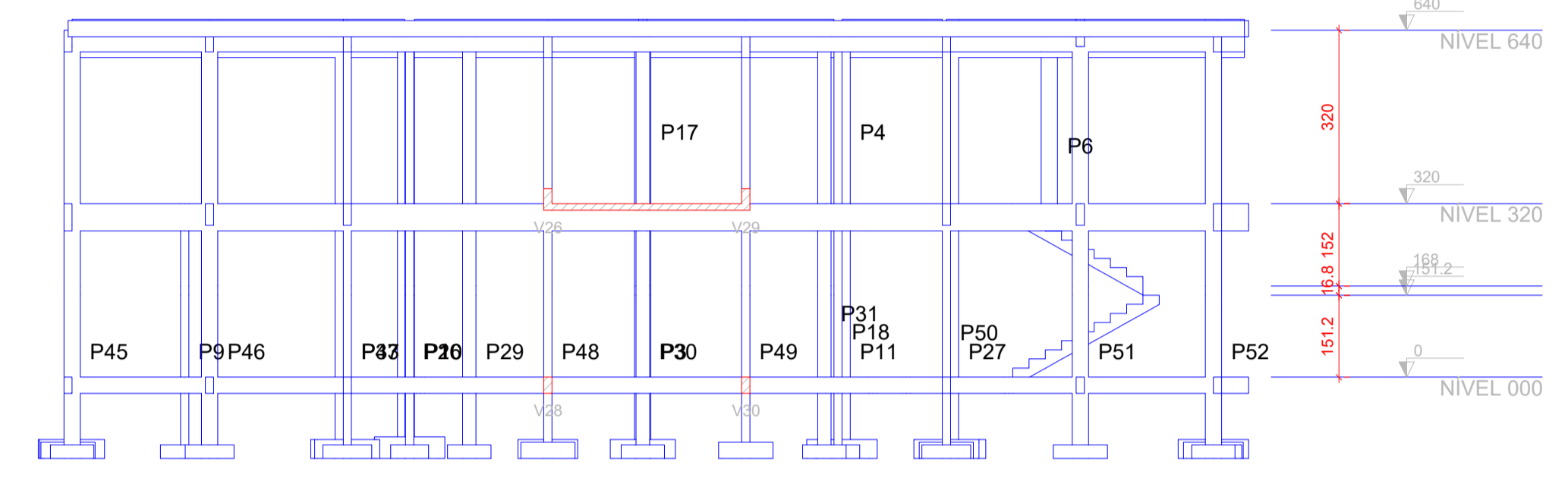


Planta de localização  
escala 1:75

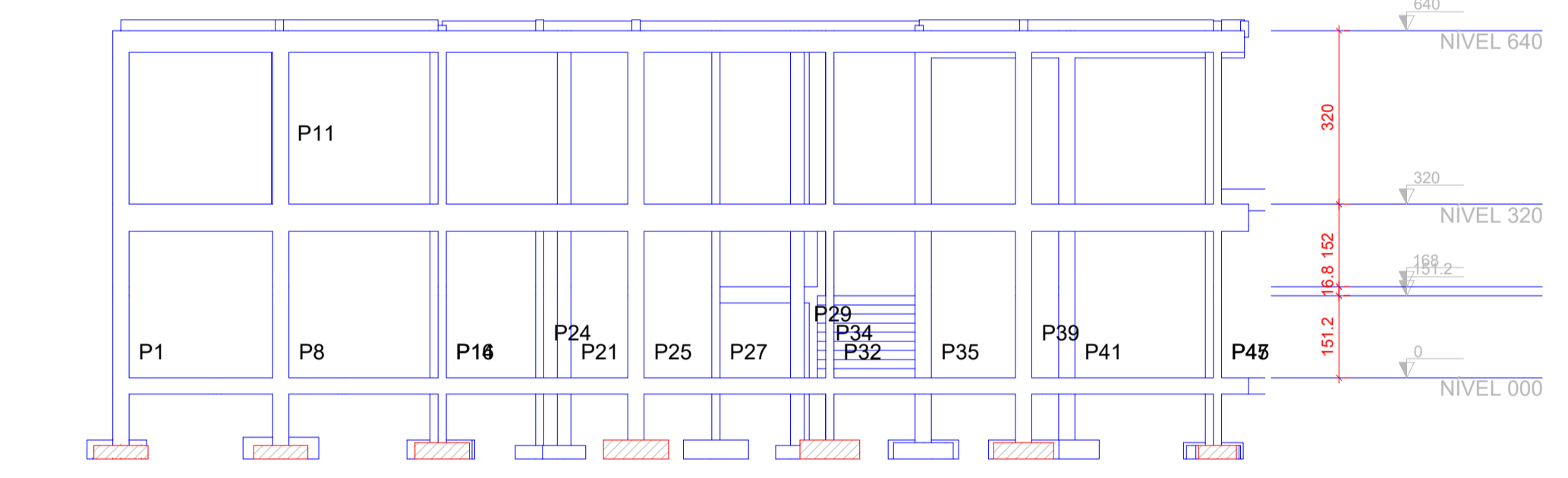
Nome	Seção (cm)	X (cm)	Y (cm)	Posição	Carga Máx. (tf)	Carga Min. (tf)
P1	15x30	7.50	2030.00	A-1	9.8	8.8
P2	15x30	630.00	2030.00	A-4	17.3	15.8
P3	15x30	1067.50	2037.50	A-7	15.0	13.4
P4	15x30	1435.00	2037.67	A-9	11.6	8.9
P5	15x30	1635.00	2037.50	A-10	11.3	9.4
P6	15x30	2127.50	2030.00	A-12	8.7	7.9
P7	15x30	7.50	1735.00	B-1	10.6	9.8
P8	15x30	222.70	1735.00	B-2	13.4	11.0
P9	18x30	637.50	1735.00	B-4	29.1	24.6
P10	18x30	1435.00	1737.60	B-9	24.8	18.2
P11	15x30	1635.00	1737.60	B-10	22.0	15.7
P12	15x30	2120.00	1737.60	B-12	11.9	10.3
P13	15x30	15.00	1437.50	C-1	14.4	12.9
P14	15x30	515.00	1437.50	C-3	14.6	12.5
P15	15x30	637.50	1445.00	C-4	9.0	7.4
P16	25x25	1067.50	1442.50	C-7	18.3	15.1
P17	15x30	1427.50	1445.00	C-9	10.6	7.9
P18	15x30	1635.00	1437.50	C-10	17.1	14.0
P19	15x30	2120.00	1437.50	C-12	22.9	20.5
P20	25x25	747.50	1212.50	D-5	8.0	6.7
P21	25x25	1067.50	1212.50	D-7	7.1	6.3
P22	25x25	1402.50	1212.50	D-9	9.2	8.0
P23	15x30	1635.00	1257.50	D-10	11.6	9.4
P24	15x30	7.50	1080.00	E-1	17.8	15.7
P25	15x30	522.50	1080.00	E-3	19.0	16.1
P26	15x30	1635.00	932.50	F-10	22.7	19.3
P27	15x30	2120.00	932.50	F-12	22.1	19.9
P28	25x25	747.50	782.50	G-5	7.8	6.6
P29	25x25	1067.50	782.50	G-7	6.4	5.7
P30	25x25	1402.50	782.50	G-9	8.9	7.6
P31	15x30	15.00	722.50	G-1	17.4	15.3
P32	15x30	515.00	722.50	G-3	19.6	16.8
P33	15x30	2127.50	745.50	G-12	5.2	4.8
P34	15x30	892.50	550.00	H-6	14.9	12.5
P35	15x30	1257.50	550.00	H-8	11.2	9.5
P36	15x30	1627.50	550.00	H-10	24.5	21.1
