200	300	154	300	-
L83	Maciça	12	0	200	300	154	300	-
LE1	Maciça	18	0	200	763	0	0	-
LE2	Maciça	18	0	200	762	0	0	-
LE3	Maciça	18	0	200	763	0	0	-

Área de lajes			
Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Maciça	12	-	28.34
Maciça	18	-	16.90

Caracteristicas dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Legenda dos pilares	
	Pilar que passa

Legenda das vigas e paredes	
	Viga

Legenda das lajes	
	Laje

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	FÓRMAS SUPERIOR(2)

ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 29/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Blumenau, | CEP 89010-140 | Fone (47) 9671-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

Projeto Estrutural (BIM/Tradicional) SEI 25.0.000033-9 pg. 29
2025-08-25 15:47:31, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 380)

Escala 1:75

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
00.198.028/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	JUNTAS DILATAÇÃO SUPERIOR

ARQUIVO: IOE_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 30/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ:04.668.731/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Rio negro - | CEP:89515-042 | Fone: (47) 98813-8512 | e-mail:engenharia@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (NBR14931)
SEI 25.0.200003-9 / pg. 30
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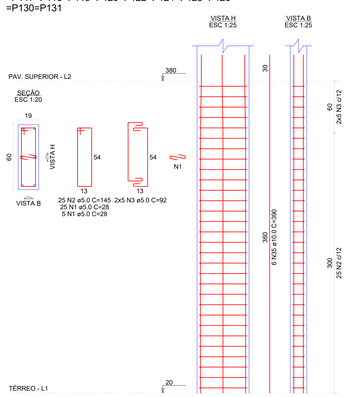

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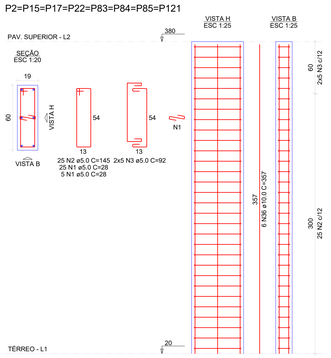

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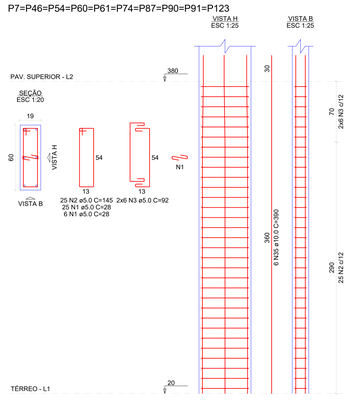

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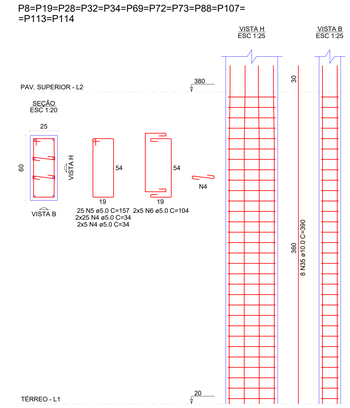

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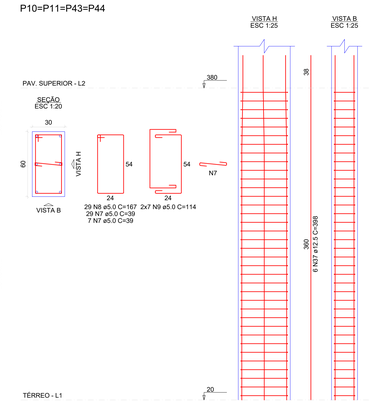

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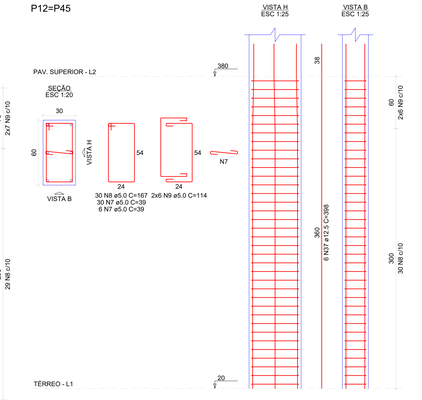

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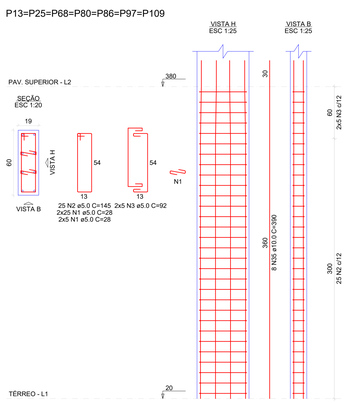

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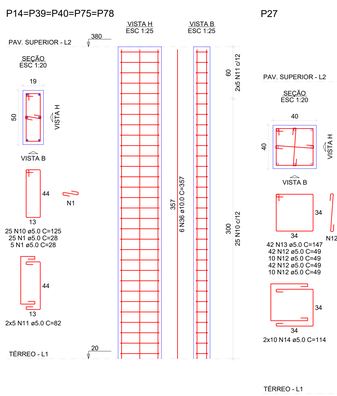

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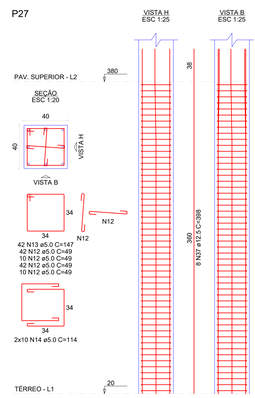

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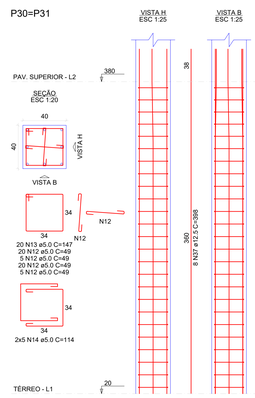

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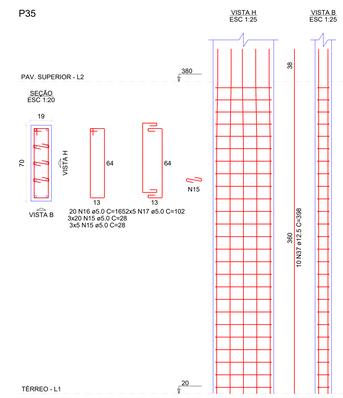

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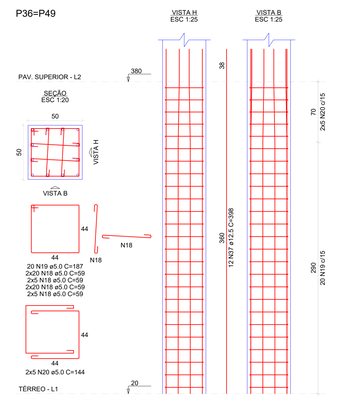

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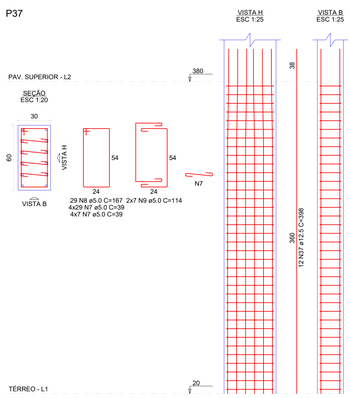

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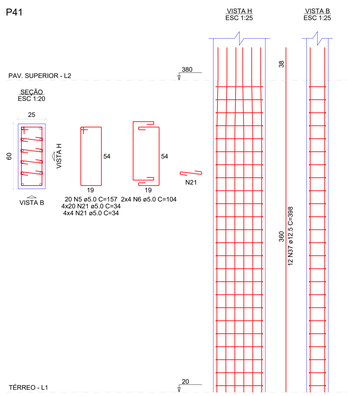

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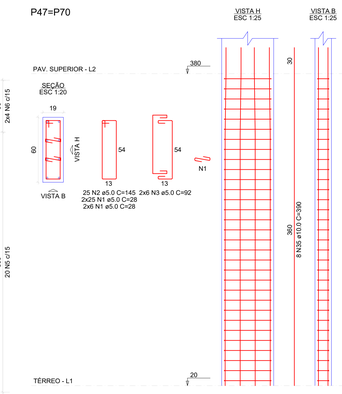

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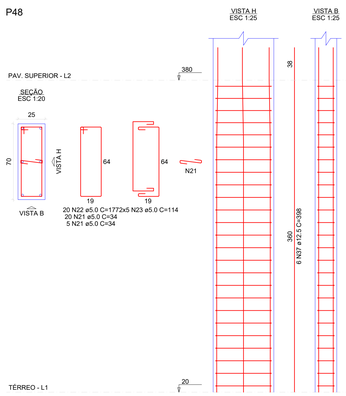

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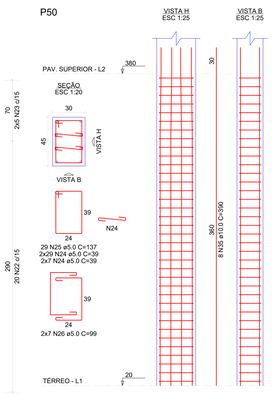

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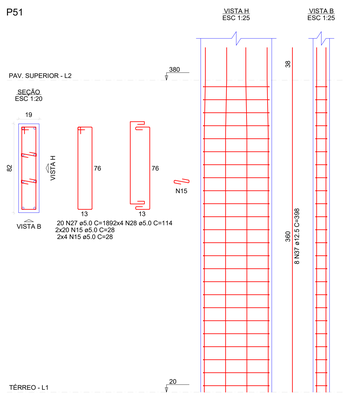

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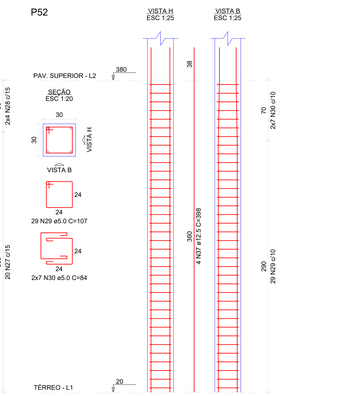

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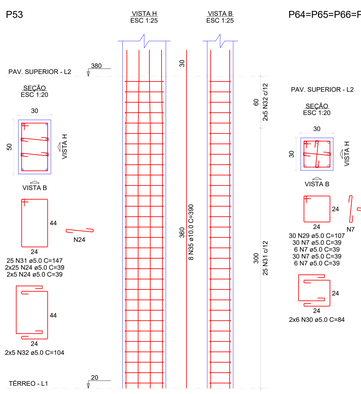

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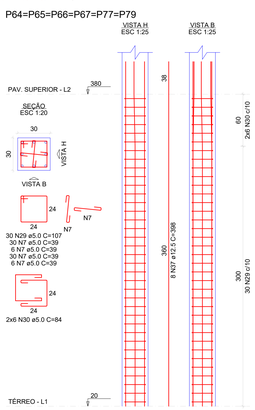

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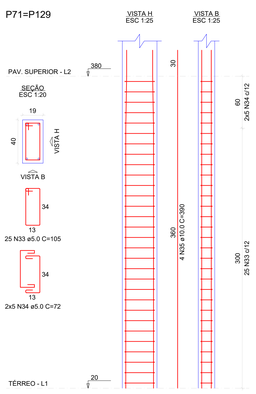

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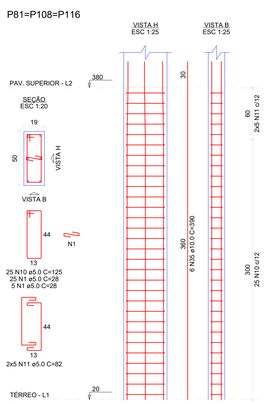

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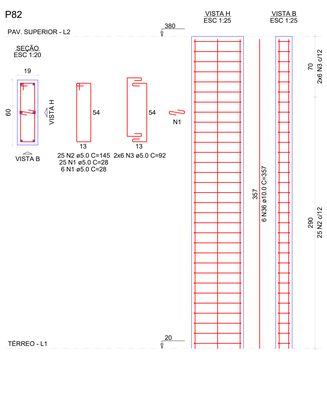

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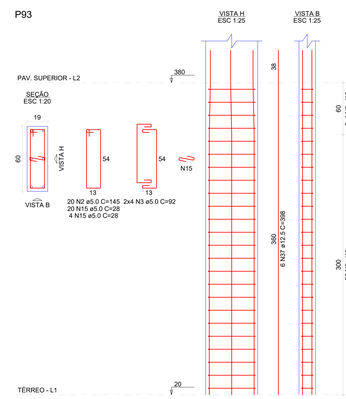

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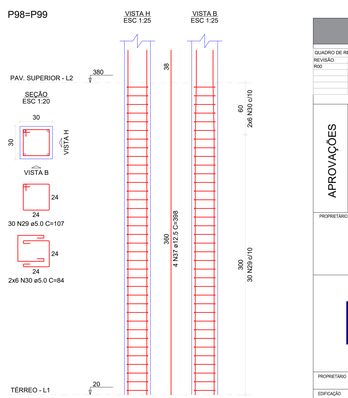

RELAÇÃO DO AÇO

48xP1	8xP2	10xP7
12xP8	4xP10	2xP12
7xP13	8xP14	P27
2xP30	P35	2xP36
P37	P41	2xP47
P48	P50	P51
P52	P53	6xP64
2xP71	3xP81	P82
P93	2xP98	

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	2805	28	78540
	2	5.0	1925	145	278400
	3	5.0	794	92	73048
	4	5.0	720	34	24480
	5	5.0	320	157	50240
	6	5.0	128	104	13312
	7	5.0	792	39	30888
	8	5.0	205	167	34235
	9	5.0	94	114	10716
	10	5.0	200	125	25000
	11	5.0	80	82	6560
	12	5.0	204	49	9996
	13	5.0	82	147	12054
	14	5.0	40	114	4560
	15	5.0	147	28	4116
	16	5.0	29	165	3300
	17	5.0	10	102	1020
	18	5.0	200	59	11800
	19	5.0	40	187	7480
	20	5.0	20	144	2880
	21	5.0	121	34	4114
	22	5.0	20	177	3540
	23	5.0	10	114	1140
	24	5.0	132	39	5148
	25	5.0	29	137	3973
	26	5.0	14	99	1386
	27	5.0	20	189	3780
	28	5.0	8	114	912
	29	5.0	269	107	28783
	30	5.0	110	84	9240
	31	5.0	25	147	3675
	32	5.0	10	104	1040
	33	5.0	50	105	5250
	34	5.0	20	72	1440
CA50	35	10.0	558	390	217620
	36	10.0	84	357	29988
	37	12.5	198	398	78804

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	2476.1	1526.6
	12.5	788	759.2
CA60	5.0	7560.5	1165.3

PESO TOTAL (kg)	
CA50	2285.7
CA60	1165.3

Volume de concreto (C-35) = 55.58 m³
Área de forma = 713.38 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
53.166/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENG° CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES SUPERIOR(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 31/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 34.668.721/0001-06
Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Bruneque | CEP 89010-140 | Fone: (47) 3611-3011 | E-mail do responsável técnico desta projeto: fernando@fercon.eng.br

Projeto Executivo de Concreto Armado (NBR 6118:2023)
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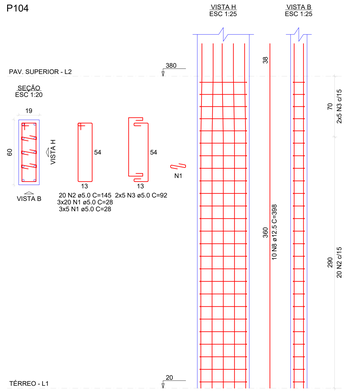
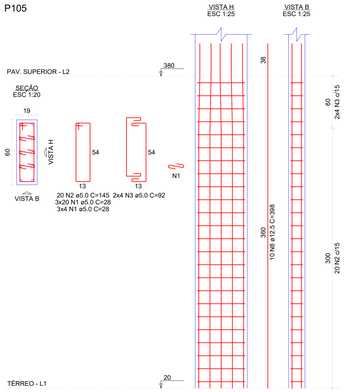
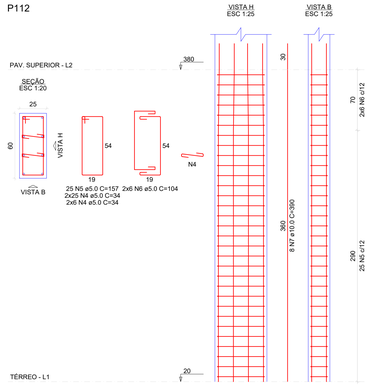


P105



P112



RELAÇÃO DO AÇO

P104 P105 P112

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	147	28	4116
	2	5.0	40	145	5800
	3	5.0	18	92	1656
	4	5.0	62	34	2108
	5	5.0	25	157	3925
	6	5.0	12	104	1248
	7	10.0	8	390	3120
CA50	8	12.5	20	398	7960

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	31.2	19.2
	12.5	79.6	76.7
CA60	5.0	168.5	29.1

PESO TOTAL (kg)	
CA50	95.9
CA60	29.1

Volume de concreto (C-35) = 1.36 m³
Área de forma = 17.50 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062222-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	PILARES SUPERIOR(2)

ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 32/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Brunerau - | CEP 89010-340 | Fone (47) 98413-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

2025-08-25 15:47:51, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)
SID 25.0.300003.8 (pg) 32
Projeto Estrutura de Concreto Armado (pilar)

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³

Área de forma = 883.27 m²

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 33

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

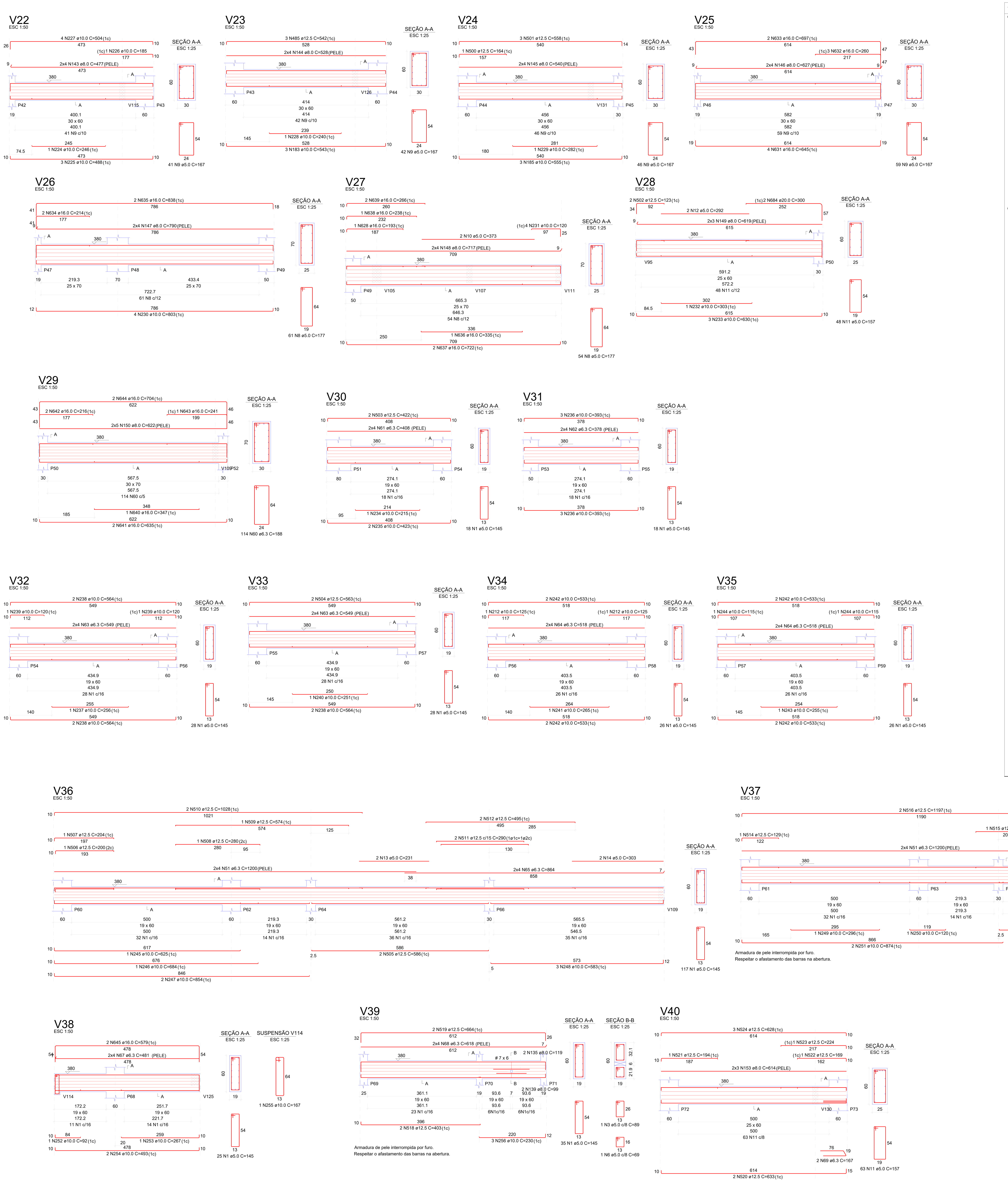
PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920 — ENGº CIVIL. FERNANDO STROISCH *CREA/SC 062522-0*

FERCON — Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS SUPERIOR(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 33/76



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

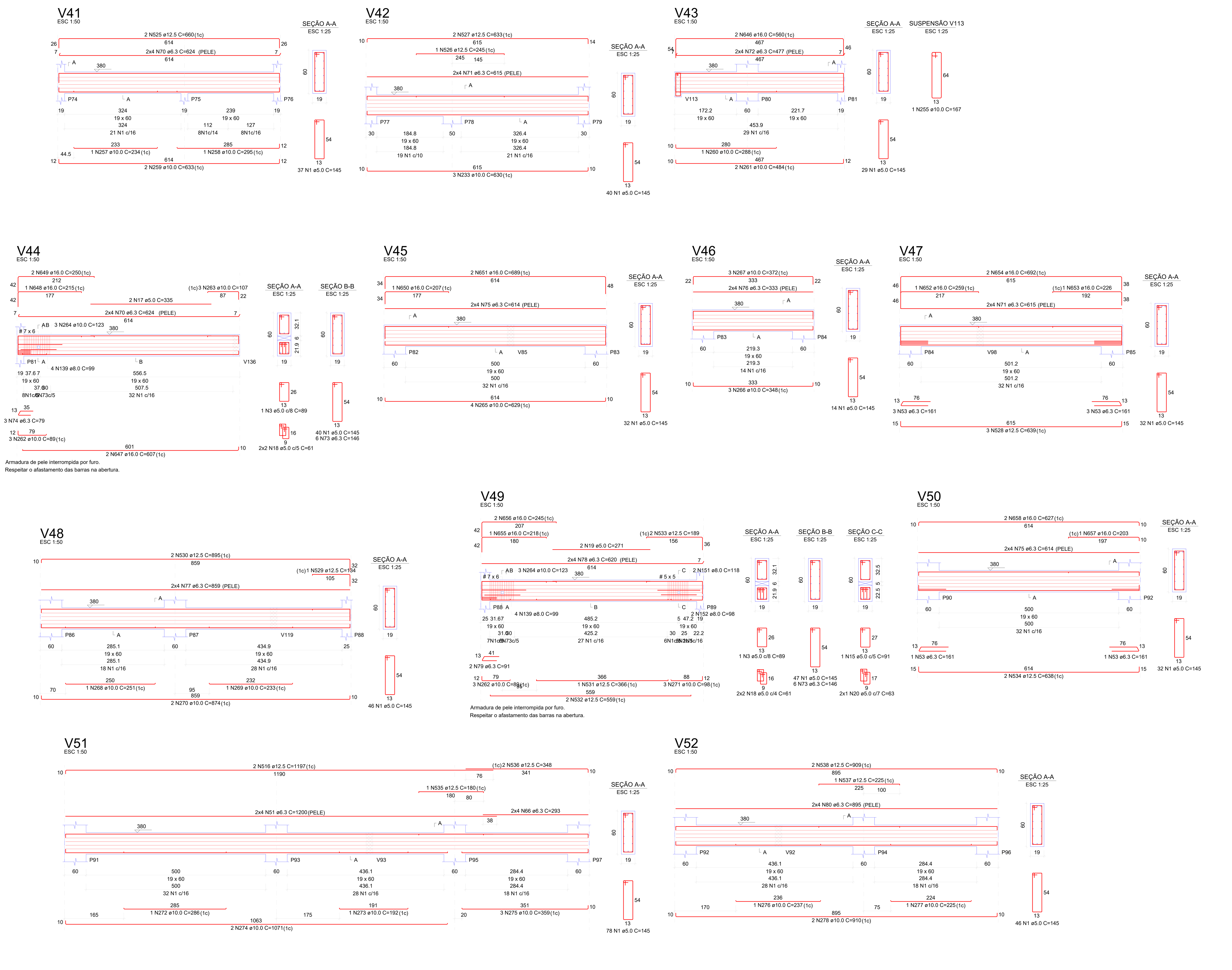
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(2)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 34/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 34

2025-08-25 15:48:04, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
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	332	10.0	1	73	73
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	335	10.0	1	191	191
	336	10.0	8	516	4128
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	341	10.0	2	1118	2236
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	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
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	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
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	387	10.0	3	97	291
	388	10.0	2	157	314
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	390	10.0	3	745	2235
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	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
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	452	10.0	1	261	261
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	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
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	480	12.5	2	139	278
	481	12.5	2	536	1072
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
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	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
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	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

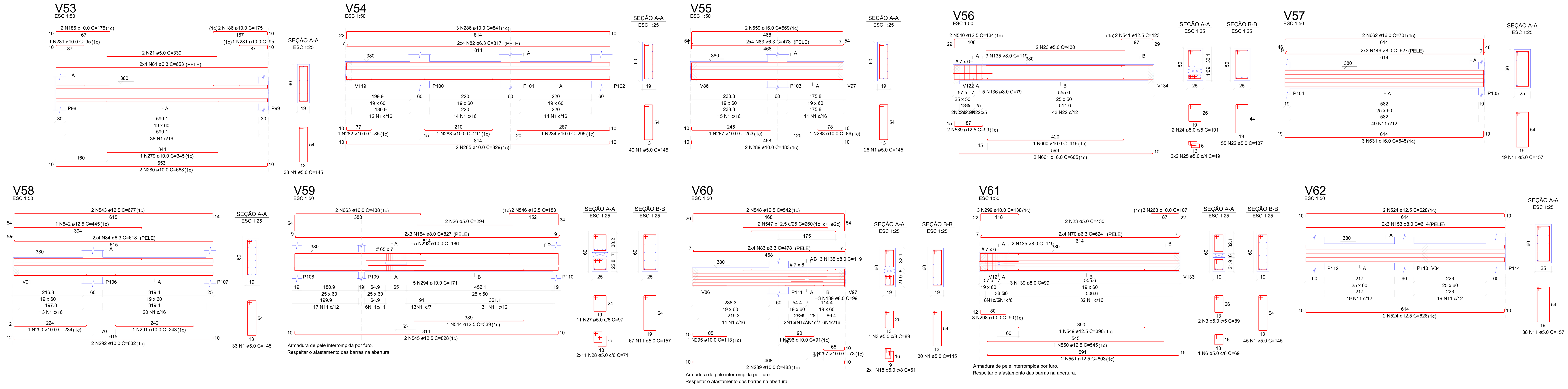
V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5
PESO TOTAL (kg)			
CA50	6627.4		
CA60	1357.5		

Volume de concreto (C-35) = 103.01 m³

Área de forma = 883.27 m²



PROJETO ESTRUTURAL

QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 — Data: 2025.08.28 10:45:14-03'00' — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920 — Data: 2025.08.26 14:13:32-03'00' — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON — Município de Joinville

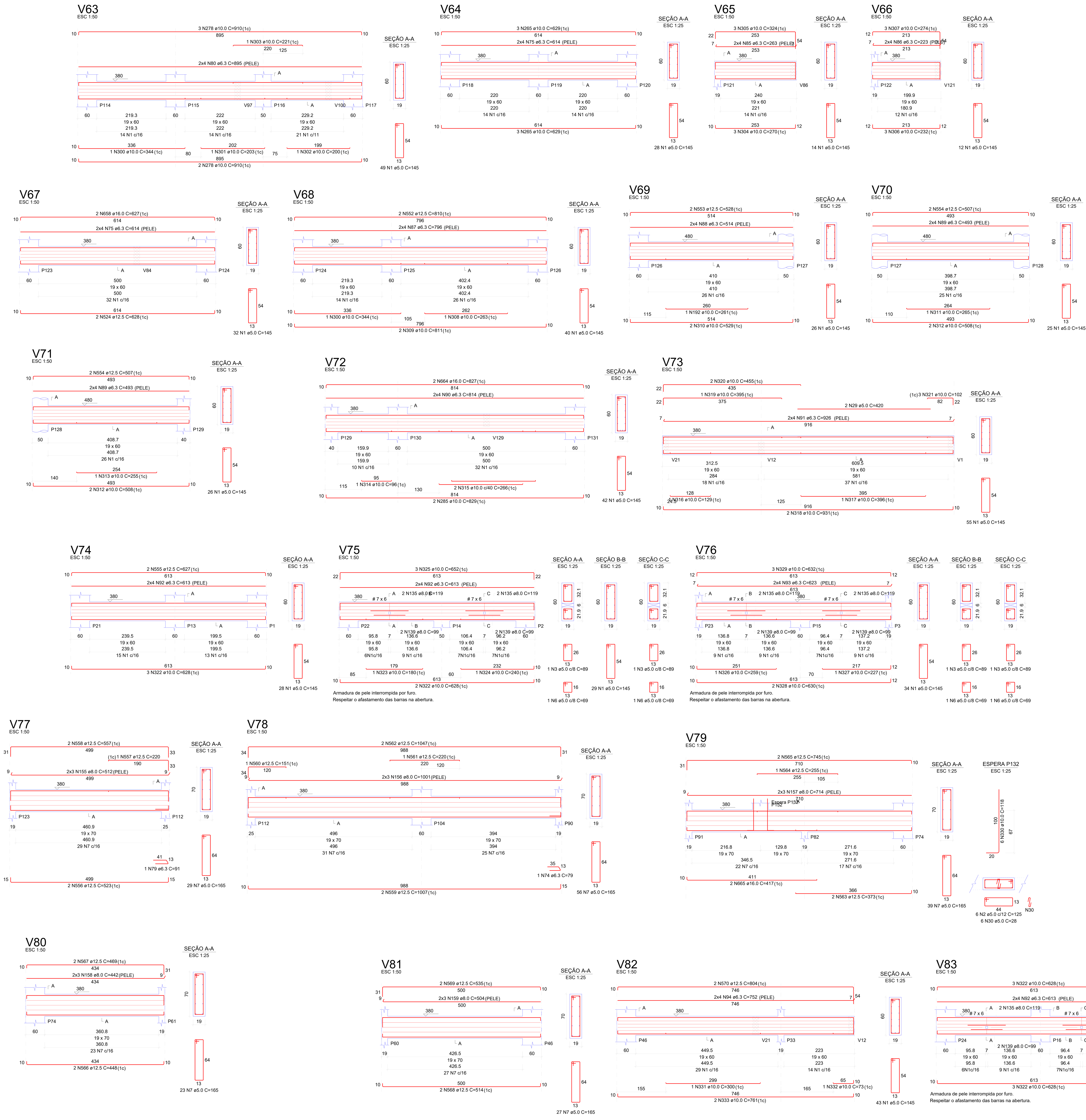
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS SUPERIOR(3)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 35/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 35

2025-08-25 15:48:12, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
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	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(4)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 36/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 36

2025-08-25 15:48:19, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

V84
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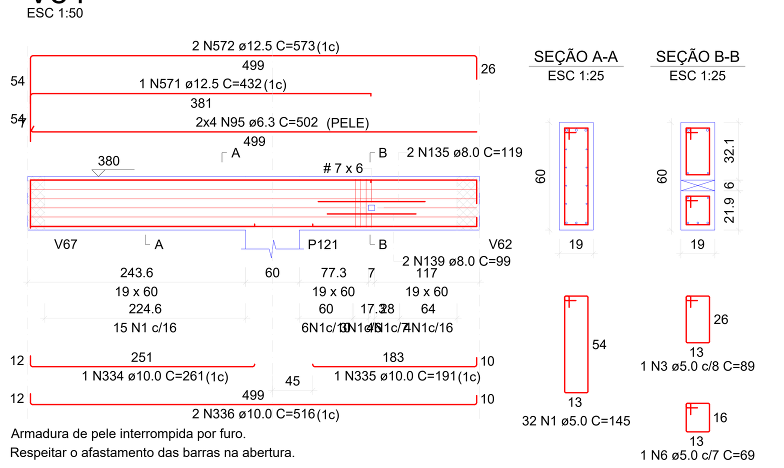
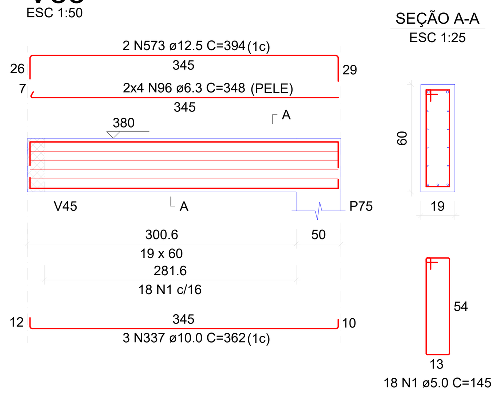


Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V85
ESC 1:50



V87
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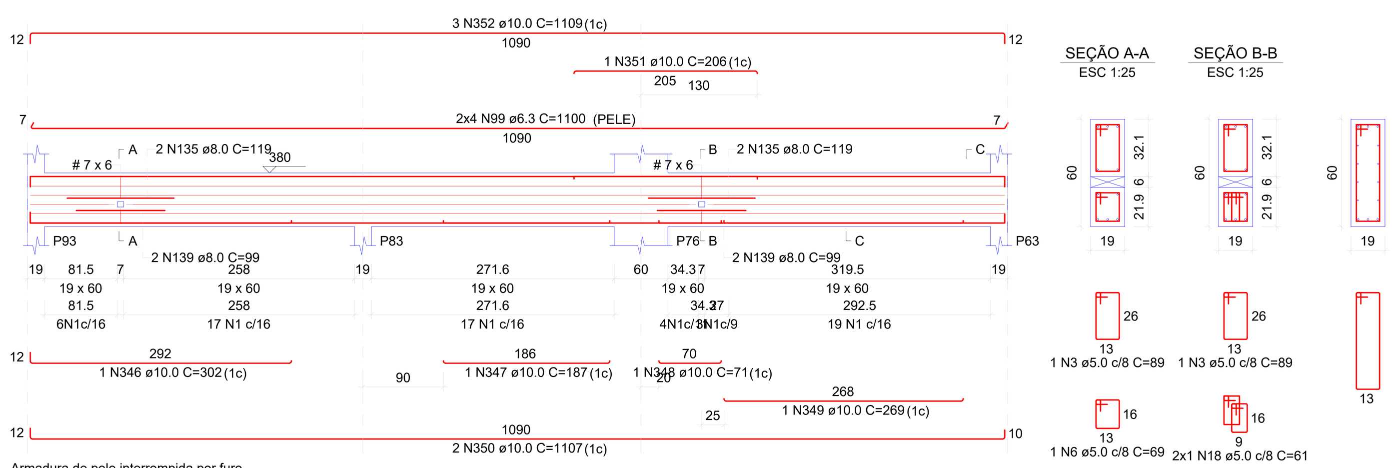

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V86
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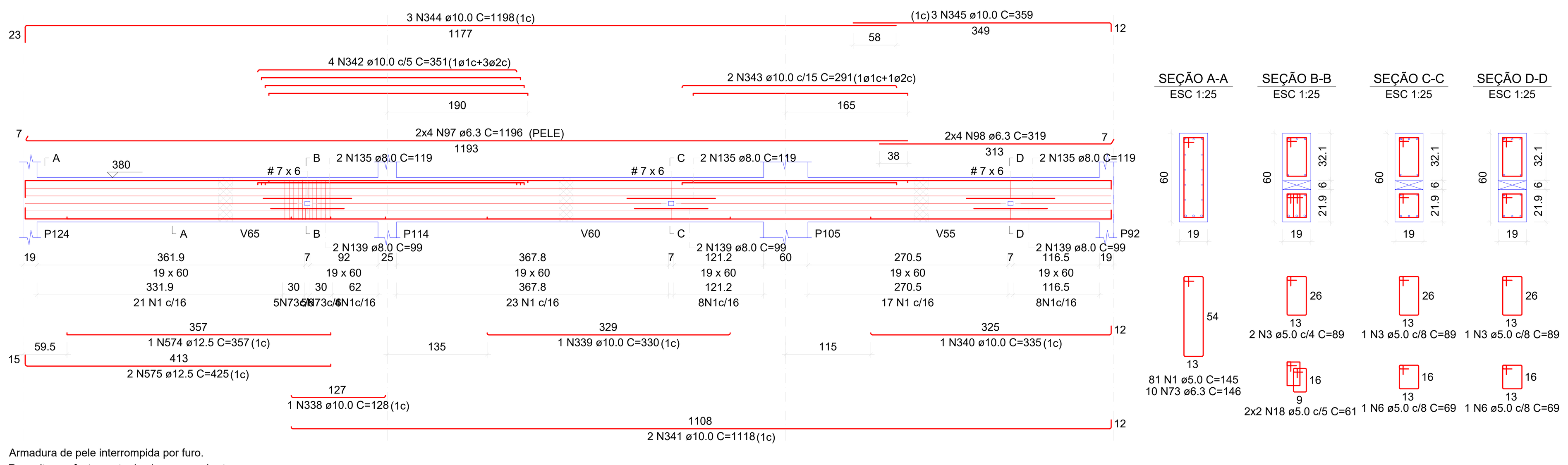
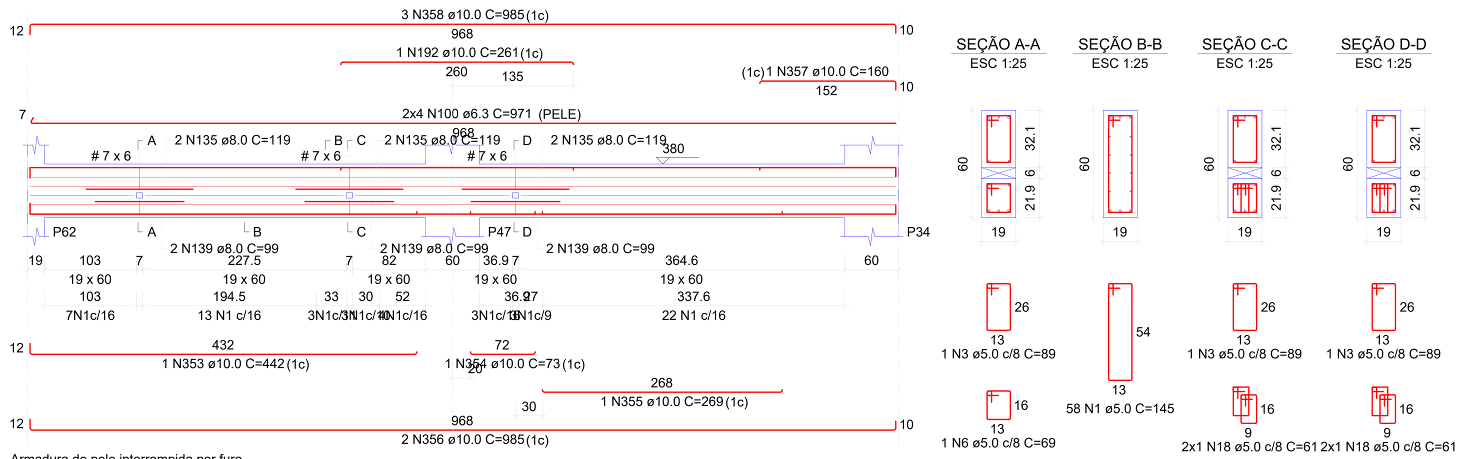


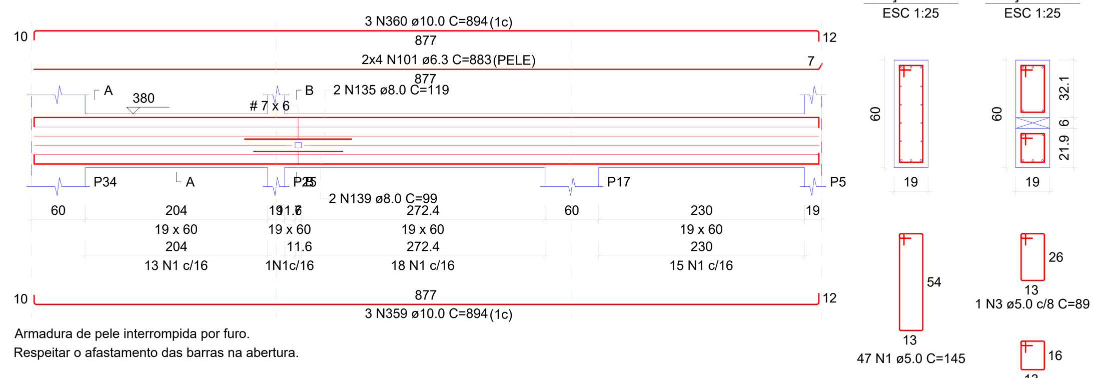
Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V88
ESC 1:50



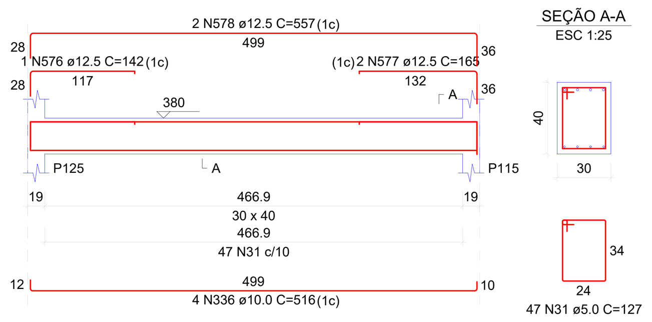
Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V89
ESC 1:50

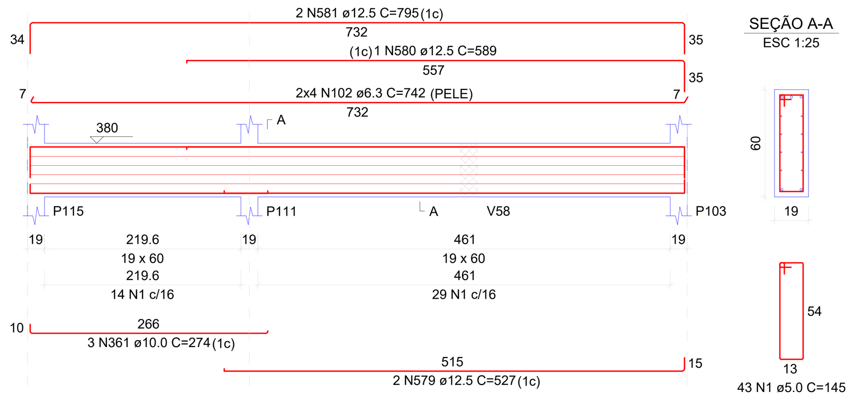


Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

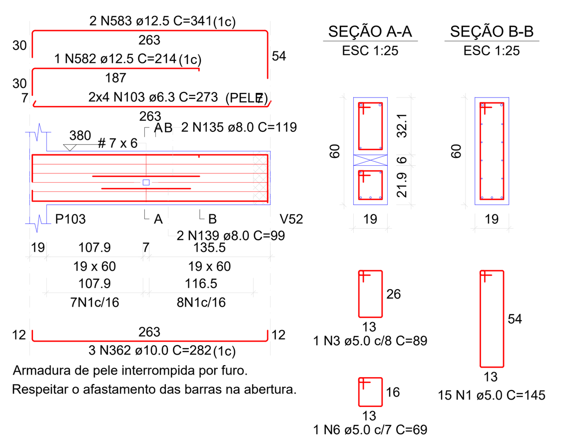
V90
ESC 1:50



V91
ESC 1:50

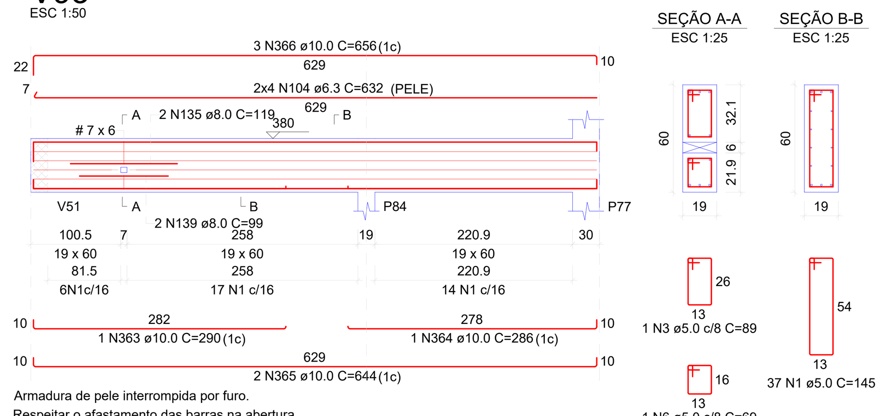


V92
ESC 1:50



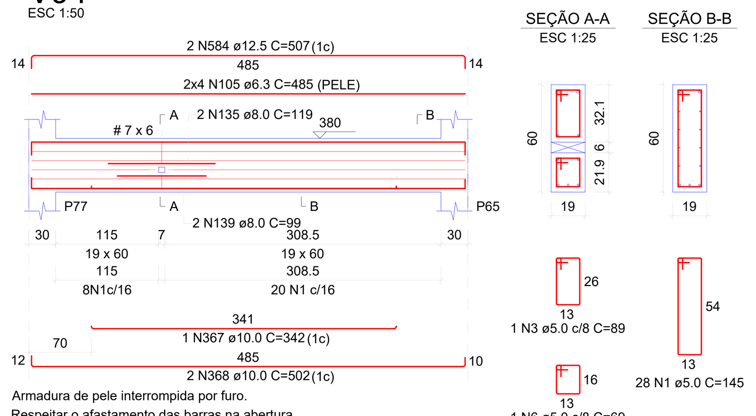
Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V93
ESC 1:50



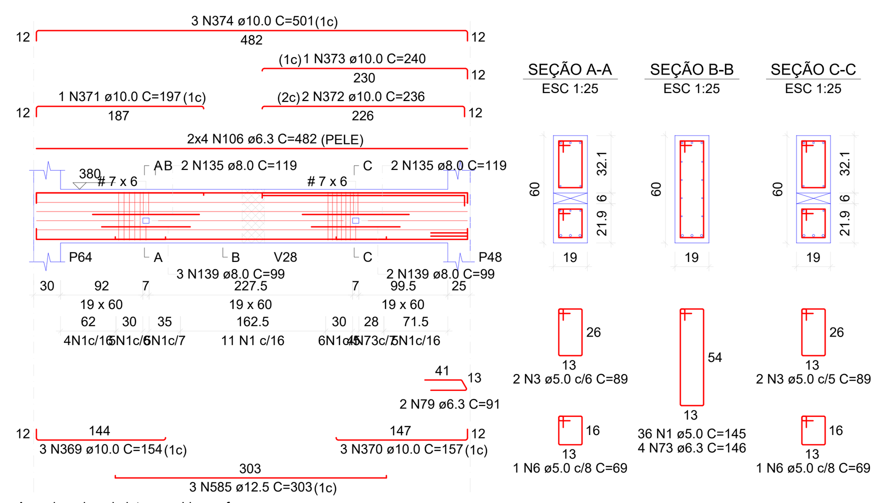
Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V94
ESC 1:50



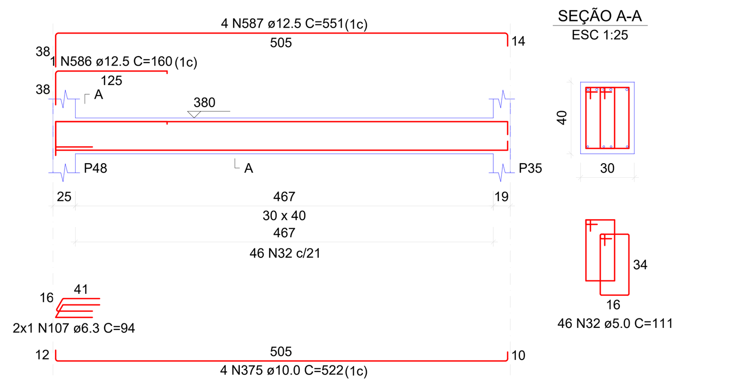
Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V95
ESC 1:50



Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V96
ESC 1:50



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

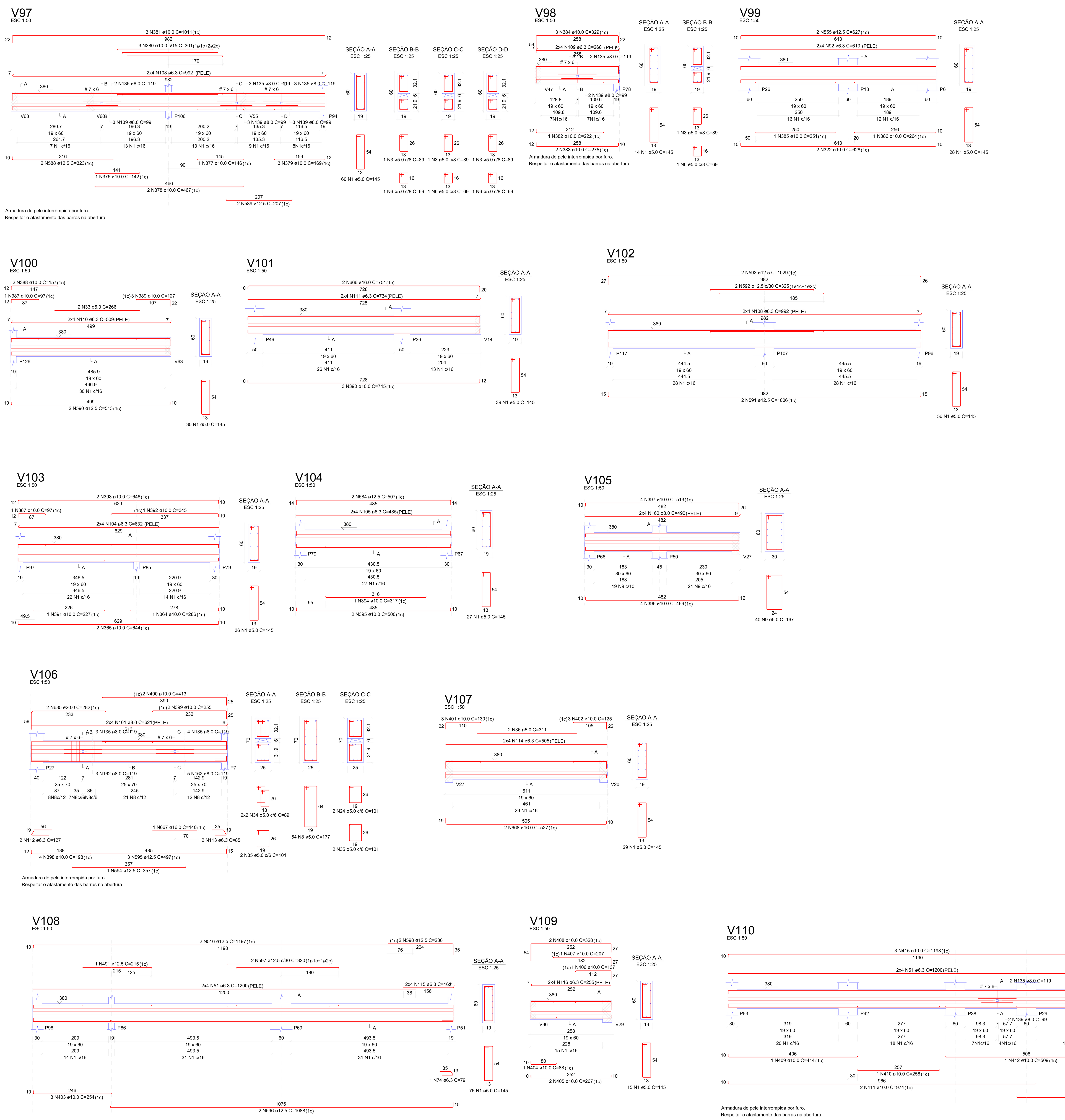
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS SUPERIOR(5)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 37/76

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 37

2025-08-25 15:48:26, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920 — ENGº CIVIL. FERNANDO STROISCH CREA/SC 062522-0

FERCON — Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(6)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 38/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 38

2025-08-25 15:48:32, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

V111
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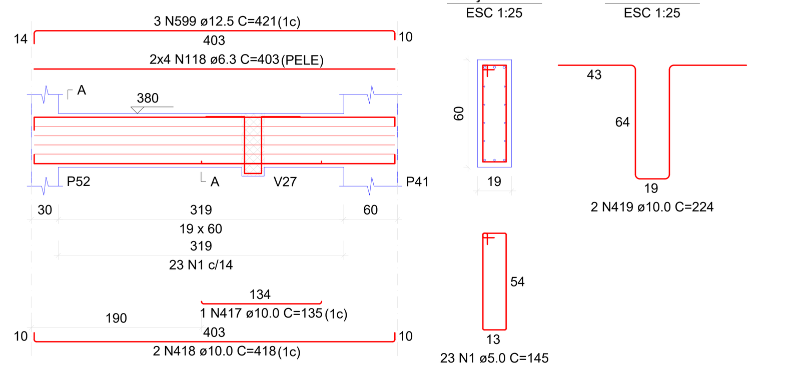

V112
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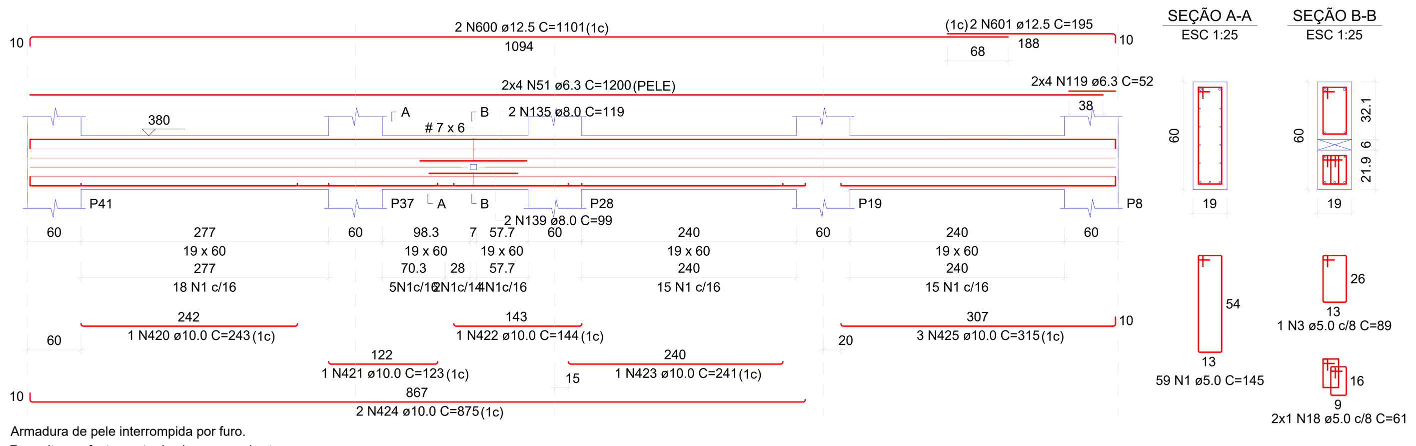

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V113
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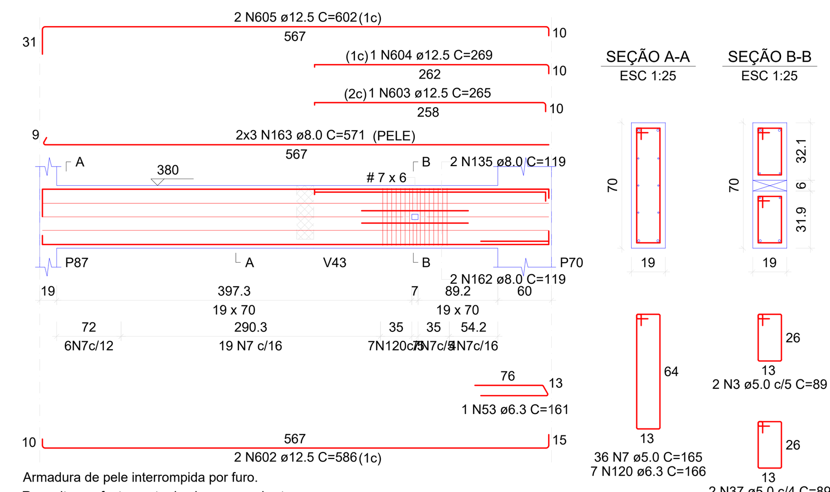

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V114
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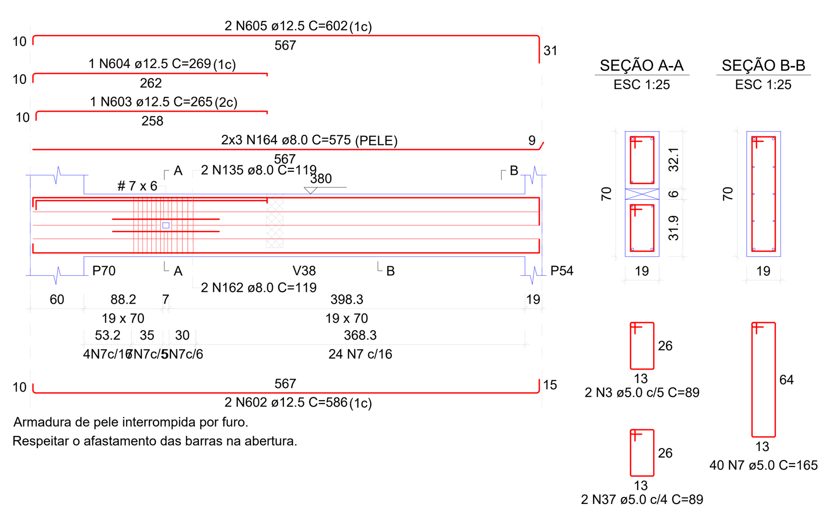

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V115
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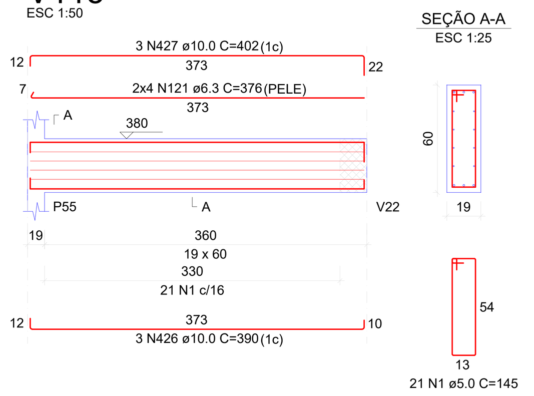

V116
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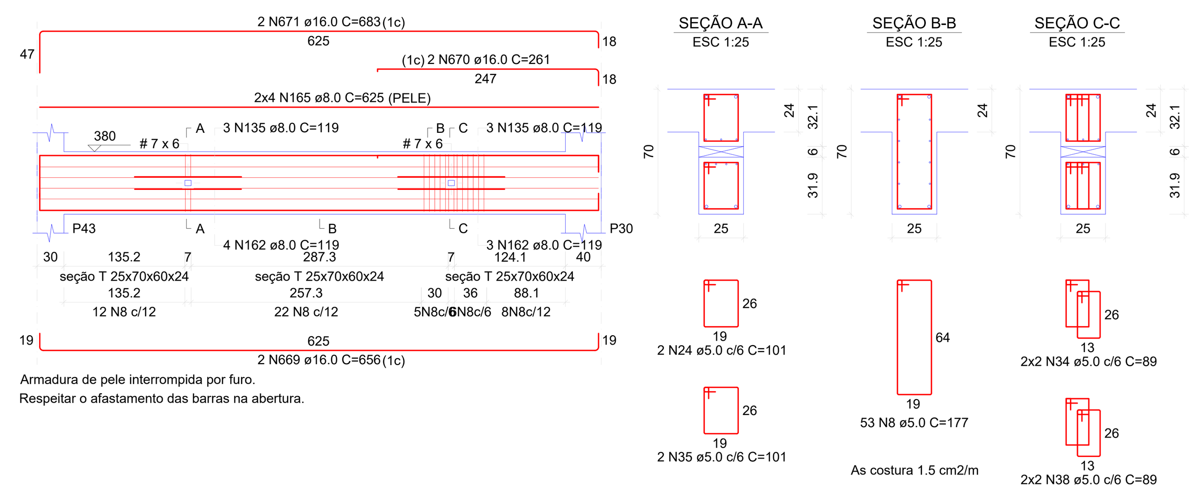

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Respeitar o afastamento das barras na abertura.

V117
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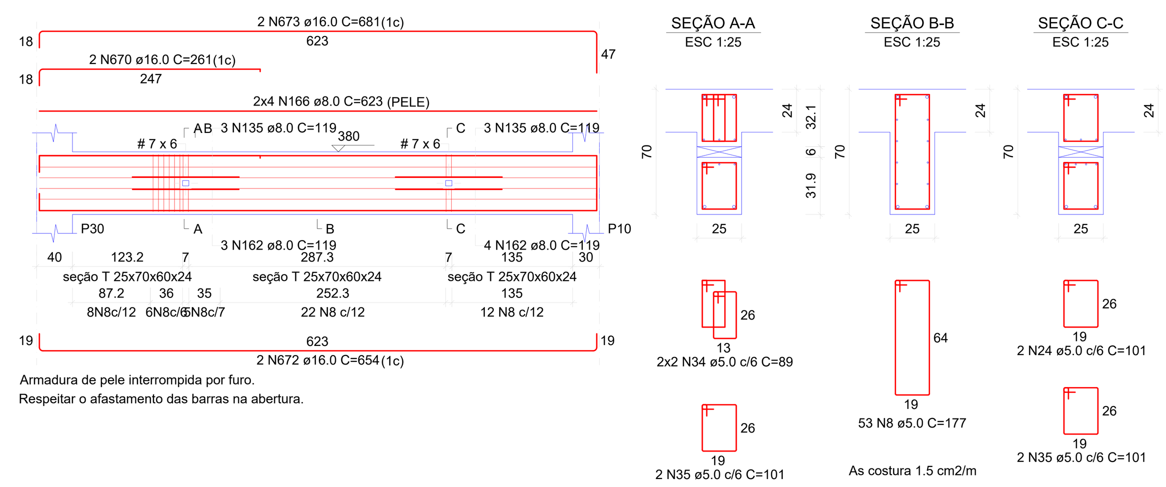

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V118
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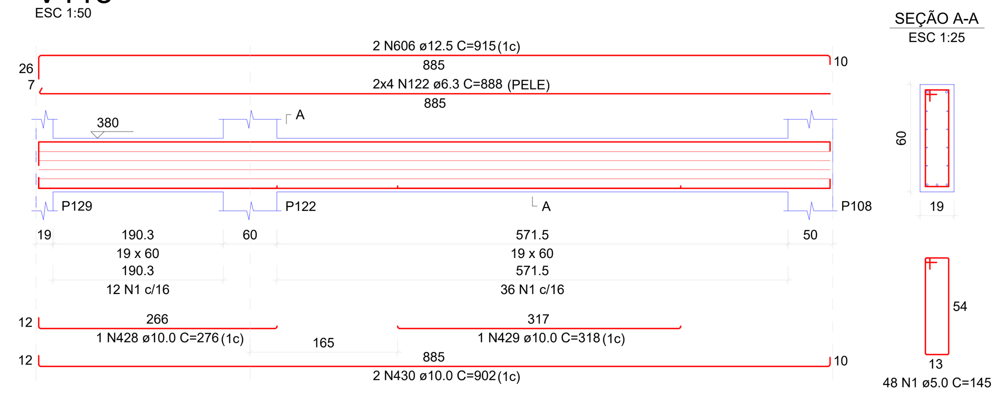

V119
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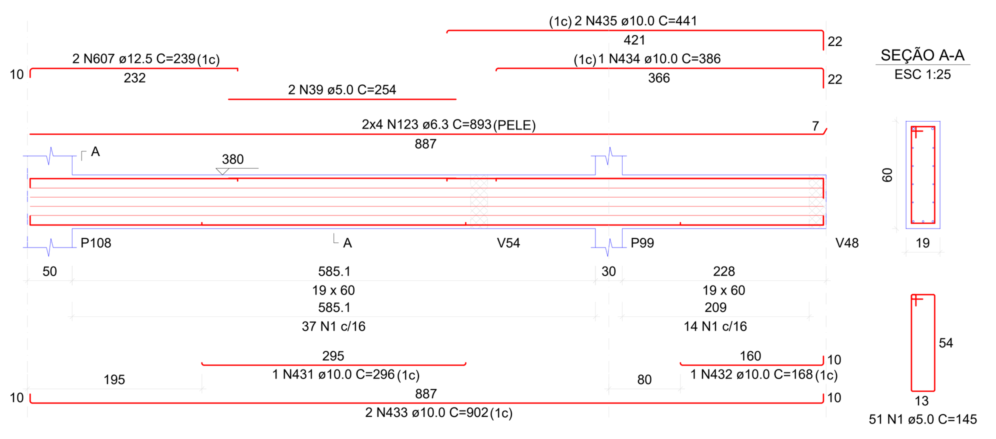

V120
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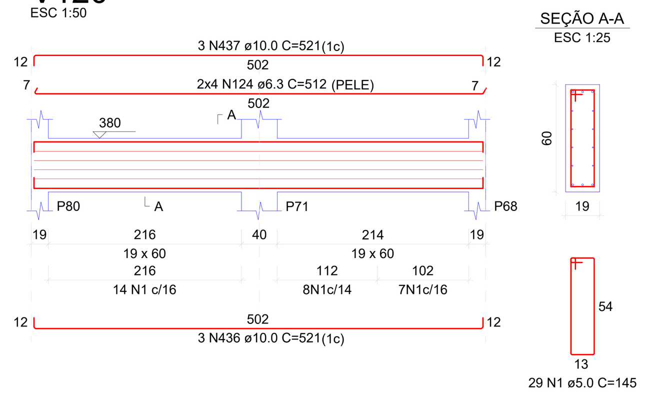

V121
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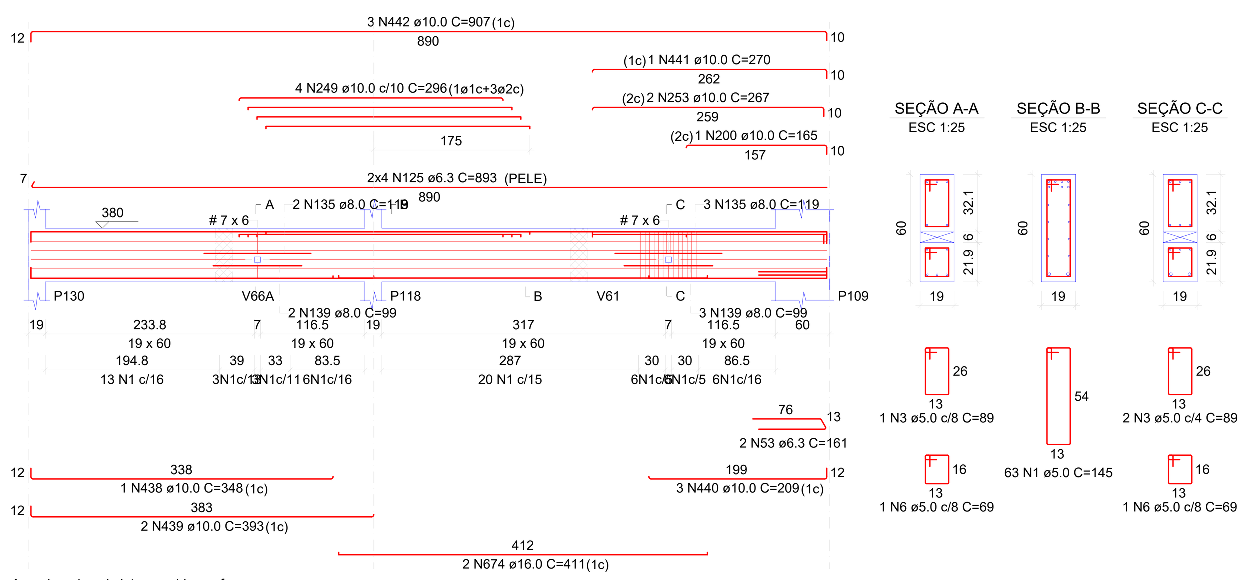
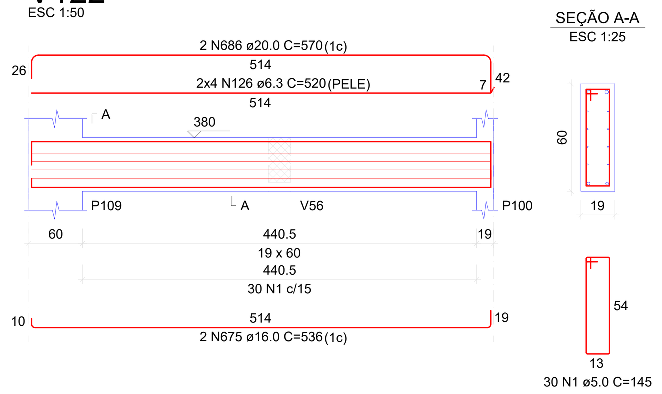


Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V122
ESC 1:50



V123
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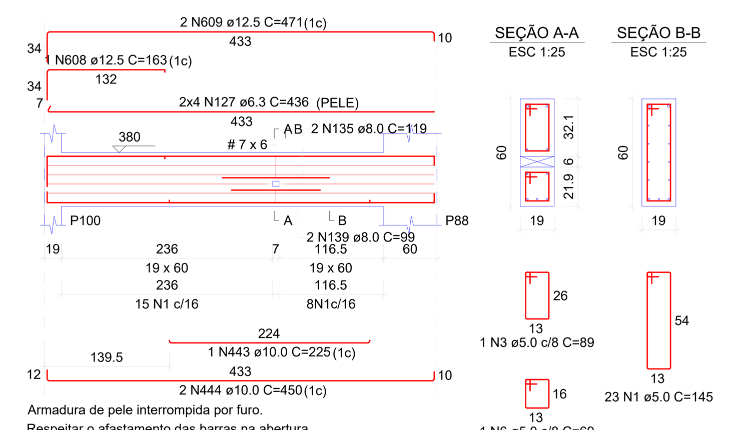

Armadura de pele interrompida por furo.
Respeitar o afastamento das barras na abertura.

V124
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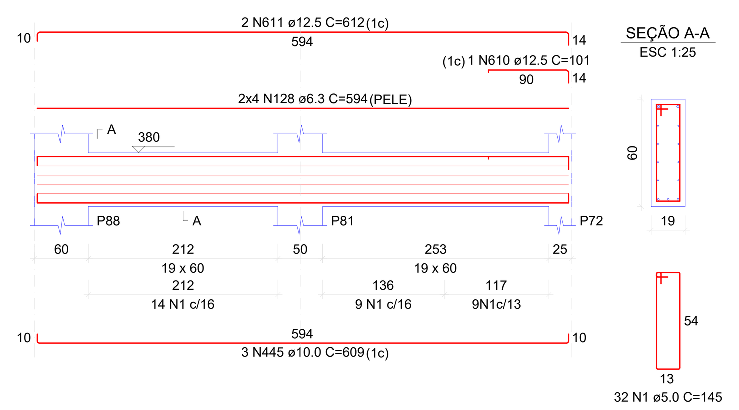

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
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	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
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	222	10.0	2	117	234
	223	10.0	2	1004	2008
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	226	10.0	1	185	185
	227	10.0	4	504	2016
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	229	10.0	1	282	282
	230	10.0	4	803	3212
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	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
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	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
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	264	10.0	6	123	738
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	267	10.0	3	372	1116
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	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
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	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
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	300	10.0	2	344	688
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	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
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	314	10.0	1	96	96
	315	10.0	4	266	1064
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	319	10.0	1	395	395
	320	10.0	2	455	910
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	322	10.0	13	628	8164
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	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
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	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
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	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
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	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON — Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A — ARQUIVO: JOI_SED_ROS_EST_EX.DWG — DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(7) — ETAPA: EXECUTIVO — ESCALA: INDICADA — FOLHA: EST 39/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 39
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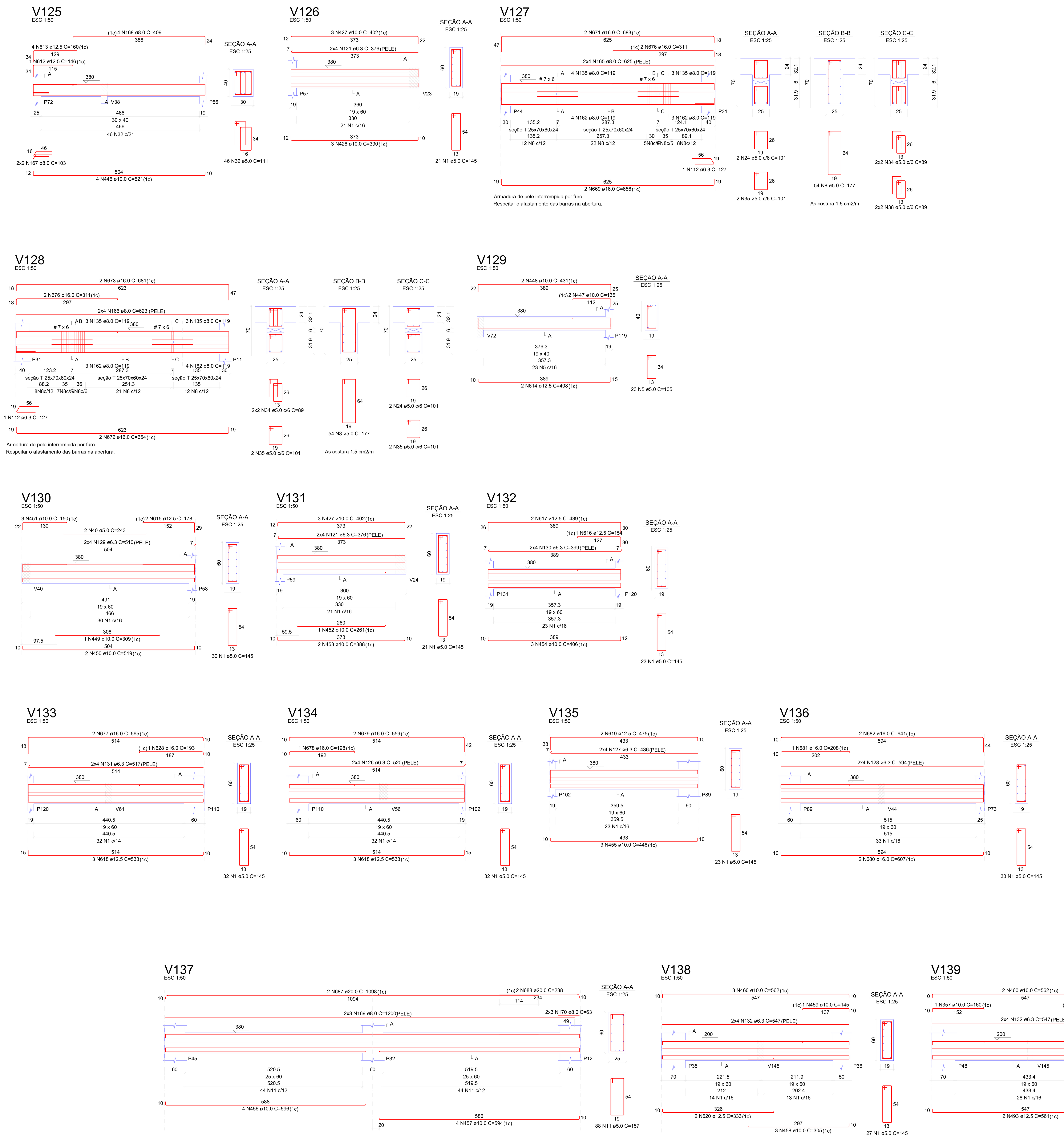

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(8)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 40/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 40

V140
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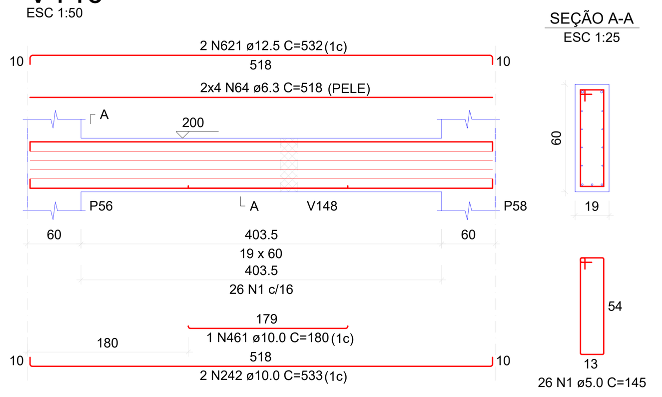

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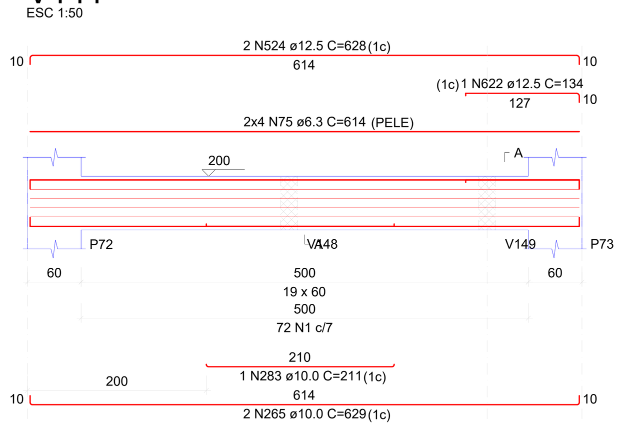

V142
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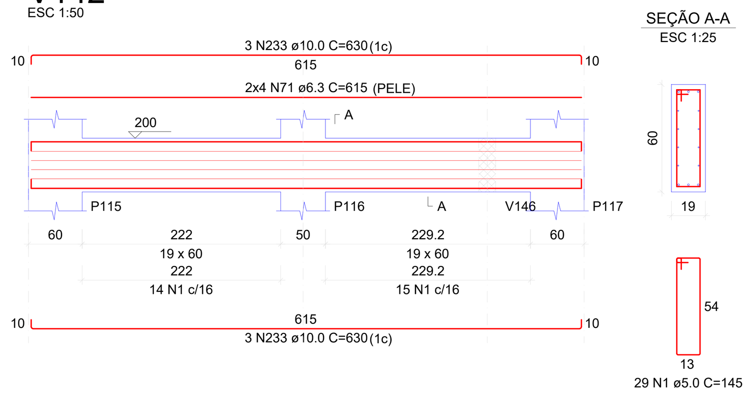

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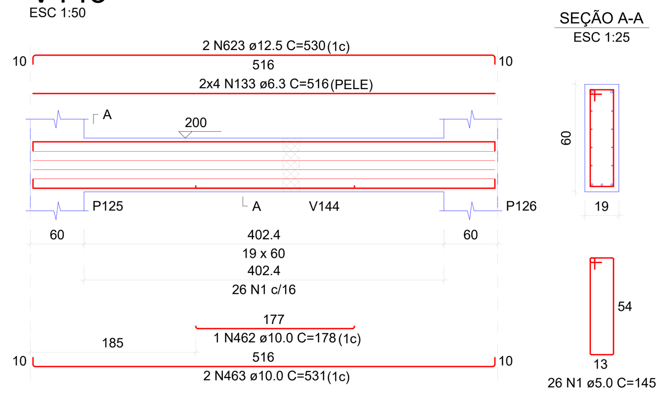

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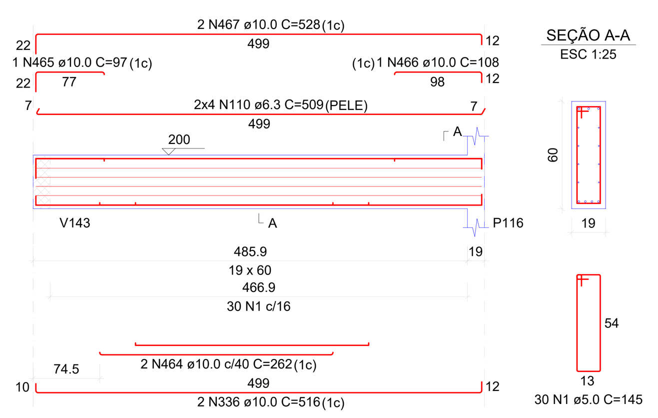

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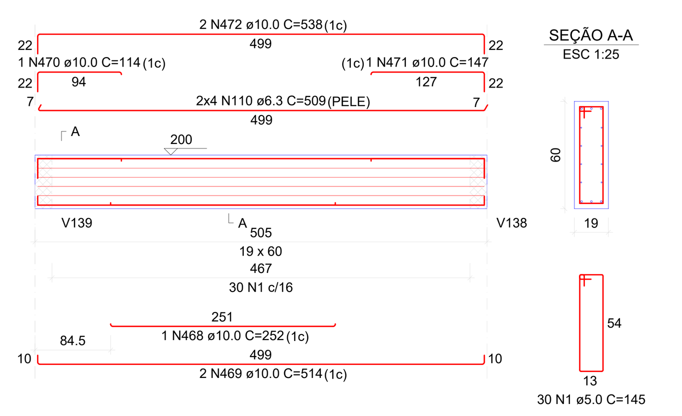

V146
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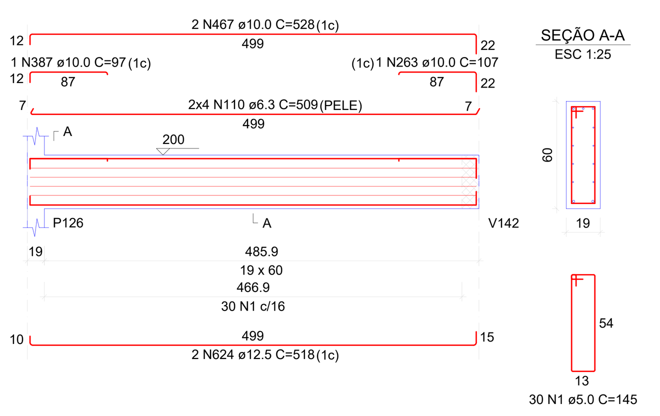

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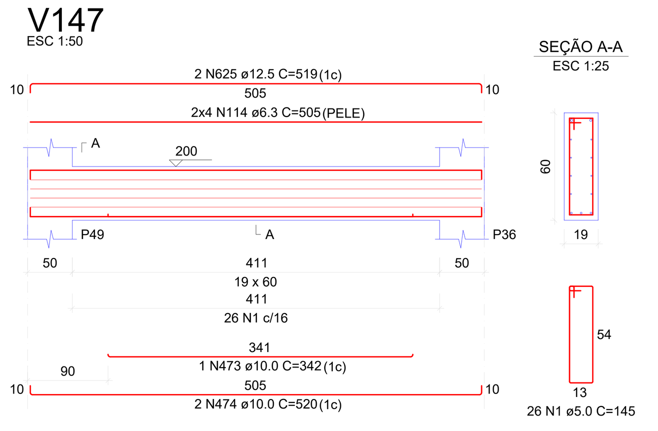

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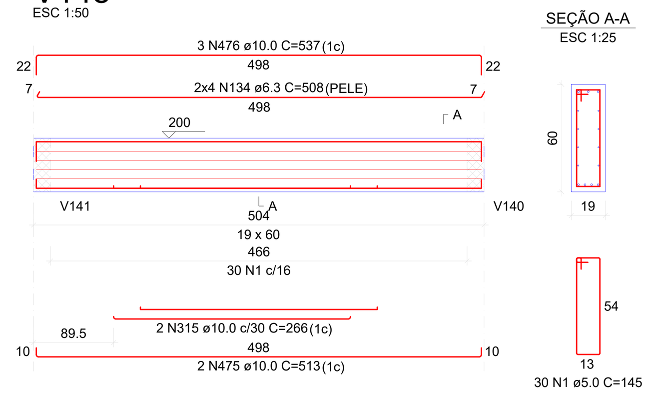

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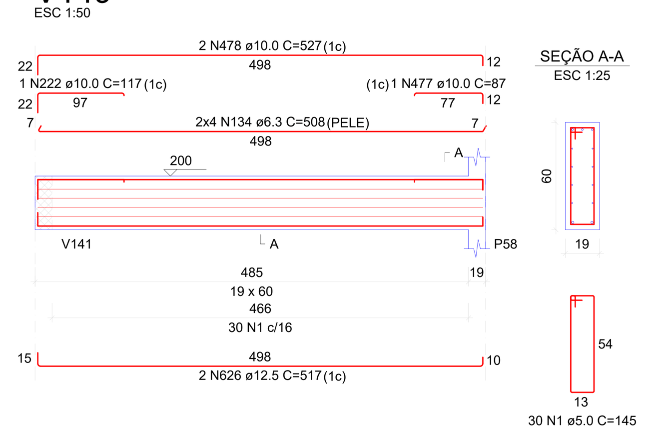


AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4156	145	602620
	2	5.0	70	125	8750
	3	5.0	46	89	4094
	4	5.0	4	41	164
	5	5.0	28	105	2940
	6	5.0	28	69	1932
	7	5.0	278	165	45870
	8	5.0	436	177	77172
	9	5.0	228	167	38076
	10	5.0	2	373	746
	11	5.0	353	157	55421
	12	5.0	2	292	584
	13	5.0	2	231	462
	14	5.0	2	303	606
	15	5.0	2	91	182
	16	5.0	1	71	71
	17	5.0	2	335	670
	18	5.0	22	61	1342
	19	5.0	2	271	542
	20	5.0	2	63	126
	21	5.0	2	339	678
	22	5.0	55	137	7535
	23	5.0	4	430	1720
	24	5.0	12	101	1212
	25	5.0	4	49	196
	26	5.0	2	294	588
	27	5.0	11	97	1067
	28	5.0	22	71	1562
	29	5.0	2	420	840
	30	5.0	6	28	168
	31	5.0	47	127	5969
	32	5.0	92	111	10212
	33	5.0	2	266	532
	34	5.0	20	89	1780
	35	5.0	16	101	1616
	36	5.0	2	311	622
	37	5.0	4	89	356
	38	5.0	8	89	712
	39	5.0	2	254	508
	40	5.0	2	243	486
CA50	41	6.3	8	742	5936
	42	6.3	8	374	2992
	43	6.3	8	497	3976
	44	6.3	16	539	8624
	45	6.3	8	516	4128
	46	6.3	8	513	4104
	47	6.3	8	476	3808
	48	6.3	8	528	4224
	49	6.3	8	540	4320
	50	6.3	8	337	2696
	51	6.3	56	1200	67200
	52	6.3	8	292	2336
	53	6.3	14	161	2254
	54	6.3	8	975	7800
	55	6.3	8	466	3728
	56	6.3	8	508	4064
	57	6.3	8	530	4240
	58	6.3	8	903	7224
	59	6.3	8	943	7544
	60	6.3	114	188	21432
	61	6.3	8	408	3264
	62	6.3	8	378	3024
	63	6.3	16	549	8784
	64	6.3	24	518	12432
	65	6.3	8	864	6912
	66	6.3	16	VAR	VAR
	67	6.3	8	481	3848
	68	6.3	8	618	4944
	69	6.3	2	167	334
	70	6.3	24	624	14976
	71	6.3	24	615	14760
	72	6.3	8	477	3816
	73	6.3	26	146	3796
	74	6.3	5	79	395
	75	6.3	40	614	24560
	76	6.3	8	333	2664
	77	6.3	8	859	6872
	78	6.3	8	620	4960
	79	6.3	5	91	455
	80	6.3	16	895	14320
	81	6.3	8	653	5224
	82	6.3	8	817	6536
	83	6.3	16	478	7648
	84	6.3	8	618	4944
	85	6.3	8	263	2104
	86	6.3	8	223	1784
	87	6.3	8	796	6368
	88	6.3	8	514	4112
	89	6.3	16	493	7888
	90	6.3	8	814	6512
	91	6.3	8	926	7408
	92	6.3	32	613	19616
	93	6.3	8	623	4984
	94	6.3	8	752	6016
	95	6.3	8	502	4016
	96	6.3	8	348	2784
	97	6.3	8	1196	9568
	98	6.3	8	319	2552
	99	6.3	8	1100	8800
	100	6.3	8	971	7768
	101	6.3	8	883	7064
	102	6.3	8	742	5936
	103	6.3	8	273	2184
	104	6.3	16	632	10112
	105	6.3	16	485	7760
	106	6.3	8	482	3856
	107	6.3	2	94	188
	108	6.3	16	992	15872
	109	6.3	8	268	2144
	110	6.3	32	509	16288
	111	6.3	8	734	5872
	112	6.3	4	127	508
	113	6.3	2	85	170
	114	6.3	16	505	8080
	115	6.3	8	162	1296
	116	6.3	8	255	2040
	117	6.3	8	401	3208
	118	6.3	8	403	3224
	119	6.3	8	52	416
	120	6.3	7	166	1162
	121	6.3	24	376	9024
	122	6.3	8	888	7104
	123	6.3	8	893	7144
	124	6.3	8	512	4096
	125	6.3	8	893	7144
	126	6.3	16	520	8320
	127	6.3	16	436	6976
	128	6.3	16	594	9504
	129	6.3	8	510	4080
	130	6.3	8	399	3192
	131	6.3	8	517	4136
	132	6.3	16	547	8752
	133	6.3	8	516	4128
	134	6.3	16	508	8128
	135	8.0	113	119	13447
	136	8.0	7	79	553
	137	8.0	2	171	342
	138	8.0	2	89	178
	139	8.0	83	99	8217
	140	8.0	6	547	3282
	141	8.0	8	709	5672
	142	8.0	2	277	554
	143	8.0	8	477	3816
	144	8.0	8	528	4224
	145	8.0	8	540	4320
	146	8.0	14	627	8778
	147	8.0	8	790	6320
	148	8.0	8	717	5736
	149	8.0	6	619	3714
	150	8.0	10	622	6220
	151	8.0	5	118	590
	152	8.0	5	98	490
	153	8.0	12	614	7368
	154	8.0	6	827	4962
	155	8.0	6	512	3072
	156	8.0	6	1001	6006
	157	8.0	6	714	4284
	158	8.0	6	442	2652
	159	8.0	6	504	3024

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	160	8.0	8	490	3920
	161	8.0	8	621	4968
	162	8.0	40	119	4760
	163	8.0	6	571	3426
	164	8.0	6	575	3450
	165	8.0	16	625	10000
	166	8.0	16	623	9968
	167	8.0	4	103	412
	168	8.0	4	409	1636
	169	8.0	6	1200	7200
	170	8.0	6	63	378
	171	10.0	1	351	351
	172	10.0	1	230	230
	173	10.0	2	754	1508
	174	10.0	3	798	2394
	175	10.0	3	383	1149
	176	10.0	3	511	1533
	177	10.0	3	550	1650
	178	10.0	1	251	251
	179	10.0	4	528	2112
	180	10.0	1	323	323
	181	10.0	3	490	1470
	182	10.0	1	305	305
	183	10.0	5	543	2715
	184	10.0	1	327	327
	185	10.0	7	555	3885
	186	10.0	6	175	1050
	187	10.0	1	100	100
	188	10.0	3	344	1032
	189	10.0	2	637	1274
	190	10.0	2	172	344
	191	10.0	2	157	314
	192	10.0	5	261	1305
	193	10.0	1	144	144
	194	10.0	2	1019	2038
	195	10.0	1	238	238
	196	10.0	1	240	240
	197	10.0	1	221	221
	198	10.0	2	1055	2110
	199	10.0	3	498	1494
	200	10.0	2	165	330
	201	10.0	1	955	955
	202	10.0	1	1168	1168
	203	10.0	1	189	189
	204	10.0	2	1198	2396
	205	10.0	2	357	714
	206	10.0	1	486	486
	207	10.0	1	298	298
	208	10.0	2	991	1982
	209	10.0	3	480	1440
	210	10.0	3	480	1440
	211	10.0	5	523	2615
	212	10.0	5	125	625
	213	10.0	5	545	2725
	214	10.0	1	118	118
	215	10.0	3	324	972
	216	10.0	1	140	140
	217	10.0	1	226	226
	218	10.0	1	261	261
	219	10.0	2	948	1896
	220	10.0	1	224	224
	221	10.0	1	156	156
	222	10.0	2	117	234
	223	10.0	2	1004	2008
	224	10.0	1	246	246
	225	10.0	3	488	1464
	226	10.0	1	185	185
	227	10.0	4	504	2016
	228	10.0	1	240	240
	229	10.0	1	282	282
	230	10.0	4	803	3212
	231	10.0	4	120	480
	232	10.0	1	303	303
	233	10.0	12	630	7560
	234	10.0	1	215	215
	235	10.0	2	423	846
	236	10.0	6	393	2358
	237	10.0	1	256	256
	238	10.0	6	564	3384
	239	10.0	2	120	240
	240	10.0	1	251	251
	241	10.0	1	265	265
	242	10.0	10	533	5330
	243	10.0	1	255	255
	244	10.0	2	115	230
	245	10.0	1	625	625
	246	10.0	1	684	684
	247	10.0	2	854	1708
	248	10.0	3	583	1749
	249	10.0	5	296	1480
	250	10.0	1	120	120
	251	10.0	2	874	1748
	252	10.0	1	92	92
	253	10.0	3	267	801
	254	10.0	2	493	986
	255	10.0	2	167	334
	256	10.0	3	230	690
	257	10.0	1	234	234
	258	10.0	1	295	295
	259	10.0	2	633	1266
	260	10.0	1	288	288
	261	10.0	2	484	968
	262	10.0	6	89	534
	263	10.0	7	107	749
	264	10.0	6	123	738
	265	10.0	12	629	7548
	266	10.0	3	348	1044
	267	10.0	3	372	1116
	268	10.0	1	251	251
	269	10.0	1	233	233
	270	10.0	2	874	1748
	271	10.0	3	98	294
	272	10.0	1	286	286
	273	10.0	1	192	192
	274	10.0	2	1071	2142
	275	10.0	3	359	1077
	276	10.0	1	237	237
	277	10.0	1	225	225
	278	10.0	7	910	6370
	279	10.0	1	345	345
	280	10.0	2	668	1336
	281	10.0	2	95	190
	282	10.0	1	85	85
	283	10.0	2	211	422
	284	10.0	1	295	295
	285	10.0	4	829	3316
	286	10.0	3	841	2523
	287	10.0	1	253	253
	288	10.0	1	86	86
	289	10.0	4	483	1932
	290	10.0	1	234	234
	291	10.0	1	243	243
	292	10.0	2	632	1264
	293	10.0	5	186	930
	294	10.0	5	171	855
	295	10.0	1	113	113
	296	10.0	1	91	91
	297	10.0	1	73	73
	298	10.0	3	90	270
	299	10.0	3	138	414
	300	10.0	2	344	688
	301	10.0	1	203	203
	302	10.0	1	200	200
	303	10.0	1	221	221
	304	10.0	3	270	810
	305	10.0	3	324	972
	306	10.0	3	232	696
	307	10.0	3	274	822
	308	10.0	1	263	263
	309	10.0	2	811	1622
	310	10.0	2	529	1058
	311	10.0	1	265	265
	312	10.0	4	508	2032
	313	10.0	1	255	255
	314	10.0	1	96	96
	315	10.0	4	266	1064
	316	10.0	1	129	129
	317	10.0	1	396	396
	318	10.0	2	931	1862
	319	10.0	1	395	395
	320	10.0	2	455	910

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	321	10.0	3	102	306
	322	10.0	13	628	8164
	323	10.0	1	180	180
	324	10.0	1	240	240
	325	10.0	3	652	1956
	326	10.0	1	259	259
	327	10.0	1	227	227
	328	10.0	2	630	1260
	329	10.0	3	632	1896
	330	10.0	6	118	708
	331	10.0	1	300	300
	332	10.0	1	73	73
	333	10.0	2	761	1522
	334	10.0	1	261	261
	335	10.0	1	191	191
	336	10.0	8	516	4128
	337	10.0	3	362	1086
	338	10.0	1	128	128
	339	10.0	1	330	330
	340	10.0	1	335	335
	341	10.0	2	1118	2236
	342	10.0	4	351	1404
	343	10.0	2	291	582
	344	10.0	3	1198	3594
	345	10.0	3	359	1077
	346	10.0	1	302	302
	347	10.0	1	187	187
	348	10.0	1	71	71
	349	10.0	1	269	269
	350	10.0	2	1107	2214
	351	10.0	1	206	206
	352	10.0	3	1109	3327
	353	10.0	1	442	442
	354	10.0	1	73	73
	355	10.0	1	269	269
	356	10.0	2	985	1970
	357	10.0	2	160	320
	358	10.0	3	985	2955
	359	10.0	3	894	2682
	360	10.0	3	894	2682
	361	10.0	3	274	822
	362	10.0	3	282	846
	363	10.0	1	290	290
	364	10.0	2	286	572
	365	10.0	4	644	2576
	366	10.0	3	656	1968
	367	10.0	1	342	342
	368	10.0	2	502	1004
	369	10.0	3	154	462
	370	10.0	3	157	471
	371	10.0	1	197	197
	372	10.0	2	236	472
	373	10.0	1	240	240
	374	10.0	3	501	1503
	375	10.0	4	522	2088
	376	10.0	1	142	142
	377	10.0	1	146	146
	378	10.0	2	467	934
	379	10.0	3	169	507
	380	10.0	3	301	903
	381	10.0	3	1011	3033
	382	10.0	1	222	222
	383	10.0	2	275	550
	384	10.0	3	329	987
	385	10.0	1	251	251
	386	10.0	1	264	264
	387	10.0	3	97	291
	388	10.0	2	157	314
	389	10.0	3	127	381
	390	10.0	3	745	2235
	391	10.0	1	227	227
	392	10.0	1	345	345
	393	10.0	2	646	1292
	394	10.0	1	317	317
	395	10.0	2	500	1000
	396	10.0	4	499	1996
	397	10.0	4	513	2052
	398	10.0	4	198	792
	399	10.0	2	255	510
	400	10.0	2	413	826
	401	10.0	3	130	390
	402	10.0	3	125	375
	403	10.0	3	254	762
	404	10.0	1	88	88
	405	10.0	2	267	534
	406	10.0	1	137	137
	407	10.0	1	207	207
	408	10.0	2	328	656
	409	10.0	1	414	414
	410	10.0	1	258	258
	411	10.0	2	974	1948
	412	10.0	1	509	509
	413	10.0	1	365	365
	414	10.0	2	665	1330
	415	10.0	3	1198	3594
	416	10.0	3	425	1275
	417	10.0	1	135	135
	418	10.0	2	418	836
	419	10.0	2	224	448
	420	10.0	1	243	243
	421	10.0	1	123	123
	422	10.0	1	144	144
	423	10.0	1	241	241
	424	10.0	2	875	1750
	425	10.0	3	315	945
	426	10.0	6	390	2340
	427	10.0	9	402	3618
	428	10.0	1	276	276
	429	10.0	1	318	318
	430	10.0	2	902	1804
	431	10.0	1	296	296
	432	10.0	1	168	168
	433	10.0	2	902	1804
	434	10.0	1	386	386
	435	10.0	2	441	882
	436	10.0	3	521	1563
	437	10.0	3	521	1563
	438	10.0	1	348	348
	439	10.0	2	393	786
	440	10.0	3	209	627
	441	10.0	1	270	270
	442	10.0	3	907	2721
	443	10.0	1	225	225
	444	10.0	2	450	900
	445	10.0	3	609	1827
	446	10.0	4	521	2084
	447	10.0	2	135	270
	448	10.0	2	431	862
	449	10.0	1	309	309
	450	10.0	2	519	1038
	451	10.0	3	150	450
	452	10.0	1	261	261
	453	10.0	2	388	776
	454	10.0	3	406	1218
	455	10.0	3	448	1344
	456	10.0	4	596	2384
	457	10.0	4	594	2376
	458	10.0	3	305	915
	459	10.0	3	145	435
	460	10.0	5	562	2810
	461	10.0	1	180	180
	462	10.0	1	178	178
	463	10.0	2	531	1062
	464	10.0	2	262	524
	465	10.0	1	97	97
	466	10.0	1	108	108
	467	10.0	4	528	2112
	468	10.0	1	252	252
	469	10.0	2	514	1028
	470	10.0	1	114	114
	471	10.0	1	147	147
	472	10.0	2	538	1076
	473	10.0	1	342	342
	474	10.0	2	520	1040
	475	10.0	2	513	1026
	476	10.0	3	537	1611
	477	10.0	1	87	87
	478	10.0	2	527	1054
	479	12.5	2	405	810
	480	12.5	2	139	278
	481	12.5	2	536	1072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	482	12.5	2	555	1110
	483	12.5	2	531	1062
	484	12.5	2	503	1006
	485	12.5	5	542	2710
	486	12.5	2	382	764
	487	12.5	2	301	602
	488	12.5	2	433	866
	489	12.5	2	557	1114
	490	12.5	1	156	156
	491	12.5	2	215	430
	492	12.5	2	1034	2068
	493	12.5	6	561	3366
	494	12.5	2	295	590
	495	12.5	2	728	1456
	496	12.5	2	199	398
	497	12.5	2	264	528
	498	12.5	1	153	153
	499	12.5	3	228	684
	500	12.5	1	164	164
	501	12.5	3	558	1674
	502	12.5	2	123	246
	503	12.5	2	422	844
	504	12.5	2	563	1126
	505	12.5	2	586	1172
	506	12.5	1	200	200
	507	12.5	1	204	204
	508	12.5	1	280	280
	509	12.5	1	574	574
	510	12.5	2	1028	2056
	511	12.5	2	290	580
	512	12.5	2	495	990
	513	12.5	2	608	1216
	514	12.5	1	129	129
	515	12.5	1	205	205
	516	12.5	6	1197	7182
	517	12.5	2	351	702
	518	12.5	2	403	806
	519	12.5	2	664	1328
	520	12.5	2	633	1266
	521	12.5	1	194	194
	522	12.5	1	169	169
	523	12.5	1	224	224
	524	12.5	11	628	6908
	525	12.5	2	660	1320
	526	12.5	1	245	245
	527	12.5	2	633	1266
	528	12.5	3	639	1917
	529	12.5	1	134	134
	530	12.5	2	895	1790
	531	12.5	1	366	366
	532	12.5	2	559	1118
	533	12.5	2	189	378
	534	12.5	2	638	1276
	535	12.5	1	180	180
	536	12.5	2	348	696
	537	12.5	1	225	225
	538	12.5	2	909	1818
	539	12.5	2	99	198
	540	12.5	2	134	268
	541	12.5	2	123	246
	542	12.5	1	445	445
	543	12.5	2	677	1354
	544	12.5	1	339	339
	545	12.5	2	828	1656
	546	12.5	2	183	366
	547	12.5	2	260	520
	548	12.5	2	542	1084
	549	12.5	1	390	390
	550	12.5	1	545	545
	551	12.5	2	603	1206
	552	12.5	2	810	1620
	553	12.5	2	528	1056
	554	12.5	4	507	2028
	555	12.5	4	627	2508
	556	12.5	2	523	1046
	557	12.5	1	220	220
	558	12.5	2	557	1114
	559	12.5	2	1007	2014
	560	12.5	1	151	151
	561	12.5	1	220	220
	562	12.5	2	1047	2094
	563	12.5	2	373	746
	564	12.5	1	255	255
	565	12.5	2	745	1490
	566	12.5	2	448	896
	567	12.5	2	469	938
	568	12.5	2	514	1028
	569	12.5	2	535	1070
	570	12.5	2	804	1608
	571	12.5	1	432	432
	572	12.5	2	573	1146
	573	12.5	2	394	788
	574	12.5	1	357	357
	575	12.5	2	425	850
	576	12.5	1	142	142
	577	12.5	2	165	330
	578	12.5	2	557	1114
	579	12.5	2	527	1054
	580	12.5	1	589	589
	581	12.5	2	795	1590
	582	12.5	1	214	214

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	583	12.5	2	341	682
	584	12.5	4	507	2028
	585	12.5	3	303	909
	586	12.5	1	160	160
	587	12.5	4	551	2204
	588	12.5	2	323	646
	589	12.5	2	207	414
	590	12.5	2	513	1026
	591	12.5	2	1006	2012
	592	12.5	2	325	650
	593	12.5	2	1029	2058
	594	12.5	1	357	357
	595	12.5	3	497	1491
	596	12.5	2	1088	2176
	597	12.5	2	320	640
	598	12.5	2	236	472
	599	12.5	3	421	1263
	600	12.5	2	1101	2202
	601	12.5	2	195	390
	602	12.5	4	586	2344
	603	12.5	2	265	530
	604	12.5	2	269	538
	605	12.5	4	602	2408
	606	12.5	2	915	1830
	607	12.5	2	239	478
	608	12.5	1	163	163
	609	12.5	2	471	942
	610	12.5	1	101	101
	611	12.5	2	612	1224
	612	12.5	1	146	146
	613	12.5	4	160	640
	614	12.5	2	408	816
	615	12.5	2	178	356
	616	12.5	1	154	154
	617	12.5	2	439	878
	618	12.5	6	533	3198
	619	12.5	2	475	950
	620	12.5	2	333	666
	621	12.5	2	532	1064
	622	12.5	1	134	134
	623	12.5	2	530	1060
	624	12.5	2	518	1036
	625	12.5	2	519	1038
	626	12.5	2	517	1034
	627	16.0	2	568	1136
	628	16.0	3	193	579
	629	16.0	2	580	1160
	630	16.0	2	623	1246
	631	16.0	7	645	4515
	632	16.0	3	260	780
	633	16.0	2	697	1394
	634	16.0	2	214	428
	635	16.0	2	838	1676
	636	16.0	1	335	335
	637	16.0	2	722	1444
	638	16.0	1	238	238
	639	16.0	2	266	532
	640	16.0	1	347	347
	641	16.0	2	635	1270
	642	16.0	2	216	432
	643	16.0	1	241	241
	644	16.0	2	704	1408
	645	16.0	2	579	1158
	646	16.0	2	560	1120
	647	16.0	2	607	1214
	648	16.0	1	215	215
	649	16.0	2	250	500
	650	16.0	1	207	207
	651	16.0	2	689	1378
	652	16.0	1	259	259
	653	16.0	1	226	226
	654	16.0	2	692	1384
	655	16.0	1	218	218
	656	16.0	2	245	490
	657	16.0	1	203	203
	658	16.0	4	627	2508
	659	16.0	2	569	1138
	660	16.0	1	419	419
	661	16.0	2	605	1210
	662	16.0	2	701	1402
	663	16.0	2	438	876
	664	16.0	2	827	1654
	665	16.0	2	417	834
	666	16.0	2	751	1502
	667	16.0	1	140	140
	668	16.0	2	527	1054
	669	16.0	4	656	2624
	670	16.0	4	261	1044
	671	16.0	4	683	2732
	672	16.0	4	654	2616
	673	16.0	4	681	2724
	674	16.0	2	411	822
	675	16.0	2	536	1072
	676	16.0	4	311	1244
	677	16.0	2	565	1130
	678	16.0	1	198	198
	679	16.0	2	559	1118
	680	16.0	2	607	1214
	681	16.0	1	208	208
	682	16.0	2	641	1282
	683	20.0	2	927	1854
	684	20.0	2	300	600
	685	20.0	2	282	564
	686	20.0	2	570	1140
	687	20.0	2	1098	2196
	688	20.0	2	238	476

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39
V40	V41	V42
V43	V44	V45
V46	V47	V48
V49	V50	V51
V52	V53	V54
V55	V56	V57
V58	V59	V60
V61	V62	V63
V64	V65	V66
V67	V68	V69
V70	V71	V72
V73	V74	V75
V76	V77	V78
V79	V80	V81
V82	V83	V84
V85	V86	V87
V88	V89	V90
V91	V92	V93
V94	V95	V96
V97	V98	V99
V100	V101	V102
V103	V104	V105
V106	V107	V108
V109	V110	V111
V112	V113	V114
V115	V116	V117
V118	V119	V120
V121	V122	V123
V124	V125	V126
V127	V128	V129
V130	V131	V132
V133	V134	V135
V136	V137	V138
V139	V140	V141
V142	V143	V144
V145	V146	V147
V148	V149	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	6281.7	1537.1
	8.0	1579.4	623.2
	10.0	3091.8	1906.2
	12.5	1492.2	1437.5
	16.0	605	954.9
	20.0	68.3	168.4
CA60	5.0	8807.3	1357.5

PESO TOTAL (kg)	
CA50	6627.4
CA60	1357.5

Volume de concreto (C-35) = 103.01 m³
Área de forma = 883.27 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS SUPERIOR(9)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 41/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 41

2025-08-25 15:48:53, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

Armaduras de distribuição	
Armadura	Armadura de distribuição
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N99	5 N3 ø5.0 c/20 C=48
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N3 ø5.0 c/20 C=48
N99	5 N3 ø5.0 c/20 C=48
N100	2 N4 ø5.0 c/20 C=49
N101	3 N5 ø5.0 c/20 C=447
N101	3 N6 ø5.0 c/20 C=230
N101	3 N7 ø5.0 c/20 C=220
N101	3 N8 ø5.0 c/20 C=486
N101	3 N9 ø5.0 c/20 C=220
N101	3 N10 ø5.0 c/20 C=219
N101	3 N11 ø5.0 c/20 C=485
N101	3 N9 ø5.0 c/20 C=220
N101	3 N9 ø5.0 c/20 C=220
N102	4 N12 ø5.0 c/20 C=276
N102	4 N12 ø5.0 c/20 C=276
N103	5 N13 ø5.0 c/20 C=557
N103	5 N14 ø5.0 c/20 C=555
N104	4 N15 ø5.0 c/20 C=473
N104	4 N16 ø5.0 c/20 C=472
N105	5 N10 ø5.0 c/20 C=219
N105	5 N17 ø5.0 c/20 C=256
N106	4 N18 ø5.0 c/20 C=521
N105	5 N19 ø5.0 c/20 C=185
N105	5 N20 ø5.0 c/20 C=254
N107	4 N21 ø5.0 c/20 C=387
N107	4 N22 ø5.0 c/20 C=608
N107	4 N15 ø5.0 c/20 C=473
N107	4 N23 ø5.0 c/20 C=61
N107	4 N24 ø5.0 c/20 C=84
N107	4 N25 ø5.0 c/20 C=233
N107	4 N26 ø5.0 c/20 C=120
N107	4 N27 ø5.0 c/20 C=79
N107	4 N6 ø5.0 c/20 C=230
N107	4 N28 ø5.0 c/20 C=238
N107	4 N28 ø5.0 c/20 C=238
N107	4 N6 ø5.0 c/20 C=230
N107	4 N29 ø5.0 c/20 C=255
N107	4 N30 ø5.0 c/20 C=291
N107	4 N31 ø5.0 c/20 C=376
N107	4 N32 ø5.0 c/20 C=303
N107	4 N33 ø5.0 c/20 C=600
N107	4 N5 ø5.0 c/20 C=447
N107	4 N34 ø5.0 c/20 C=135
N107	4 N35 ø5.0 c/20 C=222
N108	4 N36 ø5.0 c/20 C=424
N107	4 N37 ø5.0 c/20 C=366
N107	4 N38 ø5.0 c/20 C=313
N107	4 N39 ø5.0 c/20 C=120
N107	4 N40 ø5.0 c/20 C=352
N107	4 N27 ø5.0 c/20 C=79
N107	4 N26 ø5.0 c/20 C=120
N107	4 N38 ø5.0 c/20 C=313
N107	4 N12 ø5.0 c/20 C=276
N107	4 N12 ø5.0 c/20 C=276
N107	4 N41 ø5.0 c/20 C=218
N105	5 N42 ø5.0 c/20 C=235
N105	5 N43 ø5.0 c/20 C=254
N107	4 N44 ø5.0 c/20 C=391
N109	4 N45 ø5.0 c/20 C=461
N106	4 N46 ø5.0 c/20 C=207
N106	4 N47 ø5.0 c/20 C=314
N107	4 N25 ø5.0 c/20 C=234
N109	4 N48 ø5.0 c/20 C=457
N110	4 N49 ø5.0 c/20 C=397
N107	4 N50 ø5.0 c/20 C=483
N111	5 N51 ø5.0 c/20 C=530
N107	4 N52 ø5.0 c/20 C=355
N107	4 N53 ø5.0 c/20 C=245
N107	4 N54 ø5.0 c/20 C=302
N107	4 N55 ø5.0 c/20 C=233
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N114	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N117	7 N1 ø5.0 c/20 C=87
N101	3 N56 ø5.0 c/20 C=230
N101	3 N56 ø5.0 c/20 C=230
N101	3 N57 ø5.0 c/20 C=199
N101	3 N58 ø5.0 c/20 C=189
N101	3 N58 ø5.0 c/20 C=189
N101	3 N59 ø5.0 c/20 C=221
N102	4 N60 ø5.0 c/20 C=468
N102	4 N61 ø5.0 c/20 C=465
N118	5 N62 ø5.0 c/20 C=91
N119	5 N63 ø5.0 c/20 C=489
N120	4 N64 ø5.0 c/20 C=450
N104	4 N65 ø5.0 c/20 C=320
N104	4 N66 ø5.0 c/20 C=74
N104	4 N57 ø5.0 c/20 C=199
N104	4 N67 ø5.0 c/20 C=66
N101	3 N68 ø5.0 c/20 C=184
N101	3 N69 ø5.0 c/20 C=225
N107	4 N70 ø5.0 c/20 C=255
N107	4 N71 ø5.0 c/20 C=488
N107	4 N72 ø5.0 c/20 C=475
N107	4 N73 ø5.0 c/20 C=471
N107	4 N74 ø5.0 c/20 C=629
N121	4 N75 ø5.0 c/20 C=64
N121	4 N16 ø5.0 c/20 C=472
N107	4 N76 ø5.0 c/20 C=268
N107	4 N76 ø5.0 c/20 C=268
N107	4 N77 ø5.0 c/20 C=89
N107	4 N78 ø5.0 c/20 C=371
N107	4 N79 ø5.0 c/20 C=433
N107	4 N80 ø5.0 c/20 C=80
N107	4 N81 ø5.0 c/20 C=377
N107	4 N82 ø5.0 c/20 C=323
N121	4 N72 ø5.0 c/20 C=475
N107	4 N83 ø5.0 c/20 C=236
N107	4 N84 ø5.0 c/20 C=591
N107	4 N85 ø5.0 c/20 C=449
N107	4 N86 ø5.0 c/20 C=536
N108	4 N86 ø5.0 c/20 C=536
N107	4 N87 ø5.0 c/20 C=247
N107	4 N87 ø5.0 c/20 C=247
N107	4 N69 ø5.0 c/20 C=225
N107	4 N65 ø5.0 c/20 C=320
N107	4 N88 ø5.0 c/20 C=310
N107	4 N89 ø5.0 c/20 C=428
N107	4 N90 ø5.0 c/20 C=196
N107	4 N91 ø5.0 c/20 C=252
N107	4 N86 ø5.0 c/20 C=536
N107	4 N91 ø5.0 c/20 C=252
N109	4 N92 ø5.0 c/20 C=259
N109	4 N93 ø5.0 c/20 C=333
N106	4 N88 ø5.0 c/20 C=310
N107	4 N94 ø5.0 c/20 C=571
N109	4 N86 ø5.0 c/20 C=536
N107	4 N95 ø5.0 c/20 C=328
N107	4 N73 ø5.0 c/20 C=471
N107	4 N96 ø5.0 c/20 C=440
N107	4 N97 ø5.0 c/20 C=208

ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

Escala 1:75

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

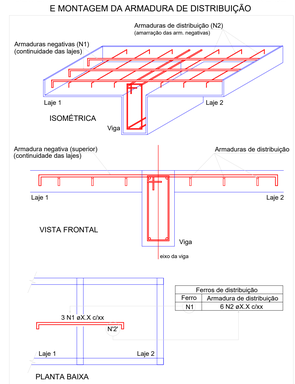
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	187	87	16269
	2	5.0	14	136	1904
	3	5.0	29	48	1392
	4	5.0	2	49	98
	5	5.0	7	447	3129
	6	5.0	11	230	2530
	7	5.0	3	220	660
	8	5.0	3	486	1458
	9	5.0	9	220	1980
	10	5.0	8	219	1752
	11	5.0	3	485	1455
	12	5.0	16	276	4416
	13	5.0	5	557	2785
	14	5.0	5	555	2775
	15	5.0	8	473	3784
	16	5.0	8	472	3776
	17	5.0	5	256	1280
	18	5.0	4	521	2084
	19	5.0	5	185	925
	20	5.0	5	254	1270
	21	5.0	4	387	1548
	22	5.0	4	608	2432
	23	5.0	4	61	244
	24	5.0	4	84	336
	25	5.0	8	233	1864
	26	5.0	8	120	960
	27	5.0	8	79	632
	28	5.0	8	238	1904
	29	5.0	4	255	1020
	30	5.0	4	291	1164
	31	5.0	4	376	1504
	32	5.0	4	303	1212
	33	5.0	4	600	2400
	34	5.0	4	135	540
	35	5.0	4	222	888
	36	5.0	4	424	1696
	37	5.0	4	366	1464
	38	5.0	8	313	2504
	39	5.0	4	120	480
	40	5.0	4	352	1408
	41	5.0	4	218	872
	42	5.0	5	235	1175
	43	5.0	5	254	1270
	44	5.0	4	391	1564
	45	5.0	4	461	1844
	46	5.0	4	207	828
	47	5.0	4	314	1256
	48	5.0	4	457	1828
	49	5.0	4	397	1588
	50	5.0	4	483	1932
	51	5.0	5	530	2650
	52	5.0	4	355	1420
	53	5.0	4	245	980
	54	5.0	4	302	1208
	55	5.0	4	233	932
	56	5.0	6	230	1380
	57	5.0	7	199	1393
	58	5.0	6	189	1134
	59	5.0	3	221	663
	60	5.0	4	468	1872
	61	5.0	4	465	1860
	62	5.0	5	91	455
	63	5.0	5	489	2445
	64	5.0	4	450	1800
	65	5.0	8	320	2560
	66	5.0	4	74	296
	67	5.0	4	66	264
	68	5.0	3	184	552
	69	5.0	7	225	1575
	70	5.0	4	255	1020
	71	5.0	4	488	1952
	72	5.0	8	475	3800
	73	5.0	8	471	3768
	74	5.0	4	629	2516
	75	5.0	4	64	256
	76	5.0	8	268	2144
	77	5.0	4	89	356
	78	5.0	4	371	1484
	79	5.0	4	433	1732
	80	5.0	4	80	320
	81	5.0	4	377	1508
	82	5.0	4	323	1292
	83	5.0	4	236	944
	84	5.0	4	591	2364
	85	5.0	4	449	1796
	86	5.0	16	536	8576
	87	5.0	8	247	1976
	88	5.0	8	310	2480
	89	5.0	4	428	1712
	90	5.0	4	196	784
	91	5.0	8	252	2016
	92	5.0	4	259	1036
	93	5.0	4	333	1332
	94	5.0	4	571	2284
	95	5.0	4	328	1312
	96	5.0	4	440	1760
	97	5.0	4	208	832
CA50	98	8.0	72	134	9648
	99	8.0	2	120	240
	100	8.0	3	41	123
	101	8.0	225	64	14400
	102	8.0	74	79	5846
	103	8.0	56	86	4816
	104	8.0	81	75	6075
	105	8.0	76	85	6460
	106	8.0	68	75	5100
	107	8.0	1085	74	80290
	108	8.0	48	75	3600
	109	8.0	103	77	7931
	110	8.0	20	80	1600
	111	8.0	26	85	2210
	112	8.0	25	182	4550
	113	8.0	39	133	5187
	114	8.0	5	182	910
	115	8.0	3	98	294
	116	8.0	2	86	172
	117	8.0	5	146	730
	118	8.0	5	88	440
	119	8.0	24	83	1992
	120	8.0	23	78	1794
	121	8.0	51	80	4080
	122	8.0	60	399	23940
	123	8.0	24	226	5424
	124	8.0	46	230	10580
	125	8.0	54	398	21492
	126	8.0	72	234	16848
	127	8.0	41	546	22386
	128	8.0	10	257	2570
	129	8.0	18	259	4662
	130	8.0	10	263	2630
	131	8.0	30	498	14940
	132	8.0	10	248	2480
	133	8.0	3	259	777
	134	8.0	20	497	9940
	135	8.0	3	253	759
	136	8.0	8	252	2016
	137	8.0	22	499	10978

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	3212.6	1267.6
CA60	5.0	1748.7	269.5
PESO TOTAL (kg)			
CA50	1267.6		
CA60	269.5		

Volume de concreto (C-35) = 100.77 m³
Área de forma = 126.20 m²

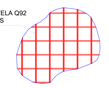
DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 ø X.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-09

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	EX_MED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 42/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Bruneriau - | CEP 89010-340 | Fone: (47) 9671-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

Projeto Estrutural com Concreto Armado (NBR 6118:2023) | SEI 25.0.000033-9 | pg. 42
2025-08-25 15:49:00, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

Armaduras de distribuição	
Armadura	Armadura de distribuição
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N99	5 N3 ø5.0 c/20 C=48
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N3 ø5.0 c/20 C=48
N99	5 N3 ø5.0 c/20 C=48
N100	2 N4 ø5.0 c/20 C=49
N101	3 N5 ø5.0 c/20 C=447
N101	3 N6 ø5.0 c/20 C=230
N101	3 N7 ø5.0 c/20 C=220
N101	3 N8 ø5.0 c/20 C=486
N101	3 N9 ø5.0 c/20 C=220
N101	3 N10 ø5.0 c/20 C=219
N101	3 N11 ø5.0 c/20 C=485
N101	3 N9 ø5.0 c/20 C=220
N101	3 N9 ø5.0 c/20 C=220
N102	4 N12 ø5.0 c/20 C=276
N102	4 N12 ø5.0 c/20 C=276
N103	5 N13 ø5.0 c/20 C=557
N103	5 N14 ø5.0 c/20 C=555
N104	4 N15 ø5.0 c/20 C=473
N104	4 N16 ø5.0 c/20 C=472
N105	5 N10 ø5.0 c/20 C=219
N105	5 N17 ø5.0 c/20 C=256
N106	4 N18 ø5.0 c/20 C=521
N105	5 N19 ø5.0 c/20 C=185
N105	5 N20 ø5.0 c/20 C=254
N107	4 N21 ø5.0 c/20 C=387
N107	4 N22 ø5.0 c/20 C=608
N107	4 N15 ø5.0 c/20 C=473
N107	4 N23 ø5.0 c/20 C=61
N107	4 N24 ø5.0 c/20 C=84
N107	4 N25 ø5.0 c/20 C=233
N107	4 N26 ø5.0 c/20 C=120
N107	4 N27 ø5.0 c/20 C=79
N107	4 N6 ø5.0 c/20 C=230
N107	4 N28 ø5.0 c/20 C=238
N107	4 N28 ø5.0 c/20 C=238
N107	4 N6 ø5.0 c/20 C=230
N107	4 N29 ø5.0 c/20 C=255
N107	4 N30 ø5.0 c/20 C=291
N107	4 N31 ø5.0 c/20 C=376
N107	4 N32 ø5.0 c/20 C=303
N107	4 N33 ø5.0 c/20 C=600
N107	4 N5 ø5.0 c/20 C=447
N107	4 N34 ø5.0 c/20 C=135
N107	4 N35 ø5.0 c/20 C=222
N108	4 N36 ø5.0 c/20 C=424
N107	4 N37 ø5.0 c/20 C=366
N107	4 N38 ø5.0 c/20 C=313
N107	4 N39 ø5.0 c/20 C=120
N107	4 N40 ø5.0 c/20 C=352
N107	4 N27 ø5.0 c/20 C=79
N107	4 N26 ø5.0 c/20 C=120
N107	4 N38 ø5.0 c/20 C=313
N107	4 N12 ø5.0 c/20 C=276
N107	4 N12 ø5.0 c/20 C=276
N107	4 N41 ø5.0 c/20 C=218
N105	5 N42 ø5.0 c/20 C=235
N105	5 N43 ø5.0 c/20 C=254
N107	4 N44 ø5.0 c/20 C=391
N109	4 N45 ø5.0 c/20 C=461
N106	4 N46 ø5.0 c/20 C=207
N106	4 N47 ø5.0 c/20 C=314
N107	4 N25 ø5.0 c/20 C=234
N109	4 N48 ø5.0 c/20 C=457
N110	4 N49 ø5.0 c/20 C=397
N107	4 N50 ø5.0 c/20 C=483
N111	5 N51 ø5.0 c/20 C=530
N107	4 N52 ø5.0 c/20 C=355
N107	4 N53 ø5.0 c/20 C=245
N107	4 N54 ø5.0 c/20 C=302
N107	4 N55 ø5.0 c/20 C=233
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N114	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N117	7 N1 ø5.0 c/20 C=87
N101	3 N56 ø5.0 c/20 C=230
N101	3 N56 ø5.0 c/20 C=230
N101	3 N57 ø5.0 c/20 C=199
N101	3 N58 ø5.0 c/20 C=189
N101	3 N58 ø5.0 c/20 C=189
N101	3 N59 ø5.0 c/20 C=221
N102	4 N60 ø5.0 c/20 C=468
N102	4 N61 ø5.0 c/20 C=465
N118	5 N62 ø5.0 c/20 C=91
N119	5 N63 ø5.0 c/20 C=489
N120	4 N64 ø5.0 c/20 C=450
N104	4 N65 ø5.0 c/20 C=320
N104	4 N66 ø5.0 c/20 C=74
N104	4 N57 ø5.0 c/20 C=199
N104	4 N67 ø5.0 c/20 C=66
N101	3 N68 ø5.0 c/20 C=184
N101	3 N69 ø5.0 c/20 C=225
N107	4 N70 ø5.0 c/20 C=255
N107	4 N71 ø5.0 c/20 C=488
N107	4 N72 ø5.0 c/20 C=475
N107	4 N73 ø5.0 c/20 C=471
N107	4 N74 ø5.0 c/20 C=629
N121	4 N75 ø5.0 c/20 C=64
N121	4 N16 ø5.0 c/20 C=472
N107	4 N76 ø5.0 c/20 C=268
N107	4 N76 ø5.0 c/20 C=268
N107	4 N77 ø5.0 c/20 C=89
N107	4 N78 ø5.0 c/20 C=371
N107	4 N79 ø5.0 c/20 C=433
N107	4 N80 ø5.0 c/20 C=80
N107	4 N81 ø5.0 c/20 C=377
N107	4 N82 ø5.0 c/20 C=323
N121	4 N72 ø5.0 c/20 C=475
N107	4 N83 ø5.0 c/20 C=236
N107	4 N84 ø5.0 c/20 C=591
N107	4 N85 ø5.0 c/20 C=449
N107	4 N86 ø5.0 c/20 C=536
N108	4 N86 ø5.0 c/20 C=536
N107	4 N87 ø5.0 c/20 C=247
N107	4 N87 ø5.0 c/20 C=247
N107	4 N69 ø5.0 c/20 C=225
N107	4 N65 ø5.0 c/20 C=320
N107	4 N88 ø5.0 c/20 C=310
N107	4 N89 ø5.0 c/20 C=428
N107	4 N90 ø5.0 c/20 C=196
N107	4 N91 ø5.0 c/20 C=252
N107	4 N86 ø5.0 c/20 C=536
N107	4 N91 ø5.0 c/20 C=252
N109	4 N92 ø5.0 c/20 C=259
N109	4 N93 ø5.0 c/20 C=333
N106	4 N88 ø5.0 c/20 C=310
N107	4 N94 ø5.0 c/20 C=571
N109	4 N86 ø5.0 c/20 C=536
N107	4 N95 ø5.0 c/20 C=328
N107	4 N73 ø5.0 c/20 C=471
N107	4 N96 ø5.0 c/20 C=440
N107	4 N97 ø5.0 c/20 C=208

ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:75

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

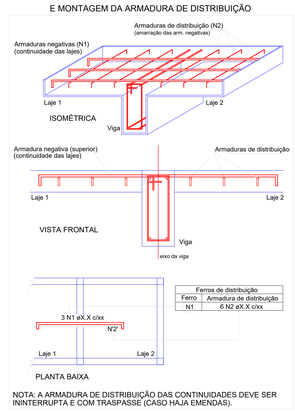
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	187	87	16269
	2	5.0	14	136	1904
	3	5.0	29	48	1392
	4	5.0	2	49	98
	5	5.0	7	447	3129
	6	5.0	11	230	2530
	7	5.0	3	220	660
	8	5.0	3	486	1458
	9	5.0	9	220	1980
	10	5.0	8	219	1752
	11	5.0	3	485	1455
	12	5.0	16	276	4416
	13	5.0	5	557	2785
	14	5.0	5	555	2775
	15	5.0	8	473	3784
	16	5.0	8	472	3776
	17	5.0	5	256	1280
	18	5.0	4	521	2084
	19	5.0	5	185	925
	20	5.0	5	254	1270
	21	5.0	4	387	1548
	22	5.0	4	608	2432
	23	5.0	4	61	244
	24	5.0	4	84	336
	25	5.0	8	233	1864
	26	5.0	8	120	960
	27	5.0	8	79	632
	28	5.0	8	238	1904
	29	5.0	4	255	1020
	30	5.0	4	291	1164
	31	5.0	4	376	1504
	32	5.0	4	303	1212
	33	5.0	4	600	2400
	34	5.0	4	135	540
	35	5.0	4	222	888
	36	5.0	4	424	1696
	37	5.0	4	366	1464
	38	5.0	8	313	2504
	39	5.0	4	120	480
	40	5.0	4	352	1408
	41	5.0	2	218	872
	42	5.0	5	235	1175
	43	5.0	5	254	1270
	44	5.0	4	391	1564
	45	5.0	4	461	1844
	46	5.0	4	207	828
	47	5.0	4	314	1256
	48	5.0	4	457	1828
	49	5.0	4	397	1588
	50	5.0	4	483	1932
	51	5.0	5	530	2650
	52	5.0	4	355	1420
	53	5.0	4	245	980
	54	5.0	4	302	1208
	55	5.0	4	233	932
	56	5.0	6	230	1380
	57	5.0	7	199	1393
	58	5.0	6	189	1134
	59	5.0	3	221	663
	60	5.0	4	468	1872
	61	5.0	4	465	1860
	62	5.0	5	91	455
	63	5.0	5	489	2445
	64	5.0	4	450	1800
	65	5.0	8	320	2560
	66	5.0	4	74	296
	67	5.0	4	66	264
	68	5.0	3	184	552
	69	5.0	7	225	1575
	70	5.0	4	255	1020
	71	5.0	4	488	1952
	72	5.0	8	475	3800
	73	5.0	8	471	3768
	74	5.0	4	629	2516
	75	5.0	4	64	256
	76	5.0	8	268	2144
	77	5.0	4	89	356
	78	5.0	4	371	1484
	79	5.0	4	433	1732
	80	5.0	4	80	320
	81	5.0	4	377	1508
	82	5.0	4	323	1292
	83	5.0	4	236	944
	84	5.0	4	591	2364
	85	5.0	4	449	1796
	86	5.0	16	536	8576
	87	5.0	8	247	1976
	88	5.0	8	310	2480
	89	5.0	4	428	1712
	90	5.0	4	196	784
	91	5.0	8	252	2016
	92	5.0	4	259	1036
	93	5.0	4	333	1332
	94	5.0	4	571	2284
	95	5.0	4	328	1312
	96	5.0	4	440	1760
	97	5.0	4	208	832
CA50	98	8.0	72	134	9648
	99	8.0	2	120	240
	100	8.0	3	41	123
	101	8.0	225	64	14400
	102	8.0	74	79	5846
	103	8.0	56	86	4816
	104	8.0	81	75	6075
	105	8.0	76	85	6460
	106	8.0	68	75	5100
	107	8.0	1085	74	80290
	108	8.0	48	75	3600
	109	8.0	103	77	7931
	110	8.0	20	80	1600
	111	8.0	26	85	2210
	112	8.0	25	182	4550
	113	8.0	39	133	5187
	114	8.0	5	182	910
	115	8.0	3	98	294
	116	8.0	2	86	172
	117	8.0	5	146	730
	118	8.0	5	88	440
	119	8.0	24	83	1992
	120	8.0	23	78	1794
	121	8.0	51	80	4080
	122	8.0	60	399	23940
	123	8.0	24	226	5424
	124	8.0	46	230	10580
	125	8.0	54	398	21492
	126	8.0	72	234	16848
	127	8.0	41	546	22386
	128	8.0	10	257	2570
	129	8.0	18	259	4662
	130	8.0	10	263	2630
	131	8.0	30	498	14940
	132	8.0	10	248	2480
	133	8.0	3	259	777
	134	8.0	20	497	9940
	135	8.0	3	253	759
	136	8.0	8	252	2016
	137	8.0	22	499	10978

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	3212.6	1267.6
CA60	5.0	1748.7	269.5
PESO TOTAL (kg)			
CA50	1267.6		
CA60	269.5		

Volume de concreto (C-35) = 100.77 m³
Área de forma = 126.20 m²

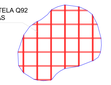
DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 ø X.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.629/0001-09

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	EX_MDO_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 43/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc. | CEP 88010-340 | Fone: (47) 9671-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutural (por Cliente)
SEI 25.0.20000318 (pg) 43
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Armaduras de distribuição	
Armadura	Armadura de distribuição
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N99	5 N3 ø5.0 c/20 C=48
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N3 ø5.0 c/20 C=48
N99	5 N3 ø5.0 c/20 C=48
N100	2 N4 ø5.0 c/20 C=49
N101	3 N5 ø5.0 c/20 C=447
N101	3 N6 ø5.0 c/20 C=230
N101	3 N7 ø5.0 c/20 C=220
N101	3 N8 ø5.0 c/20 C=486
N101	3 N9 ø5.0 c/20 C=220
N101	3 N10 ø5.0 c/20 C=219
N101	3 N11 ø5.0 c/20 C=485
N101	3 N9 ø5.0 c/20 C=220
N101	3 N9 ø5.0 c/20 C=220
N102	4 N12 ø5.0 c/20 C=278
N102	4 N12 ø5.0 c/20 C=276
N103	5 N13 ø5.0 c/20 C=557
N103	5 N14 ø5.0 c/20 C=555
N104	4 N15 ø5.0 c/20 C=473
N104	4 N16 ø5.0 c/20 C=472
N105	5 N10 ø5.0 c/20 C=219
N105	5 N17 ø5.0 c/20 C=256
N106	4 N18 ø5.0 c/20 C=521
N105	5 N19 ø5.0 c/20 C=185
N105	5 N20 ø5.0 c/20 C=254
N107	4 N21 ø5.0 c/20 C=387
N107	4 N22 ø5.0 c/20 C=608
N107	4 N15 ø5.0 c/20 C=473
N107	4 N23 ø5.0 c/20 C=61
N107	4 N24 ø5.0 c/20 C=84
N107	4 N25 ø5.0 c/20 C=233
N107	4 N26 ø5.0 c/20 C=120
N107	4 N27 ø5.0 c/20 C=79
N107	4 N6 ø5.0 c/20 C=230
N107	4 N28 ø5.0 c/20 C=238
N107	4 N28 ø5.0 c/20 C=238
N107	4 N6 ø5.0 c/20 C=230
N107	4 N29 ø5.0 c/20 C=255
N107	4 N30 ø5.0 c/20 C=291
N107	4 N31 ø5.0 c/20 C=376
N107	4 N32 ø5.0 c/20 C=303
N107	4 N33 ø5.0 c/20 C=600
N107	4 N5 ø5.0 c/20 C=447
N107	4 N34 ø5.0 c/20 C=135
N107	4 N35 ø5.0 c/20 C=222
N108	4 N36 ø5.0 c/20 C=424
N107	4 N37 ø5.0 c/20 C=366
N107	4 N38 ø5.0 c/20 C=313
N107	4 N39 ø5.0 c/20 C=120
N107	4 N40 ø5.0 c/20 C=352
N107	4 N27 ø5.0 c/20 C=79
N107	4 N26 ø5.0 c/20 C=120
N107	4 N38 ø5.0 c/20 C=313
N107	4 N12 ø5.0 c/20 C=276
N107	4 N12 ø5.0 c/20 C=276
N107	4 N41 ø5.0 c/20 C=218
N105	5 N42 ø5.0 c/20 C=235
N105	5 N43 ø5.0 c/20 C=254
N107	4 N44 ø5.0 c/20 C=391
N109	4 N45 ø5.0 c/20 C=461
N106	4 N46 ø5.0 c/20 C=207
N106	4 N47 ø5.0 c/20 C=314
N107	4 N25 ø5.0 c/20 C=234
N109	4 N48 ø5.0 c/20 C=457
N110	4 N49 ø5.0 c/20 C=397
N107	4 N50 ø5.0 c/20 C=483
N111	5 N51 ø5.0 c/20 C=530
N107	4 N52 ø5.0 c/20 C=355
N107	4 N53 ø5.0 c/20 C=245
N107	4 N54 ø5.0 c/20 C=302
N107	4 N55 ø5.0 c/20 C=233
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N114	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N113	7 N3 ø5.0 c/20 C=48
N113	7 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N117	7 N1 ø5.0 c/20 C=87
N101	3 N56 ø5.0 c/20 C=230
N101	3 N56 ø5.0 c/20 C=230
N101	3 N57 ø5.0 c/20 C=199
N101	3 N58 ø5.0 c/20 C=189
N101	3 N58 ø5.0 c/20 C=189
N101	3 N59 ø5.0 c/20 C=221
N102	4 N60 ø5.0 c/20 C=468
N102	4 N61 ø5.0 c/20 C=465
N118	5 N62 ø5.0 c/20 C=91
N119	5 N63 ø5.0 c/20 C=489
N120	4 N64 ø5.0 c/20 C=450
N104	4 N65 ø5.0 c/20 C=320
N104	4 N66 ø5.0 c/20 C=74
N104	4 N57 ø5.0 c/20 C=199
N104	4 N67 ø5.0 c/20 C=66
N101	3 N68 ø5.0 c/20 C=184
N101	3 N69 ø5.0 c/20 C=225
N107	4 N70 ø5.0 c/20 C=255
N107	4 N71 ø5.0 c/20 C=488
N107	4 N72 ø5.0 c/20 C=475
N107	4 N73 ø5.0 c/20 C=471
N107	4 N74 ø5.0 c/20 C=629
N121	4 N75 ø5.0 c/20 C=64
N121	4 N16 ø5.0 c/20 C=472
N107	4 N76 ø5.0 c/20 C=268
N107	4 N76 ø5.0 c/20 C=268
N107	4 N77 ø5.0 c/20 C=89
N107	4 N78 ø5.0 c/20 C=371
N107	4 N79 ø5.0 c/20 C=433
N107	4 N80 ø5.0 c/20 C=80
N107	4 N81 ø5.0 c/20 C=377
N107	4 N82 ø5.0 c/20 C=323
N121	4 N72 ø5.0 c/20 C=475
N107	4 N83 ø5.0 c/20 C=236
N107	4 N84 ø5.0 c/20 C=591
N107	4 N85 ø5.0 c/20 C=449
N107	4 N86 ø5.0 c/20 C=536
N108	4 N86 ø5.0 c/20 C=536
N107	4 N87 ø5.0 c/20 C=247
N107	4 N87 ø5.0 c/20 C=247
N107	4 N69 ø5.0 c/20 C=225
N107	4 N65 ø5.0 c/20 C=320
N107	4 N88 ø5.0 c/20 C=310
N107	4 N89 ø5.0 c/20 C=428
N107	4 N90 ø5.0 c/20 C=196
N107	4 N91 ø5.0 c/20 C=252
N107	4 N86 ø5.0 c/20 C=536
N107	4 N91 ø5.0 c/20 C=252
N109	4 N92 ø5.0 c/20 C=259
N109	4 N93 ø5.0 c/20 C=333
N106	4 N88 ø5.0 c/20 C=310
N107	4 N94 ø5.0 c/20 C=571
N109	4 N86 ø5.0 c/20 C=536
N107	4 N95 ø5.0 c/20 C=328
N107	4 N73 ø5.0 c/20 C=471
N107	4 N96 ø5.0 c/20 C=440
N107	4 N97 ø5.0 c/20 C=208

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

Escala 1:75

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

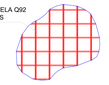
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	187	87	16269
	2	5.0	14	136	1904
	3	5.0	29	48	1392
	4	5.0	2	49	98
	5	5.0	7	447	3129
	6	5.0	11	230	2530
	7	5.0	3	220	660
	8	5.0	3	486	1458
	9	5.0	9	220	1980
	10	5.0	8	219	1752
	11	5.0	3	485	1455
	12	5.0	16	276	4416
	13	5.0	5	557	2785
	14	5.0	5	555	2775
	15	5.0	8	473	3784
	16	5.0	8	472	3776
	17	5.0	5	256	1280
	18	5.0	4	521	2084
	19	5.0	5	185	925
	20	5.0	5	254	1270
	21	5.0	4	387	1548
	22	5.0	4	608	2432
	23	5.0	4	61	244
	24	5.0	4	84	336
	25	5.0	8	233	1864
	26	5.0	8	120	960
	27	5.0	8	79	632
	28	5.0	8	238	1904
	29	5.0	4	255	1020
	30	5.0	4	291	1164
	31	5.0	4	376	1504
	32	5.0	4	303	1212
	33	5.0	4	600	2400
	34	5.0	4	135	540
	35	5.0	4	222	888
	36	5.0	4	424	1696
	37	5.0	4	366	1464
	38	5.0	4	313	1252
	39	5.0	4	120	480
	40	5.0	4	352	1408
	41	5.0	2	218	872
	42	5.0	5	235	1175
	43	5.0	5	254	1270
	44	5.0	4	391	1564
	45	5.0	4	461	1844
	46	5.0	4	207	828
	47	5.0	4	314	1256
	48	5.0	4	457	1828
	49	5.0	4	397	1588
	50	5.0	4	483	1932
	51	5.0	5	530	2650
	52	5.0	4	355	1420
	53	5.0	4	245	980
	54	5.0	4	302	1208
	55	5.0	4	233	932
	56	5.0	6	230	1380
	57	5.0	7	199	1393
	58	5.0	6	189	1134
	59	5.0	3	221	663
	60	5.0	4	468	1872
	61	5.0	4	465	1860
	62	5.0	5	91	455
	63	5.0	5	489	2445
	64	5.0	4	450	1800
	65	5.0	8	320	2560
	66	5.0	4	74	296
	67	5.0	4	66	264
	68	5.0	3	184	552
	69	5.0	7	225	1575
	70	5.0	4	255	1020
	71	5.0	4	488	1952
	72	5.0	8	475	3800
	73	5.0	8	471	3768
	74	5.0	4	629	2516
	75	5.0	4	64	256
	76	5.0	8	268	2144
	77	5.0	4	89	356
	78	5.0	4	371	1484
	79	5.0	4	433	1732
	80	5.0	4	80	320
	81	5.0	4	377	1508
	82	5.0	4	323	1292
	83	5.0	4	236	944
	84	5.0	4	591	2364
	85	5.0	4	449	1796
	86	5.0	16	536	8576
	87	5.0	8	247	1976
	88	5.0	8	310	2480
	89	5.0	4	428	1712
	90	5.0	4	196	784
	91	5.0	8	252	2016
	92	5.0	4	259	1036
	93	5.0	4	333	1332
	94	5.0	4	571	2284
	95	5.0	4	328	1312
	96	5.0	4	440	1760
	97	5.0	4	208	832
CA50	98	8.0	72	134	9648
	99	8.0	6	100	600
	100	8.0	3	41	123
	101	8.0	225	64	14400
	102	8.0	74	79	5846
	103	8.0	56	86	4816
	104	8.0	81	75	6075
	105	8.0	76	85	6460
	106	8.0	68	75	5100
	107	8.0	1085	74	80290
	108	8.0	48	75	3600
	109	8.0	103	77	7931
	110	8.0	20	80	1600
	111	8.0	26	85	2210
	112	8.0	25	182	4550
	113	8.0	39	133	5187
	114	8.0	5	192	960
	115	8.0	2	98	196
	116	8.0	2	96	192
	117	8.0	5	146	730
	118	8.0	5	88	440
	119	8.0	24	83	1992
	120	8.0	23	78	1794
	121	8.0	51	80	4080
	122	8.0	60	399	23940
	123	8.0	24	226	5424
	124	8.0	46	230	10580
	125	8.0	54	398	21492
	126	8.0	72	234	16848
	127	8.0	41	546	22396
	128	8.0	10	257	2570
	129	8.0	18	259	4662
	130	8.0	10	263	2630
	131	8.0	30	498	14940
	132	8.0	10	248	2480
	133	8.0	3	259	777
	134	8.0	20	497	9940
	135	8.0	3	253	759
	136	8.0	8	252	2016
	137	8.0	22	499	10978

RESUMO DO AÇO

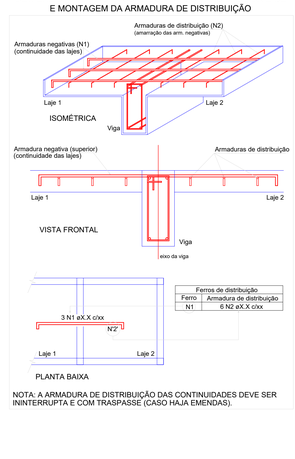
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	3212.6	1267.6
CA60	5.0	1748.7	269.5
PESO TOTAL (kg)			
CA50	1267.6		
CA60	269.5		

Volume de concreto (C-35) = 100.77 m³
Área de forma = 126.20 m²

Armadura em malha TELA Q92
LAJES PROTENDIDAS



DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
82.199.023/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	IOE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR(3)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 44/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ:08.***.***/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Rio negrinho | CEP:89.010-040 | Fone: (47) 98813-8512 | Av. para o projeto técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutural.dwg (R2018/pt-BR)
SEI 25.0.2000033-9 pg. 44
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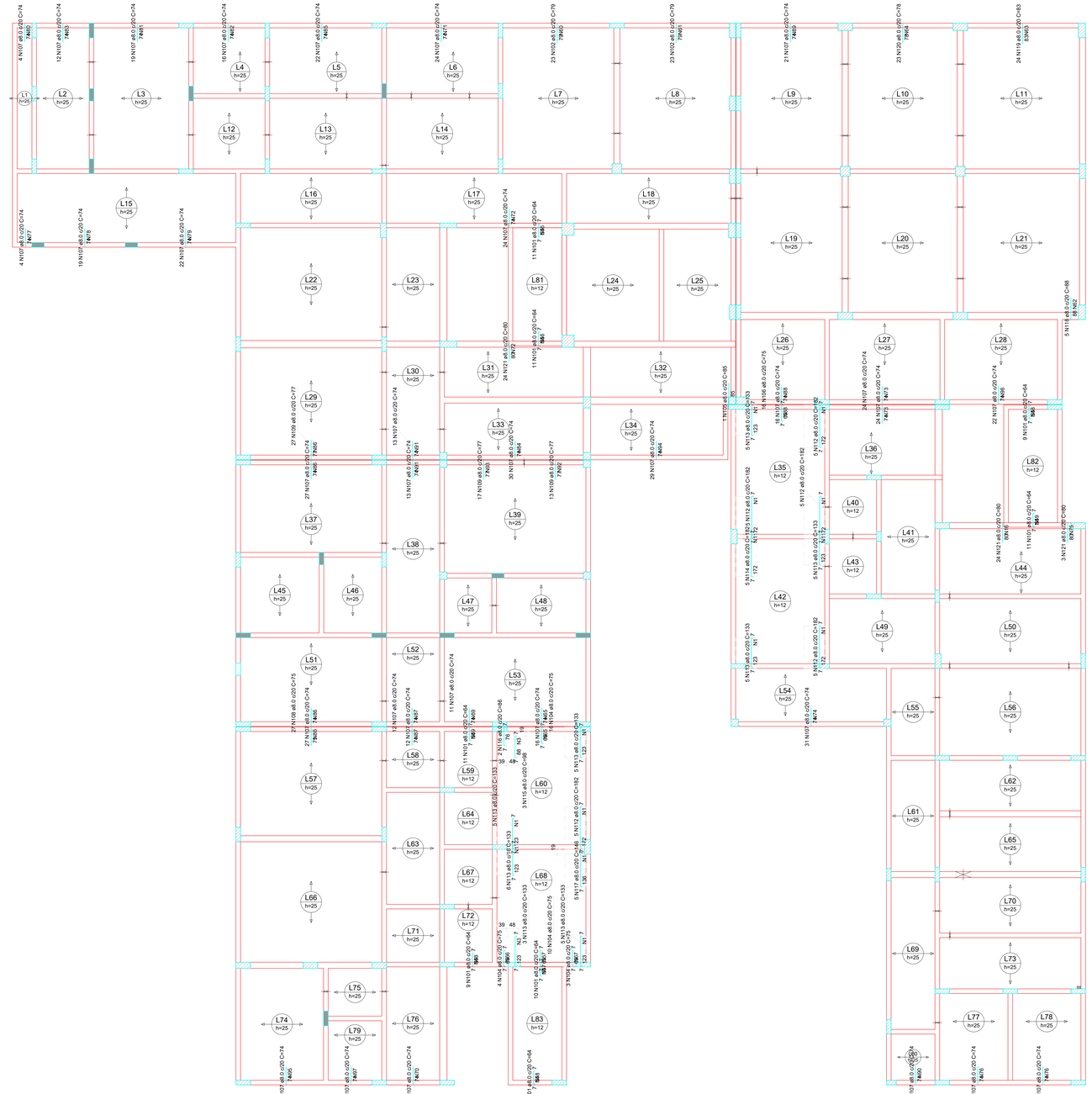
Armaduras de distribuição	
Armadura	Armadura de distribuição
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N2 ø5.0 c/20 C=136
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N99	5 N3 ø5.0 c/20 C=48
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N1 ø5.0 c/20 C=87
N98	7 N3 ø5.0 c/20 C=48
N99	5 N3 ø5.0 c/20 C=48
N100	2 N4 ø5.0 c/20 C=49
N101	3 N5 ø5.0 c/20 C=447
N101	3 N6 ø5.0 c/20 C=230
N101	3 N7 ø5.0 c/20 C=220
N101	3 N8 ø5.0 c/20 C=486
N101	3 N9 ø5.0 c/20 C=220
N101	3 N10 ø5.0 c/20 C=219
N101	3 N11 ø5.0 c/20 C=485
N101	3 N9 ø5.0 c/20 C=220
N101	3 N9 ø5.0 c/20 C=220
N102	4 N12 ø5.0 c/20 C=276
N102	4 N12 ø5.0 c/20 C=276
N103	5 N13 ø5.0 c/20 C=557
N103	5 N14 ø5.0 c/20 C=555
N104	4 N15 ø5.0 c/20 C=473
N104	4 N16 ø5.0 c/20 C=472
N105	5 N10 ø5.0 c/20 C=219
N105	5 N17 ø5.0 c/20 C=256
N106	4 N18 ø5.0 c/20 C=521
N105	5 N19 ø5.0 c/20 C=185
N105	5 N20 ø5.0 c/20 C=254
N107	4 N21 ø5.0 c/20 C=387
N107	4 N22 ø5.0 c/20 C=608
N107	4 N15 ø5.0 c/20 C=473
N107	4 N23 ø5.0 c/20 C=61
N107	4 N24 ø5.0 c/20 C=84
N107	4 N25 ø5.0 c/20 C=233
N107	4 N26 ø5.0 c/20 C=120
N107	4 N27 ø5.0 c/20 C=79
N107	4 N6 ø5.0 c/20 C=230
N107	4 N28 ø5.0 c/20 C=238
N107	4 N28 ø5.0 c/20 C=238
N107	4 N6 ø5.0 c/20 C=230
N107	4 N29 ø5.0 c/20 C=255
N107	4 N30 ø5.0 c/20 C=291
N107	4 N31 ø5.0 c/20 C=376
N107	4 N32 ø5.0 c/20 C=303
N107	4 N33 ø5.0 c/20 C=600
N107	4 N5 ø5.0 c/20 C=447
N107	4 N34 ø5.0 c/20 C=135
N107	4 N35 ø5.0 c/20 C=222
N108	4 N36 ø5.0 c/20 C=424
N107	4 N37 ø5.0 c/20 C=366
N107	4 N38 ø5.0 c/20 C=313
N107	4 N39 ø5.0 c/20 C=120
N107	4 N40 ø5.0 c/20 C=352
N107	4 N27 ø5.0 c/20 C=79
N107	4 N26 ø5.0 c/20 C=120
N107	4 N38 ø5.0 c/20 C=313
N107	4 N12 ø5.0 c/20 C=276
N107	4 N12 ø5.0 c/20 C=276
N107	4 N41 ø5.0 c/20 C=218
N105	5 N42 ø5.0 c/20 C=235
N105	5 N43 ø5.0 c/20 C=254
N107	4 N44 ø5.0 c/20 C=391
N109	4 N45 ø5.0 c/20 C=461
N106	4 N46 ø5.0 c/20 C=207
N106	4 N47 ø5.0 c/20 C=314
N107	4 N25 ø5.0 c/20 C=234
N109	4 N48 ø5.0 c/20 C=457
N110	4 N49 ø5.0 c/20 C=397
N107	4 N50 ø5.0 c/20 C=483
N111	5 N51 ø5.0 c/20 C=530
N107	4 N52 ø5.0 c/20 C=355
N107	4 N53 ø5.0 c/20 C=245
N107	4 N54 ø5.0 c/20 C=302
N107	4 N55 ø5.0 c/20 C=233
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N114	9 N1 ø5.0 c/20 C=87
N112	9 N1 ø5.0 c/20 C=87
N113	7 N1 ø5.0 c/20 C=87
N117	7 N1 ø5.0 c/20 C=87
N101	3 N56 ø5.0 c/20 C=230
N101	3 N56 ø5.0 c/20 C=230
N101	3 N57 ø5.0 c/20 C=199
N101	3 N58 ø5.0 c/20 C=189
N101	3 N58 ø5.0 c/20 C=189
N101	3 N59 ø5.0 c/20 C=221
N102	4 N60 ø5.0 c/20 C=468
N102	4 N61 ø5.0 c/20 C=465
N118	5 N62 ø5.0 c/20 C=91
N119	5 N63 ø5.0 c/20 C=489
N120	4 N64 ø5.0 c/20 C=450
N104	4 N65 ø5.0 c/20 C=320
N104	4 N66 ø5.0 c/20 C=74
N104	4 N57 ø5.0 c/20 C=199
N104	4 N67 ø5.0 c/20 C=66
N101	3 N68 ø5.0 c/20 C=184
N101	3 N69 ø5.0 c/20 C=225
N107	4 N70 ø5.0 c/20 C=255
N107	4 N71 ø5.0 c/20 C=488
N107	4 N72 ø5.0 c/20 C=475
N107	4 N73 ø5.0 c/20 C=471
N107	4 N74 ø5.0 c/20 C=629
N121	4 N75 ø5.0 c/20 C=64
N121	4 N16 ø5.0 c/20 C=472
N107	4 N76 ø5.0 c/20 C=268
N107	4 N76 ø5.0 c/20 C=268
N107	4 N77 ø5.0 c/20 C=89
N107	4 N78 ø5.0 c/20 C=371
N107	4 N79 ø5.0 c/20 C=433
N107	4 N80 ø5.0 c/20 C=80
N107	4 N81 ø5.0 c/20 C=377
N107	4 N82 ø5.0 c/20 C=323
N121	4 N72 ø5.0 c/20 C=475
N107	4 N83 ø5.0 c/20 C=236
N107	4 N84 ø5.0 c/20 C=591
N107	4 N85 ø5.0 c/20 C=449
N107	4 N86 ø5.0 c/20 C=536
N108	4 N86 ø5.0 c/20 C=536
N107	4 N87 ø5.0 c/20 C=247
N107	4 N87 ø5.0 c/20 C=247
N107	4 N69 ø5.0 c/20 C=225
N107	4 N65 ø5.0 c/20 C=320
N107	4 N88 ø5.0 c/20 C=310
N107	4 N89 ø5.0 c/20 C=428
N107	4 N90 ø5.0 c/20 C=196
N107	4 N91 ø5.0 c/20 C=252
N107	4 N86 ø5.0 c/20 C=536
N107	4 N91 ø5.0 c/20 C=252
N109	4 N92 ø5.0 c/20 C=259
N109	4 N93 ø5.0 c/20 C=333
N106	4 N88 ø5.0 c/20 C=310
N107	4 N94 ø5.0 c/20 C=571
N109	4 N86 ø5.0 c/20 C=536
N107	4 N95 ø5.0 c/20 C=328
N107	4 N73 ø5.0 c/20 C=471
N107	4 N96 ø5.0 c/20 C=440
N107	4 N97 ø5.0 c/20 C=208



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:75

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

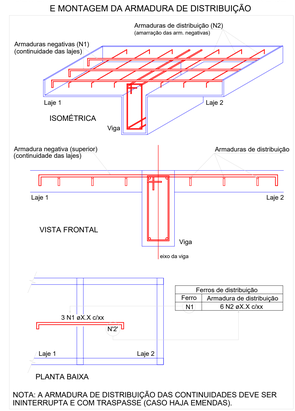
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	187	87	16269
	2	5.0	14	136	1904
	3	5.0	29	48	1392
	4	5.0	2	49	98
	5	5.0	7	447	3129
	6	5.0	11	230	2530
	7	5.0	3	220	660
	8	5.0	3	486	1458
	9	5.0	9	220	1980
	10	5.0	8	219	1752
	11	5.0	3	485	1455
	12	5.0	16	276	4416
	13	5.0	5	557	2785
	14	5.0	5	555	2775
	15	5.0	8	473	3784
	16	5.0	8	472	3776
	17	5.0	5	256	1280
	18	5.0	4	521	2084
	19	5.0	5	185	925
	20	5.0	5	254	1270
	21	5.0	4	387	1548
	22	5.0	4	608	2432
	23	5.0	4	61	244
	24	5.0	4	84	336
	25	5.0	8	233	1864
	26	5.0	8	120	960
	27	5.0	8	79	632
	28	5.0	8	238	1904
	29	5.0	4	255	1020
	30	5.0	4	291	1164
	31	5.0	4	376	1504
	32	5.0	4	303	1212
	33	5.0	4	600	2400
	34	5.0	4	135	540
	35	5.0	4	222	888
	36	5.0	4	424	1696
	37	5.0	4	366	1464
	38	5.0	4	313	1252
	39	5.0	4	120	480
	40	5.0	4	352	1408
	41	5.0	4	218	872
	42	5.0	5	235	1175
	43	5.0	5	254	1270
	44	5.0	4	391	1564
	45	5.0	4	461	1844
	46	5.0	4	207	828
	47	5.0	4	314	1256
	48	5.0	4	457	1828
	49	5.0	4	397	1588
	50	5.0	4	483	1932
	51	5.0	5	530	2650
	52	5.0	4	355	1420
	53	5.0	4	245	980
	54	5.0	4	302	1208
	55	5.0	4	233	932
	56	5.0	6	230	1380
	57	5.0	7	199	1393
	58	5.0	6	189	1134
	59	5.0	3	221	663
	60	5.0	4	468	1872
	61	5.0	4	465	1860
	62	5.0	5	91	455
	63	5.0	5	489	2445
	64	5.0	4	450	1800
	65	5.0	8	320	2560
	66	5.0	4	74	296
	67	5.0	4	66	264
	68	5.0	3	184	552
	69	5.0	7	225	1575
	70	5.0	4	255	1020
	71	5.0	4	488	1952
	72	5.0	8	475	3800
	73	5.0	8	471	3768
	74	5.0	4	629	2516
	75	5.0	4	64	256
	76	5.0	8	268	2144
	77	5.0	4	89	356
	78	5.0	4	371	1484
	79	5.0	4	433	1732
	80	5.0	4	80	320
	81	5.0	4	377	1508
	82	5.0	4	323	1292
	83	5.0	4	236	944
	84	5.0	4	591	2364
	85	5.0	4	449	1796
	86	5.0	16	536	8576
	87	5.0	8	247	1976
	88	5.0	8	310	2480
	89	5.0	4	428	1712
	90	5.0	4	196	784
	91	5.0	8	252	2016
	92	5.0	4	259	1036
	93	5.0	4	333	1332
	94	5.0	4	571	2284
	95	5.0	4	328	1312
	96	5.0	4	440	1760
	97	5.0	4	208	832
CA50	98	8.0	72	134	9648
	99	8.0	2	240	480
	100	8.0	5	41	123
	101	8.0	225	64	14400
	102	8.0	74	79	5846
	103	8.0	56	86	4816
	104	8.0	81	75	6075
	105	8.0	76	85	6460
	106	8.0	68	75	5100
	107	8.0	1085	74	80290
	108	8.0	48	75	3600
	109	8.0	103	77	7931
	110	8.0	20	80	1600
	111	8.0	26	85	2210
	112	8.0	25	182	4550
	113	8.0	39	133	5187
	114	8.0	5	182	910
	115	8.0	3	98	294
	116	8.0	2	86	172
	117	8.0	5	146	730
	118	8.0	5	88	440
	119	8.0	24	83	1992
	120	8.0	23	78	1794
	121	8.0	51	80	4080
	122	8.0	60	399	23940
	123	8.0	24	226	5424
	124	8.0	46	230	10580
	125	8.0	54	398	21492
	126	8.0	72	234	16848
	127	8.0	41	546	22386
	128	8.0	10	257	2570
	129	8.0	18	259	4662
	130	8.0	10	263	2630
	131	8.0	30	498	14940
	132	8.0	10	248	2480
	133	8.0	3	259	777
	134	8.0	20	497	9940
	135	8.0	3	253	759
	136	8.0	8	252	2016
	137	8.0	22	499	10978

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	3212.6	1267.6
CA60	5.0	1748.7	269.5
PESO TOTAL (kg)			
CA50	1267.6		
CA60	269.5		

Volume de concreto (C-35) = 100.77 m³
Área de forma = 126.20 m²

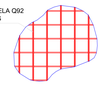
DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
83.169.625/0001-13

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENG° CIVIL, FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	EX_MED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR(4)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 45/76

FERCON ENGENHARIA | CREA: nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc. | CEP 88010-340 | Fone: (47) 9671-8013 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutural com Concreto Armado (NBR 6118:2023)
SEI 25.0.200003-9 pag. 45
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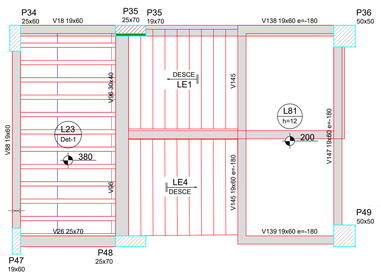
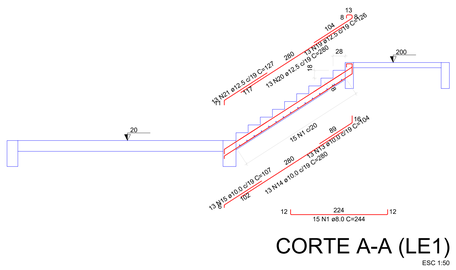
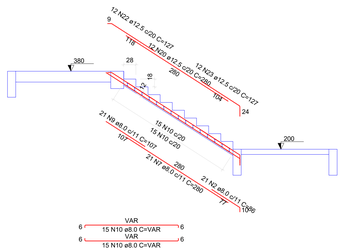




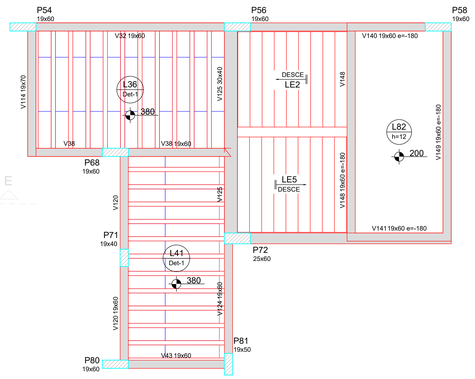
CORTE A-A (LE1)

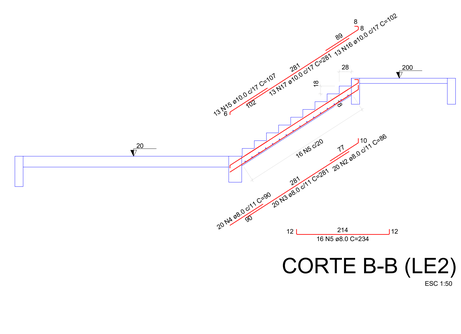
ESC 1:50



CORTE D-D (LE4)

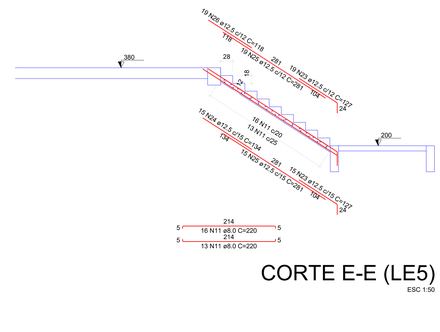
ESC 1:50





CORTE B-B (LE2)

ESC 1:50



CORTE E-E (LE5)

ESC 1:50

RELAÇÃO DO AÇO

LE1
LE4

LE2
LE5

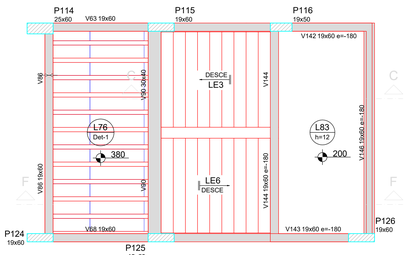
LE3
LE6

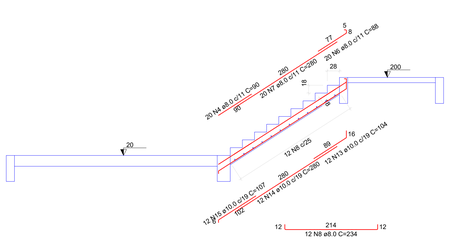
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	8.0	15	244	3660
	2	8.0	41	86	3526
	3	8.0	20	281	5620
	4	8.0	40	90	3600
	5	8.0	16	234	3744
	6	8.0	20	88	1760
	7	8.0	41	280	11480
	8	8.0	12	234	2808
	9	8.0	21	107	2247
	10	8.0	30	VAR	VAR
	11	8.0	29	220	6380
	12	8.0	30	221	6630
	13	10.0	44	104	4576
	14	10.0	44	280	12320
	15	10.0	38	107	4066
	16	10.0	13	102	1326
	17	10.0	13	281	3653
	18	10.0	19	119	2261
	19	12.5	13	126	1638
	20	12.5	41	280	11480
	21	12.5	13	127	1651
	22	12.5	28	127	3556
	23	12.5	62	127	7874
	24	12.5	15	134	2010
	25	12.5	34	281	9554
	26	12.5	19	118	2242

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	581.8	229.5
	10.0	282	173.9
	12.5	400.1	385.4
PESO TOTAL (kg)			
CA50	788.8		

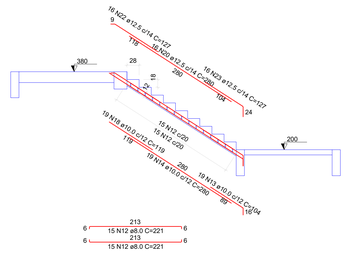
Volume de concreto (C-35) = 9.33 m³
Área de forma = 75.57 m²





CORTE C-C (LE3)

ESC 1:50



CORTE F-F (LE6)

ESC 1:50

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074
14980901
MUNICIPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345
18920
ENGº CIVIL, FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SEO_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	ESCADAS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 46/76

FERCON ENGENHARIA | CREA: nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brunnera. | CEP 89010-540 | Fone: (47) 3811-8111 | e-mail do responsável técnico deste projeto: fernando@ferconengenharia.com

Projeto Estrutural em Concreto Armado (04/2014460)
SEI 25.0.2000033-9 pag. 46

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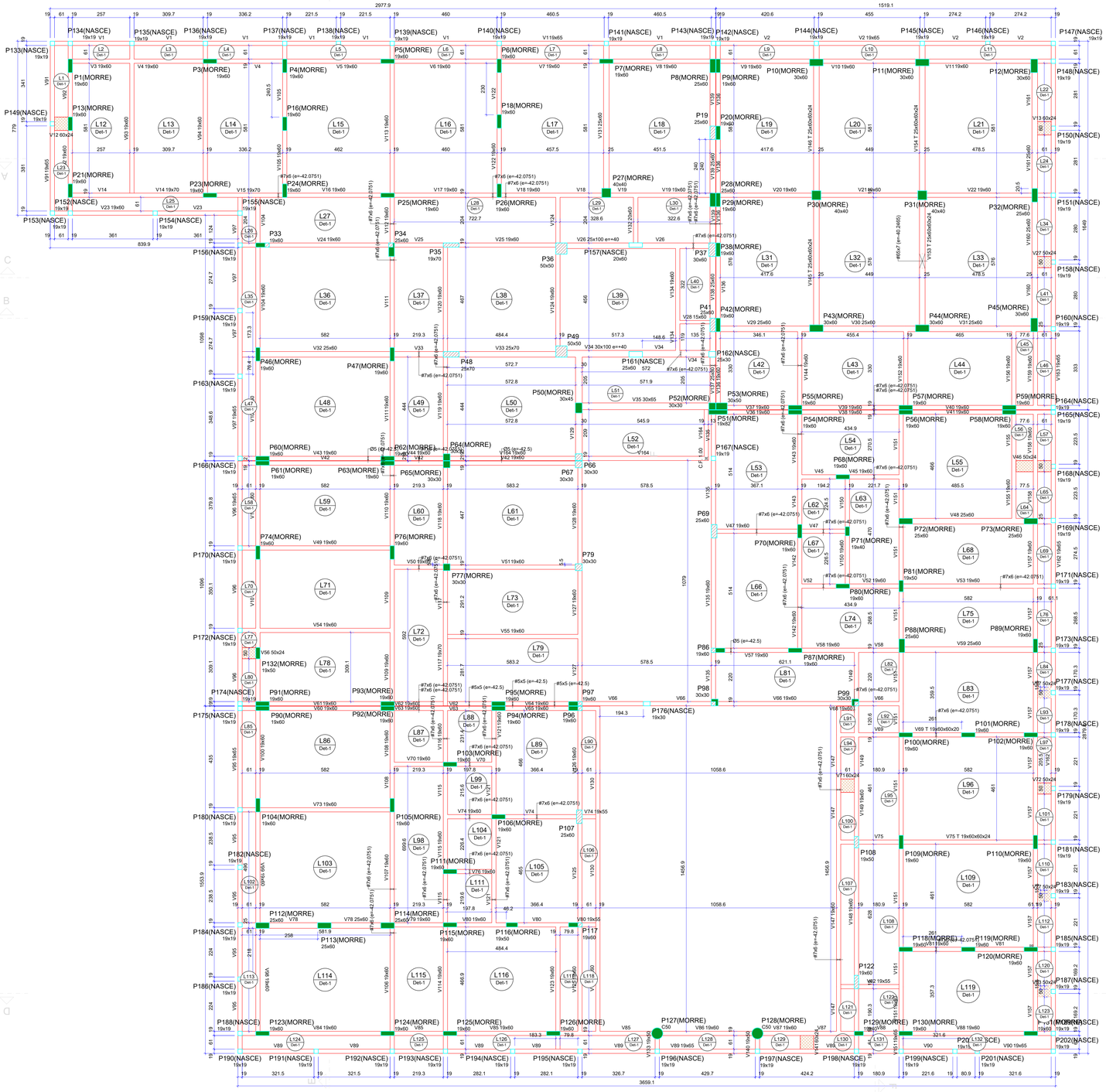

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
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P3	19x60	0	750
P4	19x60	0	750
P5	19x60	0	750
P6	19x60	0	750
P7	19x60	0	750
P8	25x60	0	750
P9	19x60	0	750
P10	30x60	0	750
P11	30x60	0	750
P12	30x60	0	750
P13	19x60	0	750
P16	19x60	0	750
P18	19x60	0	750
P19	25x60	0	750
P20	19x60	0	750
P21	19x60	0	750
P23	19x60	0	750
P24	19x60	0	750
P25	19x60	0	750
P26	19x60	0	750
P27	40x40	0	750
P28	25x60	0	750
P29	19x60	0	750
P30	40x40	0	750
P31	40x40	0	750
P32	25x60	0	750
P33	19x60	0	750
P34	25x60	0	750
P35	19x70	0	750
P36	50x50	0	750
P37	30x60	0	750
P38	19x60	0	750
P41	25x60	0	750
P42	19x60	0	750
P43	30x60	0	750
P44	30x60	0	750
P45	30x60	0	750
P46	19x60	0	750
P47	19x60	0	750
P48	25x70	0	750
P49	50x50	0	750
P50	30x45	0	750
P51	19x82	0	750
P52	30x30	0	750
P53	30x60	0	750
P54	19x60	0	750
P55	19x60	0	750
P56	19x60	0	750
P57	19x60	0	750
P58	19x60	0	750
P59	19x60	0	750
P60	19x60	0	750
P61	19x60	0	750
P62	19x60	0	750
P63	19x60	0	750
P64	30x30	0	750
P65	30x30	0	750
P66	30x30	0	750
P67	30x30	0	750
P68	19x60	0	750
P69	25x60	0	750
P70	19x60	0	750
P71	19x40	0	750
P72	25x60	0	750
P73	25x60	0	750
P74	19x60	0	750
P75	30x30	0	750
P76	19x60	0	750
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P128	Circ 50	0	750
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P158	19x19	0	750
P159	19x19	0	750
P160	19x19	0	750
P161	25x60	0	750
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P166	19x19	0	750
P167	19x19	0	750
P168	19x19	0	750
P169	19x19	0	750
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P171	19x19	0	750
P172	19x19	0	750
P173	19x19	0	750
P174	19x19	0	750
P175	19x19	0	750
P176	19x30	0	750
P177	19x19	0	750
P178	19x19	0	750
P179	19x19	0	750
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P193	19x19	0	750
P194	19x19	0	750
P195	19x19	0	750
P196	19x19	0	750
P197	19x19	0	750
P198	19x19	0	750
P199	19x19	0	750
P200	19x19	0	750
P201	19x19	0	750
P202	19x19	0	750

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x65	0	750
V2	19x65	0	750
V3	19x60	0	750
V4	19x60	0	750
V5	19x60	0	750
V6	19x60	0	750
V7	19x60	0	750
V8	19x60	0	750
V9	19x60	0	750
V10	19x60	0	750
V11	19x60	0	750
V12	60x24	0	750
V13	60x24	0	750
V14	19x70	0	750
V15	19x70	0	750
V16	19x60	0	750
V17	19x60	0	750
V18	19x60	0	750
V19	19x60	0	750
V20	19x60	0	750
V21	19x60	0	750
V22	19x60	0	750
V23	19x60	0	750
V24	19x60	0	750
V25	19x60	0	750
V26	25x100	40	790
V27	50x24	0	750
V28	15x60	0	750
V29	25x60	0	750
V30	25x60	0	750
V31	25x60	0	750
V32	25x60	0	750
V33	25x70	0	750
V34	30x100	40	790
V35	30x65	0	750
V36	19x60	0	750
V37	19x60	0	750
V38	19x60	0	750
V39	19x60	0	750
V40	19x60	0	750
V41	19x60	0	750
V42	19x60	0	750
V43	19x60	0	750
V44	19x60	0	750
V45	19x60	0	750
V46	50x24	0	750
V47	19x60	0	750
V48	25x60	0	750
V49	19x60	0	750
V50	19x60	0	750
V51	19x60	0	750
V52	19x60	0	750
V53	19x60	0	750
V54	19x60	0	750
V55	19x60	0	750
V56	50x24	0	750
V57	19x60	0	750
V58	19x60	0	750
V59	25x60	0	750
V60	19x60	0	750
V61	19x60	0	750
V62	19x60	0	750
V63	19x60	0	750
V64	19x60	0	750
V65	19x60	0	750
V66	19x60	0	750
V67	50x24	0	750
V68	19x60	0	750
V69	T 19x60x60x20	0	750
V70	19x60	0	750
V71	60x24	0	750
V72	50x24	0	750
V73	19x60	0	750
V74	19x60	0	750
V75	T 19x60x60x24	0	750
V76	19x60	0	750
V77	50x24	0	750
V78	25x60	0	750
V79	19x60	0	750
V80	19x60	0	750
V81	19x60	0	750
V82	19x55	0	750
V83	50x24	0	750
V84	19x60	0	750
V85	19x60	0	750
V86	19x60	0	750
V87	19x60	0	750
V88	19x60	0	750
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V91	19x65	0	750
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V100	19x60	0	750
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V113	19x60	0	750
V114	19x60	0	750
V115	19x60	0	750
V116	19x60	0	750
V117	19x70	0	750
V118	19x60	0	750
V119	19x60	0	750
V120	19x60	0	750
V121	19x60	0	750
V122	19x60	0	750
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V131	25x60	0	750
V132	20x60	0	750
V133	19x50	0	750
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V136	19x60	0	750
V137	25x80	0	750
V138	25x60	0	750
V139	25x60	0	750
V140	19x50	0	750
V141	60x24	0	750
V142	19x60	0	750
V143	19x60	0	750
V144	19x60	0	750
V145	T 25x60x60x24	0	750
V146	T 25x60x60x24	0	750
V147	19x60	0	750
V148	19x60	0	750
V149	19x60	0	750
V150	19x60	0	750
V151	19x65	0	750
V152	19x60	0	750
V153	T 25x60x60x24	0	750
V154	T 25x60x60x24	0	750
V155	19x60	0	750
V156	19x60	0	750
V157	19x60	0	750
V158	19x60	0	750
V159	19x60	0	750
V160	25x60	0	750
V161	25x60	0	750
V162	19x65	0	750
V163	19x65	0	750
V164	19x60	0	750

Lajes

Nome	Tipo	Dados: Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Sobrecarga (kgf/m²): Adicional	Acidental	Localizada
L1	Vigota protendida	25	0	750	241	100	80	-
L2	Vigota protendida	25	0	750	241	100	80	-
L3	Vigota protendida	25	0	750	241	100	80	-
L4	Vigota protendida	25	0	750	241	100	80	-
L5	Vigota protendida	25	0	750	241	100	80	-
L6	Vigota protendida	25	0	750	241	100	80	-
L7	Vigota protendida	25	0	750	241	100	80	-
L8	Vigota protendida	25	0	750	241	100	80	-
L9	Vigota protendida	25	0	750	241	100	80	-
L10	Vigota protendida	25	0	750	241	100	80	-
L11	Vigota protendida	25	0	750	241	100	80	-
L12	Vigota protendida	25	0	750	241	100	80	-
L13	Vigota protendida	25	0	750	241	100	80	-
L14	Vigota protendida	25	0	750	241	100	80	-
L15	Vigota protendida	25	0	750	241	100	80	-
L16	Vigota protendida	25	0	750	241	100	80	-
L17	Vigota protendida	25	0	750	241	100	80	-
L18	Vigota protendida	25	0	750	241	100	80	-
L19	Vigota protendida	25	0	750	241	100	80	-
L20	Vigota protendida	25	0	750	241	100	80	-
L21	Vigota protendida	25	0	750	241	100	80	-
L22	Vigota protendida	25	0	750	241	100	80	-
L23	Vigota protendida	25	0	750	241	100	80	-
L24	Vigota protendida	25	0	750	241	100	80	-
L25	Vigota protendida	25	0	750	241	100	80	-
L26	Vigota protendida	25	0	750	241	100	80	-
L27	Vigota protendida	25	0	750	241	100	80	-
L28	Vigota protendida	25	0	750	241	100	80	-
L29	Vigota protendida	25	0	750	241	100	80	-
L30	Vigota protendida	25	0	750	241	100	80	-
L31	Vigota protendida	25	0	750	241	100	80	-
L32	Vigota protendida	25	0	750	241	100	80	-

Área de lajes

Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Vigota protendida	25	8/20/30/125	1292.80

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Legenda dos pilares

- Pilar que morre
- Pilar que passa
- Pilar que nasce
- Pilar com mudança de seção

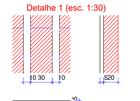
Legenda das vigas e paredes

- Viga
- Viga chata ou invertida

Blocos de enchimento

Detalhe	Tipo	Nome	Dimensões(cm) hb	bx	by	Quantidade
1	EPS Unidirecional	8/20/30/125	20	30	125	2848

Detalhe 1 (esc. 1:30)



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.169.623/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROSCH:94134518920
ENGº CIVIL FERNANDO STROSCH
CREA/SC 062522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROSCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS COBERTURA
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 47/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Blumenau | +55 (47) 3071-3411 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com

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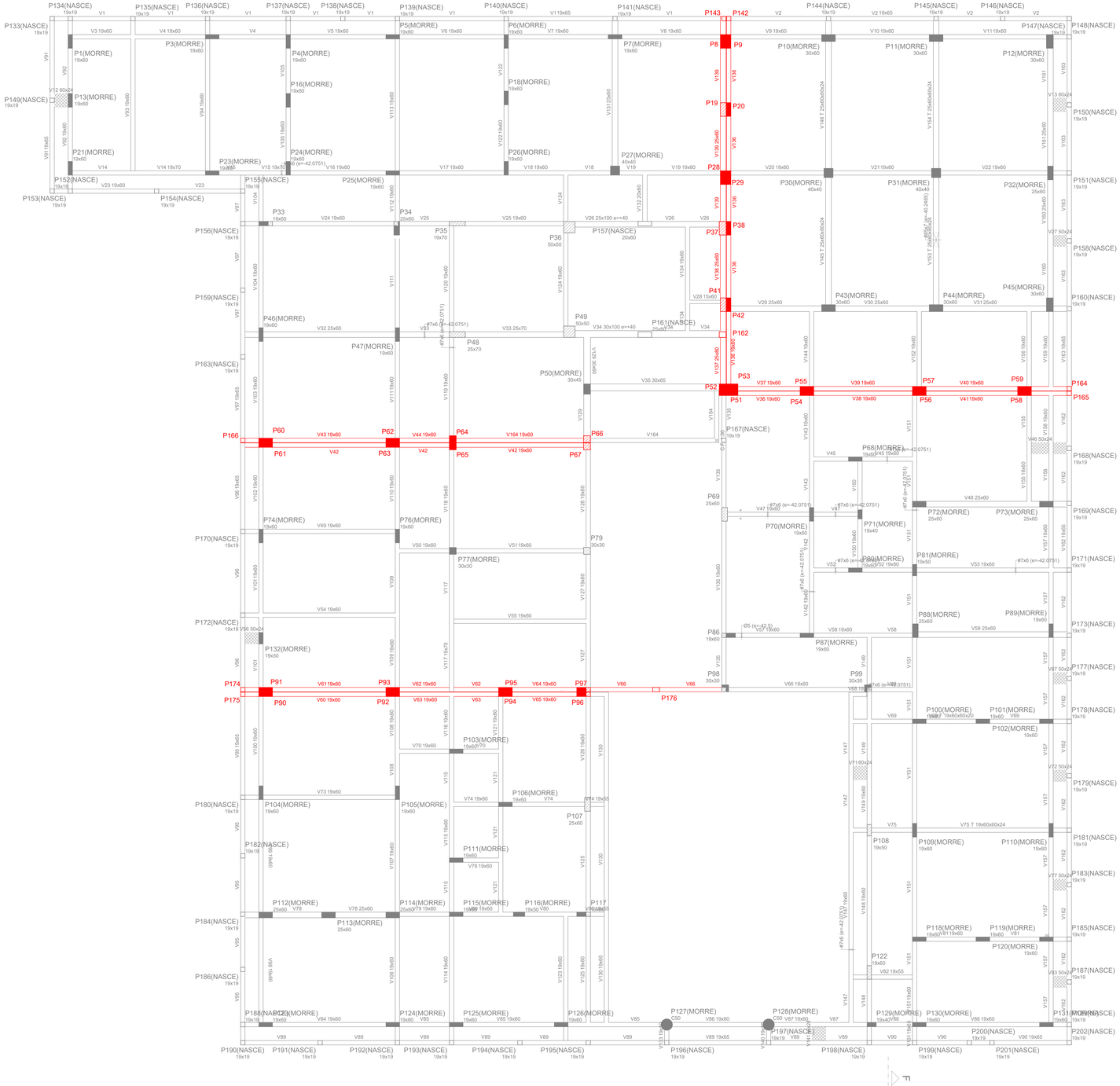

DULATAÇÕES DO PAVIMENTO COBERTURA (NÍVEL 750)

Escala 1:75

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.023/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	JUNTA DE DILATAÇÃO COBERTURA

ARQUIVO: JOI_SED_ROS_EST_EX.DWG | DATA: 02/07/2025
ETAPA: EXECUTIVO | ESCALA: INDICADA | FOLHA: **EST 48/76**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Brunerau | CEP 89010-140 | Fone: (47) 3411-2611 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com

Projeto Estrutural Armado (3047346)
SEI 25.0.200003-9 / pg. 48
2025-08-25 15:49:42, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

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=P61=P62=P63=P74=P76=P87=P89=P90=P91=P92=
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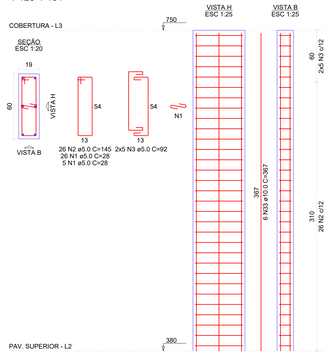

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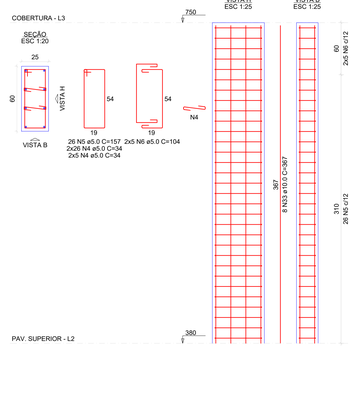

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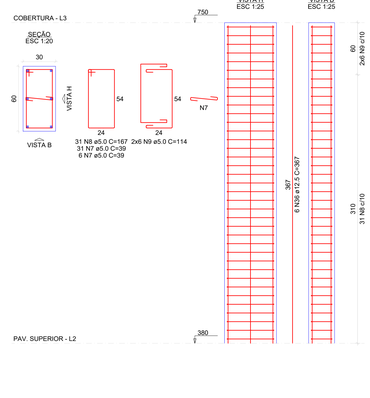

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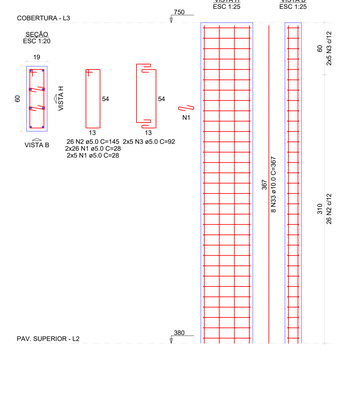

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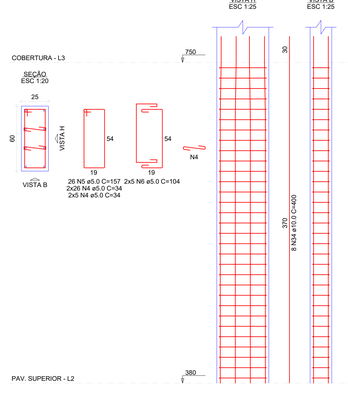

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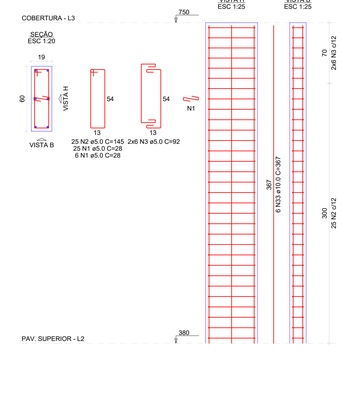

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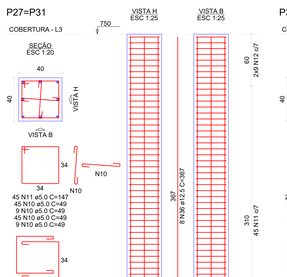

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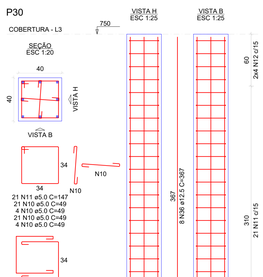

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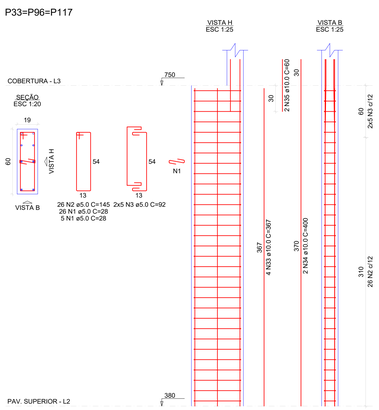

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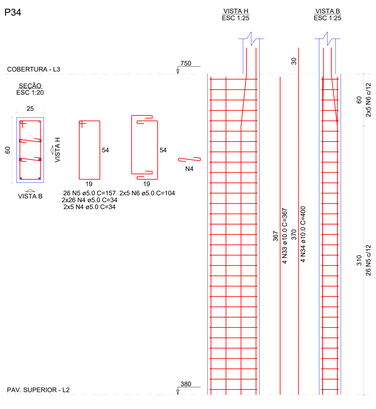

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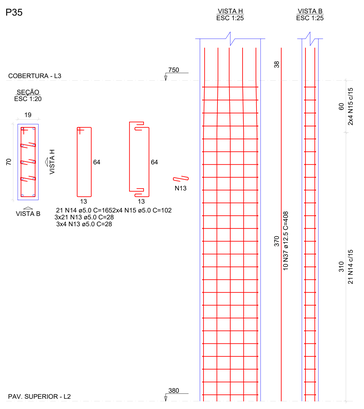

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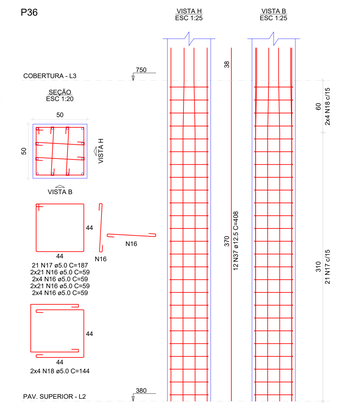

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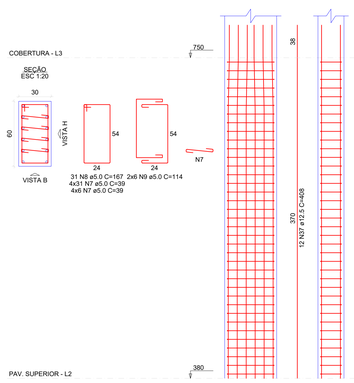

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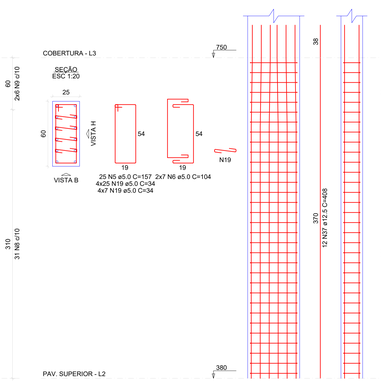

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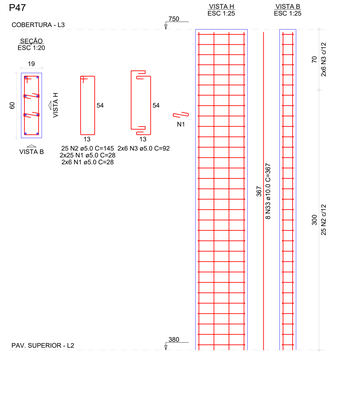

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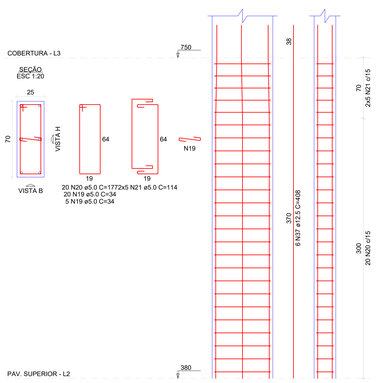

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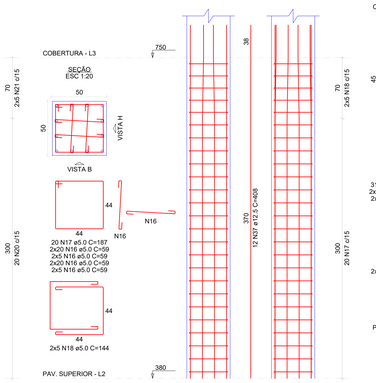

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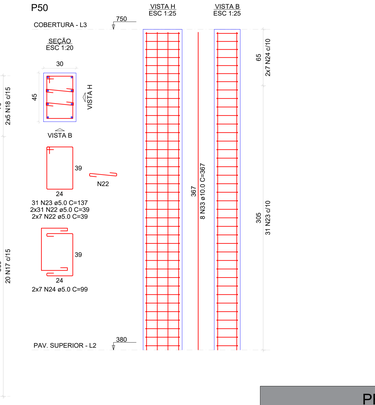

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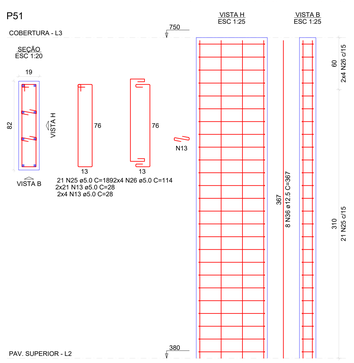

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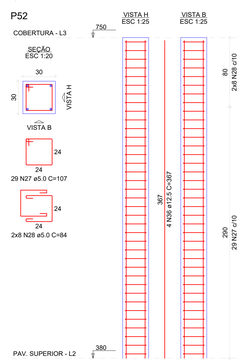

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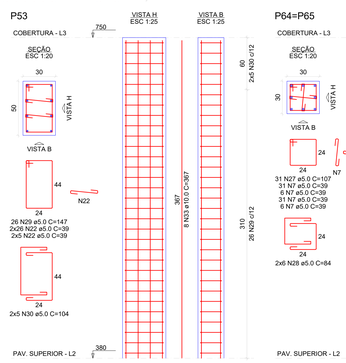

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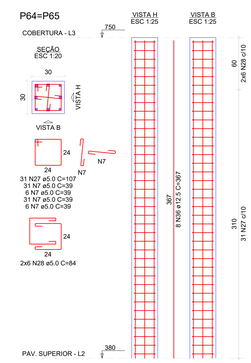

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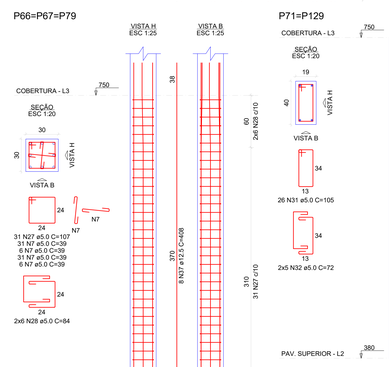

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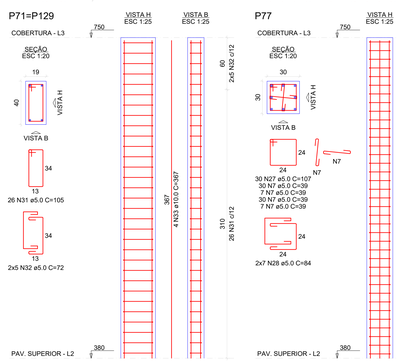

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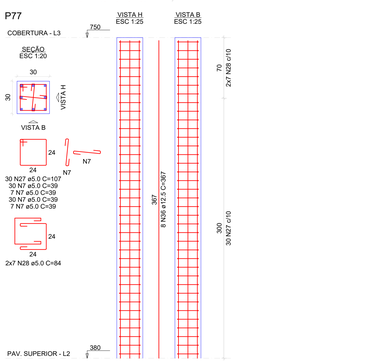

RELAÇÃO DO AÇO

50xP1
6xP13
2xP27
P34
P37
P48
P51
2xP64
P77

9xP8
3xP19
P30
P35
P41
P50
P52
3xP66

6xP10
3xP21
3xP33
P36
P47
P53
2xP71

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	2170	28	60760
	2	5.0	1634	145	236930
	3	5.0	638	92	58696
	4	5.0	806	34	27404
	5	5.0	363	157	56991
	6	5.0	144	104	14976
	7	5.0	317	167	52939
	8	5.0	214	167	35738
	9	5.0	284	114	32376
	10	5.0	356	49	17344
	11	5.0	111	147	16317
	12	5.0	44	114	5016
	13	5.0	125	28	3500
	14	5.0	21	165	3465
	15	5.0	8	102	816
	16	5.0	200	59	11800
	17	5.0	41	187	7667
	18	5.0	18	144	2592
	19	5.0	153	34	5202
	20	5.0	20	177	3540
	21	5.0	10	114	1140
	22	5.0	136	39	5382
	23	5.0	31	137	4247
	24	5.0	14	99	1386
	25	5.0	21	189	3969
	26	5.0	8	114	912
	27	5.0	214	107	22898
	28	5.0	90	84	7560
	29	5.0	26	147	3822
	30	5.0	10	104	1040
	31	5.0	52	105	5460
	32	5.0	20	72	1440
CA50	33	10.0	486	367	178362
	34	10.0	34	400	13600
	35	10.0	6	60	360
	36	12.5	96	367	35232
	37	12.5	88	408	35904

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	1923.2	1185.7
	12.5	711.2	685.3
CA60	5.0	6655.2	1025.8
PESO TOTAL (kg)			
CA50	1871		
CA60	1025.8		

Volume de concreto (C-35) = 48.30 m³
Área de forma = 607.91 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:941345 18920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES COBERTURA(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 49/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 13 - Centro - Brunerau - | CEP 89010-340 | Fone (47) 9911-8013 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com

Projeto Estrutura de Concreto Armado (NBR 6118:2023)
SEI 23.0.000033-3 pg. 49
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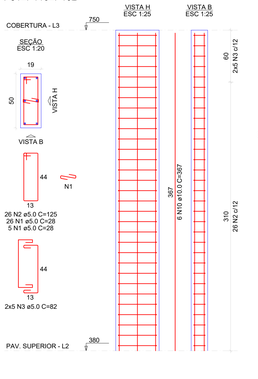

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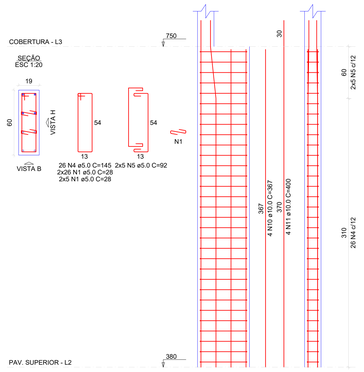

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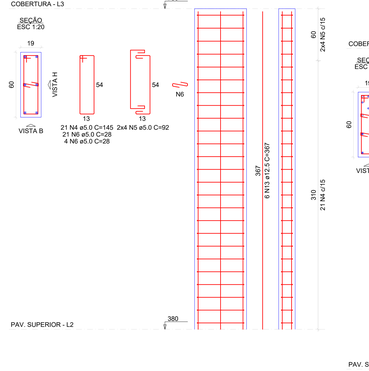

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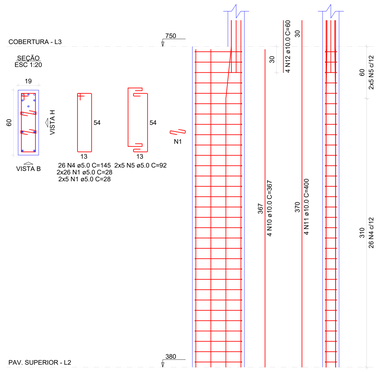

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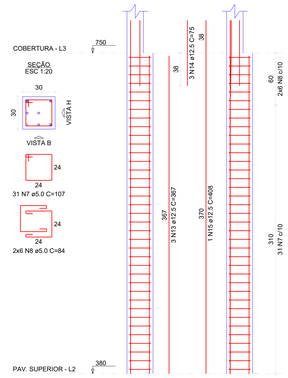

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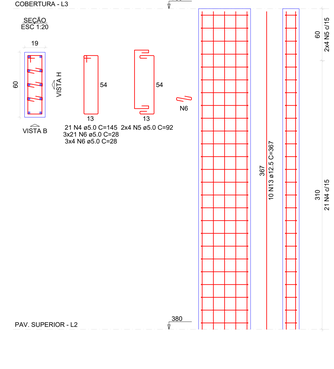

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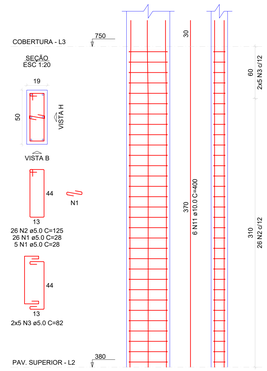

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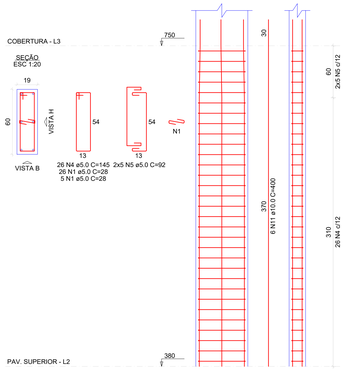

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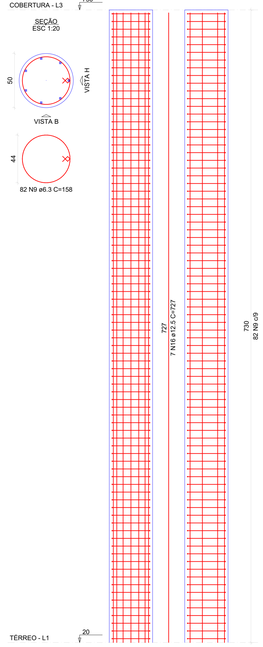

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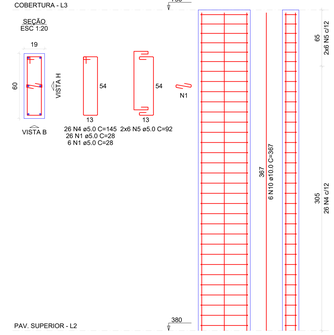


RELAÇÃO DO AÇO

3xP81
P97
P108
P130

P86
2xP98
P122

P93
2xP104
2xP127

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	311	28	8708
	2	5.0	104	125	13000
	3	5.0	40	82	3280
	4	5.0	167	145	24215
	5	5.0	66	92	6072
	6	5.0	175	28	4900
	7	5.0	62	107	6634
	8	5.0	24	84	2016
	9	6.3	164	158	25912
	10	10.0	32	367	11744
	11	10.0	20	400	8000
	12	10.0	4	60	240
	13	12.5	32	367	11744
	14	12.5	6	75	450
	15	12.5	2	408	816
	16	12.5	14	727	10178
CA50					

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	259.1	63.4
	10.0	199.8	123.2
	12.5	231.9	223.4
CA60	5.0	688.3	106.1

PESO TOTAL (kg)	
CA50	410
CA60	106.1

Volume de concreto (C-35) = 7.81 m³
Área de forma = 92.49 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

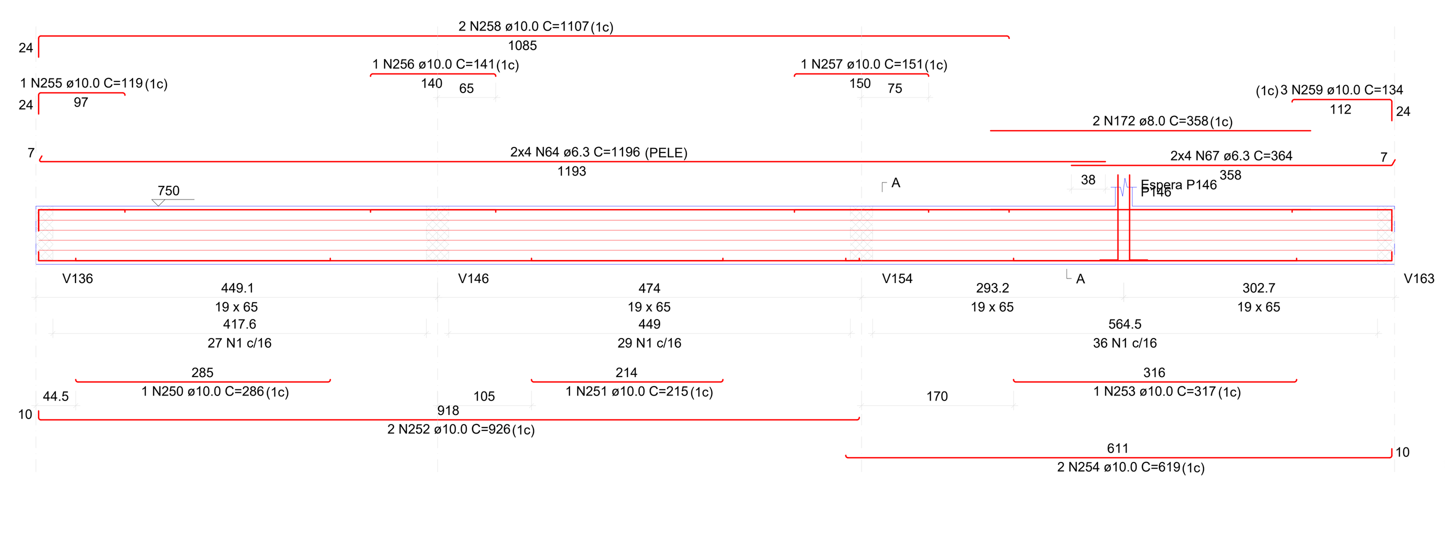
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES COBERTURA(2)
ETAPA	EXECUTIVO
FOLHA	EST 50/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA. nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 98418-8515 | e-mail de responsável técnico deste projeto: fernando@fercongenharia.com

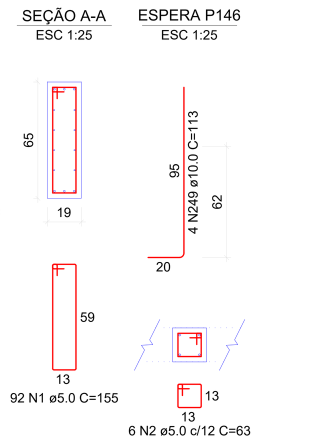
Projeto Estrutural de Concreto Armado (3647414960) - SID 25.0.2000.0-8 (rpg) - SO

V2
ESC 1:50

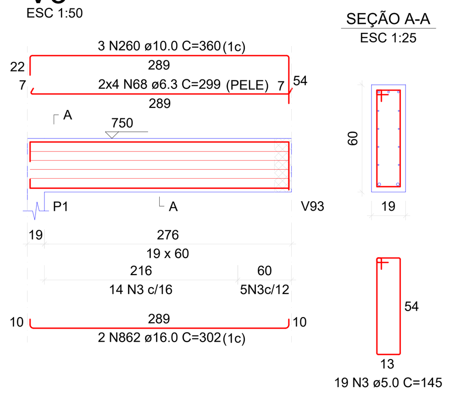


SEÇÃO A-A
ESC 1:25

ESPERA P146
ESC 1:25



V3
ESC 1:50



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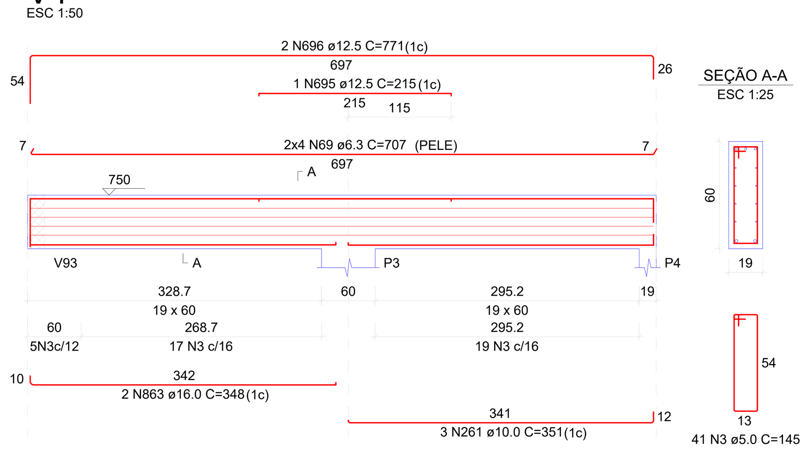
ESC 1:50



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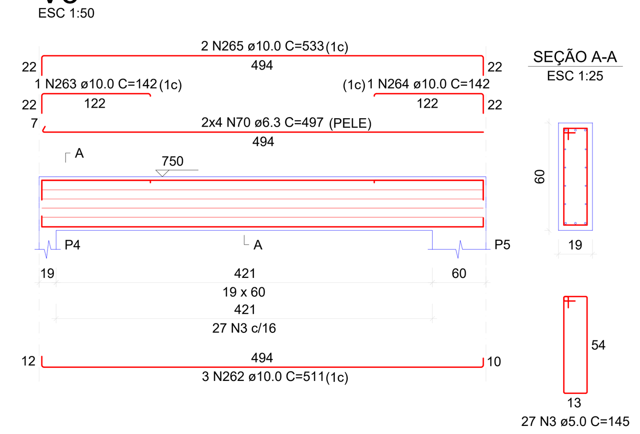

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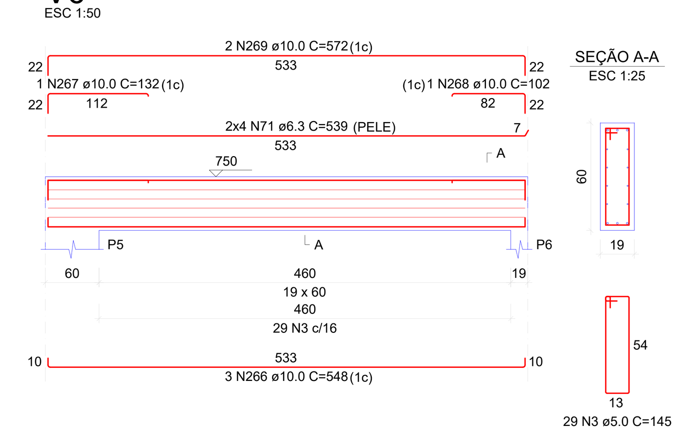

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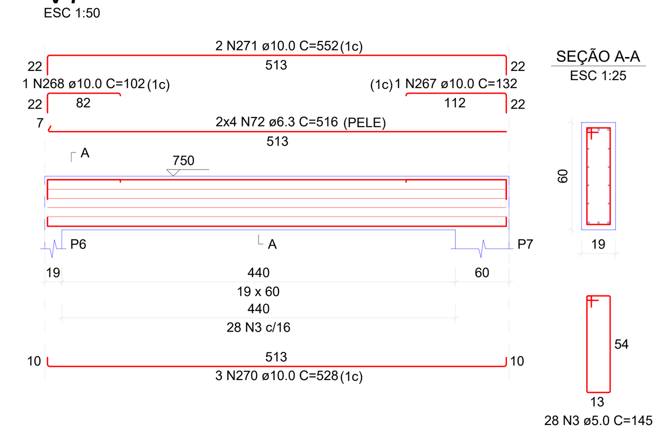
ESC 1:50



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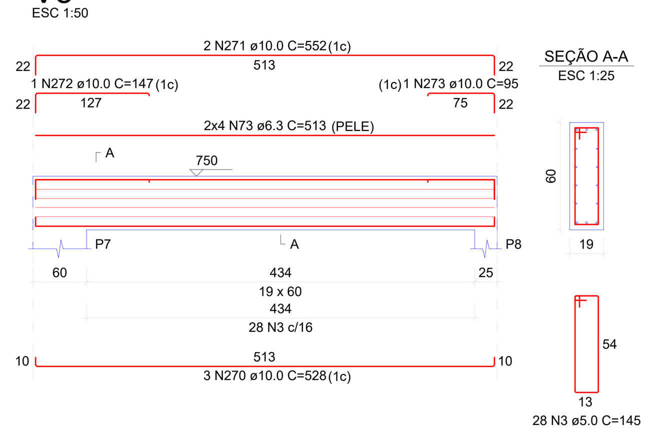
ESC 1:50



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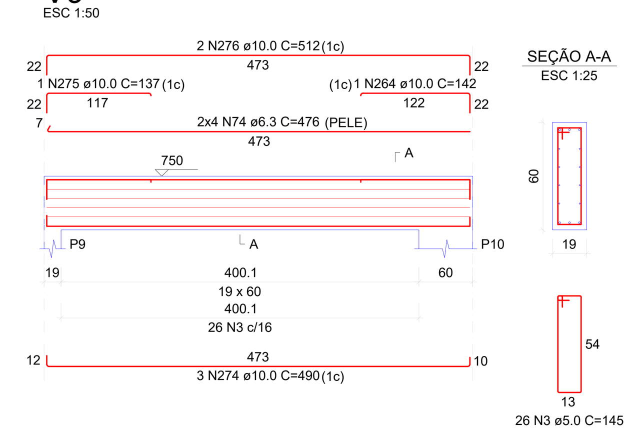
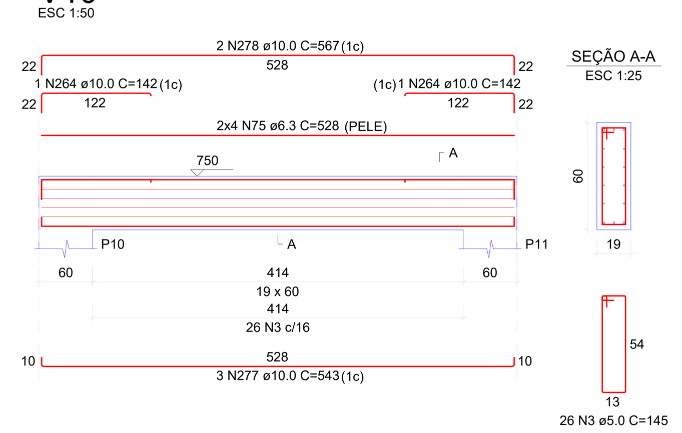
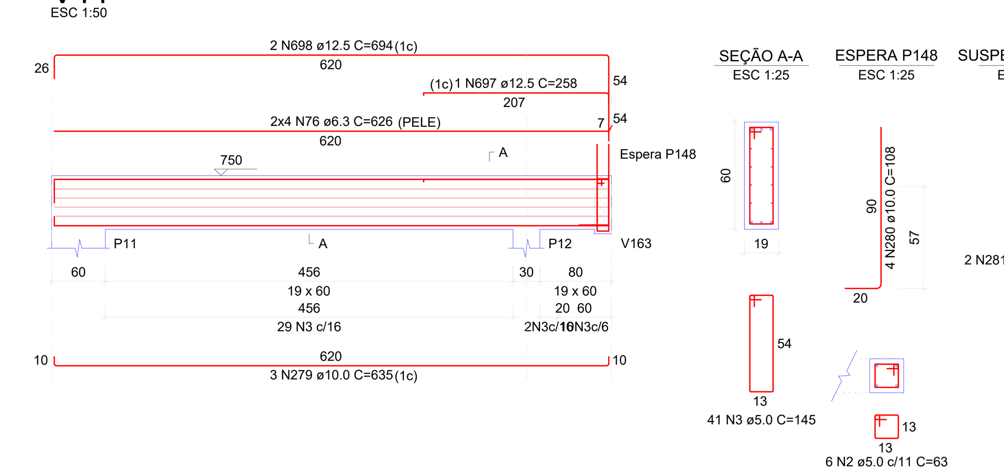


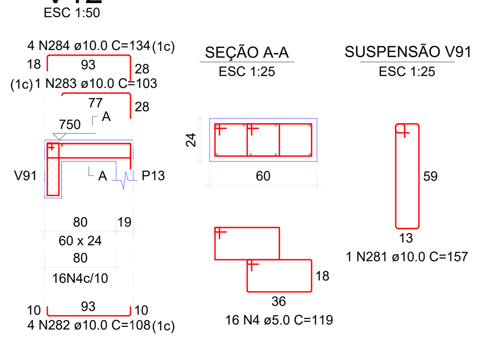
V10
ESC 1:50



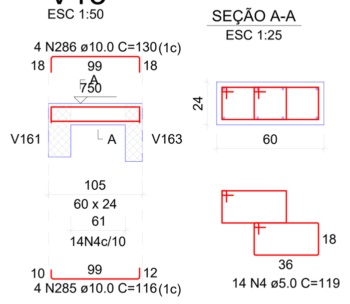
V11
ESC 1:50



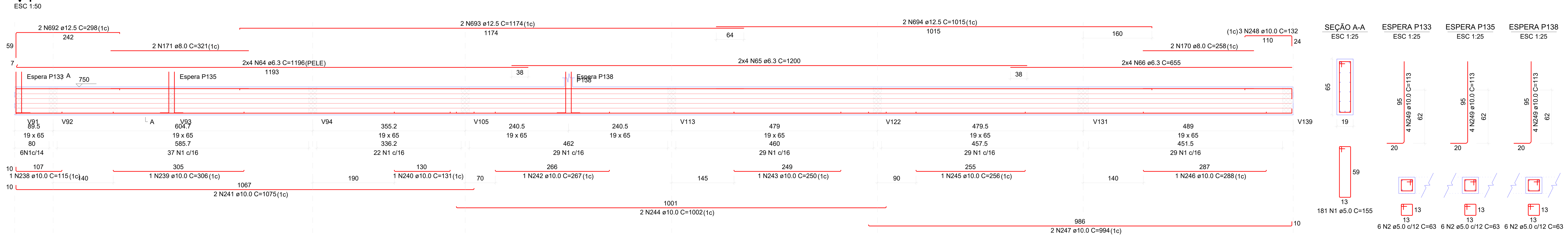
V12
ESC 1:50



V13
ESC 1:50



V1
ESC 1:50



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(1)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 51/76

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 51

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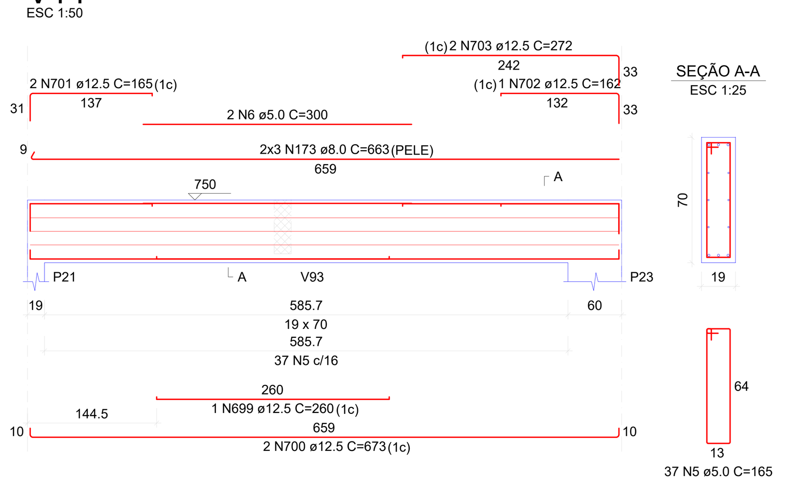

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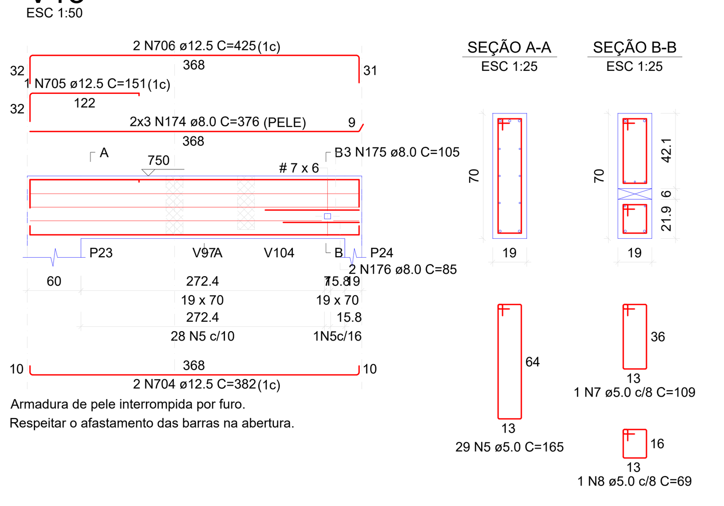

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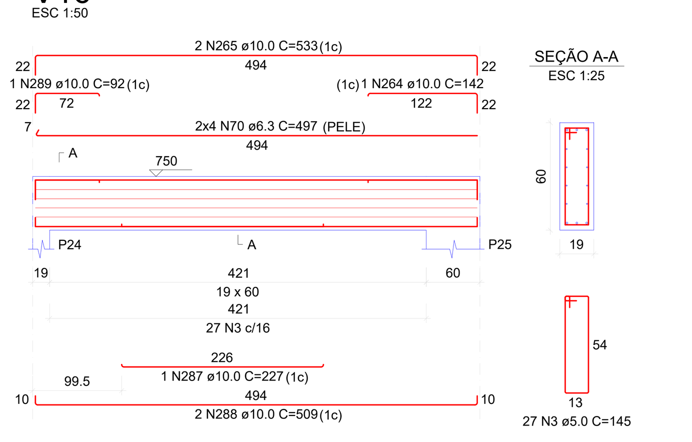

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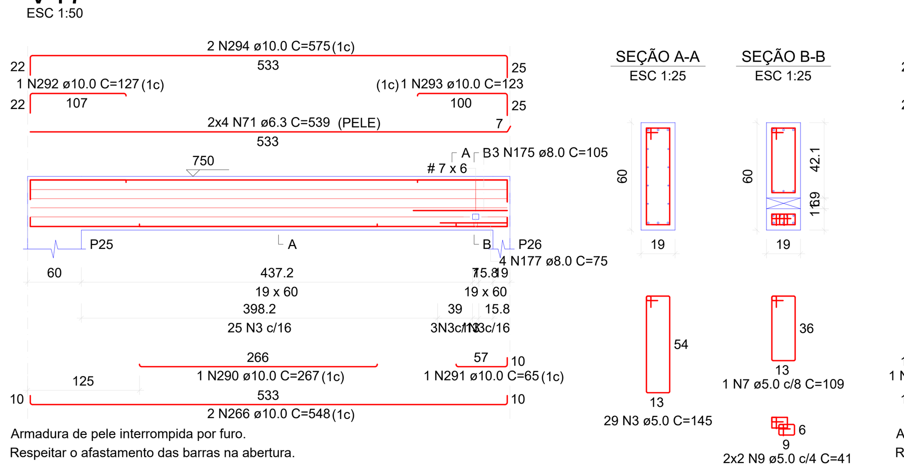

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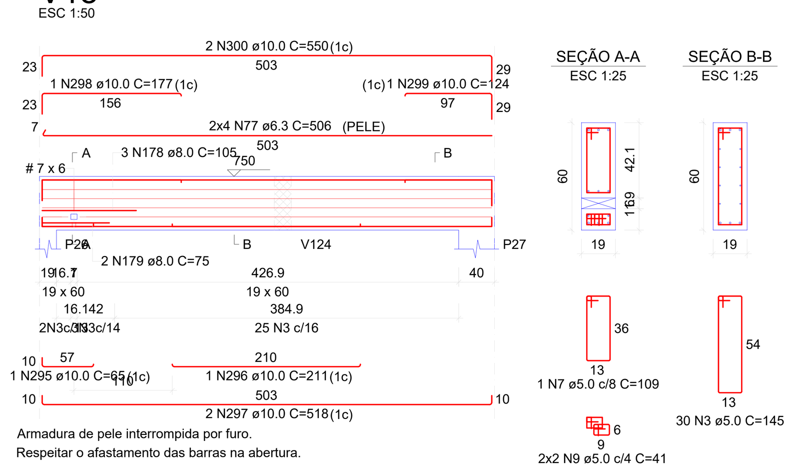

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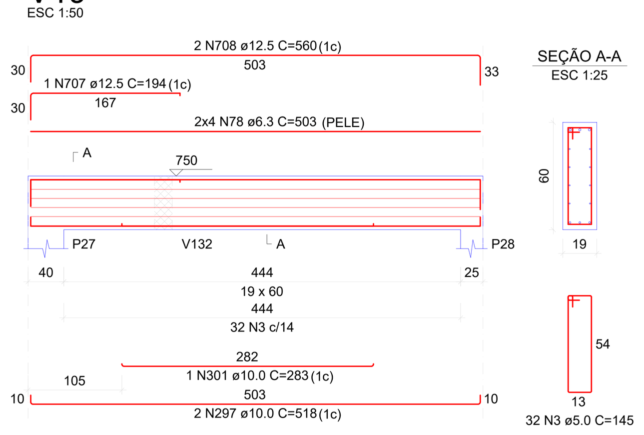

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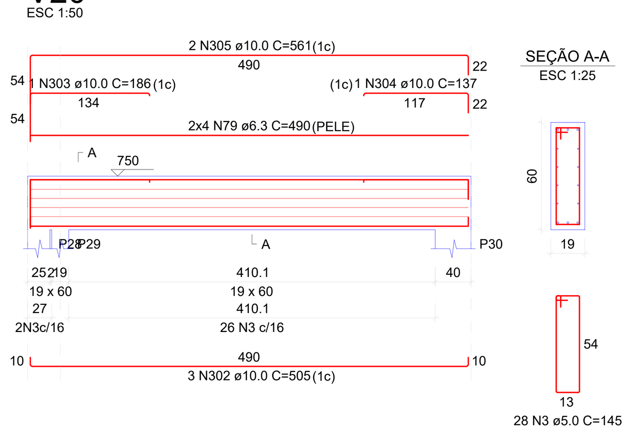

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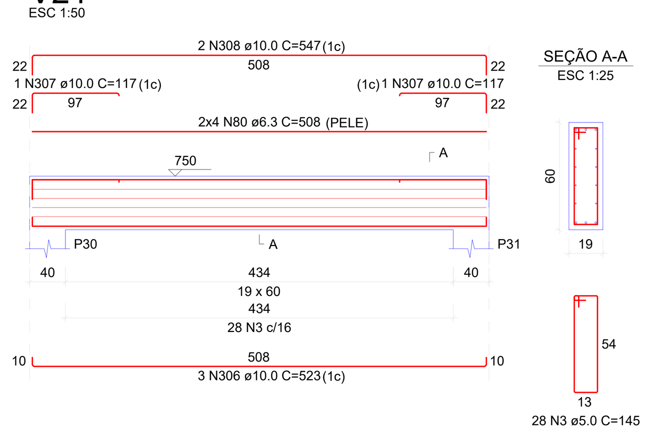

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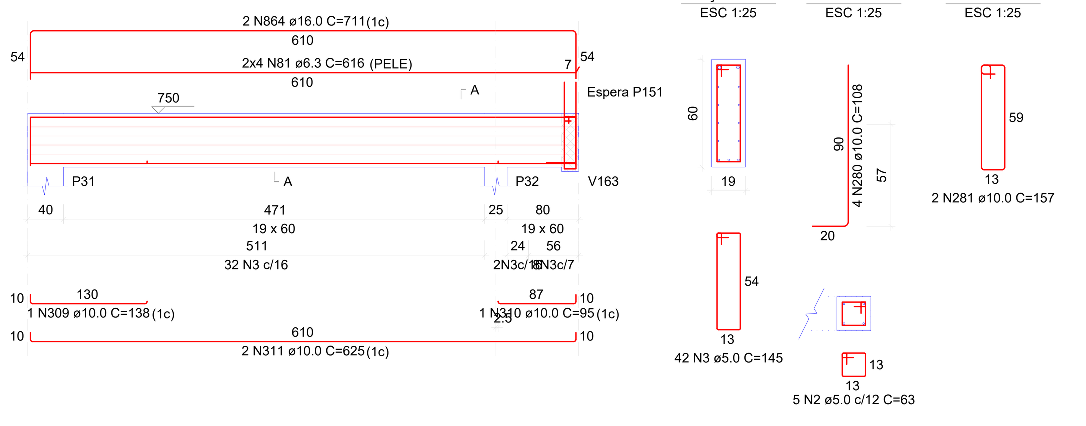

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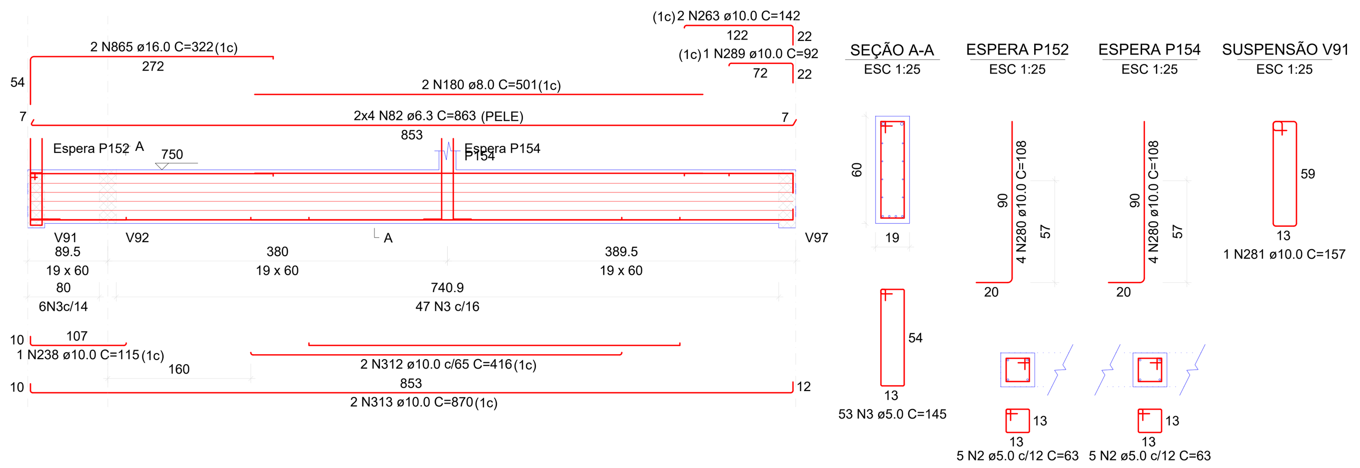

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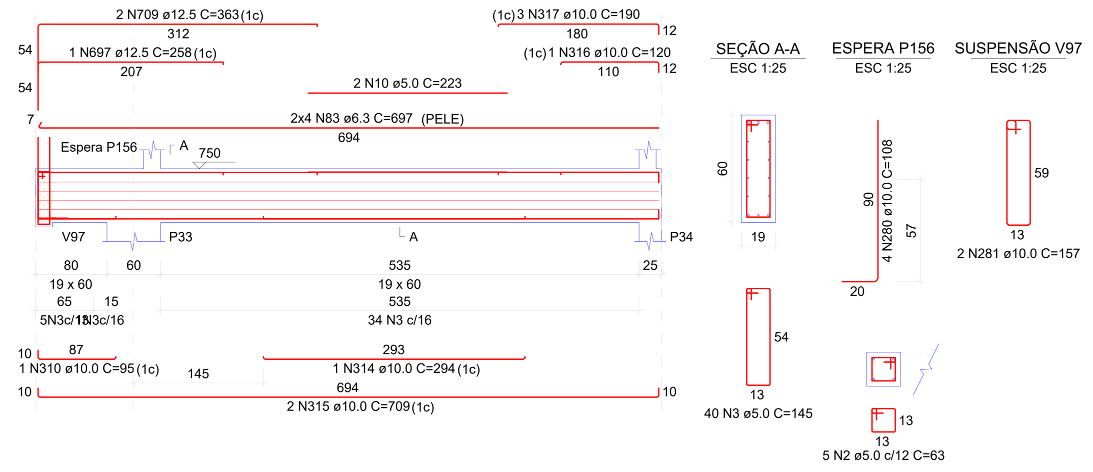

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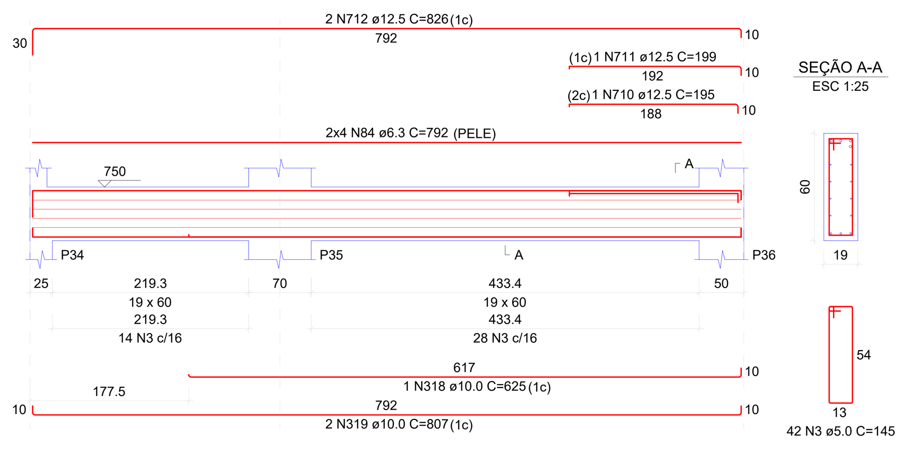
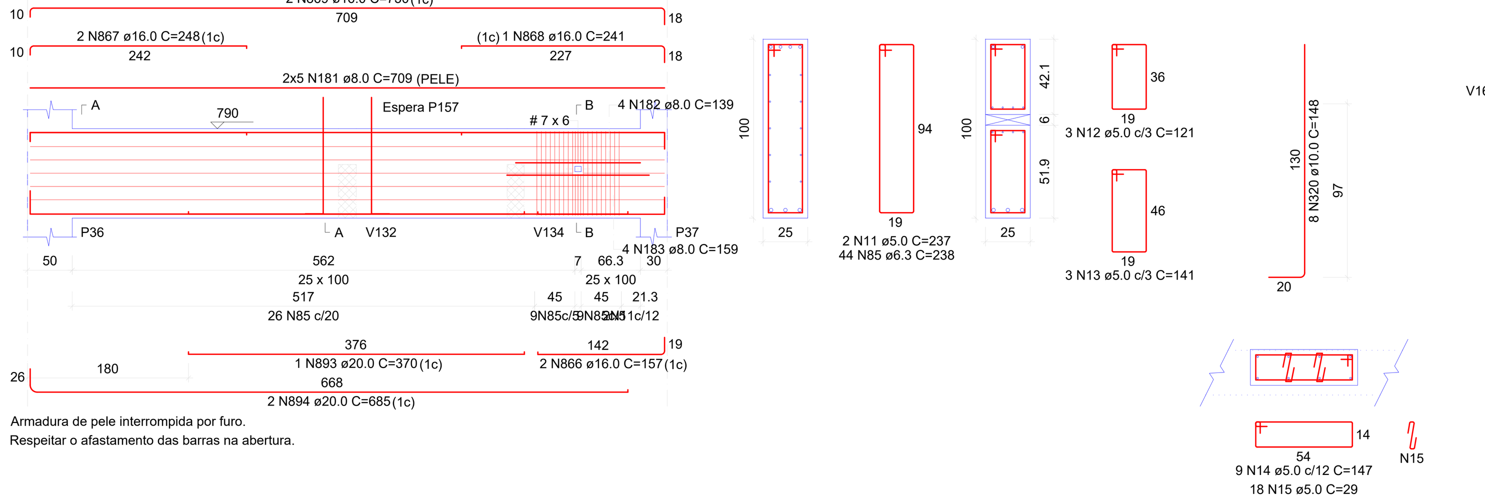
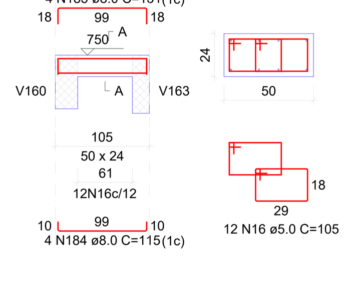


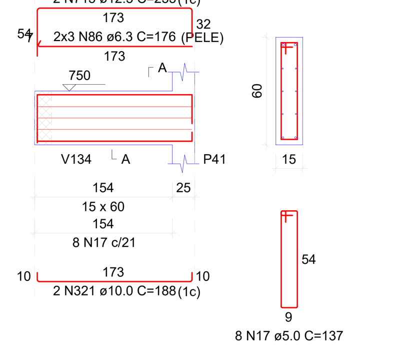
V26
ESC 1:50



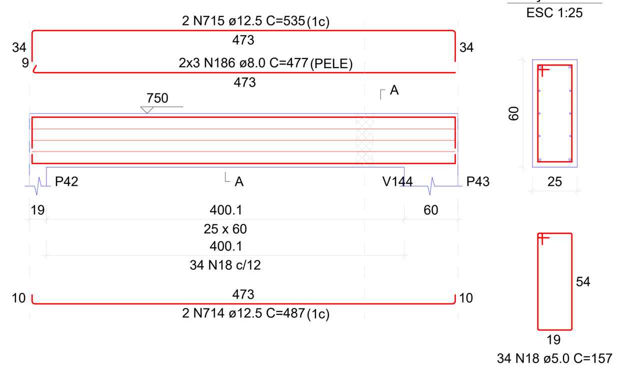
V27
ESC 1:50



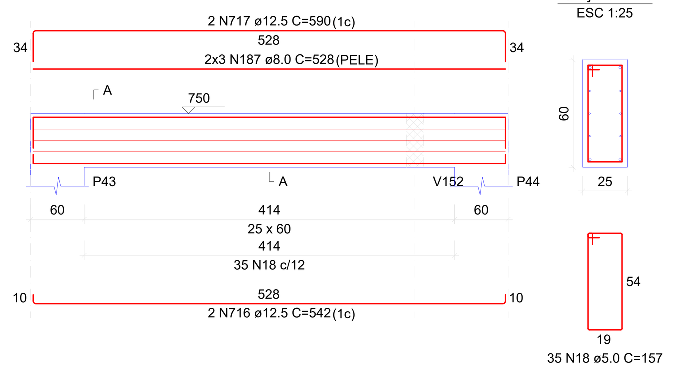
V28
ESC 1:50



V29
ESC 1:50



V30
ESC 1:50



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(2)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 52/76

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 52

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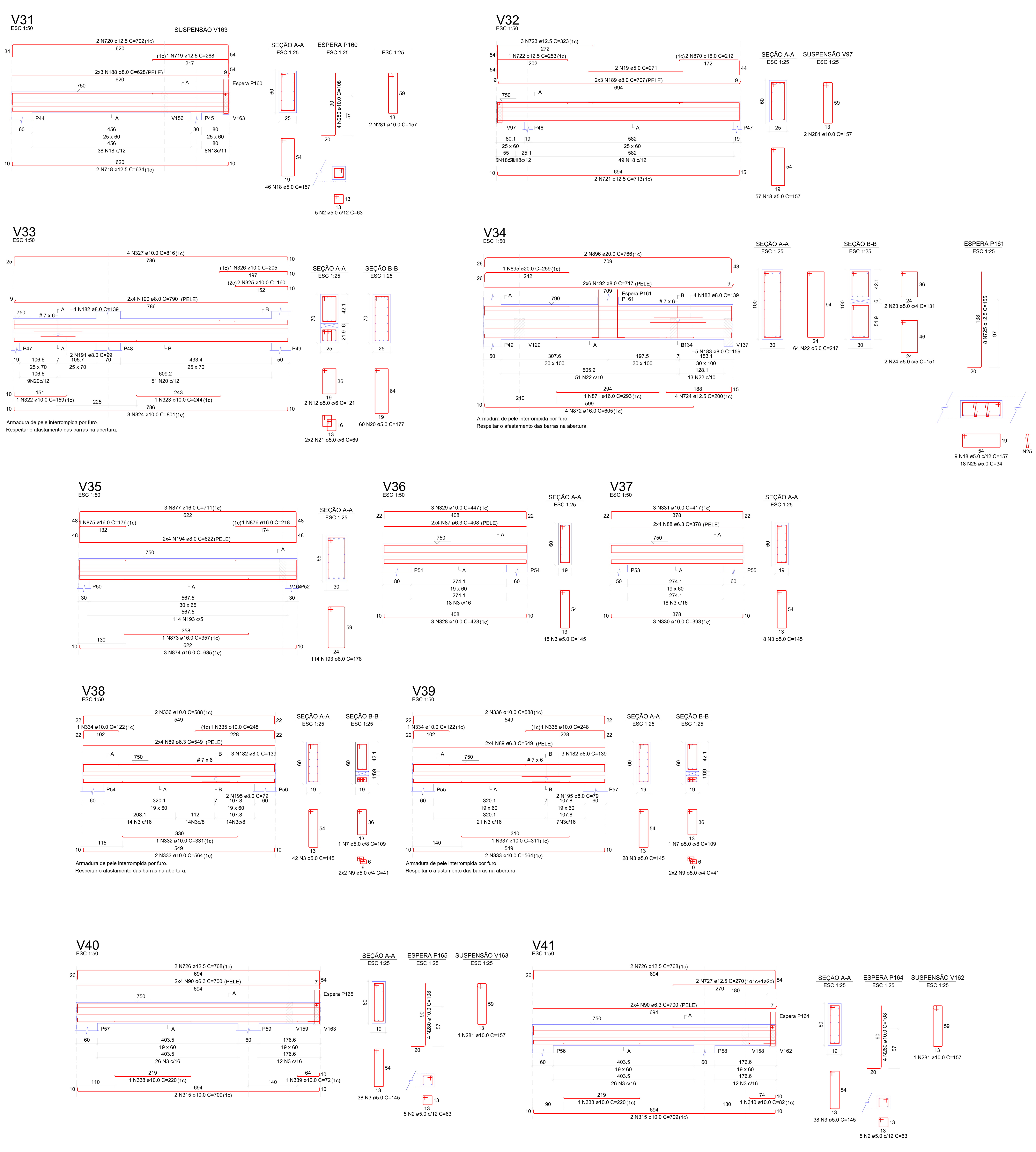

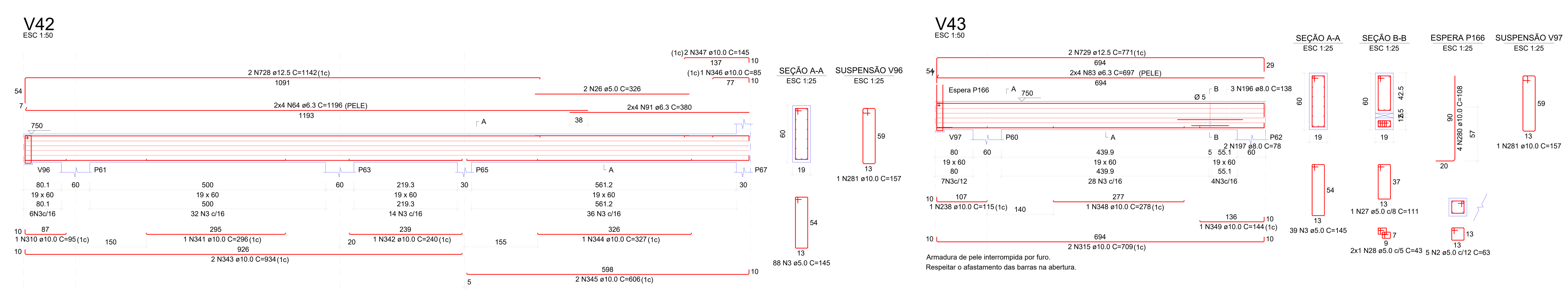

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(3)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 53/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 53
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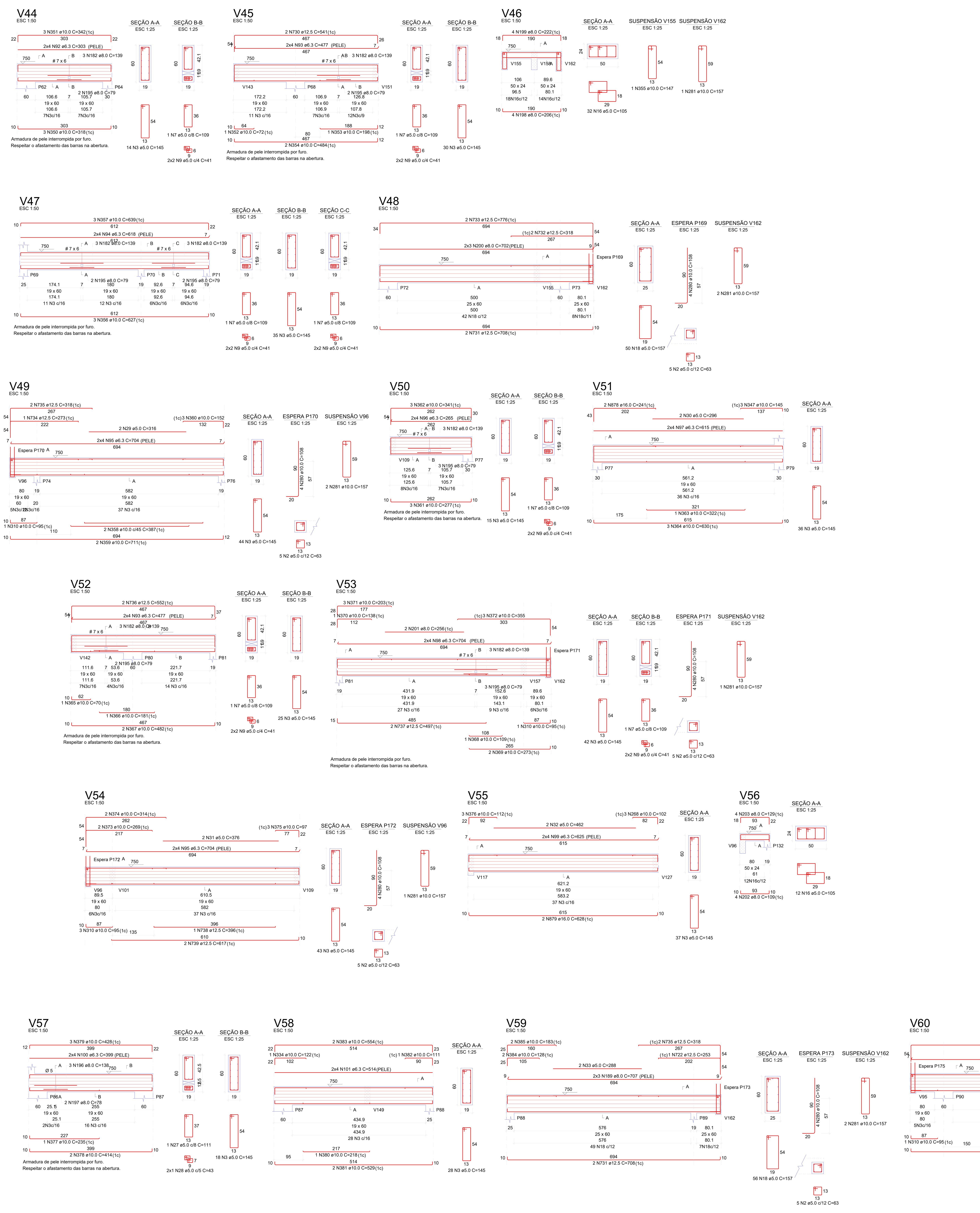


AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

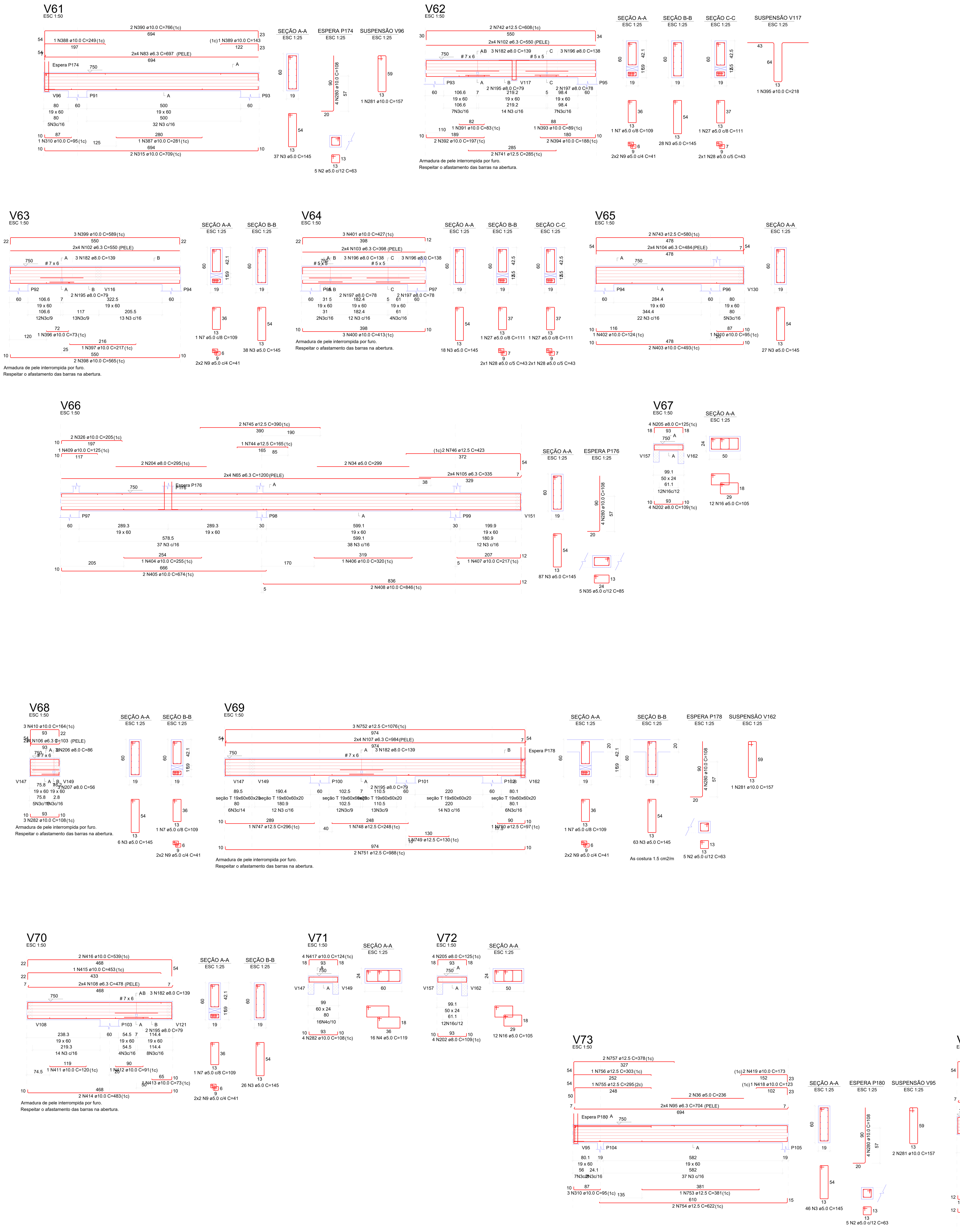
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

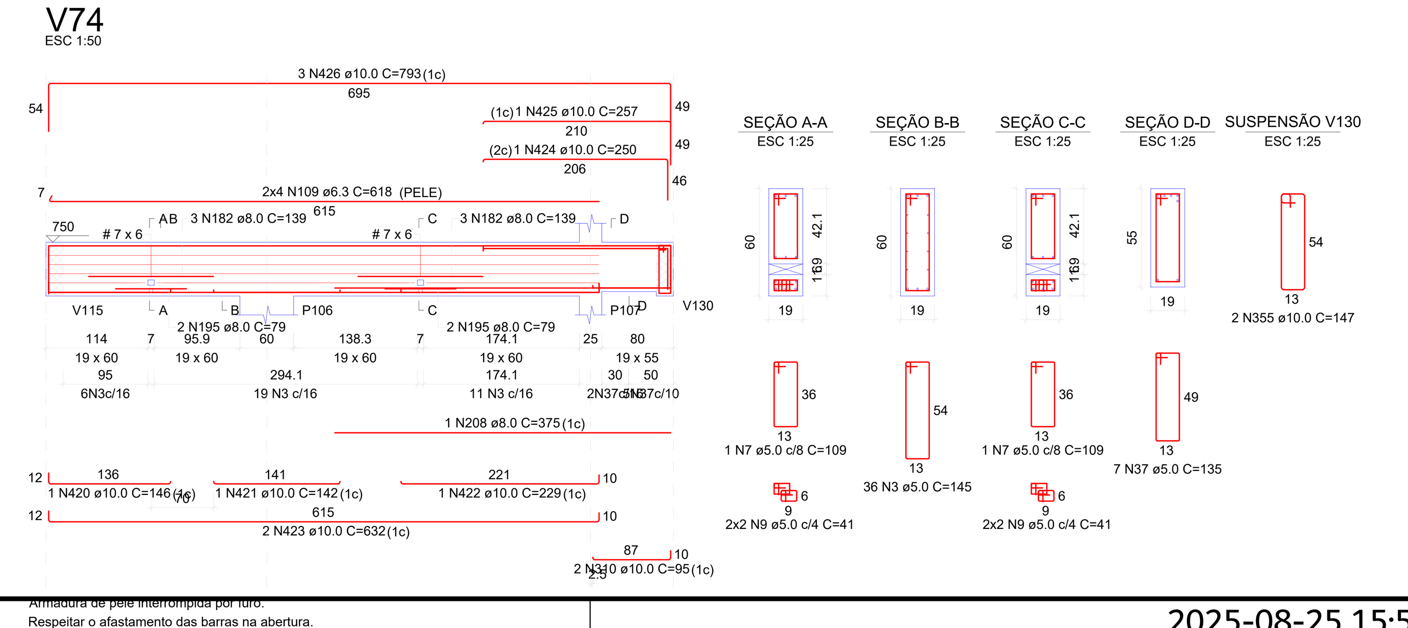
PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(4)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 54/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 54

2025-08-25 15:50:22, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)





SEÇÃO A-A ESC 1:25 — SEÇÃO B-B ESC 1:25 — SEÇÃO C-C ESC 1:25 — SEÇÃO D-D ESC 1:25 — SUSPENSÃO V130 ESC 1:25

1 N7 ø5.0 c/8 C=109 — 36 N3 ø5.0 C=145 — 1 N7 ø5.0 c/8 C=109 — 7 N37 ø5.0 C=135 — 2 N355 ø10.0 C=147

2x2 N9 ø5.0 c/4 C=41 — 2x2 N9 ø5.0 c/4 C=41

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901. Data: 2025.08.28 10:45:14-03'00'

MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — Assinado digitalmente por FERNANDO STROISCH:84134518920. Data: 2025.08.26 14:13:32-03'00'

ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

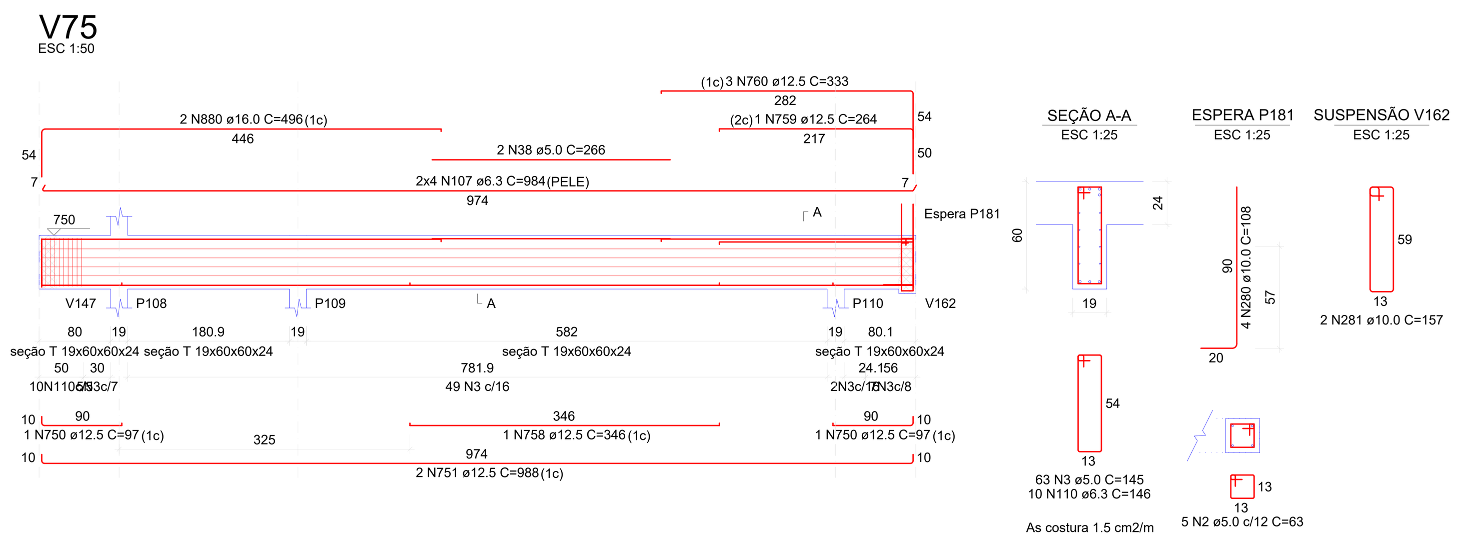
FERCON

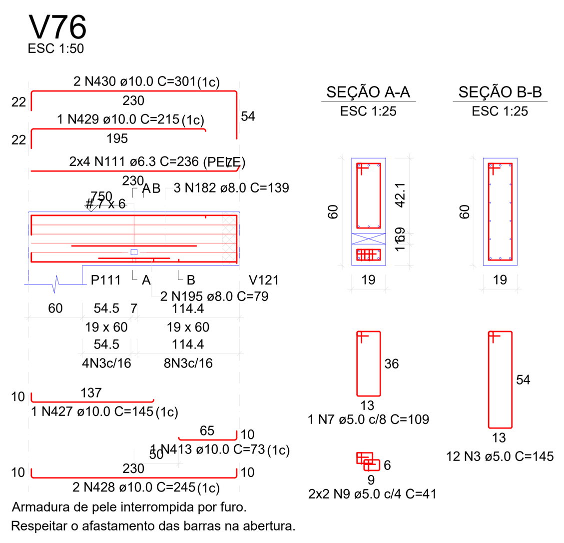
Município de Joinville

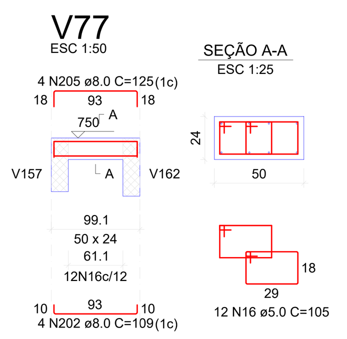
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

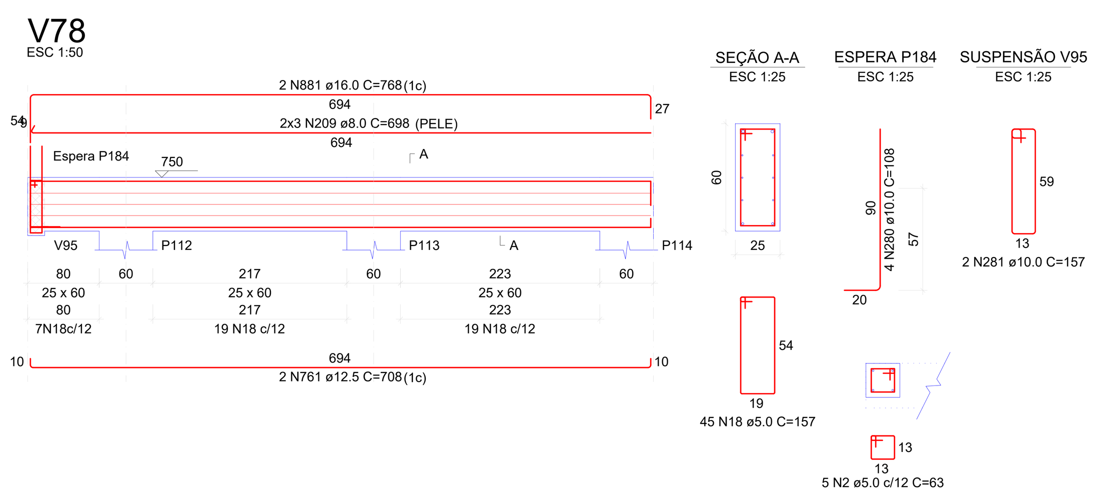
PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(5)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 55/76

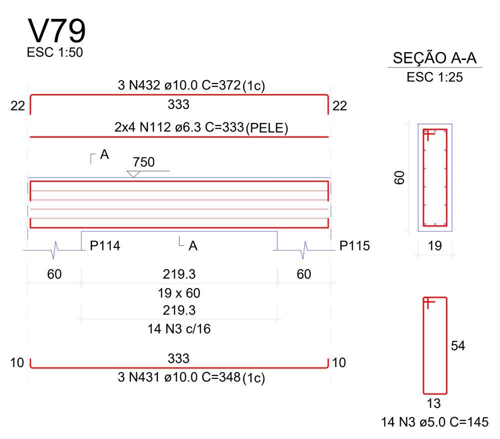
Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 55

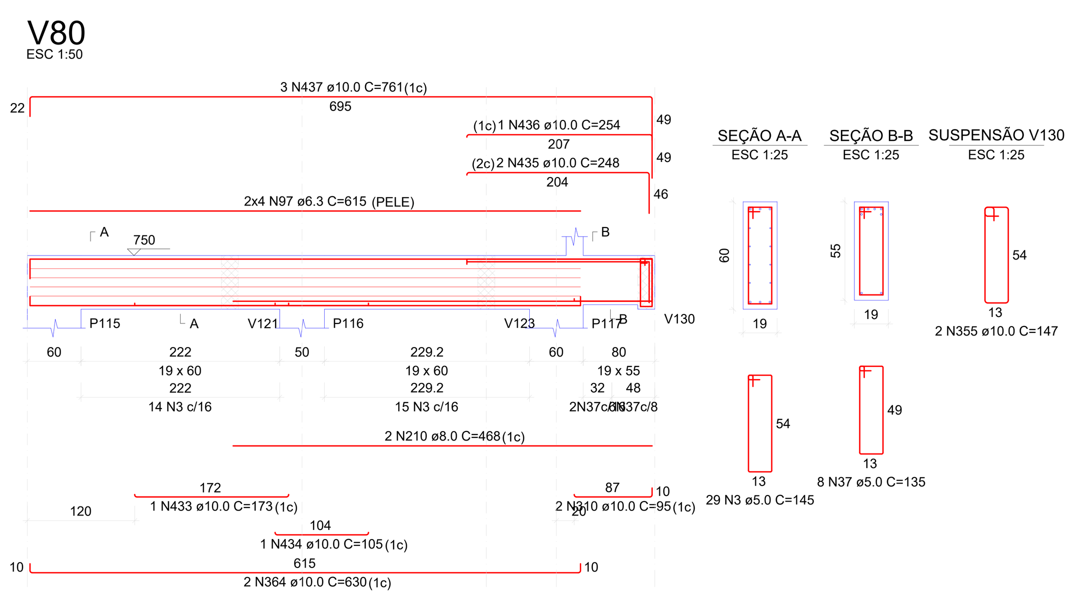


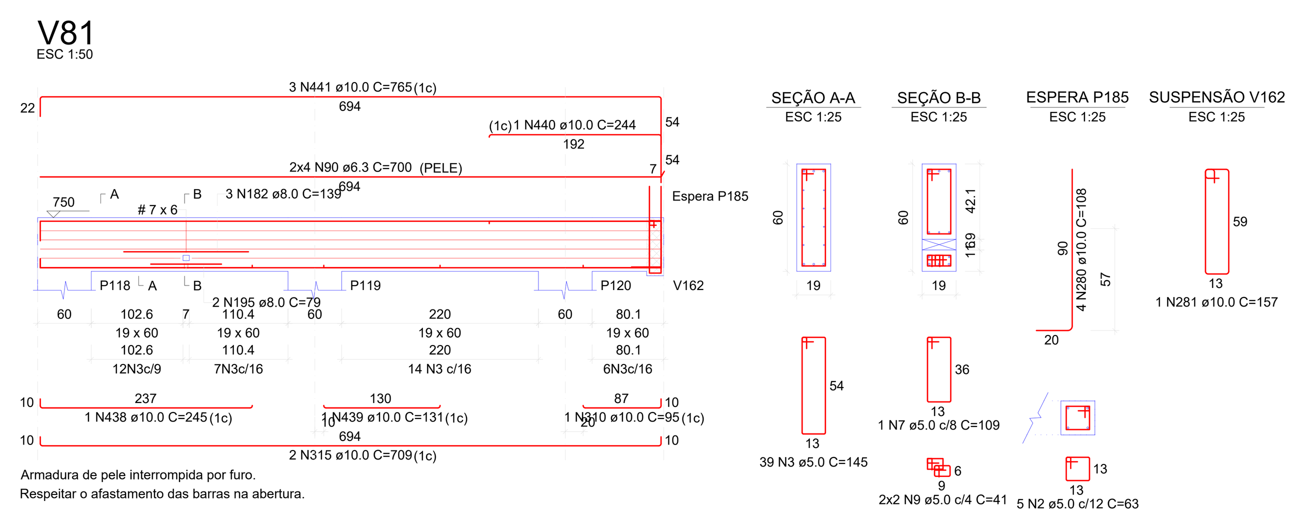


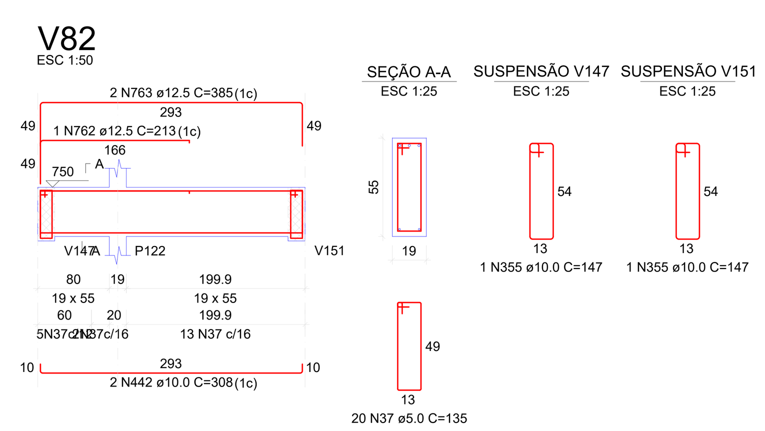


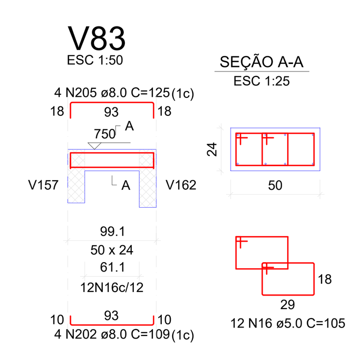


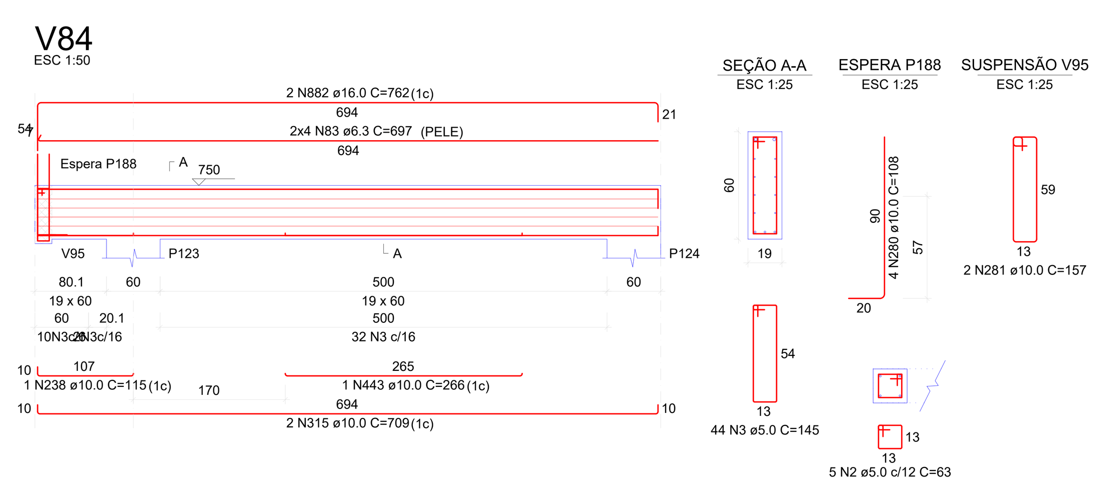


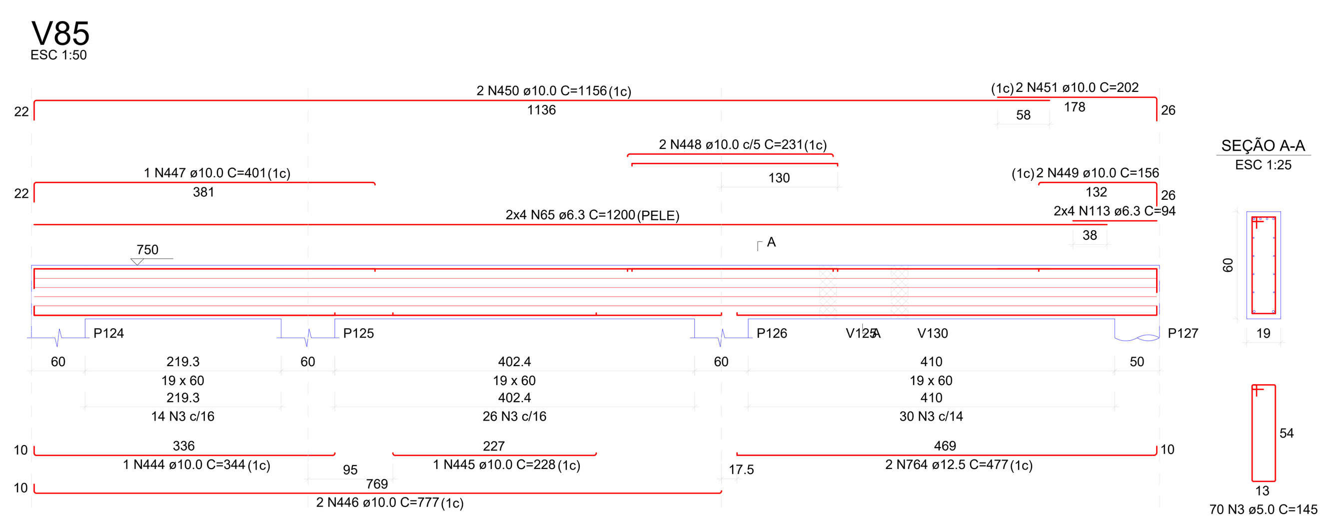


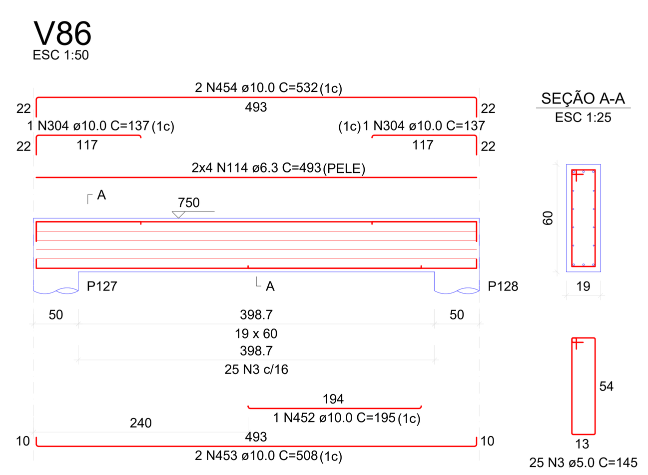


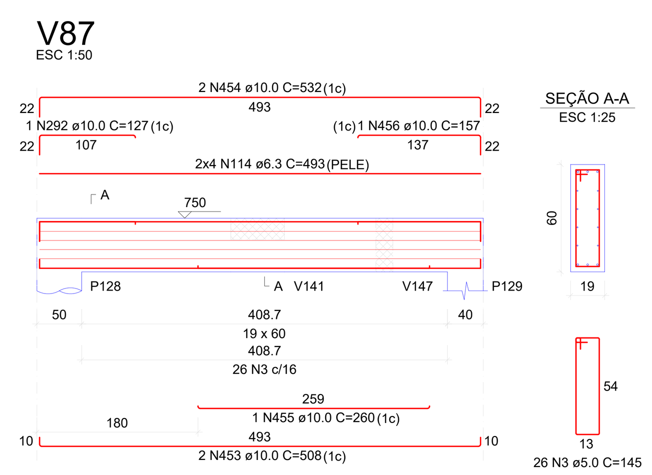












AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(6)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 56/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 56

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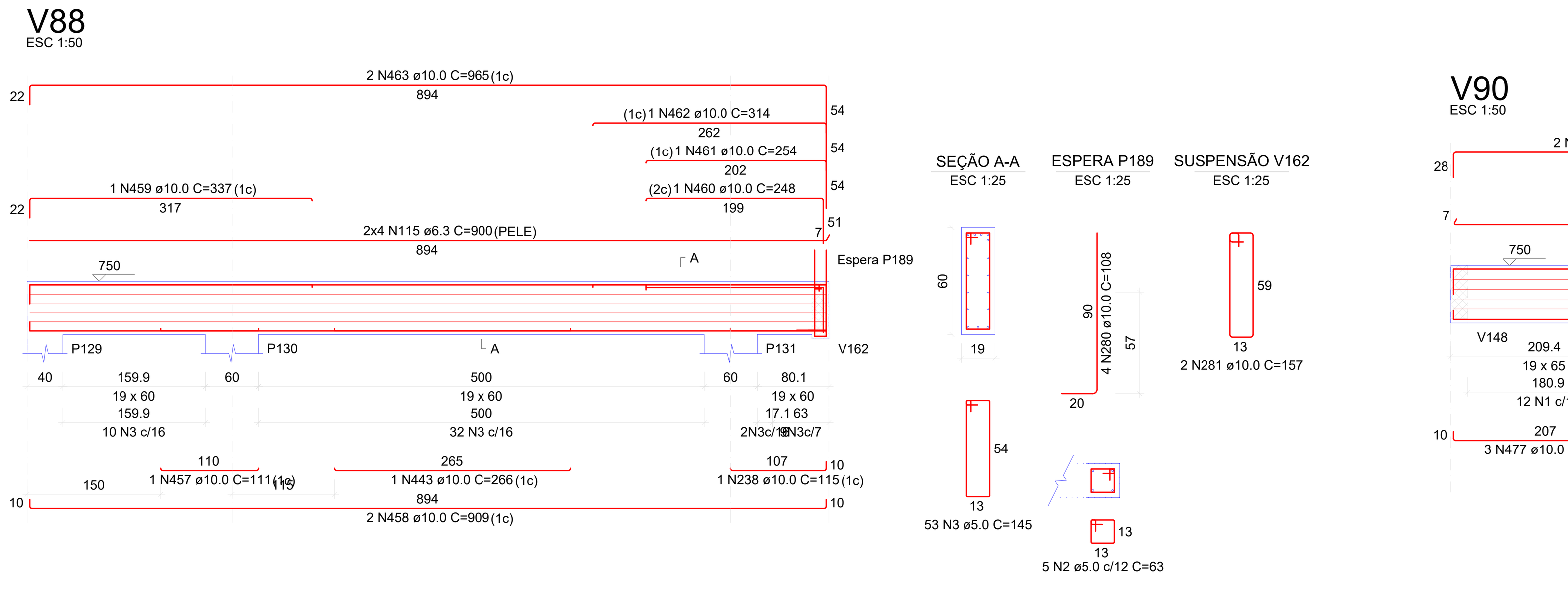

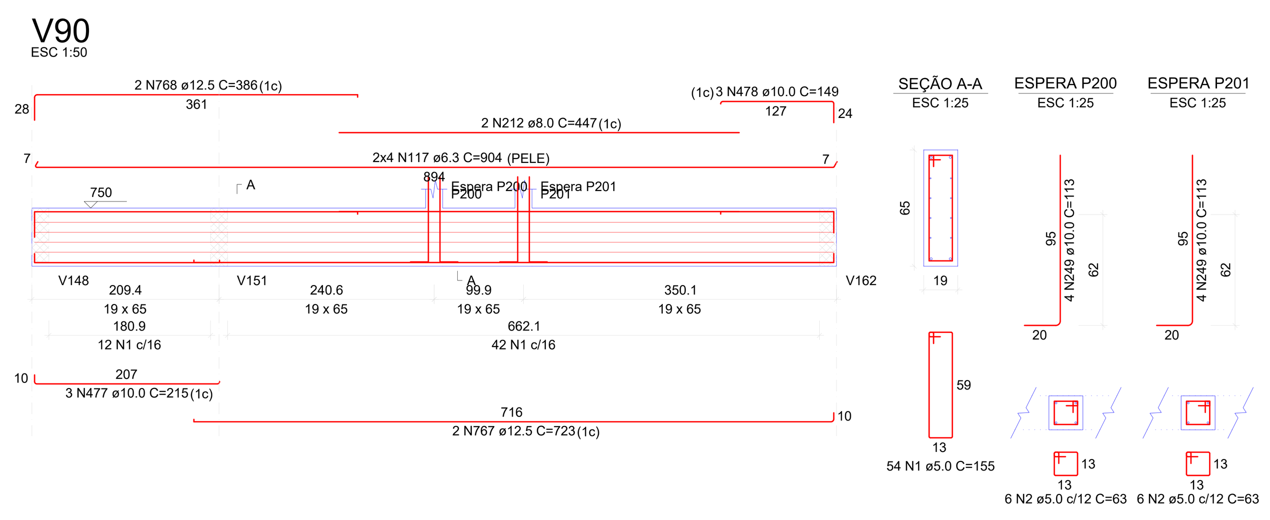

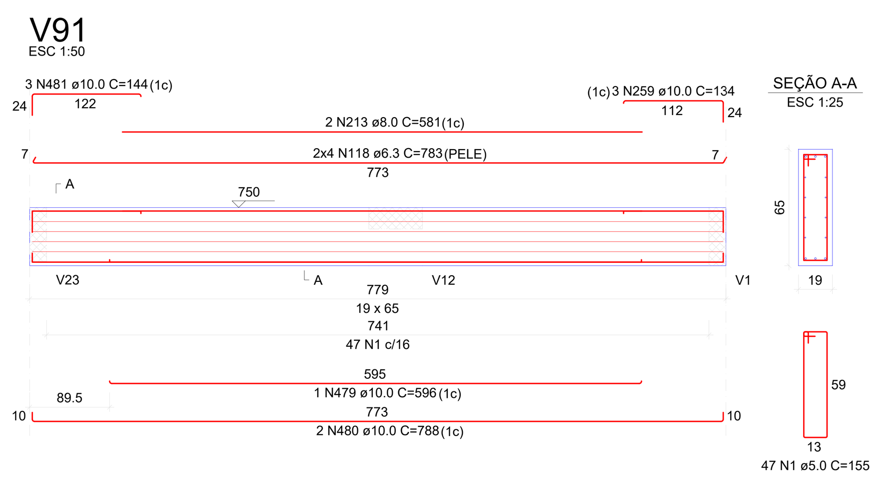

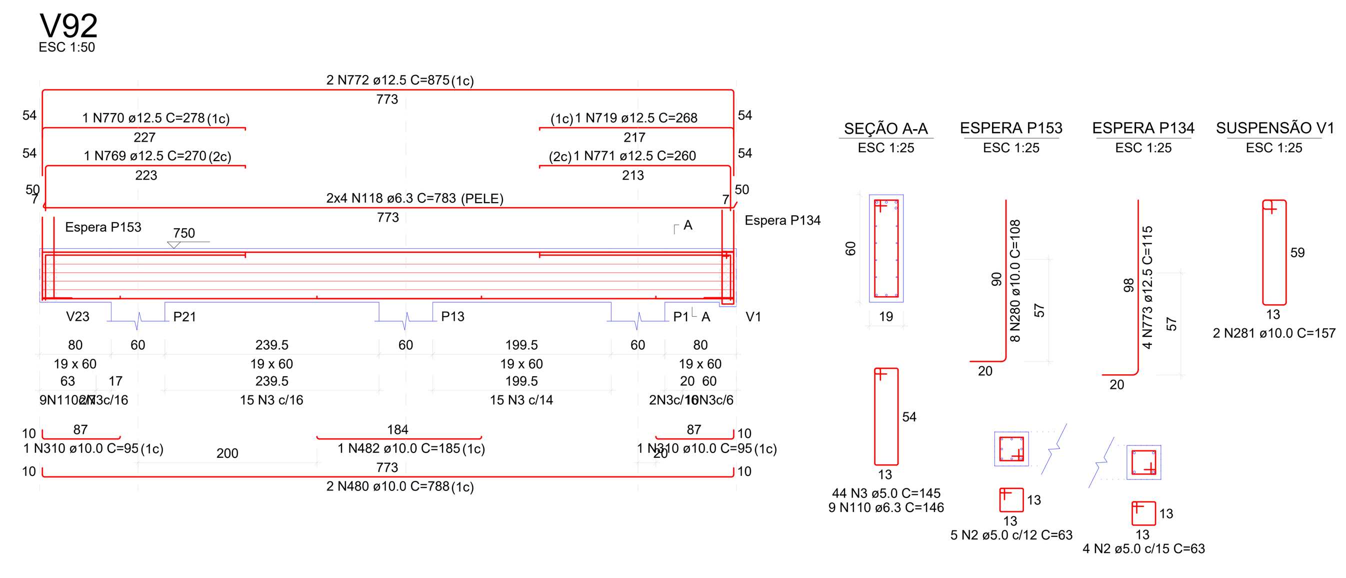

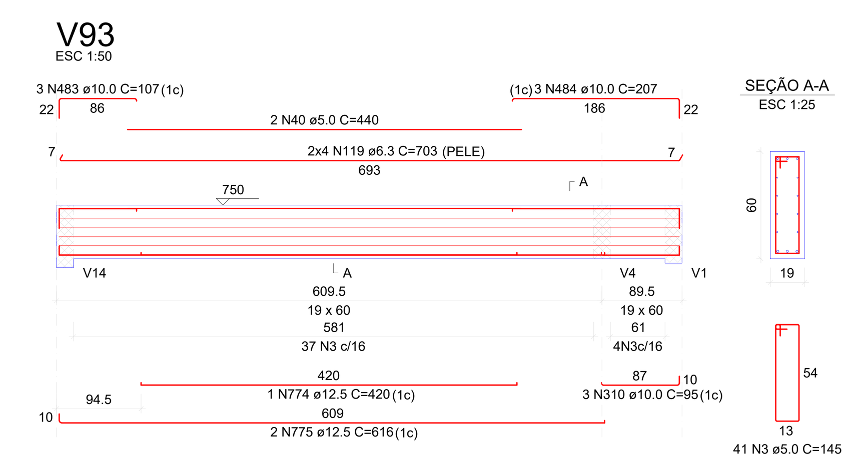

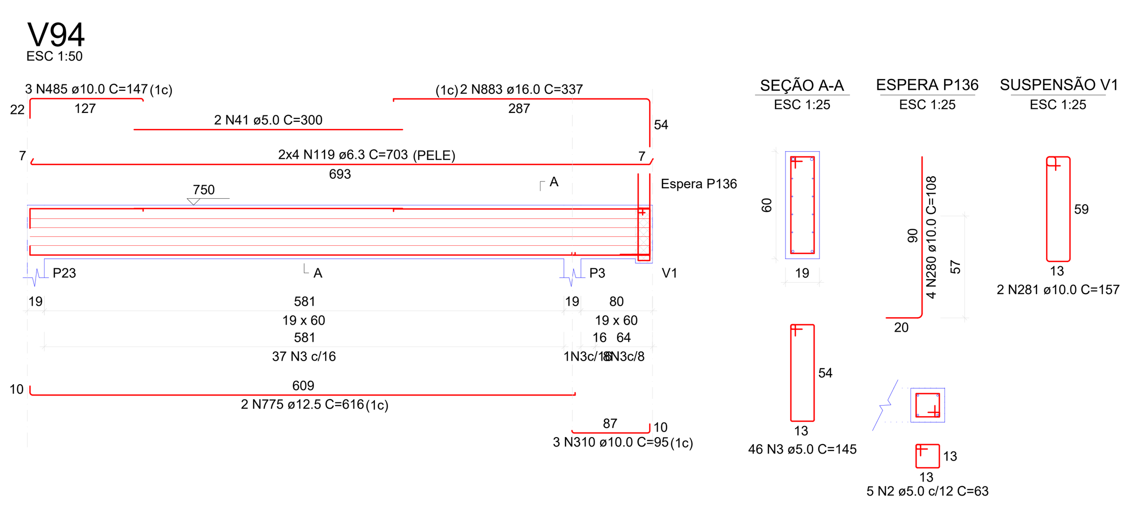

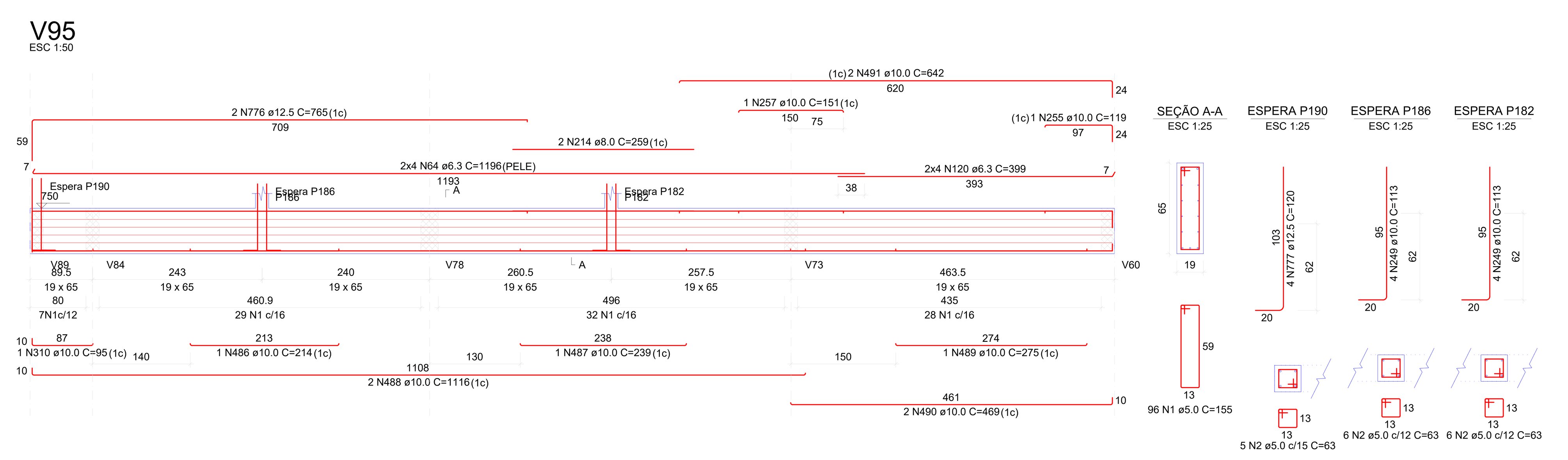

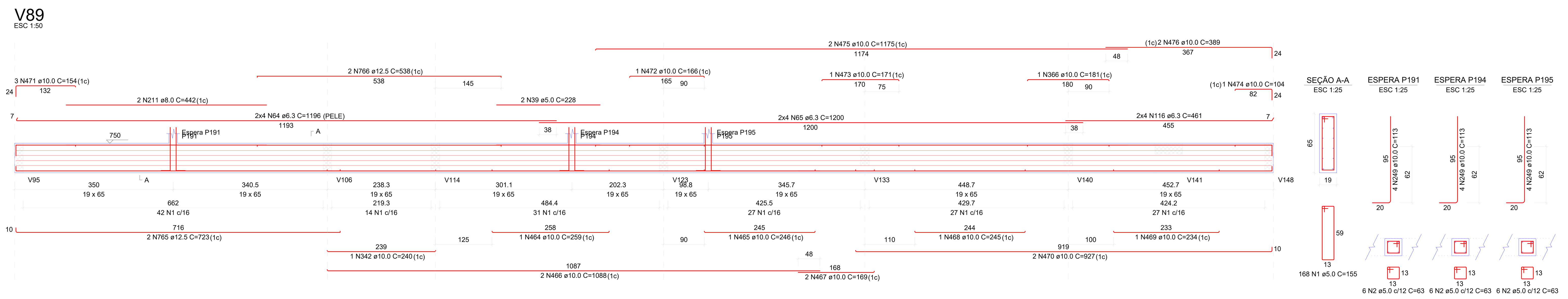

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(7)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 57/76

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 57

2025-08-25 15:50:43, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(8)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 58/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 58

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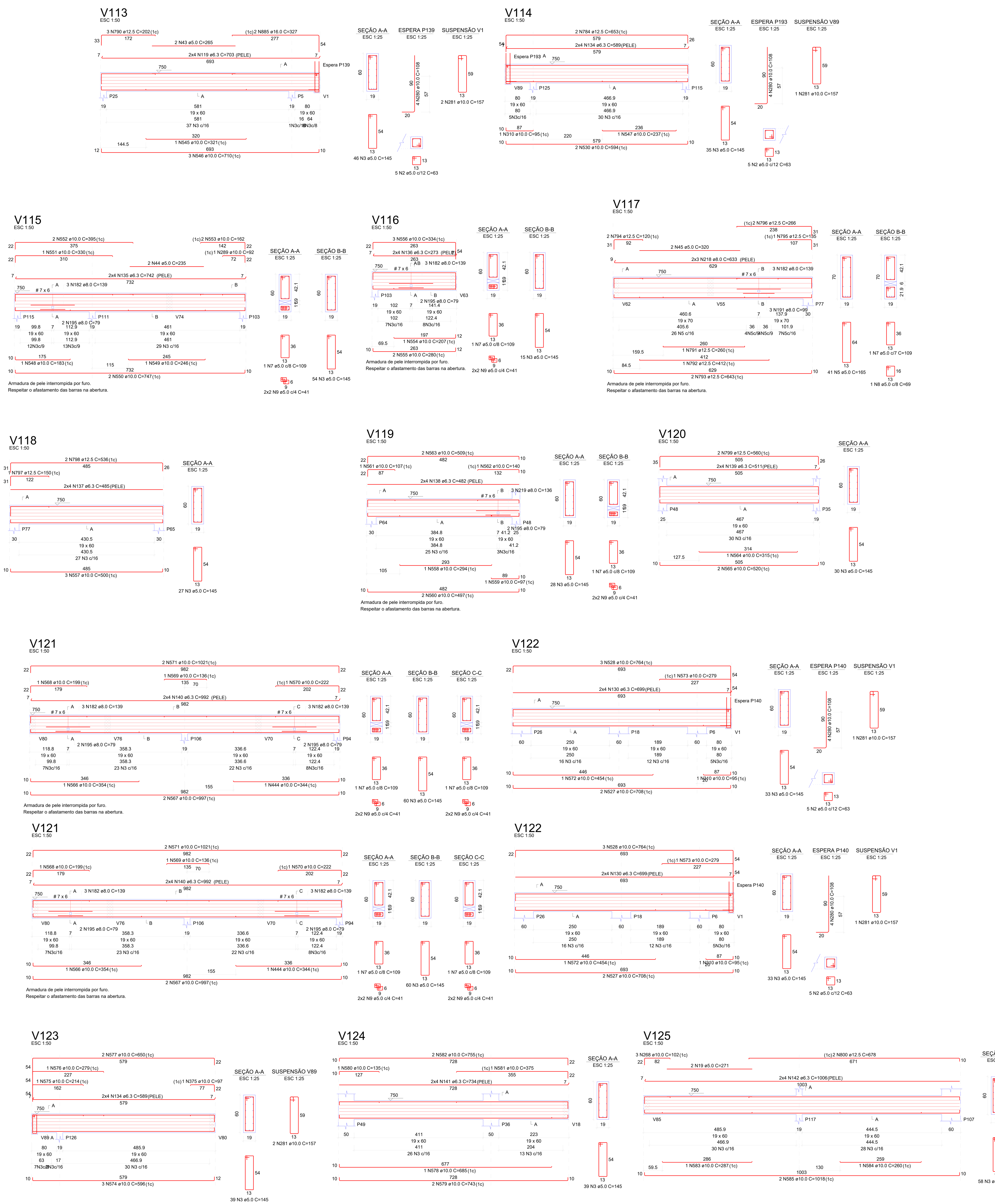


AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 10:45:14-03'00' Foxit PDF Reader Versão: 2023.3.0
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 14:13:32-03'00' Foxit PDF Editor Versão: 13.1.7
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

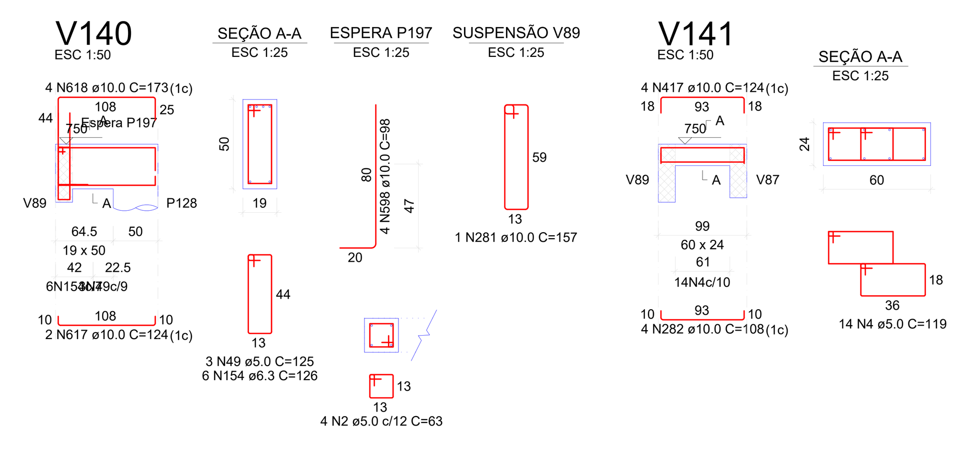
Município de Joinville

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(9)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 59/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 59

2025-08-25 15:50:56, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(10)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 60/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

SEI 25.0.200003-8 / pg. 60
Projeto Estrutura de Concreto Armado (26474460)
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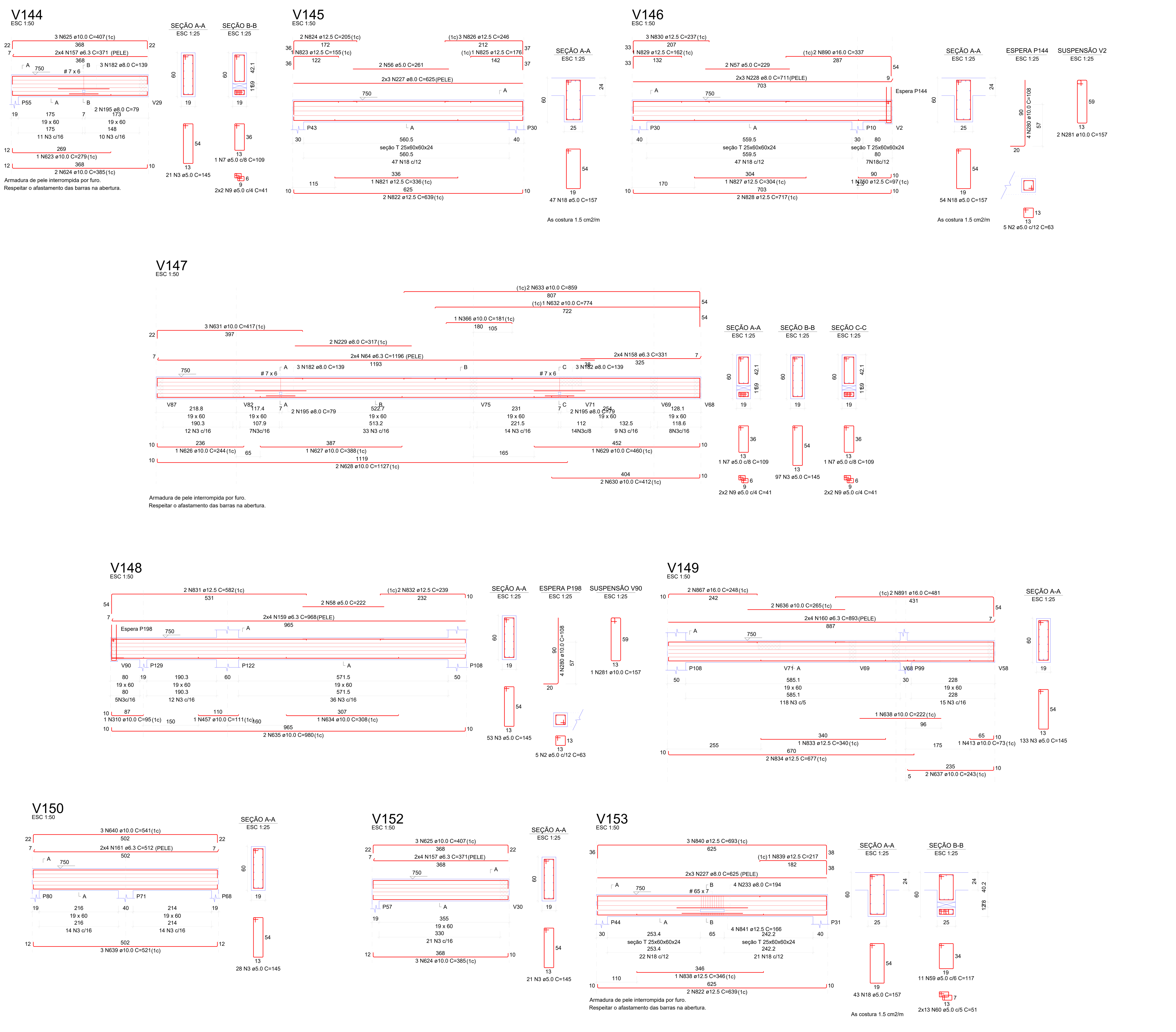

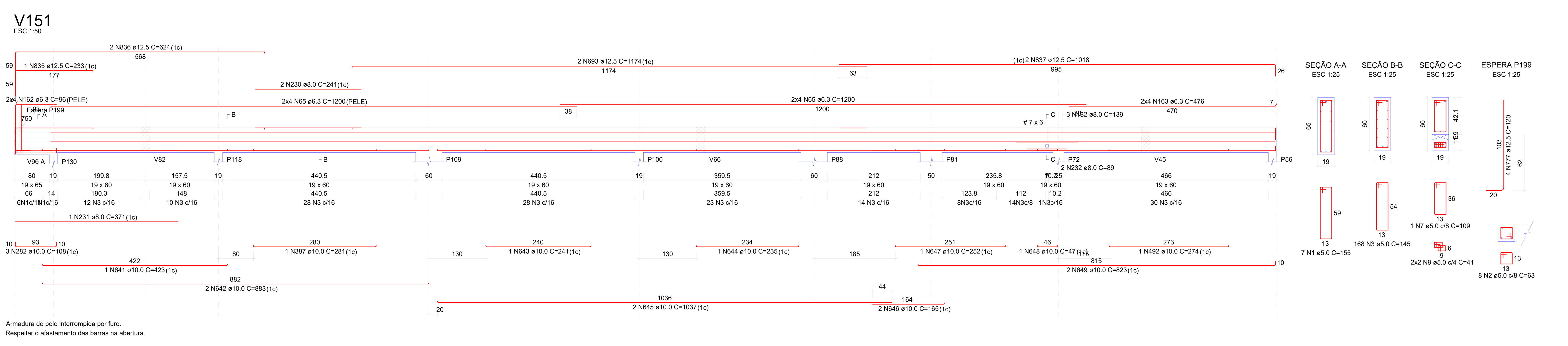

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³

Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE, 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL. FERNANDO STROISCH, CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE

EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA

ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA

PROJETO: BLOCO - A

ARQUIVO: JOI_SED_ROS_EST_EX.DWG

DATA: 02/07/2025

CONTEÚDO: VIGAS COBERTURA(11)

ETAPA: EXECUTIVO

ESCALA: INDICADA

FOLHA: EST 61/76

SEI 25.0.200003-8 / pg. 61
Projeto Estrutura de Concreto Armado (26474460)
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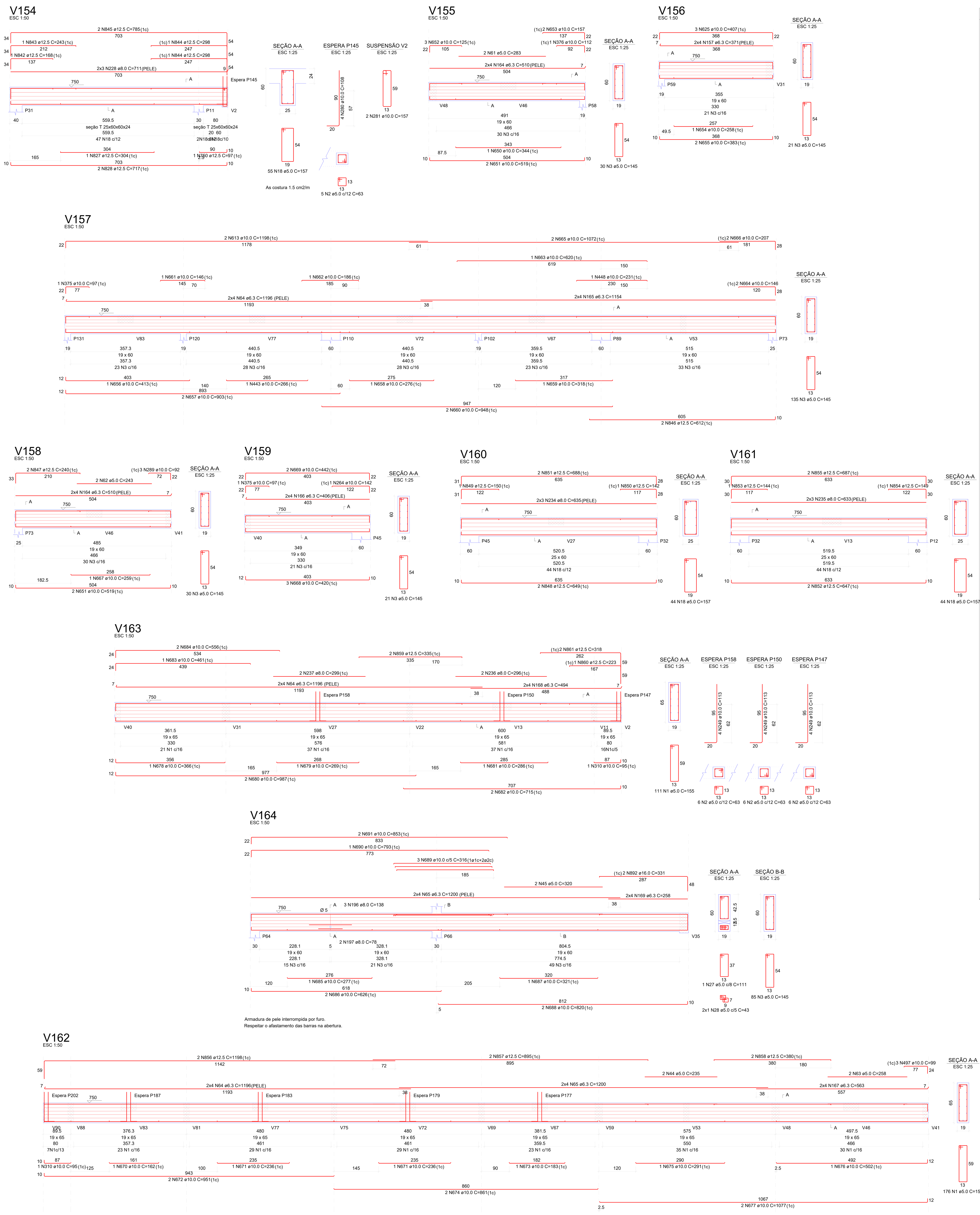

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1070	155	165850
	2	5.0	342	63	21546
	3	5.0	4525	145	656125
	4	5.0	60	119	7140
	5	5.0	107	165	17655
	6	5.0	2	300	600
	7	5.0	39	109	4251
	8	5.0	2	69	138
	9	5.0	148	41	6068
	10	5.0	2	223	446
	11	5.0	2	237	474
	12	5.0	9	121	1089
	13	5.0	3	141	423
	14	5.0	33	147	4851
	15	5.0	18	29	522
	16	5.0	104	105	10920
	17	5.0	8	137	1096
	18	5.0	759	157	119163
	19	5.0	4	271	1084
	20	5.0	60	177	10620
	21	5.0	4	69	276
	22	5.0	64	247	15808
	23	5.0	2	131	262
	24	5.0	2	151	302
	25	5.0	18	34	612
	26	5.0	2	326	652
	27	5.0	6	111	666
	28	5.0	12	43	516
	29	5.0	2	316	632
	30	5.0	2	296	592
	31	5.0	2	376	752
	32	5.0	2	462	924
	33	5.0	2	288	576
	34	5.0	2	299	598
	35	5.0	5	85	425
	36	5.0	2	236	472
	37	5.0	35	135	4725
	38	5.0	2	266	532
	39	5.0	2	228	456
	40	5.0	2	440	880
	41	5.0	2	300	600
	42	5.0	2	229	458
	43	5.0	2	265	530
	44	5.0	4	235	940
	45	5.0	4	320	1280
	46	5.0	40	167	6680
	47	5.0	2	295	590
	48	5.0	2	259	518
	49	5.0	10	125	1250
	50	5.0	2	228	456
	51	5.0	2	233	466
	52	5.0	35	197	6895
	53	5.0	2	101	202
	54	5.0	7	97	679
	55	5.0	6	45	270
	56	5.0	2	261	522
	57	5.0	2	229	458
	58	5.0	2	222	444
	59	5.0	11	117	1287
	60	5.0	26	51	1326
	61	5.0	2	283	566
	62	5.0	2	243	486
	63	5.0	2	258	516
CA50	64	6.3	80	1196	95680
	65	6.3	80	1200	96000
	66	6.3	8	655	5240
	67	6.3	8	364	2912
	68	6.3	8	299	2392
	69	6.3	8	707	5656
	70	6.3	16	497	7952
	71	6.3	16	539	8624
	72	6.3	8	516	4128
	73	6.3	8	513	4104
	74	6.3	8	476	3808
	75	6.3	8	528	4224
	76	6.3	8	626	5008
	77	6.3	8	506	4048
	78	6.3	8	503	4024
	79	6.3	8	490	3920
	80	6.3	8	508	4064
	81	6.3	8	616	4928
	82	6.3	8	863	6904
	83	6.3	40	697	27880
	84	6.3	8	792	6336
	85	6.3	44	238	10472
	86	6.3	6	176	1056
	87	6.3	8	408	3264
	88	6.3	8	378	3024
	89	6.3	16	549	8784
	90	6.3	24	700	16800
	91	6.3	8	380	3040
	92	6.3	8	303	2424
	93	6.3	16	477	7632
	94	6.3	8	618	4944
	95	6.3	24	704	16896
	96	6.3	8	265	2120
	97	6.3	16	615	9840
	98	6.3	8	704	5632
	99	6.3	8	625	5000
	100	6.3	8	399	3192
	101	6.3	8	514	4112
	102	6.3	16	550	8800
	103	6.3	8	398	3184
	104	6.3	8	484	3872
	105	6.3	8	335	2680
	106	6.3	8	103	824
	107	6.3	16	984	15744
	108	6.3	8	478	3824
	109	6.3	8	618	4944
	110	6.3	19	146	2774
	111	6.3	8	236	1888
	112	6.3	8	333	2664
	113	6.3	8	94	752
	114	6.3	16	493	7888
	115	6.3	8	900	7200
	116	6.3	8	461	3688
	117	6.3	8	904	7232
	118	6.3	16	783	12528
	119	6.3	24	703	16872
	120	6.3	8	399	3192
	121	6.3	8	1100	8800
	122	6.3	8	1201	9608
	123	6.3	8	502	4016
	124	6.3	16	575	9200
	125	6.3	16	473	7568
	126	6.3	16	713	11408
	127	6.3	16	440	7040
	128	6.3	8	503	4024
	129	6.3	8	752	6016
	130	6.3	16	699	11184
	131	6.3	8	582	4656
	132	6.3	8	971	7768
	133	6.3	8	283	2264
	134	6.3	16	589	9424
	135	6.3	8	742	5936
	136	6.3	8	273	2184
	137	6.3	16	485	7760
	138	6.3	8	482	3856
	139	6.3	8	511	4088
	140	6.3	8	992	7936
	141	6.3	8	734	5872
	142	6.3	8	1006	8048
	143	6.3	8	524	4192
	144	6.3	8	632	5056
	145	6.3	8	319	2552
	146	6.3	8	248	1984
	147	6.3	1	141	141
	148	6.3	8	505	4040
	149	6.3	8	162	1296
	150	6.3	8	487	3896
	151	6.3	7	198	1386
	152	6.3	3	167	501
	153	6.3	5	158	790
	154	6.3	6	126	756
	155	6.3	8	570	4560
	156	6.3	8	573	4584
	157	6.3	24	371	8904
	158	6.3	8	331	2648
	159	6.3	8	968	7744
	160	6.3	8	893	7144
	161	6.3	8	512	4096
	162	6.3	8	96	768
	163	6.3	8	476	3808
	164	6.3	16	510	8160
	165	6.3	8	1154	9232
	166	6.3	8	406	3248
	167	6.3	8	563	4504
	168	6.3	8	494	3952
	169	6.3	8	258	2064
	170	8.0	2	258	516
	171	8.0	2	321	642
	172	8.0	2	358	716
	173	8.0	6	663	3978
	174	8.0	6	376	2256
	175	8.0	6	105	630
	176	8.0	2	85	170
	177	8.0	4	75	300
	178	8.0	3	105	315
	179	8.0	2	75	150
	180	8.0	2	501	1002

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	181	8.0	10	709	7090
	182	8.0	112	139	15568
	183	8.0	9	159	1431
	184	8.0	4	115	460
	185	8.0	4	131	524
	186	8.0	6	477	2862
	187	8.0	6	528	3168
	188	8.0	6	628	3768
	189	8.0	12	707	8484
	190	8.0	8	790	6320
	191	8.0	5	99	495
	192	8.0	12	717	8604
	193	8.0	114	178	20292
	194	8.0	8	622	4976
	195	8.0	72	79	5688
	196	8.0	18	138	2484
	197	8.0	12	78	936
	198	8.0	4	206	824
	199	8.0	4	222	888
	200	8.0	6	702	4212
	201	8.0	2	256	512
	202	8.0	20	109	2180
	203	8.0	4	129	516
	204	8.0	2	295	590
	205	8.0	16	125	2000
	206	8.0	3	86	258
	207	8.0	3	56	168
	208	8.0	1	375	375
	209	8.0	6	698	4188
	210	8.0	2	468	936
	211	8.0	2	442	884
	212	8.0	2	447	894
	213	8.0	2	581	1162
	214	8.0	2	259	518
	215	8.0	3	112	336
	216	8.0	2	342	684
	217	8.0	3	132	396
	218	8.0	6	633	3798
	219	8.0	3	136	408
	220	8.0	2	307	614
	221	8.0	8	487	3896
	222	8.0	2	312	624
	223	8.0	6	701	4206
	224	8.0	8	403	3224
	225	8.0	6	391	2346
	226	8.0	6	965	5790
	227	8.0	12	625	7500
	228	8.0	12	711	8532
	229	8.0	2	317	634
	230	8.0	2	241	482
	231	8.0	1	371	371
	232	8.0	2	89	178
	233	8.0	4	194	776
	234	8.0	6	635	3810
	235	8.0	6	633	3798
	236	8.0	2	296	592
	237	8.0	2	299	598
	238	10.0	5	115	575
	239	10.0	1	306	306
	240	10.0	1	131	131
	241	10.0	2	1075	2150
	242	10.0	1	267	267
	243	10.0	1	250	250
	244	10.0	2	1002	2004
	245	10.0	1	256	256
	246	10.0	1	288	288
	247	10.0	2	994	1988
	248	10.0	3	132	396
	249	10.0	88	113	9944
	250	10.0	1	286	286
	251	10.0	1	215	215
	252	10.0	2	926	1852
	253	10.0	1	317	317
	254	10.0	2	619	1238
	255	10.0	3	119	357
	256	10.0	1	141	141
	257	10.0	5	151	755
	258	10.0	2	1107	2214
	259	10.0	6	134	804
	260	10.0	3	360	1080
	261	10.0	3	351	1053
	262	10.0	3	511	1533
	263	10.0	3	142	426
	264	10.0	7	142	994
	265	10.0	4	533	2132
	266	10.0	5	548	2740
	267	10.0	4	132	528
	268	10.0	12	102	1224
	269	10.0	2	572	1144
	270	10.0	6	528	3168
	271	10.0	4	552	2208
	272	10.0	1	147	147
	273	10.0	1	95	95
	274	10.0	3	490	1470
	275	10.0	2	137	274
	276	10.0	2	512	1024
	277	10.0	3	543	1629
	278	10.0	2	567	1134
	279	10.0	3	635	1905
	280	10.0	156	108	16848
	281	10.0	64	157	10048
	282	10.0	18	108	1944
	283	10.0	1	103	103
	284	10.0	4	134	536
	285	10.0	4	116	464
	286	10.0	4	130	520
	287	10.0	1	227	227
	288	10.0	2	509	1018
	289	10.0	8	92	736
	290	10.0	1	267	267
	291	10.0	1	65	65
	292	10.0	2	127	254
	293	10.0	1	123	123
	294	10.0	2	575	1150
	295	10.0	1	65	65
	296	10.0	1	211	211
	297	10.0	4	518	2072
	298	10.0	1	177	177
	299	10.0	1	124	124
	300	10.0	2	550	1100
	301	10.0	1	283	283
	302	10.0	3	505	1515
	303	10.0	1	186	186
	304	10.0	5	137	685
	305	10.0	2	561	1122
	306	10.0	3	523	1569
	307	10.0	2	117	234
	308	10.0	2	547	1094
	309	10.0	2	138	276
	310	10.0	34	95	3230
	311	10.0	2	625	1250
	312	10.0	2	416	832
	313	10.0	2	870	1740
	314	10.0	1	294	294
	315	10.0	16	709	11344
	316	10.0	1	120	120
	317	10.0	3	190	570
	318	10.0	1	625	625
	319	10.0	2	807	1614
	320	10.0	8	148	1184
	321	10.0	2	188	376
	322	10.0	1	159	159
	323	10.0	1	244	244
	324	10.0	3	801	2403
	325	10.0	4	160	640
	326	10.0	3	205	615
	327	10.0	4	816	3264
	328	10.0	3	423	1269
	329	10.0	3	447	1341
	330	10.0	3	393	1179
	331	10.0	3	417	1251
	332	10.0	1	331	331
	333	10.0	4	564	2256
	334	10.0	3	122	366
	335	10.0	2	248	496
	336	10.0	4	588	2352
	337	10.0	2	311	622
	338	10.0	2	220	440
	339	10.0	1	72	72
	340	10.0	1	82	82
	341	10.0	1	296	296
	342	10.0	2	240	480
	343	10.0	2	934	1868
	344	10.0	1	327	327
	345	10.0	2	606	1212
	346	10.0	1	85	85
	347	10.0	5	145	725
	348	10.0	1	278	278
	349	10.0	1	144	144
	350	10.0	3	318	954
	351	10.0	3	342	1026
	352	10.0	1	72	72
	353	10.0	1	198	198
	354	10.0	8	484	3872
	355	10.0	7	147	1029
	356	10.0	3	627	1881
	357	10.0	3	639	1917
	358	10.0	2	387	774
	359	10.0	2	711	1422
	360	10.0	5	152	760
	361	10.0	3	277	831
	362	10.0	3	341	1023

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	363	10.0	1	322	322
	364	10.0	5	630	3150
	365	10.0	1	70	70
	366	10.0	3	181	543
	367	10.0	2	482	964
	368	10.0	1	109	109
	369	10.0	2	273	546
	370	10.0	1	138	138
	371	10.0	3	203	609
	372	10.0	3	355	1065
	373	10.0	2	269	538
	374	10.0	2	314	628
	375	10.0	9	97	873
	376	10.0	4	112	448
	377	10.0	1	235	235
	378	10.0	2	414	828
	379	10.0	3	428	1284
	380	10.0	1	218	218
	381	10.0	2	529	1058
	382	10.0	1	111	111
	383	10.0	2	554	1108
	384	10.0	2	128	256
	385	10.0	2	183	366
	386	10.0	1	271	271
	387	10.0	2	281	562
	388	10.0	1	249	249
	389	10.0	1	143	143
	390	10.0	2	766	1532
	391	10.0	1	83	83
	392	10.0	2	197	394
	393	10.0	1	89	89
	394	10.0	2	188	376
	395	10.0	1	218	218
	396	10.0	1	73	73
	397	10.0	1	217	217
	398	10.0	2	565	1130
	399	10.0	3	589	1767
	400	10.0	3	413	1239
	401	10.0	3	427	1281
	402	10.0	1	124	124
	403	10.0	2	493	986
	404	10.0	1	255	255
	405	10.0	2	674	1348
	406	10.0	1	320	320
	407	10.0	1	217	217
	408	10.0	2	846	1692
	409	10.0	1	125	125
	410	10.0	3	164	492
	411	10.0	1	120	120
	412	10.0	1	91	91
	413	10.0	3	73	219
	414	10.0	2	483	966
	415	10.0	1	453	453
	416	10.0	2	539	1078
	417	10.0	8	124	992
	418	10.0	1	123	123
	419	10.0	2	173	346
	420	10.0	1	146	146
	421	10.0	1	142	142
	422	10.0	1	229	229
	423	10.0	2	632	1264
	424	10.0	1	250	250
	425	10.0	1	257	257
	426	10.0	3	793	2379
	427	10.0	1	145	145
	428	10.0	2	245	490
	429	10.0	1	215	215
	430	10.0	2	301	602
	431	10.0	3	348	1044
	432	10.0	3	372	1116
	433	10.0	1	173	173
	434	10.0	1	105	105
	435	10.0	2	248	496
	436	10.0	1	254	254
	437	10.0	3	761	2283
	438	10.0	1	245	245
	439	10.0	1	131	131
	440	10.0	1	244	244
	441	10.0	3	765	2295
	442	10.0	2	308	616
	443	10.0	3	266	798
	444	10.0	2	344	688
	445	10.0	1	228	228
	446	10.0	2	777	1554
	447	10.0	1	401	401
	448	10.0	3	231	693
	449	10.0	2	156	312
	450	10.0	2	1156	2312
	451	10.0	2	202	404
	452	10.0	1	195	195
	453	10.0	4	508	2032
	454	10.0	4	532	2128
	455	10.0	1	260	260
	456	10.0	1	157	157
	457	10.0	2	111	222
	458	10.0	2	909	1818
	459	10.0	1	337	337
	460	10.0	1	248	248
	461	10.0	1	254	254
	462	10.0	1	314	314
	463	10.0	2	965	1930
	464	10.0	1	259	259
	465	10.0	1	246	246
	466	10.0	2	1088	2176
	467	10.0	2	169	338
	468	10.0	1	245	245
	469	10.0	1	234	234
	470	10.0	2	927	1854
	471	10.0	3	154	462
	472	10.0	1	166	166
	473	10.0	2	171	342
	474	10.0	1	104	104
	475	10.0	3	1175	3525
	476	10.0	2	389	778
	477	10.0	3	215	645
	478	10.0	3	149	447
	479	10.0	1	596	596
	480	10.0	4	788	3152
	481	10.0	3	144	432
	482	10.0	1	185	185
	483	10.0	4	107	428
	484	10.0	3	207	621
	485	10.0	3	147	441
	486	10.0	1	214	214
	487	10.0	1	239	239
	488	10.0	2	1116	2232
	489	10.0	1	275	275
	490	10.0	2	469	938
	491	10.0	2	642	1284
	492	10.0	3	274	822
	493	10.0	1	220	220
	494	10.0	1	241	241
	495	10.0	2	1105	2210
	496	10.0	1	432	432
	497	10.0	4	99	396
	498	10.0	2	1133	2266
	499	10.0	2	292	584
	500	10.0	1	280	280
	501	10.0	1	134	134
	502	10.0	2	1079	2158
	503	10.0	2	176	352
	504	10.0	1	249	249
	505	10.0	2	650	1300
	506	10.0	1	279	279
	507	10.0	2	514	1028
	508	10.0	2	115	230
	509	10.0	2	538	1076
	510	10.0	5	590	2950
	511	10.0	4	614	2456
	512	10.0	1	152	152
	513	10.0	4	506	2024
	514	10.0	3	226	678
	515	10.0	1	256	256
	516	10.0	2	449	898
	517	10.0	3	473	1419
	518	10.0	3	517	1551
	519	10.0	2	539	1078
	520	10.0	1	300	300
	521	10.0	1	260	260
	522	10.0	2	763	1526
	523	10.0	1	315	315
	524	10.0	2	785	1570
	525	10.0	1	459	459
	526	10.0	1	75	75
	527	10.0	4	708	2832
	528	10.0	6	764	4584
	529	10.0	1	200	200
	530	10.0	4	594	2376
	531	10.0	1	350	350
	532	10.0	1	252	252
	533	10.0	1	127	127
	534	10.0	1	172	172
	535	10.0	2	451	902
	536	10.0	1	297	297
	537	10.0	1	318	318
	538	10.0	1	103	103
	539	10.0	2	983	1966
	540	10.0	1	148	148
	541	10.0	2	997	1994
	542	10.0	3	292	876
	543	10.0	1	142	142
	544	10.0	3	353	1059

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	545	10.0	1	321	321
	546	10.0	3	710	2130
	547	10.0	1	237	237
	548	10.0	1	183	183
	549	10.0	1	246	246
	550	10.0	2	747	1494
	551	10.0	1	330	330
	552	10.0	2	395	790
	553	10.0	2	162	324
	554	10.0	1	207	207
	555	10.0	2	280	560
	556	10.0	3	334	1002
	557	10.0	8	500	4000
	558	10.0	1	294	294
	559	10.0	1	97	97
	560	10.0	2	497	994
	561	10.0	1	107	107
	562	10.0	1	140	140
	563	10.0	2	509	1018
	564	10.0	1	315	315
	565	10.0	5	520	2600
	566	10.0	1	354	354
	567	10.0	2	997	1994
	568	10.0	1	199	199
	569	10.0	1	136	136
	570	10.0	1	222	222
	571	10.0	2	1021	2042
	572	10.0	1	454	454
	573	10.0	1	279	279
	574	10.0	3	596	1788
	575	10.0	1	214	214
	576	10.0	1	279	279
	577	10.0	2	650	1300
	578	10.0	1	685	685
	579	10.0	2	743	1486
	580	10.0	1	135	135
	581	10.0	1	375	375
	582	10.0	2	755	1510
	583	10.0	1	287	287
	584	10.0	1	260	260
	585	10.0	2	1018	2036
	586	10.0	2	533	1066
	587	10.0	1	100	100
	588	10.0	4	502	2008
	589	10.0	1	225	225
	590	10.0	2	1005	2010
	591	10.0	1	301	301
	592	10.0	2	500	1000
	593	10.0	2	765	1530
	594	10.0	2	257	514
	595	10.0	3	314	942
	596	10.0	2	126	252
	597	10.0	4	174	696
	598	10.0	8	98	784
	599	10.0	3	544	1632
	600	10.0	1	254	254
	601	10.0	2	766	1532
	602	10.0	1	325	325
	603	10.0	2	380	760
	604	10.0	1	414	414
	605	10.0	1	248	248
	606	10.0	2	974	1948
	607	10.0	1	499	499
	608	10.0	1	266	266
	609	10.0	1	70	70
	610	10.0	2	745	1490
	611	10.0	1	112	112
	612	10.0	1	259	259
	613	10.0	4	1198	4792
	614	10.0	2	561	1122
	615	10.0	4	151	604
	616	10.0	5	131	655
	617	10.0	2	124	248
	618	10.0	4	173	692
	619	10.0	1	319	319
	620	10.0	4	582	2328
	621	10.0	3	608	1824
	622	10.0	1	393	393
	623	10.0	1	279	279
	624	10.0	5	385	1925
	625	10.0	9	407	3663
	626	10.0	1	244	244
	627	10.0	1	388	388
	628	10.0	2	1127	2254
	629	10.0	1	460	460
	630	10.0	2	412	824
	631	10.0	3	417	1251
	632	10.0	1	774	774
	633	10.0	2	859	1718
	634	10.0	1	308	308
	635	10.0	2	980	1960
	636	10.0	2	265	530
	637	10.0	2	243	486
	638	10.0	1	222	222
	639	10.0	3	521	1563
	640	10.0	3	541	1623
	641	10.0	1	423	423
	642	10.0	2	883	1766
	643	10.0	1	241	241
	644	10.0	1	235	235
	645	10.0	2	1037	2074
	646	10.0	2	165	330
	647	10.0	1	252	252
	648	10.0	1	47	47
	649	10.0	2	823	1646
	650	10.0	1	344	344
	651	10.0	4	519	2076
	652	10.0	3	125	375
	653	10.0	2	157	314
	654	10.0	1	258	258
	655	10.0	2	383	766
	656	10.0	1	413	413
	657	10.0	2	903	1806
	658	10.0	1	276	276
	659	10.0	1	318	318
	660	10.0	2	948	1896
	661	10.0	1	146	146
	662	10.0	1	186	186
	663	10.0	1	620	620
	664	10.0	2	146	292
	665	10.0	2	1072	2144
	666	10.0	2	207	414
	667	10.0	1	259	259
	668	10.0	3	420	1260
	669	10.0	2	442	884
	670	10.0	1	162	162
	671	10.0	2	236	472
	672	10.0	2	951	1902
	673	10.0	1	183	183
	674	10.0	2	861	1722
	675	10.0	1	291	291
	676	10.0	1	502	502
	677	10.0	2	1077	2154
	678	10.0	1	366	366
	679	10.0	1	269	269
	680	10.0	2	987	1974
	681	10.0	1	286	286
	682	10.0	2	715	1430
	683	10.0	1	461	461
	684	10.0	2	556	1112
	685	10.0	1	277	277
	686	10.0	2	626	1252
	687	10.0	1	321	321
	688	10.0	2	820	1640
	689	10.0	3	316	948
	690	10.0	1	793	793
	691	10.0	2	853	1706
	692	12.5	2	298	596
	693	12.5	4	1174	4696
	694	12.5	2	1015	2030
	695	12.5	1	215	215
	696	12.5	2	771	1542
	697	12.5	2	258	516
	698	12.5	2	694	1388
	699	12.5	1	260	260
	700	12.5	2	673	1346
	701	12.5	2	165	330
	702	12.5	1	162	162
	703	12.5	2	272	544
	704	12.5	2	382	764
	705	12.5	1	151	151
	706	12.5	2	425	850
	707	12.5	1	194	194
	708	12.5	2	560	1120
	709	12.5	2	363	726
	710	12.5	1	195	195
	711	12.5	1	199	199
	712	12.5	2	826	1652
	713	12.5	2	253	506
	714	12.5	2	487	974
	715	12.5	2	535	1070
	716	12.5	2	542	1084
	717	12.5	2	590	1180
	718	12.5	2	634	1268
	719	12.5	2	268	536
	720	12.5	2	702	1404
	721	12.5	2	713	1426
	722	12.5	2	253	506
	723	12.5	3	323	969
	724	12.5	4	200	800
	725	12.5	8	155	1240
	726	12.5	4	768	3072

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
	727	12.5	2	270	540
	728	12.5	2	1142	2284
	729	12.5	2	771	1542
	730	12.5	2	541	1082
	731	12.5	4	708	2832
	732	12.5	2	318	636
	733	12.5	2	776	1552
	734	12.5	1	273	273
	735	12.5	4	318	1272
	736	12.5	2	552	1104
	737	12.5	2	497	994
	738	12.5	1	396	396
	739	12.5	2	617	1234
	740	12.5	2	768	1536
	741	12.5	2	285	570
	742	12.5	2	608	1216
	743	12.5	2	580	1160
	744	12.5	1	165	165
	745	12.5	2	390	780
	746	12.5	2	423	846
	747	12.5	1	296	296
	748	12.5	1	248	248
	749	12.5	1	130	130
	750	12.5	5	97	485
	751	12.5	4	988	3952
	752	12.5	3	1076	3228
	753	12.5	1	381	381
	754	12.5	2	622	1244
	755	12.5	1	295	295
	756	12.5	1	303	303
	757	12.5	2	378	756
	758	12.5	1	346	346
	759	12.5	1	264	264
	760	12.5	3	333	999
	761	12.5	2	708	1416
	762	12.5	1	213	213
	763	12.5	2	385	770
	764	12.5	2	477	954
	765	12.5	2	723	1446
	766	12.5	2	538	1076
	767	12.5	2	723	1446
	768	12.5	2	386	772
	769	12.5	1	270	270
	770	12.5	1	278	278
	771	12.5	1	260	260
	772	12.5	2	875	1750
	773	12.5	4	115	460
	774	12.5	1	420	420
	775	12.5	4	616	2464
	776	12.5	2	765	1530
	777	12.5	16	120	1920
	778	12.5	2	388	776
	779	12.5	1	198	198
	780	12.5	2	472	944
	781	12.5	1	158	158
	782	12.5	2	764	1528
	783	12.5	1	243	243
	784	12.5	4	653	2612
	785	12.5	2	152	304
	786	12.5	1	247	247
	787	12.5	1	253	253
	788	12.5	2	323	646
	789	12.5	2	487	974
	790	12.5	3	202	606
	791	12.5	1	260	260
	792	12.5	1	412	412
	793	12.5	2	643	1286
	794	12.5	2	120	240
	795	12.5	1	135	135
	796	12.5	2	266	532
	797	12.5	1	150	150
	798	12.5	2	536	1072
	799	12.5	2	560	1120
	800	12.5	2	678	1356
	801	12.5	1	174	174
	802	12.5	2	548	1096
	803	12.5	2	181	362
	804	12.5	2	707	1414
	805	12.5	1	174	174
	806	12.5	2	219	438
	807	12.5	2	529	1058
	808	12.5	1	230	230
	809	12.5	2	395	790
	810	12.5	1	251	251
	811	12.5	1	254	254
	812	12.5	4	427	1708
	813	12.5	1	259	259
	814	12.5	3	441	1323
	815	12.5	8	135	1080
	816	12.5	4	405	1620
	817	12.5	1	129	129
	818	12.5	2	971	1942
	819	12.5	2	1015	2030
	820	12.5	2	616	1232
	821	12.5	1	336	336
	822	12.5	4	639	2556
	823	12.5	1	155	155
	824	12.5	2	205	410
	825	12.5	1	176	176
	826	12.5	3	246	738
	827	12.5	2	304	608
	828	12.5	4	717	2868
	829	12.5	1	162	162
	830	12.5	3	237	711
	831	12.5	2	582	1164
	832	12.5	2	239	478
	833	12.5	1	340	340
	834	12.5	2	677	1354
	835	12.5	1	233	233
	836	12.5	2	624	1248
	837	12.5	2	1018	2036
	838	12.5	1	346	346
	839	12.5	1	217	217
	840	12.5	3	693	2079
	841	12.5	4	166	664
	842	12.5	1	168	168
	843	12.5	1	243	243
	844	12.5	2	298	596
	845	12.5	2	785	1570
	846	12.5	2	612	1224
	847	12.5	2	240	480
	848	12.5	2	649	1298
	849	12.5	1	150	150
	850	12.5	1	142	142
	851	12.5	2	688	1376
	852	12.5	2	647	1294
	853	12.5	1	144	144
	854	12.5	1	149	149
	855	12.5	2	687	1374
	856	12.5	2	1198	2396
	857	12.5	2	895	1790
	858	12.5	2	380	760
	859	12.5	2	335	670
	860	12.5	1	223	223
	861	12.5	2	318	636
	862	16.0	2	302	604
	863	16.0	2	348	696
	864	16.0	2	711	1422
	865	16.0	2	322	644
	866	16.0	2	157	314
	867	16.0	4	248	992
	868	16.0	1	241	241
	869	16.0	2	730	1460
	870	16.0	2	212	424
	871	16.0	1	293	293
	872	16.0	4	605	2420
	873	16.0	1	357	357
	874	16.0	3	635	1905
	875	16.0	1	176	176
	876	16.0	1	218	218
	877	16.0	3	711	2133
	878	16.0	2	241	482
	879	16.0	2	628	1256
	880	16.0	2	496	992
	881	16.0	2	768	1536
	882	16.0	2	762	1524
	883	16.0	2	337	674
	884	16.0	2	723	1446
	885	16.0	2	327	654
	886	16.0	2	642	1284
	887	16.0	2	256	512
	888	16.0	2	552	1104
	889	16.0	2	317	634
	890	16.0	2	337	674
	891	16.0	2	481	962
	892	16.0	2	331	662
	893	20.0	1	370	370
	894	20.0	2	685	1370
	895	20.0	1	259	259
	896	20.0	2	766	1532
	897	20.0	1	160	160

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	7772.8	1902
	8.0	1785.2	704.4
	10.0	4330.1	2669.7
	12.5	1570.8	1513.2
	16.0	286.9	452.9
	20.0	36.9	91
CA60	5.0	10881.4	1677.2

PESO TOTAL (kg)	
CA50	7333.2
CA60	1677.2

Volume de concreto (C-35) = 126.24 m³
Área de forma = 1026.17 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A
ARQUIVO: JOI_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
CONTEÚDO: VIGAS COBERTURA(12)
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 62/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: fernando@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 62

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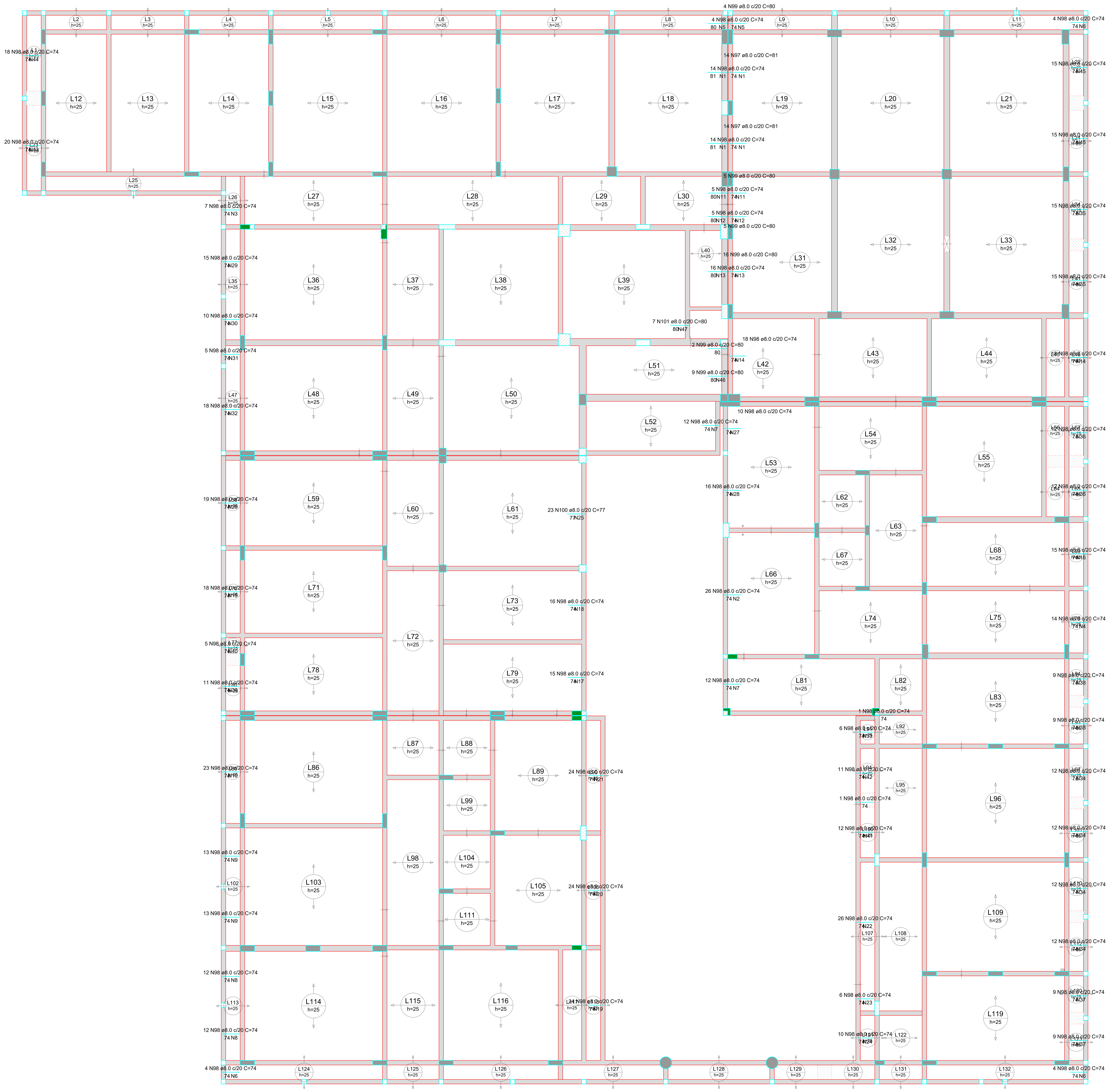


ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO COBERTURA (EIXO X)

Escala 1:75

Armaduras de distribuição

Armadura	Armadura de distribuição
N97	4 N1 ø5.0 c/20 C=276
N97	4 N1 ø5.0 c/20 C=276
N98	4 N2 ø5.0 c/20 C=521
N98	4 N3 ø5.0 c/20 C=143
N98	4 N4 ø5.0 c/20 C=288
N99	4 N5 ø5.0 c/20 C=89
N98	4 N6 ø5.0 c/20 C=80
N98	4 N7 ø5.0 c/20 C=233
N98	4 N6 ø5.0 c/20 C=80
N98	4 N6 ø5.0 c/20 C=80
N98	4 N8 ø5.0 c/20 C=243
N98	4 N8 ø5.0 c/20 C=243
N98	4 N9 ø5.0 c/20 C=258
N98	4 N9 ø5.0 c/20 C=258
N98	4 N10 ø5.0 c/20 C=454
N98	4 N11 ø5.0 c/20 C=95
N98	4 N12 ø5.0 c/20 C=104
N98	4 N13 ø5.0 c/20 C=313
N98	4 N14 ø5.0 c/20 C=352
N98	4 N1 ø5.0 c/20 C=276
N98	4 N1 ø5.0 c/20 C=276
N99	4 N13 ø5.0 c/20 C=313
N98	4 N5 ø5.0 c/20 C=89
N98	4 N15 ø5.0 c/20 C=369
N98	4 N16 ø5.0 c/20 C=294
N98	4 N17 ø5.0 c/20 C=301
N98	4 N18 ø5.0 c/20 C=310
N98	4 N19 ø5.0 c/20 C=486
N98	4 N20 ø5.0 c/20 C=484
N98	4 N21 ø5.0 c/20 C=485
N98	4 N22 ø5.0 c/20 C=526
N98	4 N23 ø5.0 c/20 C=121
N98	4 N24 ø5.0 c/20 C=209
N100	4 N25 ø5.0 c/20 C=461
N98	4 N26 ø5.0 c/20 C=380
N98	4 N27 ø5.0 c/20 C=207
N98	4 N28 ø5.0 c/20 C=314
N98	4 N7 ø5.0 c/20 C=234
N98	4 N29 ø5.0 c/20 C=294
N98	4 N30 ø5.0 c/20 C=195
N98	4 N31 ø5.0 c/20 C=98
N98	4 N32 ø5.0 c/20 C=368
N98	4 N33 ø5.0 c/20 C=119
N98	4 N34 ø5.0 c/20 C=240
N98	4 N34 ø5.0 c/20 C=240
N98	4 N34 ø5.0 c/20 C=240
N98	4 N34 ø5.0 c/20 C=240
N98	4 N35 ø5.0 c/20 C=299
N98	4 N35 ø5.0 c/20 C=299
N98	4 N36 ø5.0 c/20 C=243
N98	4 N36 ø5.0 c/20 C=243
N98	4 N37 ø5.0 c/20 C=188
N98	4 N37 ø5.0 c/20 C=188
N98	4 N38 ø5.0 c/20 C=189
N98	4 N38 ø5.0 c/20 C=189
N98	4 N39 ø5.0 c/20 C=226
N98	4 N40 ø5.0 c/20 C=102
N98	4 N41 ø5.0 c/20 C=235
N98	4 N42 ø5.0 c/20 C=228
N98	4 N43 ø5.0 c/20 C=400
N98	4 N44 ø5.0 c/20 C=360
N98	4 N14 ø5.0 c/20 C=352
N98	4 N45 ø5.0 c/20 C=300
N98	4 N45 ø5.0 c/20 C=300
N99	4 N11 ø5.0 c/20 C=95
N99	4 N12 ø5.0 c/20 C=104
N99	4 N46 ø5.0 c/20 C=183
N101	4 N47 ø5.0 c/20 C=142
N98	4 N48 ø5.0 c/20 C=119
N98	4 N49 ø5.0 c/20 C=128
N98	4 N50 ø5.0 c/20 C=225
N98	4 N51 ø5.0 c/20 C=129
N98	4 N52 ø5.0 c/20 C=342
N102	4 N53 ø5.0 c/20 C=440
N98	4 N54 ø5.0 c/20 C=241
N98	4 N54 ø5.0 c/20 C=241
N98	4 N55 ø5.0 c/20 C=479
N98	4 N56 ø5.0 c/20 C=480
N98	4 N56 ø5.0 c/20 C=480
N98	4 N57 ø5.0 c/20 C=474
N98	4 N58 ø5.0 c/20 C=293
N98	4 N58 ø5.0 c/20 C=293
N98	4 N59 ø5.0 c/20 C=629
N98	4 N60 ø5.0 c/20 C=340
N98	4 N60 ø5.0 c/20 C=340
N98	4 N61 ø5.0 c/20 C=238
N98	4 N62 ø5.0 c/20 C=241
N98	4 N63 ø5.0 c/20 C=100
N98	4 N60 ø5.0 c/20 C=341
N98	4 N64 ø5.0 c/20 C=380
N98	4 N64 ø5.0 c/20 C=380
N103	4 N65 ø5.0 c/20 C=536
N98	4 N66 ø5.0 c/20 C=355
N104	4 N67 ø5.0 c/20 C=246
N104	4 N68 ø5.0 c/20 C=346
N98	4 N49 ø5.0 c/20 C=128
N98	4 N48 ø5.0 c/20 C=119
N98	4 N69 ø5.0 c/20 C=320
N98	4 N5 ø5.0 c/20 C=89
N98	4 N65 ø5.0 c/20 C=536
N98	4 N70 ø5.0 c/20 C=310
N105	4 N71 ø5.0 c/20 C=157
N98	4 N72 ø5.0 c/20 C=105
N98	4 N73 ø5.0 c/20 C=440
N98	4 N74 ø5.0 c/20 C=200
N98	4 N75 ø5.0 c/20 C=301
N98	4 N76 ø5.0 c/20 C=202
N98	4 N77 ø5.0 c/20 C=259
N98	4 N78 ø5.0 c/20 C=99
N98	4 N79 ø5.0 c/20 C=346
N98	4 N80 ø5.0 c/20 C=435
N98	4 N81 ø5.0 c/20 C=449
N98	4 N82 ø5.0 c/20 C=106
N98	4 N83 ø5.0 c/20 C=119
N98	4 N84 ø5.0 c/20 C=51
N98	4 N85 ø5.0 c/20 C=187
N98	4 N86 ø5.0 c/20 C=82
N98	4 N5 ø5.0 c/20 C=89
N98	4 N65 ø5.0 c/20 C=536
N98	4 N87 ø5.0 c/20 C=252
N98	4 N49 ø5.0 c/20 C=128
N98	4 N88 ø5.0 c/20 C=124
N100	4 N89 ø5.0 c/20 C=591
N98	4 N5 ø5.0 c/20 C=89
N100	4 N25 ø5.0 c/20 C=460
N100	4 N90 ø5.0 c/20 C=76
N98	4 N70 ø5.0 c/20 C=310
N98	4 N91 ø5.0 c/20 C=571
N98	4 N5 ø5.0 c/20 C=89
N98	4 N92 ø5.0 c/20 C=70
N98	4 N52 ø5.0 c/20 C=342
N98	4 N51 ø5.0 c/20 C=129
N98	4 N53 ø5.0 c/20 C=440
N98	4 N6 ø5.0 c/20 C=80
N98	4 N72 ø5.0 c/20 C=105
N98	4 N5 ø5.0 c/20 C=89
N98	4 N93 ø5.0 c/20 C=215
N98	4 N94 ø5.0 c/20 C=222
N98	4 N47 ø5.0 c/20 C=142
N98	4 N94 ø5.0 c/20 C=222
N98	4 N95 ø5.0 c/20 C=329
N98	4 N1 ø5.0 c/20 C=276
N98	4 N6 ø5.0 c/20 C=80
N98	4 N6 ø5.0 c/20 C=80
N98	4 N6 ø5.0 c/20 C=80
N106	5 N96 ø5.0 c/20 C=142

RELAÇÃO DO AÇO

Negativos X   Negativos Y

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	20	276	5520
	2	5.0	4	521	2084
	3	5.0	4	143	572
	4	5.0	4	288	1152
	5	5.0	28	89	2492
	6	5.0	28	80	2240
	7	5.0	8	233	1864
	8	5.0	8	243	1944
	9	5.0	8	258	2064
	10	5.0	4	454	1816
	11	5.0	8	95	760
	12	5.0	8	104	832
	13	5.0	8	313	2504
	14	5.0	8	352	2816
	15	5.0	4	369	1476
	16	5.0	4	294	1176
	17	5.0	4	301	1204
	18	5.0	4	310	1240
	19	5.0	4	486	1944
	20	5.0	4	484	1936
	21	5.0	4	485	1940
	22	5.0	4	526	2104
	23	5.0	4	121	484
	24	5.0	4	209	836
	25	5.0	8	461	3688
	26	5.0	4	380	1520
	27	5.0	4	207	828
	28	5.0	4	314	1256
	29	5.0	4	294	1176
	30	5.0	4	195	780
	31	5.0	4	98	392
	32	5.0	4	368	1472
	33	5.0	4	119	476
	34	5.0	16	240	3840
	35	5.0	8	299	2392
	36	5.0	8	243	1944
	37	5.0	8	188	1504
	38	5.0	8	189	1512
	39	5.0	4	226	904
	40	5.0	4	102	408
	41	5.0	4	235	940
	42	5.0	4	228	912
	43	5.0	4	400	1600
	44	5.0	4	360	1440
	45	5.0	8	300	2400
	46	5.0	4	183	732
	47	5.0	8	142	1136
	48	5.0	8	119	952
	49	5.0	12	128	1536
	50	5.0	4	225	900
	51	5.0	8	129	1032
	52	5.0	8	342	2736
	53	5.0	8	440	3520
	54	5.0	8	241	1928
	55	5.0	4	479	1916
	56	5.0	8	480	3840
	57	5.0	4	474	1896
	58	5.0	8	293	2344
	59	5.0	4	629	2516
	60	5.0	12	340	4080
	61	5.0	4	238	952
	62	5.0	4	241	964
	63	5.0	4	100	400
	64	5.0	8	380	3040
	65	5.0	12	536	6432
	66	5.0	4	355	1420
	67	5.0	4	246	984
	68	5.0	4	346	1384
	69	5.0	4	320	1280
	70	5.0	8	310	2480
	71	5.0	4	157	628
	72	5.0	8	105	840
	73	5.0	4	440	1760
	74	5.0	4	200	800
	75	5.0	4	301	1204
	76	5.0	4	202	808
	77	5.0	4	259	1036
	78	5.0	4	99	396
	79	5.0	4	346	1384
	80	5.0	4	435	1740
	81	5.0	4	449	1796
	82	5.0	4	106	424
	83	5.0	4	119	476
	84	5.0	4	51	204
	85	5.0	4	187	748
	86	5.0	4	82	328
	87	5.0	4	252	1008
	88	5.0	4	124	496
	89	5.0	4	591	2364
	90	5.0	4	76	304
	91	5.0	4	571	2284
	92	5.0	4	70	280
	93	5.0	4	215	860
	94	5.0	8	222	1776
	95	5.0	4	329	1316
	96	5.0	5	142	710
CA50	97	8.0	28	81	2268
	98	8.0	1633	74	120842
	99	8.0	41	80	3280
	100	8.0	80	77	6160
	101	8.0	7	80	560
	102	8.0	22	80	1760
	103	8.0	27	75	2025
	104	8.0	29	77	2233
	105	8.0	8	70	560
	106	8.0	9	85	765

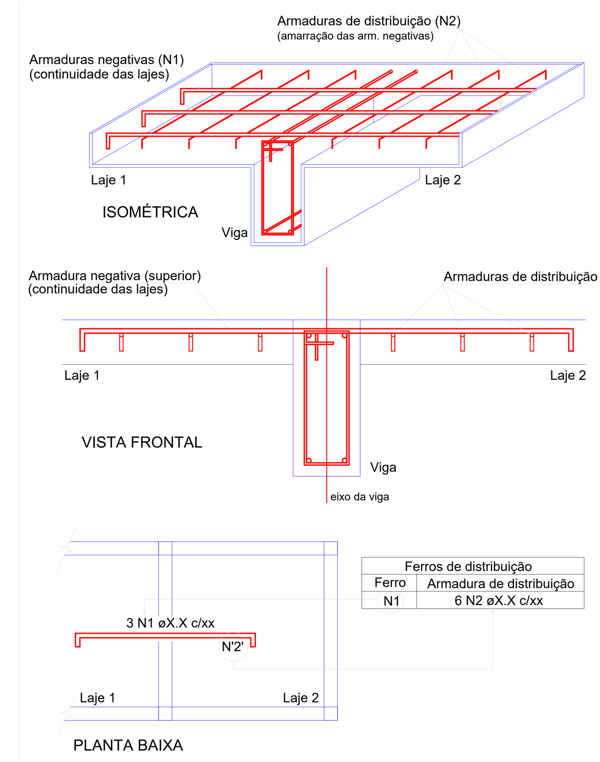
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	1404.5	554.2
CA60	5.0	1507.6	232.4

PESO TOTAL (kg)	
CA50	554.2
CA60	232.4

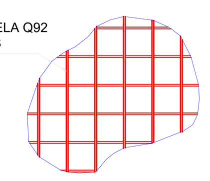
Volume de concreto (C-35) = 108.04 m³
Área de forma = 0.00 m²

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL. FERNANDO STROISCH *CREA/SC 062522-0*

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: BLOCO - A — ARQUIVO: JOI_SED_ROS_EST_EX.DWG — DATA: 02/07/2025
CONTEÚDO: LAJE SUPERIOR(1) — ETAPA: EXECUTIVO — ESCALA: INDICADA — FOLHA: **EST 63/76**

Projeto Estrutura de Concreto Armado (26474460)   SEI 25.0.200003-8 / pg. 63
2025-08-25 15:51:24, jeana, ISO_full_bleed_A0_(841.00_x_1189.00_MM)

Armaduras de distribuição	
Armadura	Armadura de distribuição
N97	4 N1 ø5.0 c/20 C=276
N97	4 N1 ø5.0 c/20 C=276
N98	4 N2 ø5.0 c/20 C=521
N98	4 N3 ø5.0 c/20 C=143
N98	4 N4 ø5.0 c/20 C=288
N99	4 N5 ø5.0 c/20 C=89
N98	4 N6 ø5.0 c/20 C=80
N98	4 N7 ø5.0 c/20 C=233
N98	4 N6 ø5.0 c/20 C=80
N98	4 N6 ø5.0 c/20 C=80
N98	4 N8 ø5.0 c/20 C=243
N98	4 N8 ø5.0 c/20 C=243
N98	4 N9 ø5.0 c/20 C=258
N98	4 N9 ø5.0 c/20 C=258
N98	4 N10 ø5.0 c/20 C=454
N98	4 N11 ø5.0 c/20 C=95
N98	4 N12 ø5.0 c/20 C=104
N98	4 N13 ø5.0 c/20 C=313
N98	4 N14 ø5.0 c/20 C=352
N98	4 N1 ø5.0 c/20 C=276
N98	4 N1 ø5.0 c/20 C=276
N99	4 N13 ø5.0 c/20 C=313
N98	4 N5 ø5.0 c/20 C=89
N98	4 N15 ø5.0 c/20 C=369
N98	4 N16 ø5.0 c/20 C=294
N98	4 N17 ø5.0 c/20 C=301
N98	4 N18 ø5.0 c/20 C=310
N98	4 N19 ø5.0 c/20 C=486
N98	4 N20 ø5.0 c/20 C=484
N98	4 N21 ø5.0 c/20 C=485
N98	4 N22 ø5.0 c/20 C=526
N98	4 N23 ø5.0 c/20 C=121
N98	4 N24 ø5.0 c/20 C=209
N100	4 N25 ø5.0 c/20 C=461
N98	4 N26 ø5.0 c/20 C=380
N98	4 N27 ø5.0 c/20 C=207
N98	4 N28 ø5.0 c/20 C=314
N98	4 N7 ø5.0 c/20 C=234
N98	4 N29 ø5.0 c/20 C=294
N98	4 N30 ø5.0 c/20 C=195
N98	4 N31 ø5.0 c/20 C=98
N98	4 N32 ø5.0 c/20 C=368
N98	4 N33 ø5.0 c/20 C=119
N98	4 N34 ø5.0 c/20 C=240
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N98	4 N34 ø5.0 c/20 C=240
N98	4 N34 ø5.0 c/20 C=240
N98	4 N35 ø5.0 c/20 C=299
N98	4 N35 ø5.0 c/20 C=299
N98	4 N36 ø5.0 c/20 C=243
N98	4 N36 ø5.0 c/20 C=243
N98	4 N37 ø5.0 c/20 C=188
N98	4 N37 ø5.0 c/20 C=188
N98	4 N38 ø5.0 c/20 C=189
N98	4 N38 ø5.0 c/20 C=189
N98	4 N39 ø5.0 c/20 C=226
N98	4 N40 ø5.0 c/20 C=102
N98	4 N41 ø5.0 c/20 C=235
N98	4 N42 ø5.0 c/20 C=228
N98	4 N43 ø5.0 c/20 C=400
N98	4 N44 ø5.0 c/20 C=360
N98	4 N14 ø5.0 c/20 C=352
N98	4 N45 ø5.0 c/20 C=300
N98	4 N45 ø5.0 c/20 C=300
N99	4 N1 ø5.0 c/20 C=95
N99	4 N12 ø5.0 c/20 C=104
N99	4 N46 ø5.0 c/20 C=183
N101	4 N47 ø5.0 c/20 C=142
N98	4 N48 ø5.0 c/20 C=119
N98	4 N49 ø5.0 c/20 C=128
N98	4 N50 ø5.0 c/20 C=225
N98	4 N51 ø5.0 c/20 C=129
N98	4 N52 ø5.0 c/20 C=342
N102	4 N53 ø5.0 c/20 C=440
N98	4 N54 ø5.0 c/20 C=241
N98	4 N54 ø5.0 c/20 C=241
N98	4 N55 ø5.0 c/20 C=479
N98	4 N56 ø5.0 c/20 C=480
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N98	4 N59 ø5.0 c/20 C=629
N98	4 N60 ø5.0 c/20 C=340
N98	4 N60 ø5.0 c/20 C=340
N98	4 N61 ø5.0 c/20 C=238
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N98	4 N63 ø5.0 c/20 C=100
N98	4 N60 ø5.0 c/20 C=341
N98	4 N64 ø5.0 c/20 C=380
N98	4 N64 ø5.0 c/20 C=380
N103	4 N65 ø5.0 c/20 C=536
N98	4 N66 ø5.0 c/20 C=355
N104	4 N67 ø5.0 c/20 C=246
N104	4 N68 ø5.0 c/20 C=346
N98	4 N49 ø5.0 c/20 C=128
N98	4 N48 ø5.0 c/20 C=119
N98	4 N69 ø5.0 c/20 C=320
N98	4 N5 ø5.0 c/20 C=89
N98	4 N65 ø5.0 c/20 C=536
N98	4 N70 ø5.0 c/20 C=310
N105	4 N71 ø5.0 c/20 C=157
N98	4 N72 ø5.0 c/20 C=105
N98	4 N73 ø5.0 c/20 C=440
N98	4 N74 ø5.0 c/20 C=200
N98	4 N75 ø5.0 c/20 C=301
N98	4 N76 ø5.0 c/20 C=202
N98	4 N77 ø5.0 c/20 C=259
N98	4 N78 ø5.0 c/20 C=99
N98	4 N79 ø5.0 c/20 C=346
N98	4 N80 ø5.0 c/20 C=435
N98	4 N81 ø5.0 c/20 C=449
N98	4 N82 ø5.0 c/20 C=106
N98	4 N83 ø5.0 c/20 C=119
N98	4 N84 ø5.0 c/20 C=51
N98	4 N85 ø5.0 c/20 C=187
N98	4 N86 ø5.0 c/20 C=82
N98	4 N5 ø5.0 c/20 C=89
N98	4 N65 ø5.0 c/20 C=536
N98	4 N87 ø5.0 c/20 C=252
N98	4 N49 ø5.0 c/20 C=128
N98	4 N88 ø5.0 c/20 C=124
N98	4 N89 ø5.0 c/20 C=591
N98	4 N5 ø5.0 c/20 C=89
N100	4 N25 ø5.0 c/20 C=460
N103	4 N90 ø5.0 c/20 C=76
N98	4 N70 ø5.0 c/20 C=310
N98	4 N91 ø5.0 c/20 C=571
N98	4 N5 ø5.0 c/20 C=89
N98	4 N92 ø5.0 c/20 C=70
N98	4 N52 ø5.0 c/20 C=342
N98	4 N51 ø5.0 c/20 C=129
N98	4 N53 ø5.0 c/20 C=440
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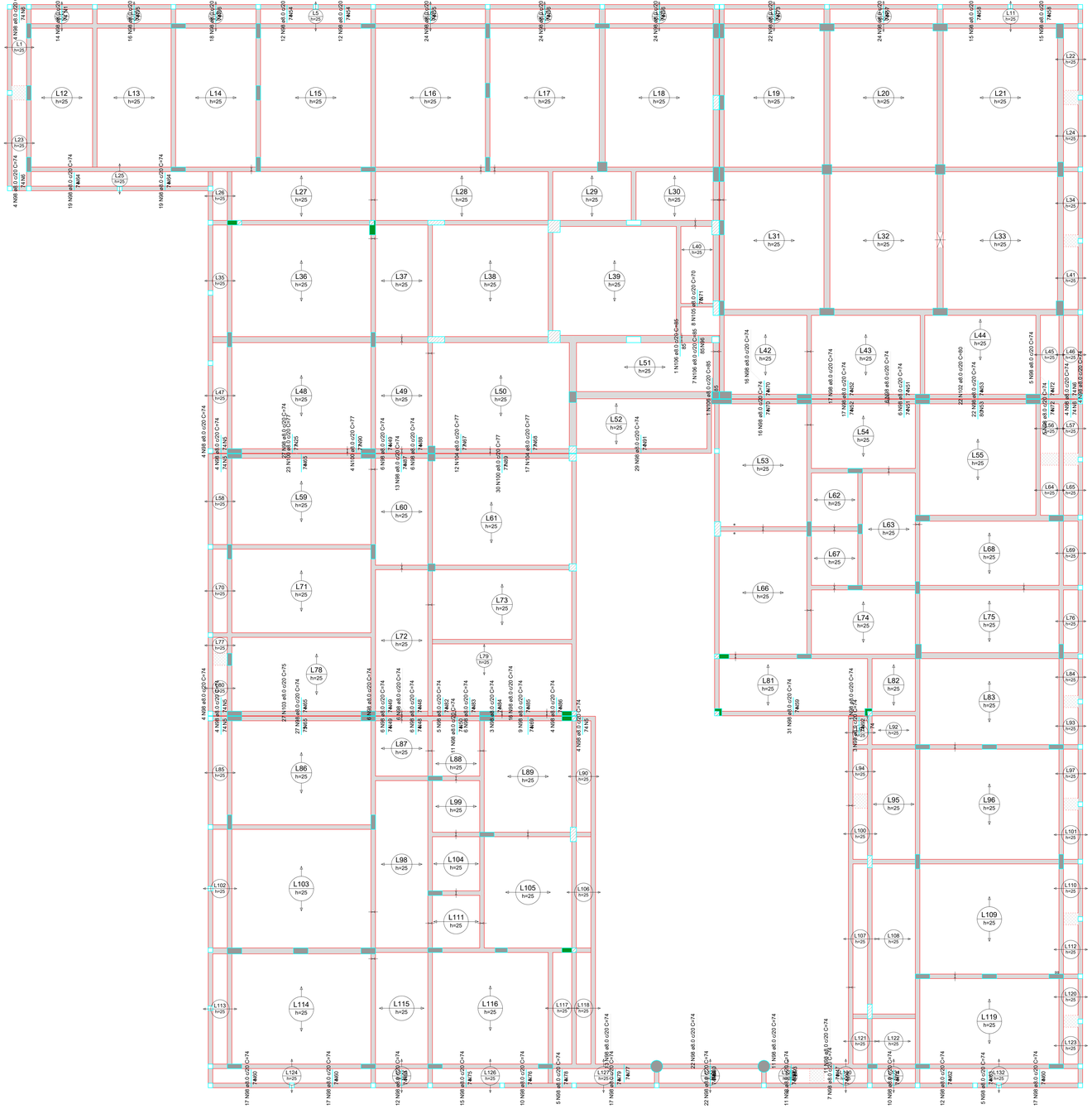


ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO COBERTURA (EIXO Y)

Escala 1:75

RELAÇÃO DO AÇO

Negativos X Negativos Y

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	20	276	5520
	2	5.0	4	521	2084
	3	5.0	4	143	572
	4	5.0	4	288	1152
	5	5.0	28	89	2492
	6	5.0	28	80	2240
	7	5.0	8	233	1864
	8	5.0	8	243	1944
	9	5.0	8	258	2064
	10	5.0	4	454	1816
	11	5.0	8	95	760
	12	5.0	8	104	832
	13	5.0	8	313	2504
	14	5.0	8	352	2816
	15	5.0	4	369	1476
	16	5.0	4	294	1176
	17	5.0	4	301	1204
	18	5.0	4	310	1240
	19	5.0	4	486	1944
	20	5.0	4	484	1936
	21	5.0	4	485	1940
	22	5.0	4	526	2104
	23	5.0	4	121	484
	24	5.0	4	209	836
	25	5.0	8	461	3688
	26	5.0	4	380	1520
	27	5.0	4	207	828
	28	5.0	4	314	1256
	29	5.0	4	294	1176
	30	5.0	4	195	780
	31	5.0	4	98	392
	32	5.0	4	368	1472
	33	5.0	4	119	476
	34	5.0	16	240	3840
	35	5.0	8	299	2392
	36	5.0	8	243	1944
	37	5.0	8	188	1504
	38	5.0	8	189	1512
	39	5.0	4	226	904
	40	5.0	4	102	408
	41	5.0	4	235	940
	42	5.0	4	228	912
	43	5.0	4	400	1600
	44	5.0	4	360	1440
	45	5.0	8	300	2400
	46	5.0	4	183	732
	47	5.0	8	142	1136
	48	5.0	8	119	952
	49	5.0	12	128	1536
	50	5.0	4	225	900
	51	5.0	8	129	1032
	52	5.0	8	342	2736
	53	5.0	8	440	3520
	54	5.0	8	241	1928
	55	5.0	4	479	1916
	56	5.0	8	480	3840
	57	5.0	4	474	1896
	58	5.0	8	293	2344
	59	5.0	4	629	2516
	60	5.0	12	340	4080
	61	5.0	4	238	952
	62	5.0	4	241	964
	63	5.0	4	100	400
	64	5.0	8	380	3040
	65	5.0	12	536	6432
	66	5.0	4	355	1420
	67	5.0	4	246	984
	68	5.0	4	346	1384
	69	5.0	4	320	1280
	70	5.0	8	310	2480
	71	5.0	8	157	628
	72	5.0	8	105	840
	73	5.0	4	440	1760
	74	5.0	4	200	800
	75	5.0	4	301	1204
	76	5.0	4	202	808
	77	5.0	4	259	1036
	78	5.0	4	99	396
	79	5.0	4	346	1384
	80	5.0	4	435	1740
	81	5.0	4	449	1796
	82	5.0	4	106	424
	83	5.0	4	119	476
	84	5.0	4	51	204
	85	5.0	4	187	748
	86	5.0	4	82	328
	87	5.0	4	252	1008
	88	5.0	4	124	496
	89	5.0	4	591	2364
	90	5.0	4	76	304
	91	5.0	4	571	2284
	92	5.0	4	70	280
	93	5.0	4	215	860
	94	5.0	8	222	1776
	95	5.0	4	329	1316
	96	5.0	5	142	710
CA50	97	8.0	28	81	2268
	98	8.0	1633	74	120842
	99	8.0	41	80	3280
	100	8.0	80	77	6160
	101	8.0	7	80	560
	102	8.0	22	80	1760
	103	8.0	27	75	2025
	104	8.0	29	77	2233
	105	8.0	8	70	560
	106	8.0	9	85	765

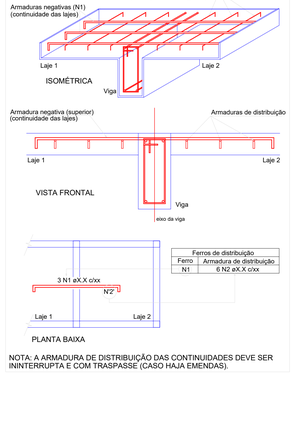
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	1404.5	554.2
CA60	5.0	1507.6	232.4

PESO TOTAL (kg)	
CA50	554.2
CA60	232.4

Volume de concreto (C-35) = 108.04 m³
Área de forma = 0.00 m²

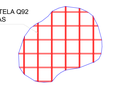
DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
00.198.638/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	IOE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR(2)
ETAPA	EXECUTIVO
FOLHA	EST 64/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ:08.***.***/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Rio negro - | CEP 83515-342 | Fone (47) 98113-8512 | Lei 14.133/2021 Art. 7º, §1º Projetos e serviços técnicos devem ser assinados digitalmente por profissional habilitado, com certificação válida, e acompanhados de ART ou RRT. Fernando Stroisch Armando (00474980)

SSI 25.0.20000.3 (pg) 64

Projeto Estrutural gerado por Computador

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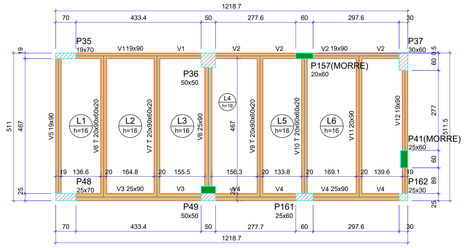

FORMA DO PAVIMENTO BASE RESERVATORIO (NÍVEL 1200)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x90	0	1200
V2	19x90	0	1200
V3	25x90	0	1200
V4	25x90	0	1200
V5	19x90	0	1200
V6	T 20x90x60x20	0	1200
V7	T 20x90x60x20	0	1200
V8	25x90	0	1200
V9	T 20x90x60x20	0	1200
V10	T 20x90x60x20	0	1200
V11	20x90	0	1200
V12	19x90	0	1200

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada	Água
L1	Maciça	16	0	1200	400	80	150	-	2800
L2	Maciça	16	0	1200	400	80	150	-	2800
L3	Maciça	16	0	1200	400	80	150	-	2800
L4	Maciça	16	0	1200	400	80	150	-	2800
L5	Maciça	16	0	1200	400	80	150	-	2800
L6	Maciça	16	0	1200	400	80	150	-	2800

Área de lajes			
Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Maciça	16	-	42.64

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P35	19x70	0	1200
P36	50x50	0	1200
P37	30x60	0	1200
P41	25x60	0	1200
P48	25x70	0	1200
P49	50x50	0	1200
P157	20x60	0	1200
P161	25x60	0	1200
P162	25x30	0	1200

Legenda dos pilares
Pilar que morre
Pilar que passa
Pilar com mudança de seção

Legenda das vigas e paredes
Viga

Legenda das lajes
Laje

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
DN: C=BR, O=ICP-Brasil, OU=Certificado Digital PF, OU=Videoconferência, OU=RFB e-CPF, OU=Secretaria da Receita Federal do Brasil - RFB, CN=ADEMAR STRINGARI JUNIOR:07414980901
Razão: Projeto aprovado
Localização: Joinville - SC
Data: 2025.08.25 15:50:30-03'00'
Foxit PDF Reader Version: 2025.1.1

MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

Assinado digitalmente por FERNANDO STROISCH:84134518920
DN: C=BR, O=ICP-Brasil, OU=Certificado Digital PF, OU=Videoconferência, OU=Secretaria da Receita Federal do Brasil - RFB, CN=FERNANDO STROISCH:84134518920
Razão: Sou o autor deste documento
Localização: sua assinatura aqui
Data: 2025.08.25 15:51:37-03'00'
Foxit PDF Reader Version: 2025.1.1

ENGº CIVIL, FERNANDO STROISCH
CREA/SC 062222-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	FÔRMAS BASE RESERVATÓRIO

ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 65/76
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Brunerau - | CEP 89010-340 | Fone (47) 3451-3513 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

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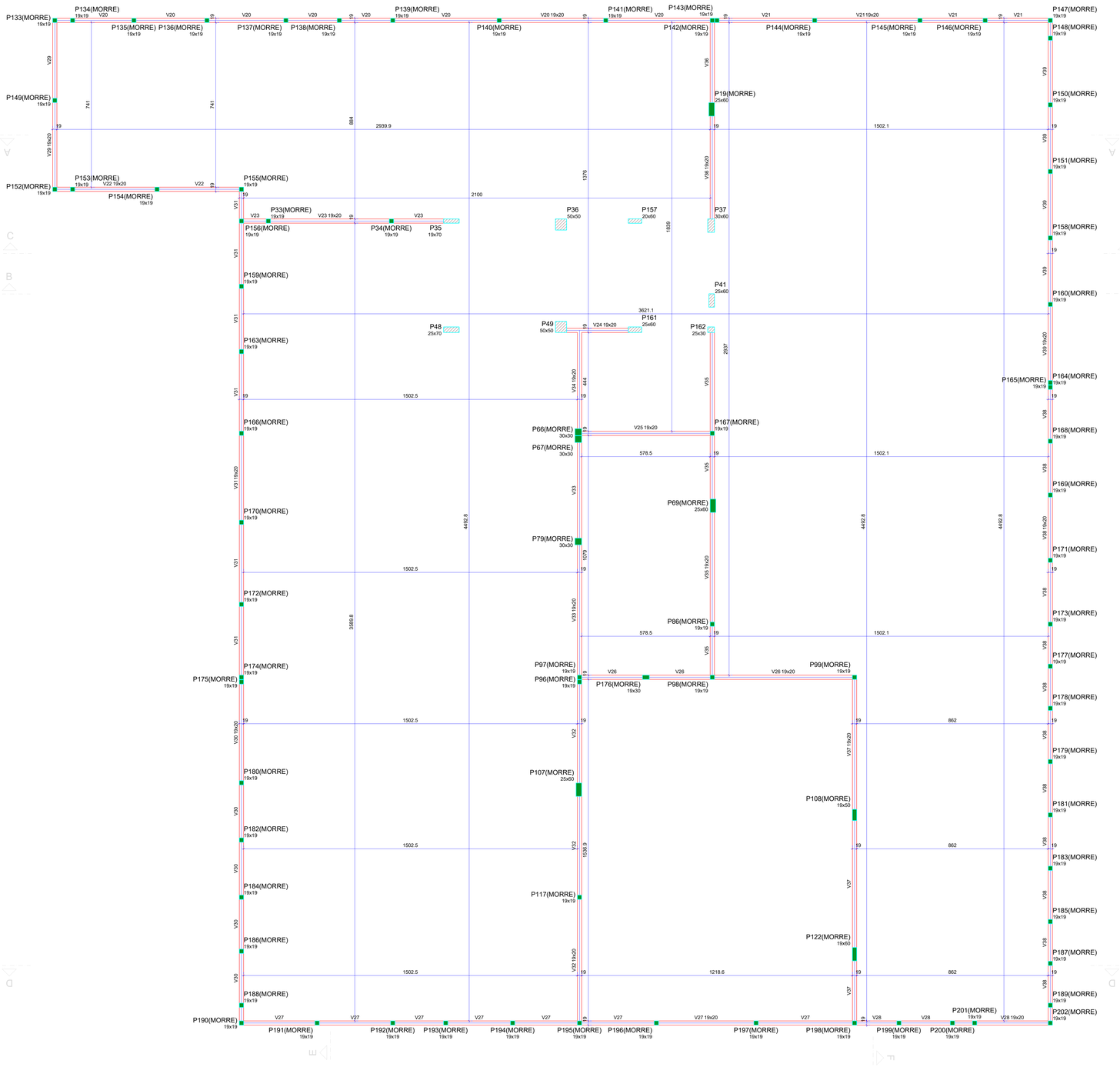
Projeto Estrutural de Concreto Armado (pilar)



FORMA INTERMEDIÁRIA DO PAVIMENTO BASE RESERVATORIO (NÍVEL 900)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V20	19x20	0	900
V21	19x20	0	900
V22	19x20	0	900
V23	19x20	0	900
V24	19x20	0	900
V25	19x20	0	900
V26	19x20	0	900
V27	19x20	0	900
V28	19x20	0	900
V29	19x20	0	900
V30	19x20	0	900
V31	19x20	0	900
V32	19x20	0	900
V33	19x20	0	900
V34	19x20	0	900
V35	19x20	0	900
V36	19x20	0	900
V37	19x20	0	900
V38	19x20	0	900
V39	19x20	0	900

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P19	25x60	0	900
P33	19x19	0	900
P34	19x19	0	900
P35	19x70	0	900
P36	50x50	0	900
P37	30x60	0	900
P41	25x60	0	900
P48	25x70	0	900
P49	50x50	0	900
P66	30x30	0	900
P67	30x30	0	900
P69	25x60	0	900
P79	30x30	0	900
P86	19x19	0	900
P96	19x19	0	900
P97	19x19	0	900
P98	19x19	0	900
P99	19x19	0	900
P107	25x60	0	900
P108	19x50	0	900
P117	19x19	0	900
P122	19x60	0	900
P133	19x19	0	900
P134	19x19	0	900
P135	19x19	0	900
P136	19x19	0	900
P137	19x19	0	900
P138	19x19	0	900
P139	19x19	0	900
P140	19x19	0	900
P141	19x19	0	900
P142	19x19	0	900
P143	19x19	0	900
P144	19x19	0	900
P145	19x19	0	900
P146	19x19	0	900
P147	19x19	0	900
P148	19x19	0	900
P149	19x19	0	900
P150	19x19	0	900
P151	19x19	0	900
P152	19x19	0	900
P153	19x19	0	900
P154	19x19	0	900
P155	19x19	0	900
P156	19x19	0	900
P157	20x60	0	900
P158	19x19	0	900
P159	19x19	0	900
P160	19x19	0	900
P161	25x60	0	900
P162	25x30	0	900
P163	19x19	0	900
P164	19x19	0	900
P165	19x19	0	900
P166	19x19	0	900
P167	19x19	0	900
P168	19x19	0	900
P169	19x19	0	900
P170	19x19	0	900
P171	19x19	0	900
P172	19x19	0	900
P173	19x19	0	900
P174	19x19	0	900
P175	19x19	0	900
P176	19x30	0	900
P177	19x19	0	900
P178	19x19	0	900
P179	19x19	0	900
P180	19x19	0	900
P181	19x19	0	900
P182	19x19	0	900
P183	19x19	0	900
P184	19x19	0	900
P185	19x19	0	900
P186	19x19	0	900
P187	19x19	0	900
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P193	19x19	0	900
P194	19x19	0	900
P195	19x19	0	900
P196	19x19	0	900
P197	19x19	0	900
P198	19x19	0	900
P199	19x19	0	900
P200	19x19	0	900
P201	19x19	0	900
P202	19x19	0	900

Legenda dos pilares
Pilar que morre
Pilar que passa

Legenda das vigas e paredes
Viga

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 MUNICIPIO DE JOINVILLE 83.169.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 ENGº CIVIL, FERNANDO STROISCH CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS PLATIBANDA
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 66/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc. | CEP 88715-140 | Fone (47) 99141-8113 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2023)
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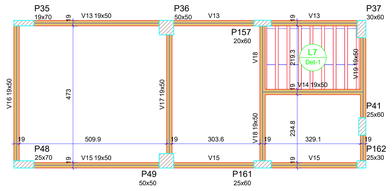


FORMA INTERMEDIÁRIA DO PAVIMENTO BASE RESERVATORIO (NÍVEL 975)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V13	19x50	0	975
V14	19x50	0	975
V15	19x50	0	975
V16	19x50	0	975
V17	19x50	0	975
V18	19x50	0	975
V19	19x50	0	975

Lajes								
Dados						Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L7	Vigota protendida	25	0	975	241	80	150	-

Área de lajes			
Tipo	Altura (cm)	Bloco de Enchimento	Área (m²)
Vigota protendida	25	B20/30/125	7.17

Características dos materiais	
fck (kgf/cm²)	Eci (kgf/cm²)
350	294029

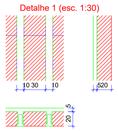
Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P35	19x70	0	975
P36	50x50	0	975
P37	30x60	0	975
P41	25x60	0	975
P48	25x70	0	975
P49	50x50	0	975
P157	20x60	0	975
P161	25x60	0	975
P162	25x30	0	975

Legenda dos pilares
Pilar que passa

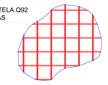
Legenda das vigas e paredes
Viga

Detalhe 1 (esc. 1:30)



Blocos de enchimento						
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1	EPS Unidirecional	B20/30/125	20	30	125	16

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.169.629/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS RESERVATORIO(INTERMEDIÁRIO)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 67/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.717/0001-06
Rua Presidente Getulio Vargas, 260, sala 33 - Centro - Rio Negrinho, SC | Fone (47) 99151-5674 e e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
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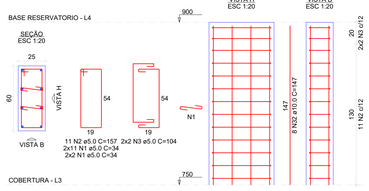

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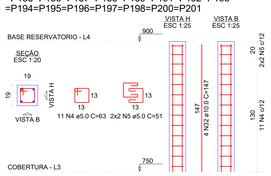

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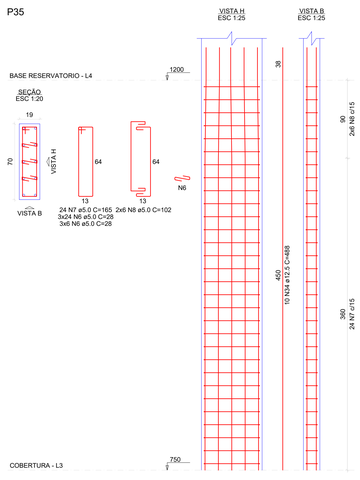

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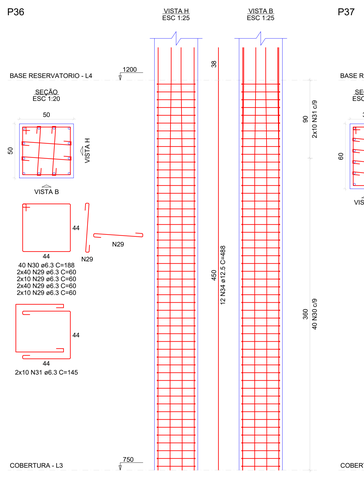

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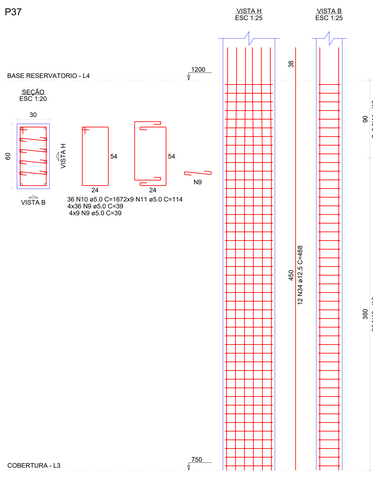

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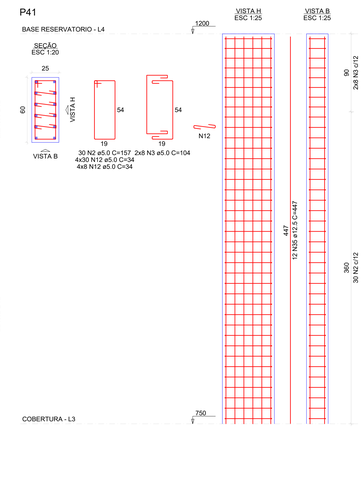

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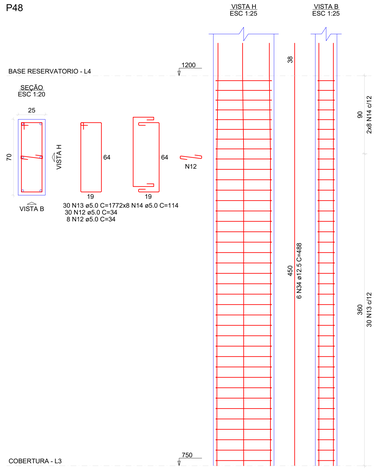

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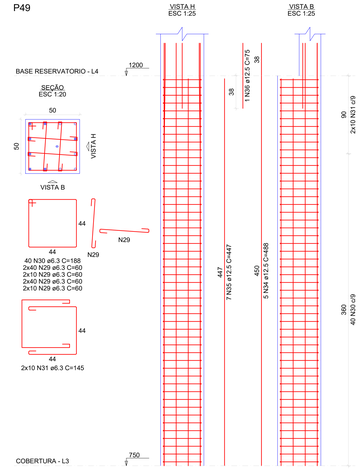

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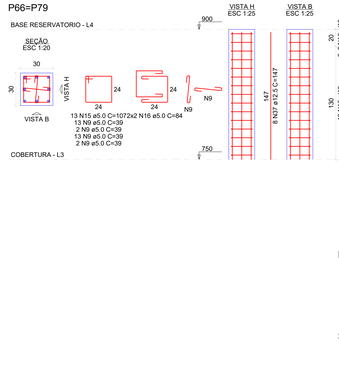

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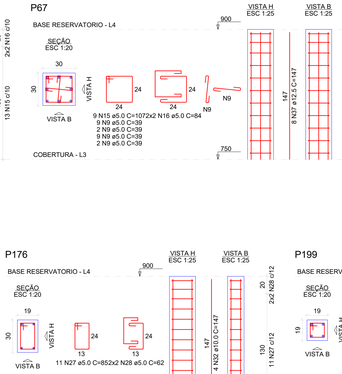

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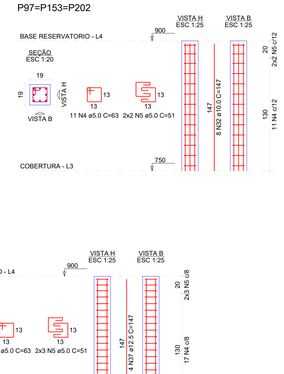

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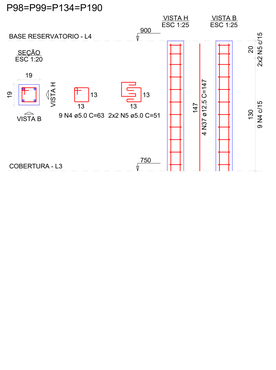

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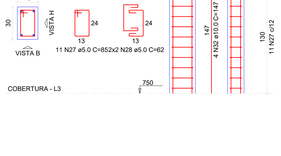

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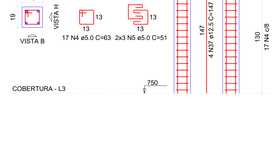

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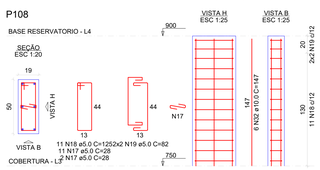

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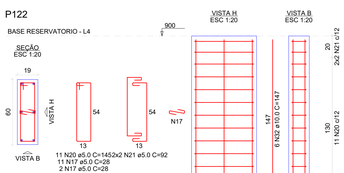

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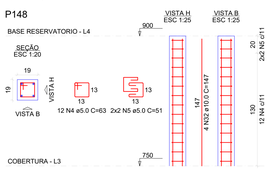

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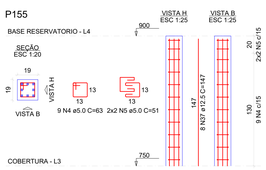

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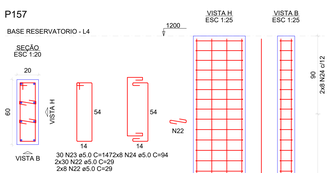

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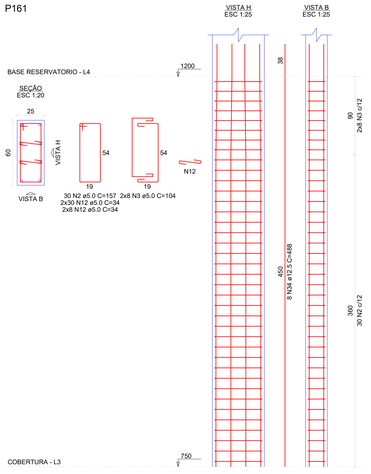

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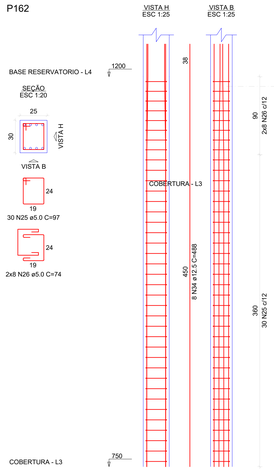


RELAÇÃO DO AÇO

3xP19	64xP33	P35
P36	P37	P41
P48	P49	2xP66
P67	3xP97	4xP98
P108	P122	P148
P155	P157	P161
P162	P176	P199

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	78	34	2652
	2	5.0	93	157	14601
	3	5.0	44	104	4576
	4	5.0	811	63	51093
	5	5.0	298	51	15198
	6	5.0	90	28	2520
	7	5.0	24	165	3960
	8	5.0	12	102	1224
	9	5.0	262	39	10218
	10	5.0	36	167	6012
	11	5.0	18	114	2052
	12	5.0	266	34	9044
	13	5.0	30	177	5310
	14	5.0	16	114	1824
	15	5.0	35	107	3745
	16	5.0	12	84	1008
	17	5.0	26	28	728
	18	5.0	11	125	1375
	19	5.0	4	82	328
	20	5.0	11	145	1595
	21	5.0	4	92	368
	22	5.0	76	29	2204
	23	5.0	30	147	4410
	24	5.0	16	94	1504
	25	5.0	30	97	2910
	26	5.0	16	74	1184
	27	5.0	11	85	935
	28	5.0	4	62	248
CA50	29	6.3	400	60	24000
	30	6.3	80	188	15040
	31	6.3	40	145	5800
	32	10.0	324	147	47628
	33	12.5	61	447	27267
	34	12.5	66	447	29502
	35	12.5	19	447	8493
	36	12.5	1	75	75
	37	12.5	52	147	7644

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	448.4	109.7
	10.0	512	315.7
	12.5	459.8	442.9
CA60	5.0	1528.3	235.6

PESO TOTAL (kg)	
CA50	868.4
CA60	235.6

Volume de concreto (C-35) = 12.16 m³
Área de forma = 173.43 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE 83.169.023/0001-15

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH CREA 062522-0

FERCON

Município de Joinville

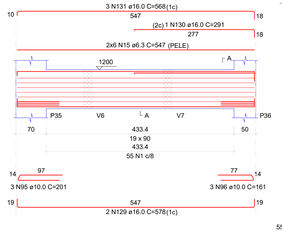
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	PILARES RESERVATÓRIO

ARQUIVO: 3OE_SED_ROS_EST_EX.DWG | DATA: 02/07/2025
ETAPA: EXECUTIVO | FOLHA: **EST 68/76**
ESCALA: INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Brusque/sc | CEP 89010-140 | Fone: (47) 3211-8071 | e-mail do responsável técnico: Mesmo deste projeto: fernandostroisch@hotmail.com

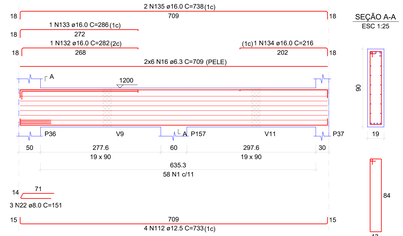
Projeto Estrutural de Concreto Armado (NBR 6118:2023)
SEI 25.0.2000003-9 pg. 68

V1
ESC 1:50



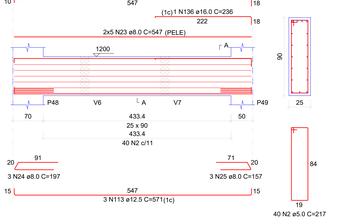
SEÇÃO A-A
ESC 1:25

V2
ESC 1:50



SEÇÃO A-A
ESC 1:25

V3
ESC 1:50



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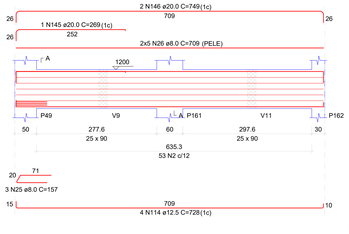
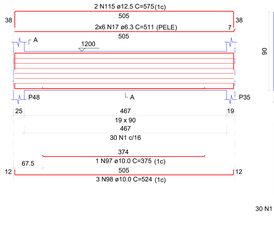
ESC 1:25

V4
ESC 1:50



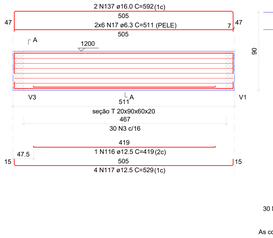
SEÇÃO A-A
ESC 1:25

V5
ESC 1:50



SEÇÃO A-A
ESC 1:25

V6
ESC 1:50



SEÇÃO A-A
ESC 1:25

As costura 1.5 cm2/m

V7
ESC 1:50

SEÇÃO A-A
ESC 1:25

As costura 1.5 cm2/m

V8
ESC 1:50

SEÇÃO A-A
ESC 1:25

V9
ESC 1:50

SEÇÃO A-A
ESC 1:25

As costura 1.5 cm2/m

V10
ESC 1:50

SEÇÃO A-A
ESC 1:25

As costura 1.7 cm2/m

V11
ESC 1:50

SEÇÃO A-A
ESC 1:25

V12
ESC 1:50

SEÇÃO A-A
ESC 1:25

V13
ESC 1:50

SEÇÃO A-A
ESC 1:25

V14
ESC 1:50

SEÇÃO A-A
ESC 1:25

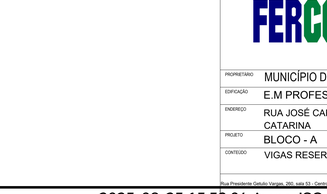
V15
ESC 1:50

SEÇÃO A-A
ESC 1:25

V16
ESC 1:50

SEÇÃO A-A
ESC 1:25

V17
ESC 1:50



SEÇÃO A-A
ESC 1:25

V18
ESC 1:50

SEÇÃO A-A
ESC 1:25

V19
ESC 1:50

SEÇÃO A-A
ESC 1:25

V20
ESC 1:50

SEÇÃO A-A
ESC 1:25

V21
ESC 1:50

SEÇÃO A-A
ESC 1:25

V22
ESC 1:50

SEÇÃO A-A
ESC 1:25

V23
ESC 1:50

SEÇÃO A-A
ESC 1:25

V24
ESC 1:50

SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34	V35	V36
V37	V38	V39

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	169	205	34645
	2	5.0	128	217	27776
	3	5.0	156	207	32292
	4	5.0	271	125	33875
	5	5.0	2	280	560
	6	5.0	2	260	520
	7	5.0	3345	65	217425
	8	5.0	2	405	810
	9	5.0	2	278	556
	10	5.0	2	320	640
	11	5.0	2	351	702
	12	5.0	2	256	512
	13	5.0	2	296	592
	14	5.0	2	292	584
	15	6.3	12	547	6564
	16	6.3	12	709	8508
	17	6.3	60	511	30660
	18	6.3	12	512	6144
	19	6.3	12	505	6060
	20	6.3	1	79	79
	21	6.3	1	141	141
	22	8.0	3	151	453
	23	8.0	10	547	5470
	24	8.0	3	197	591
	25	8.0	12	157	1884
	26	8.0	10	709	7090
	27	8.0	10	505	5050
	28	8.0	2	340	680
	29	8.0	2	307	614
	30	8.0	4	391	1564
	31	8.0	2	1079	2158
	32	8.0	2	987	1974
	33	8.0	2	975	1950
	34	8.0	12	1198	14376
	35	8.0	4	1200	4800
	36	8.0	2	660	1320
	37	8.0	2	930	1860
	38	8.0	2	602	1204
	39	8.0	2	371	742
	40	8.0	2	869	1738
	41	8.0	2	270	540
	42	8.0	2	999	1998
	43	8.0	2	1003	2006
	44	8.0	2	398	796
	45	8.0	2	402	804
	46	8.0	2	638	1276
	47	8.0	2	171	342
	48	8.0	2	224	448
	49	8.0	2	614	1228
	50	8.0	2	656	1312
	51	8.0	2	798	1596
	52	8.0	2	181	362
	53	8.0	2	949	1898
	54	8.0	2	979	1958
	55	8.0	2	922	1844
	56	8.0	2	209	418
	57	8.0	2	1175	2350
	58	8.0	2	1126	2252
	59	8.0	2	910	1820
	60	8.0	2	924	1848
	61	8.0	2	789	1578
	62	8.0	2	799	1598
	63	8.0	2	1097	2194
	64	8.0	2	470	940
	65	8.0	4	1198	4792
	66	8.0	2	405	810
	67	8.0	4	1114	4456
	68	8.0	2	1067	2134
	69	8.0	2	1059	2118
	70	8.0	2	480	960
	71	8.0	2	412	824
	72	8.0	2	1196	2392
	73	8.0	2	237	474
	74	8.0	2	401	802
	75	8.0	2	492	984
	76	8.0	2	501	1002
	77	8.0	2	1126	2252
	78	8.0	2	499	998
	79	8.0	2	435	870
	80	8.0	2	973	1946
	81	8.0	2	978	1956
	82	8.0	2	937	1874
	83	8.0	2	620	1240
	84	8.0	2	510	1020
	85	8.0	2	357	714
	86	8.0	2	186	372
	87	8.0	2	1095	2190
	88	8.0	2	151	302
	89	8.0	2	956	1912
	90	8.0	2	818	1636
	91	8.0	2	569	1138
	92	8.0	2	966	1932
	93	8.0	2	696	1392
	94	8.0	2	501	1002
	95	10.0	3	201	603
	96	10.0	3	161	483
	97	10.0	3	375	375
	98	10.0	3	524	1572
	99	10.0	4	134	536
	100	10.0	4	121	484
	101	10.0	4	539	2156
	102	10.0	2	378	756
	103	10.0	2	137	274
	104	10.0	2	137	274
	105	10.0	2	217	434
	106	10.0	4	522	2088
	107	10.0	2	521	1042
	108	10.0	2	540	1080
	109	10.0	1	297	297
	110	10.0	2	520	1040
	111	10.0	2	238	476
	112	12.5	4	733	2932
	113	12.5	1	571	1713
	114	12.5	4	728	2912
	115	12.5	2	575	1150
	116	12.5	1	419	419
	117	12.5	10	529	5290
	118	12.5	1	409	409
	119	12.5	4	519	2076
	120	12.5	1	190	190
	121	12.5	1	682	1364
	122	12.5	1	185	185
	123	12.5	2	742	1484
	124	12.5	1	179	179
	125	12.5	1	183	183
	126	12.5	2	228	456
	127	12.5	2	707	1414
	128	12.5	2	527	1054
	129	16.0	2	578	1156
	130	16.0	1	291	291
	131	16.0	6	568	3408
	132	16.0	1	282	282
	133	16.0	1	682	682
	134	16.0	1	216	216
	135	16.0	2	738	1476
	136	16.0	1	236	236
	137	16.0	6	592	3552
	138	16.0	3	536	1608
	139	16.0	5	552	2760
	140	16.0	3	537	1611
	141	16.0	2	593	1186
	142	16.0	2	518	1036
	143	16.0	2	592	1184
	144	16.0	2	746	1492
	145	20.0	1	269	269
	146	20.0	2	749	1498

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	581.6	142.3
	8.0	1357.4	535.6
	10.0	139.7	86.1
	12.5	234.1	225.5
	16.0	217.8	343.8
	20.0	17.7	43.6
CA60	5.0	3514.9	541.8
PESO TOTAL			
CA50	1376.9		
CA60	541.8		

Volume de concreto (C-35) = 26.10 m³
Área de forma = 300.83 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.164.023/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENG° CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS RESERVATÓRIO(1)
ESCALA	EXECUTIVO
FOLHA	INDICADA
	EST 69/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 34.660.731/0001-66
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Iturmarau | CEP 89010-140 | Fone: (47) 3611-3074 | E-mail do responsável técnico desta projeto: fernando@fercongroup.com

Projeto Executivo de Estrutura (47)3461-3074
SED 25.0.2000.0.3 (pb) 07/08/2025
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V25
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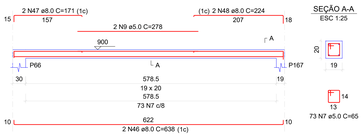
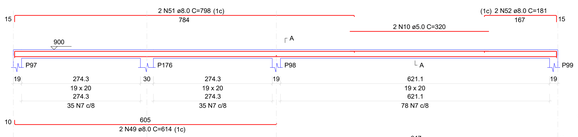


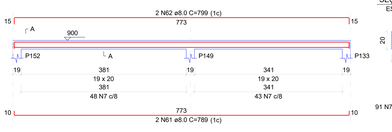
SEÇÃO A-A
ESC 1:25

V26
ESC 1:50



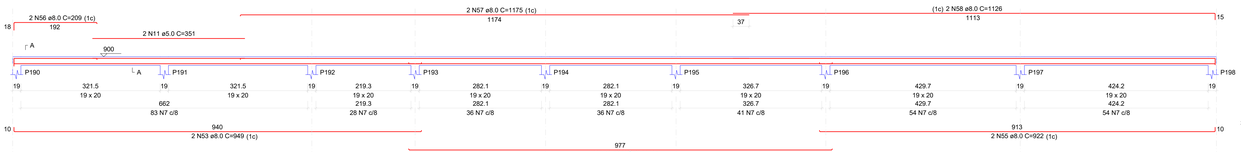
SEÇÃO A-A
ESC 1:25

V29
ESC 1:50



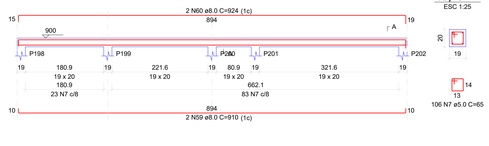
SEÇÃO A-A
ESC 1:25

V27
ESC 1:50



SEÇÃO A-A
ESC 1:25

V28
ESC 1:50

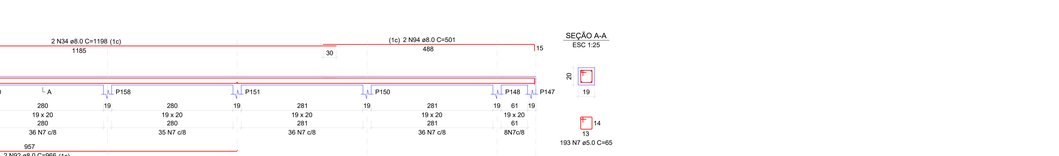


SEÇÃO A-A
ESC 1:25

V30
ESC 1:50

SEÇÃO A-A
ESC 1:25

V31
ESC 1:50



SEÇÃO A-A
ESC 1:25

V32
ESC 1:50

SEÇÃO A-A
ESC 1:25

V33
ESC 1:50

SEÇÃO A-A
ESC 1:25

V34
ESC 1:50

SEÇÃO A-A
ESC 1:25

V35
ESC 1:50

SEÇÃO A-A
ESC 1:25

V36
ESC 1:50

SEÇÃO A-A
ESC 1:25

V37
ESC 1:50

SEÇÃO A-A
ESC 1:25

V38
ESC 1:50

SEÇÃO A-A
ESC 1:25

V39
ESC 1:50

SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8 V9
V10 V11 V12
V13 V14 V15
V16 V17 V18
V19 V20 V21
V22 V23 V24
V25 V26 V27
V28 V29 V30
V31 V32 V33
V34 V35 V36
V37 V38 V39

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	169	205	34645
	2	5.0	128	217	27776
	3	5.0	156	207	32292
	4	5.0	271	125	33875
	5	5.0	2	280	560
	6	5.0	2	260	520
	7	5.0	3345	65	217425
	8	5.0	2	405	810
	9	5.0	2	278	556
	10	5.0	2	320	640
	11	5.0	2	351	702
	12	5.0	2	256	512
	13	5.0	2	278	556
	14	5.0	2	295	590
	15	6.3	12	547	6564
	16	6.3	12	709	8508
	17	6.3	60	511	30660
	18	6.3	12	512	6144
	19	6.3	12	505	6060
	20	6.3	1	79	79
	21	6.3	1	141	141
	22	8.0	3	151	453
	23	8.0	10	547	5470
	24	8.0	3	197	591
	25	8.0	12	157	1884
	26	8.0	10	709	7090
	27	8.0	10	505	5050
	28	8.0	2	340	680
	29	8.0	2	307	614
	30	8.0	4	391	1564
	31	8.0	2	1079	2158
	32	8.0	2	987	1974
	33	8.0	2	975	1950
	34	8.0	12	1198	14376
	35	8.0	4	1200	4800
	36	8.0	2	660	1320
	37	8.0	2	930	1860
	38	8.0	2	602	1204
	39	8.0	2	371	742
	40	8.0	2	869	1738
	41	8.0	2	270	540
	42	8.0	2	999	1998
	43	8.0	2	1003	2006
	44	8.0	2	398	796
	45	8.0	2	402	804
	46	8.0	2	638	1276
	47	8.0	2	171	342
	48	8.0	2	224	448
	49	8.0	2	614	1228
	50	8.0	2	656	1312
	51	8.0	2	798	1596
	52	8.0	2	181	362
	53	8.0	2	949	1898
	54	8.0	2	979	1958
	55	8.0	2	922	1844
	56	8.0	2	209	418
	57	8.0	2	1175	2350
	58	8.0	2	1126	2252
	59	8.0	2	910	1820
	60	8.0	2	924	1848
	61	8.0	2	789	1578
	62	8.0	2	799	1598
	63	8.0	2	1097	2194
	64	8.0	2	470	940
	65	8.0	4	1198	4792
	66	8.0	2	405	810
	67	8.0	4	1114	4456
	68	8.0	2	1067	2134
	69	8.0	2	1059	2118
	70	8.0	2	480	960
	71	8.0	2	412	824
	72	8.0	2	1106	2212
	73	8.0	2	657	1314
	74	8.0	2	230	460
	75	8.0	2	492	984
	76	8.0	2	501	1002
	77	8.0	2	1128	2256
	78	8.0	2	499	998
	79	8.0	2	435	870
	80	8.0	2	973	1946
	81	8.0	2	978	1956
	82	8.0	2	937	1874
	83	8.0	2	620	1240
	84	8.0	2	510	1020
	85	8.0	2	357	714
	86	8.0	2	186	372
	87	8.0	2	1095	2190
	88	8.0	2	151	302
	89	8.0	2	956	1912
	90	8.0	2	818	1636
	91	8.0	2	569	1138
	92	8.0	2	966	1932
	93	8.0	2	696	1392
	94	8.0	2	501	1002
	95	10.0	3	201	603
	96	10.0	3	161	483
	97	10.0	1	375	375
	98	10.0	3	524	1572
	99	10.0	4	134	536
	100	10.0	4	121	484
	101	10.0	4	539	2156
	102	10.0	2	378	756
	103	10.0	2	137	274
	104	10.0	2	137	274
	105	10.0	2	217	434
	106	10.0	4	522	2088
	107	10.0	2	521	1042
	108	10.0	2	540	1080
	109	10.0	1	297	297
	110	10.0	2	520	1040
	111	10.0	2	298	476
	112	12.5	4	733	2932
	113	12.5	3	571	1713
	114	12.5	4	728	2912
	115	12.5	4	619	2476
	116	12.5	1	150	150
	117	12.5	10	529	5290
	118	12.5	1	409	409
	119	12.5	4	519	2076
	120	12.5	1	190	190
	121	12.5	2	682	1364
	122	12.5	1	185	185
	123	12.5	2	742	1484
	124	12.5	1	179	179
	125	12.5	1	183	183
	126	12.5	2	228	456
	127	12.5	2	707	1414
	128	12.5	2	527	1054
	129	16.0	2	578	1156
	130	16.0	1	291	291
	131	16.0	6	568	3408
	132	16.0	1	282	282
	133	16.0	1	286	286
	134	16.0	1	216	216
	135	16.0	2	738	1476
	136	16.0	1	236	236
	137	16.0	6	592	3552
	138	16.0	3	536	1608
	139	16.0	5	552	2760
	140	16.0	3	537	1611
	141	16.0	2	593	1186
	142	16.0	2	518	1036
	143	16.0	2	592	1184
	144	16.0	2	746	1492
	145	20.0	1	269	269
	146	20.0	2	749	1498

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	581.6	142.3
	8.0	1357.4	535.6
	10.0	139.7	86.1
	12.5	234.1	225.5
	16.0	217.8	343.8
	20.0	17.7	43.6
CA60	5.0	3514.9	541.8
PESO TOTAL			
CA50	1376.9		
CA60	541.8		

Volume de concreto (C-35) = 26.10 m³
Área de forma = 300.83 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.023/0001-15

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	3CE_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS RESERVATÓRIO(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 70/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.040.772/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Brusque/sc | CEP 89010-140 | Fone: (47) 3211-3011 | E-mail do responsável técnico (leia projeto: fernando@fercongenharia.com.br)

Projeto Estrutural de Concreto Armado (pré-moldado)
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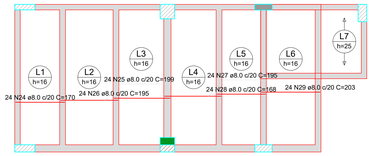
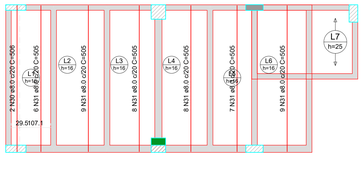


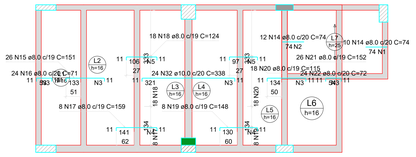
ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO BASE RESERVATORIO (EIXO X)

Escala 1:75



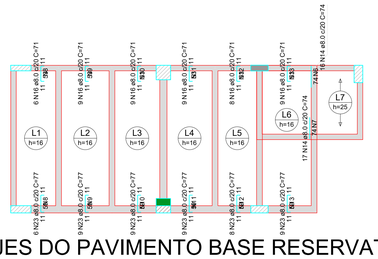
ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO BASE RESERVATORIO (EIXO Y)

Escala 1:75



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO BASE RESERVATORIO (EIXO X)

Escala 1:75

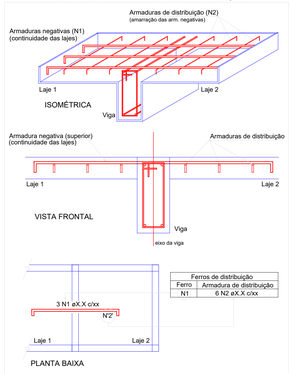


ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO BASE RESERVATORIO (EIXO Y)

Escala 1:75

Armaduras de distribuição	
Armadura	Armadura de distribuição
N14	4 N1 ø5.0 c/20 C=203
N14	4 N2 ø5.0 c/20 C=238
N15	9 N3 ø5.0 c/16 C=489
N16	4 N3 ø5.0 c/16 C=489
N17	9 N4 ø5.0 c/16 C=147
N18	7 N5 ø5.0 c/16 C=342
N32	20 N3 ø5.0 c/16 C=489
N19	9 N4 ø5.0 c/16 C=147
N20	6 N5 ø5.0 c/16 C=342
N21	9 N3 ø5.0 c/16 C=489
N22	4 N3 ø5.0 c/16 C=489
N14	4 N6 ø5.0 c/20 C=328
N14	4 N7 ø5.0 c/20 C=348
N16	4 N8 ø5.0 c/16 C=123
N23	4 N8 ø5.0 c/16 C=123
N16	4 N9 ø5.0 c/16 C=185
N23	4 N9 ø5.0 c/16 C=185
N16	4 N10 ø5.0 c/16 C=178
N23	4 N10 ø5.0 c/16 C=178
N16	4 N11 ø5.0 c/16 C=179
N23	4 N11 ø5.0 c/16 C=179
N16	4 N12 ø5.0 c/16 C=151
N23	4 N12 ø5.0 c/16 C=151
N16	4 N13 ø5.0 c/16 C=186
N23	4 N13 ø5.0 c/16 C=186

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 eX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4	203	812
	2	5.0	4	238	952
	3	5.0	46	489	22494
	4	5.0	18	147	2646
	5	5.0	13	342	4446
	6	5.0	4	328	1312
	7	5.0	4	348	1392
	8	5.0	8	123	984
	9	5.0	8	185	1480
	10	5.0	8	178	1424
	11	5.0	8	179	1432
	12	5.0	8	151	1208
	13	5.0	8	186	1488
CA50	14	8.0	55	74	4070
	15	8.0	26	151	3926
	16	8.0	74	71	5254
	17	8.0	8	159	1272
	18	8.0	18	124	2232
	19	8.0	8	148	1184
	20	8.0	18	115	2070
	21	8.0	26	152	3952
	22	8.0	24	72	1728
	23	8.0	50	77	3850
	24	8.0	24	170	4080
	25	8.0	24	199	4776
	26	8.0	24	195	4680
	27	8.0	24	195	4680
	28	8.0	24	168	4032
	29	8.0	24	203	4872
	30	8.0	2	506	1012
	31	8.0	47	505	23735
	32	10.0	24	338	8112

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	814.1	321.2
	10.0	81.1	50
CA60	5.0	420.7	64.8
PESO TOTAL (kg)			
CA50	371.2		
CA60	64.8		

Volume de concreto (C-35) = 7.36 m³
Área de forma = 42.28 m²

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJES RESERVATÓRIO
ESCALA	EXECUTIVO
FOLHA	INDICADA
	EST 71/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.660.731/0001-66
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Illumenau | CEP 89010-140 | Fone: (47) 3611-3074 | e-mail do responsável técnico deste projeto: fernando@fercongroup.com

Projeto Estrutural de Concreto Armado (ABNT NBR 6118:2023)

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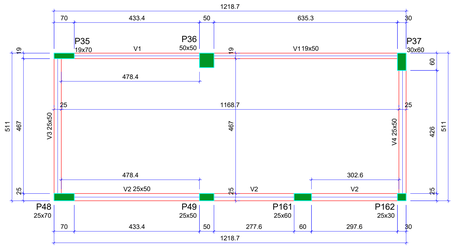


FORMA DO PAVIMENTO COBERTURA RESERVATÓRIO (NÍVEL 1600)

Escala 1:75

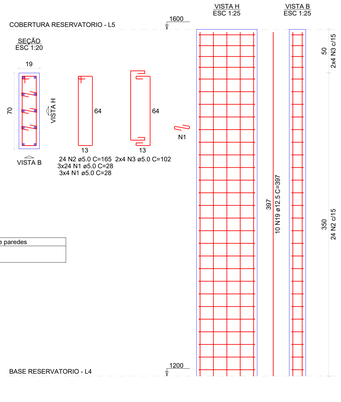
Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x50	0	1600
V2	25x50	0	1600
V3	25x50	0	1600
V4	25x50	0	1600

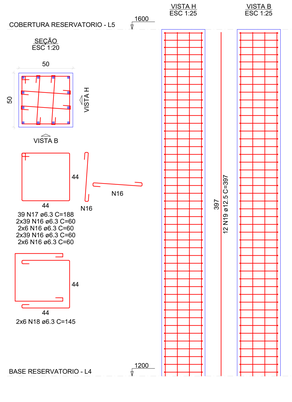
Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

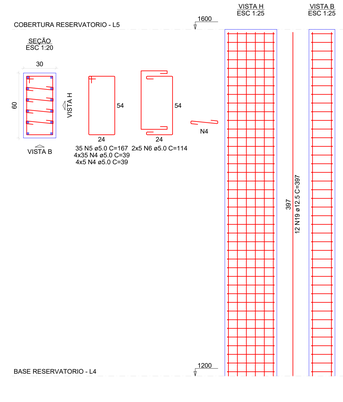
Dimensão máxima do agregado = 19 mm

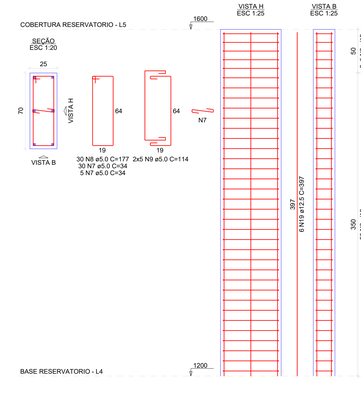
Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P35	19x70	0	1600
P36	50x50	0	1600
P37	30x60	0	1600
P48	25x70	0	1600
P49	25x50	0	1600
P161	25x60	0	1600
P162	25x30	0	1600

Legenda dos pilares	Legenda das vigas e paredes
Pilar que morre	Viga









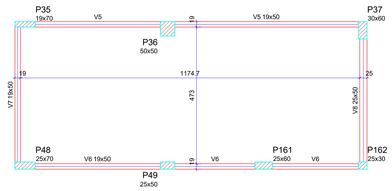
Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V5	19x50	0	1400
V6	19x50	0	1400
V7	19x50	0	1400
V8	25x50	0	1400

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

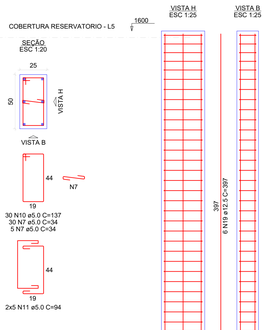
Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P35	19x70	0	1400
P36	50x50	0	1400
P37	30x60	0	1400
P48	25x70	0	1400
P49	25x50	0	1400
P161	25x60	0	1400
P162	25x30	0	1400

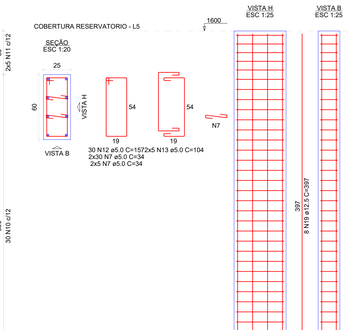
Legenda dos pilares	Legenda das vigas e paredes
Pilar que passa	Viga

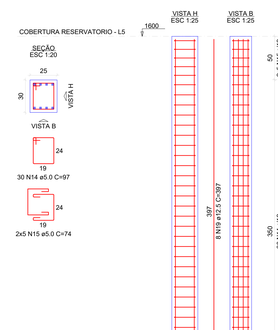


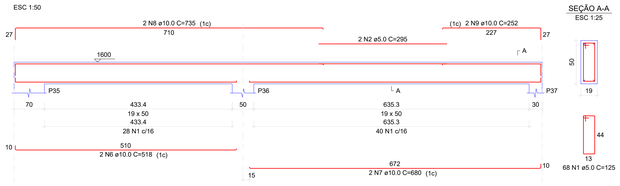
FORMA INTERMEDIÁRIA DO PAVIMENTO COBERTURA RESERVATORIO (NÍVEL 1400)

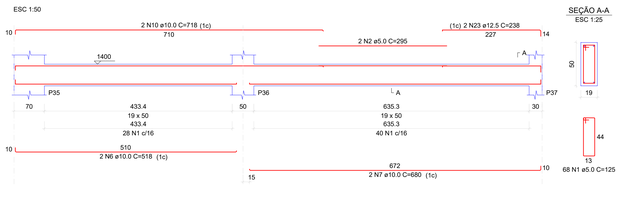
Escala 1:75

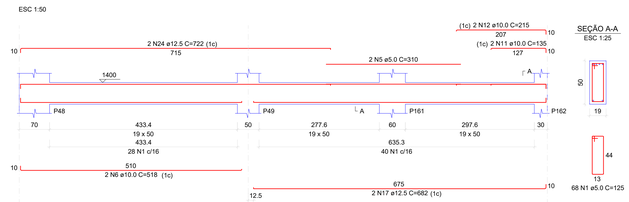


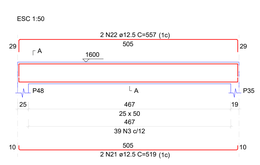


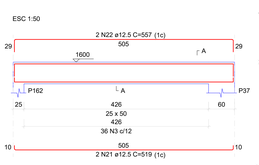












RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	234	125	29250
	2	5.0	4	295	1180
	3	5.0	201	137	27537
	4	5.0	2	370	740
	5	5.0	2	310	620
CA50	6	10.0	6	518	3108
	7	10.0	4	680	2720
	8	10.0	2	735	1470
	9	10.0	2	252	504
	10	10.0	2	718	1436
	11	10.0	2	135	270
	12	10.0	2	215	430
	13	10.0	2	522	1044
	14	10.0	1	112	112
	15	10.0	2	524	1048
	16	12.5	2	520	1040
	17	12.5	4	682	2728
	18	12.5	1	190	190
	19	12.5	2	741	1482
	20	12.5	2	173	346
	21	12.5	4	519	2076
	22	12.5	4	557	2228
	23	12.5	2	238	476
	24	12.5	2	722	1444
	25	12.5	2	524	1048
	26	12.5	2	523	1046

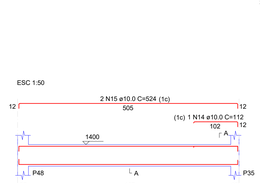
RESUMO DO AÇO

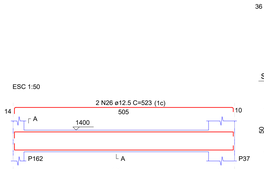
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	121.4	74.9
	12.5	141	135.9
CA60	5.0	593.3	91.4

PESO TOTAL (kg)

CA50	210.7
CA60	91.4

Volume de concreto (C-35) = 6.34 m³
Área de forma = 72.09 m²





RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	84	28	2352
	2	5.0	24	165	3960
	3	5.0	8	102	816
	4	5.0	160	39	6240
	5	5.0	35	167	5845
	6	5.0	10	114	1140
	7	5.0	140	34	4760
	8	5.0	30	177	5310
	9	5.0	10	114	1140
	10	5.0	30	137	4110
	11	5.0	10	94	940
	12	5.0	30	157	4710
	13	5.0	10	104	1040
	14	5.0	30	97	2910
	15	5.0	10	74	740
CA50	16	6.3	180	60	10800
	17	6.3	39	188	7332
	18	6.3	12	145	1740
	19	12.5	62	397	24614

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	198.7	48.6
	12.5	246.1	237.1
CA60	5.0	460.1	70.9

PESO TOTAL (kg)

CA50	285.7
CA60	70.9

Volume de concreto (C-35) = 4.35 m³
Área de forma = 47.12 m²

RELAÇÃO DO AÇO

P35 P36 P37
P48 P49
P161
P162

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	84	28	2352
	2	5.0	24	165	3960
	3	5.0	8	102	816
	4	5.0	160	39	6240
	5	5.0	35	167	5845
	6	5.0	10	114	1140
	7	5.0	140	34	4760
	8	5.0	30	177	5310
	9	5.0	10	114	1140
	10	5.0	30	137	4110
	11	5.0	10	94	940
	12	5.0	30	157	4710
	13	5.0	10	104	1040
	14	5.0	30	97	2910
	15	5.0	10	74	740
CA50	16	6.3	180	60	10800
	17	6.3	39	188	7332
	18	6.3	12	145	1740
	19	12.5	62	397	24614

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:074 14980901
MUNICÍPIO DE JOINVILLE
82.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062222-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
CONTEÚDO	COBERTURA RESERVATÓRIO(VIGAS E PILARES)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 72/76

FERCON ENGENHARIA | CREA. nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Brunerau - | CEP 89010-540 | Fone (47) 98431-8013 | e-mail de responsável técnico desde projeto: fernando@fercongenharia.com.br

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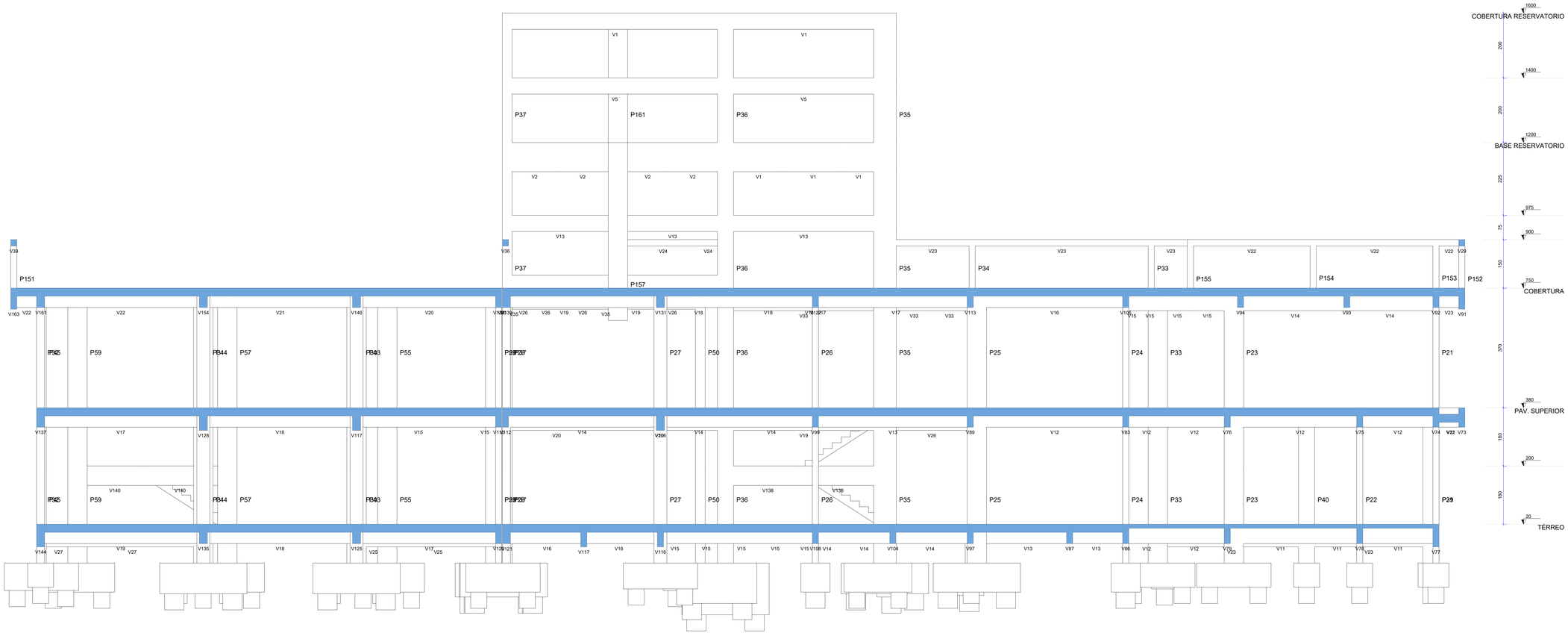
SEI 25.0.000003-9 pg / 72
Projeto Executivo Armado (04/07/2025)



CORTE A-A

Escala 1:50

CORTE D-D

Escala 1:50

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	CORTES AA - DD
ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 73/76

FERCON ENGENHARIA | CREA. nº 062522-0 | CNPJ 04.668.721/0001-06
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Blumenau - | CEP 89010-540 | Fone (47) 3621-3613 | e-mail do responsável técnico deste projeto: fernando@fercongenharia.com.br

Projeto Estrutura de Concreto Armado (NBR 6118:2023) - SEI 25.0.3000033-8 pg. 73

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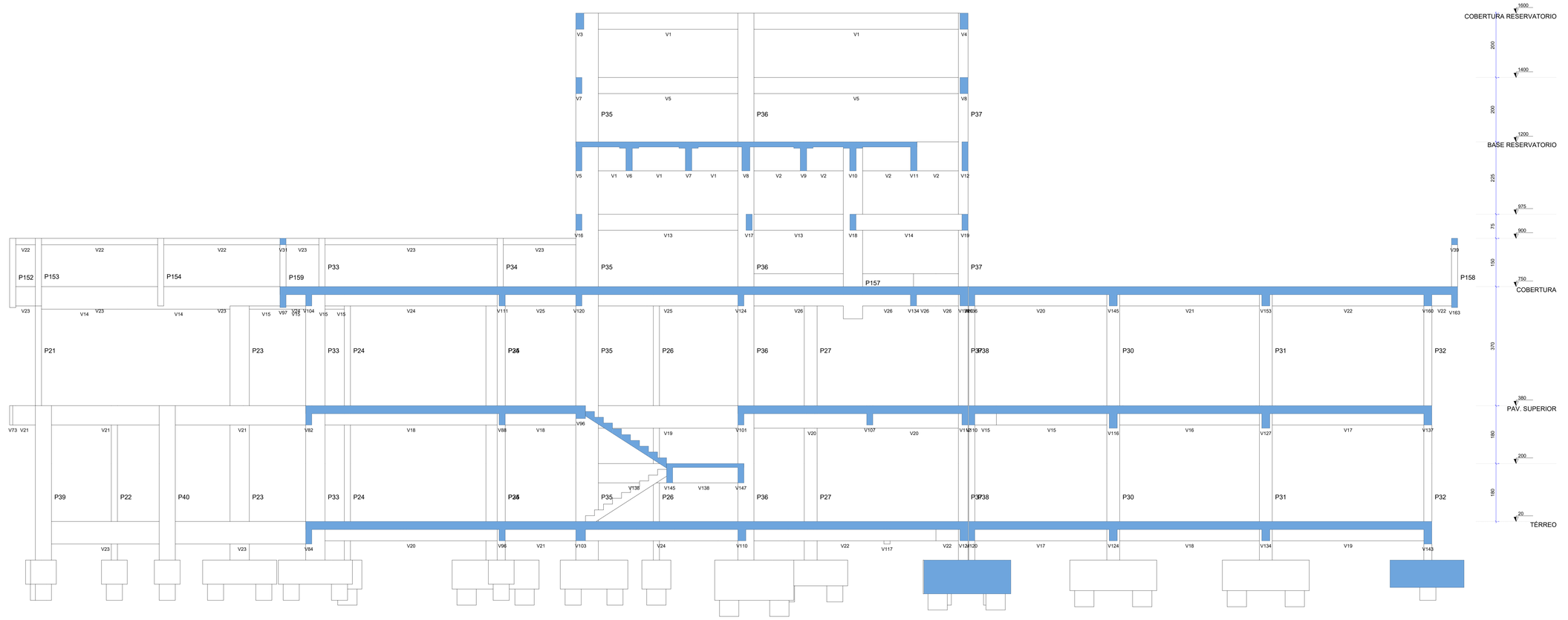
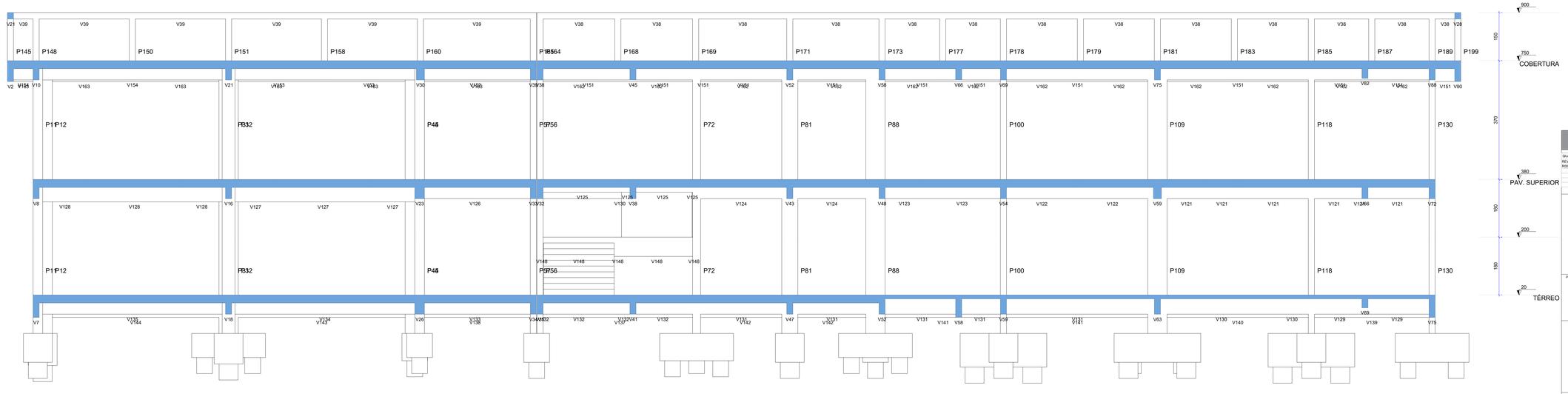


CORTE B-B

Escala 1:50



CORTE F-F

Escala 1:50

PROJETO ESTRUTURAL			
QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando
APROVAÇÕES			
PROPRIETÁRIO	ADEMAR STRINGARI JUNIOR:07414980901 — MUNICIPIO DE JOINVILLE 55.160.029/001-10	RESPONSÁVEL TÉCNICO	FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0
	FERCON		Município de Joinville — EQUIPE TÉCNICA DA EMPRESA ENGº CIVIL FERNANDO STROISCH CREA 062522-0
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE		
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA		
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA		
PROJETO	BLOCO - A	ARQUIVO: JOI_SED_ROS_EST_EX.DWG	DATA: 02/07/2025
CONTEÚDO	CORTES BB - FF	ETAPA: EXECUTIVO; ESCALA: INDICADA	FOLHA: EST 74/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Rio Negrinho - SC | CEP 89010-140 | Fone (47) 98811-8010 | E-mail fernando@fercongenharia.com.br

Projeto Estrutural de Concreto Armado (CA)
SEI 25.0.2000038-9 pg. 74
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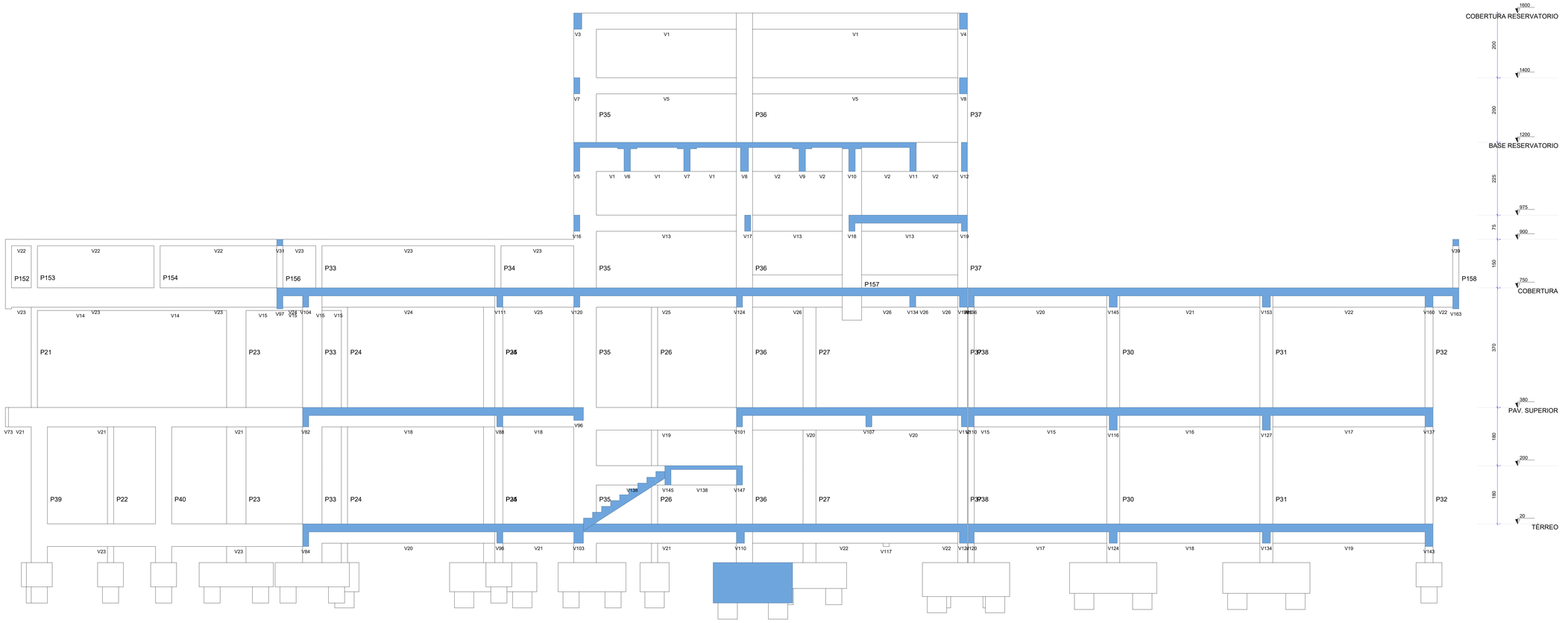

CORTE C-C

Escala 1:50

CORTE E-E

Escala 1:50

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
DN: C=BR, O=ICP-Brasil, OU=Certificado Digital PF, OU=Videoconferência, OU=07414980901, CN=ADEMAR STRINGARI JUNIOR:07414980901
Razão: Eu sou o autor deste documento
Localização: sua localização de assinatura aqui
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MUNICÍPIO DE JOINVILLE
01.199.625/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

Assinado digitalmente por FERNANDO STROISCH:84134518920
DN: C=BR, O=ICP-Brasil, OU=Certificado Digital PF, A1, OU=Videoconferência, OU=84134518920, CN=FERNANDO STROISCH:84134518920
Razão: Eu sou o autor deste documento
Localização: sua localização de assinatura aqui
Data: 2025.07.02 15:52:43 -03'00'
Foxit PDF Editor Versão: 13.1.7

ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	CORTES CC - FF

ARQUIVO	JOI_SED_ROS_EST_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 75/76

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ | 44.555.666/ XX-XX
Rua Presidente Getúlio Vargas, 360, sala 53 - Centro - Balneário - CEP 88370-140 | Fone (47) 3567-0000 | e-mail do responsável técnico deste projeto: fernando@fercomgalpoes.com

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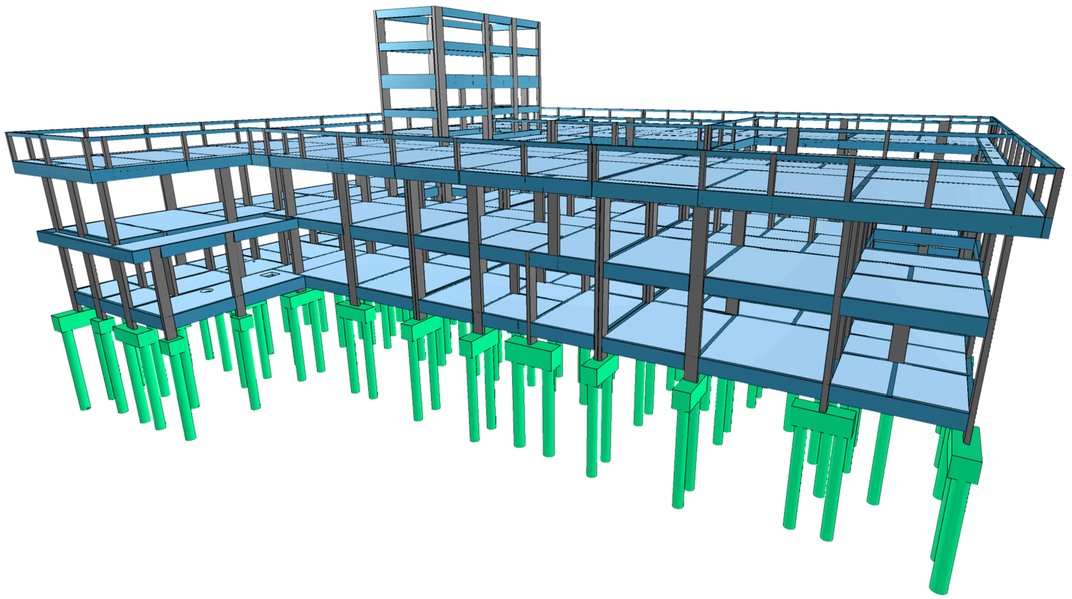

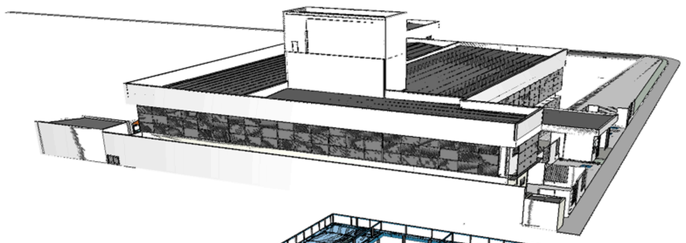

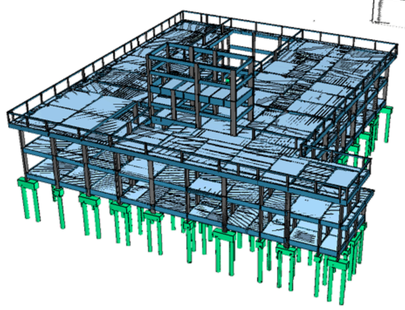

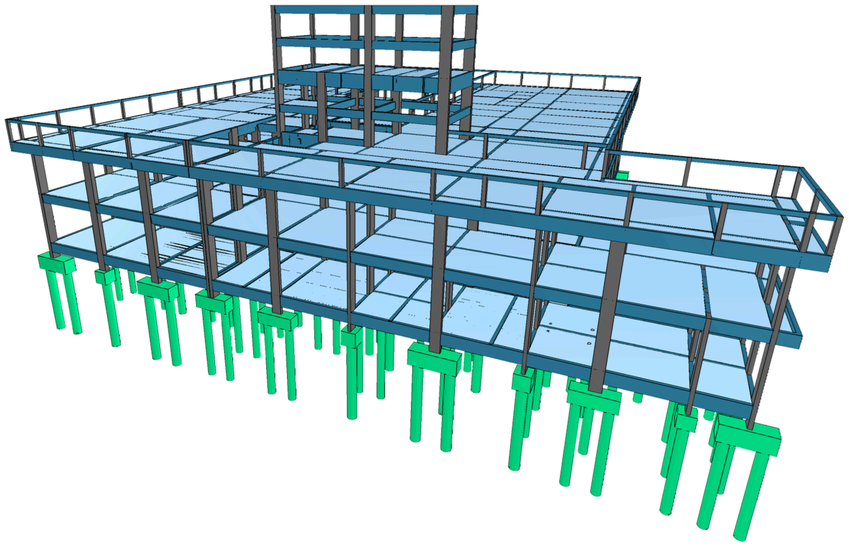

PROJETO ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
80.169.829/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - A
CONTEÚDO	IMAGENS 3D

ARQUIVO: XX_SED_ROS_EST_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
FOLHA: EST 76/76
ESCALA: INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau. | CEP 89010-140 | Fone (47) 3611-8011 | e-mail de responsável técnico deste projeto: fernando@fercongenharia.com.br

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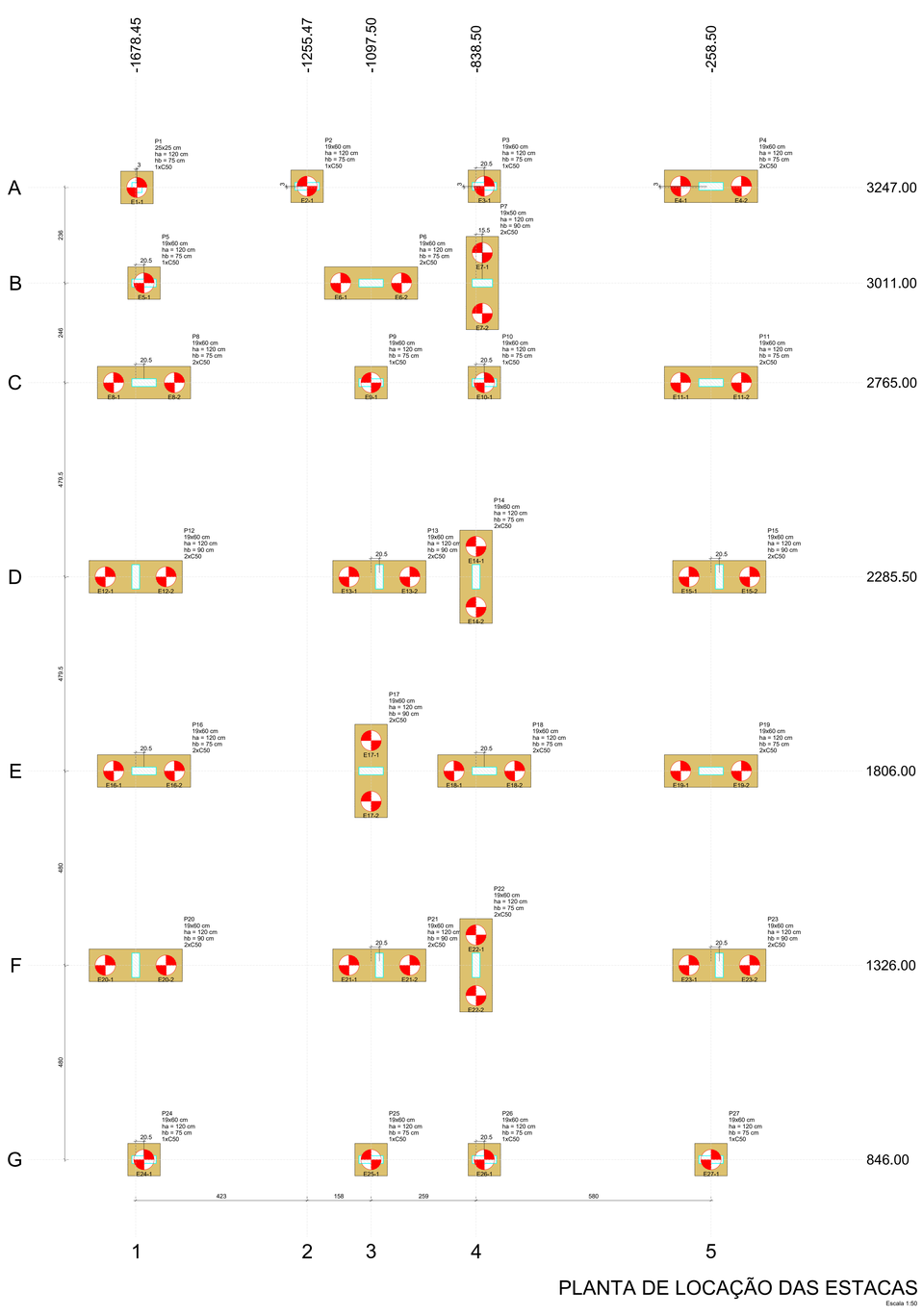
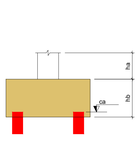
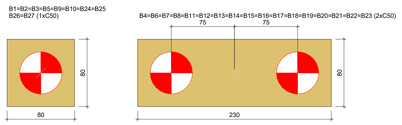
Projeto Estrutura de Concreto Armado (pilares, vigas, lajes e fundações)
SEI! 25.0.2000038-8 / pg. 76
Autenticar documento em https://sei.joinville.sc.gov.br com o código 0074498







Ponto de marcação (0.00,0.00)

Pilar											Fundação				Bloco			
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m)		My Máximo (kgf.m)		Fx Máximo (tf)		Fy Máximo (tf)		Lado B (cm)	Lado H (cm)	h0 / ha	h1 / hb	ne	Estaca	ca (cm)	Base tub. (cm)
						Positivo	Negativo	Positivo	Negativo	Positivo	Negativo	Positivo	Negativo								
P1	25x25	-1675.45	3247.00	21.41	19.6	0	0	0	0	0.0	-0.6	0.3	-0.2	80	80	120	75	1	C50	-160	-
P2	19x60	-1255.47	3250.00	11.43	9.9	0	0	0	0	2.0	0.0	0.9	0.0	80	80	120	75	1	C50	-160	-
P3	19x60	-818.00	3250.00	36.1	32.3	0	0	0	0	0.0	-1.7	0.4	0.0	80	80	120	75	1	C50	-160	-
P4	19x60	-258.50	3250.00	29.1	25.9	0	0	0	0	3.9	0.0	2.1	0.0	230	80	120	75	2	C50	-160	-
P5	19x60	-1657.95	3011.00	21.1	17.5	0	0	0	0	0.0	-3.5	0.1	-0.4	80	80	120	75	1	C50	-160	-
P6	19x60	-1097.50	3011.00	19.2	15.1	0	0	0	0	4.6	0.0	0.3	-0.2	230	80	120	75	2	C50	-160	-
P7	19x60	-823.00	3011.00	30.1	25.0	0	0	0	0	0.0	-5.8	0.1	-0.4	230	80	120	90	2	C50	-175	-
P8	19x60	-1657.95	2765.00	30.8	26.1	0	0	0	0	0.0	-4.3	0.4	0.0	230	80	120	75	2	C50	-160	-
P9	19x60	-1097.50	2765.00	32.7	26.1	0	0	0	0	3.7	0.0	0.5	0.0	80	80	120	75	1	C50	-160	-
P10	19x60	-818.00	2765.00	36.5	28.9	0	0	0	0	0.0	-3.1	0.5	0.0	80	80	120	75	1	C50	-160	-
P11	19x60	-258.50	2765.00	41.2	35.0	0	0	0	0	4.8	0.0	0.6	-1.2	230	80	120	75	2	C50	-160	-
P12	19x60	-1678.45	2285.50	35.9	29.5	0	0	0	0	0.0	-3.0	0.1	-0.5	230	80	120	90	2	C50	-175	-
P13	19x60	-1077.00	2285.50	34.9	26.5	0	0	0	0	2.2	0.0	0.2	-0.6	230	80	120	90	2	C50	-175	-
P14	19x60	-838.50	2285.50	35.6	26.9	0	0	0	0	0.0	-2.1	0.0	-0.7	230	80	120	75	2	C50	-160	-
P15	19x60	-238.00	2285.50	33.3	27.5	0	0	0	0	3.1	0.0	0.6	0.0	230	80	120	90	2	C50	-175	-
P16	19x60	-1657.95	1806.00	38.1	31.7	0	0	0	0	0.0	-5.4	0.2	-0.2	230	80	120	75	2	C50	-160	-
P17	19x60	-1097.50	1806.00	39.6	30.8	0	0	0	0	4.3	0.0	0.2	-0.2	230	80	120	90	2	C50	-175	-
P18	19x60	-818.00	1806.00	40.6	31.5	0	0	0	0	0.0	-4.4	0.2	-0.2	230	80	120	75	2	C50	-160	-
P19	19x60	-258.50	1806.00	37.0	31.0	0	0	0	0	5.5	0.0	0.1	-0.4	230	80	120	75	2	C50	-160	-
P20	19x60	-1678.45	1326.00	35.7	29.2	0	0	0	0	0.0	-3.2	0.7	0.0	230	80	120	90	2	C50	-175	-
P21	19x60	-1077.00	1326.00	34.7	26.2	0	0	0	0	2.2	0.0	1.0	0.0	230	80	120	90	2	C50	-175	-
P22	19x60	-838.50	1326.00	35.8	26.9	0	0	0	0	0.0	-2.1	1.0	0.0	230	80	120	75	2	C50	-160	-
P23	19x60	-238.00	1326.00	34.5	28.4	0	0	0	0	3.1	0.0	0.6	-0.2	230	80	120	90	2	C50	-175	-
P24	19x60	-1657.95	846.00	28.5	24.7	0	0	0	0	0.0	-3.8	0.0	-0.8	80	80	120	75	1	C50	-160	-
P25	19x60	-1097.50	846.00	30.7	25.6	0	0	0	0	3.3	0.0	0.0	-1.1	80	80	120	75	1	C50	-160	-
P26	19x60	-818.00	846.00	31.2	25.9	0	0	0	0	0.0	-3.4	0.0	-1.1	80	80	120	75	1	C50	-160	-
P27	19x60	-258.50	846.00	27.9	24.3	0	0	0	0	3.9	0.0	0.0	-1.0	80	80	120	75	1	C50	-160	-

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Estacas			
Simbologia	Nome	ø (cm)	Quantidade
	C50	50.00	44

Locação no eixo X	
Coordenadas (cm)	Nome
-1678.45	P12, P20
-1675.45	P1
-1657.95	P5, P8, P16, P24
-1255.47	P2
-1097.50	P6, P9, P17, P25
-1077.00	P13, P21
-838.50	P14, P22
-823.00	P7
-818.00	P3, P10, P18, P26
-258.50	P4, P11, P19, P27
-238.00	P15, P23

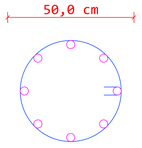
Locação no eixo Y	
Coordenadas (cm)	Nome
3250.00	P2, P3, P4
3247.00	P1
3011.00	P5, P6, P7
2765.00	P8, P9, P10, P11
2285.50	P12, P13, P14, P15
1806.00	P16, P17, P18, P19
1326.00	P20, P21, P22, P23
846.00	P24, P25, P26, P27

LOCAÇÃO DAS ESTACAS										
Bloco	Nome	Tipo	Coordenada X (cm)	Coordenada Y (cm)	Carga máx. tf	Carga mín. tf	Momento máx. kgf.m	Momento mín. kgf.m	Força horiz. máx. tf	Força horiz. mín. tf	CA (cm)
B1	E1-1	C50	-1675.45	3247.00	22.50	20.66	267.16	125.92	0.51	0.24	-160
B2	E2-1	C50	-1255.47	3250.00	12.52	10.95	882.51	348.59	2.10	0.83	-160
B3	E3-1	C50	-818.00	3250.00	37.19	33.40	732.23	504.89	1.74	1.20	-160
B4	E4-1	C50	-333.50	3250.00	15.14	13.67	424.54	340.15	2.15	1.84	-160
	E4-2		-183.50	3250.00	17.27	15.51	424.54	340.15	2.15	1.84	
B5	E5-1	C50	-1657.95	3011.00	22.13	18.59	1479.79	1065.95	3.52	2.54	-160
B6	E6-1	C50	-1172.50	3011.00	10.19	8.26	42.79	3.51	2.27	1.53	-160
	E6-2		-1022.50	3011.00	12.26	10.10	42.79	3.51	2.27	1.53	
B7	E7-1	C50	-823.00	3086.00	16.98	14.40	1702.03	1215.57	2.84	2.03	-175
	E7-2		-823.00	2936.00	17.10	14.50	1702.03	1215.57	2.84	2.03	
B8	E8-1	C50	-1732.95	2765.00	18.19	15.50	77.12	6.07	2.09	1.49	-160
	E8-2		-1582.95	2765.00	15.85	13.82	77.12	6.07	2.09	1.49	
B9	E9-1	C50	-1097.50	2765.00	33.77	27.21	1545.28	923.91	3.68	2.20	-160
B10	E10-1	C50	-818.00	2765.00	37.58	30.02	1245.42	712.59	2.97	1.70	-160
B11	E11-1	C50	-333.50	2765.00	20.90	18.16	261.77	177.06	2.42	1.74	-160
	E11-2		-183.50	2765.00	23.53	20.05	261.77	177.06	2.42	1.74	
B12	E12-1	C50	-1753.45	2285.50	21.10	17.35	144.99	4.51	1.52	0.87	-175
	E12-2		-1603.45	2285.50	18.79	16.05	144.99	4.51	1.52	0.87	
B13	E13-1	C50	-1152.00	2285.50	18.77	14.76	171.09	0.98	1.08	0.55	-175
	E13-2		-1002.00	2285.50	20.08	15.70	171.09	0.98	1.08	0.55	
B14	E14-1	C50	-838.50	2360.50	19.32	14.99	442.76	219.54	1.07	0.55	-160
	E14-2		-838.50	2210.50	19.54	15.17	442.76	219.54	1.07	0.55	
B15	E15-1	C50	-313.00	2285.50	17.47	15.06	163.41	3.77	1.53	0.87	-175
	E15-2		-163.00	2285.50	19.79	16.37	163.41	3.77	1.53	0.87	
B16	E16-1	C50	-1732.95	1806.00	22.21	18.46	43.76	3.39	2.71	1.78	-160
	E16-2		-1582.95	1806.00	19.17	16.47	43.76	3.39	2.71	1.78	
B17	E17-1	C50	-1097.50	1881.00	21.75	17.36	1222.43	623.69	2.14	1.09	-175
	E17-2		-1097.50	1731.00	21.78	17.38	1222.43	623.69	2.14	1.09	
B18	E18-1	C50	-893.00	1806.00	22.83	18.06	46.27	3.84	2.13	1.08	-160
	E18-2		-743.00	1806.00	21.04	16.66	46.27	3.84	2.13	1.08	
B19	E19-1	C50	-333.50	1806.00	18.60	16.11	60.93	4.66	2.72	1.78	-160
	E19-2		-183.50	1806.00	21.64	18.10	60.93	4.66	2.72	1.78	
B20	E20-1	C50	-1753.45	1326.00	20.97	17.24	195.06	21.66	1.54	0.88	-175
	E20-2		-1603.45	1326.00	18.65	15.92	195.06	21.66	1.54	0.88	
B21	E21-1	C50	-1152.00	1326.00	18.69	14.62	272.50	62.20	1.11	0.60	-175
	E21-2		-1002.00	1326.00	19.98	15.54	272.50	62.20	1.11	0.60	
B22	E22-1	C50	-838.50	1401.00	19.66	15.18	448.28	222.72	1.10	0.59	-160
	E22-2		-838.50	1251.00	19.35	14.93	448.28	222.72	1.10	0.59	
B23	E23-1	C50	-313.00	1326.00	18.04	15.53	170.95	6.29	1.53	0.87	-175
	E23-2		-163.00	1326.00	20.36	16.84	170.95	6.29	1.53	0.87	
B24	E24-1	C50	-1657.95	846.00	29.59	25.81	1641.23	1220.49	3.91	2.91	-160
B25	E25-1	C50	-1097.50	846.00	31.77	26.68	1435.65	830.43	3.42	1.98	-160
B26	E26-1	C50	-818.00	846.00	32.24	26.97	1434.42	829.11	3.42	1.97	-160
B27	E27-1	C50	-258.50	846.00	28.99	25.42	1642.25	1221.68	3.91	2.91	-160

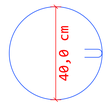
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção



Estribos



172 N2 Ø 6,3
c/9 C=135,66

Armadura longitudinal

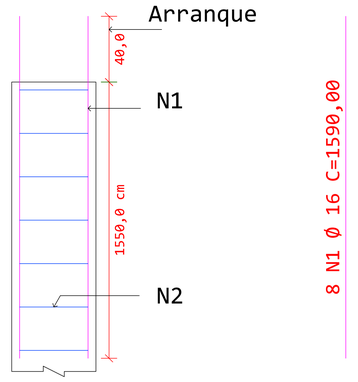


TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20
Peso total do aço =				257,89 kg
Volume total de concreto =				3,34 m³

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.629/001-13

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

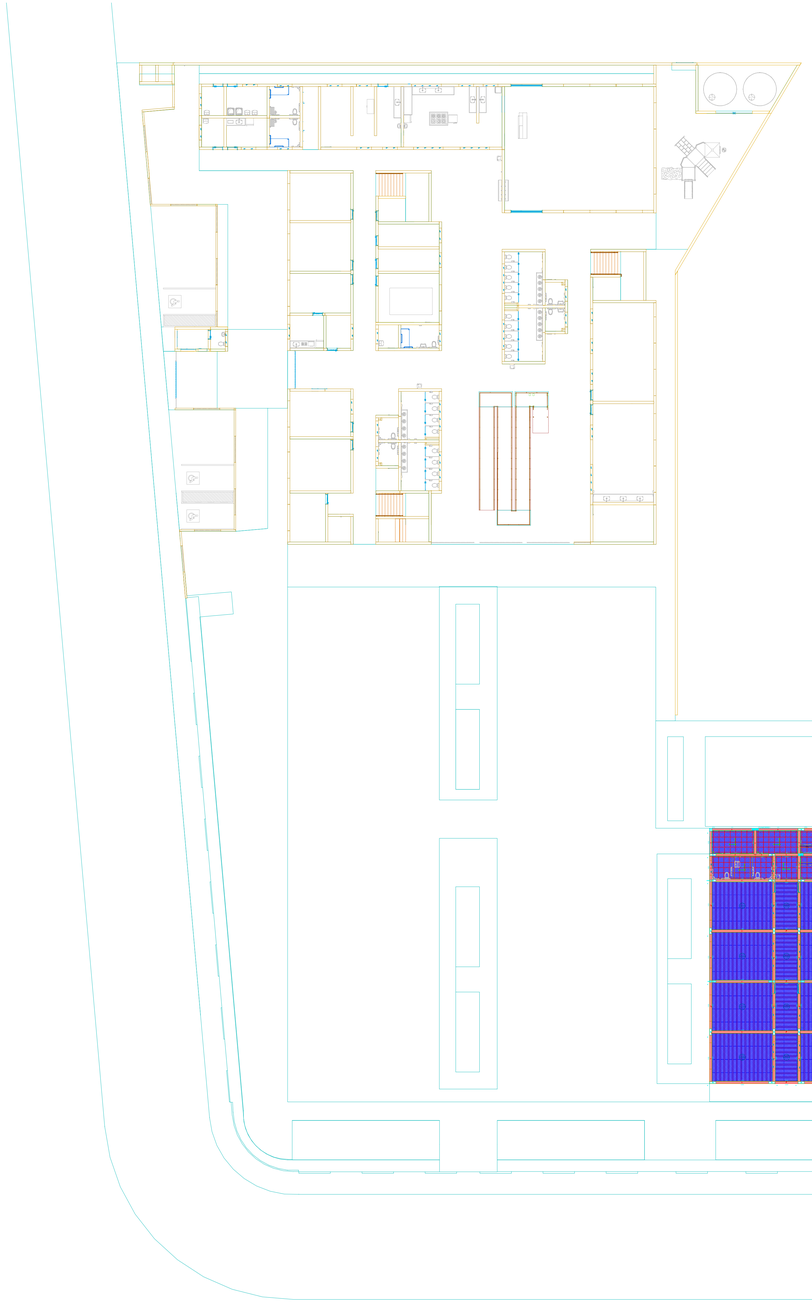
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

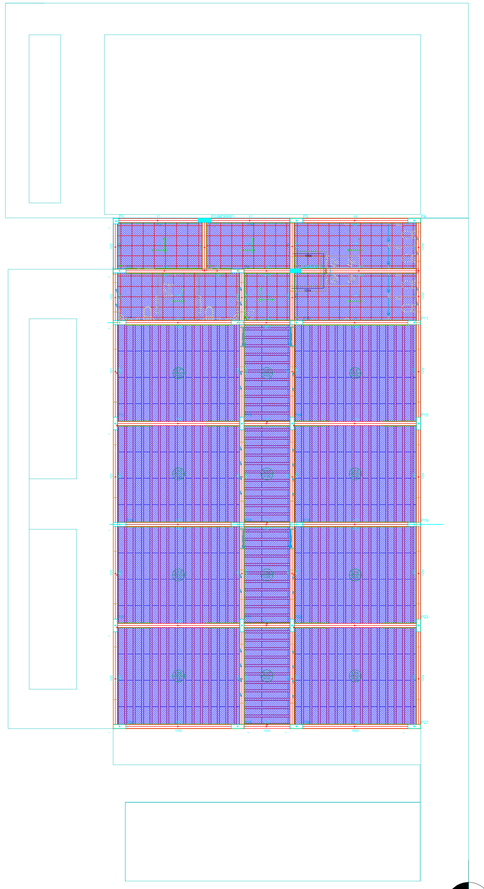
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - ESTACAS
ETAPA	EXECUTIVO
FOLHA	EST 01/16
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.048.731/0001-98
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-9611 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (2047474460) SEI 25.0.2000038-8 / pg. 77





PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
83.169.623/0001-12

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENGº CIVIL FERNANDO STROISCH
CREA/SC 082522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

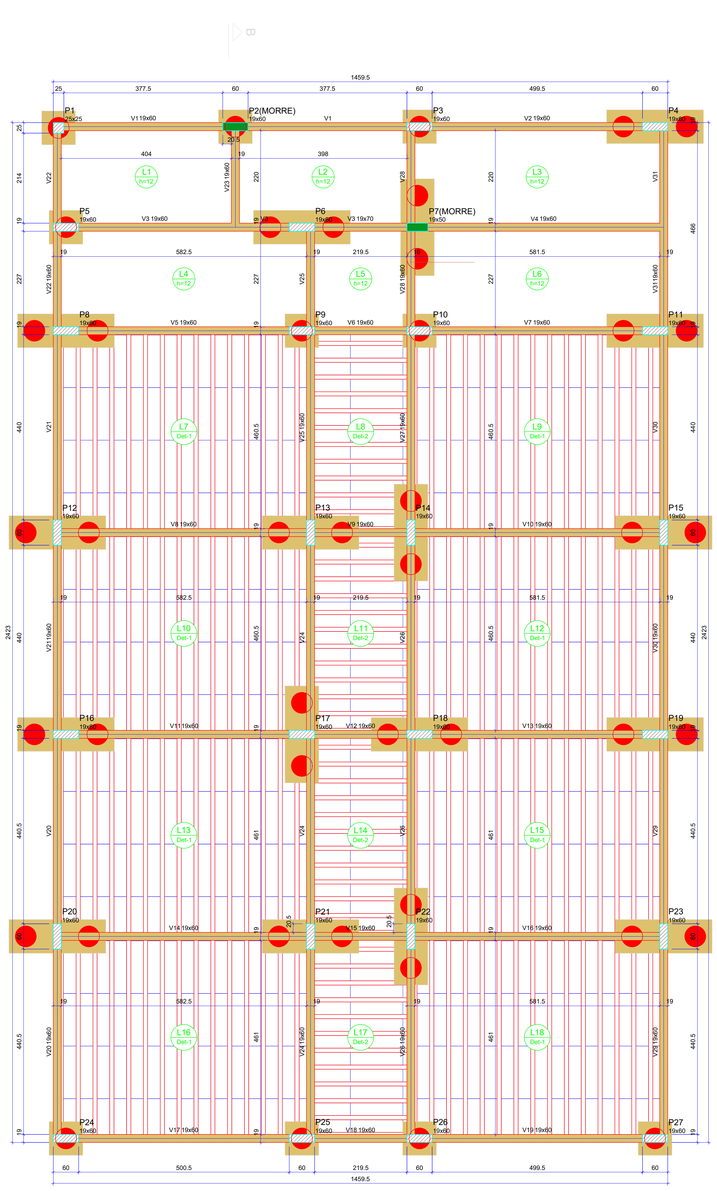
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO-B
CONTEÚDO	LOCAÇÃO - PONTO DE MARCAÇÃO

ARQUIVO	DATA
JOE_SED_ROS_EXA_EX.DWG	02/07/2025

ETAPA	PRANCHA
EXECUTIVO	EST 02/16
ESCALA	
INDICADA	

FERCON ENGENHARIA - CREA nº 082522-0 - CNPJ 04.886.721/0001-06
Rua Presidente Getulio Vargas, 295, sala 53 - Centro - Brusque/sc - CEP 88.353-140 - Fone (47) 98417-8753 - E-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutural de Concreto Armado (pilar) - SEI 25.0.2000003-8 / pg. 78
Assinado por 1 tipo de usuário (047449)



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x60	0	20
V2	19x60	0	20
V3	19x60	0	20
	19x70	0	20
V4	19x60	0	20
V5	19x60	0	20
V6	19x60	0	20
V7	19x60	0	20
V8	19x60	0	20
V9	19x60	0	20
V10	19x60	0	20
V11	19x60	0	20
V12	19x60	0	20
V13	19x60	0	20
V14	19x60	0	20
V15	19x60	0	20
V16	19x60	0	20
V17	19x60	0	20
V18	19x60	0	20
V19	19x60	0	20
V20	19x60	0	20
V21	19x60	0	20
V22	19x60	0	20
V23	19x60	0	20
V24	19x60	0	20
V25	19x60	0	20
V26	19x60	0	20
V27	19x60	0	20
V28	19x60	0	20
V29	19x60	0	20
V30	19x60	0	20
V31	19x60	0	20

Blocos de enchimento						
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1/2	EPS Unidirecional	B20/30/125	20	30	125	576

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	12	0	20	300	154	300	-
L2	Maciça	12	0	20	300	154	300	-
L3	Maciça	12	0	20	300	154	300	sim
L4	Maciça	12	0	20	300	154	300	-
L5	Maciça	12	0	20	300	154	300	-
L6	Maciça	12	0	20	300	154	300	sim
L7	Vigota protendida	25	0	20	241	154	300	-
L8	Vigota protendida	25	0	20	241	154	300	-
L9	Vigota protendida	25	0	20	241	154	300	-
L10	Vigota protendida	25	0	20	241	154	300	-
L11	Vigota protendida	25	0	20	241	154	300	-
L12	Vigota protendida	25	0	20	241	154	300	-
L13	Vigota protendida	25	0	20	241	154	300	-
L14	Vigota protendida	25	0	20	241	154	300	-
L15	Vigota protendida	25	0	20	241	154	300	-
L16	Vigota protendida	25	0	20	241	154	300	-
L17	Vigota protendida	25	0	20	241	154	300	-
L18	Vigota protendida	25	0	20	241	154	300	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

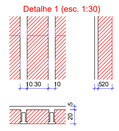
Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	25x25	0	20
P2	19x60	0	20
P3	19x60	0	20
P4	19x60	0	20
P5	19x60	0	20
P6	19x60	0	20
P7	19x50	0	20
P8	19x60	0	20
P9	19x60	0	20
P10	19x60	0	20
P11	19x60	0	20
P12	19x60	0	20
P13	19x60	0	20
P14	19x60	0	20
P15	19x60	0	20
P16	19x60	0	20
P17	19x60	0	20
P18	19x60	0	20
P19	19x60	0	20
P20	19x60	0	20
P21	19x60	0	20
P22	19x60	0	20
P23	19x60	0	20
P24	19x60	0	20
P25	19x60	0	20
P26	19x60	0	20
P27	19x60	0	20

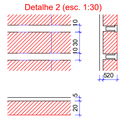
Legenda dos pilares
Pilar que morre
Pilar que passa

Legenda das vigas e paredes
Viga

Detalhe 1 (esc. 1:30)



Detalhe 2 (esc. 1:30)



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980903 — MUNICÍPIO DE JOINVILLE 82.166.024/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
CONTEÚDO	FÔRMAS TÉRREO

ARQUIVO	2GI_SEO_ROS_EXA_EX.DWG	DATA 02/07/2025
ETAPA EXECUTIVO	ESCALA INDICADA	FOLHA EST 03/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.998.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 3613-8713 | e-mail do responsável técnico desta projeto: jean@fercongroupbrs.com

Projeto Estrutura de Concreto Armado (NBR 6118:2014)
SEI 25.0.2000038-8 [pg. 79]
Usuário: (09474460)

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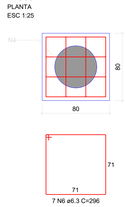
ESC 1:25



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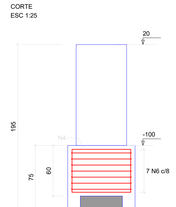
ESC 1:25



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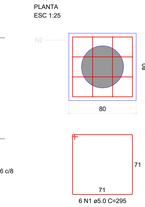

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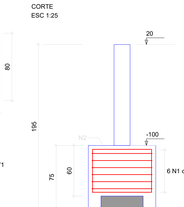

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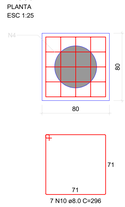
ESC 1:25



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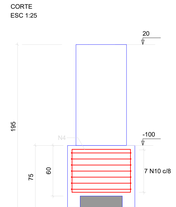

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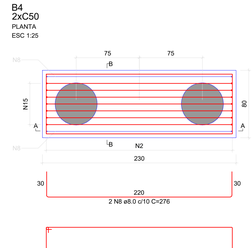
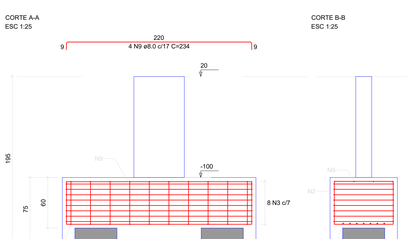
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



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ESC 1:25

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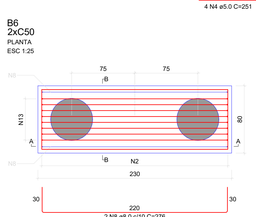
PLANTA
ESC 1:25



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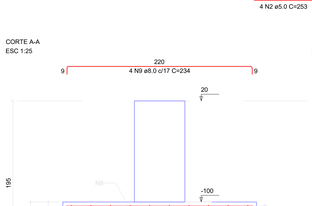

CORTE B-B
ESC 1:25

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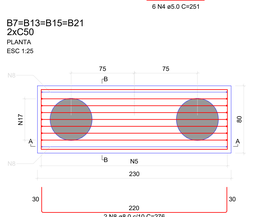
2xC50
PLANTA
ESC 1:25



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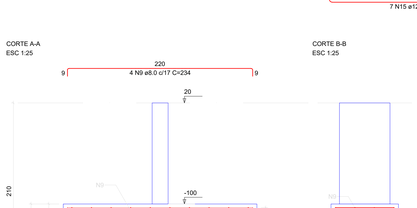
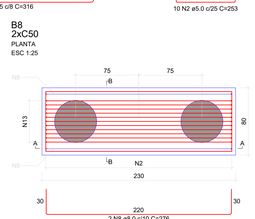


CORTE B-B
ESC 1:25

B8
2xC50
PLANTA
ESC 1:25



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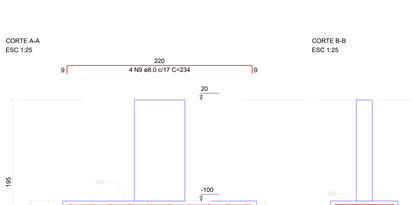
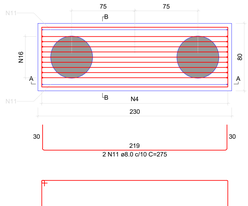


CORTE B-B
ESC 1:25

B11=B16=B18=B19
2xC50
PLANTA
ESC 1:25



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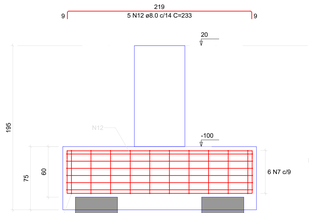

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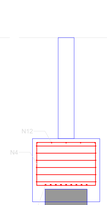
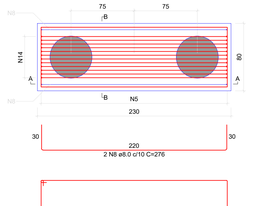
ESC 1:25



B12=B20=B23
2xC50
PLANTA
ESC 1:25



CORTE A-A
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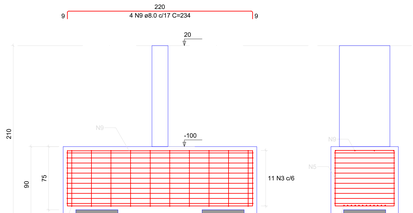
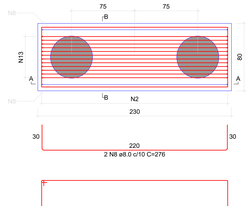


CORTE B-B
ESC 1:25

B14=B22
2xC50
PLANTA
ESC 1:25



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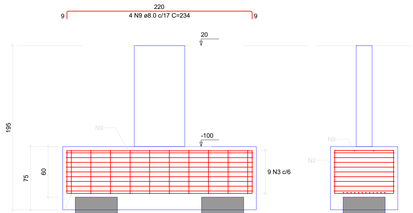


CORTE B-B
ESC 1:25

RELAÇÃO DO AÇO

B2	B4	2xB5	
B6	B8	3xB10	
B17	4xB19	4xB21	
2xB22	3xB23	4xB27	

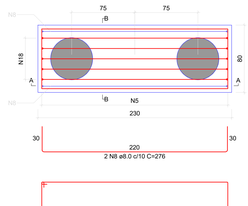
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	6	295	1770
	2	5.0	54	253	13662
	3	5.0	125	595	74375
	4	5.0	90	251	22590
	5	5.0	80	283	22640
CA50	6	6.3	14	296	4144
	7	6.3	24	596	14304
	8	8.0	26	276	7176
	9	8.0	52	234	12168
	10	8.0	52	296	15392
	11	8.0	8	275	2200
	12	8.0	20	233	4660
	13	10.0	43	317	13631
	14	10.0	36	347	12492
	15	12.5	7	316	2212
	16	12.5	36	315	11340
	17	12.5	28	346	9688
	18	16.0	5	345	1725

RESUMO DO AÇO

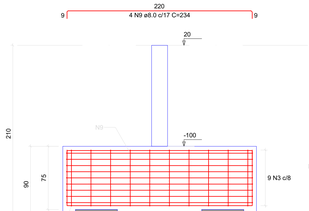
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	184.5	49.7
	8.0	395.2	171.6
	10.0	291.2	177.2
	12.5	232.4	246.3
	16.0	17.3	29.9
CA60	5.0	1350.4	229
PESO TOTAL (kg)			
CA50	674.6		
CA60	229		

Volume de concreto (C-35) = 29.17 m³
Área de forma = 110.49 m²

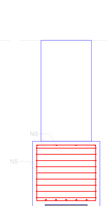
B17
2xC50
PLANTA
ESC 1:25



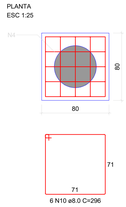
CORTE A-A
ESC 1:25



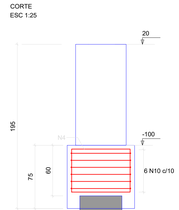
CORTE B-B
ESC 1:25



B24=B25=B26=B27
1xC50
PLANTA
ESC 1:25



CORTE
ESC 1:25



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.199.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO B
ARQUIVO	XX_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO
ETAPA	EXECUTIVO
FOLHA	EST 04/16
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 14.498.731/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brumenau | CEP 89010-140 | Fone: (47) 3411-5717 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (5415 m²) - SED 25.0.200003-8 (pg. 80)
Documento gerado oficialmente pelo Portal de Documentos do TCE-SC em 08/07/2025 às 14:48:37 (horário de Brasília) - Página 80 de 80 - Código de autenticidade: 8d1f1f

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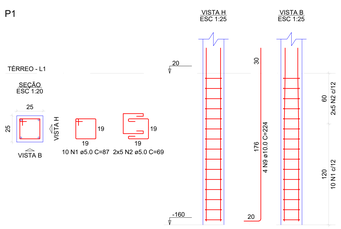

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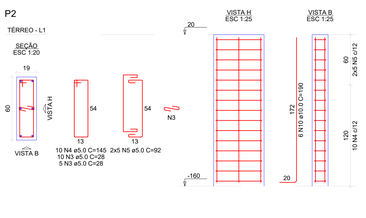

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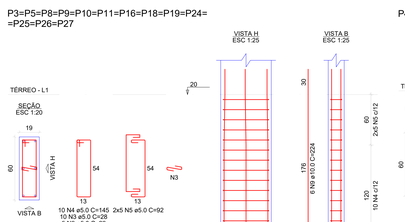

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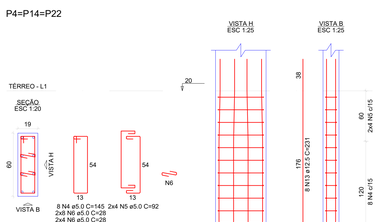

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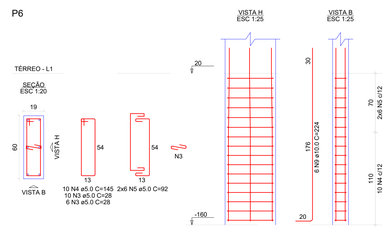

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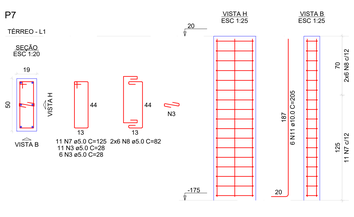

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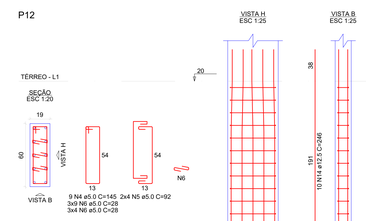

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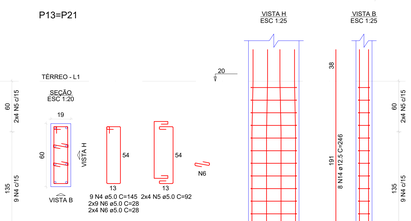

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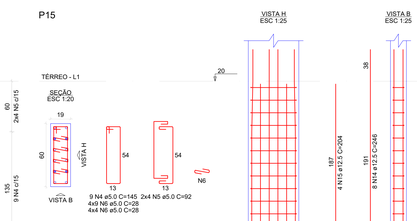

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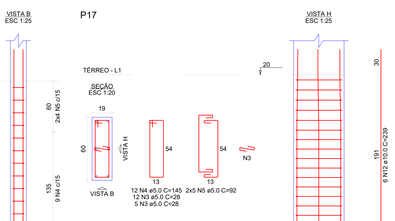

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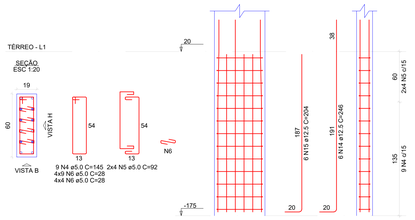

RELAÇÃO DO AÇO

P1	P2	13xP3
3xP4	P6	P7
P12	2xP13	P15
P17	2xP20	

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	10	87	870
	2	5.0	10	69	690
	3	5.0	260	28	7280
	4	5.0	240	145	34800
	5	5.0	234	92	21528
	6	5.0	319	28	8932
	7	5.0	11	125	1375
	8	5.0	12	82	984
CA50	9	10.0	88	224	19712
	10	10.0	6	190	1140
	11	10.0	6	205	1230
	12	10.0	6	239	1434
	13	12.5	24	231	5544
	14	12.5	46	246	11316
	15	12.5	16	204	3264

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	235.2	159.5
	12.5	201.2	213.2
CA60	5.0	764.6	129.6

PESO TOTAL (kg)	
CA50	372.7
CA60	129.6

Volume de concreto (C-35) = 3.61 m³
Área de forma = 50.26 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
61.168.025/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA-SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

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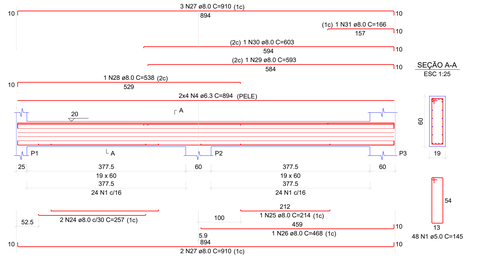
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
CONTEÚDO	PILARES COLARINHOS

ARQUIVO: 3OC_SED_ROS_EXA_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 05/16**

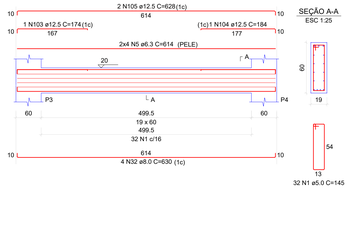
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.731/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-5414 | e-mail do responsável técnico desta projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (0847474460)
SEI 25.0.220003-8 / pg. 81

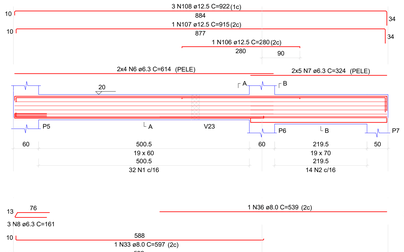
V1
ESC 1:50



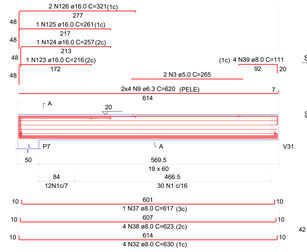
V2
ESC 1:50



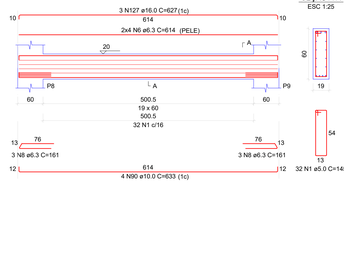
V3
ESC 1:50



V4
ESC 1:50



V5
ESC 1:50



RELAÇÃO DO AÇO			
V1	V2	V3	
V4	V5	V6	
V7	V8	V9	
V10	V11	V12	
V13	V14	V15	
V16	V17	V18	
V19	V20	V21	
V22	V23	V24	
V25	V26	V27	
V28	V29	V30	
V31			

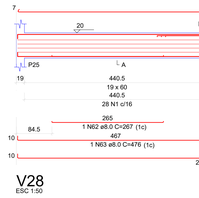
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1132	145	164140
	2	5.0	14	165	2310
	3	5.0	2	265	530
CA50	4	6.3	4	694	2776
	5	6.3	32	614	19648
	6	6.3	32	614	19648
	7	6.3	10	324	3240
	8	6.3	31	161	4991
	9	6.3	8	620	4960
	10	6.3	24	334	8016
	11	6.3	16	624	9984
	12	6.3	16	262	4192
	13	6.3	16	624	9984
	14	6.3	16	983	15728
	15	6.3	16	982	15712
	16	6.3	8	501	4008
	17	6.3	8	262	2096
	18	6.3	16	1196	19136
	19	6.3	16	318	5088
	20	6.3	8	765	6120
	21	6.3	8	519	4152
	22	6.3	16	508	8128
	23	6.3	3	79	237
	24	8.0	2	257	514
	25	8.0	1	214	214
	26	8.0	1	255	255
	27	8.0	5	910	4550
	28	8.0	1	538	538
	29	8.0	1	593	593
	30	8.0	1	603	603
	31	8.0	1	166	166
	32	8.0	8	630	5040
	33	8.0	1	597	597
	34	8.0	4	601	2404
	35	8.0	4	340	1360
	36	8.0	1	539	539
	37	8.0	1	617	617
	38	8.0	4	623	2492
	39	8.0	4	444	1776
	40	8.0	24	350	8400
	41	8.0	8	268	2144
	42	8.0	3	287	861
	43	8.0	4	294	1176
	44	8.0	3	287	861
	45	8.0	4	294	1176
	46	8.0	4	297	1188
	47	8.0	2	247	494
	48	8.0	4	989	3956
	49	8.0	2	262	524
	50	8.0	2	262	524
	51	8.0	6	988	5928
	52	8.0	1	91	91
	53	8.0	1	252	252
	54	8.0	1	610	610
	55	8.0	2	111	222
	56	8.0	2	143	286
	57	8.0	4	255	1020
	58	8.0	12	514	6168
	59	8.0	2	171	342
	60	8.0	2	268	536
	61	8.0	4	288	1152
	62	8.0	2	267	534
	63	8.0	2	476	952
	64	8.0	8	262	2096
	65	8.0	4	976	3904
	66	8.0	2	237	474
	67	8.0	7	516	3612
	68	8.0	6	292	1752
	69	8.0	2	621	1242
	70	8.0	4	611	2444
	71	8.0	2	452	904
	72	8.0	2	651	1302
	73	8.0	4	828	3312
	74	8.0	4	1198	4792
	75	8.0	4	356	1424
	76	8.0	1	242	242
	77	8.0	1	153	153
	78	8.0	1	212	212
	79	8.0	2	775	1550
	80	8.0	3	529	1587
	81	8.0	2	148	296
	82	8.0	2	242	484
	83	8.0	2	252	504
	84	8.0	2	232	464
	85	8.0	1	116	116
	86	8.0	1	115	115
	87	8.0	2	160	320
	88	8.0	1	619	619
	89	8.0	3	1002	3006
	90	10.0	4	633	2532
	91	10.0	4	933	3732
	92	10.0	6	99	594
	93	10.0	1	160	160
	94	10.0	3	775	2325
	95	10.0	1	160	160
	96	10.0	3	546	1638
	97	10.0	1	137	137
	98	10.0	1	216	216
	99	10.0	1	97	97
	100	10.0	2	992	1984
	101	10.0	2	510	1020
	102	10.0	4	517	2068
	103	12.5	1	174	174
	104	12.5	3	184	552
	105	12.5	8	628	5024
	106	12.5	1	280	280
	107	12.5	1	915	915
	108	12.5	3	922	2766
	109	12.5	10	638	6380
	110	12.5	10	638	6380
	111	12.5	1	638	638
	112	12.5	2	189	378
	113	12.5	2	621	1242
	114	12.5	5	628	3140
	115	12.5	3	620	1860
	116	12.5	1	205	205
	117	12.5	1	209	209
	118	12.5	1	215	215
	119	12.5	1	219	219
	120	12.5	2	1021	2042
	121	12.5	1	213	213
	122	12.5	1	217	217
	123	12.5	2	568	1136
	124	16.0	1	216	216
	125	16.0	1	257	257
	126	16.0	1	261	261
	127	16.0	2	321	642
	128	16.0	3	627	1881
	129	16.0	2	645	1290
	130	16.0	2	645	1290
	131	20.0	2	701	1402
	132	20.0	2	701	1402
	133	20.0	2	702	1404
	134	20.0	2	701	1402

RESUMO DO AÇO

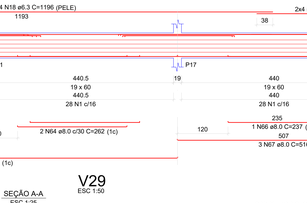
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1722.2	463.6
	8.0	941.1	408.5
	10.0	154.6	104.9
	12.5	335.5	355.5
	16.0	77.2	134
	20.0	56.1	152.2
CA60	5.0	1669.8	283.1
PESO TOTAL (kg)			
CA50	1618.6		
CA60	283.1		

Volume de concreto (C-35) = 20.34 m³
Área de forma = 186.31 m²

V6
ESC 1:50



V7
ESC 1:50



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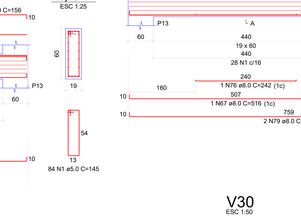
ESC 1:50



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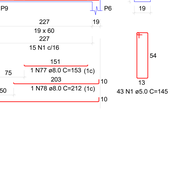
ESC 1:50



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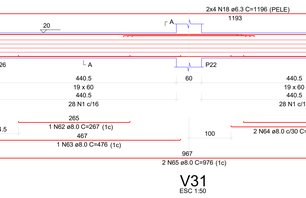
ESC 1:50



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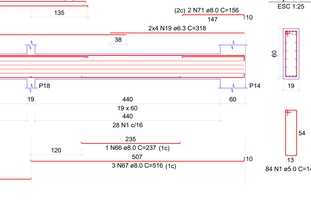
ESC 1:50



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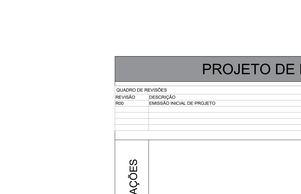
ESC 1:50



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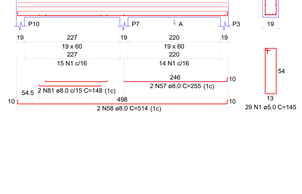
ESC 1:50



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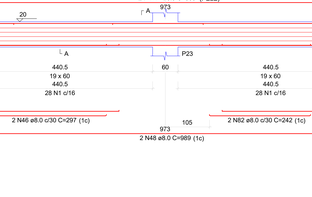
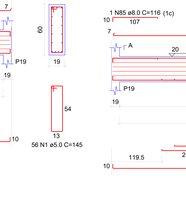
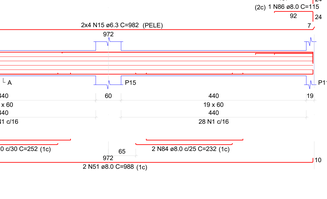
ESC 1:50



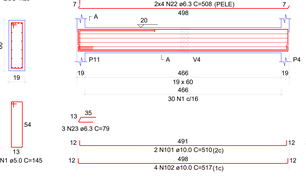
V15
ESC 1:50



V16
ESC 1:50



V17
ESC 1:50



V18
ESC 1:50

V27
ESC 1:50

V19
ESC 1:50

V20
ESC 1:50

V21
ESC 1:50

V22
ESC 1:50

V23
ESC 1:50

V24
ESC 1:50

V25
ESC 1:50

V26
ESC 1:50

V28
ESC 1:50

V29
ESC 1:50

V30
ESC 1:50

V31
ESC 1:50

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414890901 — MUNICÍPIO DE JOINVILLE 82.169.625/0001-12

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 082522-0

FERCON

Município de Joinville

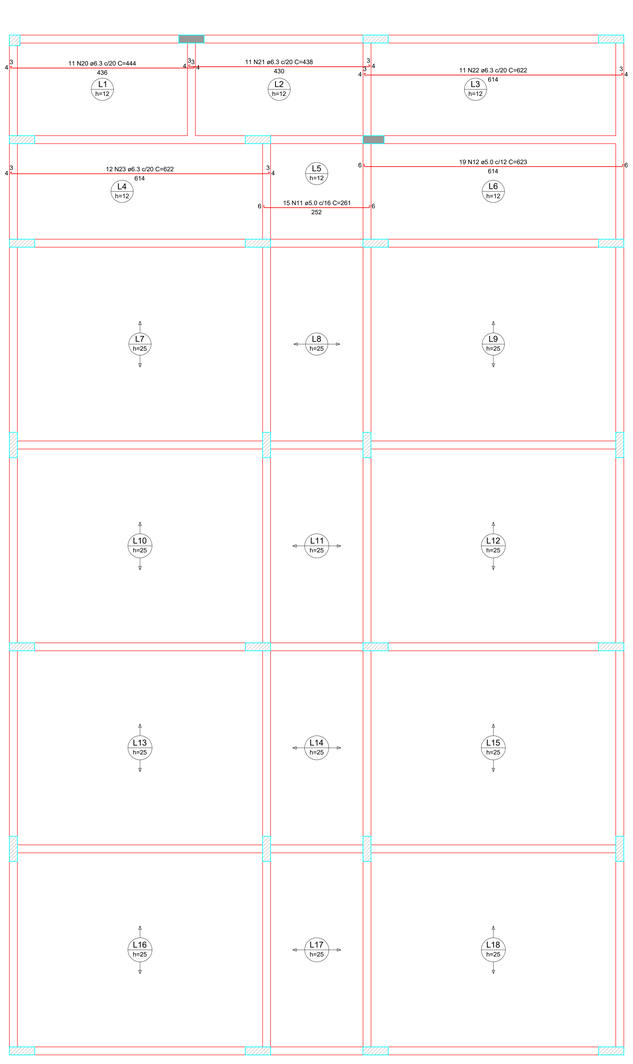
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
CONTEÚDO	VIGAS BALDRAME

ARQUIVO: JOE_SED_ROS_EXA_EX.DWG | DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 06/16

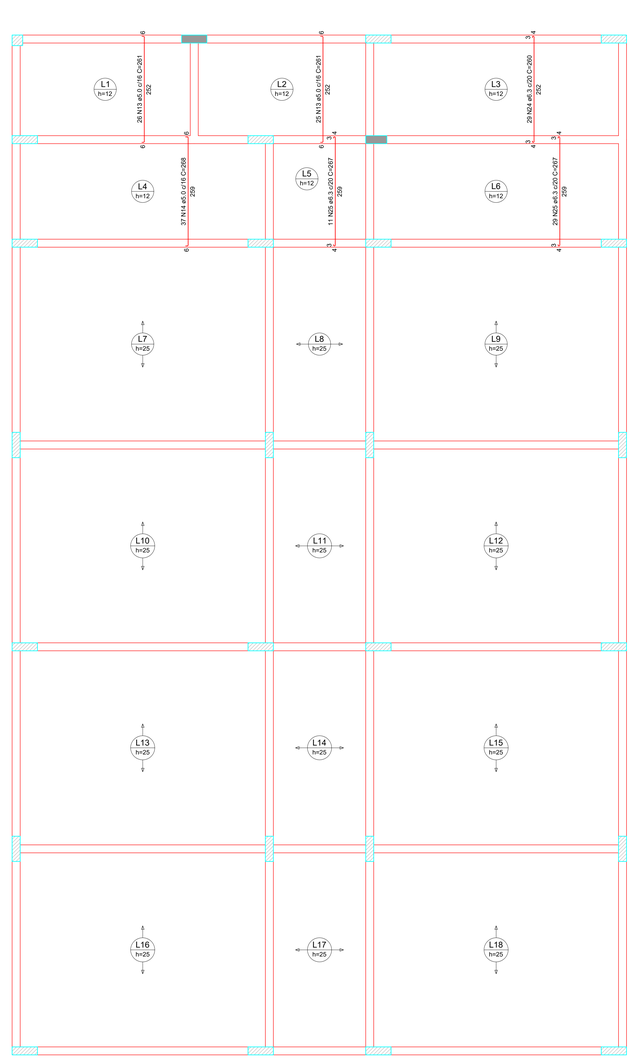
FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.888.721/0001-06
Rua Presidente Getulio Vargas, 295, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 991-7874 | E-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutural de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.20003-8 / pg. 82



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:50

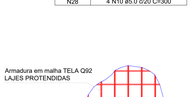


ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

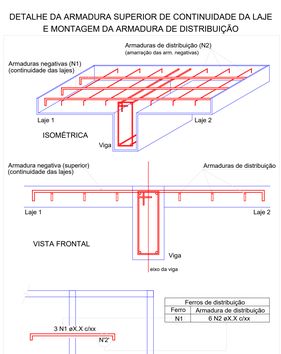
Escala 1:50

Armaduras de distribuição	
Armadura	Armadura de distribuição
N15	21 N1 ø5.0 c/20 C=246
N26	21 N1 ø5.0 c/20 C=246
N16	30 N2 ø5.0 c/20 C=239
N17	18 N2 ø5.0 c/20 C=239
N5	2 N6 ø5.0 c/20 C=50
N18	7 N7 ø5.0 c/20 C=178
N18	7 N8 ø5.0 c/20 C=423
N19	18 N9 ø5.0 c/20 C=239
N27	7 N10 ø5.0 c/20 C=300
N28	4 N10 ø5.0 c/20 C=300

Armadura em malha TELA Q92
LAJES PROTENDIDAS



DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 aX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos X
Positivos X

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	42	246	10332
	2	5.0	48	239	11472
	3	5.0	2	84	168
	4	5.0	3	135	270
	5	5.0	2	50	100
	6	5.0	3	50	150
	7	5.0	7	178	1246
	8	5.0	7	423	2961
	9	5.0	18	239	4302
	10	5.0	11	300	3300
	11	5.0	15	261	3915
	12	5.0	19	623	11837
	13	5.0	51	261	13311
	14	5.0	37	268	9916
CA50	15	6.3	16	415	6640
	16	6.3	17	594	10098
	17	6.3	16	368	5888
	18	6.3	40	146	5840
	19	6.3	16	369	5904
	20	6.3	11	444	4884
	21	6.3	11	438	4818
	22	6.3	11	622	6842
	23	6.3	12	622	7464
	24	6.3	29	260	7540
	25	6.3	40	267	10680
	26	8.0	12	417	5004
	27	8.0	16	147	2692
	28	8.0	15	85	1275

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	766	206.2
	8.0	89.6	38.9
CA60	5.0	732.4	124.2

PESO TOTAL (kg)	
CA50	245.1
CA60	124.2

Volume de concreto (C-35) = 28.72 m³
Área de forma = 61.47 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.199.623/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

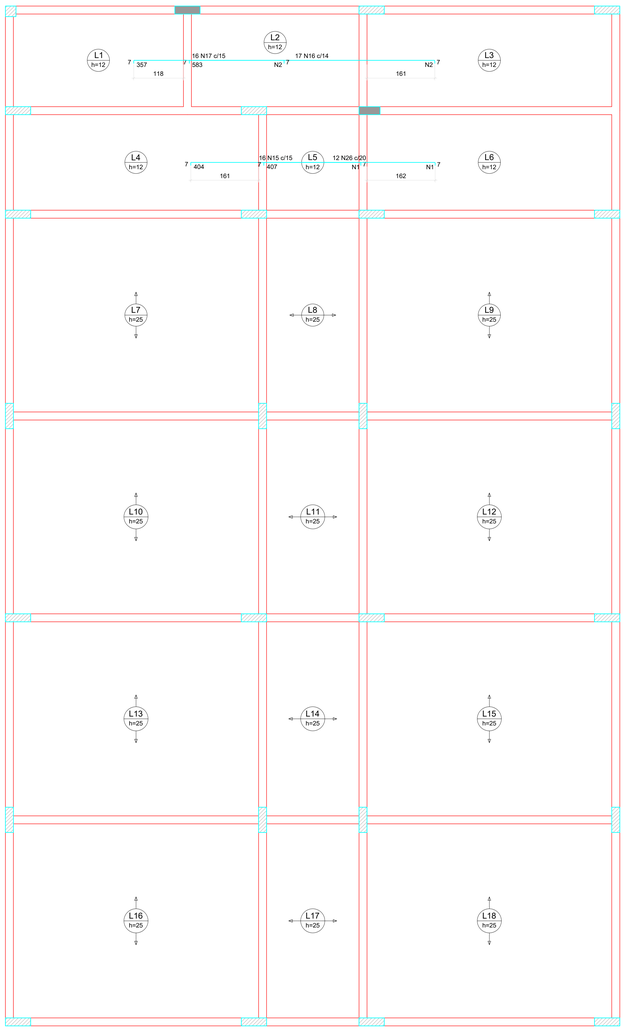
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	XX_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE PISO TÉRREO(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 07/16

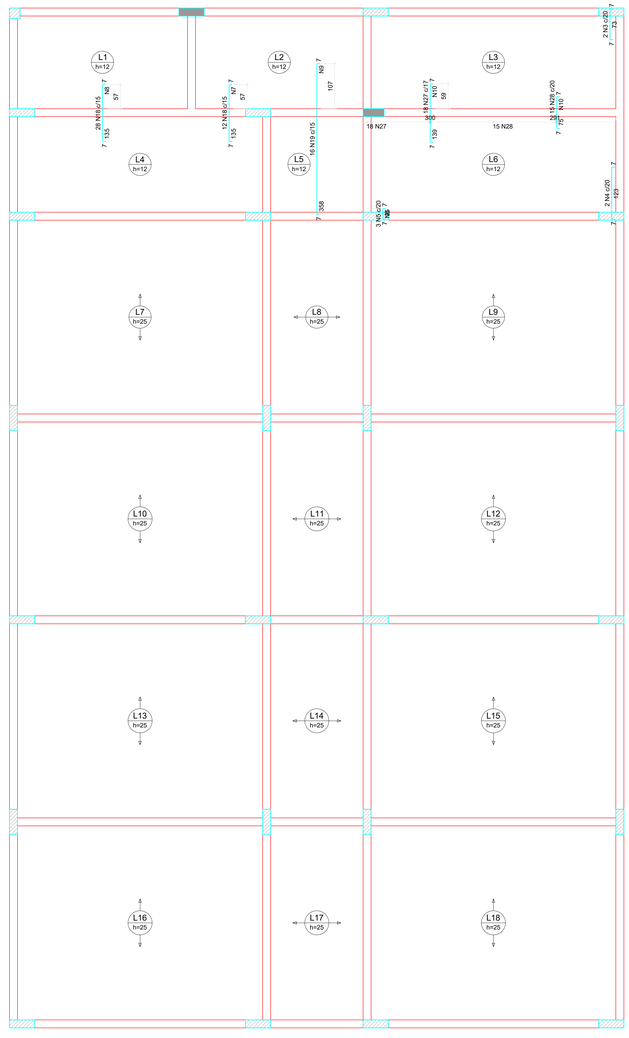
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.727/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 | Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-9511 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (54414980)
SEI 25.0.2000033-8 / pg. 83



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:50



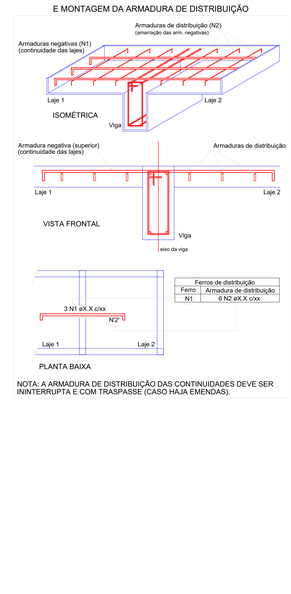
ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:50

Armaduras de distribuição	
Armadura	Armadura de distribuição
N15	21 N1 ø5.0 c/20 C=246
N26	21 N1 ø5.0 c/20 C=246
N16	30 N2 ø5.0 c/20 C=239
N17	18 N2 ø5.0 c/20 C=239
N5	2 N6 ø5.0 c/20 C=50
N18	7 N7 ø5.0 c/20 C=178
N18	7 N8 ø5.0 c/20 C=423
N19	18 N9 ø5.0 c/20 C=239
N27	7 N10 ø5.0 c/20 C=300
N28	4 N10 ø5.0 c/20 C=300

Armadura em malha TELA Q92
LAJES PROTENDIDAS

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 a/X.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	42	246	10332
	2	5.0	48	239	11472
	3	5.0	2	84	168
	4	5.0	3	135	270
	5	5.0	2	50	100
	6	5.0	3	50	150
	7	5.0	7	178	1246
	8	5.0	7	423	2961
	9	5.0	18	239	4302
	10	5.0	11	300	3300
	11	5.0	15	261	3915
	12	5.0	19	623	11837
	13	5.0	51	261	13311
	14	5.0	37	268	9916
CA50	15	6.3	16	415	6640
	16	6.3	17	594	10098
	17	6.3	16	368	5888
	18	6.3	40	146	5840
	19	6.3	16	369	5904
	20	6.3	11	444	4884
	21	6.3	11	438	4818
	22	6.3	11	622	6842
	23	6.3	12	622	7464
	24	6.3	29	260	7540
	25	6.3	40	267	10680
	26	8.0	12	417	5004
	27	8.0	16	147	2352
	28	8.0	15	85	1275

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	766	206.2
	8.0	89.6	38.9
CA60	5.0	732.4	124.2
PESO TOTAL (kg)			
CA50	245.1		
CA60	124.2		

Volume de concreto (C-35) = 28.72 m³
Área de forma = 61.47 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.168.623/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

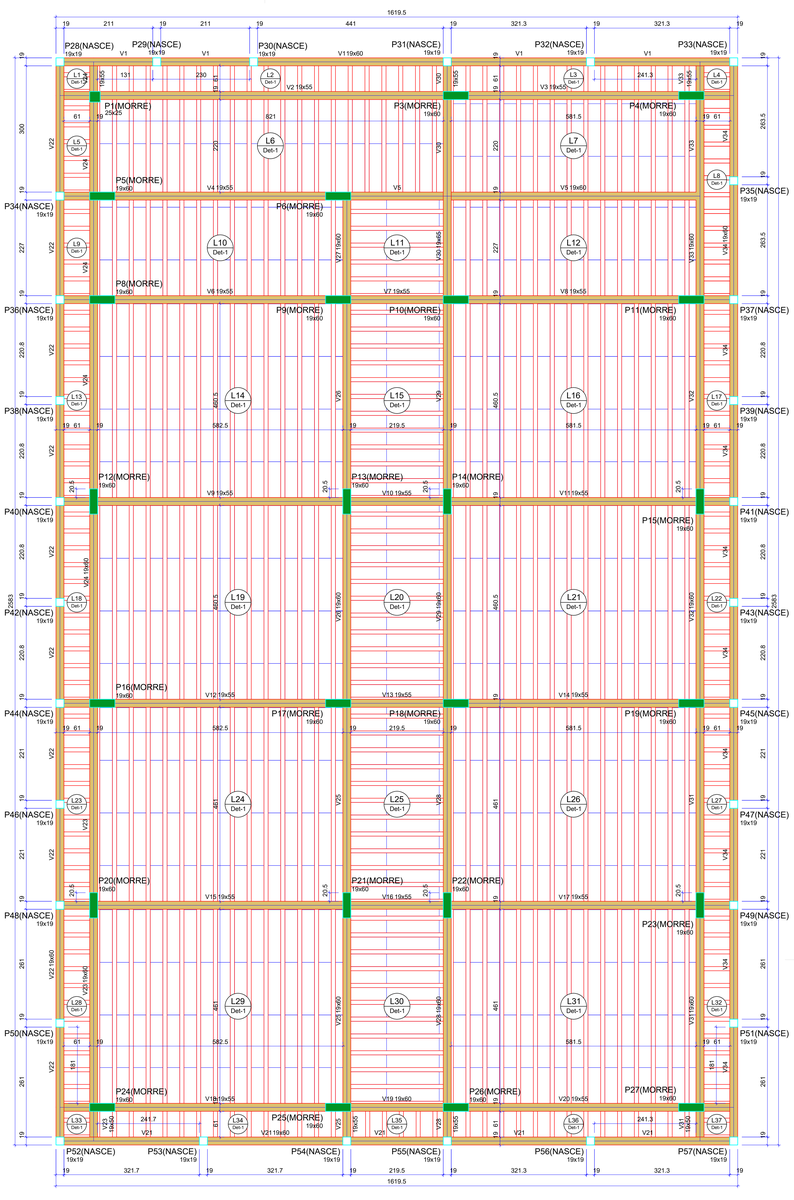
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	3OI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LAJE PISO TÉRREO(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 08/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 98114-5111 | e-mail do responsável técnico deste projeto: jean@fercongroupbsa.com

Projeto Estrutura de Concreto Armado (Gerdau) - SEI 25.0.2000003-8 [pg. 84]
Impresso por 04174460



FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 385)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x60	0	385
V2	19x55	0	385
V3	19x55	0	385
V4	19x55	0	385
V5	19x60	0	385
V6	19x55	0	385
V7	19x55	0	385
V8	19x55	0	385
V9	19x55	0	385
V10	19x55	0	385
V11	19x55	0	385
V12	19x55	0	385
V13	19x55	0	385
V14	19x55	0	385
V15	19x55	0	385
V16	19x55	0	385
V17	19x55	0	385
V18	19x55	0	385
V19	19x60	0	385
V20	19x55	0	385
V21	19x60	0	385
V22	19x60	0	385
V23	19x50	0	385
	19x60	0	385
V24	19x60	0	385
	19x55	0	385
V25	19x55	0	385
	19x60	0	385
V26	19x60	0	385
V27	19x60	0	385
V28	19x55	0	385
	19x60	0	385
V29	19x60	0	385
V30	19x65	0	385
	19x55	0	385
V31	19x50	0	385
	19x60	0	385
V32	19x60	0	385
V33	19x60	0	385
	19x55	0	385
V34	19x60	0	385

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Vigota protendida	25	0	385	241	80	100	-
L2	Vigota protendida	25	0	385	241	80	100	-
L3	Vigota protendida	25	0	385	241	80	100	-
L4	Vigota protendida	25	0	385	241	80	100	-
L5	Vigota protendida	25	0	385	241	80	100	-
L6	Vigota protendida	25	0	385	241	80	100	-
L7	Vigota protendida	25	0	385	241	80	100	-
L8	Vigota protendida	25	0	385	241	80	100	-
L9	Vigota protendida	25	0	385	241	80	100	-
L10	Vigota protendida	25	0	385	241	80	100	-
L11	Vigota protendida	25	0	385	241	80	100	-
L12	Vigota protendida	25	0	385	241	80	100	-
L13	Vigota protendida	25	0	385	241	80	100	-
L14	Vigota protendida	25	0	385	241	80	100	-
L15	Vigota protendida	25	0	385	241	80	100	-
L16	Vigota protendida	25	0	385	241	80	100	-
L17	Vigota protendida	25	0	385	241	80	100	-
L18	Vigota protendida	25	0	385	241	80	100	-
L19	Vigota protendida	25	0	385	241	80	100	-
L20	Vigota protendida	25	0	385	241	80	100	-
L21	Vigota protendida	25	0	385	241	80	100	-
L22	Vigota protendida	25	0	385	241	80	100	-
L23	Vigota protendida	25	0	385	241	80	100	-
L24	Vigota protendida	25	0	385	241	80	100	-
L25	Vigota protendida	25	0	385	241	80	100	-
L26	Vigota protendida	25	0	385	241	80	100	-
L27	Vigota protendida	25	0	385	241	80	100	-
L28	Vigota protendida	25	0	385	241	80	100	-
L29	Vigota protendida	25	0	385	241	80	100	-
L30	Vigota protendida	25	0	385	241	80	100	-
L31	Vigota protendida	25	0	385	241	80	100	-
L32	Vigota protendida	25	0	385	241	80	100	-
L33	Vigota protendida	25	0	385	241	80	100	-
L34	Vigota protendida	25	0	385	241	80	100	-
L35	Vigota protendida	25	0	385	241	80	100	-
L36	Vigota protendida	25	0	385	241	80	100	-
L37	Vigota protendida	25	0	385	241	80	100	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

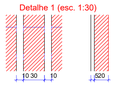
Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	25x25	0	385
P3	19x60	0	385
P4	19x60	0	385
P5	19x60	0	385
P6	19x60	0	385
P8	19x60	0	385
P9	19x60	0	385
P10	19x60	0	385
P11	19x60	0	385
P12	19x60	0	385
P13	19x60	0	385
P14	19x60	0	385
P15	19x60	0	385
P16	19x60	0	385
P17	19x60	0	385
P18	19x60	0	385
P19	19x60	0	385
P20	19x60	0	385
P21	19x60	0	385
P22	19x60	0	385
P23	19x60	0	385
P24	19x60	0	385
P25	19x60	0	385
P26	19x60	0	385
P27	19x60	0	385
P28	19x19	0	385
P29	19x19	0	385
P30	19x19	0	385
P31	19x19	0	385
P32	19x19	0	385
P33	19x19	0	385
P34	19x19	0	385
P35	19x19	0	385
P36	19x19	0	385
P37	19x19	0	385
P38	19x19	0	385
P39	19x19	0	385
P40	19x19	0	385
P41	19x19	0	385
P42	19x19	0	385
P43	19x19	0	385
P44	19x19	0	385
P45	19x19	0	385
P46	19x19	0	385
P47	19x19	0	385
P48	19x19	0	385
P49	19x19	0	385
P50	19x19	0	385
P51	19x19	0	385
P52	19x19	0	385
P53	19x19	0	385
P54	19x19	0	385
P55	19x19	0	385
P56	19x19	0	385
P57	19x19	0	385

Legenda dos pilares
Pilar que morre
Pilar que nasce

Legenda das vigas e paredes
Viga

Detalhe 1 (esc. 1:30)



Blocos de enchimento						
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1	EPS Unidirecional	B20/30/125	20	30	125	750

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
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01.199.623/0001-72

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CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
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CREA 062522-0

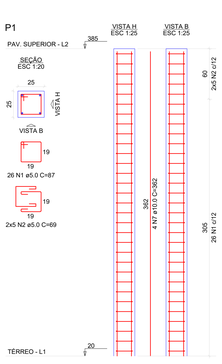
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	XX_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 09/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone: (47) 3611-9511 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutural de Concreto Armado (29474466) - SEI 25.0.22000139-8 / pg. 85

P1



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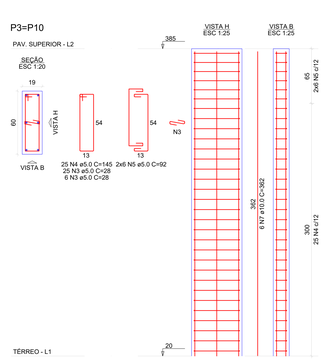

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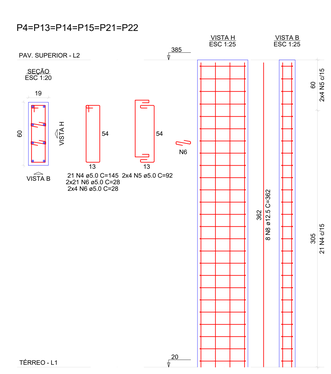

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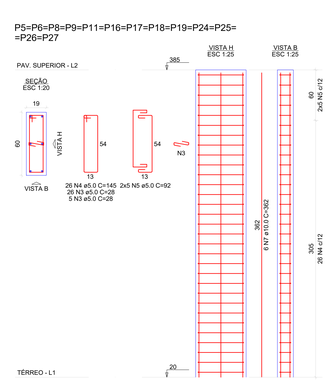

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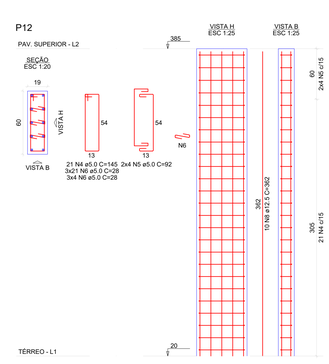

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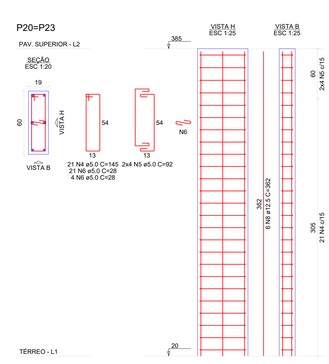

RELAÇÃO DO AÇO

P1 13xP5 — 2xP3 P12 — 6xP4 2xP20

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	26	87	2262
	2	5.0	10	69	690
	3	5.0	465	28	13020
	4	5.0	577	145	83665
	5	5.0	226	92	20792
	6	5.0	425	28	11900
CA50	7	10.0	94	362	34028
	8	12.5	70	362	25340

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	340.3	230.8
	12.5	253.4	268.5
CA60	5.0	1323.3	224.4

PESO TOTAL (kg)	
CA50	499.3
CA60	224.4

Volume de concreto (C-35) = 10.21 m³
Área de forma = 142.06 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
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02.169.625/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

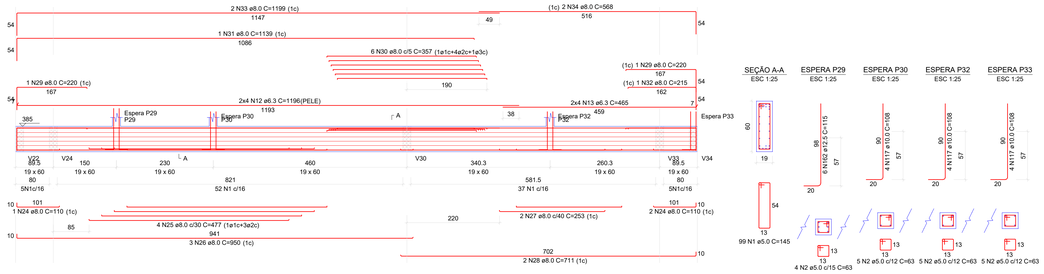
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	3OE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	PILARE SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	**EST 10/16**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 98713-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (Gerdau) (R47144960) SEI 25.0.2000033-8 / pg. 86

V1
ESC 1:50



SEÇÃO A-A
ESC 1:25

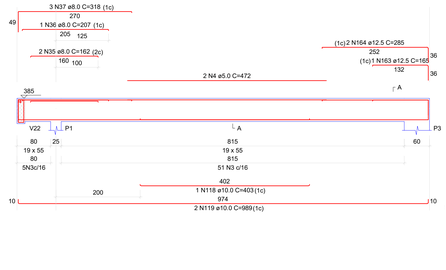
ESPERA P29
ESC 1:25

ESPERA P30
ESC 1:25

ESPERA P32
ESC 1:25

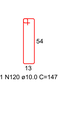
ESPERA P33
ESC 1:25

V2
ESC 1:50

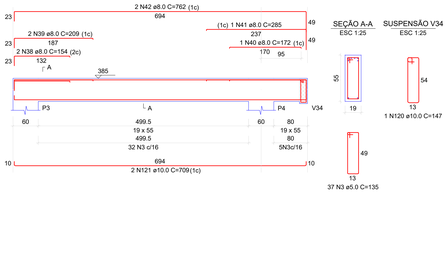


SEÇÃO A-A
ESC 1:25

SUSPENSÃO V22
ESC 1:25



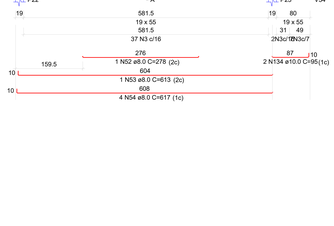
V3
ESC 1:50



SEÇÃO A-A
ESC 1:25

SUSPENSÃO V34
ESC 1:25

V4
ESC 1:50

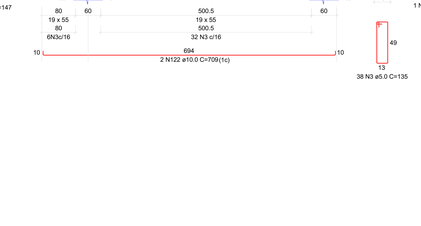


SEÇÃO A-A
ESC 1:25

ESPERA P34
ESC 1:25

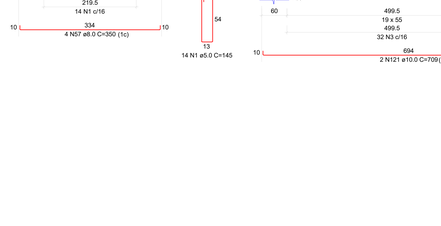
SUSPENSÃO V22
ESC 1:25

V5
ESC 1:50



SEÇÃO A-A
ESC 1:25

V6
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P36
ESC 1:25

SUSPENSÃO V22
ESC 1:25

V7
ESC 1:50

SEÇÃO A-A
ESC 1:25

V8
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P37
ESC 1:25

SUSPENSÃO V34
ESC 1:25

V9
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P40
ESC 1:25

SUSPENSÃO V22
ESC 1:25

V10
ESC 1:50

SEÇÃO A-A
ESC 1:25

V11
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P41
ESC 1:25

SUSPENSÃO V34
ESC 1:25

V12
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P44
ESC 1:25

SUSPENSÃO V22
ESC 1:25

V13
ESC 1:50

SEÇÃO A-A
ESC 1:25

V14
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P45
ESC 1:25

SUSPENSÃO V34
ESC 1:25

V15
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P48
ESC 1:25

SUSPENSÃO V22
ESC 1:25

V16
ESC 1:50

SEÇÃO A-A
ESC 1:25

V17
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P49
ESC 1:25

SUSPENSÃO V34
ESC 1:25

V18
ESC 1:50

SEÇÃO A-A
ESC 1:25

SUSPENSÃO V22
ESC 1:25

V19
ESC 1:50

SEÇÃO A-A
ESC 1:25

V20
ESC 1:50

SEÇÃO A-A
ESC 1:25

SUSPENSÃO V34
ESC 1:25

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34		

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1589.4	427.8
	8.0	1292.4	561
	10.0	586.7	397.9
	12.5	167.3	177.3
	16.0	15.5	26.9
CA60	5.0	2636	446.9

PESO TOTAL (kg)	
CA50	1590.9
CA60	446.9

Volume de concreto (C-35) = 30.61 m³
Área de forma = 257.59 m²

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1092	145	158340
	2	5.0	149	63	9387
	3	5.0	630	135	85050
	4	5.0	2	472	944
	5	5.0	2	230	460
	6	5.0	2	401	802
	7	5.0	4	221	884
	8	5.0	4	221	884
	9	5.0	14	125	1750
	10	5.0	30	155	4650
	11	5.0	2	225	450
CA50	12	6.3	40	1196	47840
	13	6.3	16	465	7440
	14	6.3	8	899	7192
	15	6.3	21	136	2856
	16	6.3	8	334	2672
	17	6.3	16	1200	19200
	18	6.3	16	266	4256
	19	6.3	16	899	14384
	20	6.3	8	302	2416
	21	6.3	24	982	23568
	22	6.3	8	269	2152
	23	6.3	16	501	8016
	24	8.0	9	110	990
	25	8.0	4	477	1908
	26	8.0	3	950	2850
	27	8.0	2	253	506
	28	8.0	4	711	2844
	29	8.0	2	220	440
	30	8.0	6	357	2142
	31	8.0	1	1139	1139
	32	8.0	2	215	430
	33	8.0	4	1199	4796
	34	8.0	2	568	1136
	35	8.0	4	162	648
	36	8.0	5	207	1035
	37	8.0	3	318	954
	38	8.0	2	154	308
	39	8.0	2	209	418
	40	8.0	1	172	172
	41	8.0	1	285	285
	42	8.0	2	762	1524
	43	8.0	1	150	150
	44	8.0	3	220	660
	45	8.0	4	296	1184
	46	8.0	1	420	420
	47	8.0	1	400	400
	48	8.0	2	450	900
	49	8.0	5	101	505
	50	8.0	4	313	1252
	51	8.0	8	617	4936
	52	8.0	3	278	834
	53	8.0	2	613	1226
	54	8.0	8	617	4936
	55	8.0	3	576	1728
	56	8.0	4	576	2304
	57	8.0	4	350	1400
	58	8.0	4	370	1480
	59	8.0	2	328	656
	60	8.0	4	242	968
	61	8.0	2	936	1872
	62	8.0	2	328	656
	63	8.0	2	411	822
	64	8.0	1	411	411
	65	8.0	1	431	431
	66	8.0	1	270	270
	67	8.0	2	562	1124
	68	8.0	12	96	1152
	69	8.0	4	252	1008
	70	8.0	4	237	948
	71	8.0	4	1056	4224
	72	8.0	4	237	948
	73	8.0	4	257	1028
	74	8.0	4	962	3848
	75	8.0	2	332	664
	76	8.0	2	581	1162
	77	8.0	2	181	362
	78	8.0	1	231	231
	79	8.0	4	197	788
	80	8.0	6	187	1122
	81	8.0	8	192	1536
	82	8.0	1	700	700
	83	8.0	1	715	715
	84	8.0	4	1198	4792
	85	8.0	2	1220	2440
	86	8.0	4	1203	4812
	87	8.0	4	261	1044
	88	8.0	4	277	1108
	89	8.0	8	989	7912
	90	8.0	6	247	1482
	91	8.0	2	282	564
	92	8.0	2	975	1950
	93	8.0	2	214	428
	94	8.0	2	501	1002
	95	8.0	8	116	928
	96	8.0	2	220	440
	97	8.0	2	293	586
	98	8.0	2	447	894
	99	8.0	4	267	1068
	100	8.0	2	262	524
	101	8.0	6	988	5928
	102	8.0	4	182	728
	103	8.0	1	101	101
	104	8.0	6	1008	6048
	105	8.0	4	275	1100
	106	8.0	4	295	1180
	107	8.0	4	117	468
	108	8.0	2	272	544
	109	8.0	2	201	402
	110	8.0	2	202	404
	111	8.0	2	514	1028
	112	8.0	2	212	424
	113	8.0	2	595	1190
	114	8.0	5	221	1105
	115	8.0	2	1175	2350
	116	8.0	2	1055	2110
	117	10.0	72	108	7776
	118	10.0	1	403	403
	119	10.0	2	989	1978
	120	10.0	27	147	3969
	121	10.0	6	709	4254
	122	10.0	6	709	4254
	123	10.0	1	166	166
	124	10.0	1	334	668
	125	10.0	52	103	5356
	126	10.0	2	672	1344
	127	10.0	1	616	1232
	128	10.0	2	504	1008
	129	10.0	1	160	160
	130	10.0	1	220	220
	131	10.0	2	763	1526
	132	10.0	4	349	1396
	133	10.0	4	389	1556
	134	10.0	22	95	2090
	135	10.0	4	267	1068
	136	10.0	3	301	903
	137	10.0	1	216	216
	138	10.0	1	291	291
	139	10.0	1	339	339
	140	10.0	1	180	180
	141	10.0	3	768	2304
	142	10.0	3	301	903
	143	10.0	1	186	186
	144	10.0	1	294	294
	145	10.0	1	138	138
	146	10.0	2	766	1532
	147	10.0	1	143	143
	148	10.0	1	181	181
	149	10.0	1	227	227
	150	10.0	2	766	1532
	151	10.0	2	209	418
	152	10.0	2	264	528
	153	10.0	2	151	302
	154	10.0	2	92	184
	155	10.0	4	1119	4476
	156	10.0	1	201	201
	157	10.0	2	513	1026
	158	10.0	2	251	502
	159	10.0	1	312	312
	160	10.0	1	319	319
	161	10.0	3	646	1938
	162	12.5	6	115	690
	163	12.5	1	165	165
	164	12.5	2	285	570
	165	12.5	1	293	293
	166	12.5	2	774	1548
	167	12.5	2	290	580
	168	12.5	2	298	596
	169	12.5	4	373	1492
	170	12.5	6	198	1188
	171	12.5	2	605	1210
	172	12.5	2	293	586
	173	12.5	2	293	586
	174	12.5	4	368	1472
	175	12.5	4	1117	4468
	176	12.5	2	647	1294
	177	16.0	2	775	1550

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980903
MUNICÍPIO DE JOINVILLE
82.166.024/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

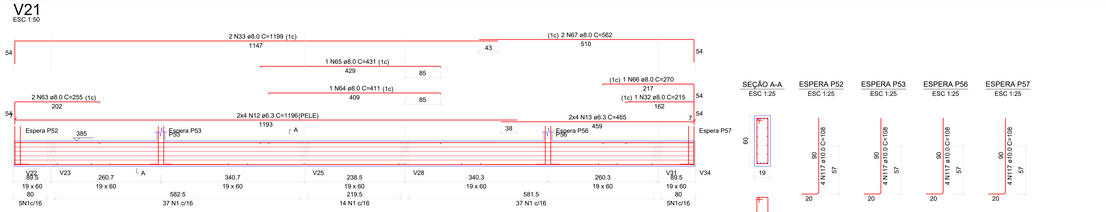
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO B
CONTEÚDO	VIGAS SUPERIOR(1)
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 11/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.998.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3613-8713 | e-mail: to.responsavel.tecnico.desta.projeto: ana@fercongroup.com

Projeto Estrutural de Concreto Armado (PEA)
SEI 25.0.20003-8 | pg. 87

V21
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P52
ESC 1:25

ESPERA P53
ESC 1:25

ESPERA P56
ESC 1:25

ESPERA P57
ESC 1:25

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1092	145	158340
	2	5.0	149	63	9387
	3	5.0	630	135	85050
	4	5.0	2	472	944
	5	5.0	2	230	460
	6	5.0	2	401	802
	7	5.0	4	221	884
	8	5.0	4	221	884
	9	5.0	14	125	1750
	10	5.0	30	155	4650
	11	5.0	2	225	450
CA50	12	6.3	40	1196	47840
	13	6.3	16	465	7440
	14	6.3	8	899	7192
	15	6.3	21	136	2856
	16	6.3	8	334	2672
	17	6.3	16	1200	19200
	18	6.3	16	266	4256
	19	6.3	8	907	7256
	20	6.3	8	302	2416
	21	6.3	24	982	23568
	22	6.3	8	269	2152
	23	6.3	16	501	8016
	24	8.0	9	110	990
	25	8.0	4	477	1908
	26	8.0	3	950	2850
	27	8.0	2	253	506
	28	8.0	4	711	2844
	29	8.0	2	220	440
	30	8.0	6	357	2142
	31	8.0	1	1139	1139
	32	8.0	2	215	430
	33	8.0	4	1199	4796
	34	8.0	2	568	1136
	35	8.0	4	162	648
	36	8.0	5	207	1035
	37	8.0	3	318	954
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	39	8.0	2	209	418
	40	8.0	1	172	172
	41	8.0	2	265	530
	42	8.0	2	252	504
	43	8.0	1	150	150
	44	8.0	3	220	660
	45	8.0	4	296	1184
	46	8.0	1	420	420
	47	8.0	1	400	400
	48	8.0	2	450	900
	49	8.0	5	101	505
	50	8.0	4	313	1252
	51	8.0	8	617	4936
	52	8.0	3	278	834
	53	8.0	2	613	1226
	54	8.0	8	617	4936
	55	8.0	3	576	1728
	56	8.0	4	576	2304
	57	8.0	4	350	1400
	58	8.0	4	370	1480
	59	8.0	2	328	656
	60	8.0	4	242	968
	61	8.0	2	936	1872
	62	8.0	2	328	656
	63	8.0	4	411	1644
	64	8.0	1	187	187
	65	8.0	1	431	431
	66	8.0	1	270	270
	67	8.0	2	562	1124
	68	8.0	12	96	1152
	69	8.0	4	252	1008
	70	8.0	4	237	948
	71	8.0	4	1056	4224
	72	8.0	4	237	948
	73	8.0	4	257	1028
	74	8.0	4	962	3848
	75	8.0	2	332	664
	76	8.0	2	581	1162
	77	8.0	2	181	362
	78	8.0	1	231	231
	79	8.0	4	197	788
	80	8.0	8	187	1122
	81	8.0	8	192	1536
	82	8.0	1	700	700
	83	8.0	1	715	715
	84	8.0	4	1198	4792
	85	8.0	2	1220	2440
	86	8.0	4	261	1044
	87	8.0	4	277	1108
	88	8.0	8	989	7912
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	91	8.0	2	975	1950
	92	8.0	2	214	428
	93	8.0	2	501	1002
	94	8.0	1	116	928
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	101	8.0	4	182	728
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	105	8.0	4	295	1180
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	107	8.0	4	389	1556
	108	8.0	22	95	2090
	109	8.0	4	267	1068
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	117	10.0	3	1008	3024
	118	10.0	1	403	403
	119	10.0	2	989	1978
	120	10.0	27	147	3969
	121	10.0	6	709	4254
	122	10.0	6	709	4254
	123	10.0	1	166	166
	124	10.0	2	334	668
	125	10.0	52	103	5356
	126	10.0	1	372	372
	127	10.0	2	616	1232
	128	10.0	2	304	608
	129	10.0	1	160	160
	130	10.0	1	220	220
	131	10.0	1	763	1526
	132	10.0	4	349	1396
	133	10.0	4	389	1556
	134	10.0	22	95	2090
	135	10.0	4	267	1068
	136	10.0	3	301	903
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	139	10.0	1	339	339
	140	10.0	1	180	180
	141	10.0	3	768	2304
	142	10.0	3	301	903
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	144	10.0	1	294	294
	145	10.0	1	138	138
	146	10.0	2	766	1532
	147	10.0	1	143	143
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	150	10.0	2	766	1532
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	157	10.0	2	513	1026
	158	10.0	2	251	502
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	161	10.0	3	646	1938
	162	12.5	6	115	690
	163	12.5	1	165	165
	164	12.5	1	265	265
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	166	12.5	2	290	580
	167	12.5	2	298	596
	168	12.5	4	373	1492
	169	12.5	6	198	1188
	170	12.5	6	203	1218
	171	12.5	2	285	570
	172	12.5	2	293	586
	173	12.5	2	368	1472
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	175	12.5	4	647	1294
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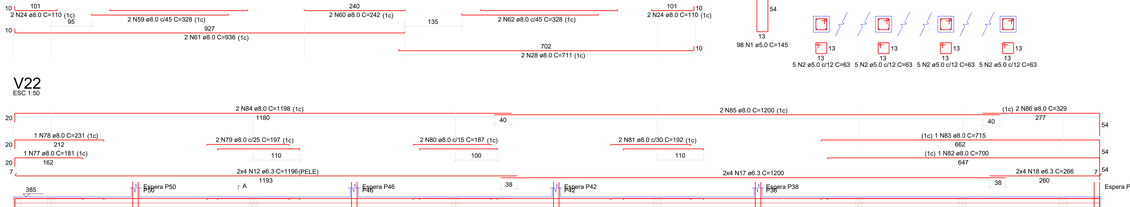
V22
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P50
ESC 1:25

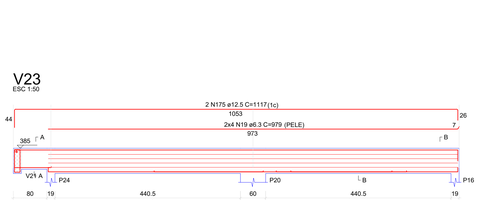
ESPERA P46
ESC 1:25

ESPERA P42
ESC 1:25

ESPERA P38
ESC 1:25

ESPERA P28
ESC 1:25

V23
ESC 1:50



SEÇÃO A-A
ESC 1:25

SEÇÃO B-B
ESC 1:25

SUSPENSÃO V21
ESC 1:25

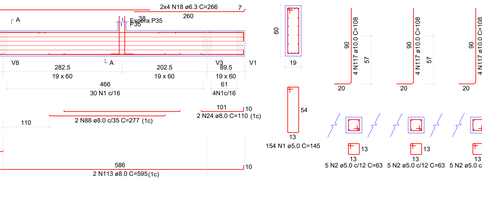
V24
ESC 1:50

SEÇÃO A-A
ESC 1:25

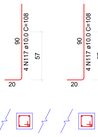
SEÇÃO B-B
ESC 1:25

SUSPENSÃO V1
ESC 1:25

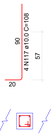
V25
ESC 1:50



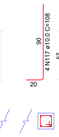
SEÇÃO A-A
ESC 1:25



SEÇÃO B-B
ESC 1:25



ESPERA P54
ESC 1:25



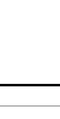
SUSPENSÃO V21
ESC 1:25

V26
ESC 1:50

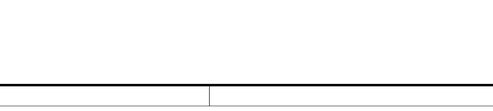
SEÇÃO A-A
ESC 1:25

V27
ESC 1:50

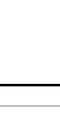
SEÇÃO A-A
ESC 1:25



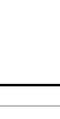
V28
ESC 1:50



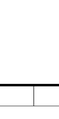
SEÇÃO A-A
ESC 1:25



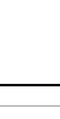
SEÇÃO B-B
ESC 1:25



ESPERA P55
ESC 1:25

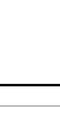


SUSPENSÃO V21
ESC 1:25



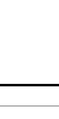
V29
ESC 1:50

SEÇÃO A-A
ESC 1:25

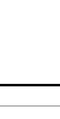


V30
ESC 1:50

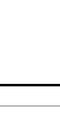
SEÇÃO A-A
ESC 1:25



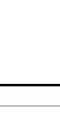
SEÇÃO B-B
ESC 1:25



ESPERA P31
ESC 1:25



SUSPENSÃO V1
ESC 1:25



RELAÇÃO DO AÇO

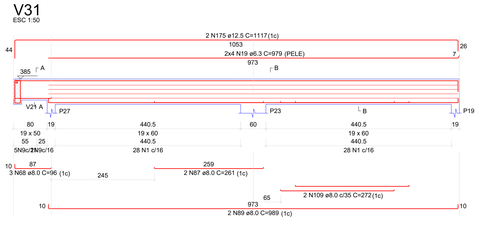
V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31	V32	V33
V34		

RESUMO DO AÇO

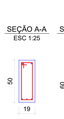
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1589.4	427.8
	8.0	1292.4	501
	10.0	586.7	397.9
	12.5	167.3	177.3
	16.0	15.5	26.9
CA60	5.0	2636	446.9
PESO TOTAL (kg)			
CA50	1590.9		
CA60	446.9		

Volume de concreto (C-35) = 30.61 m³
Área de forma = 257.59 m²

V31
ESC 1:50

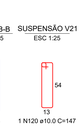


SEÇÃO A-A
ESC 1:25

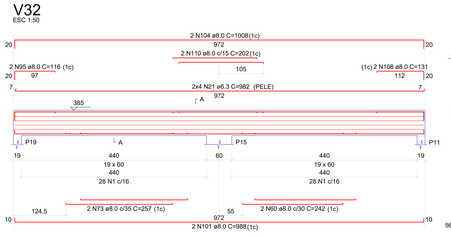


SEÇÃO B-B
ESC 1:25

SUSPENSÃO V21
ESC 1:25

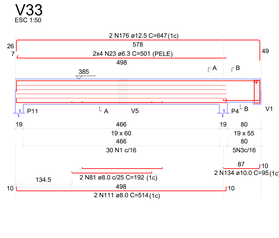


V32
ESC 1:50

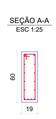


SEÇÃO A-A
ESC 1:25

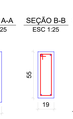
V33
ESC 1:50



SEÇÃO A-A
ESC 1:25

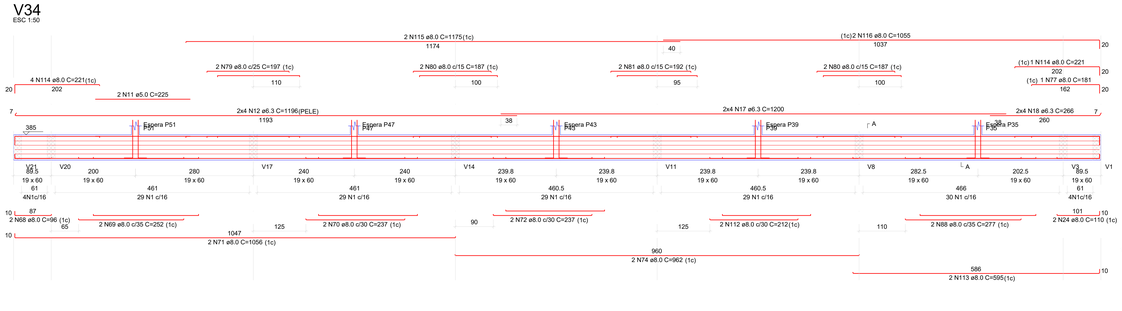


SEÇÃO B-B
ESC 1:25



SUSPENSÃO V1
ESC 1:25

V34
ESC 1:50



ESPERA P51
ESC 1:25

ESPERA P47
ESC 1:25

ESPERA P43
ESC 1:25

ESPERA P39
ESC 1:25

ESPERA P35
ESC 1:25

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414990901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 082522-0

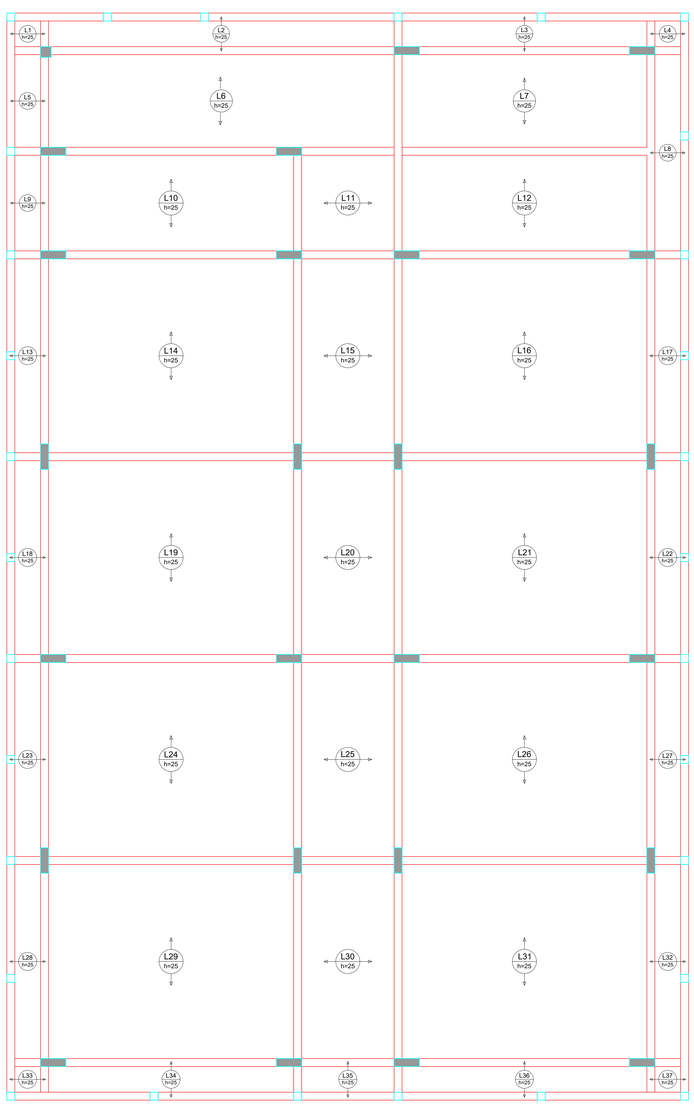
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
CONTEÚDO	VIGAS SUPERIOR(2)
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 12/16

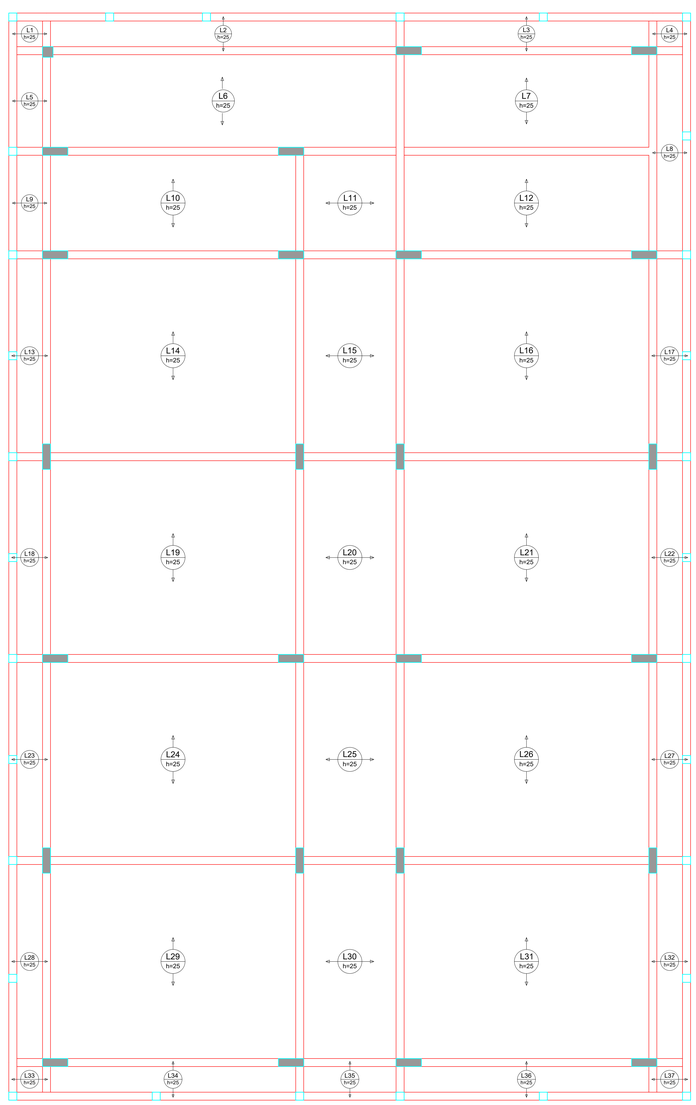
FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.568.721/0001-98
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 9611-5671 | e-mail do responsável técnico deste projeto: joel@fercongroup.com

SEI 25.0.2000039-8 | pg. 85
Projeto Estrutural de Concreto Armado (06/47460)



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

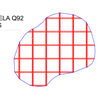
Escala 1:50



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:50

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.199.623/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

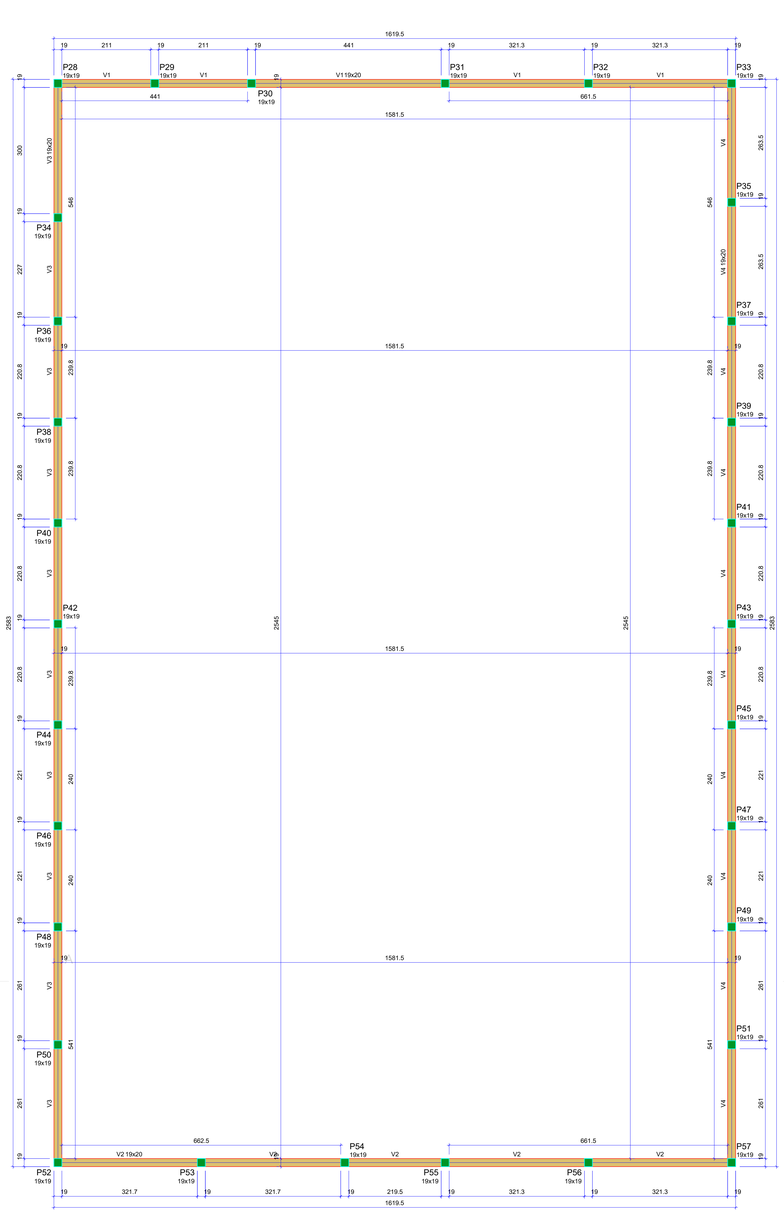
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	XX_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST13/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.727/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 | Centro - Brumenau | CEP 89013-140 | Fone: (47) 3811-8213 | e-mail do responsável técnico deste projeto: jean@fercongroupbra.com

Projeto Estrutura de Concreto Armado (2047746G) - SEI 25.0.2000003-8 / pg. 89



FORMA DO PAVIMENTO PLATIBANDA (NÍVEL 505)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x20	0	505
V2	19x20	0	505
V3	19x20	0	505
V4	19x20	0	505

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P28	19x19	0	505
P29	19x19	0	505
P30	19x19	0	505
P31	19x19	0	505
P32	19x19	0	505
P33	19x19	0	505
P34	19x19	0	505
P35	19x19	0	505
P36	19x19	0	505
P37	19x19	0	505
P38	19x19	0	505
P39	19x19	0	505
P40	19x19	0	505
P41	19x19	0	505
P42	19x19	0	505
P43	19x19	0	505
P44	19x19	0	505
P45	19x19	0	505
P46	19x19	0	505
P47	19x19	0	505
P48	19x19	0	505
P49	19x19	0	505
P50	19x19	0	505
P51	19x19	0	505
P52	19x19	0	505
P53	19x19	0	505
P54	19x19	0	505
P55	19x19	0	505
P56	19x19	0	505
P57	19x19	0	505

Legenda dos pilares	
	Pilar que morre

Legenda das vigas e paredes	
	Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
82.169.623/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

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CREA/SC 062522-0

FERCON

Município de Joinville

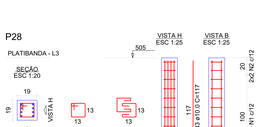
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	JOE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS PLATIBANDA
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 14/16

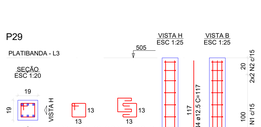
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-96
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3911-8271 | e-mail do responsável técnico deste projeto: jean@fercongroupbau.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.2000033-8 / pg. 90

P28



P29



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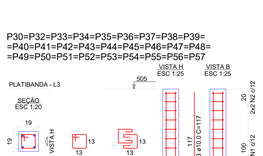
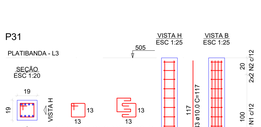


P31



RELAÇÃO DO AÇO

P28 P29 27xP30
P31

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	268	63	16884
	2	5.0	120	51	6120
CA50	3	10.0	124	117	14508
	4	12.5	6	117	702

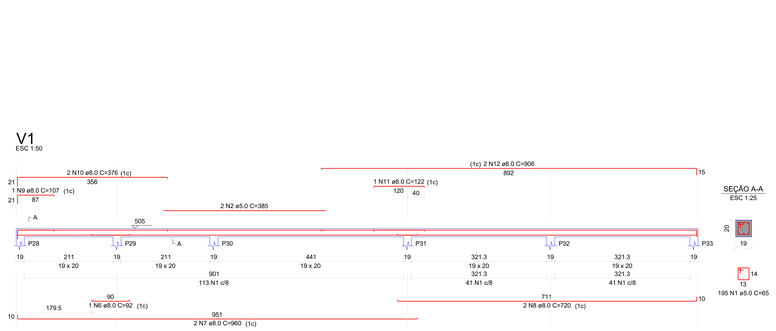
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	145.1	98.4
	12.5	7	7.4
CA60	5.0	230	39
PESO TOTAL (kg)			
CA50	105.8		
CA60	39		

Volume de concreto (C-35) = 1.30 m³
Área de forma = 27.36 m²

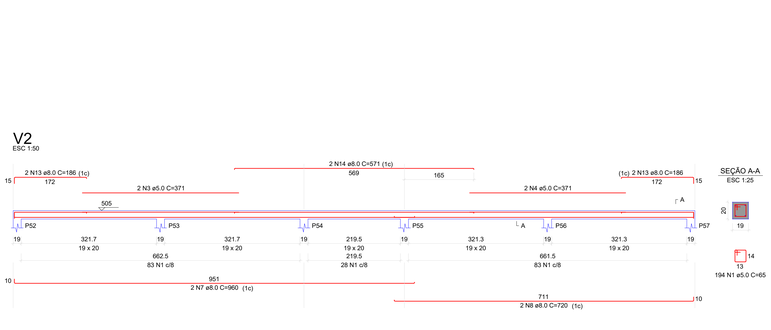
V1

ESC 1:50



V2

ESC 1:50



V3

ESC 1:50

V4

ESC 1:50

RELAÇÃO DO AÇO

V1 V2 V3
V4

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	993	65	64545
	2	5.0	2	385	770
	3	5.0	2	371	742
	4	5.0	2	371	742
	5	5.0	2	315	630
CA50	6	8.0	1	92	92
	7	8.0	4	960	3840
	8	8.0	4	720	2880
	9	8.0	1	107	107
	10	8.0	2	376	752
	11	8.0	1	122	122
	12	8.0	2	906	1812
	13	8.0	4	186	744
	14	8.0	2	571	1142
	15	8.0	4	1056	4224
	16	8.0	2	986	1972
	17	8.0	2	605	1210
	18	8.0	4	1198	4792
	19	8.0	2	1200	2400
	20	8.0	2	265	530
	21	8.0	2	962	1924
	22	8.0	2	581	1162
	23	8.0	2	976	1952
	24	8.0	2	166	332

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	319.9	138.8
CA60	5.0	674.3	114.3
PESO TOTAL (kg)			
CA50	138.8		
CA60	114.3		

Volume de concreto (C-35) = 2.95 m³
Área de forma = 45.78 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.623/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

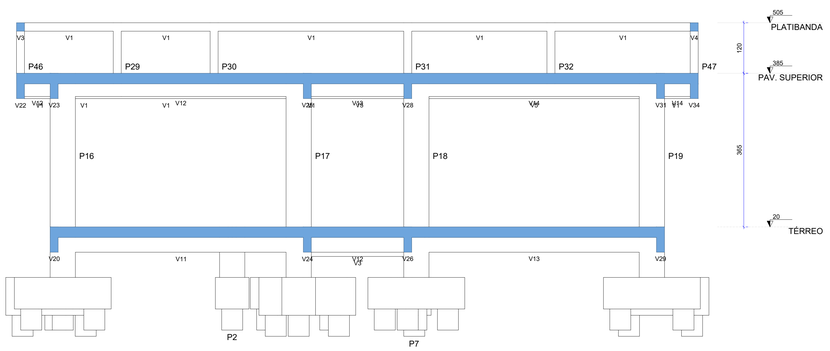
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

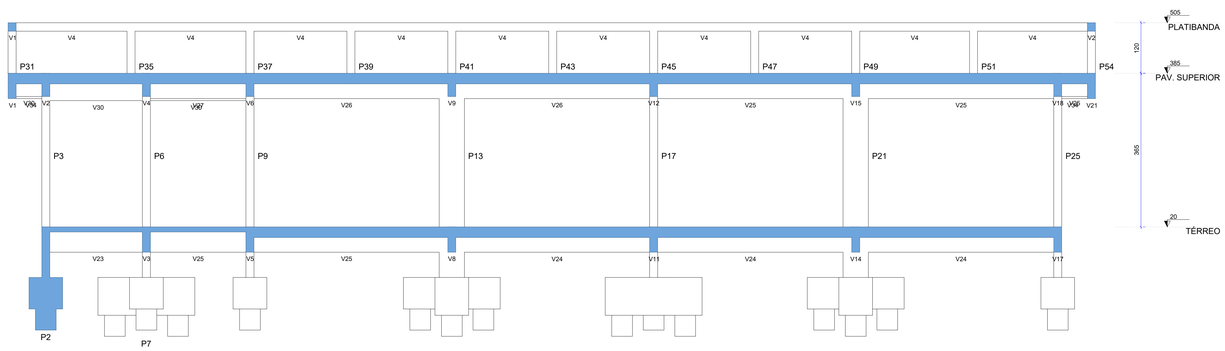
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
ARQUIVO	3OI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS E PILARES PLATIBANDA
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 15/16

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.986.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone (47) 9611-8711 | e-mail do responsável técnico desta projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.2000038-8 / pg. 91



CORTE A-A
Escala 1:50



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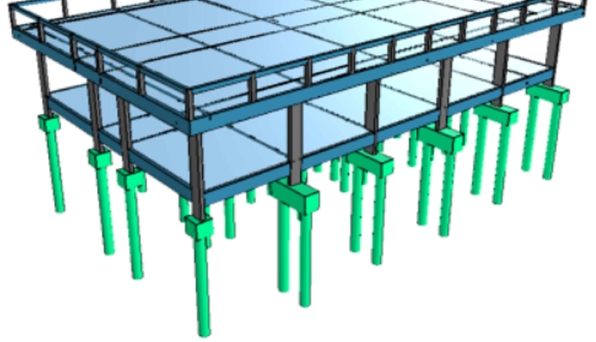

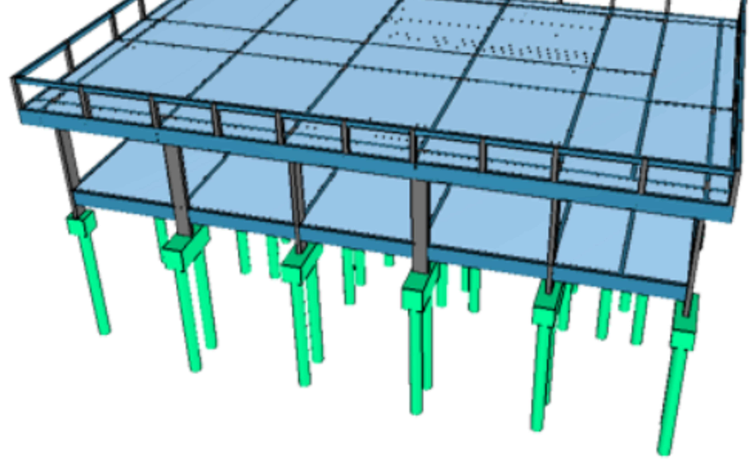

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
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CREA/SC 082522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
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CREA 082522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BLOCO - B
CONTEÚDO	CORTES - IMAGENS 3D

ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 16/16

FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04 888 721/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 3471-8713 | E-mail do responsável técnico desta projeto: jean@fercongroup.com

Projeto Estrutural de Concreto Armado (NBR 6118:2023) | SEI! 25.0.22000038-8 | Pág. 02

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE

83.169.623/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

Assinado digitalmente por FERNANDO STROISCH:84134518920

ENGº CIVIL. FERNANDO STROISCH

CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE

EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA

ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA

PROJETO: GUARITA-LIXEIRA-GÁS

ARQUIVO: JOI_SED_ROS_EXA_EX.DWG

DATA: 02/07/2025

CONTEÚDO: LOCAÇÃO - PONTO DE MARCAÇÃO

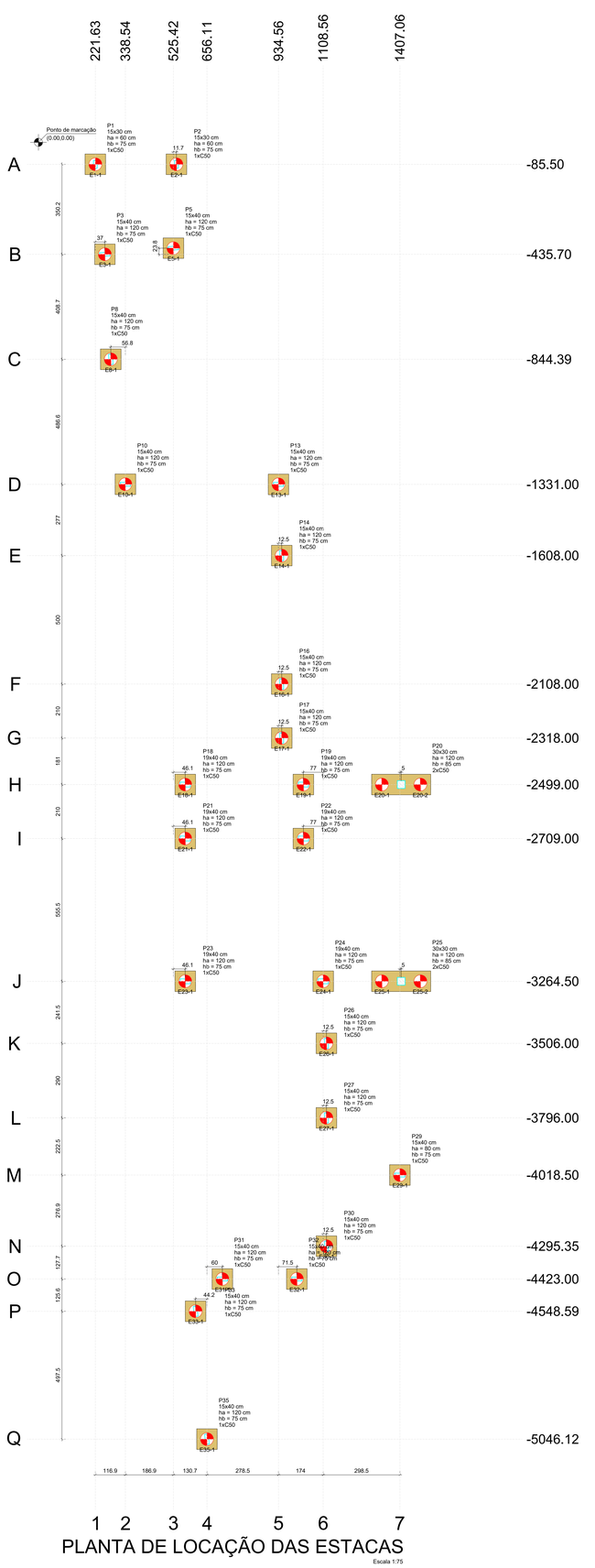
ETAPA: EXECUTIVO

ESCALA: INDICADA

FOLHA: EST 01/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: jean@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 93



PLANTA DE LOCAÇÃO DAS ESTACAS

Escala 1:75

Pilar												Fundação				Bloco				
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m) Positivo	Mx Máximo (kgf.m) Negativo	My Máximo (kgf.m) Positivo	My Máximo (kgf.m) Negativo	Fx Máximo (tf) Positivo	Fx Máximo (tf) Negativo	Fy Máximo (tf) Positivo	Fy Máximo (tf) Negativo	Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	ne	Estaca	co	ca	Base tub. (cm)
P1	15x30	221.63	-85.50	10.6	9.6	0	0	0	0	0.0	-0.2	0.0	-0.1	80	80	60	75	1	C50	-100	-	-
P2	15x30	537.16	-85.50	11.1	10.2	0	0	0	0	0.2	0.0	0.0	-0.2	80	80	60	75	1	C50	-100	-	-
P3	15x40	258.67	-435.70	4.8	4.6	0	0	0	0	0.0	-0.2	0.1	0.0	80	80	120	75	1	C50	-105	-	-
P5	15x40	525.42	-411.86	2.5	2.4	0	0	0	0	0.2	0.0	0.2	0.0	80	80	120	75	1	C50	-105	-	-
P8	15x40	281.75	-844.39	4.6	4.6	0	0	0	0	0.0	0.0	0.1	0.0	80	80	120	75	1	C50	-105	-	-
P10	15x40	338.54	-1330.51	3.9	3.9	0	0	0	0	0.0	-0.9	0.0	-0.1	80	80	120	75	1	C50	-105	-	-
P13	15x40	934.56	-1331.00	3.1	3.0	0	0	0	0	1.0	0.0	0.1	0.0	80	80	120	75	1	C50	-105	-	-
P14	15x40	947.06	-1608.00	3.6	3.6	0	0	0	0	0.1	0.0	0.4	0.0	80	80	120	75	1	C50	-105	-	-
P16	15x40	947.06	-2108.00	3.0	2.8	0	0	0	0	0.1	0.0	0.0	-0.4	80	80	120	75	1	C50	-105	-	-
P17	15x40	947.06	-2318.00	2.9	2.7	0	0	0	0	0.1	0.0	0.3	0.0	80	80	120	75	1	C50	-105	-	-
P18	19x40	571.56	-2499.00	10.5	9.9	0	0	0	0	0.0	-0.6	0.0	-0.2	80	80	120	75	1	C50	-180	-	-
P19	19x40	1031.56	-2499.00	8.7	8.5	0	0	0	0	1.0	0.0	0.0	-0.3	80	80	120	75	1	C50	-180	-	-
P20	30x30	1412.06	-2499.00	34.1	27.8	0	0	0	0	0.0	-1.5	4.8	0.0	230	80	120	85	2	C50	-180	-	-
P21	19x40	571.56	-2709.00	29.0	25.9	0	0	0	0	0.0	-0.6	0.5	0.0	80	80	120	75	1	C50	-180	-	-
P22	19x40	1031.56	-2709.00	37.9	30.4	0	0	0	0	1.6	0.0	0.9	0.0	80	80	120	75	1	C50	-180	-	-
P23	19x40	571.56	-3264.50	15.7	14.4	0	0	0	0	0.0	-0.5	0.0	-0.9	80	80	120	75	1	C50	-180	-	-
P24	19x40	1108.56	-3264.50	20.0	17.2	0	0	0	0	1.3	0.0	0.0	-0.2	80	80	120	75	1	C50	-180	-	-
P25	30x30	1412.06	-3264.50	32.5	26.4	0	0	0	0	0.0	-1.4	0.0	-4.4	230	80	120	85	2	C50	-170	-	-
P26	15x40	1121.06	-3506.00	2.0	1.9	0	0	0	0	0.1	0.0	0.0	-0.4	80	80	120	75	1	C50	-105	-	-
P27	15x40	1121.06	-3796.00	4.5	4.4	0	0	0	0	0.0	0.0	0.6	0.0	80	80	120	75	1	C50	-105	-	-
P29	15x40	1407.06	-4018.50	0.9	0.8	0	0	0	0	0.1	0.0	0.0	-0.5	80	80	80	75	1	C50	-105	-	-
P30	15x40	1121.06	-4295.35	5.6	5.6	0	0	0	0	0.0	0.0	0.0	-0.6	80	80	120	75	1	C50	-105	-	-
P31	15x40	716.06	-4423.00	3.8	3.8	0	0	0	0	0.0	-0.2	0.0	0.0	80	80	120	75	1	C50	-105	-	-
P32	15x40	1006.06	-4423.00	3.5	3.4	0	0	0	0	0.1	0.0	0.1	0.0	80	80	120	75	1	C50	-105	-	-
P33	15x40	611.91	-4548.59	5.3	5.2	0	0	0	0	0.1	0.0	0.2	0.0	80	80	120	75	1	C50	-105	-	-
P35	15x40	656.11	-5046.12	3.5	3.5	0	0	0	0	0.1	0.0	0.0	-0.2	80	80	120	75	1	C50	-105	-	-

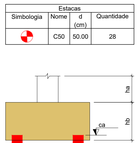
Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

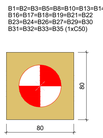
Locação no eixo X	
Coordenadas (cm)	Nome
221.63	P1
258.67	P3
281.75	P8
338.54	P10
525.42	P5
537.16	P2
571.56	P18, P21, P23
611.91	P33
656.11	P35
716.06	P31
934.56	P13
947.06	P14, P16, P17
1006.06	P32
1031.56	P19, P22
1108.56	P24
1121.06	P26, P27, P30
1407.06	P29
1412.06	P20, P25

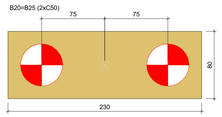
Locação no eixo Y	
Coordenadas (cm)	Nome
-85.50	P1, P2
-411.86	P5
-435.70	P3
-844.39	P8
-1330.51	P10
-1331.00	P13
-1608.00	P14
-2108.00	P16
-2318.00	P17
-2499.00	P18, P19, P20
-2709.00	P21, P22
-3264.50	P23, P24, P25
-3506.00	P26
-3796.00	P27
-4018.50	P29
-4295.35	P30
-4423.00	P31, P32
-4548.59	P33
-5046.12	P35

LOCAÇÃO DAS ESTACAS									
Bloco	Nome	Tipo	Coordenada X (cm)	Coordenada Y (cm)	Carga máx. tf	Carga mín. tf	Momento máx. kgf.m	Momento mín. kgf.m	Força horiz. máx. tf	Força horiz. mín. tf	CA (cm)
B1	E1-1	C50	221.63	-85.50	11.70	10.67	66.27	39.18	0.13	0.08	-100
B2	E2-1	C50	537.16	-85.50	12.20	11.32	101.77	67.07	0.20	0.13	-100
B3	E3-1	C50	258.67	-435.70	5.84	5.65	111.41	90.66	0.23	0.19	-105
B5	E5-1	C50	525.42	-411.86	3.54	3.47	105.91	88.74	0.22	0.18	-105
B8	E8-1	C50	281.75	-844.39	5.70	5.67	42.91	15.77	0.09	0.03	-105
B10	E10-1	C50	338.54	-1330.51	4.99	4.97	441.78	427.79	0.92	0.89	-105
B13	E13-1	C50	934.56	-1331.00	4.17	4.11	442.62	429.82	0.92	0.90	-105
B14	E14-1	C50	947.06	-1608.00	4.69	4.67	160.30	85.81	0.33	0.18	-105
B16	E16-1	C50	947.06	-2108.00	4.04	3.89	136.75	53.54	0.28	0.11	-105
B17	E17-1	C50	947.06	-2318.00	3.96	3.75	113.83	40.95	0.24	0.09	-105
B18	E18-1	C50	571.56	-2499.00	11.62	10.93	217.95	158.18	0.45	0.33	-180
B19	E19-1	C50	1031.56	-2499.00	9.79	9.58	485.77	245.26	1.01	0.51	-180
B20	E20-1	C50	1337.06	-2499.00	19.29	16.00	1387.81	859.86	2.32	1.44	-190
	E20-2		1487.06	-2499.00	18.58	15.46	1387.81	859.86	2.32	1.44	
B21	E21-1	C50	571.56	-2709.00	30.07	27.00	360.82	270.25	0.75	0.56	-180
B22	E22-1	C50	1031.56	-2709.00	38.97	31.48	815.55	664.45	1.70	1.38	-180
B23	E23-1	C50	571.56	-3264.50	16.82	15.43	514.88	444.47	1.07	0.93	-180
B24	E24-1	C50	1108.56	-3264.50	21.05	18.33	601.48	359.70	1.25	0.75	-180
B25	E25-1	C50	1337.06	-3264.50	18.56	15.43	1311.29	772.91	2.23	1.34	-170
	E25-2		1487.06	-3264.50	17.63	14.66	1311.29	772.91	2.23	1.34	
B26	E26-1	C50	1121.06	-3506.00	3.06	2.93	121.74	39.95	0.25	0.08	-105
B27	E27-1	C50	1121.06	-3796.00	5.57	5.49	240.39	144.20	0.50	0.30	-105
B29	E29-1	C50	1407.06	-4018.50	1.95	1.88	170.78	114.93	0.36	0.24	-105
B30	E30-1	C50	1121.06	-4295.35	6.67	6.64	225.44	148.37	0.47	0.31	-105
B31	E31-1	C50	716.06	-4423.00	4.93	4.84	35.06	20.13	0.07	0.04	-105
B32	E32-1	C50	1006.06	-4423.00	4.56	4.43	29.85	5.49	0.06	0.01	-105
B33	E33-1	C50	611.91	-4548.59	6.34	6.29	54.67	34.05	0.11	0.07	-105
B35	E35-1	C50	656.11	-5046.12	4.63	4.61	35.55	27.78	0.07	0.06	-105

Estacas			
Simbologia	Nome	d (cm)	Quantidade
	C50	50.00	28







LEGENDA DOS BLOCOS

Escala 1:25

QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice

Quantidade: 1 estaca(s)

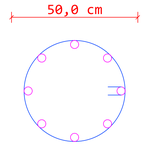
fck: 40 MPa

Diâmetro da estaca: 50 cm

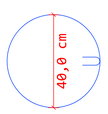
Cobrimento de concreto: 5 cm

Comprimento da estaca: 1700 cm

Seção



Estribos



172 N2 Ø 6,3
c/9 C=135,66

Armadura longitudinal

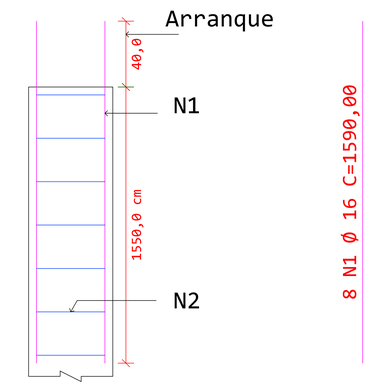


TABELA DE AÇO

Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO

Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20

Peso total do aço = 257,89 kg

Volume total de concreto = 3,34 m^3

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
ti: 08:02:00:01:10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA-SC 062522-0

FERCON

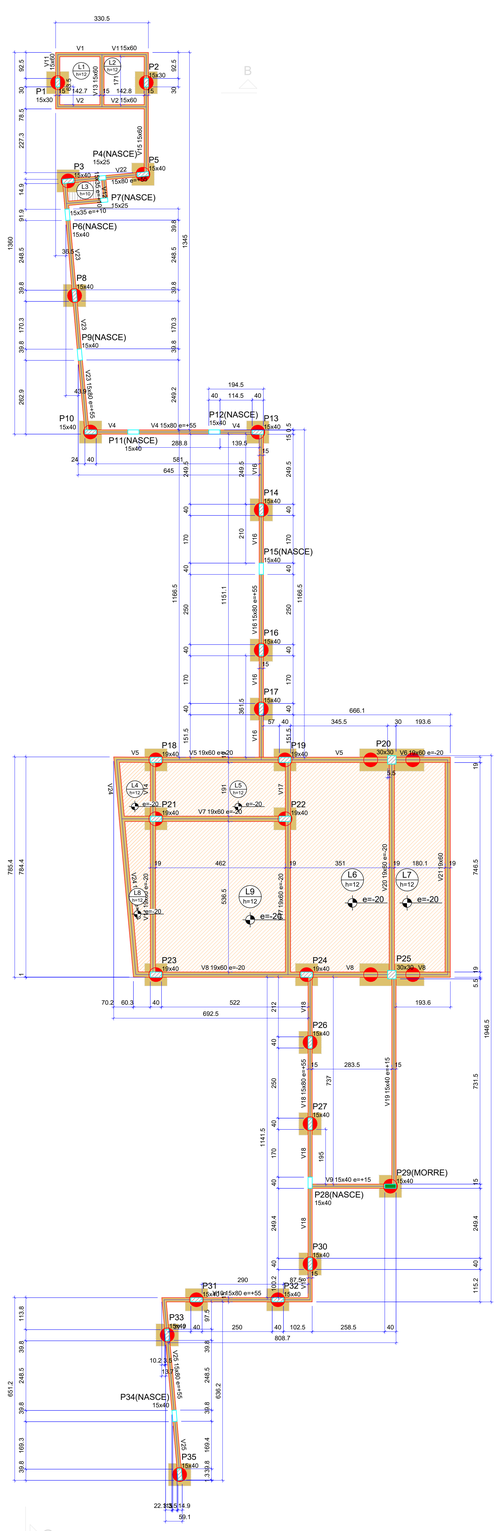
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
CONTEÚDO	LOCAÇÃO - ESTACAS
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 02/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.731/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc | CEP 88.353-140 | Fone: (47) 98413-8114 | e-mail do responsável técnico desta projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (26474466) - SEI 25.0.2000033-8 / pg. 94



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	15x60	0	20
V2	15x60	0	20
V3	15x35	10	30
V4	15x80	55	75
V5	19x60	-20	0
V6	19x60	-20	0
V7	19x60	-20	0
V8	19x60	-20	0
V9	15x40	15	35
V10	15x80	55	75
V11	15x60	0	20
V12	15x35	10	30
V13	15x60	0	20
V14	19x60	-20	0
V15	15x60	0	20
V16	15x80	55	75
V17	19x60	-20	0
V18	15x80	55	75
V19	15x40	15	35
V20	19x60	-20	0
V21	19x60	0	20
V22	15x80	55	75
V23	15x80	55	75
V24	19x60	-20	0
V25	15x80	55	75

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	12	0	20	300	154	300	-
L2	Maciça	12	0	20	300	154	150	-
L3	Maciça	10	10	30	250	154	150	-
L4	Maciça	12	-20	0	300	154	80	-
L5	Maciça	12	-20	0	300	154	300	-
L6	Maciça	12	-20	0	300	154	300	-
L7	Maciça	12	-20	0	300	154	300	-
L8	Maciça	12	-20	0	300	154	80	-
L9	Maciça	12	-20	0	300	154	80	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	0	20
P2	15x30	0	20
P3	15x40	55	75
P4	15x25	0	20
P5	15x40	55	75
P6	15x40	55	75
P7	15x25	0	20
P8	15x40	55	75
P9	15x40	55	75
P10	15x40	55	75
P11	15x40	55	75
P12	15x40	55	75
P13	15x40	55	75
P14	15x40	55	75
P15	15x40	55	75
P16	15x40	55	75
P17	15x40	55	75
P18	19x40	-20	0
P19	19x40	-20	0
P20	30x30	-20	0
P21	19x40	-20	0
P22	19x40	-20	0
P23	19x40	-20	0
P24	19x40	-20	0
P25	30x30	0	20
P26	15x40	55	75
P27	15x40	55	75
P28	15x40	55	75
P29	15x40	15	35
P30	15x40	55	75
P31	15x40	55	75
P32	15x40	55	75
P33	15x40	55	75
P34	15x40	55	75
P35	15x40	55	75

Legenda dos pilares
Pilar que morre
Pilar que passa
Pilar que nasce

Legenda das vigas e paredes
Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901 MUNICÍPIO DE JOINVILLE 61.149.623/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENG° CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

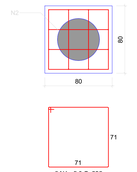
EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
ARQUIVO	JOE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS TÉRREO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 03/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-96
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3611-8071 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (p/04.14460)
SEI 24.0.2000003-8 / pg. 05

B1
1xC50
PLANTA
ESC 1:25



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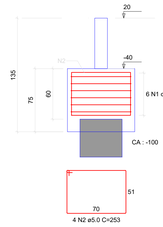
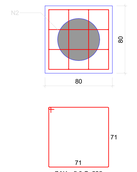
ESC 1:25



B2
1xC50
PLANTA
ESC 1:25



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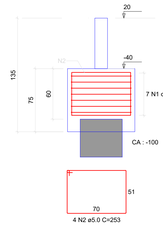
ESC 1:25



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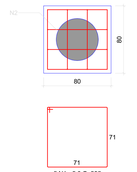
1xC50
PLANTA
ESC 1:25



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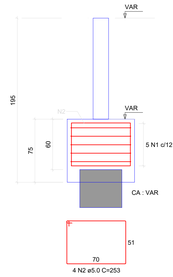
ESC 1:25



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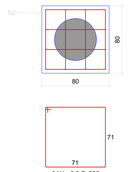
1xC50
PLANTA
ESC 1:25



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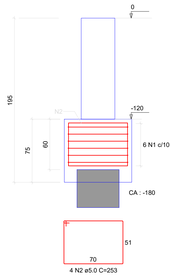
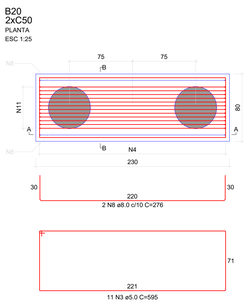
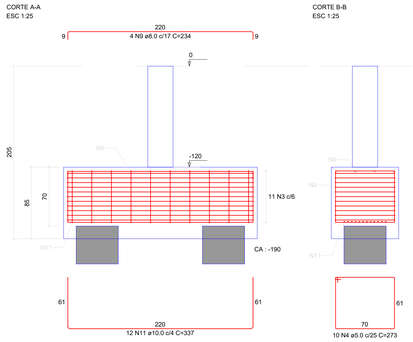
ESC 1:25



B20
2xC50
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

RELAÇÃO DO AÇO

B1	B2	B18
B20	B21	B22
B23	B24	B25
B29	16xB35	

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	104	295	30680
	2	5.0	80	253	20240
	3	5.0	22	595	13090
	4	5.0	20	273	5460
	5	5.0	14	251	3514
CA50	6	6.3	4	252	1008
	7	6.3	13	296	3848
	8	8.0	4	276	1104
	9	8.0	8	234	1872
	10	8.0	6	296	1776
	11	10.0	23	337	7751
	12	10.0	5	297	1485

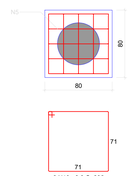
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	48.6	13.1
	8.0	47.5	20.6
	10.0	92.4	62.6
CA60	5.0	729.8	123.7

PESO TOTAL (kg)	
CA50	96.3
CA60	123.7

Volume de concreto (C-35) = 13.82 m³
Área de forma = 68.14 m²

B21
1xC50
PLANTA
ESC 1:25



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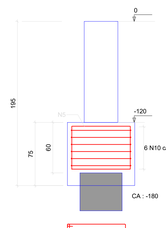
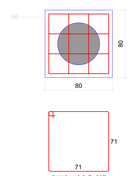
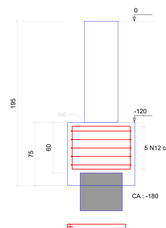
ESC 1:25



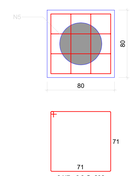
B22
1xC50
PLANTA
ESC 1:25



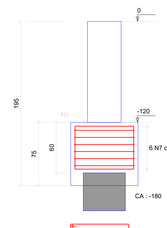
CORTE
ESC 1:25



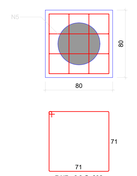
B23
1xC50
PLANTA
ESC 1:25



CORTE
ESC 1:25



B24
1xC50
PLANTA
ESC 1:25



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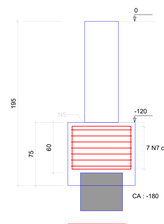
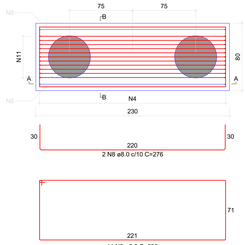
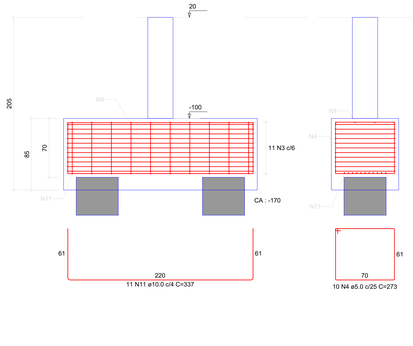
ESC 1:25



B25
2xC50
PLANTA
ESC 1:25

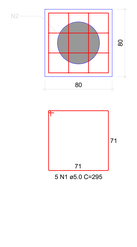


CORTE A-A
ESC 1:25



CORTE B-B
ESC 1:25

B29
1xC50
PLANTA
ESC 1:25



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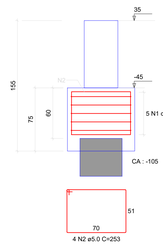

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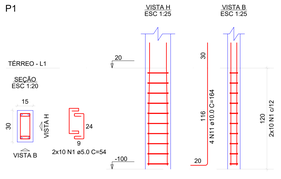

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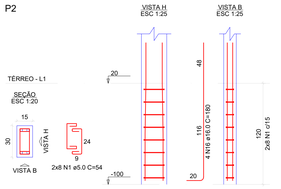
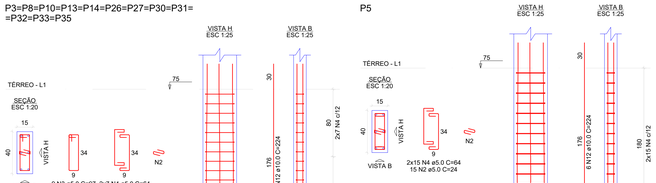


P3=P8=P10=P13=P14=P26=P27=P30=P31= =P32=P33=P35



P5

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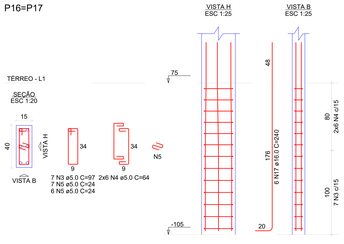


RELAÇÃO DO AÇO

P1	P2	12xP3
P5	2xP16	6xP18
P20	P25	P29

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	36	54	1944
	2	5.0	220	24	5280
	3	5.0	131	97	12707
	4	5.0	230	64	14720
	5	5.0	26	24	624
	6	5.0	60	105	6300
	7	5.0	80	72	4320
	8	5.0	38	39	1482
	9	5.0	24	107	2568
	10	5.0	28	84	2352
CA50	11	10.0	4	164	656
	12	10.0	102	224	22848
	13	10.0	4	200	800
	14	10.0	16	234	3744
	15	10.0	6	150	900
	16	16.0	4	180	720
	17	16.0	12	240	2880

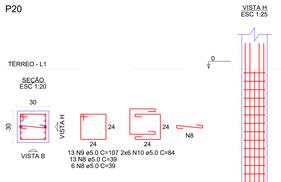
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	289.5	196.3
	16.0	36	62.5
CA60	5.0	523	88.7

PESO TOTAL (kg)	
CA50	258.8
CA60	88.7

Volume de concreto (C-35) = 1.95 m³
Área de forma = 33.14 m²

P20



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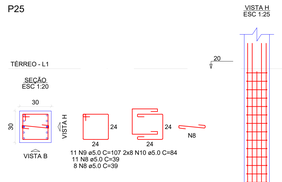

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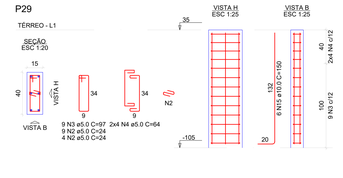

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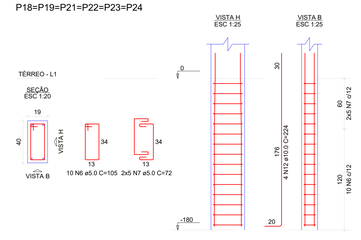


PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980903
MUNICIPIO DE JOINVILLE
82.166.025/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:841345 18920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062022-0

FERCON

Município de Joinville

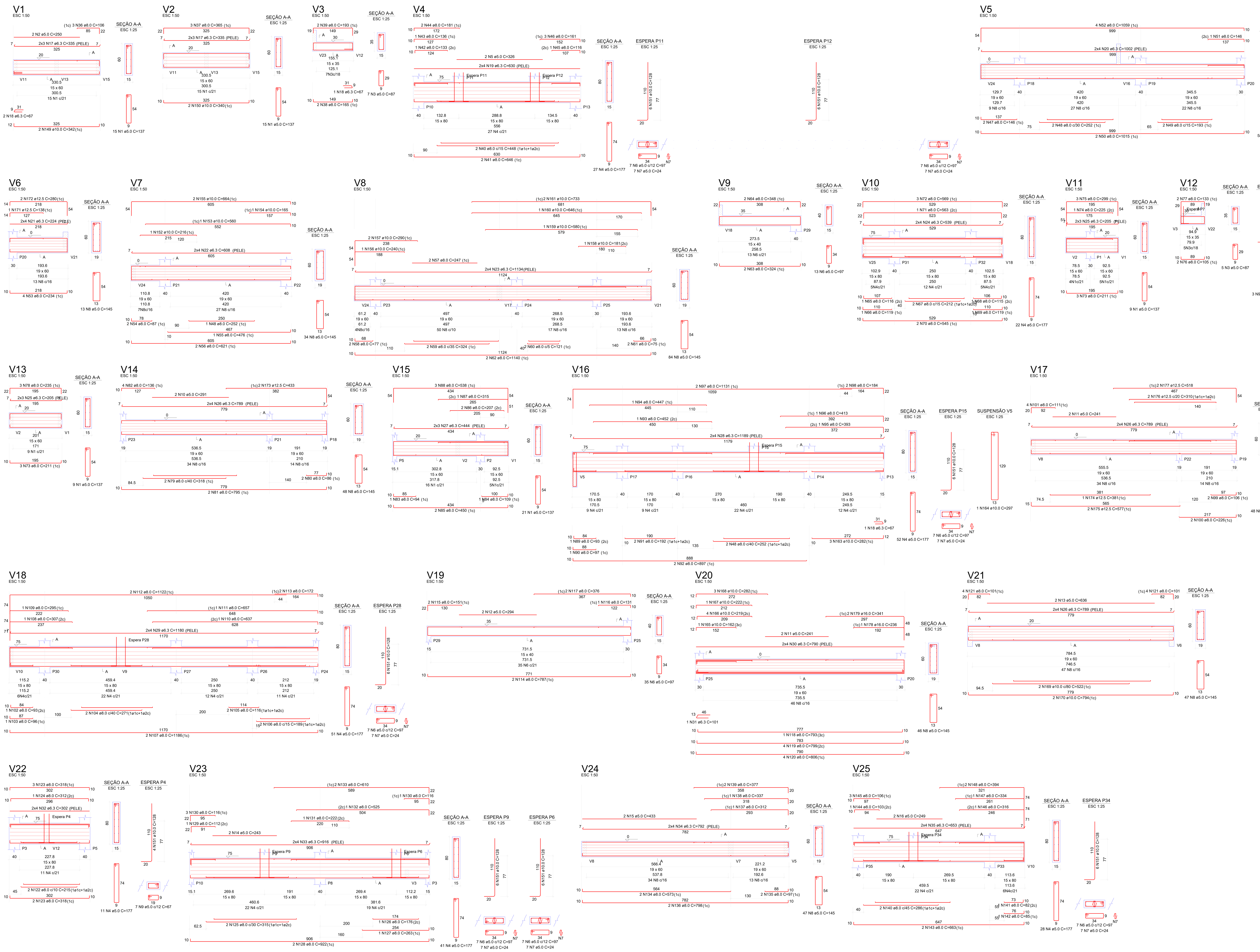
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062022-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
CONTEÚDO	BLOCOS DE FUNDAÇÃO - PILARES ARRANQUE

ARQUIVO	3OS_SED_ROS_EXA_EX.DWG	DATA	02/07/2025
ETAPA	EXECUTIVO	FOLHA	EST 04/12
ESCALA	INDICADA		

FERCON ENGENHARIA | CREA nº 062022-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Brusque/sc | CEP 88353-140 | Fone: (47) 3451-5512 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (pilar, viga, laje) SEI! 25.0.2200003-8 | pg. 96
Gerado em 02/07/2025 (16474460)



AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	69	137	9453
	2	5.0	2	250	500
	3	5.0	12	87	1044
	4	5.0	232	177	41064
	5	5.0	2	326	652
	6	5.0	97	97	9409
	7	5.0	49	24	1176
	8	5.0	425	145	61625
	9	5.0	10	67	670
	10	5.0	2	291	582
	11	5.0	4	241	964
	12	5.0	2	294	588
	13	5.0	2	636	1272
	14	5.0	2	243	486
	15	5.0	2	433	866
	16	5.0	2	249	498
CA50	17	6.3	12	335	4020
	18	6.3	4	67	268
	19	6.3	8	630	5040
	20	6.3	8	1002	8016
	21	6.3	8	224	1792
	22	6.3	8	608	4864
	23	6.3	8	1134	9072
	24	6.3	8	539	4312
	25	6.3	12	205	2460
	26	6.3	24	789	18936
	27	6.3	6	444	2664
	28	6.3	8	1189	9512
	29	6.3	8	1180	9440
	30	6.3	8	790	6320
	31	6.3	1	101	101
	32	6.3	8	302	2416
	33	6.3	8	916	7328
	34	6.3	8	792	6336
	35	6.3	8	653	5224
	36	8.0	3	106	318
	37	8.0	3	365	1095
	38	8.0	2	165	330
	39	8.0	2	193	386
	40	8.0	2	448	896
	41	8.0	2	646	1292
	42	8.0	1	133	133
	43	8.0	1	136	136
	44	8.0	2	181	362
	45	8.0	1	116	116
	46	8.0	3	161	483
	47	8.0	2	146	292
	48	8.0	5	252	1260
	49	8.0	2	193	386
	50	8.0	2	1015	2030
	51	8.0	1	146	146
	52	8.0	4	1059	4236
	53	8.0	4	234	936
	54	8.0	2	87	174
	55	8.0	1	476	476
	56	8.0	2	621	1242
	57	8.0	2	247	494
	58	8.0	2	77	154
	59	8.0	2	324	648
	60	8.0	2	121	242
	61	8.0	2	75	150
	62	8.0	2	1140	2280
	63	8.0	2	324	648
	64	8.0	2	348	696
	65	8.0	1	116	116
	66	8.0	1	119	119
	67	8.0	2	212	424
	68	8.0	1	115	115
	69	8.0	1	119	119
	70	8.0	2	545	1090
	71	8.0	1	563	563
	72	8.0	3	569	1707
	73	8.0	6	211	1266
	74	8.0	1	225	225
	75	8.0	3	299	897
	76	8.0	2	105	210
	77	8.0	2	133	266
	78	8.0	3	235	705
	79	8.0	2	318	636
	80	8.0	2	86	172
	81	8.0	2	795	1590
	82	8.0	4	136	544
	83	8.0	1	94	94
	84	8.0	1	109	109
	85	8.0	2	450	900
	86	8.0	2	207	414
	87	8.0	1	315	315
	88	8.0	3	538	1614
	89	8.0	1	93	93
	90	8.0	1	97	97
	91	8.0	2	192	384
	92	8.0	2	897	1794
	93	8.0	1	452	452
	94	8.0	1	447	447
	95	8.0	1	393	393
	96	8.0	1	413	413
	97	8.0	2	1131	2262
	98	8.0	2	184	368
	99	8.0	2	106	212
	100	8.0	2	226	452
	101	8.0	4	111	444
	102	8.0	1	93	93
	103	8.0	1	96	96
	104	8.0	2	271	542
	105	8.0	2	116	232
	106	8.0	2	189	378
	107	8.0	2	1186	2372
	108	8.0	1	307	307
	109	8.0	1	295	295
	110	8.0	1	637	637
	111	8.0	1	657	657
	112	8.0	2	1122	2244
	113	8.0	2	172	344
	114	8.0	2	787	1574
	115	8.0	2	151	302
	116	8.0	1	131	131
	117	8.0	2	376	752
	118	8.0	1	793	793
	119	8.0	4	799	3196
	120	8.0	4	806	3224
	121	8.0	8	101	808
	122	8.0	2	215	430
	123	8.0	5	318	1590
	124	8.0	1	312	312
	125	8.0	2	315	630
	126	8.0	1	176	176
	127	8.0	1	263	263
	128	8.0	2	922	1844
	129	8.0	1	112	112
	130	8.0	4	116	464
	131	8.0	1	222	222
	132	8.0	1	525	525
	133	8.0	2	610	1220
	134	8.0	2	573	1146
	135	8.0	2	97	194
	136	8.0	2	798	1596
	137	8.0	1	312	312
	138	8.0	1	337	337
	139	8.0	2	377	754
	140	8.0	2	286	572
	141	8.0	1	82	82
	142	8.0	1	85	85
	143	8.0	2	663	1326
	144	8.0	1	103	103
	145	8.0	3	106	318
	146	8.0	1	316	316
	147	8.0	1	334	334
	148	8.0	2	394	788
	149	10.0	2	342	684
	150	10.0	2	340	680
	151	10.0	46	128	5888
	152	10.0	1	216	216
	153	10.0	1	560	560
	154	10.0	1	165	165
	155	10.0	2	664	1328
	156	10.0	1	240	240
	157	10.0	2	290	580
	158	10.0	1	181	181
	159	10.0	1	580	580
	160	10.0	1	646	646
	161	10.0	2	733	1466
	162	10.0	4	83	332
	163	10.0	3	282	846
	164	10.0	1	297	297
	165	10.0	1	162	162
	166	10.0	4	219	876
	167	10.0	1	222	222
	168	10.0	3	282	846
	169	10.0	2	522	1044
	170	10.0	2	794	1588
	171	12.5	1	138	138
	172	12.5	2	280	560
	173	12.5	2	433	866
	174	12.5	1	381	381
	175	12.5	2	577	1154
	176	12.5	2	310	620
	177	12.5	2	518	1036
	178	16.0	1	236	236
	179	16.0	2	341	682

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25		

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1081.2	291
	8.0	790.9	343.3
	10.0	194.3	131.8
	12.5	47.6	50.4
	16.0	9.2	15.9
CA60	5.0	1308.5	221.9

PESO TOTAL (kg)	
CA50	832.4
CA60	221.9

Volume de concreto (C-35) = 14.89 m³
Área de forma = 188.39 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920
ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

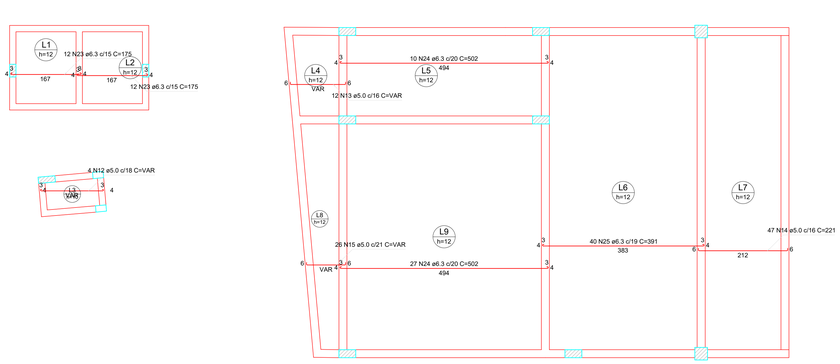
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO: GUARITA-LIXEIRA-GÁS
CONTEÚDO: VIGAS BALDRAME
ARQUIVO: JOI_SED_ROS_EXA_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 05/12

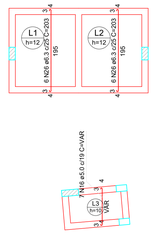
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: jean@ferconprojetos.com

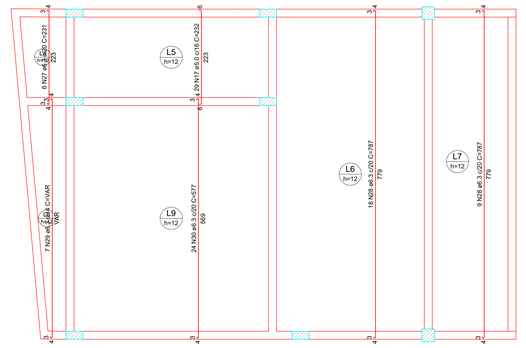
Projeto Estrutura de Concreto Armado (26474460)   SEI 25.0.200003-8 / pg. 97



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

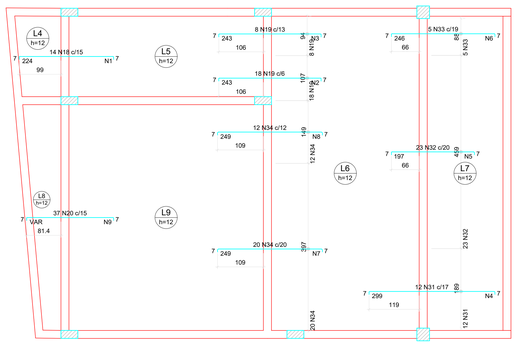
Escala 1:50





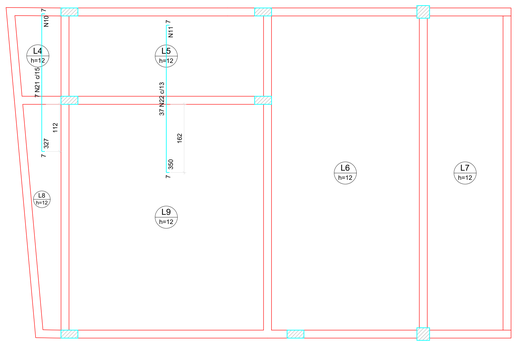
ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:50



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:50

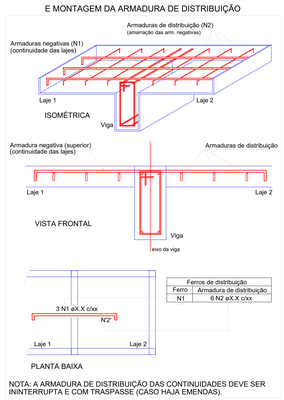


ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:50

Armaduras de distribuição	
Armadura	Armadura de distribuição
N18	12 N1 ø5.0 c/20 C=210
N19	14 N2 ø5.0 c/18 C=107
N19	13 N3 ø5.0 c/20 C=103
N31	15 N4 ø5.0 c/20 C=204
N32	10 N5 ø5.0 c/20 C=459
N33	13 N6 ø5.0 c/20 C=102
N34	13 N7 ø5.0 c/20 C=406
N34	17 N8 ø5.0 c/15 C=150
N20	11 N9 ø5.0 c/20 C=VAR
N21	17 N10 ø5.0 c/20 C=111
N22	18 N11 ø5.0 c/20 C=481

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

ARMADURA COM COMPRIMENTO VARIÁVEL				
N12	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N16	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N13	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N15	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N29	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	12	210	2520
	2	5.0	14	107	1498
	3	5.0	13	103	1339
	4	5.0	15	204	3060
	5	5.0	10	459	4590
	6	5.0	13	102	1326
	7	5.0	13	406	5278
	8	5.0	17	150	2550
	9	5.0	11	VAR	VAR
	10	5.0	17	111	1887
	11	5.0	18	481	8658
	12	5.0	4	VAR	VAR
	13	5.0	12	VAR	VAR
	14	5.0	47	221	10387
	15	5.0	26	VAR	VAR
	16	5.0	7	VAR	VAR
	17	5.0	29	232	6728
	18	6.3	14	235	3290
	19	6.3	26	254	6604
	20	6.3	37	VAR	VAR
	21	6.3	7	338	2366
	22	6.3	37	361	13357
	23	6.3	24	175	4200
	24	6.3	24	609	14620
	25	6.3	40	391	15640
	26	6.3	12	203	2436
	27	6.3	6	231	1386
	28	6.3	27	787	21249
	29	6.3	7	VAR	VAR
	30	6.3	24	577	13848
	31	8.0	12	309	3708
	32	8.0	23	207	4761
	33	8.0	5	256	1280
	34	10.0	32	258	8256

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1150.1	309.6
	8.0	97.5	42.3
	10.0	82.6	56
CA60	5.0	615.9	104.4

PESO TOTAL (kg)	
CA50	407.9
CA60	104.4

Volume de concreto (C-35) = 10.07 m³
Área de forma = 84.08 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00:	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.629/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

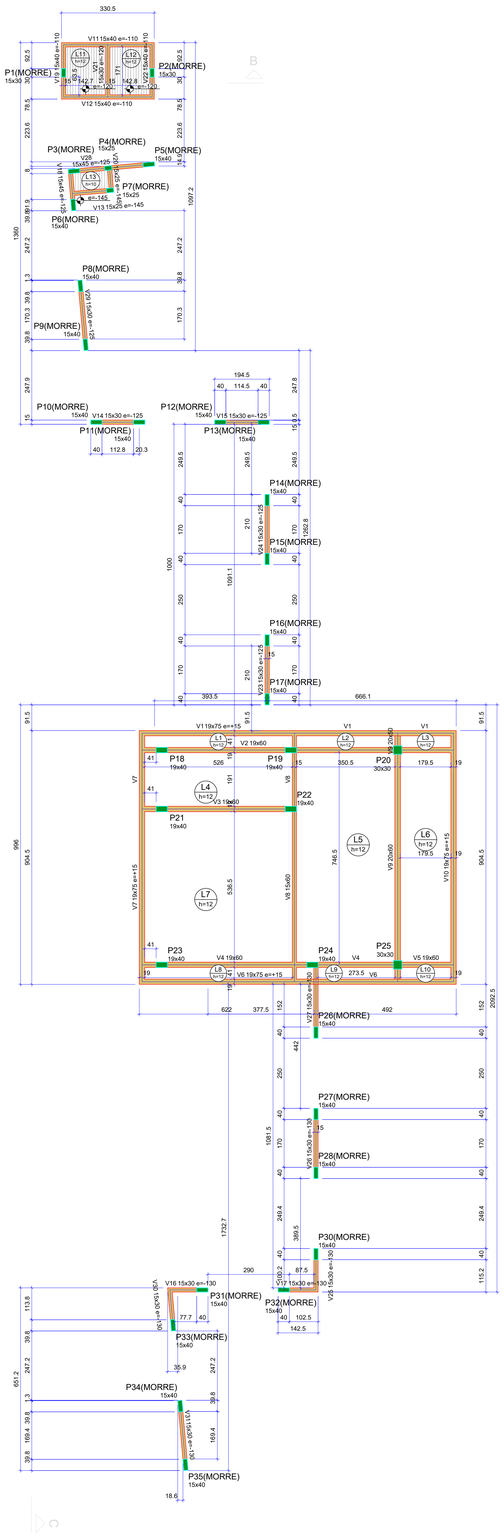
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE PISO
ETAPA	EXECUTIVO
FOLHA	EST 06/12
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 54.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 03 - Centro - Brusque/sc | CEP 88010-140 | Fone (47) 3511-8671 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.2000038-8 / pg. 86



FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 380)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x75	15	395
V2	19x60	0	380
V3	19x60	0	380
V4	19x60	0	380
V5	19x60	0	380
V6	19x75	15	395
V7	19x75	15	395
V8	15x60	0	380
V9	20x60	0	380
	20x60	0	380
	20x50	0	380
V10	19x75	15	395
V11	15x40	-110	270
V12	15x40	-110	270
V13	15x25	-145	235
V14	15x30	-125	255
V15	15x30	-125	255
V16	15x30	-130	250
V17	15x30	-130	250
V18	15x45	-125	255
V19	15x40	-110	270
V20	15x25	-145	235
V21	15x30	-120	260
V22	15x40	-110	270
V23	15x30	-125	255
V24	15x30	-125	255
V25	15x30	-130	250
V26	15x30	-130	250
V27	15x30	-130	250
V28	15x45	-125	255
V29	15x30	-125	255
V30	15x30	-130	250
V31	15x30	-130	250

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	12	0	380	300	154	80	-
L2	Maciça	12	0	380	300	154	80	-
L3	Maciça	12	0	380	300	154	300	-
L4	Maciça	12	0	380	300	154	80	-
L5	Maciça	12	0	380	300	154	80	-
L6	Maciça	12	0	380	300	154	80	-
L7	Maciça	12	0	380	300	154	80	-
L8	Maciça	12	0	380	300	154	80	-
L9	Maciça	12	0	380	300	154	80	-
L10	Maciça	12	0	380	300	154	80	-
L11	Maciça	12	-120	260	300	154	80	-
L12	Maciça	12	-120	260	300	154	80	-
L13	Maciça	10	-145	235	250	154	50	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	-110	270
P2	15x30	-110	270
P3	15x40	-125	255
P4	15x25	-145	235
P5	15x40	-125	255
P6	15x40	-125	255
P7	15x25	-145	235
P8	15x40	-125	255
P9	15x40	-125	255
P10	15x40	-125	255
P11	15x40	-125	255
P12	15x40	-125	255
P13	15x40	-125	255
P14	15x40	-125	255
P15	15x40	-125	255
P16	15x40	-125	255
P17	15x40	-125	255
P18	19x40	0	380
P19	19x40	0	380
P20	30x30	0	380
P21	19x40	0	380
P22	19x40	0	380
P23	19x40	0	380
P24	19x40	0	380
P25	30x30	0	380
P26	15x40	-130	250
P27	15x40	-130	250
P28	15x40	-130	250
P30	15x40	-130	250
P31	15x40	-130	250
P32	15x40	-130	250
P33	15x40	-130	250
P34	15x40	-130	250
P35	15x40	-130	250

Legenda dos pilares	Legenda das vigas e paredes
Pilar que morre	Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
61.149.620/001-70

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062022-0

FERCON

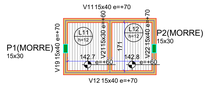
Município de Joinville

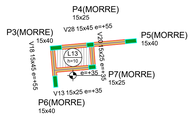
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062022-0

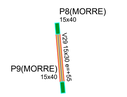
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
CONTEÚDO	FÔRMAS SUPERIOR(1)
ARQUIVO	302_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 07/12

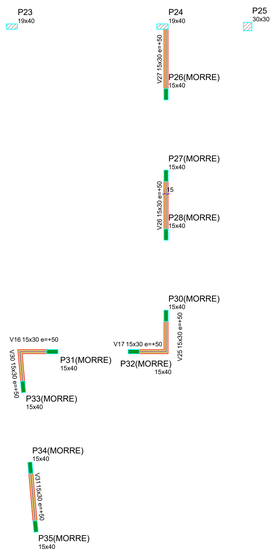
FERCON ENGENHARIA | CREA nº 062022-0 | CNPJ 04.588.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc | CEP 88010-140 | Aline (47) 98114-5114 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

SEI 25.0.230003-8 / pg. 99
Projeto Estrutura de Concreto Armado (25/07/460)









Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V11	15x40	70	270
V12	15x40	70	270
V13	15x25	35	235
V14	15x30	55	255
V15	15x30	55	255
V16	15x30	50	250
V17	15x30	50	250
V18	15x45	55	255
V19	15x40	70	270
V20	15x25	35	235
V21	15x30	60	260
V22	15x40	70	270
V23	15x30	55	255
V24	15x30	55	255
V25	15x30	50	250
V26	15x30	50	250
V27	15x30	50	250
V28	15x45	55	255
V29	15x30	55	255
V30	15x30	50	250
V31	15x30	50	250

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L11	Maciça	12	60	260	300	154	80	-
L12	Maciça	12	60	260	300	154	80	-
L13	Maciça	10	35	235	250	154	50	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	70	270
P2	15x30	70	270
P3	15x40	55	255
P4	15x25	35	235
P5	15x40	55	255
P6	15x40	55	255
P7	15x25	35	235
P8	15x40	55	255
P9	15x40	55	255
P10	15x40	55	255
P11	15x40	55	255
P12	15x40	55	255
P13	15x40	55	255
P14	15x40	55	255
P15	15x40	55	255
P16	15x40	55	255
P17	15x40	55	255
P18	19x40	0	200
P19	19x40	0	200
P20	30x30	0	200
P21	19x40	0	200
P22	19x40	0	200
P23	19x40	0	200
P24	19x40	0	200
P25	30x30	0	200
P26	15x40	50	250
P27	15x40	50	250
P28	15x40	50	250
P30	15x40	50	250
P31	15x40	50	250
P32	15x40	50	250
P33	15x40	50	250
P34	15x40	50	250
P35	15x40	50	250

Legenda dos pilares
Pilar que morre
Pilar que passa

Legenda das vigas e paredes
Viga

FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 200)

Escala 1:75

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
01.199.625/0001-12

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
CONTEÚDO	FÔRMAS SUPERIOR(2)

ARQUIVO	3OI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 08/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brumenau - | CEP 89013-140 | Fone: (47) 98114-8513 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT14931)
SEI 25.0.3000003-8 | pg. 100

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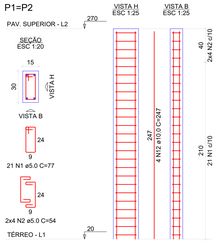

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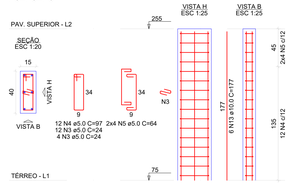

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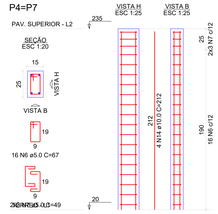

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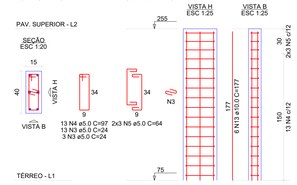

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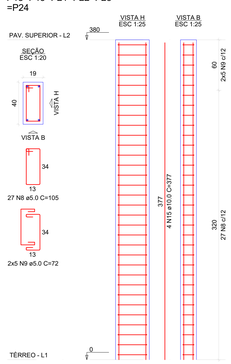

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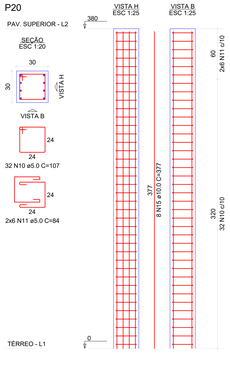

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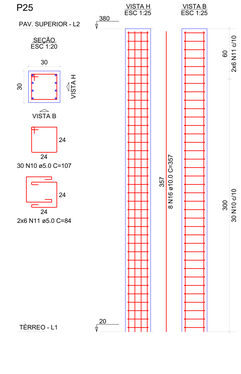

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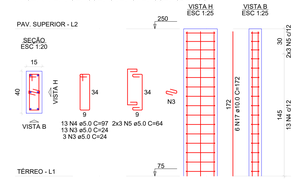


RELAÇÃO DO AÇO

2xP1
10xP8
P25

3xP3
6xP18
9xP26

2xP4
P20

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	42	77	3234
	2	5.0	16	54	864
	3	5.0	352	24	8448
	4	5.0	283	97	27451
	5	5.0	138	64	8832
	6	5.0	32	67	2144
	7	5.0	32	67	2144
	8	5.0	162	105	17010
	9	5.0	60	72	4320
	10	5.0	62	107	6634
	11	5.0	24	84	2016
CA50	12	10.0	8	247	1976
	13	10.0	78	177	13806
	14	10.0	8	212	1696
	15	10.0	32	377	12064
	16	10.0	8	357	2856
	17	10.0	54	172	9288

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	416.9	282.7
CA60	5.0	815.4	138.3

PESO TOTAL (kg)	
CA50	282.7
CA60	138.3

Volume de concreto (C-35) = 5.13 m³
Área de forma = 86.79 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
01.195.625/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

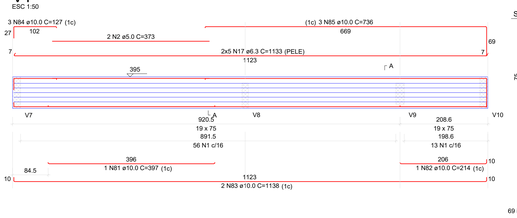
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
ARQUIVO	3OE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	PILARES SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 09/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brumenau - | CEP 89013-140 | Fone: (47) 98713-8111 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

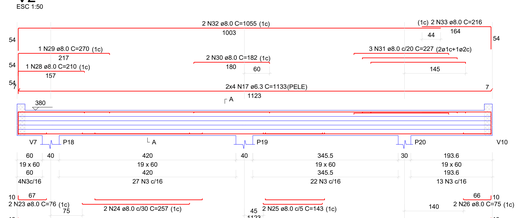
Projeto Estrutura de Concreto Armado (25413)
SEI 25.0.2800003-8 / pg. 101
Gerado em 08/07/2025 14:44:49

V1
ESC 1:50

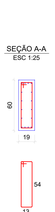


SEÇÃO A-A
ESC 1:25

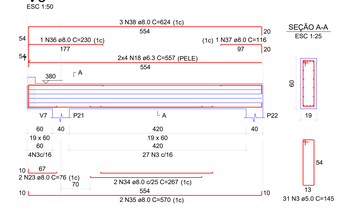
V2
ESC 1:50



SEÇÃO A-A
ESC 1:25

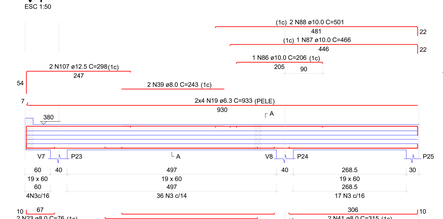


V3
ESC 1:50



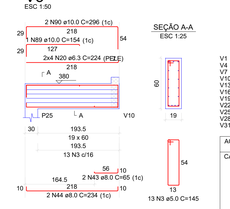
SEÇÃO A-A
ESC 1:25

V4
ESC 1:50



SEÇÃO A-A
ESC 1:25

V5
ESC 1:50



SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V21
V22	V23	V24
V25	V26	V27
V28	V29	V30
V31		

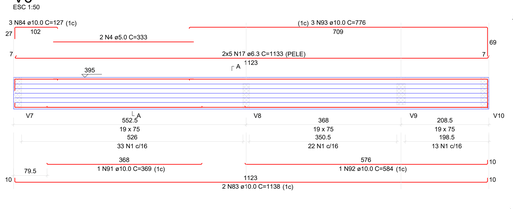
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	247	175	43225
	2	5.0	2	373	746
	3	5.0	167	145	24215
	4	5.0	2	333	666
	5	5.0	4	211	844
	6	5.0	2	271	542
	7	5.0	42	137	5754
	8	5.0	2	231	462
	9	5.0	10	127	1270
	10	5.0	46	147	6762
	11	5.0	2	326	652
	12	5.0	2	726	1452
	13	5.0	48	97	4656
	14	5.0	19	67	1273
	15	5.0	144	77	11088
	16	5.0	16	107	1712
CA50	17	6.3	28	1133	31724
	18	6.3	8	557	4456
	19	6.3	8	933	7464
	20	6.3	8	224	1792
	21	6.3	26	909	23634
	22	6.3	8	790	6320
	23	8.0	9	76	684
	24	8.0	2	257	514
	25	8.0	2	143	286
	26	8.0	2	75	150
	27	8.0	2	1139	2278
	28	8.0	1	270	270
	29	8.0	1	210	210
	30	8.0	2	182	364
	31	8.0	3	227	681
	32	8.0	2	1055	2110
	33	8.0	2	216	432
	34	8.0	2	267	534
	35	8.0	2	570	1140
	36	8.0	1	230	230
	37	8.0	1	116	116
	38	8.0	3	624	1872
	39	8.0	2	243	486
	40	8.0	2	364	728
	41	8.0	2	315	630
	42	8.0	2	946	1892
	43	8.0	2	65	130
	44	8.0	2	234	468
	45	8.0	1	86	86
	46	8.0	2	286	572
	47	8.0	3	235	705
	48	8.0	4	603	2412
	49	8.0	2	915	1830
	50	8.0	2	365	730
	51	8.0	4	366	1464
	52	8.0	4	165	660
	53	8.0	2	178	356
	54	8.0	2	203	406
	55	8.0	2	223	446
	56	8.0	2	205	410
	57	8.0	2	225	450
	58	8.0	2	153	306
	59	8.0	2	173	346
	60	8.0	2	153	306
	61	8.0	2	173	346
	62	8.0	2	157	314
	63	8.0	2	185	370
	64	8.0	6	211	1266
	65	8.0	4	259	1036
	66	8.0	2	105	210
	67	8.0	2	118	236
	68	8.0	2	223	446
	69	8.0	2	280	560
	70	8.0	6	272	1632
	71	8.0	2	280	560
	72	8.0	2	280	560
	73	8.0	2	301	602
	74	8.0	2	318	636
	75	8.0	2	346	692
	76	8.0	2	261	522
	77	8.0	2	281	562
	78	8.0	2	328	656
	79	8.0	2	164	328
	80	8.0	2	184	368
	81	10.0	1	397	397
	82	10.0	1	214	214
	83	10.0	4	1138	4552
	84	10.0	6	127	762
	85	10.0	3	736	2208
	86	10.0	1	206	206
	87	10.0	1	466	466
	88	10.0	2	501	1002
	89	10.0	1	154	154
	90	10.0	2	296	592
	91	10.0	1	154	154
	92	10.0	1	364	364
	93	10.0	3	776	2328
	94	10.0	1	75	75
	95	10.0	1	332	332
	96	10.0	1	285	285
	97	10.0	2	914	1828
	98	10.0	1	459	459
	99	10.0	2	519	1038
	100	10.0	2	392	784
	101	10.0	2	558	1116
	102	10.0	4	70	280
	103	10.0	2	437	874
	104	10.0	2	805	1610
	105	10.0	3	147	441
	106	10.0	6	122	732
	107	12.5	2	298	596
	108	12.5	3	263	789
	109	12.5	1	270	270
	110	12.5	2	558	1116
	111	12.5	2	263	526
	112	12.5	2	328	656
	113	12.5	2	268	536
	114	12.5	2	348	696

RESUMO DO AÇO

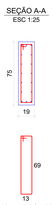
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	753.9	202.9
	8.0	414.6	179.9
	10.0	236.9	160.6
	12.5	51.9	54.9
CA60	5.0	1053.2	178.6
PESO TOTAL (kg)			
CA50	598.5		
CA60	178.6		

Volume de concreto (C-35) = 11.94 m³
Área de forma = 135.57 m²

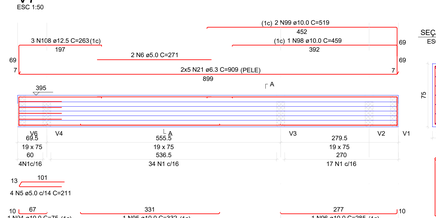
V6
ESC 1:50



SEÇÃO A-A
ESC 1:25

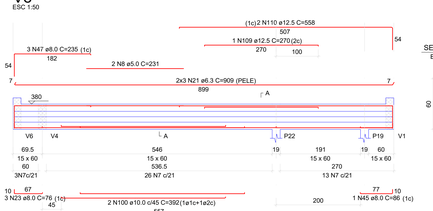


V7
ESC 1:50



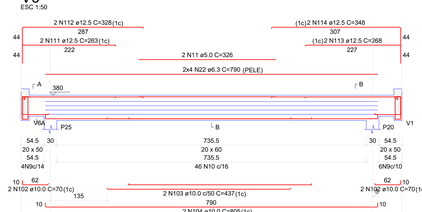
SEÇÃO A-A
ESC 1:25

V8
ESC 1:50



SEÇÃO A-A
ESC 1:25

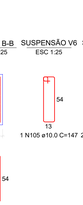
V9
ESC 1:50



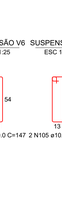
SEÇÃO A-A
ESC 1:25

SEÇÃO B-B
ESC 1:25

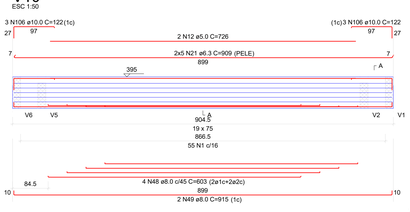
SUSPENSÃO V6
ESC 1:25



SUSPENSÃO V1
ESC 1:25



V10
ESC 1:50



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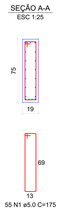
ESC 1:25



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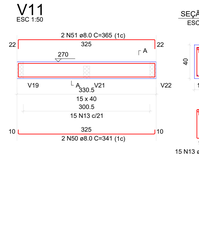
ESC 1:50



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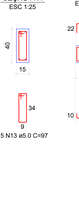
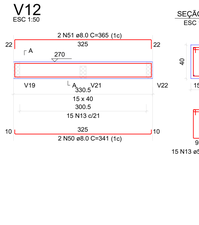
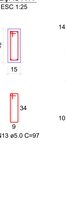
ESC 1:25



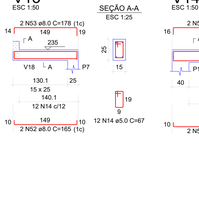
V12
ESC 1:50



SEÇÃO A-A
ESC 1:25



V13
ESC 1:50



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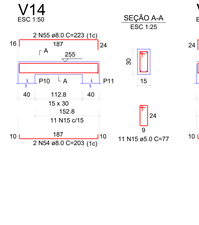
ESC 1:25

V14
ESC 1:50



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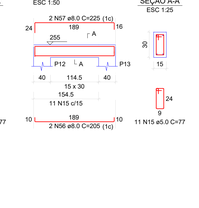
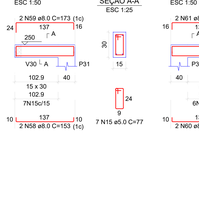
V15
ESC 1:50



SEÇÃO A-A
ESC 1:25

V16
ESC 1:50



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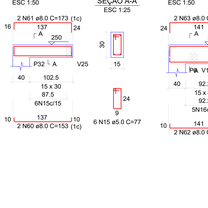
V17
ESC 1:50



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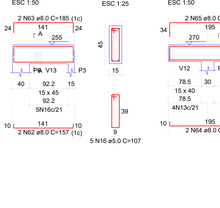
V18
ESC 1:50



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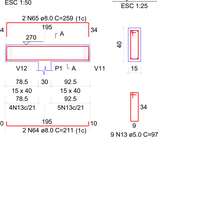
V19
ESC 1:50

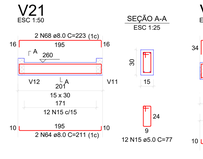


SEÇÃO A-A
ESC 1:25

V20
ESC 1:50

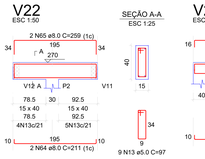
SEÇÃO A-A
ESC 1:25

V21
ESC 1:50



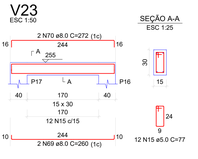
SEÇÃO A-A
ESC 1:25

V22
ESC 1:50



SEÇÃO A-A
ESC 1:25

V23
ESC 1:50



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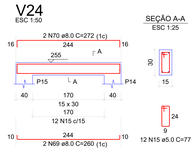
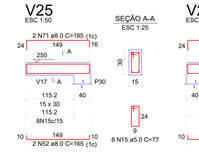
V24
ESC 1:50



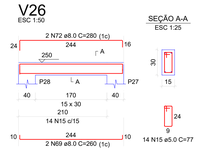
SEÇÃO A-A
ESC 1:25

V25
ESC 1:50



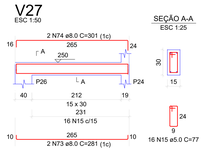
SEÇÃO A-A
ESC 1:25

V26
ESC 1:50



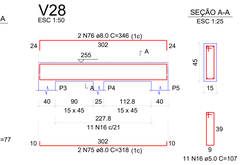
SEÇÃO A-A
ESC 1:25

V27
ESC 1:50

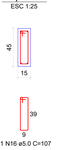


SEÇÃO A-A
ESC 1:25

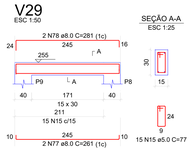
V28
ESC 1:50



SEÇÃO A-A
ESC 1:25

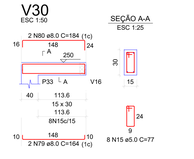


V29
ESC 1:50



SEÇÃO A-A
ESC 1:25

V30
ESC 1:50



SEÇÃO A-A
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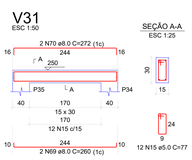
V31
ESC 1:50



SEÇÃO A-A
ESC 1:25

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00:	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.629/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

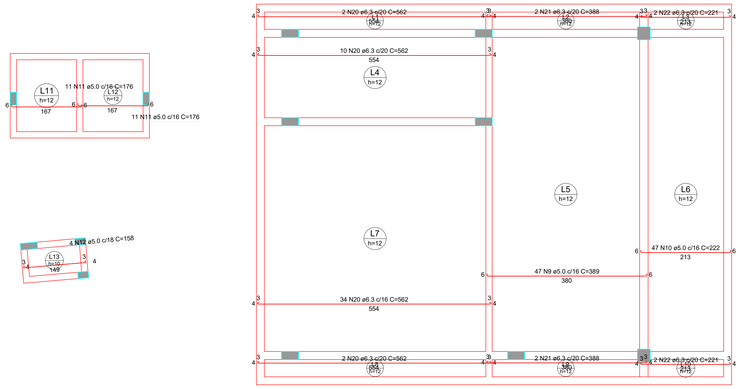
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
CONTEÚDO	VIGAS SUPERIOR
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 10/12
ESCALA	INDICADA

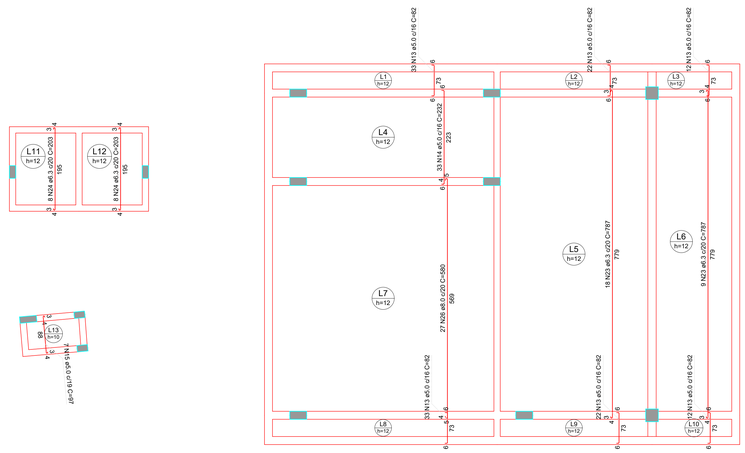
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 54.948.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc | CEP 88010-140 | Fone (47) 98114-8671 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutural de Concreto Armado (26874466) SEI 25.0.2300003-8 / pg. 102



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

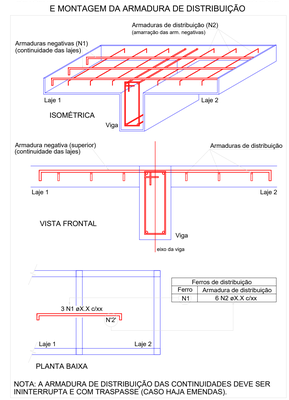
Escala 1:50



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:50

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE
E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 a/X X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

Escala 1:50

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:50

Armaduras de distribuição	
Armadura	Armadura de distribuição
N25	13 N1 ø5.0 c/20 C=107
N25	13 N2 ø5.0 c/20 C=103
N16	27 N3 ø5.0 c/20 C=102
N17	8 N4 ø5.0 c/20 C=561
N18	13 N3 ø5.0 c/20 C=102
N27	25 N5 ø5.0 c/20 C=101
N28	13 N6 ø5.0 c/20 C=454
N19	8 N7 ø5.0 c/20 C=199
N29	17 N8 ø5.0 c/20 C=543
N19	8 N7 ø5.0 c/20 C=199

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	13	107	1391
	2	5.0	13	103	1339
	3	5.0	40	102	4080
	4	5.0	8	561	4488
	5	5.0	25	101	2525
	6	5.0	13	454	5902
	7	5.0	16	199	3184
	8	5.0	17	543	9231
	9	5.0	47	389	18283
	10	5.0	47	222	10434
	11	5.0	22	176	3872
	12	5.0	4	158	632
	13	5.0	134	82	10988
	14	5.0	33	232	7656
	15	5.0	7	97	679
CA50	16	6.3	7	543	3801
	17	6.3	37	155	5735
	18	6.3	27	787	21249
	19	6.3	4	554	2218
	20	6.3	48	562	26976
	21	6.3	4	388	1552
	22	6.3	4	221	884
	23	6.3	27	787	21249
	24	6.3	16	203	3248
	25	8.0	13	259	3367
	26	8.0	27	580	15660
	27	10.0	5	497	2485
	28	10.0	28	260	7280
	29	10.0	27	342	9234

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	695.4	187.2
	8.0	190.3	82.6
	10.0	190	128.8
CA60	5.0	846.8	143.6

PESO TOTAL (kg)	
CA50	398.6
CA60	143.6

Volume de concreto (C-35) = 10.98 m³
Área de forma = 91.64 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
83.169.625/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 082522-0

FERCON

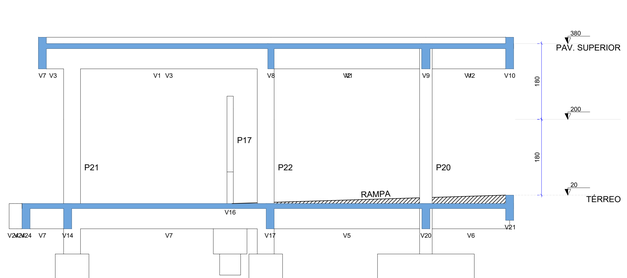
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 11/12

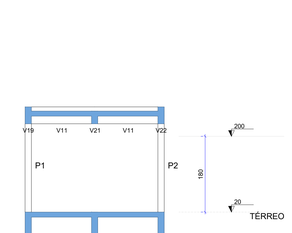
FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.868.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 9611-7577 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutural de Concreto Armado (0847145)
SEI 25.0.000003-8 / pg. 103



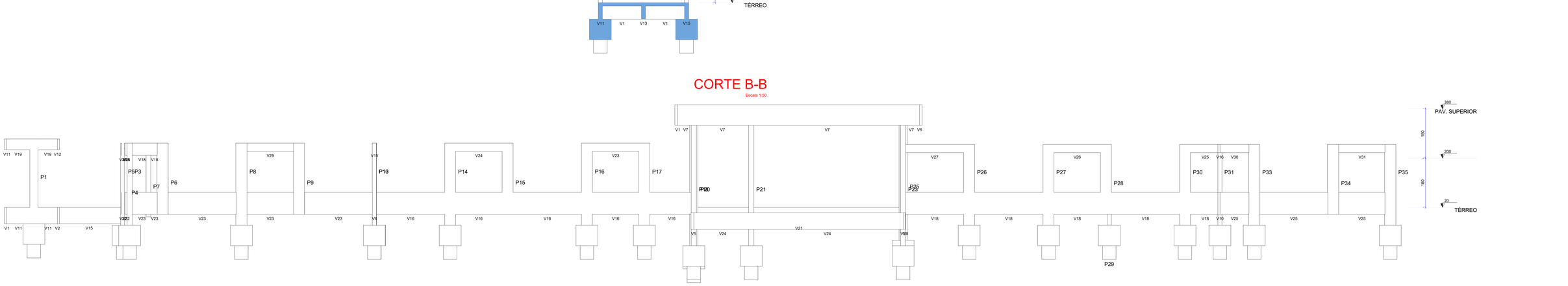
CORTE A-A

Escala 1:50



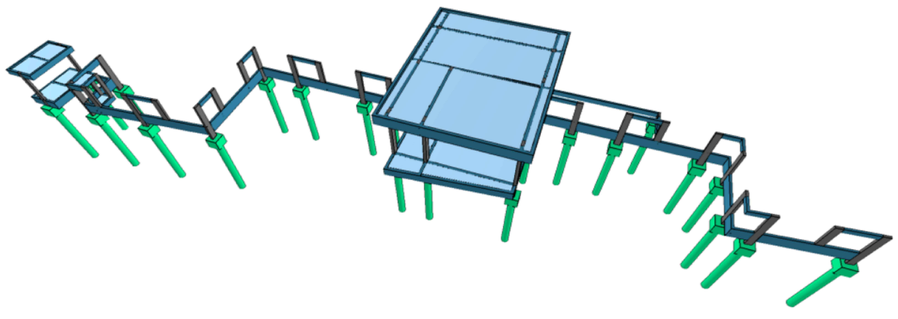
CORTE B-B

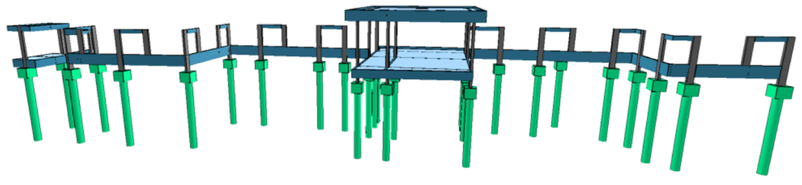
Escala 1:50



CORTE C-C

Escala 1:50





PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.629/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

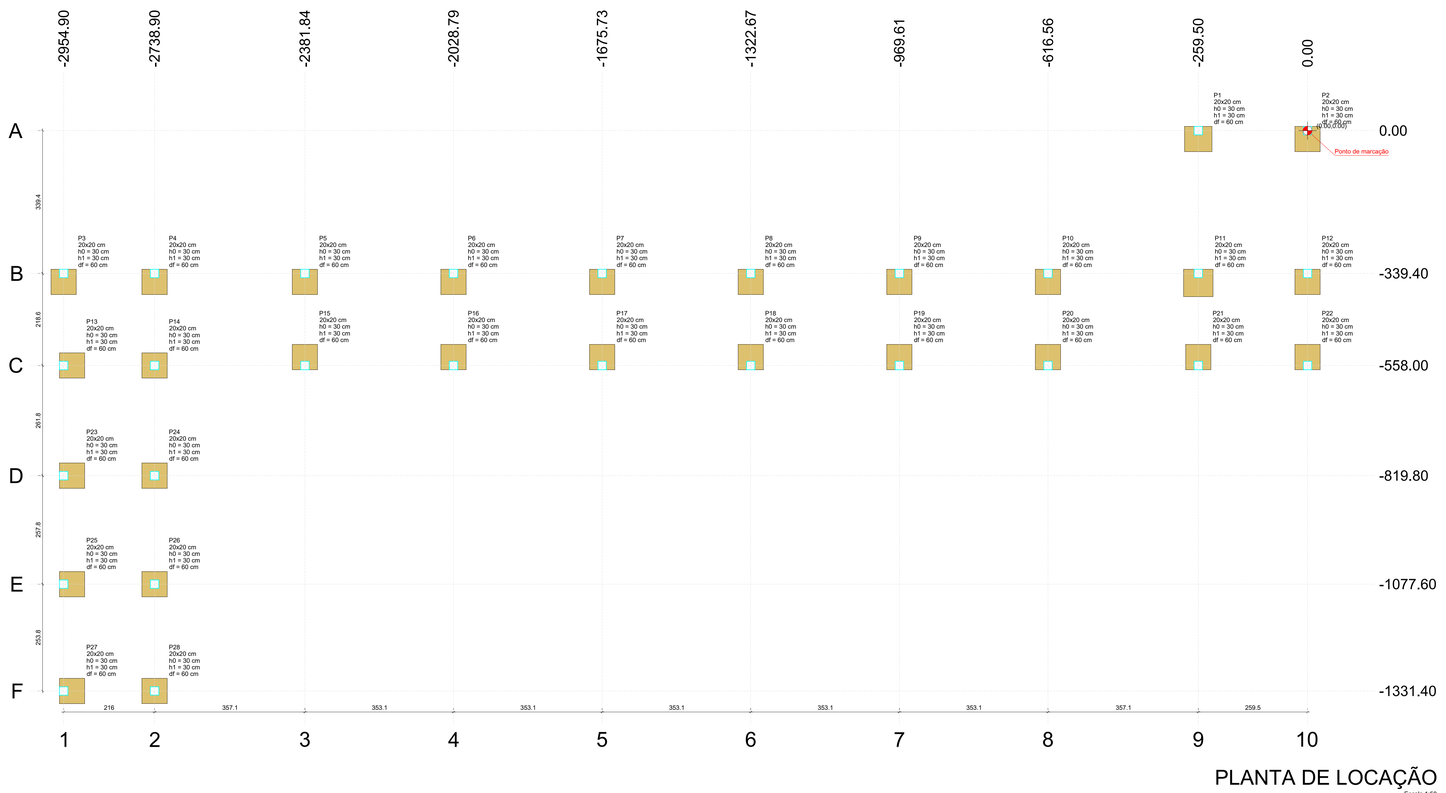
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	GUARITA-LIXEIRA-GÁS
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D
ETAPA	EXECUTIVO
FOLHA	EST 12/12
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.048.721/0001-98
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 890-13-140 | Fone: (47) 9611-9611 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (10547/14/68)
SEI 25.0.000093-8 / pg. 104



PLANTA DE LOCAÇÃO

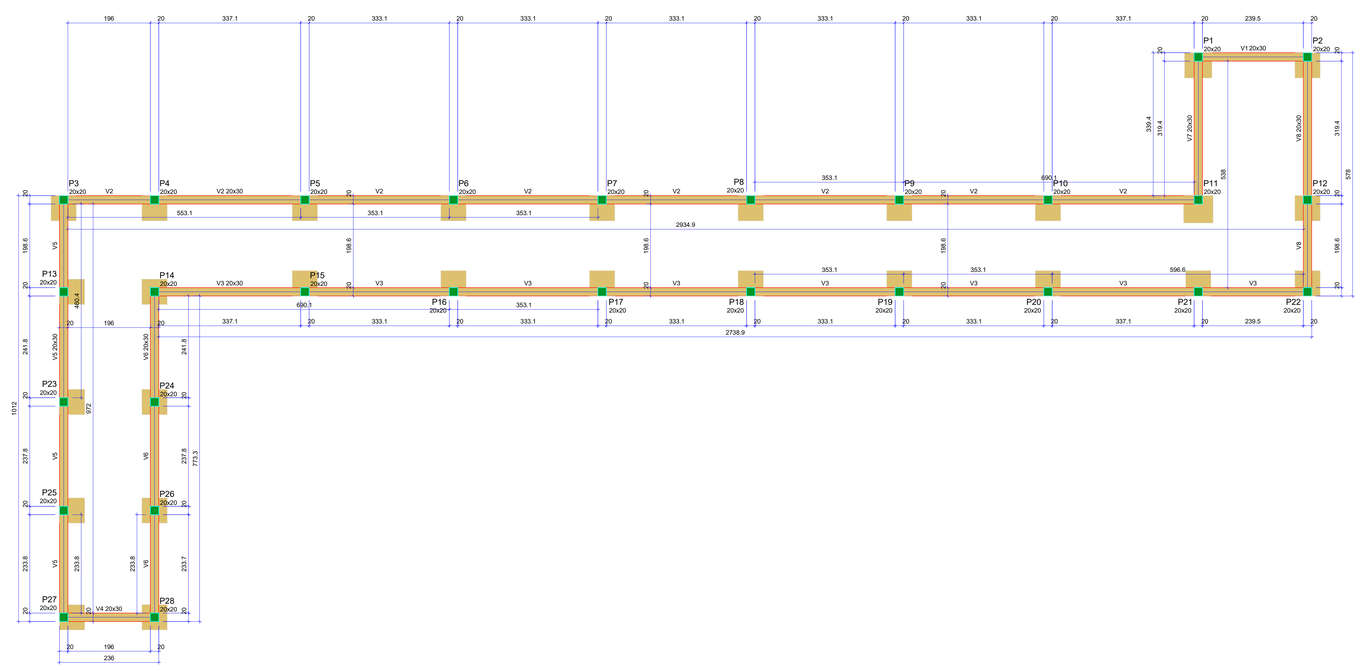
Escala 1:50

Pilar												Fundação				
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m)		My Máximo (kgf.m)		Fx Máximo (tf)		Fy Máximo (tf)		Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	df (cm)
						Positivo	Negativo	Positivo	Negativo	Positivo	Negativo	Positivo	Negativo					
P1	20x20	-259.50	0.00	0.6	0.6	0	0	0	0	0.0	-0.1	0.3	0.0	60	65	30	30	60
P2	20x20	0.00	0.00	0.5	0.5	0	0	0	0	0.2	0.0	0.2	0.0	60	60	30	30	60
P3	20x20	-2954.90	-339.40	0.4	0.4	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P4	20x20	-2738.90	-339.40	0.6	0.6	0	0	0	0	0.0	-0.2	0.1	0.0	60	60	30	30	60
P5	20x20	-2381.84	-339.40	0.6	0.6	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P6	20x20	-2028.79	-339.40	0.6	0.6	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P7	20x20	-1675.73	-339.40	0.6	0.6	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P8	20x20	-1322.67	-339.40	0.6	0.6	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P9	20x20	-969.61	-339.40	0.6	0.6	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P10	20x20	-616.56	-339.40	0.7	0.7	0	0	0	0	0.0	-0.2	0.0	0.0	60	60	30	30	60
P11	20x20	-259.50	-339.40	0.6	0.6	0	0	0	0	0.2	0.0	0.0	-0.3	65	70	30	30	60
P12	20x20	0.00	-339.40	0.6	0.6	0	0	0	0	0.1	0.0	0.0	-0.1	60	60	30	30	60
P13	20x20	-2954.90	-558.00	0.5	0.5	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P14	20x20	-2738.90	-558.00	0.5	0.5	0	0	0	0	0.0	-0.3	0.1	0.0	60	60	30	30	60
P15	20x20	-2381.85	-558.00	0.7	0.7	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P16	20x20	-2028.79	-558.00	0.6	0.6	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P17	20x20	-1675.73	-558.00	0.6	0.6	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P18	20x20	-1322.67	-558.00	0.6	0.6	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P19	20x20	-969.62	-558.00	0.6	0.6	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P20	20x20	-616.56	-558.00	0.6	0.6	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P21	20x20	-259.50	-558.00	0.6	0.6	0	0	0	0	0.1	0.0	0.0	0.0	60	60	30	30	60
P22	20x20	0.00	-558.00	0.4	0.4	0	0	0	0	0.1	0.0	0.0	-0.2	60	60	30	30	60
P23	20x20	-2954.90	-819.80	0.5	0.5	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P24	20x20	-2738.90	-819.80	0.5	0.5	0	0	0	0	0.0	0.0	0.0	0.0	60	60	30	30	60
P25	20x20	-2954.90	-1077.60	0.5	0.5	0	0	0	0	0.0	0.0	0.1	0.0	60	60	30	30	60
P26	20x20	-2738.90	-1077.60	0.5	0.5	0	0	0	0	0.1	0.0	0.1	0.0	60	60	30	30	60
P27	20x20	-2954.90	-1331.40	0.4	0.4	0	0	0	0	0.0	-0.2	0.0	-0.2	60	60	30	30	60
P28	20x20	-2738.90	-1331.30	0.4	0.4	0	0	0	0	0.1	0.0	0.0	-0.2	60	60	30	30	60

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Locação no eixo X	
Coordenadas (cm)	Nome
-2954.90	P3, P13, P23, P25, P27
-2738.90	P4, P14, P24, P26, P28
-2381.84	P5
-2381.85	P15
-2028.79	P6, P16
-1675.73	P7, P17
-1322.67	P8, P18
-969.61	P9
-969.62	P19
-616.56	P10, P20
-259.50	P1, P11, P21
0.00	P2, P12, P22

Locação no eixo Y	
Coordenadas (cm)	Nome
0.00	P1, P2
-339.40	P3, P4, P5, P6, P7, P8, P9, P10, P11, P12
-558.00	P13, P14, P15, P16, P17, P18, P19, P20, P21, P22
-819.80	P23, P24
-1077.60	P25, P26
-1331.30	P28
-1331.40	P27



FORMA DO PAVIMENTO BALDRAME (NÍVEL 0)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x30	0	0
V2	20x30	0	0
V3	20x30	0	0
V4	20x30	0	0
V5	20x30	0	0
V6	20x30	0	0
V7	20x30	0	0
V8	20x30	0	0

Características dos materiais	
fck (kgf/cm²)	Eco (kgf/cm²)
350	20#G29

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x20	0	0
P2	20x20	0	0
P3	20x20	0	0
P4	20x20	0	0
P5	20x20	0	0
P6	20x20	0	0
P7	20x20	0	0
P8	20x20	0	0
P9	20x20	0	0
P10	20x20	0	0
P11	20x20	0	0
P12	20x20	0	0
P13	20x20	0	0
P14	20x20	0	0
P15	20x20	0	0
P16	20x20	0	0
P17	20x20	0	0
P18	20x20	0	0
P19	20x20	0	0
P20	20x20	0	0
P21	20x20	0	0
P22	20x20	0	0
P23	20x20	0	0
P24	20x20	0	0
P25	20x20	0	0
P26	20x20	0	0
P27	20x20	0	0
P28	20x20	0	0

Legenda dos pilares
Pilar que morre

Legenda das vigas e paredes
Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
01.199.625/001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BASE PASSARELA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - FÔRMAS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 01/03

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone (47) 9611-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (2547)
SEI 25.0.2800003-8 | pg. 105
Impresso em 08/07/2025

S1

PLANTA
ESC 1:25

CORTE
ESC 1:25

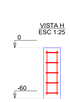
Solo com capacidade de suporte > 1.50 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P1

PAVIMENTO - L1

SEÇÃO
ESC 1:20

VISTA H
ESC 1:25



2x5 N1 ø5.0 C=54

VISTA B
ESC 1:25

S2=S3=S4=S5=S6=S7=S8=S9=S10=S12=S15=S16 =S17=S18=S19=S20=S21=S22

PLANTA
ESC 1:25

CORTE
ESC 1:25

Solo com capacidade de suporte > 1.50 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P2=P3=P4=P5=P6=P7=P8=P9=P10= =P12=P15=P16=P17=P18=P19=P20= =P21=P22

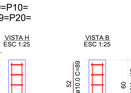
PAVIMENTO - L1

SEÇÃO
ESC 1:20

VISTA H
ESC 1:25

2x5 N1 ø5.0 C=54

VISTA B
ESC 1:25

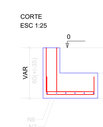


S11

PLANTA
ESC 1:25

Solo com capacidade de suporte > 1.50 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25

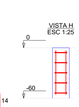


P11

PAVIMENTO - L1

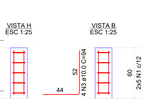
SEÇÃO
ESC 1:20

VISTA H
ESC 1:25



2x5 N1 ø5.0 C=54

VISTA B
ESC 1:25



S13=S23=S25=S27

PLANTA
ESC 1:25

CORTE
ESC 1:25

Solo com capacidade de suporte > 1.50 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P13=P23=P25=P27

PAVIMENTO - L1

SEÇÃO
ESC 1:20

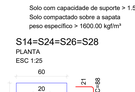
VISTA H
ESC 1:25

2x5 N1 ø5.0 C=54

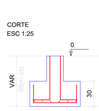
VISTA B
ESC 1:25

S14=S24=S26=S28

PLANTA
ESC 1:25



CORTE
ESC 1:25



Solo com capacidade de suporte > 1.50 kgf/cm²
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P14=P24=P26=P28

PAVIMENTO - L1

SEÇÃO
ESC 1:20

VISTA H
ESC 1:25

2x5 N1 ø5.0 C=54

VISTA B
ESC 1:25

RELAÇÃO DO AÇO

P1	18xP2	P11
4xP13	4xP14	S1
18xS10	S11	4xS13
4xS14		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	280	54	15120
CA50	2	10.0	92	89	8188
	3	10.0	4	94	376
	4	10.0	16	70	1120
	5	10.0	318	88	27984
	6	10.0	12	93	1116
	7	10.0	6	98	588

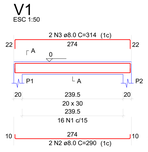
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	393.7	242.7
CA60	5.0	151.2	23.3
PESO TOTAL (kg)			
CA50	242.7		
CA60	23.3		

Volume de concreto (C-35) = 3.40 m³
Área de forma = 27.00 m²

V1

ESC 1:50



SEÇÃO A-A
ESC 1:25

V2

ESC 1:50

SEÇÃO A-A
ESC 1:25

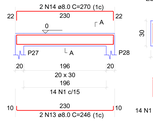
V3

ESC 1:50

SEÇÃO A-A
ESC 1:25

V4

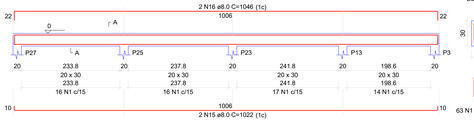
ESC 1:50



SEÇÃO A-A
ESC 1:25

V5

ESC 1:50



SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	552	87	48024
CA50	2	8.0	2	290	580
	3	8.0	2	314	628
	4	8.0	2	942	1884
	5	8.0	4	1061	4244
	6	8.0	2	726	1452
	7	8.0	2	1178	2356
	8	8.0	4	1200	4800
	9	8.0	2	439	878
	10	8.0	2	1079	2158
	11	8.0	2	633	1266
	12	8.0	2	482	964
	13	8.0	2	246	492
	14	8.0	2	270	540
	15	8.0	2	1022	2044
	16	8.0	2	1046	2092
	17	8.0	2	803	1606
	18	8.0	2	827	1654
	19	8.0	2	369	738
	20	8.0	2	393	786
	21	8.0	2	588	1176
	22	8.0	2	612	1224

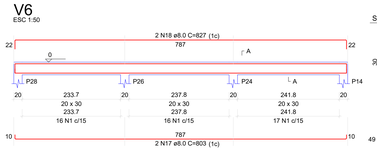
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	360	142
CA60	5.0	480.2	74
PESO TOTAL (kg)			
CA50	142		
CA60	74		

Volume de concreto (C-35) = 4.81 m³
Área de forma = 64.10 m²

V6

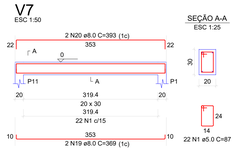
ESC 1:50



SEÇÃO A-A
ESC 1:25

V7

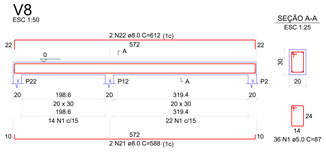
ESC 1:50



SEÇÃO A-A
ESC 1:25

V8

ESC 1:50



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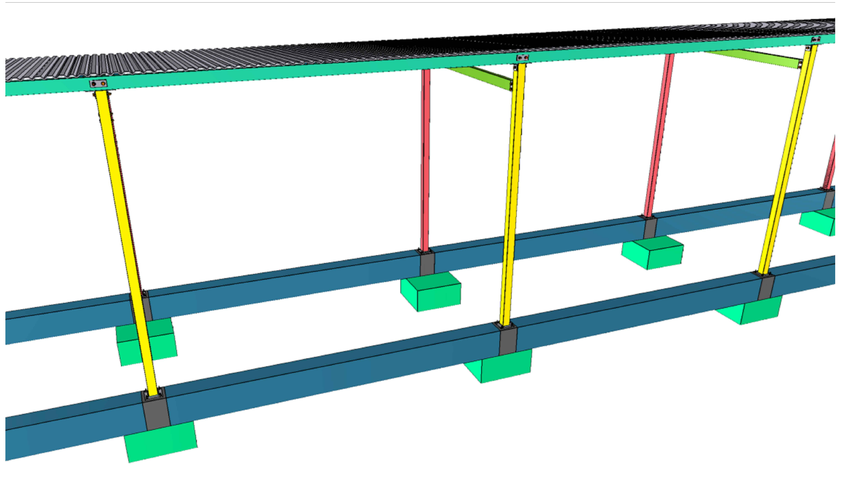
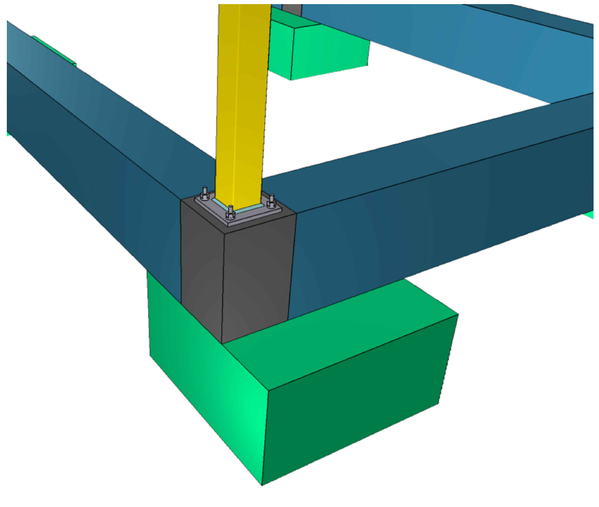
ESC 1:25





PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BASE PASSARELA
CONTEÚDO	SAPATAS - PILARES - VIGAS

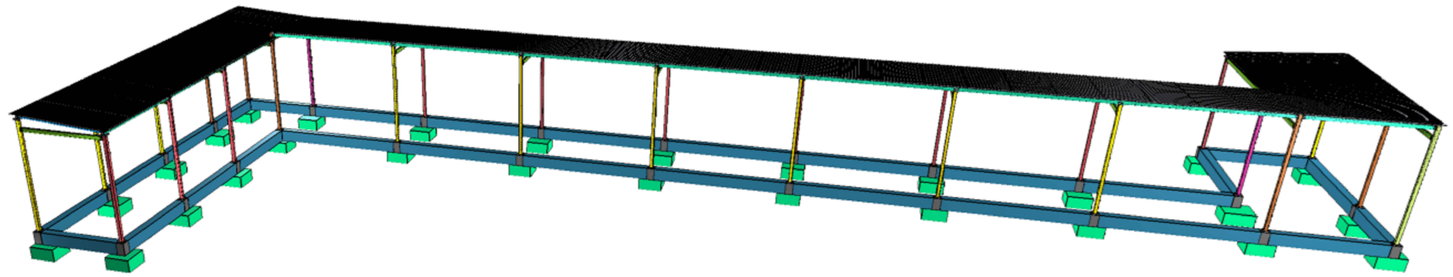
ARQUIVO: JOE_SED_ROS_EKA_EK.DWG | DATA: 02/07/2025
ETAPA: EXECUTIVO | FOLHA: **EST 02/03**
ESCALA: INDICADA

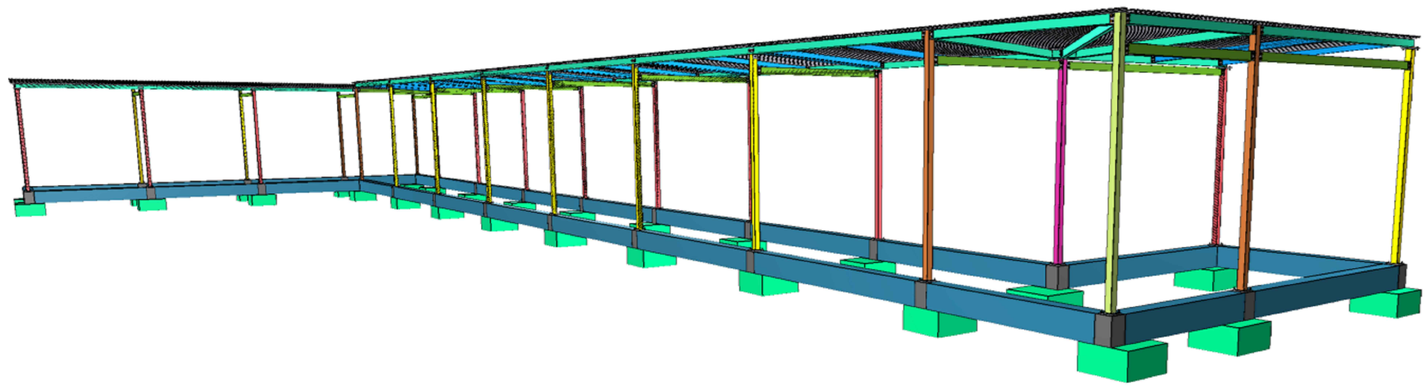
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-98
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3611-8611 | e-mail do responsável técnico deste projeto: pedi@fercongroup.com

Projeto Estrutura de Concreto Armado (04/07/2025) SEI 25.0.2000038-8 [pg] 106

CORTE A-A

Escala 1:50





PROJETO DE ESTRUTURAL			
QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

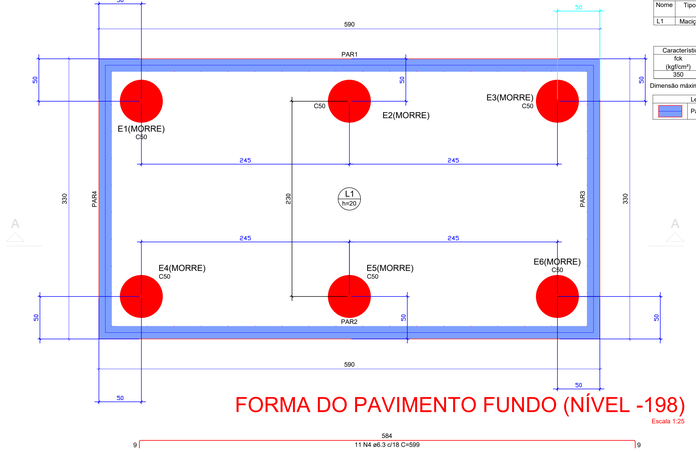
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	BASE PASSARELA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 03/03

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 98714-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ELS-CE)
SEI 25.0.2000003-8 / pg. 107
Validador: 07414980901



Lajes									
Dados						Sobrecarga (kgf/m²)			
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada	Água
L1	Maciça	20	0	-198	500	154	250	-	2000

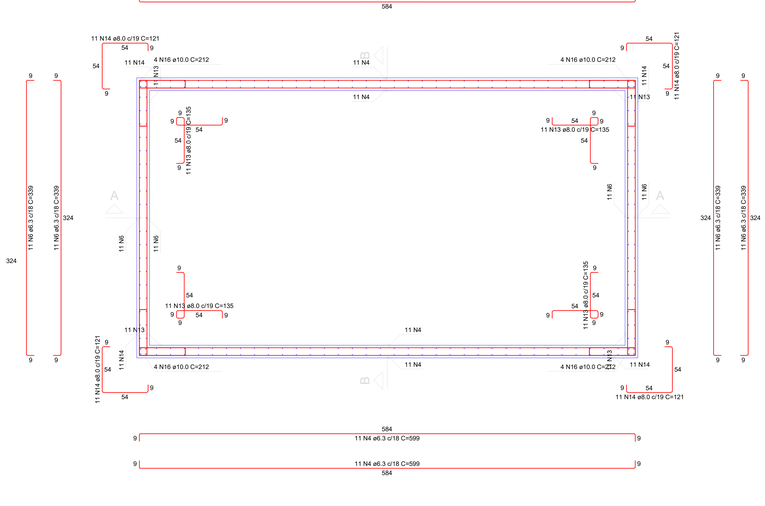
Características dos materiais	
fck (kgf/cm²)	Eci (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Legenda das vigas e paredes
Parede de concreto

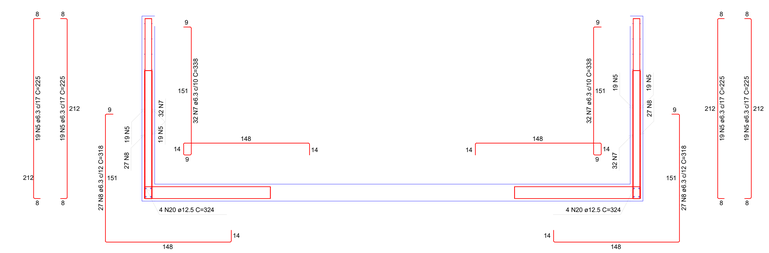
FORMA DO PAVIMENTO FUNDO (NÍVEL -198)

Escala 1:25



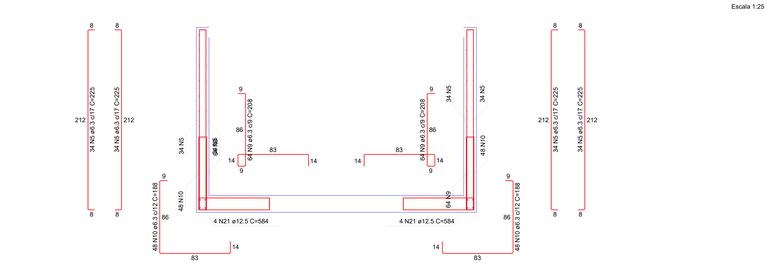
PLANTA (-99.0)

Escala 1:25



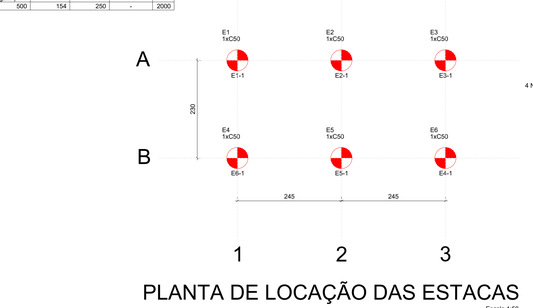
CORTE A-A

Escala 1:25



CORTE B-B

Escala 1:25

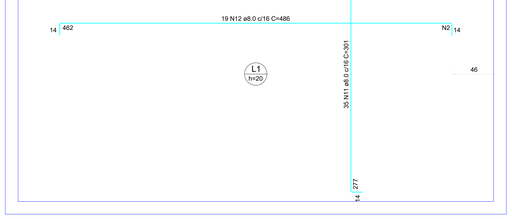


PLANTA DE LOCAÇÃO DAS ESTACAS

Escala 1:50

ARMAÇÃO POSITIVA DAS LAJES (-198.0)

Escala 1:25



ARMAÇÃO NEGATIVA DAS LAJES (-198.0)

Escala 1:25

RELAÇÃO DO AÇO

RES

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	22	560	12320
	2	5.0	36	300	10800
CA50	3	6.3	51	324	16524
	4	6.3	44	599	26356
	5	6.3	212	225	47700
	6	6.3	44	339	14916
	7	6.3	64	338	21632
	8	6.3	54	318	17172
	9	6.3	128	208	26624
	10	6.3	96	188	18048
	11	8.0	35	301	10535
	12	8.0	19	486	9234
	13	8.0	44	135	5940
	14	8.0	44	121	5324
	15	10.0	15	584	8760
	16	10.0	16	212	3392
	17	12.5	12	294	3528
	18	12.5	8	246	1968
	19	12.5	6	277	1662
	20	12.5	8	324	2592
	21	12.5	8	584	4672
	22	16.0	12	311	3732

Armaduras de distribuição	
Armadura	Armadura de distribuição
N11	22 N1 ø5.0 c/13 C=560
N12	36 N1 ø5.0 c/13 C=300

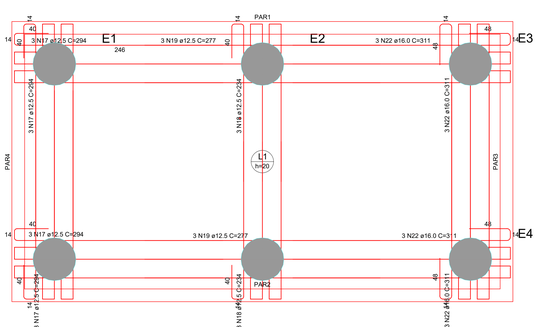
RESUMO DO AÇO

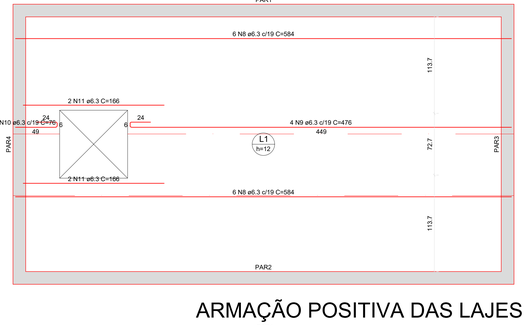
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	1889.7	508.7
	8.0	310.3	134.7
	10.0	121.5	82.4
	12.5	138.6	146.8
	16.0	37.3	64.8
CA60	5.0	231.2	39.2
PESO TOTAL (kg)			
CA50	937.4		
CA60	39.2		

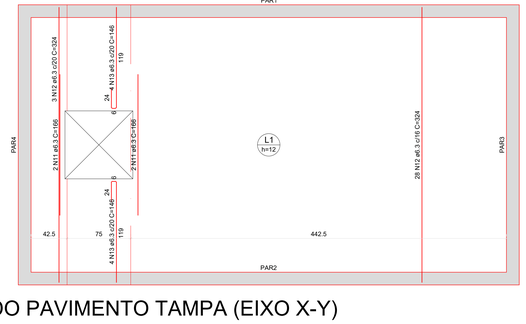
Volume de concreto (C-35) = 8.65 m³
Área de forma = 73.16 m²

CISALHAMENTO DAS LAJES DO PAVIMENTO TAMPA (NÍVEL -198)

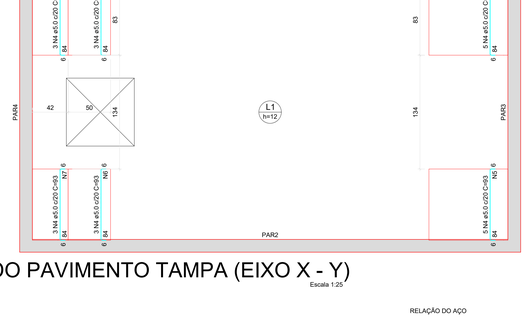
Escala 1:25







ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO X-Y)



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO X - Y)

Escala 1:25

CORTE A-A

Escala 1:50

DETALHE DA ARMADURA DE BORDO LIVRE DA LAJE

RELAÇÃO DO AÇO

Negativos X
Positivos Y
Negativos Y
Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	10	131	1310
	2	5.0	25	89	2225
	3	5.0	10	118	1180
	4	5.0	22	93	2046
	5	5.0	10	93	930
	6	5.0	10	50	500
	7	5.0	10	42	420
CA50	8	6.3	12	584	7008
	9	6.3	4	476	1904
	10	6.3	4	166	664
	11	6.3	8	166	1328
	12	6.3	31	324	10044
	13	6.3	8	146	1168

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	217.6	58.6
CA60	5.0	86.1	14.6
PESO TOTAL (kg)			
CA50	58.6		
CA60	14.6		

Volume de concreto (C-35) = 1.94 m³
Área de forma = 16.16 m²

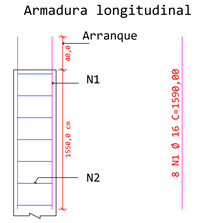
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Relação	Pos.	Quantidade
CA50	N1	8
	N2	172

Seção

Armadura longitudinal

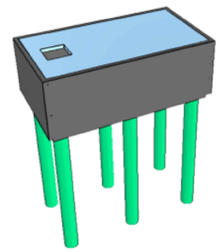


Estribos

172 N2 Ø 6,3 c/9 C=135,66

TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20
Peso total do aço =				257,89 kg
Volume total de concreto =				3,34 m³



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414960901
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61.149.519/0001-10

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CREA/SC 062522-0

FERCON

Município de Joinville

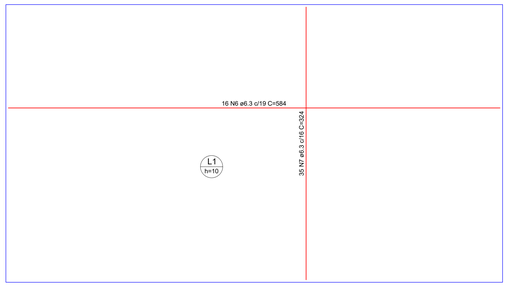
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	FILTRO
CONTEÚDO	ESTRUTURAL FILTRO

ARQUIVO: 00_SED_ROS_EXA_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: **EST 01/02**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getúlio Vargas, 260, sala 03 - Centro - Blumenau | CEP 89010-140 | Fone (47) 8811-8011 | e-mail do responsável técnico deste projeto: jesse@fercongroupbrs.com

Projeto Estrutural de Concreto Armado (26/07/1406)
SEI 25.0.2300003-8 | pg. 108



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO X - Y)

Escala 1:25

Armaduras de distribuição	
Armadura	Armadura de distribuição
N1	6 N2 a5.0 c/20 C=89
N1	7 N2 a5.0 c/20 C=89
N1	7 N2 a5.0 c/20 C=89
N1	7 N2 a5.0 c/20 C=89
N3	5 N4 a5.0 c/20 C=93
N3	5 N4 a5.0 c/20 C=93
N3	5 N5 a5.0 c/20 C=92
N3	5 N5 a5.0 c/20 C=92

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

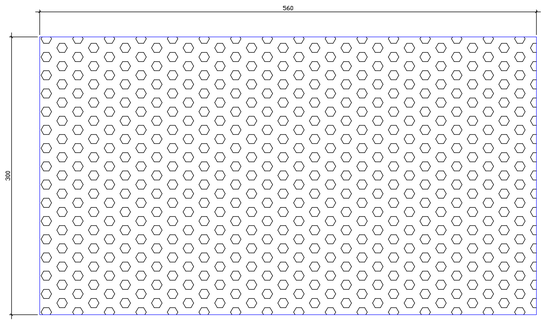
Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	20	131	2620
	2	5.0	27	89	2403
	3	5.0	20	93	1860
	4	5.0	10	93	930
	5	5.0	10	92	920
CA50	6	6.3	16	584	9344
	7	6.3	35	324	11340

RESUMO DO AÇO

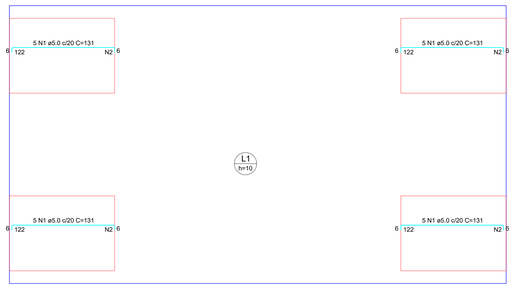
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0 (kg)
CA50	6.3	206.8	55.7
CA60	5.0	87.3	14.8
PESO TOTAL (kg)			
CA50	55.7		
CA60	14.8		

Volume de concreto (C-35) = 1,68 m³
Área de forma = 17.2 m²



FUNDO PERFURADO

Escala 1:25

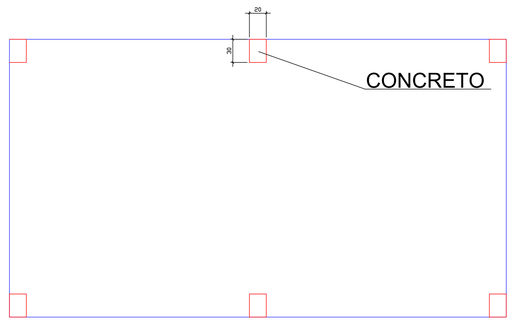


ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO X)

Escala 1:25

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO Y)

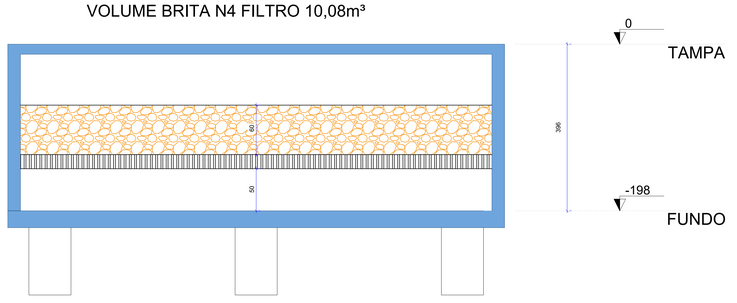
Escala 1:25



SUPORTE TAMPA

Escala 1:25

VOLUME BRITA N4 FILTRO 10,08m³



CORTE A-A

Escala 1:50

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07014961 [illegible]

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:8413451 [illegible]

CREA/SC 062522-0

FERCON

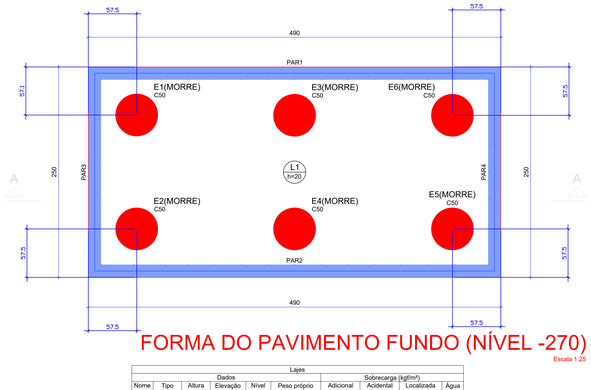
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENG° CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	FILTRO
ARQUIVO	302_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	FUNDO PERFURADO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 02/02

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 9611-8511 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

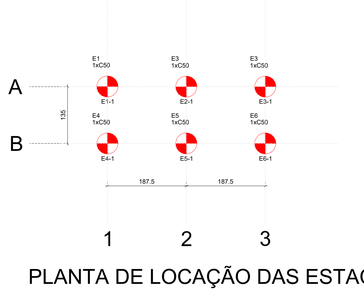
Projeto Estrutura de Concreto Armado (NBR 6118:2014)
SEI 25.0.2800003-8 / pg. 109



FORMA DO PAVIMENTO FUNDO (NÍVEL -270)

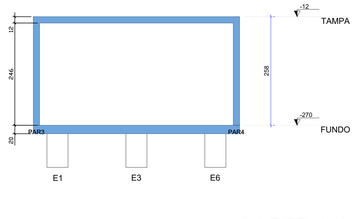
Escala 1:25

Lajes									
Dados						Sobrecarga (kgf/m²)			
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada	Água
L1	Maciça	20	0	-270	500	0	0	-	2000



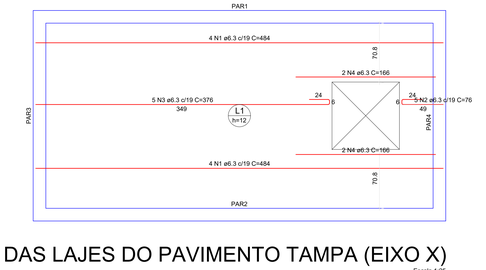
PLANTA DE LOCAÇÃO DAS ESTACAS

Escala 1:50



CORTE A-A

Escala 1:50



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO X)

Escala 1:25

RELAÇÃO DO AÇO

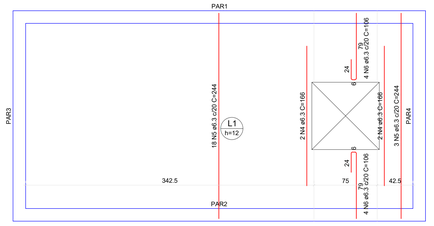
Positivos X Positivos Y

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	6.3	8	484	3872
	2	6.3	5	76	380
	3	6.3	5	376	1880
	4	6.3	8	166	1328
	5	6.3	21	244	5124
	6	6.3	8	106	848

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	134.3	36.2
PESO TOTAL (kg)			
CA50	36.2		

Volume de concreto (C-35) = 1.14 m³
Área de forma = 9.48 m²

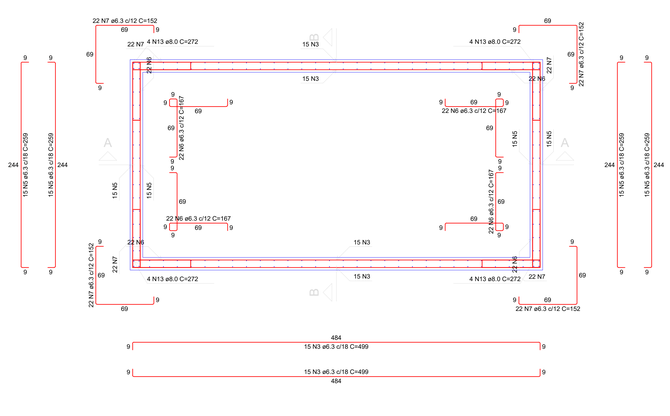


ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TAMPA (EIXO Y)

Escala 1:25

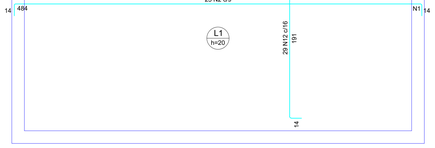
ARMAÇÃO POSITIVA DAS LAJES (-270.0)

Escala 1:25



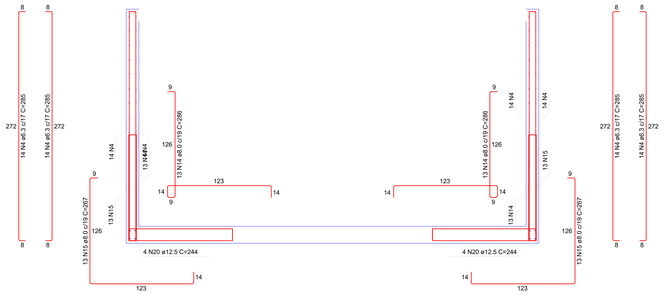
PLANTA (-141.0)

Escala 1:25



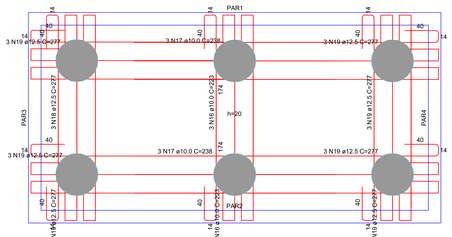
ARMAÇÃO NEGATIVA DAS LAJES (-270.0)

Escala 1:25



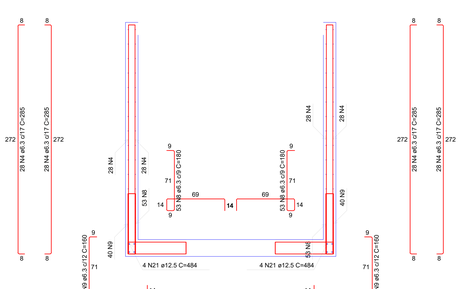
CORTE A-A

Escala 1:25



DETALHAMENTO CISALHAMENTO (NÍVEL -270)

Escala 1:25



CORTE B-B

Escala 1:25

Armaduras de distribuição	
Armadura	Armadura de distribuição
N2	38 N1 ø5.0 c/13 C=220

RELAÇÃO DO AÇO

RES2

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	38	220	8360
CA50	2	6.3	25	509	12725
	3	6.3	60	499	29940
	4	6.3	168	285	47880
	5	6.3	60	259	15540
	6	6.3	88	167	14696
	7	6.3	88	152	13376
	8	6.3	106	180	19080
	9	6.3	80	160	12800
	10	8.0	23	244	5612
	11	8.0	11	484	5324
	12	8.0	29	215	6235
	13	8.0	16	272	4352
	14	8.0	26	286	7436
	15	8.0	26	287	6942
	16	10.0	6	223	1338
	17	10.0	6	238	1428
	18	12.5	3	277	831
	19	12.5	21	277	5817
	20	12.5	8	244	1952
	21	12.5	8	484	3872

RESUMO DO AÇO

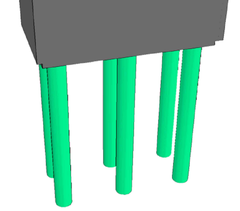
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1660.4	446.9
	8.0	739.6	155.8
	10.0	23.2	10.2
	12.5	124.7	132.2
CA60	5.0	83.6	14.2
PESO TOTAL (kg)			
CA50	753.7		
CA60	14.2		

Volume de concreto (C-35) = 7.52 m³
Área de forma = 75.40 m²

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Legenda das vigas e paredes
Parede de concreto

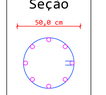


QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção	Armadura	Quantidade
	CA50	6.3	8

Seção



Estribos

172 N2 Ø 6,3 c/9 C=135,66

Armadura longitudinal

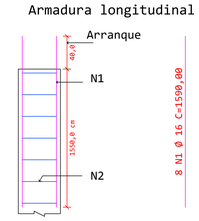


TABELA DE AÇO

Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO

Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20
Peso total do aço =				257,89 kg
Volume total de concreto =				3,34 m³

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI 31405807249 MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:8413451 ENGENHEIRO CIVIL CREA-SC 062622-0

FERCON

Município de Joinville

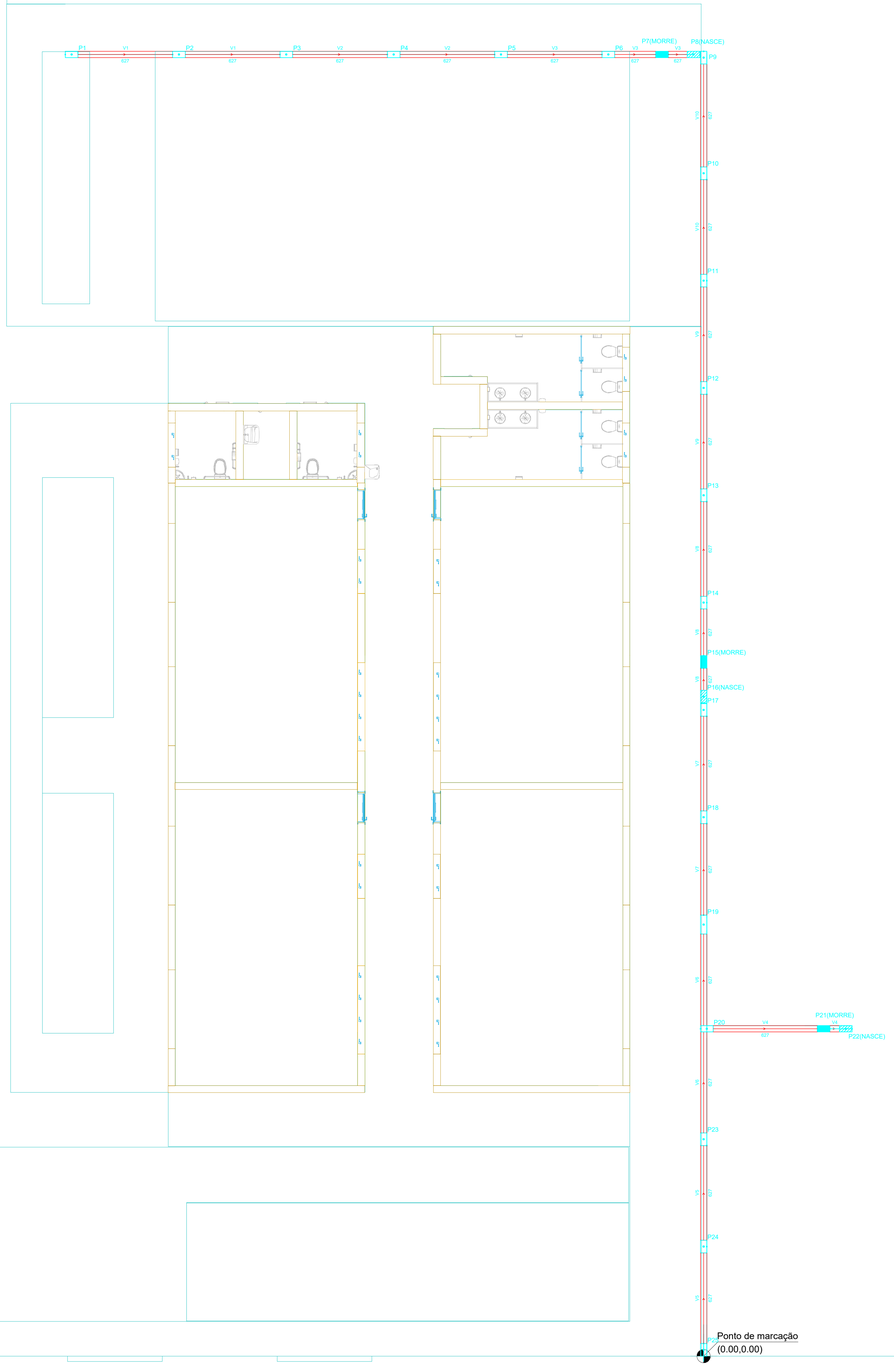
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062622-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	FOSSA
CONTEÚDO	ESTRUTURAL FOSSA

ARQUIVO	JOI_SEO_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 01/01
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062622-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Brunerau | CEP 89010-140 | Fone: (47) 3411-5513 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (26/07/1445) - SEI 25.0.2000003-8 | pg. 110



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07417489901
MUNICÍPIO DE JOINVILLE
82.168.623/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

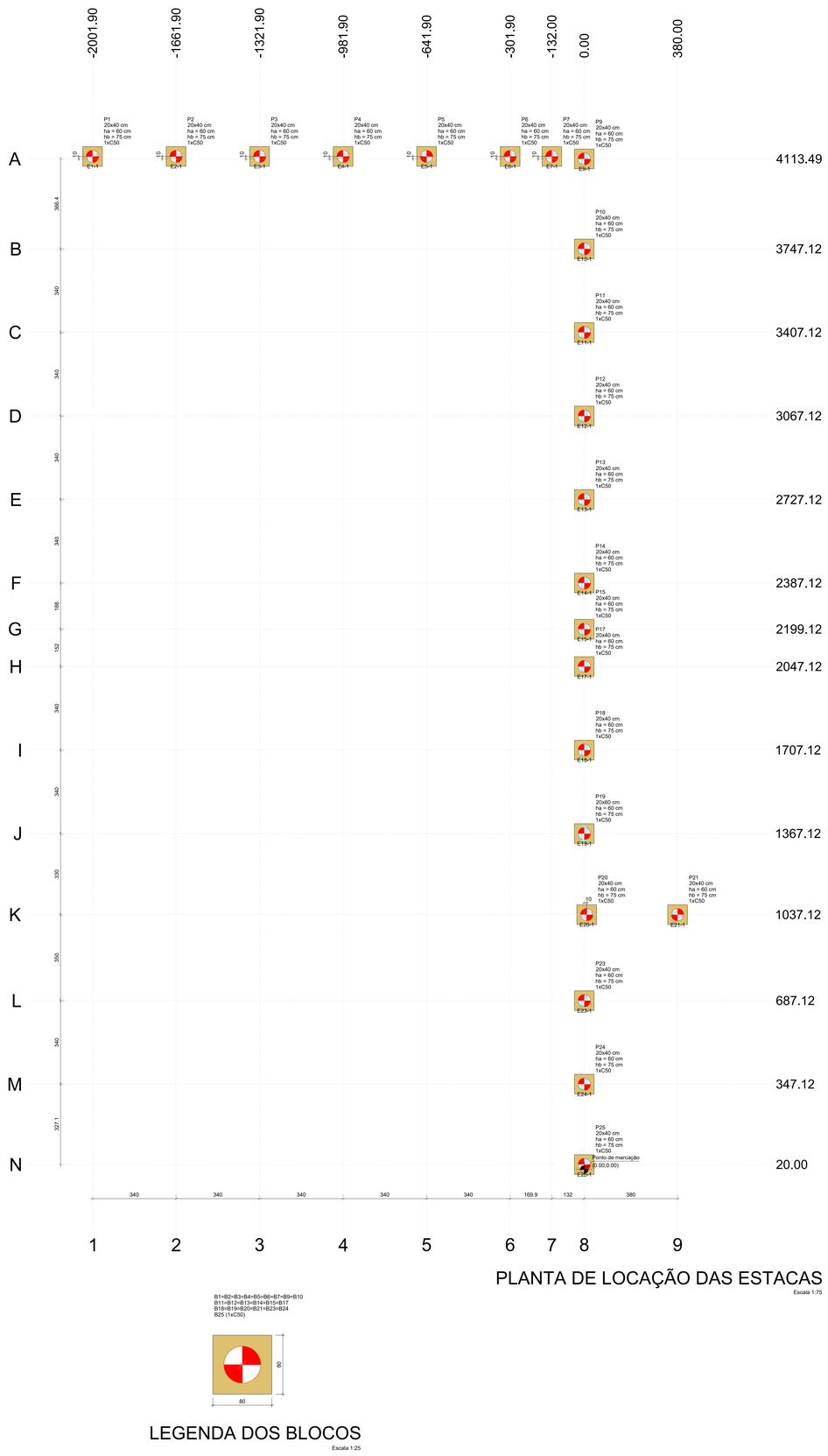
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	JOE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - PONTO DE MARCAÇÃO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 01/07

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-96
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3911-8271 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (Nbr6118/2023)
SEI 25.0.2800003-8 / pg. 111



PLANTA DE LOCAÇÃO DAS ESTACAS

Escala 1:75

LEGENDA DOS BLOCOS

Escala 1:25

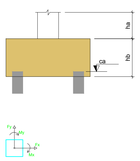
Pilar														Fundação			Bloco			
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m)		My Máximo (kgf.m)		Fx Máximo (tf)		Fy Máximo (tf)		Lado B (cm)	Lado H (cm)	h0 = ha (cm)	h1 / hb (cm)	ne	Estaca	ca (cm)	Base tub. (cm)
						Positivo	Negativo	Positivo	Negativo	Positivo	Negativo	Positivo	Negativo								
P1	20x40	-2001.90	4123.49	2.7	1.7	1000	-1100	700	-800	0.6	-1.9	0.8	-0.9	80	80	60	75	1	C50	2675	-
P2	20x40	-1661.90	4123.49	4.3	4.2	1000	-1100	1000	-700	2.1	-1.4	0.8	-0.9	80	80	60	75	1	C50	2675	-
P3	20x40	-1321.90	4123.49	4.1	4.1	1000	-1100	900	-900	1.8	-1.5	0.8	-0.9	80	80	60	75	1	C50	2675	-
P4	20x40	-981.90	4123.49	4.1	4.1	1000	-1100	900	-900	1.7	-1.5	0.8	-0.9	80	80	60	75	1	C50	2675	-
P5	20x40	-641.90	4123.49	4.2	4.1	1100	-1000	800	-700	1.5	-1.5	0.8	-0.9	80	80	60	75	1	C50	2675	-
P6	20x40	-301.90	4123.49	3.9	2.5	1100	-1000	1000	-600	2.5	-1.0	0.7	-0.8	80	80	60	75	1	C50	2675	-
P7	20x40	-132.00	4123.49	3.5	1.4	1000	-900	700	-800	1.0	-2.2	0.9	-1.0	80	80	60	75	1	C50	2675	-
P9	20x40	0.00	4113.49	2.5	2.1	300	-600	2100	-2000	1.6	-1.7	1.5	0.0	80	80	60	75	1	C50	2675	-
P10	20x40	0.00	3747.12	4.4	4.3	600	-200	2100	-2000	1.6	-1.7	0.4	-1.3	80	80	60	75	1	C50	2675	-
P11	20x40	0.00	3407.12	4.1	4.1	500	-300	2100	-2000	1.6	-1.7	0.7	-0.9	80	80	60	75	1	C50	2675	-
P12	20x40	0.00	3067.12	4.1	4.1	500	-300	2100	-2000	1.6	-1.7	0.7	-1.0	80	80	60	75	1	C50	2675	-
P13	20x40	0.00	2727.12	4.2	4.2	500	-500	2100	-2000	1.6	-1.7	0.8	-0.7	80	80	60	75	1	C50	2675	-
P14	20x40	0.00	2387.12	3.5	3.0	600	-200	2200	-2100	1.4	-1.5	0.2	-1.7	80	80	60	75	1	C50	2675	-
P15	20x40	0.00	2199.12	3.1	2.2	300	-600	2000	-1900	1.8	-1.7	1.4	-0.1	80	80	60	75	1	C50	2675	-
P17	20x40	0.00	2047.12	2.4	2.0	300	-600	2100	-2000	1.6	-1.7	1.4	0.0	80	80	60	75	1	C50	2675	-
P18	20x40	0.00	1707.12	4.2	4.1	600	-300	2000	-1900	1.6	-1.5	0.7	-1.3	80	80	60	75	1	C50	2675	-
P19	20x60	0.00	1367.12	4.2	4.2	1000	-800	1900	-1900	1.5	-1.4	1.0	-1.2	80	80	60	75	1	C50	2675	-
P20	20x40	10.00	1037.12	6.7	5.4	200	-300	1000	-1200	0.7	-2.4	0.6	-0.5	80	80	60	75	1	C50	2675	-
P21	20x40	380.00	1037.12	3.5	2.0	900	-800	1400	-1000	2.9	-1.3	0.8	-0.7	80	80	60	75	1	C50	2675	-
P23	20x40	0.00	687.12	4.3	4.2	400	-400	1700	-1600	1.4	-1.5	0.9	-0.8	80	80	60	75	1	C50	2675	-
P24	20x40	0.00	347.12	4.2	4.1	400	-500	2100	-2000	1.6	-1.7	1.2	-0.8	80	80	60	75	1	C50	2675	-
P25	20x40	0.00	20.00	2.4	1.9	500	-400	2100	-2000	1.6	-1.7	0.0	-1.4	80	80	60	75	1	C50	2675	-

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Locação no eixo X	
Coordenadas (cm)	Nome
-2001.90	P1
-1661.90	P2
-1321.90	P3
-981.90	P4
-641.90	P5
-301.90	P6
-132.00	P7
0.00	P9, P10, P11, P12, P13, P14, P15, P17, P18, P19, P23, P24, P25
10.00	P20
380.00	P21

Locação no eixo Y	
Coordenadas (cm)	Nome
4123.49	P1, P2, P3, P4, P5, P6, P7
4113.49	P9
3747.12	P10
3407.12	P11
3067.12	P12
2727.12	P13
2387.12	P14
2199.12	P15
2047.12	P17
1707.12	P18
1367.12	P19
1037.12	P20, P21
687.12	P23
347.12	P24
20.00	P25

Estacas			
Simbologia	Nome	∅ (cm)	Quantidade
	C50	50.00	22



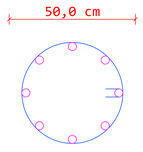
LOCAÇÃO DAS ESTACAS

Bloco	Nome	Tipo	Coordenada X (cm)	Coordenada Y (cm)	Carga máx. tf	Carga mín. tf	Momento máx. kgf.m	Momento mín. kgf.m	Força horiz. máx. tf	Força horiz. mín. tf	CA (cm)
B1	E1-1	C50	-2001.90	4123.49	3.73	2.82	1726.94	388.55	1.90	0.06	2675
B2	E2-1	C50	-1661.90	4123.49	5.34	5.23	1958.37	273.22	2.05	0.31	2675
B3	E3-1	C50	-1321.90	4123.49	5.19	5.19	1721.31	113.87	1.76	0.11	2675
B4	E4-1	C50	-981.90	4123.49	5.19	5.19	1649.00	77.22	1.68	0.08	2675
B5	E5-1	C50	-641.90	4123.49	5.27	5.22	1486.02	0.36	1.50	0.00	2675
B6	E6-1	C50	-301.90	4123.49	4.96	3.60	2147.35	458.87	2.44	0.33	2675
B7	E7-1	C50	-132.00	4123.49	4.55	2.43	1845.55	367.05	2.09	0.36	2675
B9	E9-1	C50	0.00	4113.49	3.62	3.23	2621.14	87.26	1.76	0.23	2675
B10	E10-1	C50	0.00	3747.12	5.43	5.42	2813.90	100.71	1.63	0.03	2675
B11	E11-1	C50	0.00	3407.12	5.18	5.18	2788.54	116.60	1.57	0.11	2675
B12	E12-1	C50	0.00	3067.12	5.19	5.19	2781.70	91.73	1.56	0.09	2675
B13	E13-1	C50	0.00	2727.12	5.25	5.23	2788.56	16.92	1.56	0.01	2675
B14	E14-1	C50	0.00	2387.12	4.62	4.11	2860.99	58.20	1.57	0.11	2675
B15	E15-1	C50	0.00	2199.12	4.17	3.28	2790.37	28.60	1.84	0.12	2675
B17	E17-1	C50	0.00	2047.12	3.52	3.09	2811.55	63.29	1.73	0.13	2675
B18	E18-1	C50	0.00	1707.12	5.25	5.20	2664.58	217.97	1.57	0.26	2675
B19	E19-1	C50	0.00	1367.12	5.32	5.24	2411.62	82.19	1.42	0.11	2675
B20	E20-1	C50	10.00	1037.12	7.81	6.50	2332.23	526.69	2.25	0.11	2675
B21	E21-1	C50	380.00	1037.12	4.56	3.12	2724.41	553.45	2.81	0.40	2675
B23	E23-1	C50	0.00	687.12	5.36	5.24	2282.08	11.52	1.39	0.01	2675
B24	E24-1	C50	0.00	347.12	5.24	5.17	2768.92	184.16	1.59	0.21	2675
B25	E25-1	C50	0.00	20.00	3.46	2.98	2807.18	23.65	1.69	0.01	2675

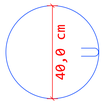
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade:1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção



Estribos



172 N2 Ø 6,3
c/9 C=135,66

Armadura longitudinal

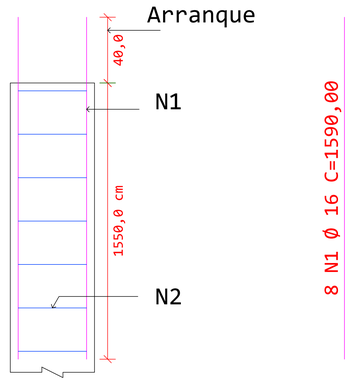


TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16

RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20
Peso total do aço =				257,89 kg
Volume total de concreto =				3,34 m³

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 82.168.623/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 062522-0

FERCON

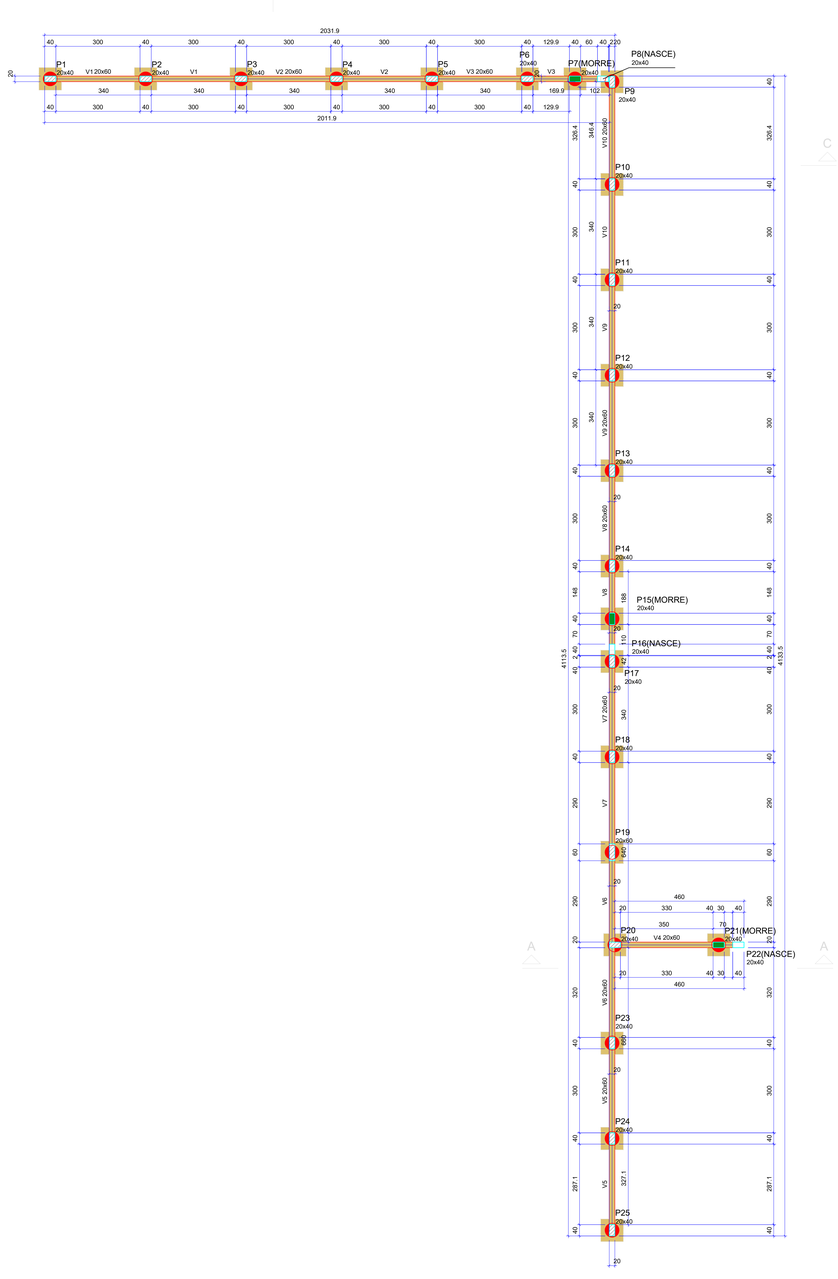
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - ESTACAS
ETAPA	EXECUTIVO
FOLHA	EST 02/07
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.048.731/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 890-13-140 | Fone: (47) 9611-9611 | e-mail do responsável técnico (leia projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ID:54714499)



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:75

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x60	0	2795
V2	20x60	0	2795
V3	20x60	0	2795
V4	20x60	0	2795
V5	20x60	0	2795
V6	20x60	0	2795
V7	20x60	0	2795
V8	20x60	0	2795
V9	20x60	0	2795
V10	20x60	0	2795

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x40	0	2795
P2	20x40	0	2795
P3	20x40	0	2795
P4	20x40	0	2795
P5	20x40	0	2795
P6	20x40	0	2795
P7	20x40	0	2795
P8	20x40	0	2795
P9	20x40	0	2795
P10	20x40	0	2795
P11	20x40	0	2795
P12	20x40	0	2795
P13	20x40	0	2795
P14	20x40	0	2795
P15	20x40	0	2795
P16	20x40	0	2795
P17	20x40	0	2795
P18	20x40	0	2795
P19	20x60	0	2795
P20	20x40	0	2795
P21	20x40	0	2795
P22	20x40	0	2795
P23	20x40	0	2795
P24	20x40	0	2795
P25	20x40	0	2795

Legenda dos pilares

- Pilar que morre
- Pilar que passa
- Pilar que nasce

Legenda das vigas e paredes

- Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICIPIO DE JOINVILLE
83.169.625/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENGº CIVIL FERNANDO STROISCH
CREA/SC 082522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

Município de Joinville

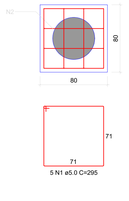
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS TÉRREO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 03/07

FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.888.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 9611-3577 | E-mail do responsável técnico desta projeto: jean@fercongroupbra.com

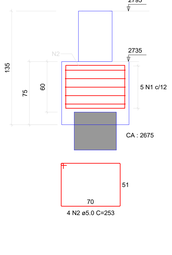
Projeto Estrutura de Concreto Armado (26474466) SEI 25.0.2800003-8 / pg. 113

B1=B2=B3=B4=B5=B6=B7=B9=B10=B11=B12=B13
=B14=B15=B17=B18=B19=B20=B21=B23=B24
=B25
1xC50

PLANTA
ESC 1:25



CORTE
ESC 1:25



RELAÇÃO DO AÇO

22xB25

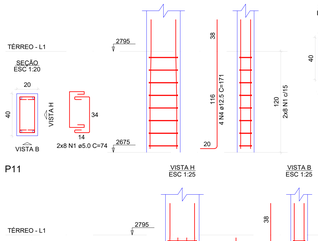
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	110	295	32450
	2	5.0	88	253	22264

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA60	5.0	547.1	84.3
PESO TOTAL (kg)			
CA60	84.3		

Volume de concreto (C-35) = 9.91 m³
Área de forma = 52.80 m²

P1=P2=P3=P4=P5=P6=P20



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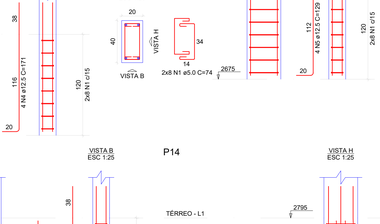
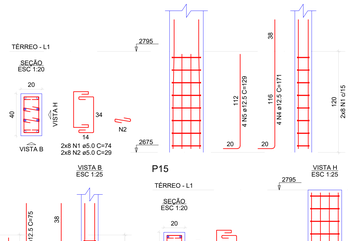


P9=P12=P13=P17=P18=P24=P25



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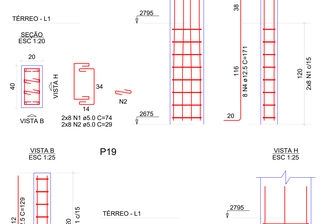

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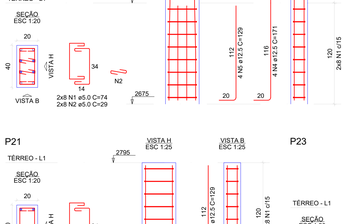

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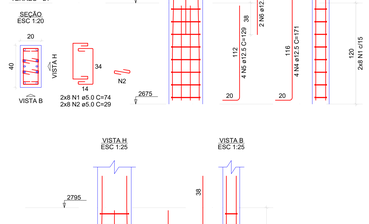

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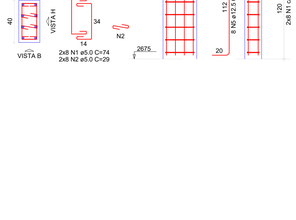

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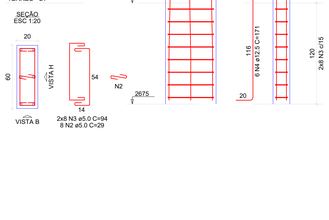

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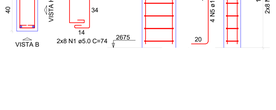

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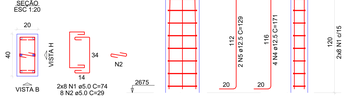


RELAÇÃO DO AÇO

7xP1
P10
P15
P23

7xP7
P11
P19

7xP9
P14
P21

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	336	74	24864
	2	5.0	192	29	5568
	3	5.0	8	188	1504
CA50	4	12.5	82	171	14022
	5	12.5	54	129	6966
	6	12.5	2	75	150

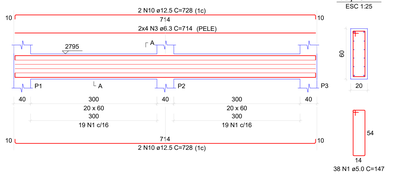
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	12.5	211.4	203.6
CA60	5.0	319.4	49.2
PESO TOTAL (kg)			
CA50	203.6		
CA60	49.2		

Volume de concreto (C-35) = 1.08 m³
Área de forma = 16.08 m²

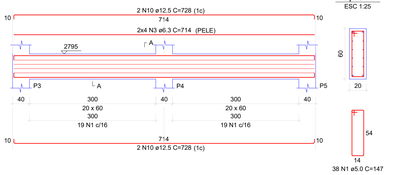
V1

ESC 1:50



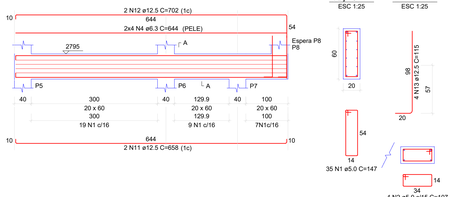
V2

ESC 1:50



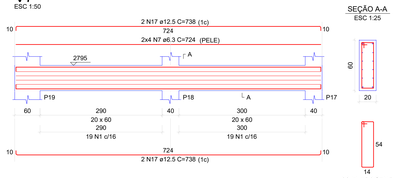
V3

ESC 1:50



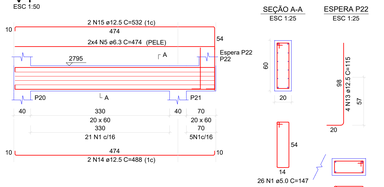
V7

ESC 1:50



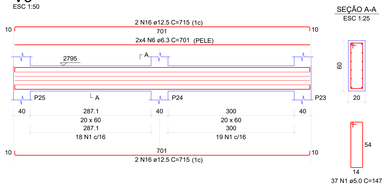
V4

ESC 1:50



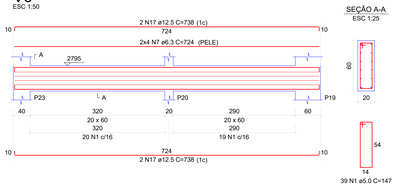
V5

ESC 1:50



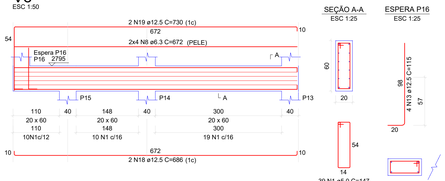
V6

ESC 1:50



V8

ESC 1:50



RELAÇÃO DO AÇO

V1
V4
V7
V10

V2
V5
V8

V3
V6
V9

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	368	147	54096
	2	5.0	12	107	1284
CA50	3	6.3	24	714	17136
	4	6.3	8	644	5152
	5	6.3	8	474	3792
	6	6.3	8	701	5608
	7	6.3	16	724	11584
	8	6.3	8	672	5376
	9	6.3	8	740	5920
	10	12.5	12	728	8736
	11	12.5	2	658	1316
	12	12.5	2	702	1404
	13	12.5	12	115	1380
	14	12.5	2	488	976
	15	12.5	2	532	1064
	16	12.5	4	715	2860
	17	12.5	8	738	5904
	18	12.5	2	686	1372
	19	12.5	2	730	1460
	20	12.5	4	754	3016

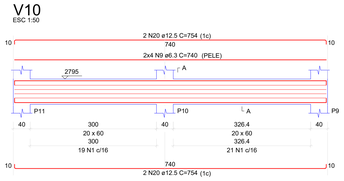
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	545.7	133.5
	12.5	294.9	284.1
CA60	5.0	553.8	85.4
PESO TOTAL (kg)			
CA50	417.6		
CA60	85.4		

Volume de concreto (C-35) = 6.84 m³
Área de forma = 79.82 m²

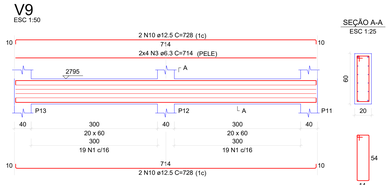
V10

ESC 1:50



V9

ESC 1:50



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
31.168.028/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA-SC 062522-0

FERCON

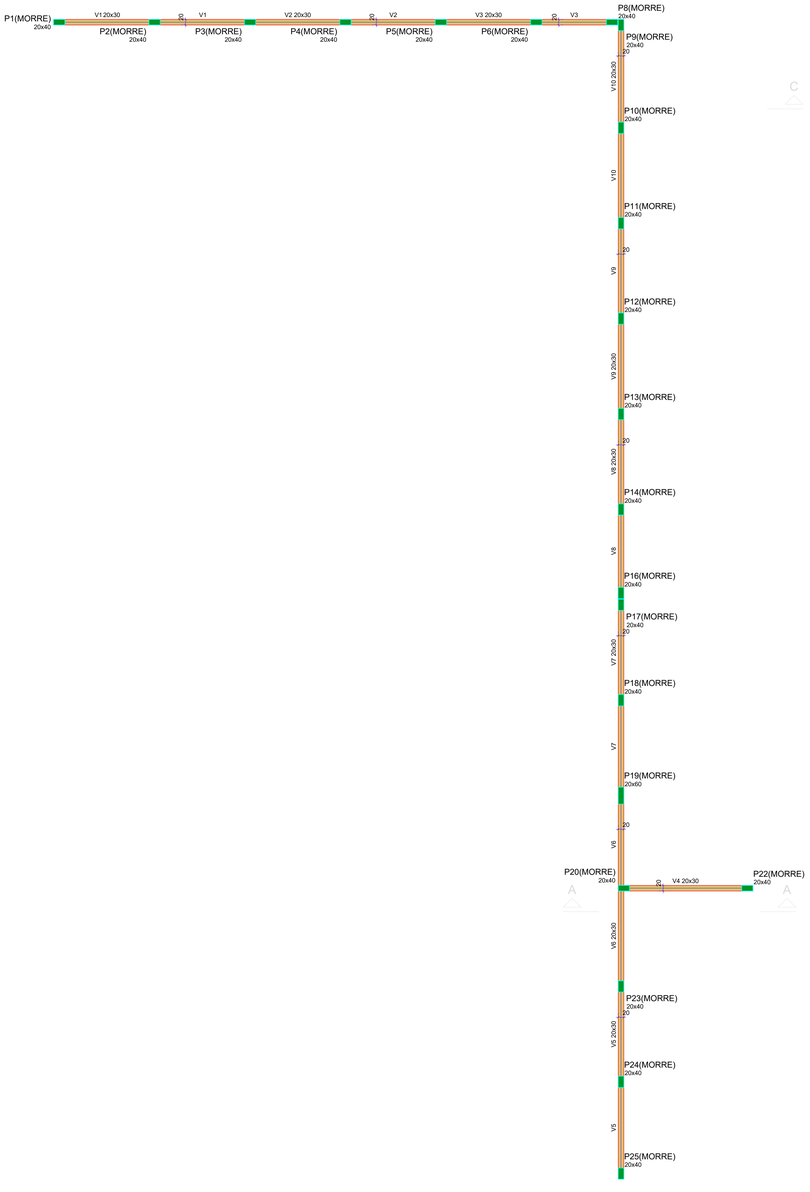
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE		
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA		
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA		
PROJETO	MURO DE DIVISA	ARQUIVO: JOC_SED_ROS_EXA_EX.DWG	DATA: 02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO ARRANQUES - VIGAS BALDRAME	ETAPA: EXECUTIVO	FOLHA: EST 04/07
		ESCALA: INDICADA	

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-5414 | e-mail do responsável técnico desta projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (26/07/4456)
SEI 25.0.0300003-8 / pg. 114



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 185)

Escala 1:75

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x30	0	185
V2	20x30	0	185
V3	20x30	0	185
V4	20x30	0	185
V5	20x30	0	185
V6	20x30	0	185
V7	20x30	0	185
V8	20x30	0	185
V9	20x30	0	185
V10	20x30	0	185

Características dos materiais	
fck (kgf/cm²)	Eca (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x40	0	185
P2	20x40	0	185
P3	20x40	0	185
P4	20x40	0	185
P5	20x40	0	185
P6	20x40	0	185
P8	20x40	0	185
P9	20x40	0	185
P10	20x40	0	185
P11	20x40	0	185
P12	20x40	0	185
P13	20x40	0	185
P14	20x40	0	185
P16	20x40	0	185
P17	20x40	0	185
P18	20x40	0	185
P19	20x60	0	185
P20	20x40	0	185
P22	20x40	0	185
P23	20x40	0	185
P24	20x40	0	185
P25	20x40	0	185

Legenda dos pilares
Pilar que morre

Legenda das vigas e paredes
Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.620/0001-70

RESPONSAVEL TECNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

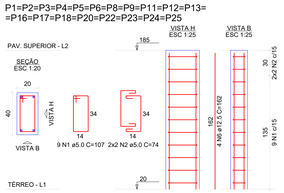
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	XX_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS SUPERIOR
ETAPA	EXECUTIVO
FOLHA	EST 05/07
ESCALA	INDICADA

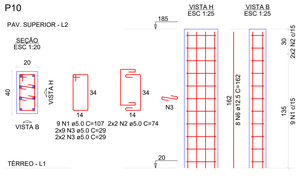
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 14.408.731/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brumenau | CEP 89010-140 | Fone: (47) 3611-5717 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (0547)
SEI 25.0.2800003-8 pg. 115

P1=P2=P3=P4=P5=P6=P8=P9=P11=P12=P13= =P16=P17=P18=P20=P22=P23=P24=P25



P10



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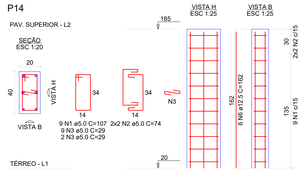

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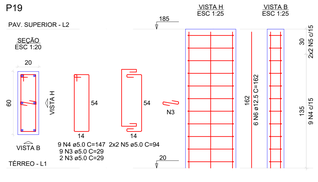


RELAÇÃO DO AÇO

19xP1 P19 | P10 | P14

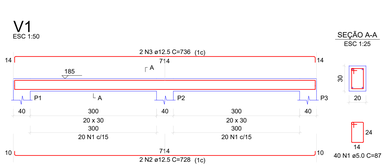
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	189	107	20223
	2	5.0	84	74	6216
	3	5.0	44	29	1276
	4	5.0	9	147	1323
	5	5.0	4	94	376
CA50	6	12.5	96	162	15552

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	12.5	155.5	149.8
CA60	5.0	294.1	45.3
PESO TOTAL (kg)			
CA50	149.8		
CA60	45.3		

Volume de concreto (C-35) = 2.97 m³
Área de forma = 44.22 m²

V1



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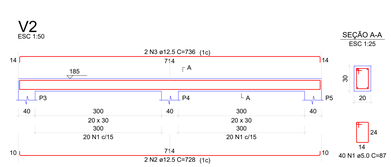

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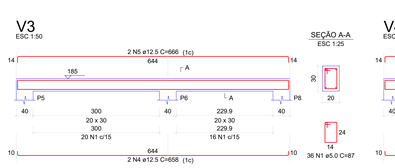

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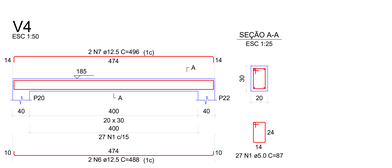

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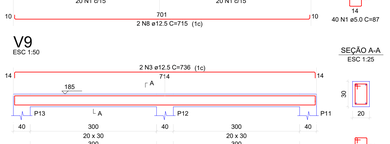
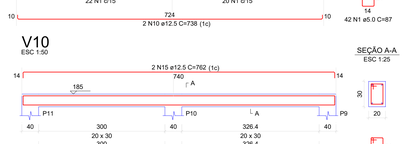


V6



V7

V8

RELAÇÃO DO AÇO

V1 V4 V7 V10 | V2 V5 V8 | V3 V6 V9

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	385	87	33495
CA50	2	12.5	6	728	4368
	3	12.5	6	736	4416
	4	12.5	2	658	1316
	5	12.5	2	666	1332
	6	12.5	2	488	976
	7	12.5	2	496	992
	8	12.5	2	715	1430
	9	12.5	2	723	1446
	10	12.5	4	738	2952
	11	12.5	4	746	2984
	12	12.5	2	686	1372
	13	12.5	2	694	1388
	14	12.5	2	754	1508
	15	12.5	2	762	1524

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	12.5	280	269.8
CA60	5.0	334.9	51.6
PESO TOTAL (kg)			
CA50	269.8		
CA60	51.6		

Volume de concreto (C-35) = 3.42 m³
Área de forma = 45.61 m²

V9

V10

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.189.623/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

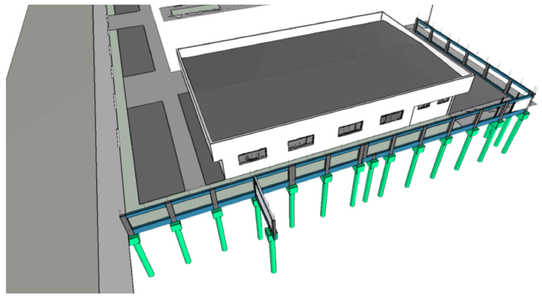
Município de Joinville

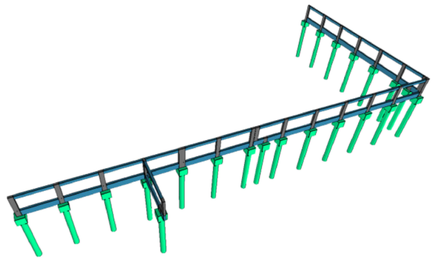
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

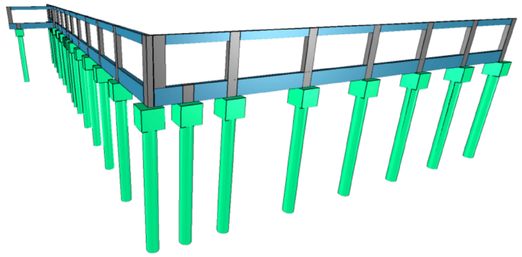
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	PILARES E VIGAS (SUPERIOR)
ETAPA	EXECUTIVO
FOLHA	EST 06/07
ESCALA	INDICADA

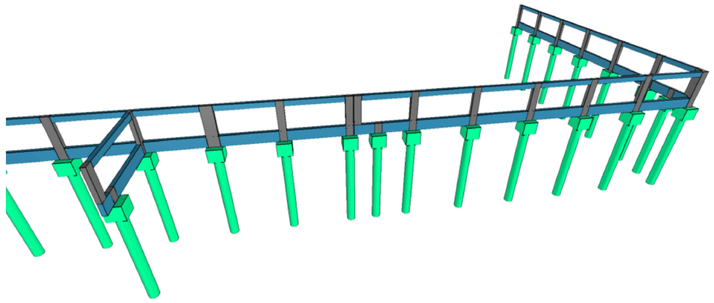
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.731/0001-98
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3411-8011 | e-mail do responsável técnico deste projeto: prof@fercongroup.com

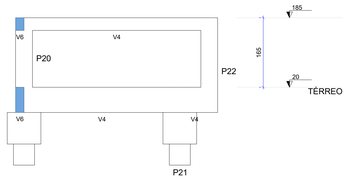
Projeto Estrutura de Concreto Armado (29474466)
SEI 25.0.2800003-8 | pg | 116





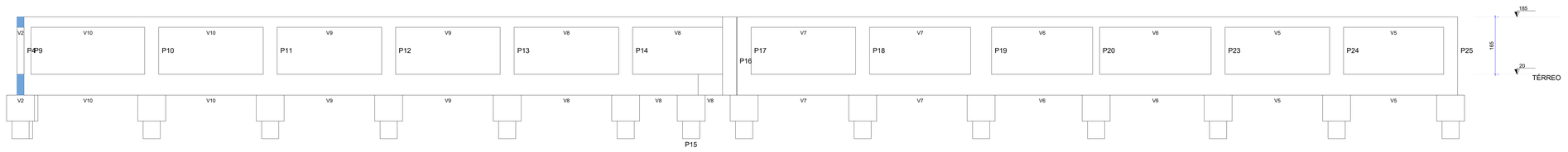






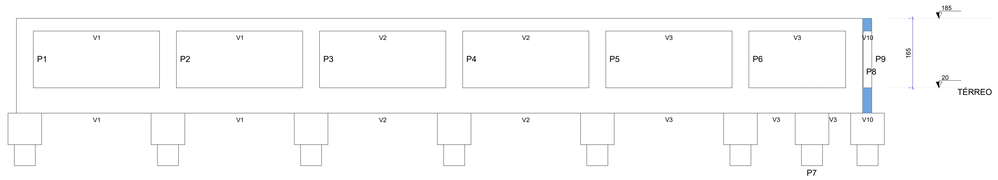
CORTE A-A

Escala 1:50



CORTE B-B

Escala 1:50



CORTE C-C

Escala 1:50

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.199.625/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	MURO DE DIVISA
ARQUIVO	3OI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	**EST 07/07**

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 9671-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (25451)
SEI 25.0.2000038-8 / pg. 117
(0714466)

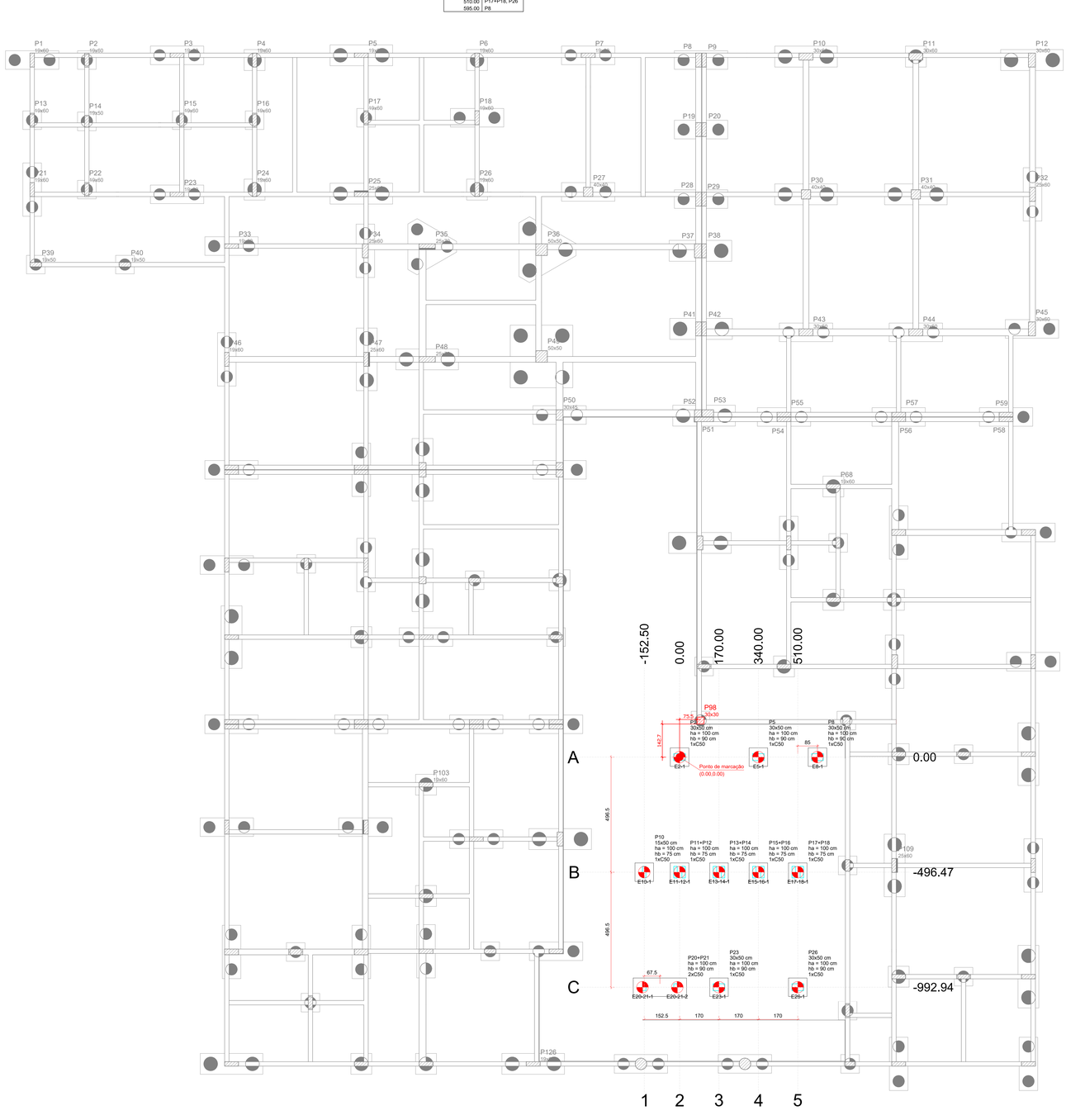
Pilar												Fundação			Bloco			
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m)		My Máximo (kgf.m)		Fx Máximo (tf)		Fy Máximo (tf)		Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	ne	Estaca	ca (cm)	Base tub. (cm)
						Positivo	Negativo	Positivo	Negativo	Positivo	Negativo	Positivo	Negativo								
P2	30x50	0.00	0.00	21.4	17.2	0	0	0	0	1.2	0.0	0.0	-0.4	80	80	100	90	1	C50	2605	-
P5	30x50	340.00	0.00	18.4	14.6	0	0	0	0	0.8	0.0	1.7	0.0	80	80	100	90	1	C50	2605	-
P8	30x50	595.00	0.00	18.5	15.3	0	0	0	0	0.0	-0.4	0.4	0.0	80	80	100	90	1	C50	2605	-
P10	15x50	-152.50	-496.47	10.5	8.2	0	0	0	0	0.1	0.0	0.0	-0.7	80	80	100	75	1	C50	2600	-
P23	30x50	170.00	-992.94	17.5	13.9	0	0	0	0	0.7	0.0	0.0	-0.2	80	80	100	90	1	C50	2605	-
P26	30x50	510.00	-992.94	26.9	21.8	0	0	0	0	0.0	-0.7	0.0	-0.4	80	80	100	90	1	C50	2605	-
P11+P12		0.00	-496.47	16.5	12.4	0	0	0	0	0.1	0.0	0.0	-0.1	80	80	100	75	1	C50	2600	-
P13+P14		170.00	-496.47	15.3	11.6	0	0	0	0	0.2	0.0	0.0	-0.3	80	80	100	75	1	C50	2600	-
P15+P16		340.00	-496.47	20.8	15.7	0	0	0	0	0.5	0.0	0.2	0.0	80	80	100	75	1	C50	2600	-
P17+P18		510.00	-496.47	24.8	19.5	0	0	0	0	0.0	-2.1	0.3	0.0	80	80	100	75	1	C50	2600	-
P20+P21		-85.00	-992.94	9.1	7.2	0	0	0	0	0.1	0.0	0.0	-0.7	230	80	100	90	2	C50	2615	-

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

LOCAÇÃO DAS ESTACAS											
Bloco	Nome	Tipo	Coordenada X (cm)	Coordenada Y (cm)	Carga máx. tf	Carga mín. tf	Momento máx. kgf.m	Momento mín. kgf.m	Força horiz. máx. tf	Força horiz. mín. tf	CA (cm)
B2	E2-1	C50	0.00	0.00	22.70	18.50	688.70	475.81	1.15	0.79	2605
B5	E5-1	C50	340.00	0.00	19.73	15.90	1074.60	677.04	1.79	1.13	2605
B8	E8-1	C50	595.00	0.00	19.86	16.64	257.22	170.56	0.43	0.28	2605
B10	E10-1	C50	-152.50	-496.47	11.56	9.30	327.61	151.70	0.73	0.34	2600
B23	E23-1	C50	170.00	-992.94	18.85	15.24	392.93	203.37	0.65	0.34	2605
B26	E26-1	C50	510.00	-992.94	28.21	23.13	496.83	309.38	0.83	0.52	2605
B11-12	E11-12-1	C50	0.00	-496.47	17.55	13.43	73.99	49.84	0.16	0.11	2600
B13-14	E13-14-1	C50	170.00	-496.47	16.41	12.71	107.73	68.99	0.24	0.15	2600
B15-16	E15-16-1	C50	340.00	-496.47	21.89	16.81	201.32	137.87	0.45	0.31	2600
B17-18	E17-18-1	C50	510.00	-496.47	25.89	20.56	969.39	731.38	2.15	1.63	2600
B20-21	E20-21-1	C50	-160.00	-992.94	6.53	5.53	194.23	138.83	0.30	0.21	2615
	E20-21-2		-10.00	-992.94	6.56	5.60	194.23	138.83	0.30	0.21	

Locação no eixo X	
Coordenadas (cm)	Nome
-152.50	P10
-85.00	P20+P21
0.00	P2, P11+P12
170.00	P13+P14, P23
340.00	P5, P15+P16
510.00	P17+P18, P26
595.00	P8

Locação no eixo Y	
Coordenadas (cm)	Nome
0.00	P2, P5, P8
-496.47	P10, P11+P12, P13+P14, P15+P16, P17+P18
-992.94	P20+P21, P23, P26



PLANTA DE LOCAÇÃO DAS ESTACAS

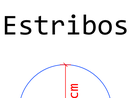
Escala 1:75

QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 50 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção

Estribos



172 N2 Ø 6,3
c/9 C=135,66

Armadura longitudinal

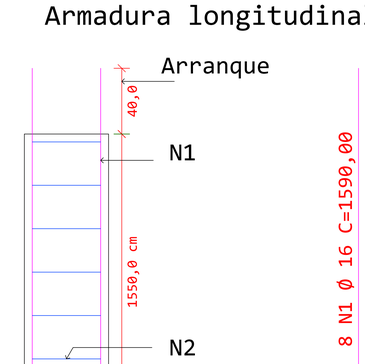
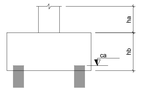
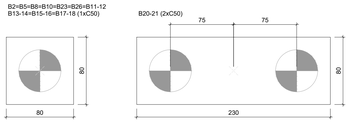


TABELA DE AÇO				
Pos.	Ø (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1590,00	12720,00
N2	6,3	172	135,66	23334,16
RESUMO DO AÇO				
Aço	Ø (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	127,20	200,72	11
CA50	6,3	233,34	57,17	20
Peso total do aço =				257,89 kg
Volume total de concreto =				3,34 m³

Estacas			
Simbologia	Nome	d (cm)	Quantidade
	C50	50.00	12





LEGENDA DOS BLOCOS

Escala 1:25

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980903 — MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134518920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 082522-0

FERCON

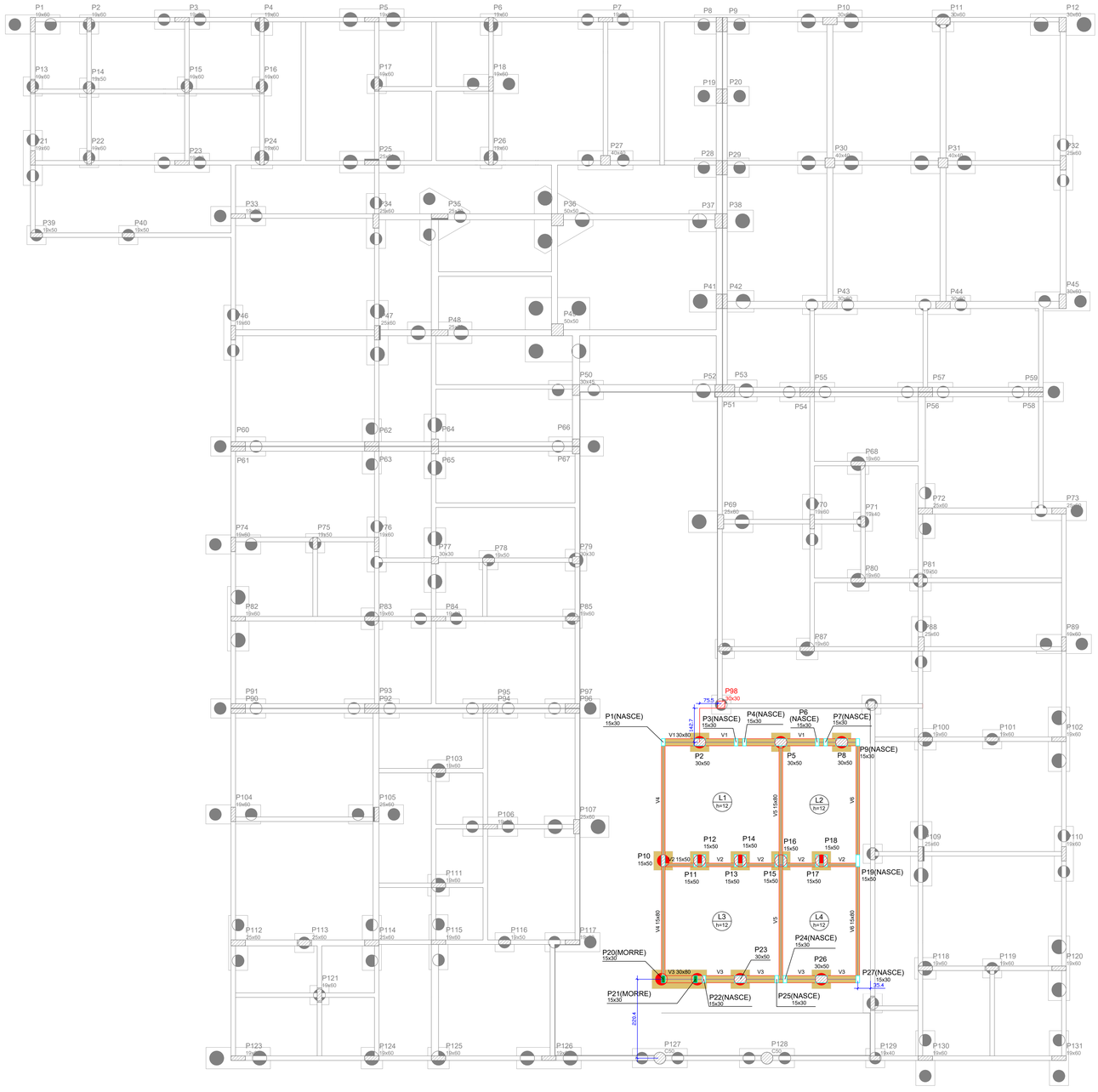
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LOCAÇÃO - ESTACAS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 01/17

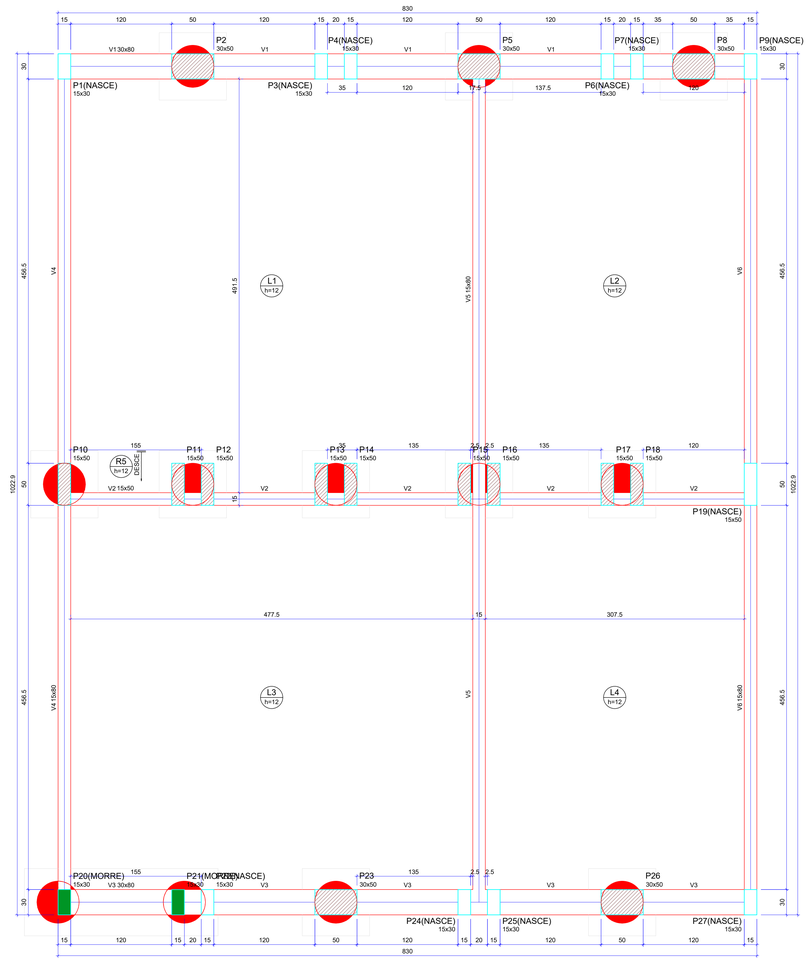
FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 250, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone (47) 3611-7577 | e-mail do responsável técnico deste projeto: joel@fercongroup.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2023)



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:75



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:25

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	30x80	0	20
V2	15x50	0	20
V3	30x80	0	20
V4	15x80	0	20
V5	15x80	0	20
V6	15x80	0	20

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	12	0	20	300	154	250	-
L2	Maciça	12	0	20	300	154	250	-
L3	Maciça	12	0	20	300	154	250	-
L4	Maciça	12	0	20	300	154	250	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	0	20
P2	30x50	0	20
P3	15x30	0	20
P4	15x30	0	20
P5	30x50	0	20
P6	15x30	0	20
P7	15x30	0	20
P8	30x50	0	20
P9	15x30	0	20
P10	15x50	-20	0
P11	15x50	-20	0
P12	15x50	-20	0
P13	15x50	-20	0
P14	15x50	-20	0
P15	15x50	-20	0
P16	15x50	-20	0
P17	15x50	-20	0
P18	15x50	-20	0
P19	15x50	-20	0
P20	15x30	10	30
P21	15x30	10	30
P22	15x30	0	20
P23	30x50	0	20
P24	15x30	0	20
P25	15x30	0	20
P26	30x50	0	20
P27	15x30	0	20

Legenda dos pilares
Pilar que morre
Pilar que passa
Pilar que nasce

Legenda das vigas e paredes
Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901
DN: C=BR, O=ICP-Brasil, OU=Secretaria da Receita Federal do Brasil - RFB, OU=RFB e-CPF A1, OU=(EM BRANCO), OU=AR SOLUCAO, CN=ADEMAR STRINGARI JUNIOR:07414980901
Razão: Eu sou o autor deste documento
Localização:
Data: 2025.07.02 15:10:14 -03'00'
Foto disponibilizada pelo usuário
Versão do Adobe Reader: 2020.013.20074

MUNICÍPIO DE JOINVILLE
61.139.623/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
Assinado digitalmente por FERNANDO STROISCH:84134518920
DN: C=BR, O=ICP-Brasil, OU=Secretaria da Receita Federal do Brasil - RFB, OU=RFB e-CPF A1, OU=(EM BRANCO), OU=AR SOLUCAO, CN=FERNANDO STROISCH:84134518920
Razão: Eu sou o autor deste documento
Localização:
Data: 2025.07.02 15:10:14 -03'00'
Foto disponibilizada pelo usuário
Versão do Adobe Reader: 2020.013.20074

ENGº CIVIL, FERNANDO STROISCH
CREA/SC 082522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

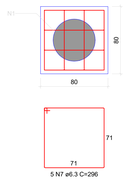
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	FÔRMAS TÉRREO
ETAPA	EXECUTIVO
FOLHA	EST 02/17
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.668.731/0001-96
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3911-8271 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

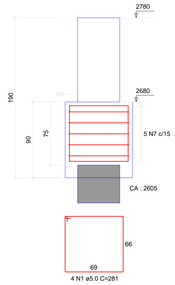
Projeto Estrutural de Concreto Armado (05/47:44:50)
SEI 25.0.2300093-8 pg. 119

B2
1xC50

PLANTA
ESC 1:25



CORTE
ESC 1:25



B5=B8
1xC50

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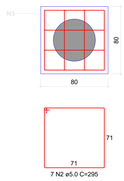

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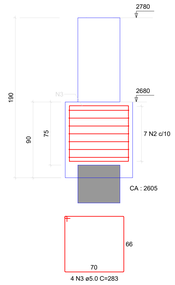
ESC 1:25



B10
1xC50

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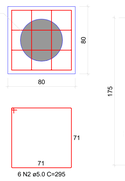

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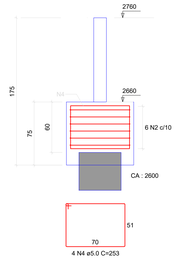
ESC 1:25



B23
1xC50

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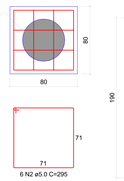
ESC 1:25



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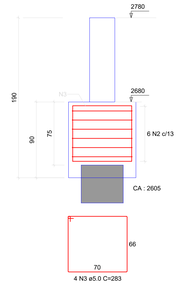
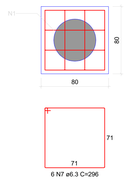


B26
1xC50

PLANTA
ESC 1:25



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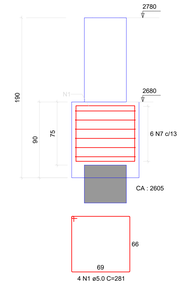


RELAÇÃO DO AÇO

B2
B23-14
B20-21

2xB8
B26
B15-16

B10
B11-12
B17-18

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	8	281	2248
	2	5.0	26	295	7670
	3	5.0	22	283	6226
	4	5.0	4	253	1012
	5	5.0	16	251	4016
	6	5.0	10	595	5950
CA50	7	6.3	25	296	7400
	8	8.0	13	296	3848
	9	8.0	2	276	552
	10	8.0	4	234	936
	11	10.0	4	347	1388

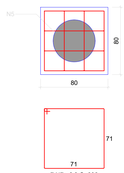
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	74	19.9
	8.0	53.4	23.2
	10.0	13.9	9.4
CA60	5.0	271.2	46
PESO TOTAL (kg)			
CA50	52.5		
CA60	46		

Volume de concreto (C-35) = 6.58 m³
Área de forma = 31.98 m²

B11-12
1xC50

PLANTA
ESC 1:25



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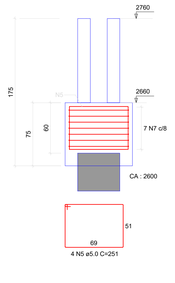
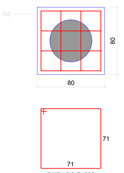
ESC 1:25



B13-14
1xC50

PLANTA
ESC 1:25



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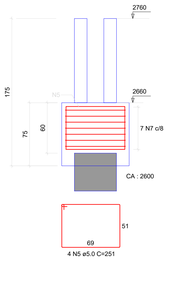
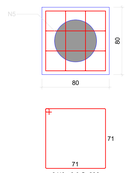
ESC 1:25



B15-16
1xC50

PLANTA
ESC 1:25



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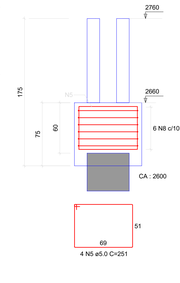
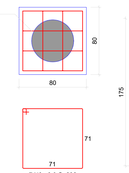
ESC 1:25



B17-18
1xC50

PLANTA
ESC 1:25



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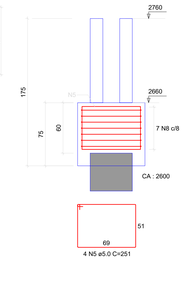
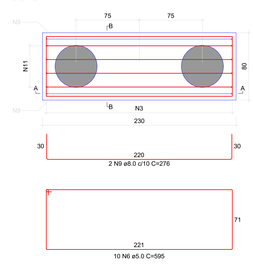
ESC 1:25

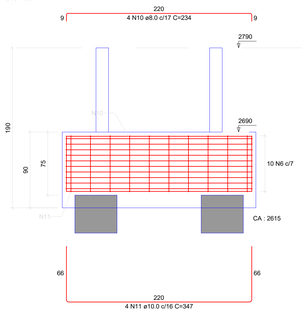


B20-21
2xC50

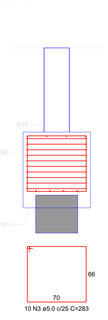
PLANTA
ESC 1:25



CORTE A-A
ESC 1:25



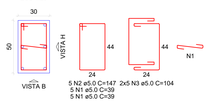
CORTE B-B
ESC 1:25



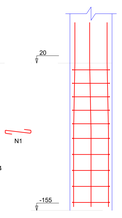
P2=P26

TÉRREO - L1

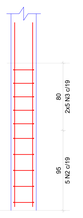
SEÇÃO
ESC 1:20



VISTA H
ESC 1:25



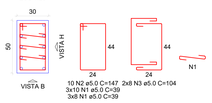
VISTA B
ESC 1:25



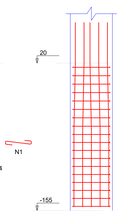
P5

TÉRREO - L1

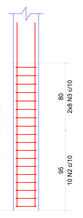
SEÇÃO
ESC 1:20



VISTA H
ESC 1:25



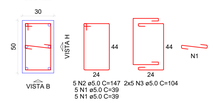
VISTA B
ESC 1:25



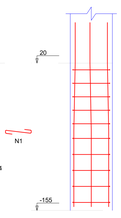
P8

TÉRREO - L1

SEÇÃO
ESC 1:20



VISTA H
ESC 1:25



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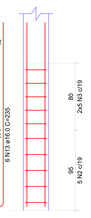
ESC 1:25



RELAÇÃO DO AÇO

2xP2
P10
2xP20

P5
7xP11
P23

P8
P18

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	114	39	4446
	2	5.0	30	147	4410
	3	5.0	56	104	5824
	4	5.0	112	24	2688
	5	5.0	95	117	11115
	6	5.0	56	74	4144
	7	5.0	11	24	264
	8	5.0	16	77	1232
	9	5.0	32	54	1728
CA50	10	10.0	48	204	9792
	11	10.0	8	185	1480
	12	12.5	6	211	1266
	13	16.0	34	235	7990
	14	16.0	4	183	732

RESUMO DO AÇO

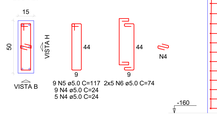
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	112.7	76.4
	12.5	12.7	13.4
	16.0	87.2	151.4
CA60	5.0	358.5	60.8
PESO TOTAL (kg)			
CA50	241.3		
CA60	60.8		

Volume de concreto (C-35) = 1.51 m³
Área de forma = 21.50 m²

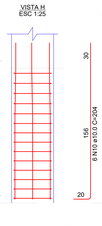
P10

TÉRREO - L1

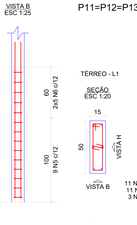
SEÇÃO
ESC 1:20



VISTA H
ESC 1:25



VISTA B
ESC 1:25



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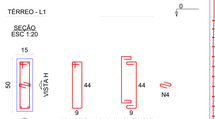
TÉRREO - L1

SEÇÃO
ESC 1:20



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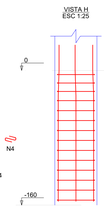
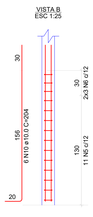
ESC 1:25



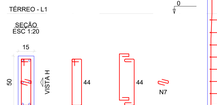
VISTA B
ESC 1:25



P18

TÉRREO - L1

SEÇÃO
ESC 1:20



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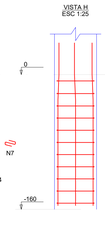

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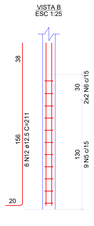

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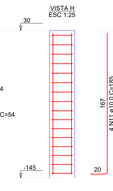
TÉRREO - L1

SEÇÃO
ESC 1:20

VISTA H
ESC 1:25



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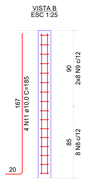
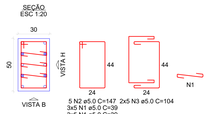


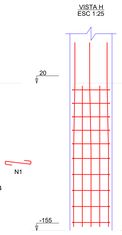
P23

TÉRREO - L1

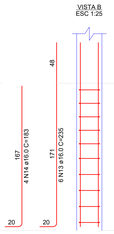
SEÇÃO
ESC 1:20



VISTA H
ESC 1:25



VISTA B
ESC 1:25



Projeto Estrutura de Concreto Armado (DNIT)
SEI 25.0.08000038-8 / pg. 120
Modelo(01/07/14466)

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.620/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

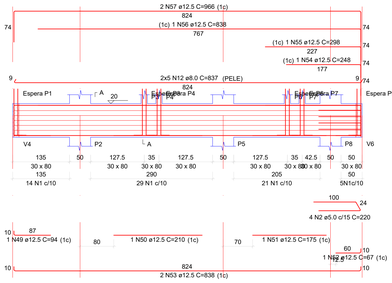
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	BLOCOS DE FUNDAÇÃO - PILARES COLARINHOS
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 03/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone: (47) 9611-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

V1
ESC 1:50

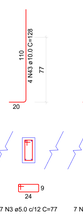


SEÇÃO A-A
ESC 1:25

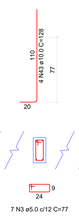
ESPERA P1
ESC 1:25

ESPERA P3
ESC 1:25

ESPERA P4
ESC 1:25

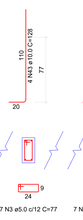


ESPERA P6
ESC 1:25

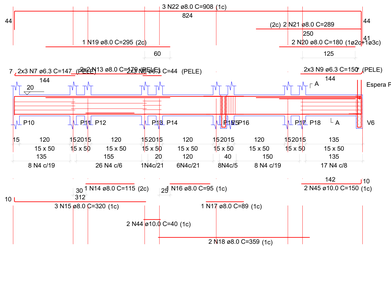


ESPERA P7
ESC 1:25

ESPERA P9
ESC 1:25



V2
ESC 1:50



SEÇÃO A-A
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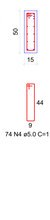

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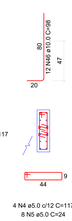
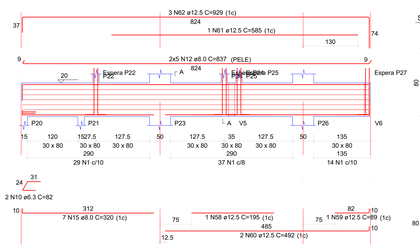


SUSPENSÃO V5
ESC 1:25

SUSPENSÃO V6
ESC 1:25

V3
ESC 1:50



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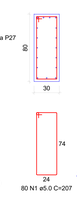

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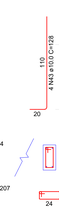

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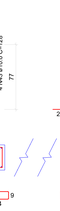
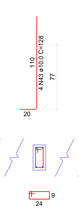
ESC 1:25



ESPERA P25
ESC 1:25



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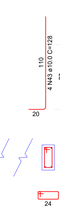
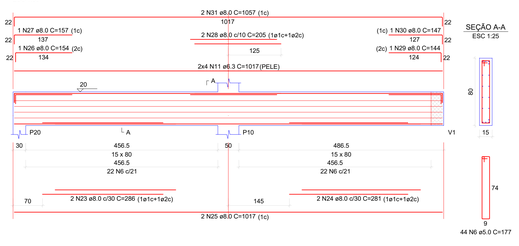
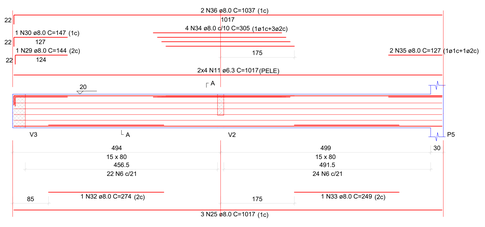


V4
ESC 1:50



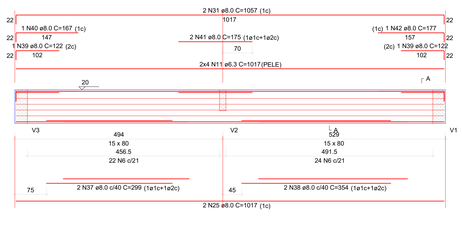
SEÇÃO A-A
ESC 1:25

V5
ESC 1:50



SEÇÃO A-A
ESC 1:25

V6
ESC 1:50



SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V1
V4

V2
V5

V3
V6

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	149	207	30843
	2	5.0	4	220	880
	3	5.0	70	77	5390
	4	5.0	78	117	9126
	5	5.0	8	24	192
	6	5.0	136	177	24072
CA50	7	6.3	6	147	882
	8	6.3	6	44	264
	9	6.3	6	150	900
	10	6.3	2	82	164
	11	6.3	24	1017	24408
	12	8.0	20	837	16740
	13	8.0	4	179	716
	14	8.0	1	115	115
	15	8.0	10	320	3200
	16	8.0	1	95	95
	17	8.0	1	89	89
	18	8.0	2	359	718
	19	8.0	1	295	295
	20	8.0	2	180	360
	21	8.0	2	289	578
	22	8.0	3	908	2724
	23	8.0	2	286	572
	24	8.0	2	281	562
	25	8.0	7	1017	7119
	26	8.0	1	154	154
	27	8.0	1	157	157
	28	8.0	2	205	410
	29	8.0	2	144	288
	30	8.0	2	147	294
	31	8.0	4	1057	4228
	32	8.0	1	274	274
	33	8.0	1	249	249
	34	8.0	4	305	1220
	35	8.0	2	127	254
	36	8.0	2	1037	2074
	37	8.0	2	299	598
	38	8.0	2	354	708
	39	8.0	2	122	244
	40	8.0	1	167	167
	41	8.0	2	175	350
	42	8.0	1	177	177
	43	10.0	40	128	5120
	44	10.0	2	40	80
	45	10.0	2	150	300
	46	10.0	12	98	1176
	47	10.0	2	234	468
	48	10.0	1	179	179
	49	12.5	1	94	94
	50	12.5	1	210	210
	51	12.5	1	175	175
	52	12.5	1	67	67
	53	12.5	2	838	1676
	54	12.5	1	248	248
	55	12.5	1	298	298
	56	12.5	1	838	838
	57	12.5	2	966	1932
	58	12.5	1	195	195
	59	12.5	1	89	89
	60	12.5	2	492	984
	61	12.5	1	585	585
	62	12.5	3	929	2787

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	266.2	71.6
	8.0	457.3	198.5
	10.0	73.2	49.7
	12.5	101.8	107.9
CA60	5.0	705	119.5
PESO TOTAL (kg)			
CA50	427.6		
CA60	119.5		

Volume de concreto (C-35) = 7.33 m³
Área de forma = 77.07 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.199.623/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

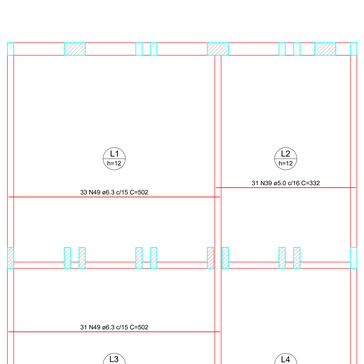
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	XX_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	VIGAS BALDRAME
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 04/17

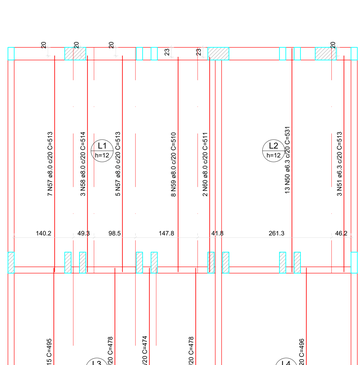
FERCON ENGENHARIA :: CREA nº 062522-0 :: CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 :: Centro - Blumenau :: CEP 89013-140 :: Fone: (47) 3611-9511 :: e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutural de Concreto Armado (ELS-NBR 6118:2014)



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:50



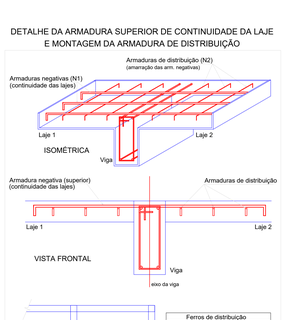
ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:50

Armaduras de distribuição

Armadura	Armadura de distribuição
N1	2 N2 ø5.0 c/20 C=51
N3	5 N2 ø5.0 c/20 C=51
N3	5 N2 ø5.0 c/20 C=51
N3	5 N2 ø5.0 c/20 C=51
N4	6 N2 ø5.0 c/20 C=51
N6	2 N2 ø5.0 c/20 C=51
N40	2 N2 ø5.0 c/20 C=51
N7	5 N8 ø5.0 c/20 C=81
N7	5 N9 ø5.0 c/20 C=33
N10	1 N11 ø5.0 c/20 C=48
N41	17 N12 ø5.0 c/20 C=40
N7	5 N13 ø5.0 c/20 C=96
N40	2 N11 ø5.0 c/20 C=48
N6	2 N11 ø5.0 c/20 C=48
N42	25 N14 ø5.0 c/20 C=154
N43	13 N15 ø5.0 c/20 C=257
N44	13 N16 ø5.0 c/20 C=103
N45	23 N17 ø5.0 c/20 C=335
N46	22 N18 ø5.0 c/20 C=144
N19	2 N20 ø5.0 c/20 C=222
N21	5 N22 ø5.0 c/20 C=91
N19	2 N23 ø5.0 c/20 C=123
N21	5 N24 ø5.0 c/20 C=49
N25	5 N26 ø5.0 c/20 C=46
N27	2 N28 ø5.0 c/20 C=108
N27	2 N29 ø5.0 c/20 C=54
N30	2 N31 ø5.0 c/20 C=443
N32	5 N24 ø5.0 c/20 C=49
N32	5 N24 ø5.0 c/20 C=49
N32	5 N24 ø5.0 c/20 C=49
N33	4 N34 ø5.0 c/20 C=100
N35	5 N26 ø5.0 c/20 C=46
N36	2 N37 ø5.0 c/20 C=134
N47	17 N38 ø5.0 c/20 C=135
N62	16 N38 ø5.0 c/16 C=135
N64	19 N38 ø5.0 c/16 C=135
N56	13 N38 ø5.0 c/20 C=135
N48	15 N38 ø5.0 c/20 C=135

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 e/X.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

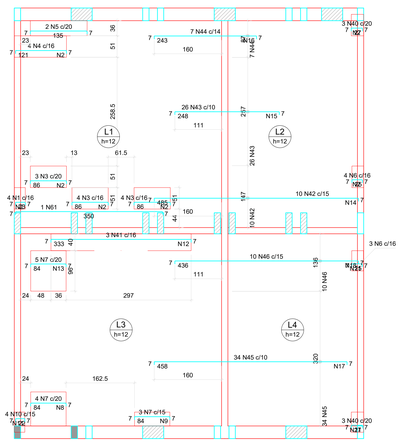
Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4	34	136
	2	5.0	27	51	1377
	3	5.0	11	97	1067
	4	5.0	4	132	528
	5	5.0	2	146	292
	6	5.0	2	36	252
	7	5.0	12	95	1140
	8	5.0	5	33	165
	9	5.0	5	33	165
	10	5.0	4	33	132
	11	5.0	5	48	240
	12	5.0	17	40	680
	13	5.0	5	96	480
	14	5.0	25	154	3850
	15	5.0	13	257	3341
	16	5.0	13	103	1339
	17	5.0	23	335	7705
	18	5.0	22	144	3168
	19	5.0	24	41	984
	20	5.0	2	222	444
	21	5.0	9	99	891
	22	5.0	5	91	455
	23	5.0	2	123	246
	24	5.0	20	49	980
	25	5.0	3	100	300
	26	5.0	10	46	460
	27	5.0	12	42	504
	28	5.0	2	108	216
	29	5.0	2	54	108
	30	5.0	2	443	886
	31	5.0	2	443	886
	32	5.0	9	94	846
	33	5.0	7	88	616
	34	5.0	4	100	400
	35	5.0	3	93	279
	36	5.0	9	40	360
	37	5.0	2	134	268
	38	5.0	80	135	10800
	39	5.0	60	332	19920
CA50	40	6.3	6	38	228
	41	6.3	3	344	1032
	42	6.3	10	496	4960
	43	6.3	26	259	6734
	44	6.3	7	254	1778
	45	6.3	34	469	15946
	46	6.3	10	447	4470
	47	6.3	15	348	5220
	48	6.3	9	300	2700
	49	6.3	64	502	32128
	50	6.3	13	531	6903
	51	6.3	3	573	1719
	52	6.3	3	593	1779
	53	6.3	3	474	1422
	54	6.3	10	495	4950
	55	6.3	16	496	7936
	56	8.0	8	252	2016
	57	8.0	12	513	6156
	58	8.0	3	514	1542
	59	8.0	8	510	4080
	60	8.0	2	511	1022
	61	10.0	1	359	359
	62	12.5	7	258	1806
	63	12.5	2	109	218
	64	12.5	7	309	2163

RESUMO DO AÇO

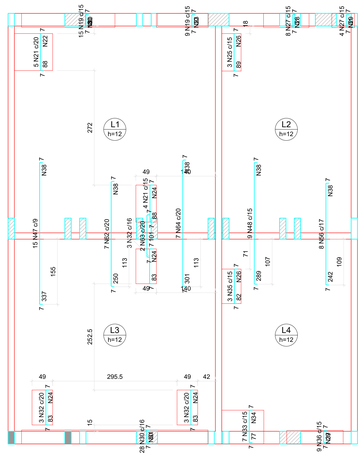
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1051.2	282.9
	8.0	148.2	64.3
	10.0	3.6	2.4
	12.5	41.9	44.4
CA60	5.0	674.1	114.3
PESO TOTAL (kg)			
CA50	394.1		
CA60	114.3		

Volume de concreto (C-35) = 8.82 m³
Área de forma = 73.52 m²



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:50



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:50

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.169.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

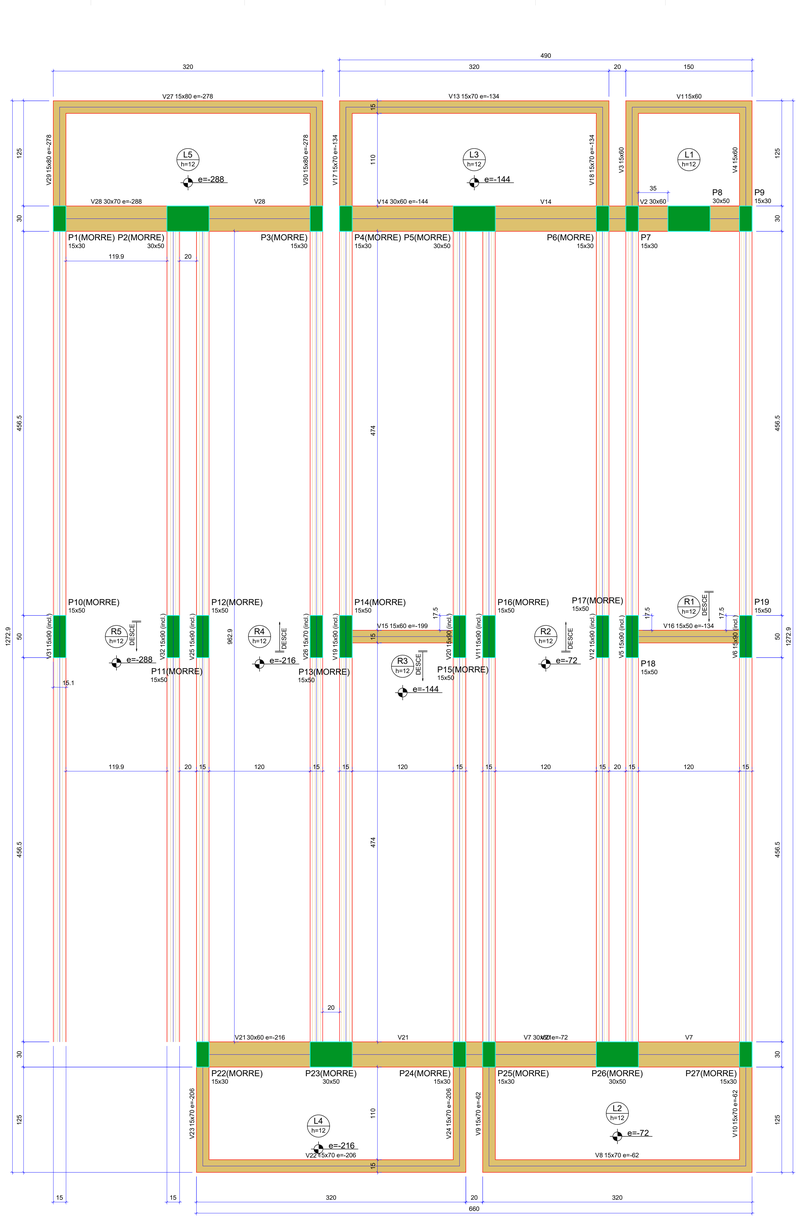
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOE_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	LAJE TÉRREO
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 05/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.492.731/0001-98
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3611-8071 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.3000039-8 pg 122



FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 380)

Escala 1:25

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nivel (cm)
V1	15x60	0	380
V2	30x60	0	380
V3	15x60	0	380
V4	15x60	0	380
V5	15x90	10 / -62	390 / 318
V6	15x90	10 / -62	390 / 318
V7	30x60	-72	308
V8	15x70	-62	318
V9	15x70	-62	318
V10	15x70	-62	318
V11	15x90	-62 / -134	318 / 246
V12	15x90	-62 / -134	318 / 246
V13	15x70	-134	246
V14	30x60	-144	236
V15	15x50	-199	181
V16	15x50	-134	246
V17	15x70	-134	246
V18	15x70	-134	246
V19	15x90	-134 / -206	246 / 174
V20	15x90	-134 / -206	246 / 174
V21	30x60	-216	164
V22	15x70	-206	174
V23	15x70	-206	174
V24	15x70	-206	174
V25	15x90	-206 / -278	174 / 102
V26	15x70	-206 / -278	174 / 102
V27	15x80	-278	102
V28	30x70	-288	92
V29	15x80	-278	102
V30	15x80	-278	102
V31	15x90	-278 / -350	102 / 30
V32	15x90	-278 / -350	102 / 30

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nivel (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	12	0	380	300	154	250	-
L2	Maciça	12	-72	308	300	154	250	-
L3	Maciça	12	-144	236	300	154	250	-
L4	Maciça	12	-216	164	300	154	250	-
L5	Maciça	12	-288	92	300	154	250	-
R1	Maciça	12	0	380	301	154	250	-
R2	Maciça	12	-72	308	301	154	250	-
R3	Maciça	12	-144	236	301	154	250	-
R4	Maciça	12	-216	164	301	154	250	-
R5	Maciça	12	-288	92	301	154	250	-

Características dos materiais	
fck (kgf/cm²)	Eca (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nivel (cm)
P1	15x30	-278	102
P2	30x50	-278	102
P3	15x30	-278	102
P4	15x30	-134	246
P5	30x50	-134	246
P6	15x30	-134	246
P7	15x30	10	390
P8	30x50	0	380
P9	15x30	10	390
P10	15x50	-308	72
P11	15x50	-308	72
P12	15x50	-236	144
P13	15x50	-236	144
P14	15x50	-164	216
P15	15x50	-164	216
P16	15x50	-92	288
P17	15x50	-92	288
P18	15x50	-20	360
P19	15x50	-20	360
P22	15x30	-206	174
P23	30x50	-206	174
P24	15x30	-206	174
P25	15x30	-62	318
P26	30x50	-62	318
P27	15x30	-62	318

Legenda dos pilares
Pilar que morre

Legenda das vigas e paredes
Viga
Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
82.168.025/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

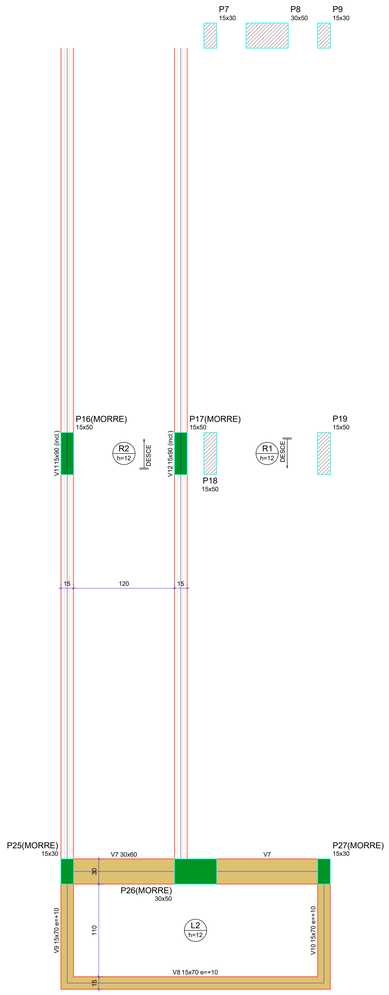
ÉQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
CONTEÚDO	FORMAS SUPERIOR(1)

ARQUIVO	302_SED_ROS_EXA_EX.DWG	DATA 02/07/2025
ETAPA EXECUTIVO		PRANCHA EST 06/17
ESCALA INDICADA		

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Brusque/sc | CEP 88353-140 | Fone: (47) 9611-5513 | e-mail do responsável técnico desta projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (29/07/1446) SEI 25.0.0300003-8 | pg. 123



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 308)

Escala 1:25

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V7	30x60	0	308
V8	15x70	10	318
V9	15x70	10	318
V10	15x70	10	318
V11	15x90	10 / -62	318 / 246
V12	15x90	10 / -62	318 / 246

Lajes

Nome	Tipo	Dados				Sobrecarga (kgf/m²)		
		Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L2	Maciça	12	0	308	300	154	250	-
R2	Maciça	12	0	308	301	154	250	-

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P7	15x30	10	318
P8	30x50	0	308
P9	15x30	10	318
P16	15x50	-20	288
P17	15x50	-20	288
P18	15x50	-20	288
P19	15x50	-20	288
P25	15x30	10	318
P26	30x50	10	318
P27	15x30	10	318

Legenda dos pilares

- Pilar que morre
- Pilar que passa

Legenda das vigas e paredes

- Viga
- Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.199.623/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

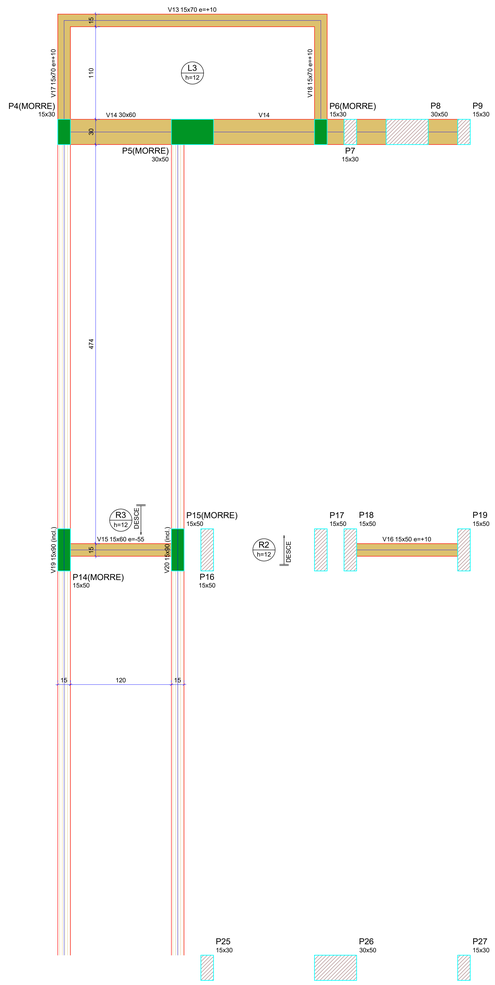
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	3OE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	FORMAS SUPERIOR(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 07/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 9671-8711 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (25415)
SEI 25.0.2800093-8 / pg. 124
Impresso em 08/07/2025 14:44:46



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 236)

Escala 1:25

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V13	15x70	10	246
V14	30x60	0	236
V15	15x60	-55	181
V16	15x50	10	246
V17	15x70	10	246
V18	15x70	10	246
V19	15x90	10 / -62	246 / 174
V20	15x90	10 / -62	246 / 174

Lajes

Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Sobrecarga (kgf/m²)		
						Adicional	Acidental	Localizada
L3	Maciça	12	0	236	300	154	250	-
R3	Maciça	12	0	236	301	154	250	-

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P4	15x30	10	246
P5	30x50	10	246
P6	15x30	10	246
P7	15x30	10	246
P8	30x50	0	236
P9	15x30	10	246
P14	15x50	-20	216
P15	15x50	-20	216
P16	15x50	-20	216
P17	15x50	-20	216
P18	15x50	-20	216
P19	15x50	-20	216
P25	15x30	10	246
P26	30x50	10	246
P27	15x30	10	246

Legenda dos pilares

- Pilar que morre
- Pilar que passa

Legenda das vigas e paredes

- Viga
- Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.199.623/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

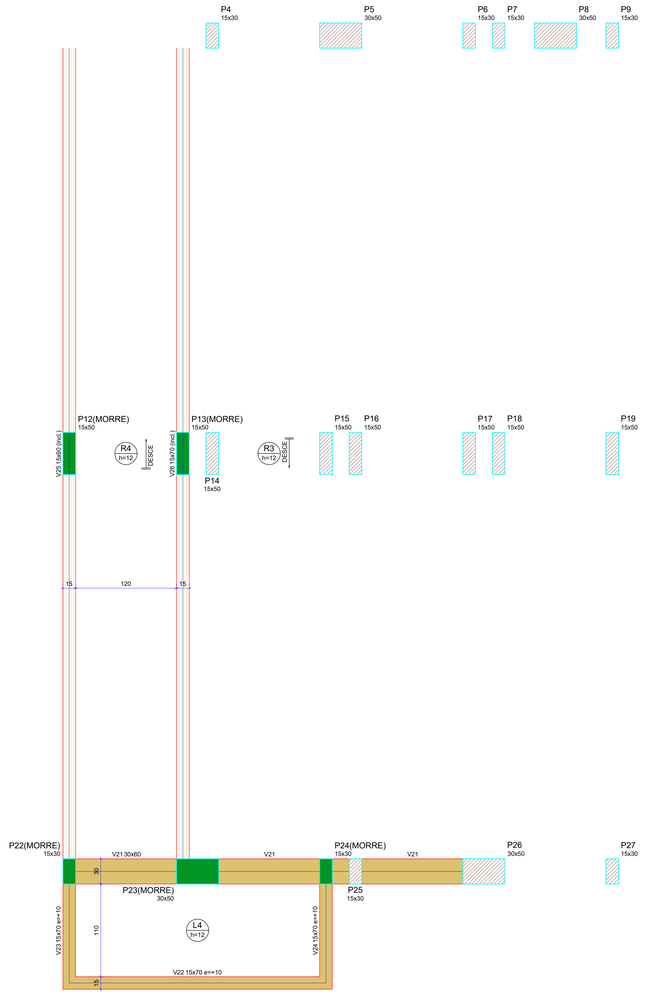
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
CONTEÚDO	FORMAS SUPERIOR(3)

ARQUIVO	XX_SEG_ROS_EXA_EX.DWG	DATA	02/07/2025
ETAPA	EXECUTIVO	FOLHA	EST 08/17
ESCALA	INDICADA		

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.068.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 | Centro - Blumenau | CEP 89010-140 | Fone: (47) 3871-8213 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (29/07/2025) - SEI 25.0.2000003-8 / pg. 125



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 164)

Escala 1:25

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V21	30x60	0	164
V22	15x70	10	174
V23	15x70	10	174
V24	15x70	10	174
V25	15x90	10 / -62	174 / 102
V26	15x70	10 / -62	174 / 102

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L4	Maciça	12	0	164	300	154	250	-
R4	Maciça	12	0	164	301	154	250	-

Características dos materiais	
fck (kgf/cm²)	Eca (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P4	15x30	10	174
P5	30x50	10	174
P6	15x30	10	174
P7	15x30	10	174
P8	30x50	0	164
P9	15x30	10	174
P12	15x50	-20	144
P13	15x50	-20	144
P14	15x50	-20	144
P15	15x50	-20	144
P16	15x50	-20	144
P17	15x50	-20	144
P18	15x50	-20	144
P19	15x50	-20	144
P22	15x30	10	174
P23	30x50	10	174
P24	15x30	10	174
P25	15x30	10	174
P26	30x50	10	174
P27	15x30	10	174

Legenda dos pilares
Pilar que morre
Pilar que passa

Legenda das vigas e paredes
Viga
Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980903

MUNICÍPIO DE JOINVILLE
83.169.623/0001-12

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

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CREA/SC 082522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

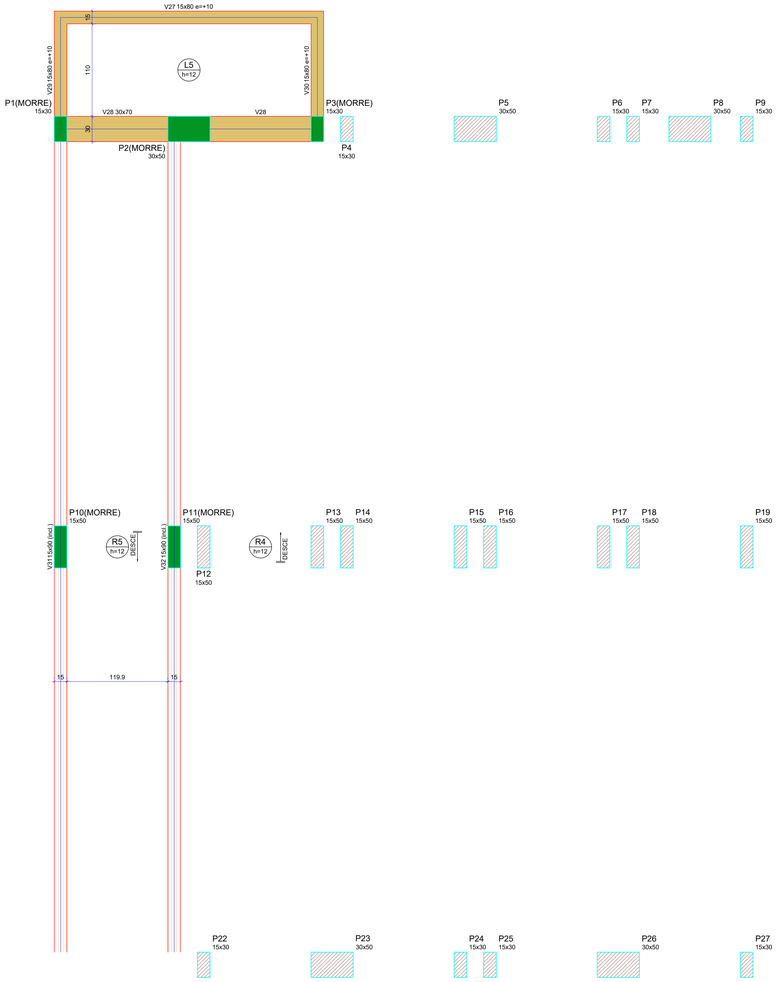
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
CONTEÚDO	FORMAS SUPERIOR(4)

ARQUIVO	DATA
JOE_SED_ROS_EXA_EX.DWG	02/07/2025

ETAPA	PRANCHA
EXECUTIVO	EST 09/17
ESCALA	
INDICADA	

FERCON ENGENHARIA - CREA nº 082522-0 - CNPJ 04.886.721/0001-06
Rua Presidente Getulio Vargas, 295, sala 53 - Centro - Brusque/sc - CEP 88.010-140 - Fone (47) 9611-7812 - E-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.28000038-8 pg. 126



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 92)

Escala 1:25

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V27	15x80	10	102
V28	30x70	0	92
V29	15x80	10	102
V30	15x80	10	102
V31	15x90	10 / -62	102 / 30
V32	15x90	10 / -62	102 / 30

Lajes								
		Dados				Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L5	Maciça	12	0	92	300	154	250	-
R5	Maciça	12	0	92	301	154	250	-

Características dos materiais	
fck (kgf/cm²)	Eci (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	10	102
P2	30x50	10	102
P3	15x30	10	102
P4	15x30	10	102
P5	30x50	10	102
P6	15x30	10	102
P7	15x30	10	102
P8	30x50	0	92
P9	15x30	10	102
P10	15x50	-20	72
P11	15x50	-20	72
P12	15x50	-20	72
P13	15x50	-20	72
P14	15x50	-20	72
P15	15x50	-20	72
P16	15x50	-20	72
P17	15x50	-20	72
P18	15x50	-20	72
P19	15x50	-20	72
P22	15x30	10	102
P23	30x50	10	102
P24	15x30	10	102
P25	15x30	10	102
P26	30x50	10	102
P27	15x30	10	102

Legenda dos pilares
Pilar que morre
Pilar que passa

Legenda das vigas e paredes
Viga
Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.149.023/0001-12

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

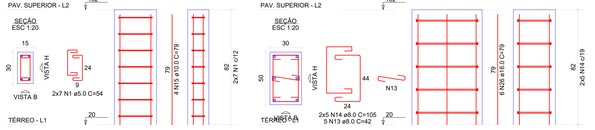
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	3OS_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	FORMAS SUPERIOR(5)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 10/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Brusque/sc x CEP 88353-140 | Fone: (47) 3451-5512 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (Gerdau)
SEI 25.0.08000018-8 | pg. 127
Impresso em 04/07/2025 14:44:46

P1=P3

PAV. SUPERIOR - L2

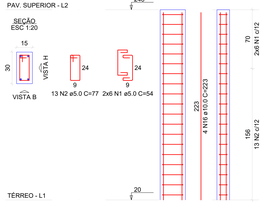


P2

PAV. SUPERIOR - L2

P4=P6

PAV. SUPERIOR - L2



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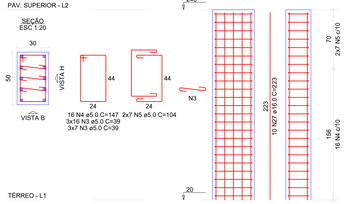

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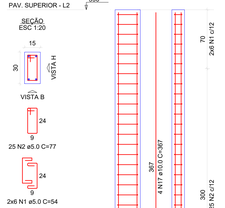

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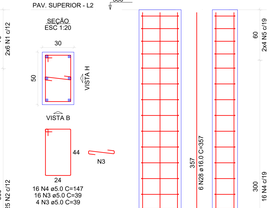

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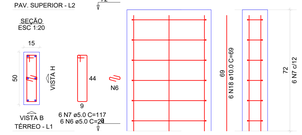

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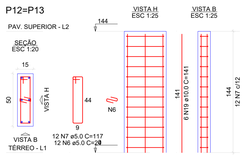

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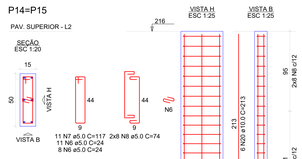

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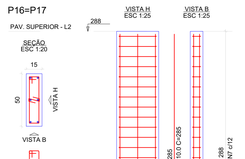

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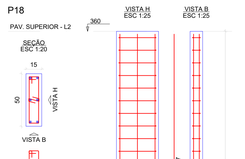

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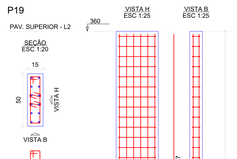

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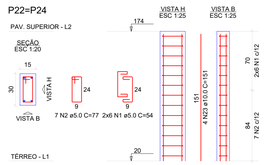

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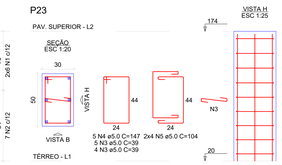

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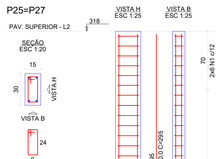

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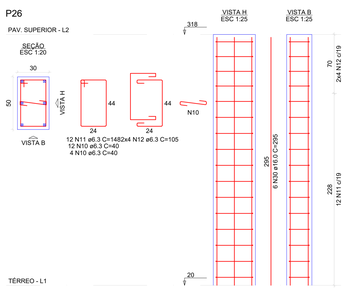


RELAÇÃO DO AÇO

2xP1, P2, 2xP4, P5, 2xP7, P8, 2xP10, 2xP12, P14, 2xP16, P18, P19, 2xP22, P23, 2xP25, P26

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	124	54	6696
	2	5.0	128	77	9856
	3	5.0	98	39	3822
	4	5.0	37	147	5439
	5	5.0	30	104	3120
	6	5.0	182	24	4368
	7	5.0	160	117	18720
	8	5.0	32	74	2368
	9	5.0	24	24	576
CA50	10	6.3	16	40	640
	11	6.3	12	148	1776
	12	6.3	8	105	840
	13	8.0	10	162	1620
	14	8.0	10	105	1050
	15	10.0	8	79	632
	16	10.0	8	223	1784
	17	10.0	8	367	2936
	18	10.0	12	69	828
	19	10.0	12	141	1692
	20	10.0	12	213	2556
	21	10.0	12	285	3420
	22	10.0	12	357	4284
	23	10.0	8	151	1208
	24	10.0	8	295	2360
	25	12.5	6	357	2142
	26	16.0	6	79	474
	27	16.0	10	223	2230
	28	16.0	6	357	2142
	29	16.0	6	151	906
	30	16.0	6	295	1770

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	32.6	8.8
	8.0	12.6	5.5
	10.0	217	147.2
	12.5	21.4	22.7
	16.0	75.2	130.6
CA60	5.0	549.6	93.2

PESO TOTAL (kg)	
CA50	314.7
CA60	93.2

Volume de concreto (C-35) = 4.32 m³
Área de forma = 66.34 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980903
MUNICIPIO DE JOINVILLE

RESPONSAVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

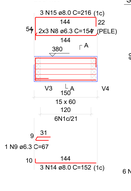
Municipio de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
CONTEÚDO	PILARES SUPERIOR
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 11/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.848.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brunerau | CEP 89015-140 | Fone: (47) 98413-8713 | e-mail: ibs.responsavel.tecnico desde projeto: ped@fercongroupbrs.com

Projeto Estrutura de Concreto Armado (PEA) - SEI 25.0.000003-8 | pg. 128

V1
ESC 1:50



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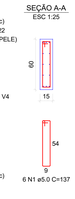

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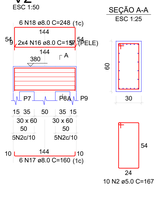
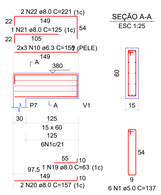


SEÇÃO A-A
ESC 1:25

V3
ESC 1:50



SEÇÃO A-A
ESC 1:25

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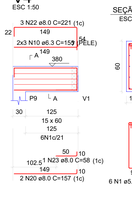
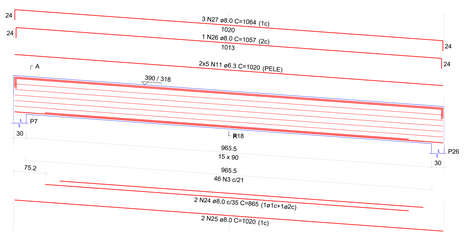
ESC 1:50



SEÇÃO A-A
ESC 1:25

V5
ESC 1:50



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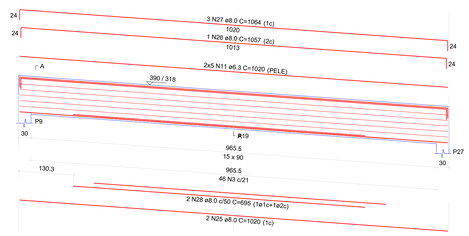
ESC 1:25

V6
ESC 1:50



SEÇÃO A-A
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V7
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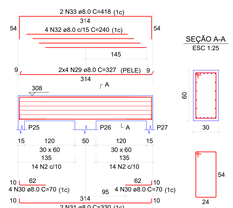

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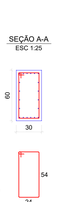

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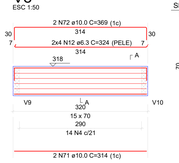

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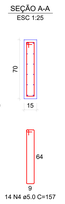

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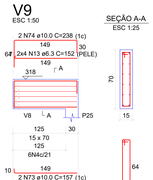

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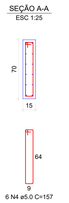

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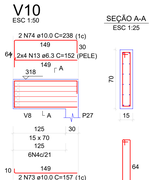

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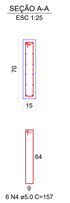

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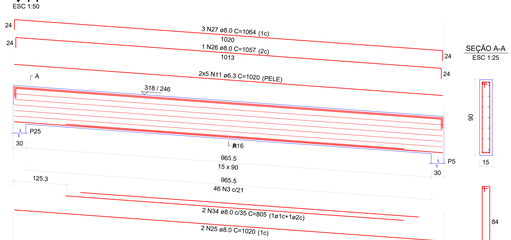
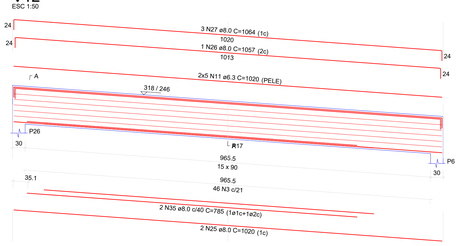


SEÇÃO A-A
ESC 1:25

V12
ESC 1:50



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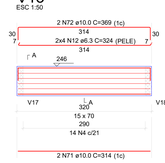
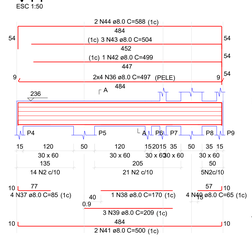
ESC 1:50

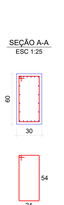


SEÇÃO A-A
ESC 1:25

V14
ESC 1:50



SEÇÃO A-A
ESC 1:25



RELAÇÃO DO AÇO

V1		V2		V3	
V4		V5		V6	
V7		V8		V9	
V10		V11		V12	
V13		V14		V15	
V16		V17		V18	
V19		V20		V21	
V22		V23		V24	
V25		V26		V27	
V28		V29		V30	
V31		V32			

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	24	137	3288
	2	5.0	121	167	20207
	3	5.0	414	197	81558
	4	5.0	124	157	19468
	5	5.0	7	117	819
	6	5.0	26	177	4602
	7	5.0	28	187	5236
CA50	8	6.3	12	154	1848
	9	6.3	2	67	134
	10	6.3	44	155	6820
	11	6.3	98	1020	99960
	12	6.3	32	324	10368
	13	6.3	32	152	4864
	14	8.0	6	152	912
	15	8.0	3	216	648
	16	8.0	8	157	1256
	17	8.0	6	249	1494
	18	8.0	1	144	144
	19	8.0	9	157	1413
	21	8.0	1	125	125
	22	8.0	5	221	1105
	23	8.0	1	58	58
	24	8.0	2	865	1730
	25	8.0	20	1020	20400
	26	8.0	9	1057	9513
	27	8.0	27	1064	28728
	28	8.0	2	695	1390
	29	8.0	18	327	5886
	30	8.0	8	70	560
	31	8.0	2	330	660
	32	8.0	4	240	960
	33	8.0	2	418	836
	34	8.0	2	805	1610
	35	8.0	2	785	1570
	36	8.0	8	497	3976
	37	8.0	6	85	680
	38	8.0	1	170	170
	39	8.0	3	209	627
	40	8.0	1	65	65
	41	8.0	2	500	1000
	42	8.0	1	499	499
	43	8.0	3	504	1512
	44	8.0	2	588	1176
	45	8.0	3	184	552
	46	8.0	3	204	612
	47	8.0	2	795	1590
	48	8.0	2	755	1510
	49	8.0	8	523	4184
	50	8.0	2	175	350
	51	8.0	2	215	430
	52	8.0	2	527	1054
	53	8.0	1	472	472
	54	8.0	1	477	477
	55	8.0	1	482	482
	56	8.0	1	487	487
	57	8.0	2	571	1142
	58	8.0	2	800	1600
	59	8.0	1	245	245
	60	8.0	3	314	942
	61	8.0	1	348	348
	62	8.0	3	354	1062
	63	8.0	1	64	64
	64	8.0	1	69	69
	65	8.0	1	141	141
	66	8.0	1	145	145
	67	8.0	5	241	1205
	68	8.0	1	154	154
	69	8.0	1	232	232
	70	8.0	2	895	1790
	71	10.0	6	314	1884
	72	10.0	6	369	2214
	73	10.0	12	157	1884
	74	10.0	12	238	2856
	75	10.0	2	1020	2040
	76	10.0	2	1075	2150
	77	10.0	4	85	340
	78	10.0	2	329	658
	79	10.0	2	235	470
	80	10.0	2	437	874

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1239.9	333.8
	8.0	1134.9	462.6
	10.0	153.7	104.2
CA60	5.0	1351.8	229.2
PESO TOTAL (kg)			
CA50			930.6
CA60			229.2

Volume de concreto (C-35) = 17.97 m³
Área de forma = 229.27 m²

V15
ESC 1:50

SEÇÃO A-A
ESC 1:25

V16
ESC 1:50

SEÇÃO A-A
ESC 1:25

V17
ESC 1:50

SEÇÃO A-A
ESC 1:25

V18
ESC 1:50

SEÇÃO A-A
ESC 1:25

V19
ESC 1:50

SEÇÃO A-A
ESC 1:25

V20
ESC 1:50

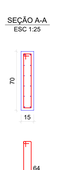
SEÇÃO A-A
ESC 1:25

V21
ESC 1:50

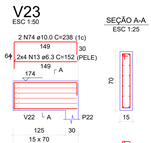
SEÇÃO A-A
ESC 1:25

V22
ESC 1:50

SEÇÃO A-A
ESC 1:25

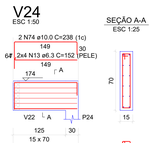


V23
ESC 1:50



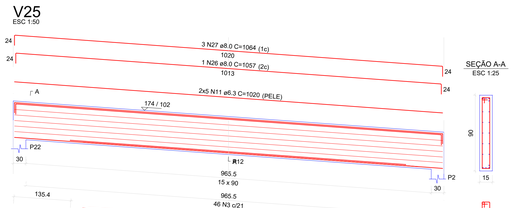
SEÇÃO A-A
ESC 1:25

V24
ESC 1:50

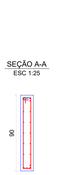


SEÇÃO A-A
ESC 1:25

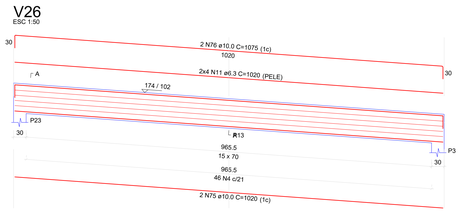
V25
ESC 1:50



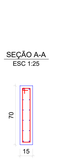
SEÇÃO A-A
ESC 1:25



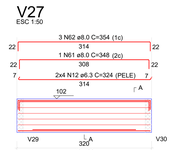
V26
ESC 1:50



SEÇÃO A-A
ESC 1:25

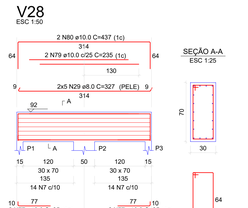


V27
ESC 1:50



SEÇÃO A-A
ESC 1:25

V28
ESC 1:50



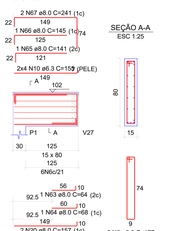
SEÇÃO A-A
ESC 1:25

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	1239.9	333.8
	8.0	1134.9	462.6
	10.0	153.7	104.2
CA60	5.0	1351.8	229.2
PESO TOTAL (kg)			
CA50			930.6
CA60			229.2

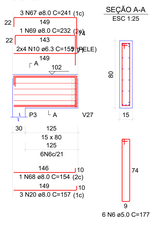
Volume de concreto (C-35) = 17.97 m³
Área de forma = 229.27 m²

V29
ESC 1:50

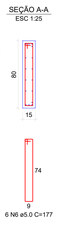


SEÇÃO A-A
ESC 1:25

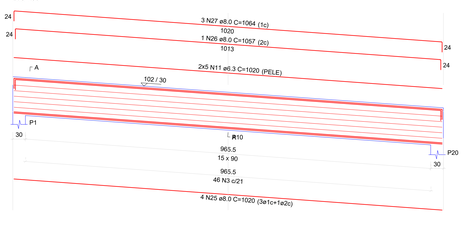
V30
ESC 1:50



SEÇÃO A-A
ESC 1:25

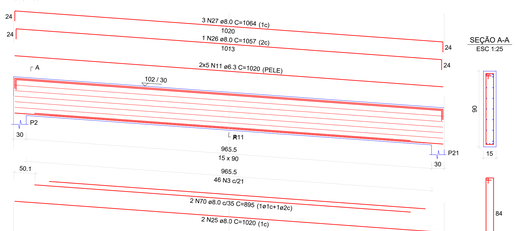


V31
ESC 1:50

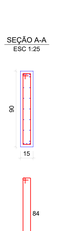


SEÇÃO A-A
ESC 1:25

V32
ESC 1:50



SEÇÃO A-A
ESC 1:25



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.199.623/0001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

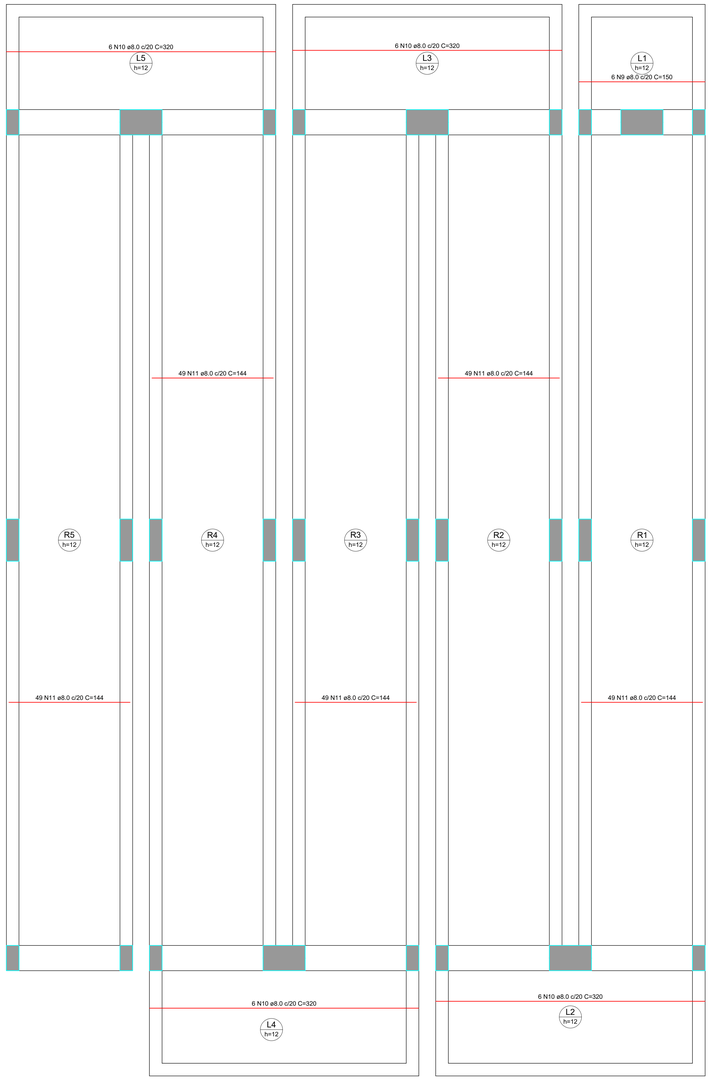
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
CONTEÚDO	VIGAS SUPERIOR
ARQUIVO	30E_SED_ROS_EKA_EK.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 12/17

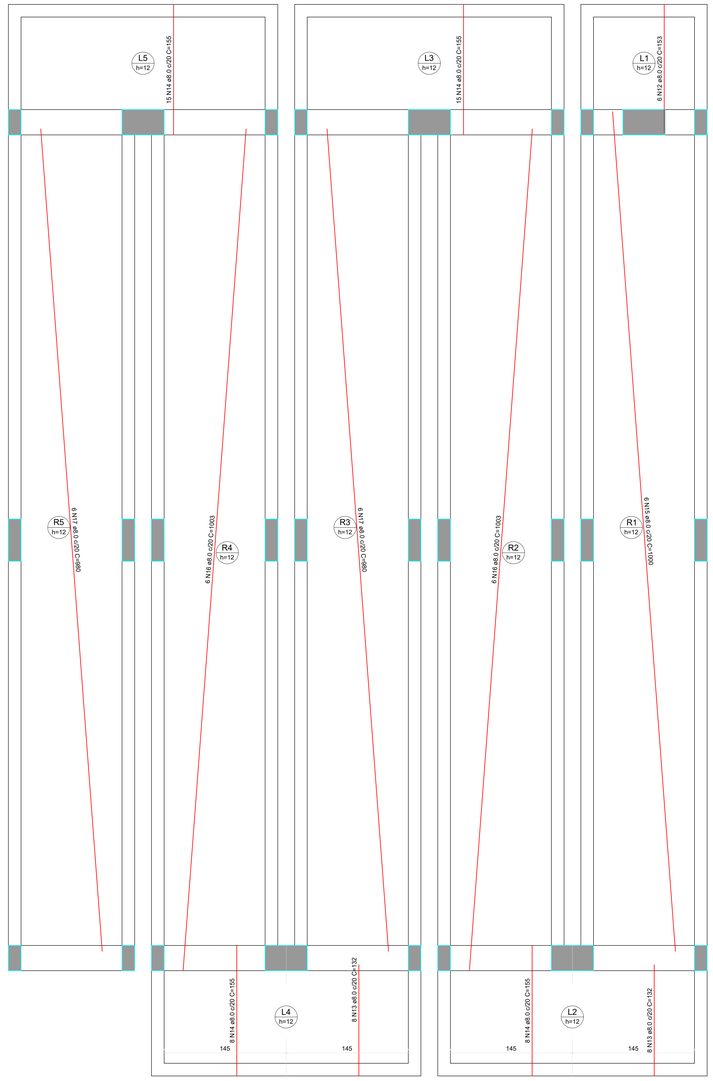
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.068.721/0001-98
Rua Presidente Getúlio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3611-8611 | e-mail do responsável técnico deste projeto: pedi@fercongroup.com

Projeto Estrutura de Concreto Armado (26/07/2025)



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

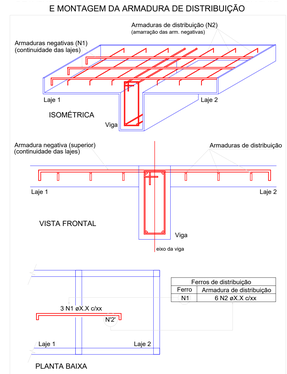
Escala 1:25



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:25

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE
E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 aX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armaduras de distribuição	
Armadura	Armadura de distribuição
N4	37 N1 ø5.0 c/20 C=135
N5	37 N1 ø5.0 c/20 C=135
N6	2 N2 ø5.0 c/20 C=305
N7	37 N1 ø5.0 c/20 C=135
N6	2 N2 ø5.0 c/20 C=305
N5	37 N1 ø5.0 c/20 C=135
N6	2 N2 ø5.0 c/20 C=305
N18	10 N3 ø5.0 c/20 C=68
N19	5 N3 ø5.0 c/20 C=68
N8	7 N1 ø5.0 c/20 C=135

RELAÇÃO DO AÇO

Negativos Y Positivos X Positivos Y

AÇO	N.	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	155	135	20925
	2	5.0	6	305	1830
	3	5.0	15	68	1020
	4	6.3	9	795	7155
	5	6.3	10	783	14490
	6	6.3	60	133	7980
	7	6.3	9	785	7065
	8	6.3	9	188	1692
	9	8.0	6	150	900
	10	8.0	24	320	7680
	11	8.0	245	144	35280
	12	8.0	6	153	918
	13	8.0	16	132	2112
	14	8.0	46	155	7130
	15	8.0	6	1000	6000
	16	8.0	12	1003	12036
	17	8.0	12	980	11760
	18	10.0	3	238	714
	19	10.0	3	139	417

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	355.9	95.8
	8.0	838.2	363.8
	10.0	11.3	7.7
CA60	5.0	237.8	40.3
PESO TOTAL (kg)			
CA50	467.3		
CA60	40.3		

Volume de concreto (C-35) = 8.59 m³
Área de forma = 71.62 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

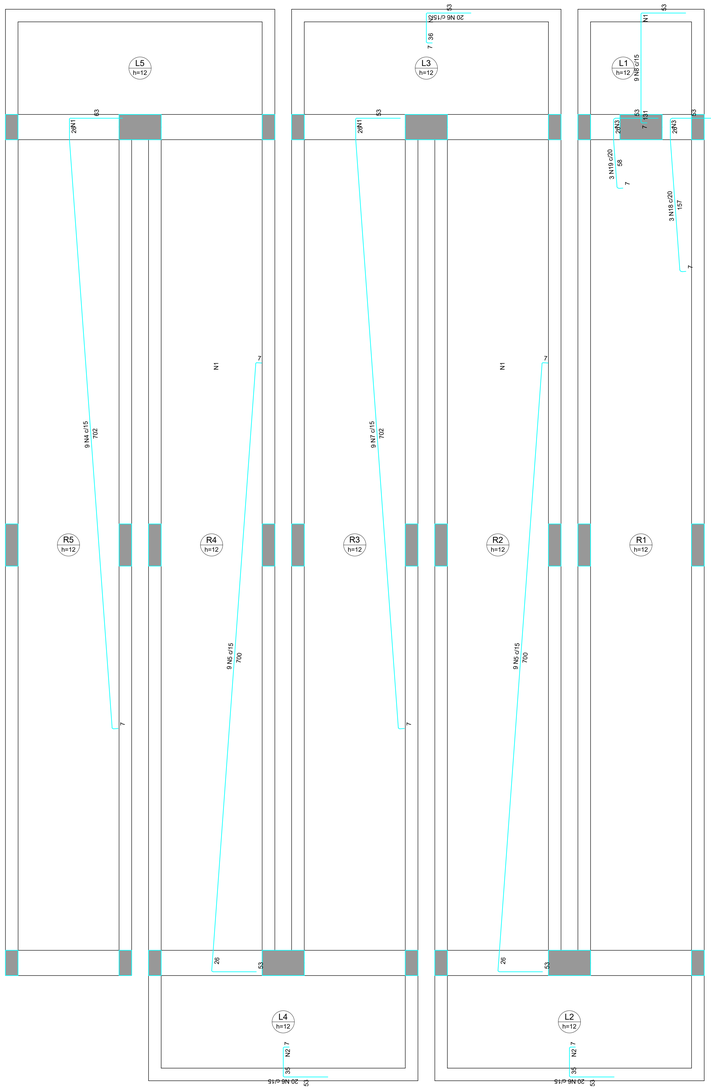
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LAJES RAMPA(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 13/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone: (47) 9611-9511 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (54%)
SEI 25.0.2000003-8 | pg. 130
Criado por 08714496



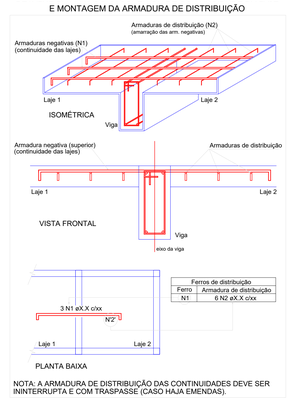
ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:25

DETALHAMENTO DE PUNÇÃO E CISALHAMENTO DAS LAJES DO PAVIMENTO PAV. SUPERIOR (NÍVEL 92)

Escala 1:25

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE
E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 aX,X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

Armaduras de distribuição	
Armadura	Armadura de distribuição
N4	37 N1 a5.0 c/20 C=135
N5	37 N1 a5.0 c/20 C=135
N6	2 N2 a5.0 c/20 C=305
N7	37 N1 a5.0 c/20 C=135
N6	2 N2 a5.0 c/20 C=305
N5	37 N1 a5.0 c/20 C=135
N6	2 N2 a5.0 c/20 C=305
N18	10 N3 a5.0 c/20 C=68
N19	5 N3 a5.0 c/20 C=68
N8	7 N1 a5.0 c/20 C=135

RELAÇÃO DO AÇO

Negativos Y Positivos X Positivos Y

AÇO	N.	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	155	135	20925
	2	5.0	6	305	1830
	3	5.0	15	68	1020
	4	6.3	9	795	7155
	5	6.3	19	783	14877
	6	6.3	60	83	4980
	7	6.3	9	785	7065
	8	6.3	9	188	1692
	9	8.0	6	150	900
	10	8.0	24	320	7680
	11	8.0	245	144	35280
	12	8.0	6	153	918
	13	8.0	16	132	2112
	14	8.0	46	155	7130
	15	8.0	6	1000	6000
	16	8.0	12	1003	12036
	17	8.0	12	980	11760
	18	10.0	3	238	714
	19	10.0	3	139	417

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	355.9	95.8
	8.0	838.2	363.8
	10.0	11.3	7.7
CA60	5.0	237.8	40.3

PESO TOTAL (kg)	
CA50	467.3
CA60	40.3

Volume de concreto (C-35) = 8.59 m³
Área de forma = 71.62 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
82.168.623/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

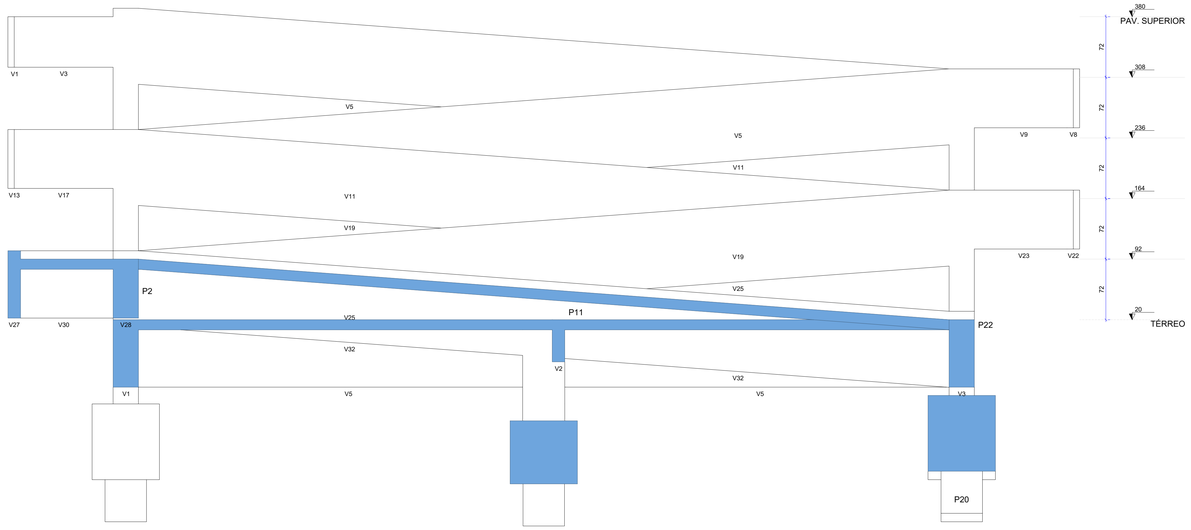
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LAJES RAMPA(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 14/17

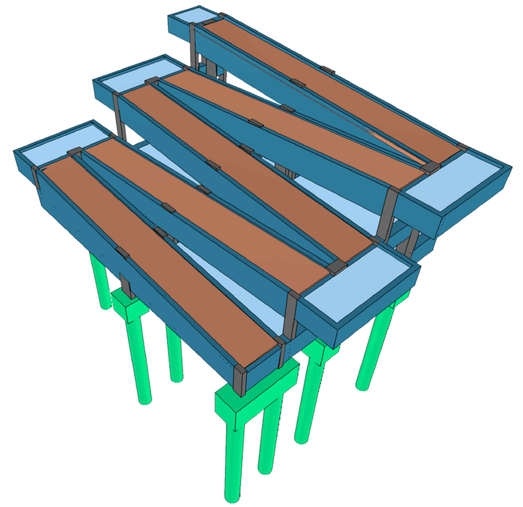
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone (47) 9611-8511 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

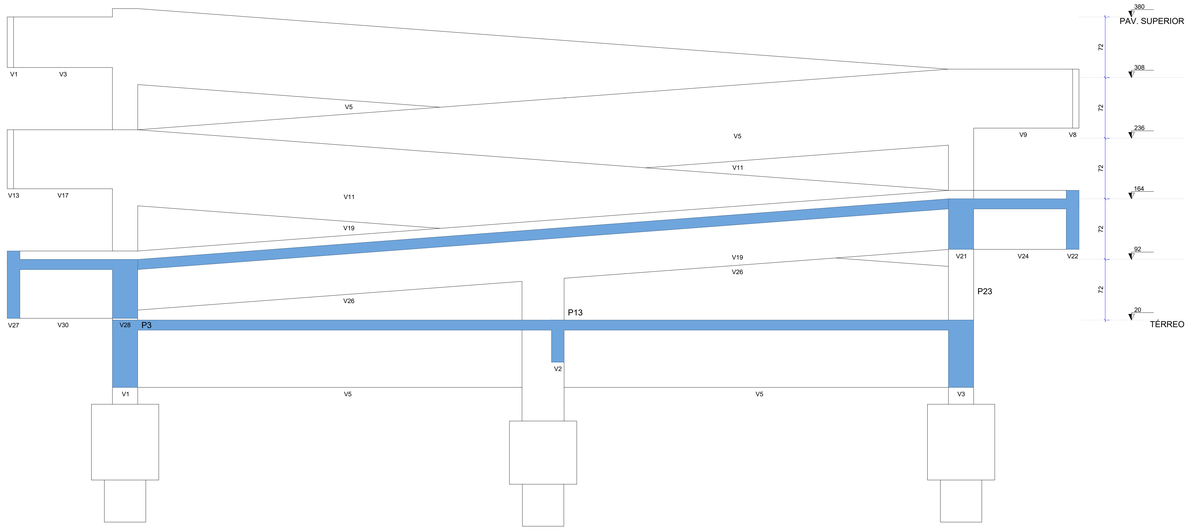
Projeto Estrutura de Concreto Armado (04/1446) SEI 25.0.2000003-8 | pg. 131



CORTE A-A

Escala 1:25





CORTE B-B

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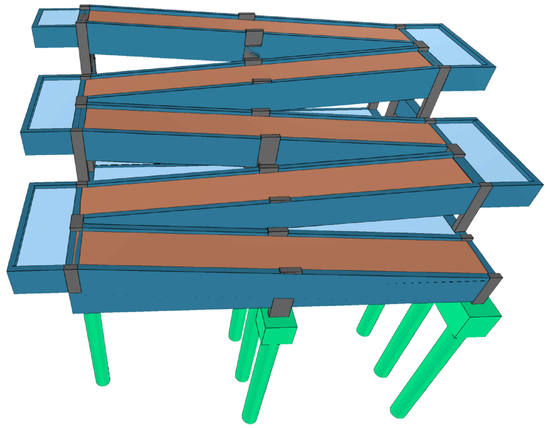


PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
01.199.622/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

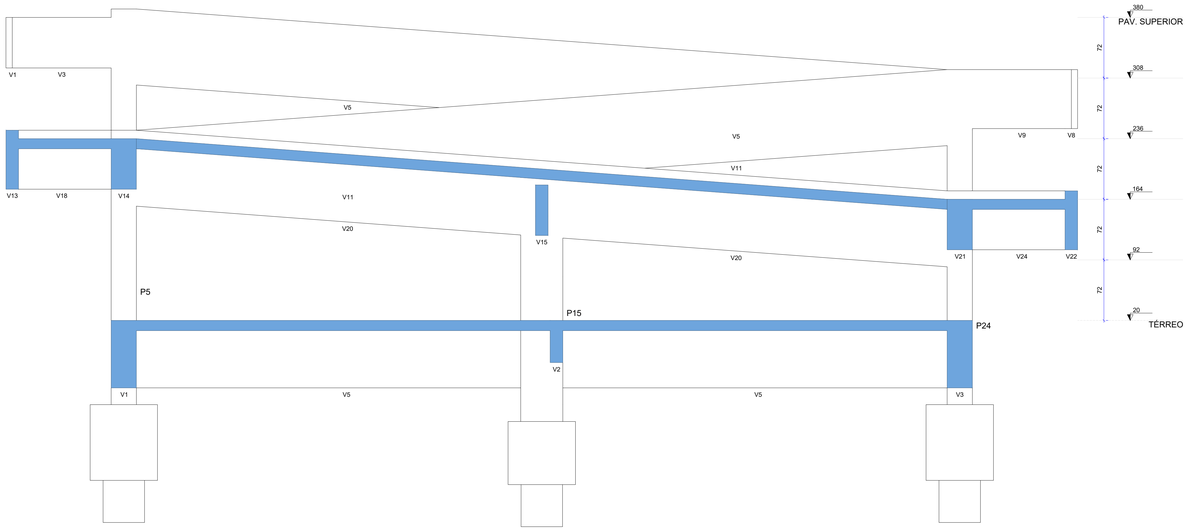
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	3OE_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D(1)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 15/17

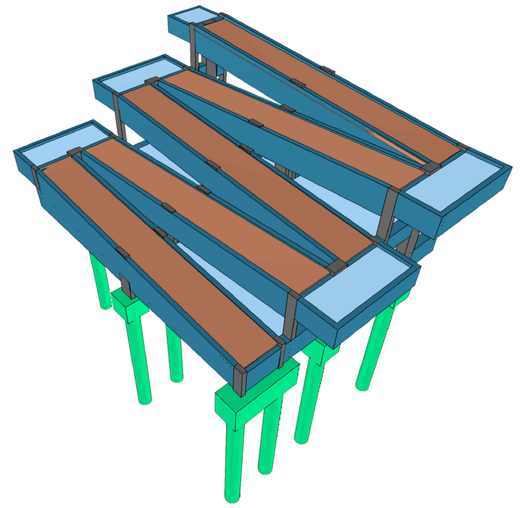
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 9611-8511 | e-mail do responsável técnico deste projeto: jean@fercongroupbsa.com

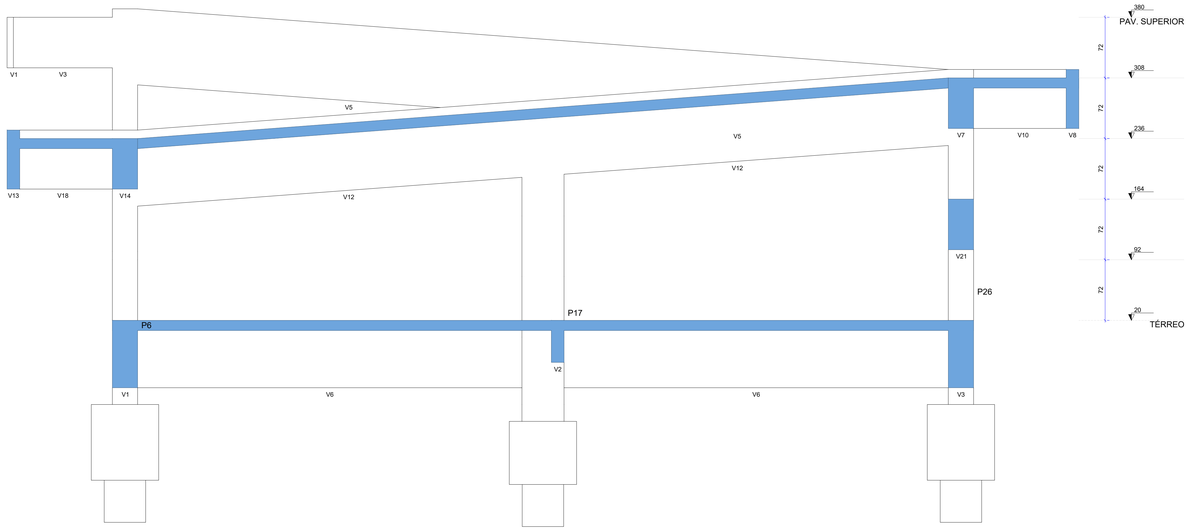
Projeto Estrutura de Concreto Armado (25x50) - SEI 25.0.000003-8 / pg. 132
Impresso em 01/07/2025 14:44:46



CORTE C-C

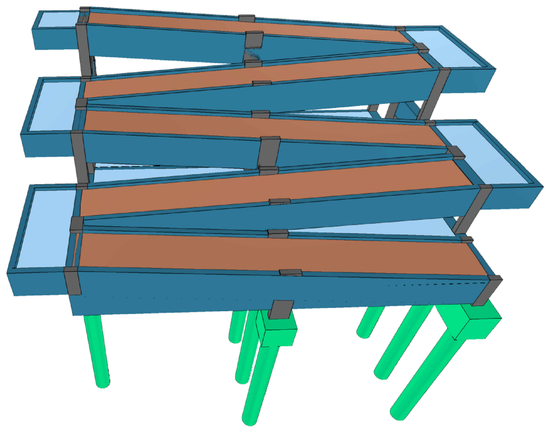
Escala 1:25





CORTE D-D

Escala 1:25



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
01.199.622/0001-72

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

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CREA/SC 062522-0

FERCON

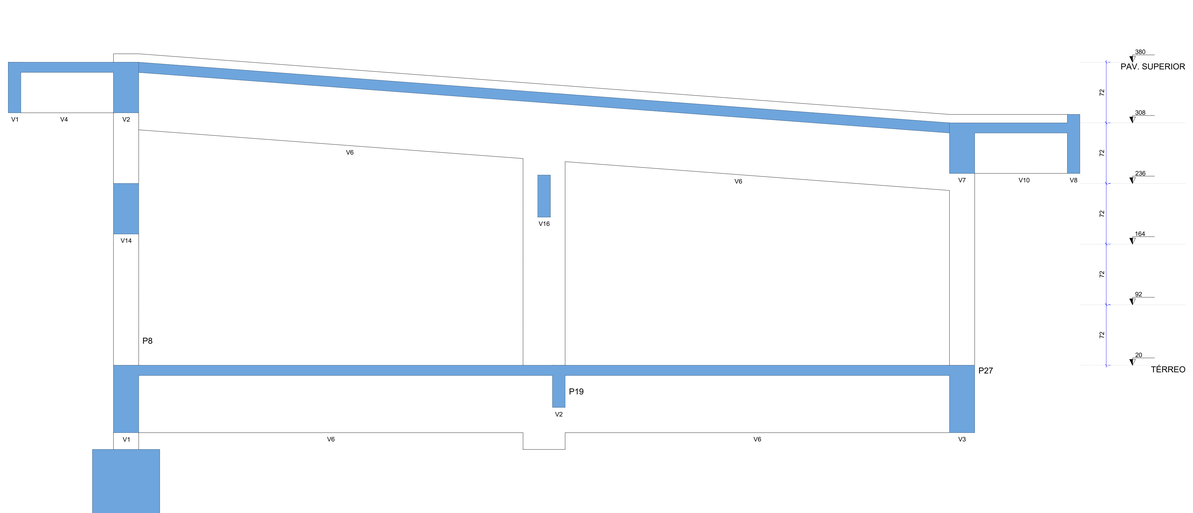
Município de Joinville

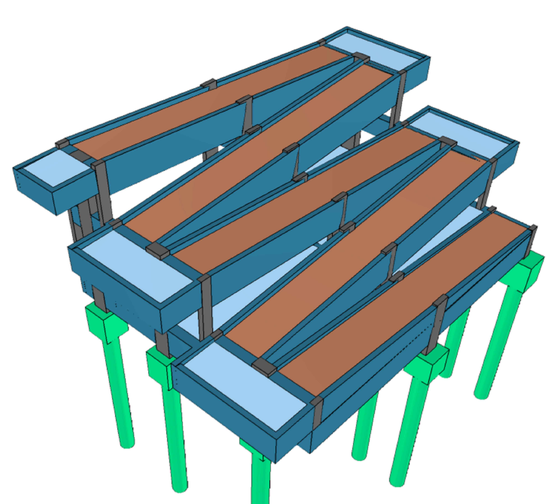
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D(2)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 16/17

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau - | CEP 89013-140 | Fone: (47) 9671-8711 | e-mail do responsável técnico deste projeto: jean@fercongroupbsa.com

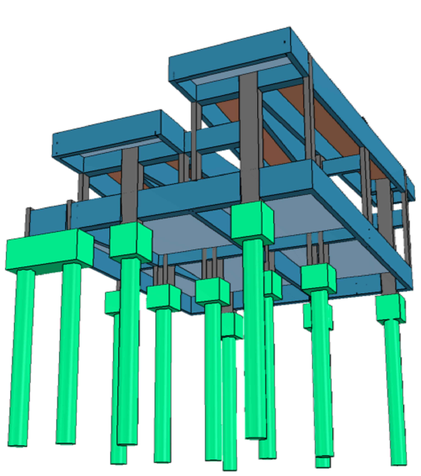
Projeto Estrutura de Concreto Armado (25-0713446)
SEI 25.0.2000003-8 / pg. 133

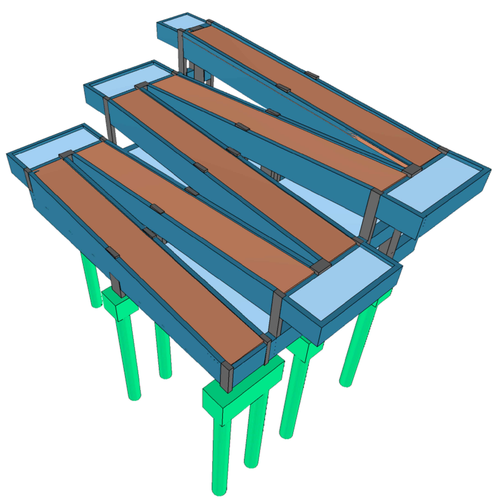


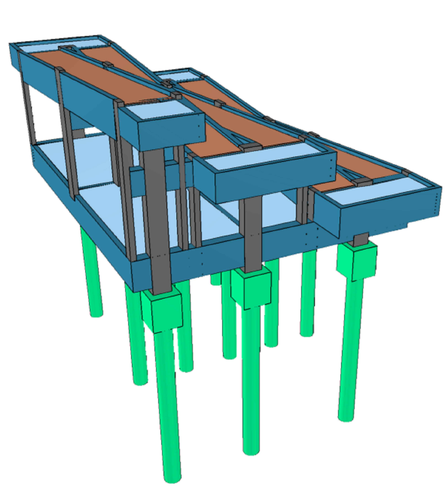


CORTE E-E

Escala 1:25







PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICIPIO DE JOINVILLE
61.199.023/0001-10

RESPONSÁVEL TÉCNICO

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ENGº CIVIL FERNANDO STROISCH
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FERCON

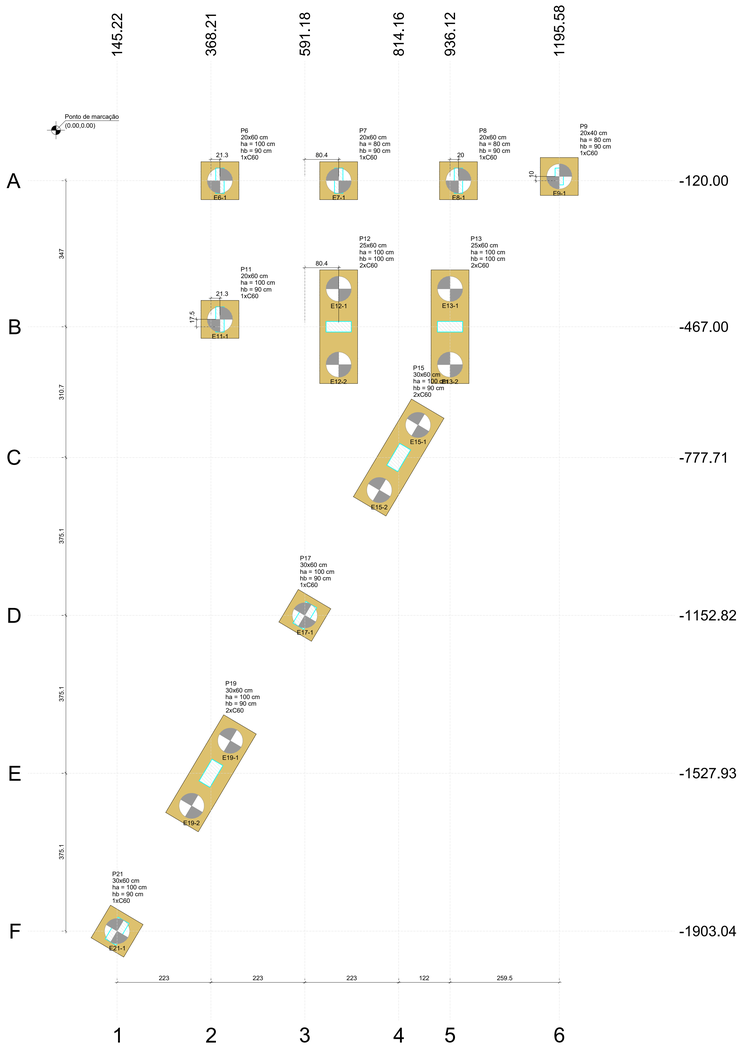
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	RAMPA
ARQUIVO	JOC_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D(3)
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 17/17

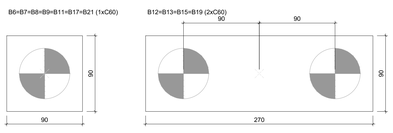
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.698.721/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 98413-8113 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (26474456)
SEI 25.0.000093-8 / pg. 134



PLANTA DE LOCAÇÃO DAS ESTACAS

Escala 1:50



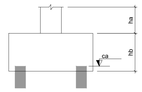
LEGENDA DOS BLOCOS

Escala 1:25

Pilar														Fundação				Bloco				
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx Máximo (kgf.m)		My Máximo (kgf.m)		Fx Máximo (tf)		Fy Máximo (tf)		Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	ne	Estaca	ca (cm)	Base tub. (cm)
						Positivo	Negativo	Positivo	Negativo	Positivo	Negativo	Positivo	Negativo								
P6	20x60	389.48	-120.00	37.2	27.4	0	0	0	0	0.6	0.0	0.0	-4.0	90	90	100	90	1	C60	-155	-
P7	20x60	671.55	-120.00	37.2	12.3	0	0	0	0	0.5	0.0	0.8	-2.2	90	90	80	90	1	C60	-135	-
P8	20x60	956.12	-120.00	37.3	16.6	0	0	0	0	0.8	0.0	0.5	-2.3	90	90	80	90	1	C60	-135	-
P9	20x40	1195.58	-110.00	32.1	16.0	0	0	0	0	0.0	-0.3	4.0	0.0	90	90	80	90	1	C60	-135	-
P11	20x60	389.48	-449.50	12.9	7.2	0	0	0	0	0.5	0.0	0.0	-2.7	90	90	100	90	1	C60	-155	-
P12	25x60	671.55	-467.00	12.0	0.8	0	0	0	0	7.8	0.0	0.1	-1.9	270	90	100	100	2	C60	-165	-
P13	25x60	936.12	-467.00	60.1	43.0	0	0	0	0	0.0	-5.4	1.4	-0.3	270	90	100	100	2	C60	-165	-
P15	30x60	814.16	-777.71	6.6	6.4	0	0	0	0	0.1	-0.4	1.9	0.0	270	90	100	90	2	C60	-175	-
P17	30x60	591.18	-1152.82	8.8	8.7	0	0	0	0	0.0	-1.7	1.8	0.0	90	90	100	90	1	C60	-175	-
P19	30x60	368.21	-1527.93	9.2	9.2	0	0	0	0	0.0	-1.9	0.9	0.0	270	90	100	90	2	C60	-175	-
P21	30x60	145.22	-1903.04	7.9	7.8	0	0	0	0	0.0	-0.3	0.0	-0.5	90	90	100	90	1	C60	-175	-

Os esforços indicados nesta tabela são os valores máximos obtidos pela envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Estacas			
Simbologia	Nome	⌀ (cm)	Quantidade
	C60	60.00	15



Locação no eixo X	
Coordenadas (cm)	Nome
145.22	P21
368.21	P19
389.48	P6, P11
591.18	P17
671.55	P7, P12
814.16	P15
936.12	P13
956.12	P8
1195.58	P9

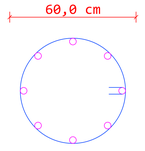
Locação no eixo Y	
Coordenadas (cm)	Nome
-110.00	P9
-120.00	P6, P7, P8
-449.50	P11
-467.00	P12, P13
-777.71	P15
-1152.82	P17
-1527.93	P19
-1903.04	P21

LOCAÇÃO DAS ESTACAS											
Bloco	Nome	Tipo	Coordenada X (cm)	Coordenada Y (cm)	Carga máx. tf	Carga mín. tf	Momento máx. kgf.m	Momento mín. kgf.m	Força horiz. máx. tf	Força horiz. mín. tf	CA (cm)
B6	E6-1	C60	389.48	-120.00	38.88	29.06	2218.26	1811.45	3.89	3.18	-155
B7	E7-1	C60	671.55	-120.00	38.85	13.97	1262.19	330.57	2.21	0.58	-135
B8	E8-1	C60	956.12	-120.00	38.93	18.22	1333.81	362.97	2.34	0.64	-135
B9	E9-1	C60	1195.58	-110.00	33.78	17.66	2491.83	2417.25	3.95	3.84	-135
B11	E11-1	C60	389.48	-449.50	14.52	8.89	1488.77	667.22	2.61	1.17	-155
B12	E12-1	C60	671.55	-377.00	8.21	3.33	2584.94	1965.07	3.97	2.93	-165
	E12-2		671.55	-557.00	9.60	3.29	2584.94	1965.07	3.97	2.93	
B13	E13-1	C60	936.12	-377.00	32.83	24.87	1822.51	1358.38	2.72	2.13	-165
	E13-2		936.12	-557.00	33.05	23.91	1822.51	1358.38	2.72	2.13	
B15	E15-1	C60	860.11	-700.33	6.37	6.20	278.15	240.23	0.93	0.71	-175
	E15-2		764.21	-855.10	5.53	5.33	278.15	240.23	0.93	0.71	
B17	E17-1	C60	591.18	-1152.82	10.43	10.38	1232.61	1158.05	2.16	2.03	-175
B19	E19-1	C60	414.16	-1450.55	7.16	6.98	528.47	527.61	0.98	0.93	-175
	E19-2		322.26	-1655.32	7.38	7.25	528.47	527.61	0.98	0.93	
B21	E21-1	C60	145.22	-1903.04	9.59	9.46	230.02	39.35	0.40	0.07	-175

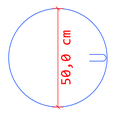
QUADRO DE ESTACAS

Estaca moldada in loco do tipo hélice
Quantidade: 1 estaca(s)
fck: 40 MPa
Diâmetro da estaca: 60 cm
Cobrimento de concreto: 5 cm
Comprimento da estaca: 1700 cm

Seção



Estribos



242 N2 Ø 6,3
c/7 C=167,08

Armadura longitudinal

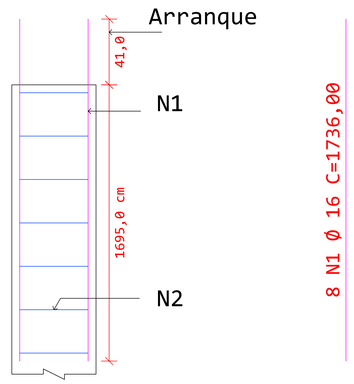


TABELA DE AÇO				
Pos.	⌀ (mm)	Quant.	Compr. Uni. (cm)	Compr. Total (cm)
N1	16	8	1736,00	13888,00
N2	6,3	242	167,08	40433,27
RESUMO DO AÇO				
Aço	⌀ (mm)	Compr. (m)	Peso (kg)	Barras (12 m)
CA50	16	138,88	219,15	12
CA50	6,3	404,33	99,06	34
Peso total do aço =				318,21 kg
Volume total de concreto =				4,81 m³

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES			
REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO: ADEMAR STRINGARI JUNIOR:07414980901 — MUNICÍPIO DE JOINVILLE 82.168.629/0001-10

RESPONSÁVEL TÉCNICO: FERNANDO STROISCH:84134918920 — ENGº CIVIL FERNANDO STROISCH CREA/SC 082522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	LOCAÇÃO - ESTACAS

ARQUIVO: JOE_SED_ROS_EXA_EX.DWG | DATA: 02/07/2025
FORM.: EXECUTIVO | ESCALA: INDICADA
EST 01/12

FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.668.731/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8571 | e-mail do responsável técnico deste projeto: joel@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2023)
SEI 25.0.2000003-8 | pg. 135

Ponto de marcação
(0.00,0.00)

MURO EXISTENTE

P1(NASCE) P2(NASCE) V1 V1 P3(NASCE) P4(NASCE)

P4(NASCE)

P4(NASCE)

P4(NASCE)
P5(NASCE)

P5(NASCE)
P6(NASCE)

P6(NASCE)
P7(NASCE)

P7(NASCE)
P8(NASCE)

P8(NASCE)
P9(NASCE)

P9(NASCE)
P10(NASCE)

P10(NASCE)
P11(NASCE)

P11(NASCE)
P12(NASCE)

P12(NASCE)

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
01.199.622/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

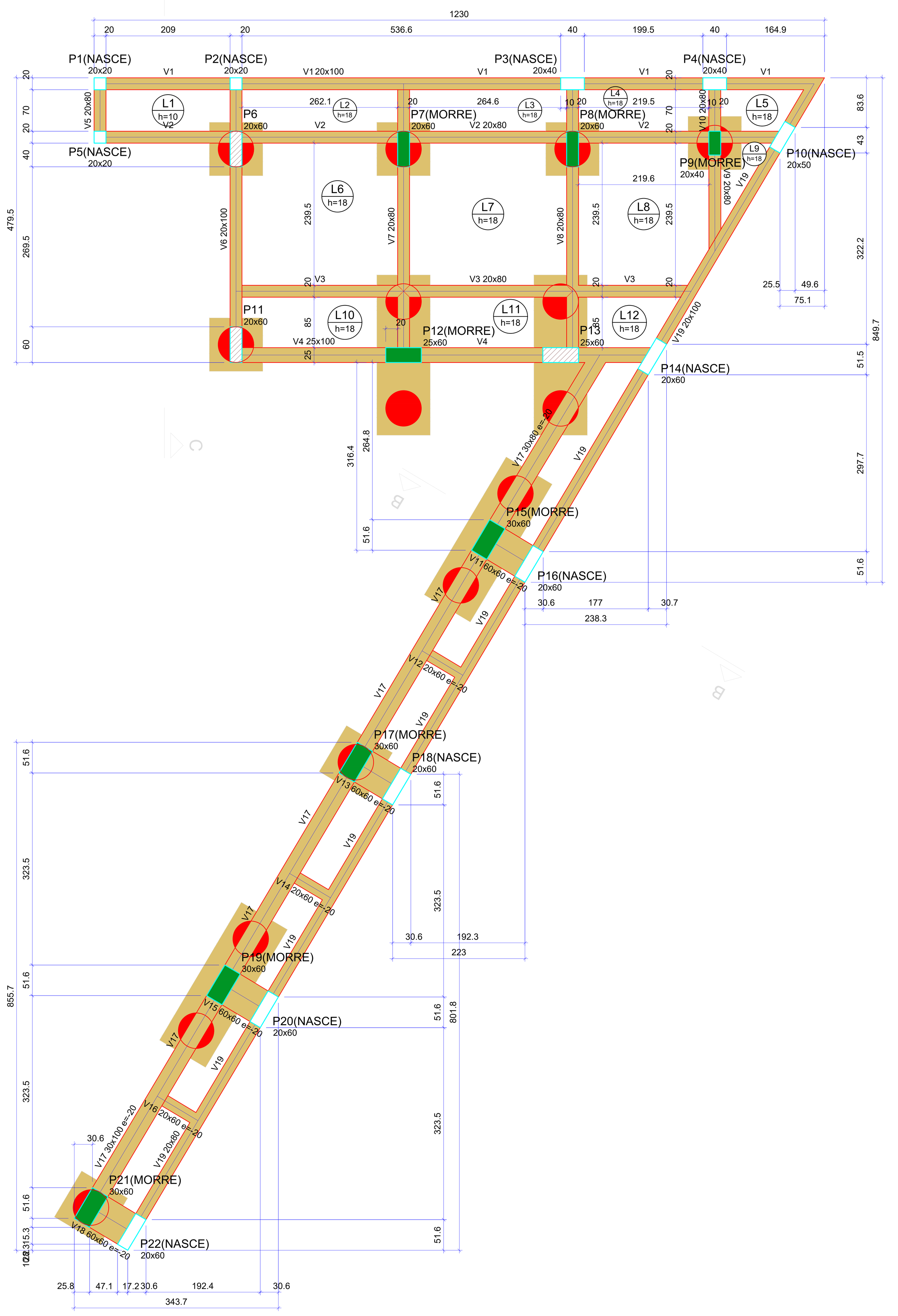
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
ARQUIVO	XX_SEG_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	PONTO DE MARCAÇÃO - EIXOS
ETAPA	EXECUTIVO
FOLHA	EST 02/12
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.727/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 | Centro - Blumenau | CEP 89010-140 | Fone: (47) 3411-8571 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (10447449)
SEI 25.0.2000003-8 / pg. 136



FORMA DO PAVIMENTO TÉRREO (NÍVEL 20)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x100	0	20
V2	20x80	0	20
V3	20x80	0	20
V4	25x100	0	20
V5	20x80	0	20
V6	20x100	0	20
V7	20x80	0	20
V8	20x80	0	20
V9	20x80	0	20
V10	20x80	0	20
V11	60x60	-20	0
V12	20x60	-20	0
V13	60x60	-20	0
V14	20x60	-20	0
V15	60x60	-20	0
V16	20x60	-20	0
V17	30x100	-20	0
	30x80	-20	0
V18	60x60	-20	0
V19	20x80	0	20
	20x100	0	20

Lajes									
	Dados					Sobrecarga (kgf/m²)			
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada	Água
L1	Maciça	10	0	20	250	100	50	-	0
L2	Maciça	18	0	20	450	80	100	-	2600
L3	Maciça	18	0	20	450	80	100	-	2600
L4	Maciça	18	0	20	450	80	100	-	2600
L5	Maciça	18	0	20	450	80	100	-	2600
L6	Maciça	18	0	20	450	80	100	-	2600
L7	Maciça	18	0	20	450	80	100	-	2600
L8	Maciça	18	0	20	450	80	100	-	2600
L9	Maciça	18	0	20	450	80	100	-	2600
L10	Maciça	18	0	20	450	80	100	-	2600
L11	Maciça	18	0	20	450	80	100	-	2600
L12	Maciça	18	0	20	450	80	100	-	2600

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x20	0	20
P2	20x20	0	20
P3	20x40	0	20
P4	20x40	0	20
P5	20x20	0	20
P6	20x60	0	20
P7	20x60	0	20
P8	20x60	0	20
P9	20x40	0	20
P10	20x50	-20	0
P11	20x60	0	20
P12	25x60	0	20
P13	25x60	0	20
P14	20x60	-20	0
P15	30x60	-20	0
P16	20x60	0	20
P17	30x60	-20	0
P18	20x60	0	20
P19	30x60	-20	0
P20	20x60	0	20
P21	30x60	-20	0
P22	20x60	0	20

Legenda dos pilares	
■	Pilar que morre
▨	Pilar que passa
□	Pilar que nasce

Legenda das vigas e paredes	
▭	Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO ADEMAR STRINGARI JUNIOR:07414980901

Assinado digitalmente por ADEMAR STRINGARI JUNIOR:07414980901 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=34979098000192, OU=AC SyngularID Multipla, CN=ADEMAR STRINGARI JUNIOR:07414980901 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.28 11:35:48-03'00' Foxit PDF Reader Versão: 2023.3.0

MUNICÍPIO DE JOINVILLE
83.169.623/0001-10

RESPONSÁVEL TÉCNICO FERNANDO STROISCH:84134518920

Assinado digitalmente por FERNANDO STROISCH:84134518920 ND: C=BR, O=ICP-Brasil, OU=Certificado Digital PF A1, OU=Videoconferencia, OU=43877003000110, OU=AC SyngularID Multipla, CN=FERNANDO STROISCH:84134518920 Razão: motivo da sua assinatura aqui Localização: sua localização de assinatura aqui Data: 2025.08.26 08:55:09-03'00' Foxit PDF Editor Versão: 13.1.7

ENGº CIVIL. FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO: MUNICÍPIO DE JOINVILLE

EDIFICAÇÃO: E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA

ENDEREÇO: RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA

PROJETO: CASA DE BOMBAS

ARQUIVO: JOI_SED_ROS_EXA_EX.DWG

DATA: 02/07/2025

CONTEÚDO: FÔRMAS - TÉRREO

ETAPA: EXECUTIVO

ESCALA: INDICADA

FOLHA: **EST 03/12**

FERCON ENGENHARIA | CREA n° 062522-0 | CNPJ 04.666.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 9611-8011 | e-mail do responsável técnico deste projeto: jean@ferconprojetos.com

Projeto Estrutura de Concreto Armado (26474460) SEI 25.0.200003-8 / pg. 137

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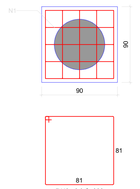
ESC 1:25



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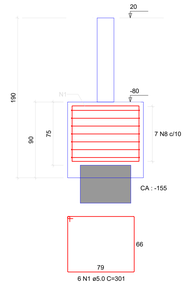

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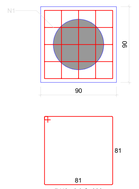

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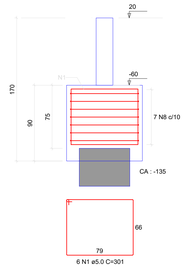

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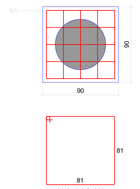

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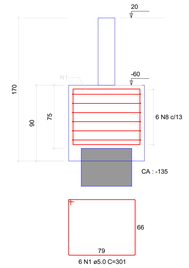

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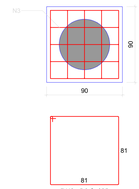

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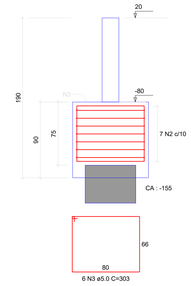

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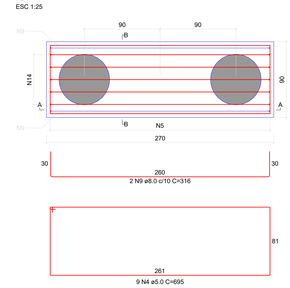

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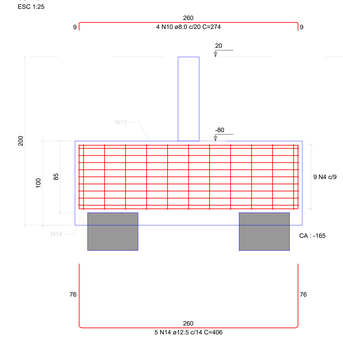

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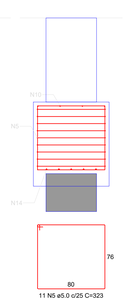

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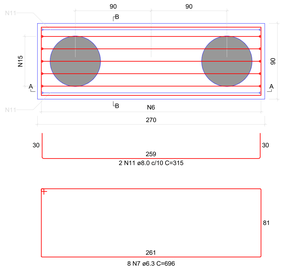
ESC 1:25



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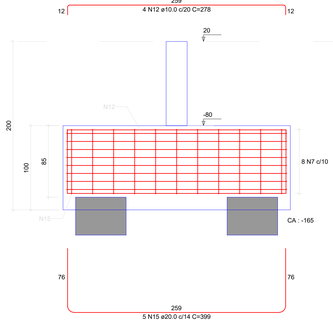
ESC 1:25



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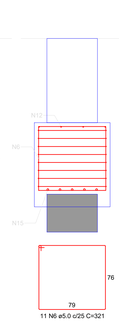

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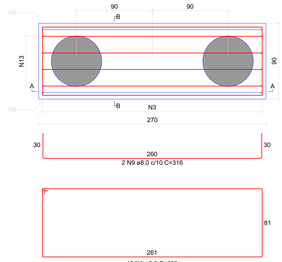
ESC 1:25



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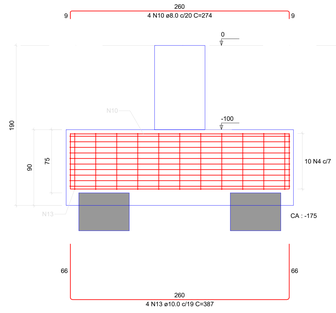

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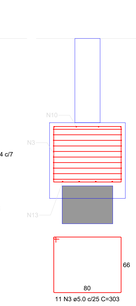

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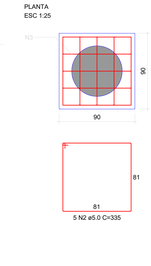
PLANTA
ESC 1:25



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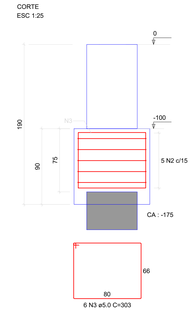

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CORTE A-A
ESC 1:25

CORTE B-B
ESC 1:25

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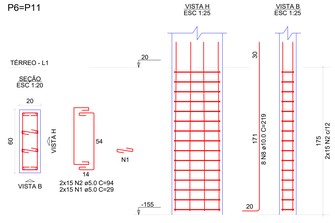

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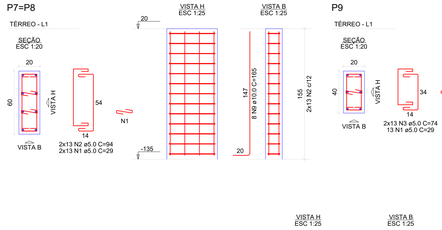

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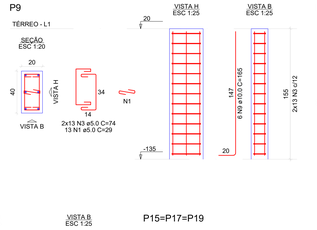

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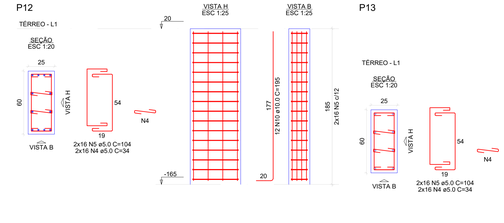

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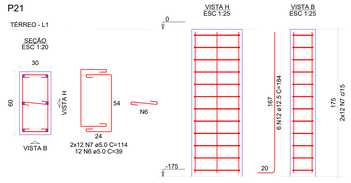

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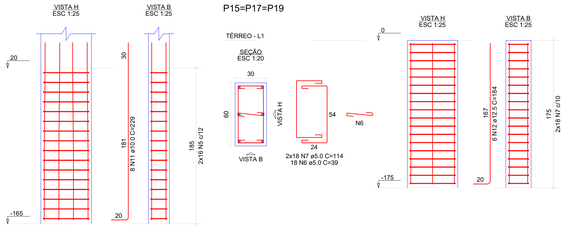


RELAÇÃO DO AÇO

B6
B11
B15

2xB8
B12
B19

B9
B13
2xB21

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	24	301	7224
	2	5.0	17	335	5695
	3	5.0	40	303	12120
	4	5.0	29	695	20155
	5	5.0	6	695	4170
	6	5.0	11	321	3531
CA50	7	6.3	8	696	5568
	8	8.0	27	336	9072
	9	8.0	6	316	1896
	10	8.0	12	274	3288
	11	8.0	2	315	630
	12	10.0	4	278	1112
	13	10.0	9	387	3483
	14	12.5	5	406	2030
	15	20.0	5	399	1995

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	55.7	13.6
	8.0	148.9	58.7
	10.0	46	28.3
	12.5	32	19.6
	20.0	19.9	49.2
CA60	5.0	522.8	80.6
PESO TOTAL (kg)			
CA50	169.4		
CA60	80.6		

Volume de concreto (C-35) = 13.70 m³
Área de forma = 50.04 m²

RELAÇÃO DO AÇO

2xP6
P12
P21

2xP7
P13

P9
3xP15

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	125	29	3625
	2	5.0	112	94	10528
	3	5.0	26	74	1924
	4	5.0	64	34	2170
	5	5.0	64	104	6656
	6	5.0	66	39	2574
CA50	7	5.0	132	114	15048
	8	10.0	30	219	6570
	9	10.0	17	209	3554
	10	10.0	12	195	2340
	11	10.0	8	229	1832
	12	12.5	24	184	4416

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	10.0	113.1	69.7
	12.5	44.2	42.5
CA60	5.0	425.3	65.6
PESO TOTAL (kg)			
CA50	112.2		
CA60	65.6		

Volume de concreto (C-35) = 1.52 m³
Área de forma = 17.32 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
ID 169.623/001-10

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

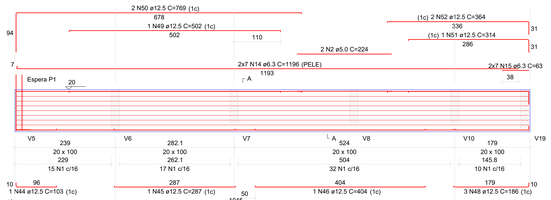
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
ARQUIVO	JOE_SED_ROS_EKA_EK.DWG
DATA	02/07/2025
CONTEÚDO	BLOCOS - PILARES ARRANQUE
ETAPA	EXECUTIVO
FOLHA	EST 04/12
ESCALA	INDICADA

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.668.721/0001-98
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3411-8011 | e-mail do responsável técnico deste projeto: prof@fercongroup.com

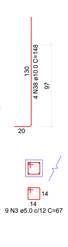
Projeto Estrutura de Concreto Armado (ID 647144)
SEI 25.0.000003-8 | pg. 138

V1
ESC 1:50

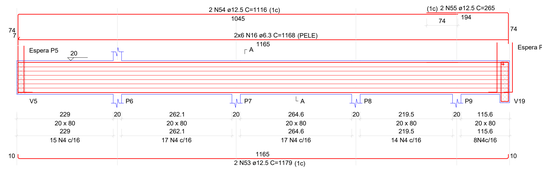


SEÇÃO A-A
ESC 1:25

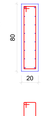
ESPERA P1
ESC 1:25



V2
ESC 1:50



SEÇÃO A-A
ESC 1:25

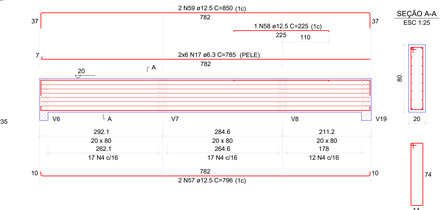


ESPERA P5
ESC 1:25

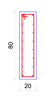
ESPERA P10
ESC 1:25

SUSPENSÃO V19
ESC 1:25

V3
ESC 1:50



SEÇÃO A-A
ESC 1:25



RELAÇÃO DO AÇO

V1	V2	V3	
V4	V5	V6	
V7	V8	V9	
V10	V11	V12	
V13	V14	V15	
V16	V17	V18	
V19			

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	130	227	29510
	2	5.0	2	224	448
	3	5.0	25	67	1675
	4	5.0	399	187	74613
	5	5.0	6	127	762
	6	5.0	34	29	986
	7	5.0	43	237	10191
	8	5.0	40	147	5880
	9	5.0	14	107	1498
	10	5.0	14	29	406
	11	5.0	144	247	35568
	12	5.0	44	207	9108
	13	5.0	9	29	261
CA50	14	6.3	14	1196	16744
	15	6.3	14	83	882
	16	6.3	12	1168	14016
	17	6.3	12	1168	14016
	18	6.3	25	238	5760
	19	6.3	2	87	261
	20	6.3	12	114	1368
	21	6.3	2	82	164
	22	6.3	36	480	18240
	23	6.3	12	215	2580
	24	6.3	1	122	122
	25	6.3	12	127	1524
	26	6.3	12	192	23808
	27	6.3	24	105	2520
	28	6.3	12	1200	14400
	29	6.3	12	595	7140
	30	6.3	14	552	7728
	31	8.0	10	731	7310
	32	8.0	48	107	5136
	33	8.0	7	148	1036
	34	8.0	7	32	224
	35	8.0	12	1200	14400
	36	8.0	12	212	2544
	37	8.0	10	402	4020
	38	8.0	8	148	1184
	39	10.0	16	126	2048
	40	10.0	1	205	205
	41	10.0	5	229	1145
	42	10.0	1	267	267
	43	10.0	13	149	1937
	44	12.5	1	103	103
	45	12.5	1	287	287
	46	12.5	1	404	404
	47	12.5	2	1052	2104
	48	12.5	3	186	558
	49	12.5	1	502	502
	50	12.5	2	769	1538
	51	12.5	1	314	314
	52	12.5	2	364	728
	53	12.5	2	1179	2358
	54	12.5	2	1116	2232
	55	12.5	2	265	530
	56	12.5	6	135	810
	57	12.5	2	796	1592
	58	12.5	1	225	225
	59	12.5	2	850	1700
	60	12.5	3	176	528
	61	12.5	3	113	339
	62	12.5	3	737	2211
	63	12.5	1	381	381
	64	12.5	1	396	396
	65	12.5	1	463	463
	66	12.5	2	470	940
	67	12.5	3	844	2532
	68	12.5	8	155	1240
	69	12.5	2	123	246
	70	12.5	2	209	418
	71	12.5	1	250	250
	72	12.5	1	107	107
	73	12.5	2	488	976
	74	12.5	1	212	212
	75	12.5	2	493	986
	76	12.5	2	328	656
	77	12.5	2	579	1158
	78	12.5	2	132	264
	79	12.5	2	234	468
	80	12.5	1	297	297
	81	12.5	3	321	963
	82	12.5	2	138	276
	83	12.5	2	224	672
	84	12.5	24	182	4368
	85	12.5	24	182	4368
	86	12.5	4	182	728
	87	12.5	1	175	350
	88	12.5	2	339	678
	89	12.5	2	344	688
	90	12.5	2	944	1888
	91	12.5	2	181	362
	92	12.5	4	370	1480
	93	12.5	1	777	777
	94	12.5	2	508	1016
	95	12.5	2	142	284
	96	12.5	1	187	187
	97	12.5	3	247	741
	98	12.5	3	409	1227
	99	12.5	1	204	204
	100	12.5	4	237	948
	101	12.5	1	449	4039
	102	12.5	2	1197	2394
	103	12.5	2	673	1346
	104	12.5	1	215	215
	105	12.5	2	218	872
	106	12.5	2	713	1132
	107	12.5	1	713	713
	108	12.5	1	526	526
	109	12.5	1	601	601
	110	12.5	1	215	215
	111	12.5	1	726	726
	112	12.5	2	1197	2394
	113	12.5	2	1067	2134
	114	12.5	2	281	562
	115	16.0	2	571	1142
	116	16.0	2	390	780
	117	16.0	1	332	332
	118	16.0	2	574	1148
	119	16.0	30	124	3720
	120	16.0	1	198	198
	121	16.0	1	174	174
	122	16.0	1	547	547
	123	16.0	1	555	555
	124	16.0	3	926	2778
	125	16.0	2	1196	2392
	126	16.0	2	717	1434

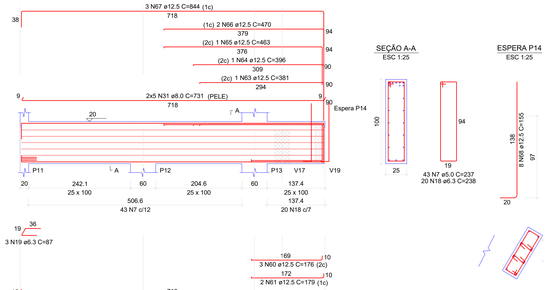
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	1256.8	307.5
	8.0	345.7	136.8
	10.0	68.2	42
	12.5	693.5	668
	16.0	152	239.9
CA60	5.0	1709.1	263.4

PESO TOTAL (kg)	
CA50	1394.3
CA60	263.4

Volume de concreto (C-35) = 18.91 m³
Área de forma = 171.71 m²

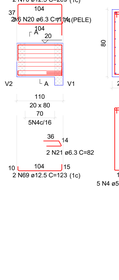
V4
ESC 1:50



SEÇÃO A-A
ESC 1:25

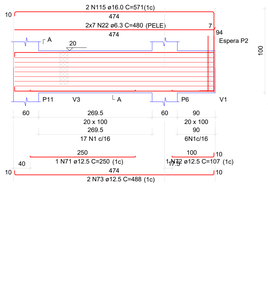
ESPERA P14
ESC 1:25

V5
ESC 1:50



SEÇÃO A-A
ESC 1:25

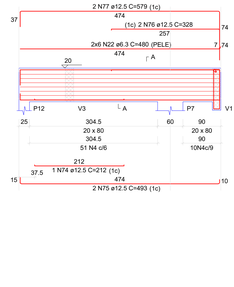
V6
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P2
ESC 1:25

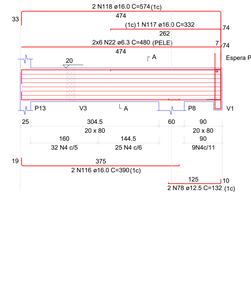
V7
ESC 1:50



SEÇÃO A-A
ESC 1:25

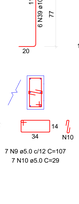
SUSPENSÃO V1
ESC 1:25

V8
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P3
ESC 1:25



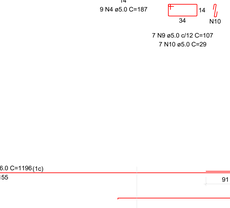
SUSPENSÃO V1
ESC 1:25

V9
ESC 1:50

SEÇÃO A-A
ESC 1:25

SUSPENSÃO V19
ESC 1:25

V10
ESC 1:50



SEÇÃO A-A
ESC 1:25

ESPERA P4
ESC 1:25

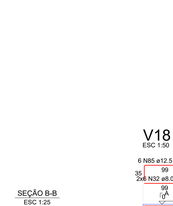
SUSPENSÃO V1
ESC 1:25

V11
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P16
ESC 1:25

V12
ESC 1:50



SEÇÃO A-A
ESC 1:25

V13
ESC 1:50

SEÇÃO A-A
ESC 1:25

ESPERA P18
ESC 1:25

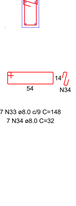
V14
ESC 1:50

SEÇÃO A-A
ESC 1:25

V15
ESC 1:50

SEÇÃO A-A
ESC 1:25

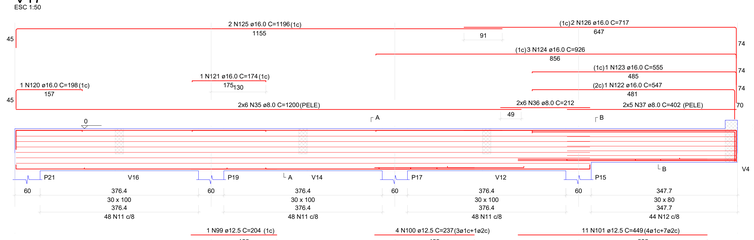
ESPERA P20
ESC 1:25



V16
ESC 1:50

SEÇÃO A-A
ESC 1:25

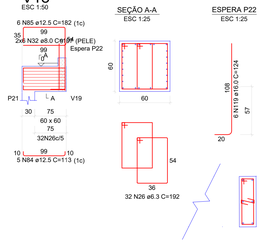
V17
ESC 1:50



SEÇÃO A-A
ESC 1:25

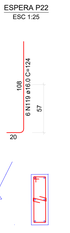
SEÇÃO B-B
ESC 1:25

V18
ESC 1:50

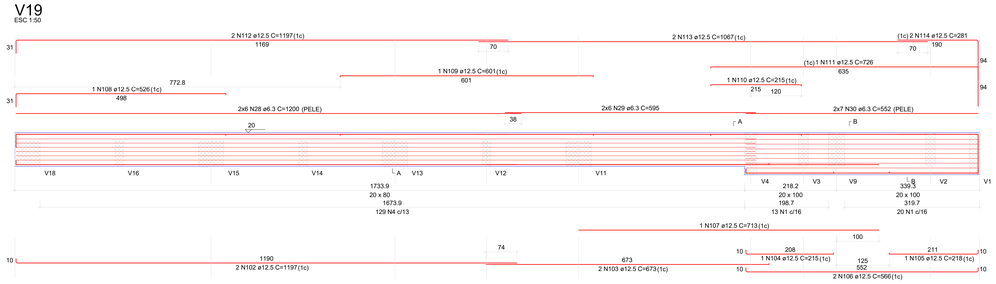


SEÇÃO A-A
ESC 1:25

ESPERA P22
ESC 1:25



V19
ESC 1:50



SEÇÃO A-A
ESC 1:25

SEÇÃO B-B
ESC 1:25

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
83.169.623/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

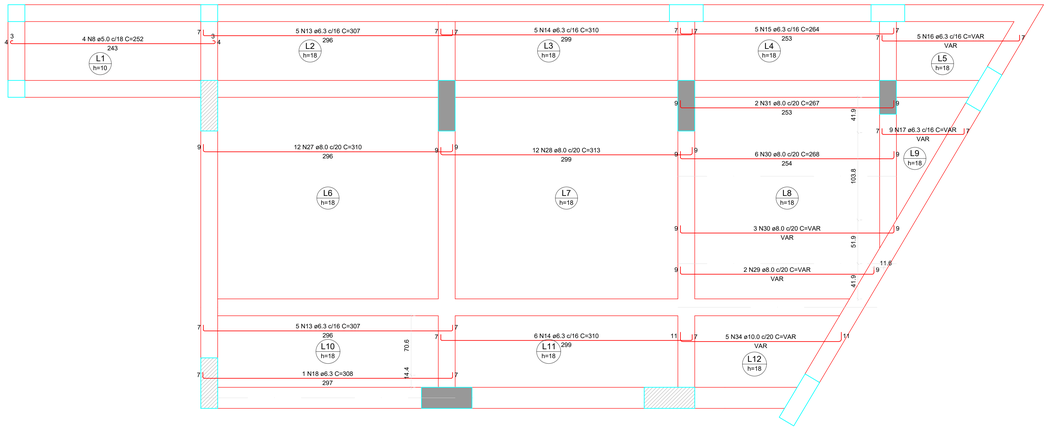
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	VIGAS BALDRAME

ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
FOLHA	EST 05/12
ESCALA	INDICADA

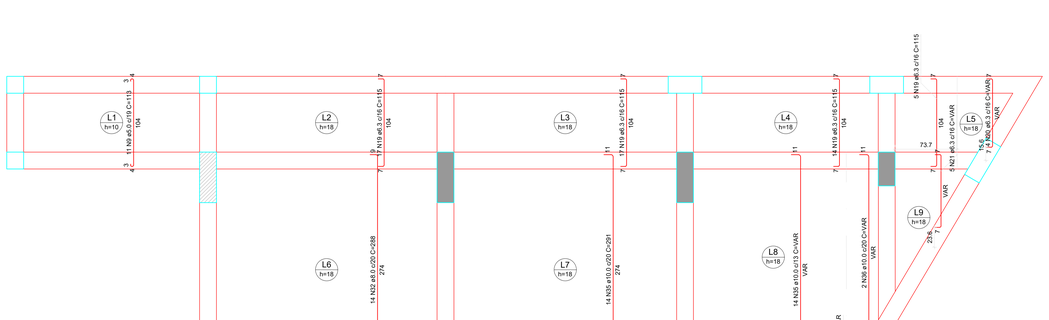
FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 265, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone: (47) 9611-8711 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2023) - SEI 25.0.000003-8 | pg. 139



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

Escala 1:25



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:25

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO X)

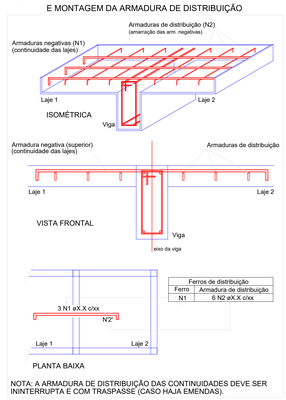
Escala 1:25

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO TÉRREO (EIXO Y)

Escala 1:25

Armaduras de distribuição	
Armadura	Armadura de distribuição
N1	6 N2 ø5.0 c/14 C=42
N24	5 N3 ø5.0 c/14 C=VAR
N12	7 N4 ø5.0 c/14 C=37
N25	7 N4 ø5.0 c/14 C=37
N26	12 N6 ø5.0 c/14 C=VAR
N33	16 N7 ø5.0 c/8 C=90

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO



Ferros de distribuição	
Ferro	Armadura de distribuição
N1	6 N2 øX.X c/xx

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

ARMADURA COM COMPRIMENTO VARIÁVEL				
N16	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N20	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N29	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N30	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N36	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N35	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N17	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N21	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N34	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N37	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

ARMADURA COM COMPRIMENTO VARIÁVEL				
N38	QUANT	C. VAR (cm)	C. UNIT (cm)	C. TOTAL (cm)

RELAÇÃO DO AÇO

Negativos X
Positivos Y

Negativos Y

Positivos X

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	3	103	309
	2	5.0	6	42	252
	3	5.0	5	VAR	VAR
	4	5.0	14	37	518
	5	5.0	2	110	220
	6	5.0	12	VAR	VAR
	7	5.0	16	90	1440
	8	5.0	4	252	1008
	9	5.0	11	113	1243
CA50	10	6.3	1	152	152
	11	6.3	1	127	127
	12	6.3	3	112	336
	13	6.3	10	307	3070
	14	6.3	11	310	3410
	15	6.3	5	264	1320
	16	6.3	5	VAR	VAR
	17	6.3	9	VAR	VAR
	18	6.3	1	308	308
	19	6.3	53	115	6095
	20	6.3	4	VAR	VAR
	21	6.3	5	VAR	VAR
	22	6.3	17	135	2295
	23	6.3	17	135	2295
	24	8.0	4	VAR	VAR
	25	8.0	5	112	560
	26	8.0	9	VAR	VAR
	27	8.0	12	310	3720
	28	8.0	12	313	3756
	29	8.0	2	VAR	VAR
	30	8.0	9	VAR	VAR
	31	8.0	2	267	534
	32	8.0	14	288	4032
	33	10.0	13	145	1885
	34	10.0	5	VAR	VAR
	35	10.0	28	291	8148
	36	10.0	2	VAR	VAR
	37	10.0	2	VAR	VAR
	38	10.0	3	VAR	VAR
	39	10.0	10	141	1410

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	218.4	93.4
	8.0	175.1	69.1
	10.0	135.1	83.3
CA60	5.0	61.6	9.5

PESO TOTAL (kg)	
CA50	205.8
CA60	9.5

Volume de concreto (C-35) = 5.45 m³
Área de forma = 30.88 m²

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07814980901
MUNICÍPIO DE JOINVILLE
61.149.620/0001-70

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

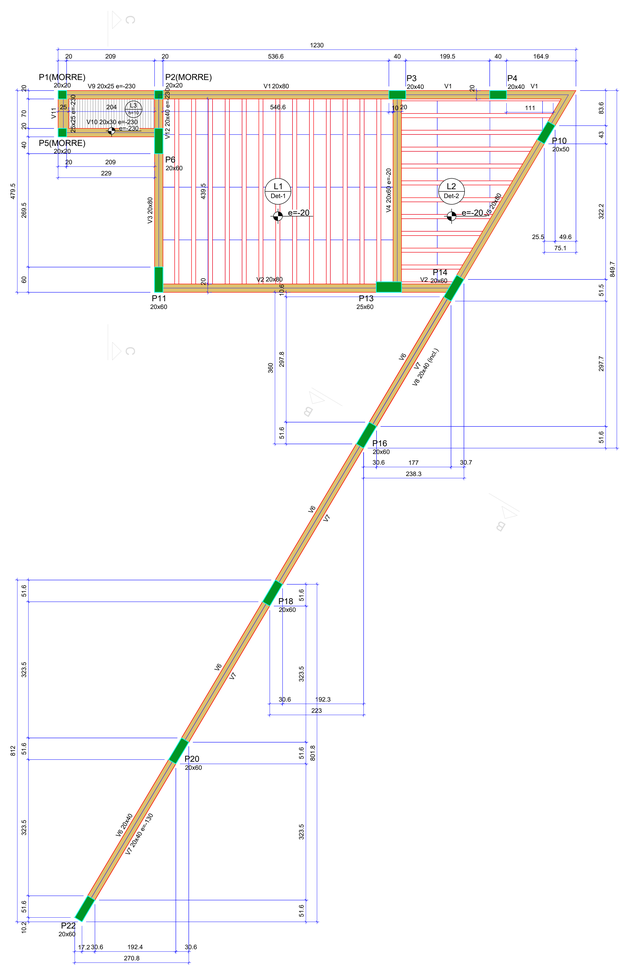
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	LAJE PISO - CASA DE BOMBAS

ARQUIVO	DATA
JOI_SED_ROS_EXA_EK.DWG	02/07/2025
ETAPA: EXECUTIVO	PRANCHA: EST 06/12
ESCALA: INDICADA	

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.588.727/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Brusque/sc | CEP 88010-140 | Fone: (47) 98114-8114 | e-mail do responsável técnico deste projeto: jean@fercongroup.com

Projeto Estrutura de Concreto Armado (26474466) SEI 25.0.2000038-8 | pg 140



FORMA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 400)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x80	0	400
V2	20x80	0	400
V3	20x80	0	400
V4	20x60	-20	380
V5	20x80	0	400
V6	20x40	0	400
V7	20x40	-130	270
V8	20x40	-130 / -380	270 / 20
V9	20x25	-230	170
V10	20x30	-230	170
V11	25x25	-230	170
V12	20x40	-230	170

Lajes								
	Dados					Sobrecarga (kgf/m²)		
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Vigota protendida	25	-20	380	241	100	50	-
L2	Vigota protendida	25	-20	380	241	100	50	-
L3	Maciça	10	-230	170	250	100	50	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

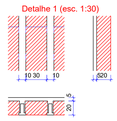
Blocos de enchimento						
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1/2	EPS Unidirecional	B20/30/125	20	30	125	87

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x20	-230	170
P2	20x20	-230	170
P3	20x40	0	400
P4	20x40	0	400
P5	20x20	-230	170
P6	20x60	0	400
P10	20x50	0	400
P11	20x60	0	400
P13	25x60	0	400
P14	20x60	0	400
P16	20x60	0	400
P18	20x60	0	400
P20	20x60	0	400
P22	20x60	0	400

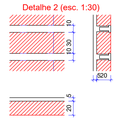
Legenda dos pilares
Pilar que morre

Legenda das vigas e paredes
Viga

Detalhe 1 (esc. 1:30)



Detalhe 2 (esc. 1:30)



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901
MUNICIPIO DE JOINVILLE
82.168.023/0001-16

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

Município de Joinville

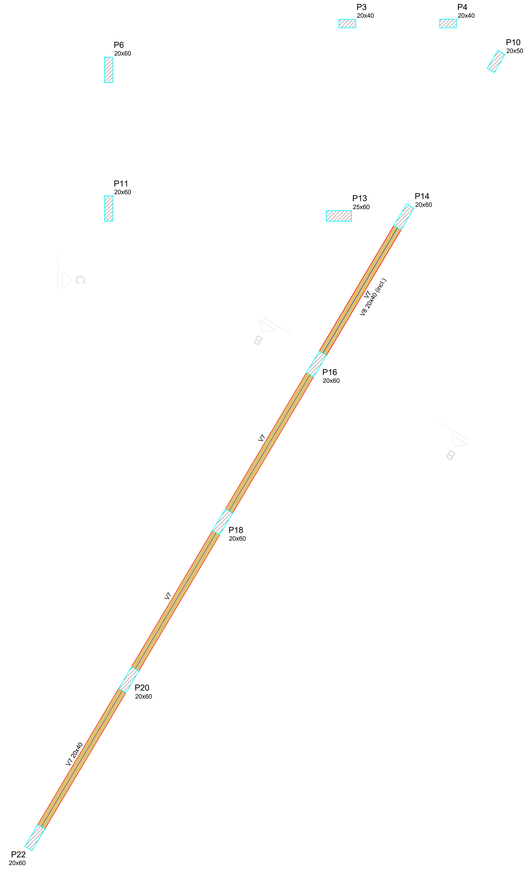
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	FÓRMAS SUPERIOR(1)

ARQUIVO	3OC_SED_ROS_EXA_EX.DWG	DATA	02/07/2025
ETAPA	EXECUTIVO	FOLHA	EST 07/12
ESCALA	INDICADA		

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.666.731/0001-96
Rua Presidente Getúlio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 98413-8113 | e-mail do responsável técnico deste projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014) - SEI 25.0.2800003-8 | pg. 141



FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 270)

Escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V7	20x40	0	270
V8	20x40	0 / -250	270 / 20

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P3	20x40	0	270
P4	20x40	0	270
P6	20x60	0	270
P10	20x50	0	270
P11	20x60	0	270
P13	25x60	0	270
P14	20x60	0	270
P16	20x60	0	270
P18	20x60	0	270
P20	20x60	0	270
P22	20x60	0	270

Legenda dos pilares
Pilar que passa

Legenda das vigas e paredes
Viga
Viga inclinada

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
MUNICÍPIO DE JOINVILLE
61.189.024/001-12

RESPONSÁVEL TÉCNICO
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ENGº CIVIL FERNANDO STROISCH
CREA/SC 082522-0

FERCON

Município de Joinville

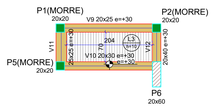
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 082522-0

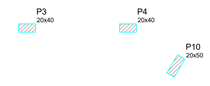
PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	FÔRMAS SUPERIOR(2)

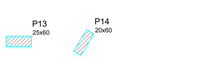
ARQUIVO	202_SED_ROS_EXA_EX.DWG	DATA	02/07/2025
ETAPA	EXECUTIVO	FOLHA	EST 08/12
ESCALA	INDICADA		

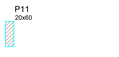
FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.998.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89010-140 | Fone: (47) 3613-8713 | E-mail do responsável técnico desta projeto: jean@fercongroupbrasil.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.2800003-8 / pg. 142









FORMA INTERMEDIÁRIA DO PAVIMENTO PAV. SUPERIOR (NÍVEL 140)

Escala 1:50

Vigas

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V9	20x25	30	170
V10	20x30	30	170
V11	25x25	30	170
V12	20x40	30	170

Lajes

Nome	Tipo	Altura (cm)	Dados Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Sobrecarga (kgf/m²) Adicional	Acidental	Localizada
L3	Maciça	10	30	170	250	100	50	-

Características dos materiais

fck (kgf/cm²)	Ecs (kgf/cm²)
350	294029

Dimensão máxima do agregado = 19 mm

Pilares

Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	20x20	30	170
P2	20x20	30	170
P3	20x40	0	140
P4	20x40	0	140
P5	20x20	30	170
P6	20x60	0	140
P10	20x50	0	140
P11	20x60	0	140
P13	25x60	0	140
P14	20x60	0	140
P16	20x60	0	140
P18	20x60	0	140
P20	20x60	0	140
P22	20x60	0	140

Legenda dos pilares

- Pilar que morre
- Pilar que passa

Legenda das vigas e paredes

- Viga

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

ENGº CIVIL FERNANDO STROISCH
CREA/SC 062022-0

FERCON

Município de Joinville

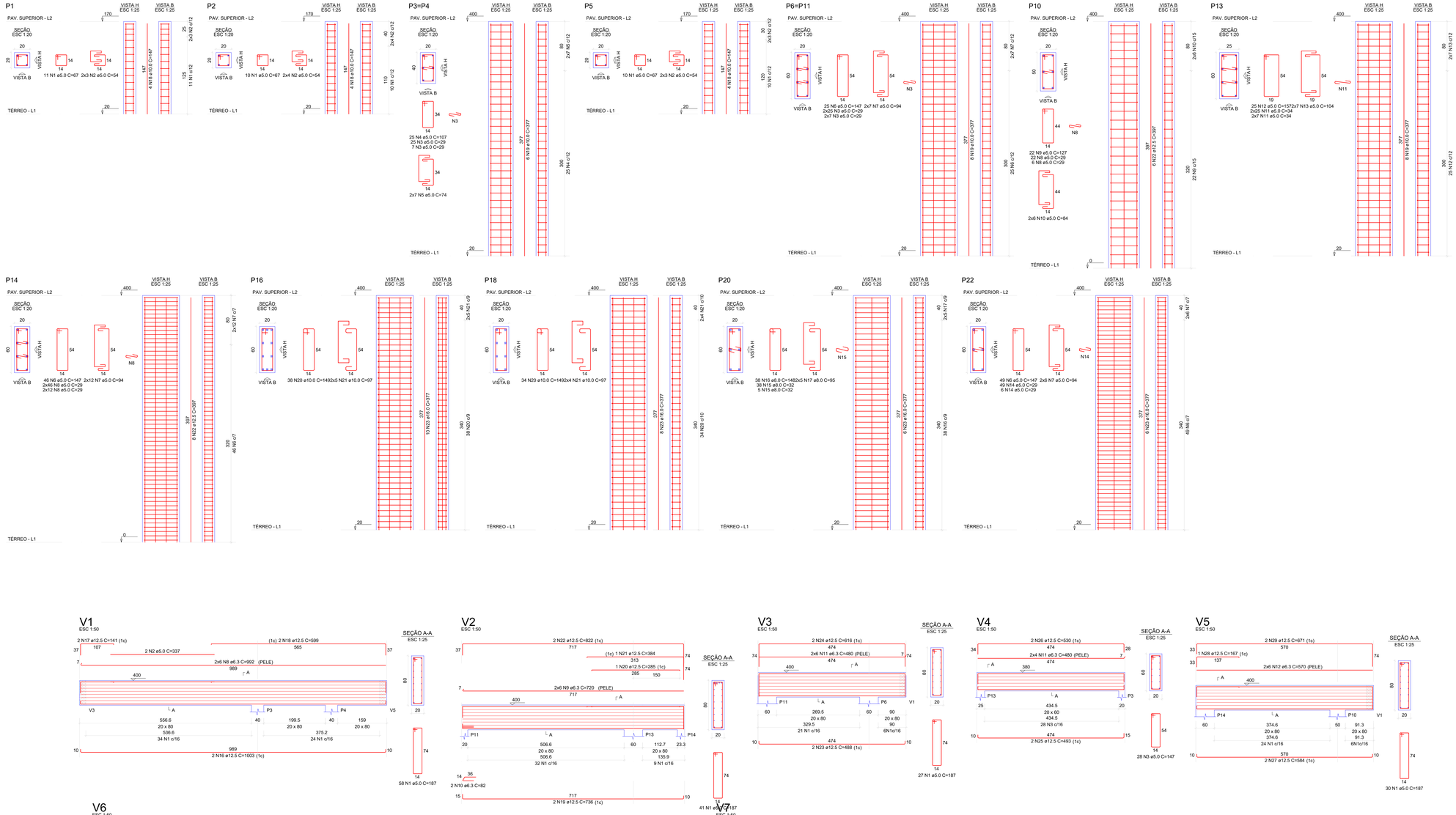
EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062022-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	FÓRMAS SUPERIOR(3)

ARQUIVO: 3OS_SEO_ROS_EXA_EX.DWG
DATA: 02/07/2025
ETAPA: EXECUTIVO
ESCALA: INDICADA
FOLHA: EST 09/12

FERCON ENGENHARIA | CREA nº 062022-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 290, sala 53 - Centro - Brusque/sc x CEP 88CEL-140 | Fone: (47) 3451-5514 | e-mail do responsável técnico desde projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.2800003-8 | pg. 143



RELAÇÃO DO AÇO

P1	P2	2xP3
P5	2xP6	P10
P13	P14	P16
P18	P20	P22

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	31	67	2077
	2	5.0	20	54	1080
	3	5.0	192	29	5568
	4	5.0	50	107	5350
	5	5.0	28	74	2072
	6	5.0	145	147	21315
	7	5.0	64	94	6016
	8	5.0	144	29	4176
	9	5.0	22	127	2794
	10	5.0	12	84	1008
	11	5.0	64	34	2176
	12	5.0	25	157	3925
	13	5.0	14	104	1456
	14	5.0	55	29	1595
CA50	15	8.0	43	32	1376
	16	8.0	38	148	5624
	17	8.0	10	95	950
	18	10.0	12	147	1764
	19	10.0	36	377	13572
	20	10.0	72	149	10728
	21	10.0	18	97	1746
	22	12.5	14	397	5558
	23	16.0	30	377	11310

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	8.0	79.5	31.4
	10.0	278.1	171.5
	12.5	55.6	53.5
	16.0	113.1	178.5
CA60	5.0	606.1	93.4

PESO TOTAL (kg)	
CA50	434.9
CA60	93.4

Volume de concreto (C-35) = 4.97 m³
Área de forma = 67.66 m²

RELAÇÃO DO AÇO

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12

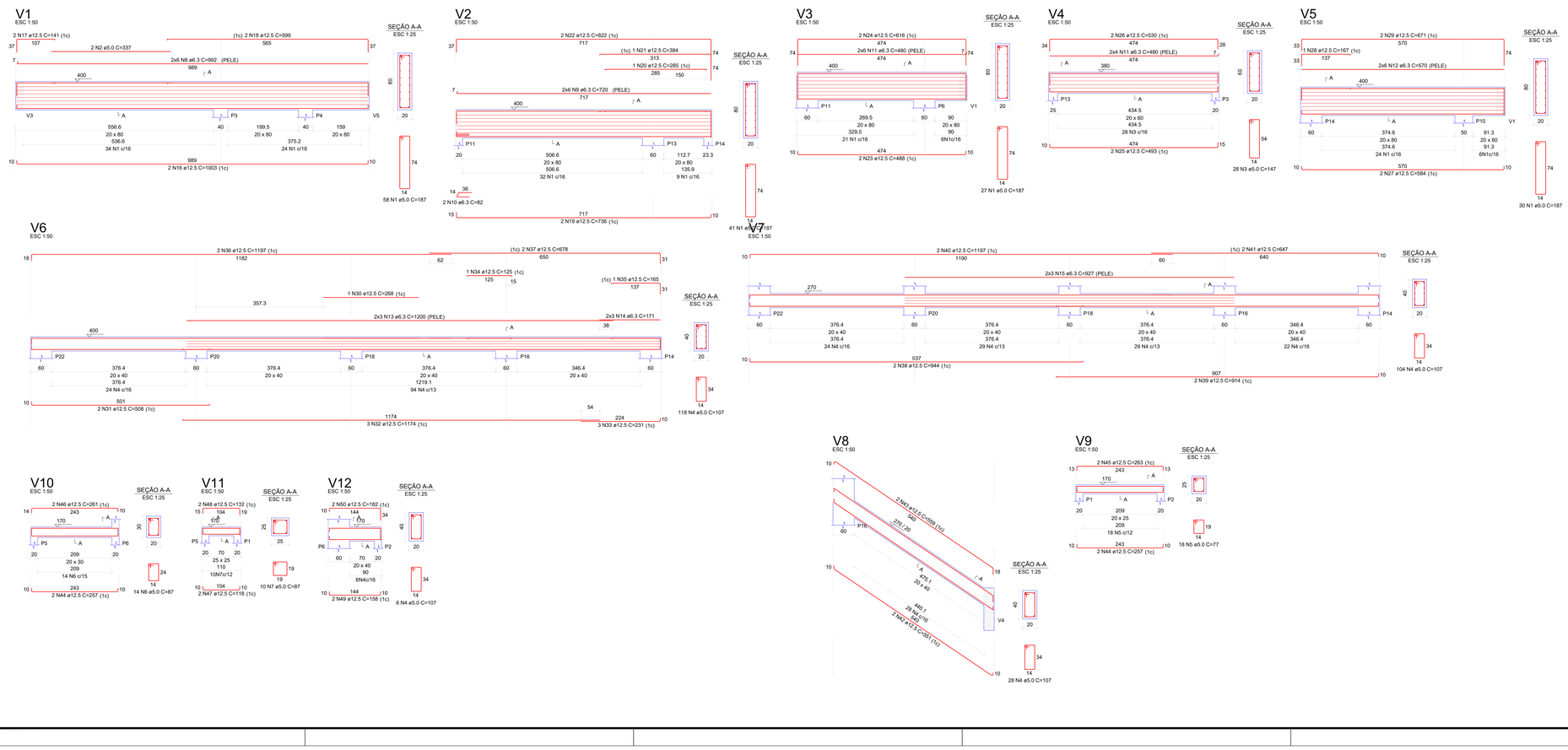
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	156	187	29172
	2	5.0	2	337	674
	3	5.0	28	147	4116
	4	5.0	256	107	27392
	5	5.0	18	77	1386
	6	5.0	14	87	1218
	7	5.0	10	87	870
CA50	8	6.3	12	992	11904
	9	6.3	12	720	8640
	10	6.3	2	82	164
	11	6.3	20	480	9600
	12	6.3	12	570	6840
	13	6.3	6	1200	7200
	14	6.3	6	171	1026
	15	6.3	6	927	5562
	16	12.5	2	1003	2006
	17	12.5	2	141	282
	18	12.5	2	736	1472
	19	12.5	2	285	285
	20	12.5	1	384	384
	21	12.5	2	822	1644
	22	12.5	2	488	976
	23	12.5	2	616	1232
	24	12.5	2	493	986
	25	12.5	2	530	1060
	26	12.5	2	584	1168
	27	12.5	2	167	334
	28	12.5	1	671	1342
	29	12.5	2	268	536
	30	12.5	1	508	1016
	31	12.5	3	1174	3522
	32	12.5	3	231	693
	33	12.5	1	125	125
	34	12.5	1	165	165
	35	12.5	2	1197	2394
	36	12.5	2	678	1356
	37	12.5	2	914	1828
	38	12.5	2	1197	2394
	39	12.5	2	647	1294
	40	12.5	2	551	1102
	41	12.5	2	559	1118
	42	12.5	4	257	1028
	43	12.5	2	263	526
	44	12.5	2	261	522
	45	12.5	2	118	236
	46	12.5	2	132	264
	47	12.5	2	158	316
	48	12.5	2	182	364
	49	12.5	2	168	336
	50	12.5	2	182	364

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA50	6.3	509.4	124.6
	12.5	366.2	352.8
CA60	5.0	648.3	99.9

PESO TOTAL (kg)	
CA50	477.4
CA60	99.9

Volume de concreto (C-35) = 7.27 m³
Área de forma = 77.50 m²



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07414980901
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61.198.023/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062022-0

FERCON

ÉQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062022-0

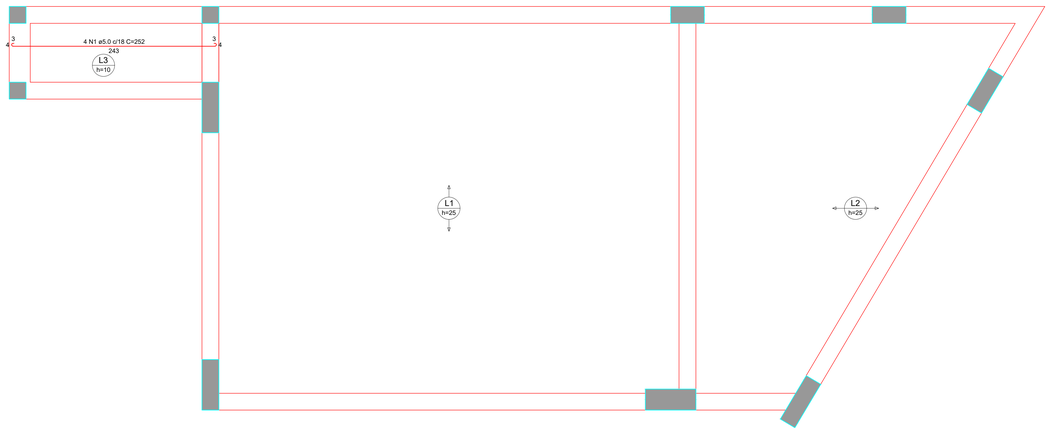
Município de Joinville

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
CONTEÚDO	PILARES E VIGAS SUPERIOR

ARQUIVO	302_SES_ROS_EXA_EX.DWG
DATA	02/07/2025
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 10/12

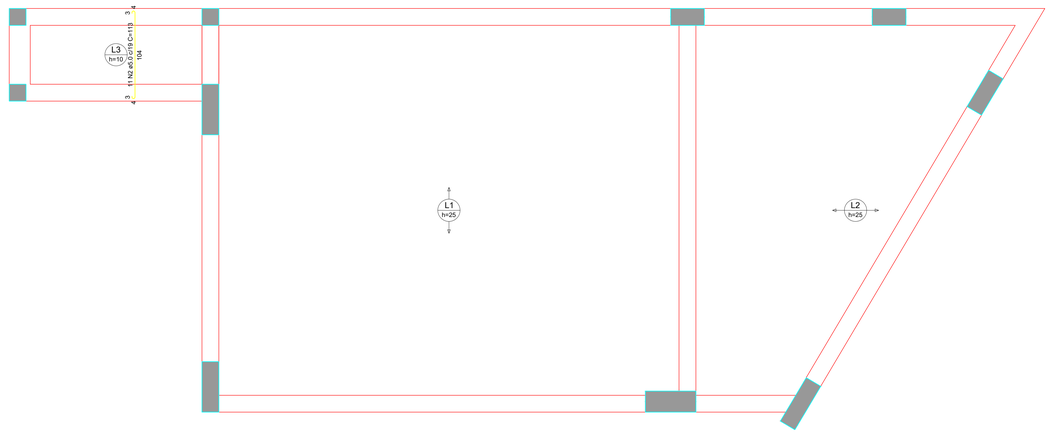
FERCON ENGENHARIA | CREA nº 062022-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Brusque/sc | CEP 88353-140 | Fone: (47) 98413-8513 | e-mail do responsável técnico desta projeto: jean@fercongenharia.com

Projeto Estrutura de Concreto Armado (Edifício) SEI 25.0.000003-8 | pg. 144



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO X)

Escala 1:25



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PAV. SUPERIOR (EIXO Y)

Escala 1:25

RELAÇÃO DO AÇO

Positivos X Positivos Y

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	4	252	1008
	2	5.0	11	113	1243

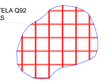
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 0% (kg)
CA60	5.0	22.5	3.5

PESO TOTAL (kg)
CA60 3.5

Volume de concreto (C-35) = 3.05 m³
Área de forma = 1.40 m²

Armadura em malha TELA Q92
LAJES PROTENDIDAS



PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO
ADEMAR STRINGARI JUNIOR:07814980901
MUNICÍPIO DE JOINVILLE
01.199.622/0001-72

RESPONSÁVEL TÉCNICO
FERNANDO STROISCH:84134518920
ENGº CIVIL FERNANDO STROISCH
CREA/SC 062522-0

FERCON

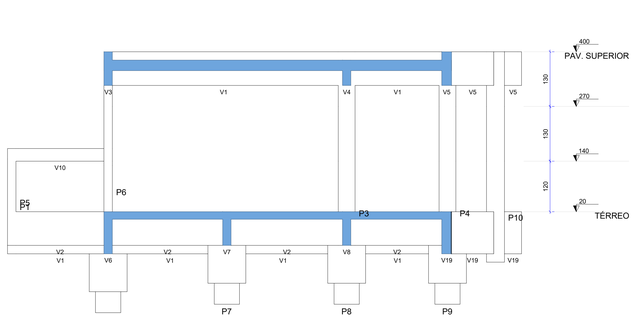
Município de Joinville

EQUIPE TÉCNICA DA EMPRESA
ENGº CIVIL FERNANDO STROISCH
CREA 062522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
ARQUIVO	JOI_SED_ROS_EXA_EK.DWG
DATA	02/07/2025
CONTEÚDO	LAJE SUPERIOR
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 11/12

FERCON ENGENHARIA | CREA nº 062522-0 | CNPJ 04.686.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89013-140 | Fone: (47) 9611-8511 | e-mail do responsável técnico deste projeto: jean@fercongroupbsa.com

Projeto Estrutura de Concreto Armado (ABNT NBR 6118:2014)
SEI 25.0.000003-8 / pg. 145



CORTE A-A

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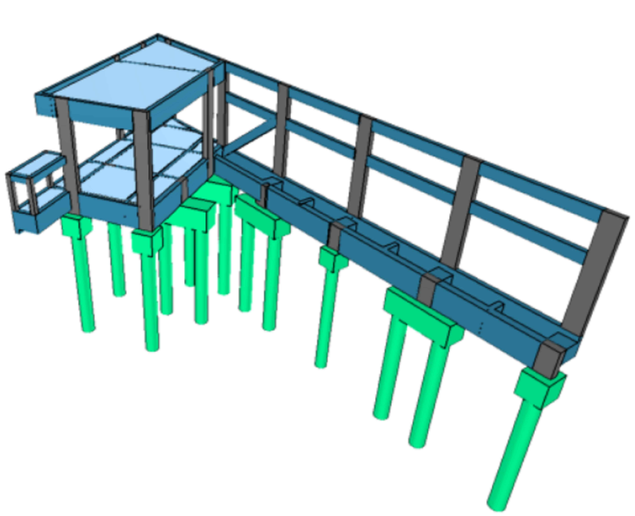

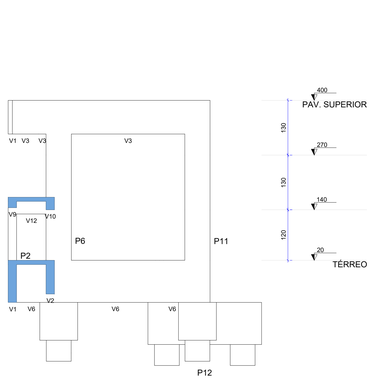

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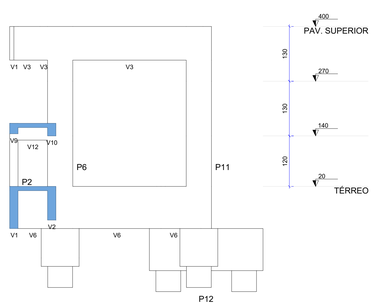

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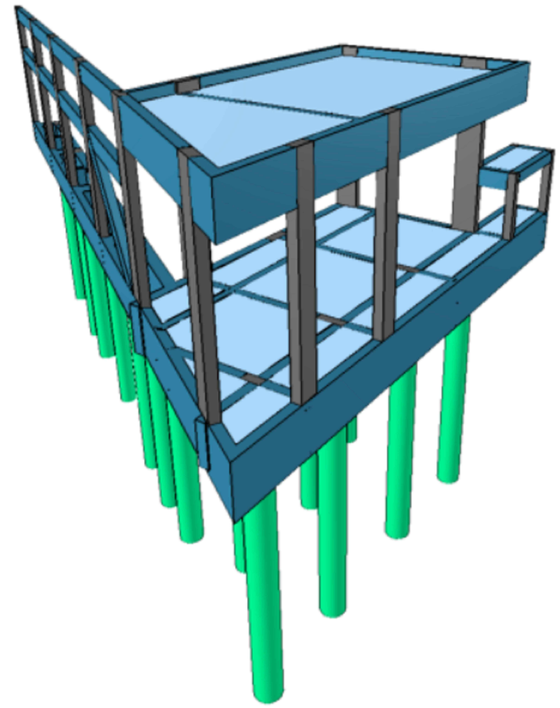

PROJETO DE ESTRUTURAL

QUADRO DE REVISÕES

REVISÃO	DESCRIÇÃO	DATA	DESENHO
R00	EMISSÃO INICIAL DE PROJETO	02/07/2025	Fernando

APROVAÇÕES

PROPRIETÁRIO

ADEMAR STRINGARI JUNIOR:07414980901

MUNICÍPIO DE JOINVILLE
61.189.029/0001-10

RESPONSÁVEL TÉCNICO

FERNANDO STROISCH:84134518920

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EQUIPE TÉCNICA DA EMPRESA
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CREA 082522-0

PROPRIETÁRIO	MUNICÍPIO DE JOINVILLE
EDIFICAÇÃO	E.M PROFESSORA ROSÂNGELA MARTINOWSKY BAPTISTA
ENDEREÇO	RUA JOSÉ CARDOSO, S/N, PARANAGUAMIRIM, JOINVILLE - SANTA CATARINA
PROJETO	CASA DE BOMBAS
ARQUIVO	JOI_SED_ROS_EXA_EX.DWG
DATA	02/07/2025
CONTEÚDO	CORTES - IMAGENS 3D
ETAPA	EXECUTIVO
ESCALA	INDICADA
FOLHA	EST 12/12

FERCON ENGENHARIA | CREA nº 082522-0 | CNPJ 04.668.721/0001-96
Rua Presidente Getulio Vargas, 260, sala 53 - Centro - Blumenau | CEP 89015-140 | Fone (47) 3413-8713 | E-mail do responsável técnico deste projeto: gest@fercongroup.com

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