P37	15x30	2120.00	557.50	H-12	14.8	13.3
P38	15x30	7.50	365.00	I-1	17.0	14.9
P39	15x30	522.50	365.00	I-3	23.0	19.4
P40	15x30	892.50	285.50	I-6	17.5	14.1
P41	15x30	1257.50	285.50	I-8	15.6	13.0
P42	15x30	1627.50	285.50	I-10	16.7	13.8
P43	15x30	2127.50	285.50	I-12	12.0	10.6
P44	15x30	15.00	7.50	J-1	7.6	6.9
P45	15x30	268.45	7.50	J-2	9.1	8.2
P46	15x30	522.50	15.00	J-3	12.8	11.6
P47	15x30	892.50	15.00	J-6	15.8	14.4
P48	15x30	1257.50	15.00	J-8	15.5	14.2
P49	15x30	1627.50	15.00	J-10	11.3	10.3
P50	15x30	1874.50	7.50	J-11	11.8	10.7
P51	15x30	2120.00	7.50	J-12	8.2	7.5
P52	20x30	886.37	-414.35	K-6	4.6	4.3
P53	20x30	1266.14	-366.29	K-8	4.6	4.3

Localização no eixo X	
Coordenadas (cm)	Nome
7.50	P1, P8, P25, P39
15.00	P14, P32, P45
222.70	P9
268.45	P46
515.00	P15, P33
522.50	P26, P40, P47
630.00	P2
637.50	P10, P16
747.50	P21, P29
886.37	P53
892.50	P35, P41, P48
1067.50	P3, P17, P22, P30
1257.50	P36, P42, P49
1266.14	P54
1402.50	P23, P31
1427.50	P18
1435.00	P4, P11
1627.50	P37, P43, P50
1635.00	P5, P12, P19, P24, P27
1874.50	P51
2120.00	P13, P20, P28, P38, P52
2127.50	P7, P34, P44

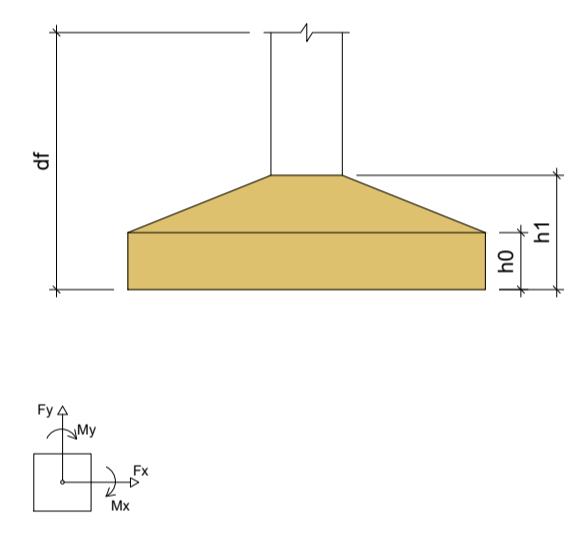
Localização no eixo Y	
Coordenadas (cm)	Nome
2037.67	P4
2037.60	P2
2037.50	P3, P5
2030.00	P1, P7
1737.60	P11, P12, P13
1735.00	P6, P9, P10
1445.00	P16, P18
1442.50	P17
1437.50	P14, P15, P19, P20
1257.50	P24
1212.50	P21, P22, P23
1080.00	P25, P26
932.50	P27, P28
782.50	P29, P30, P31
745.50	P34
722.50	P32, P33
557.50	P38
550.00	P35, P36, P37
365.00	P39, P40
285.50	P41, P42, P43, P44
15.00	P47, P48, P49, P50
-366.29	P54
-414.35	P53



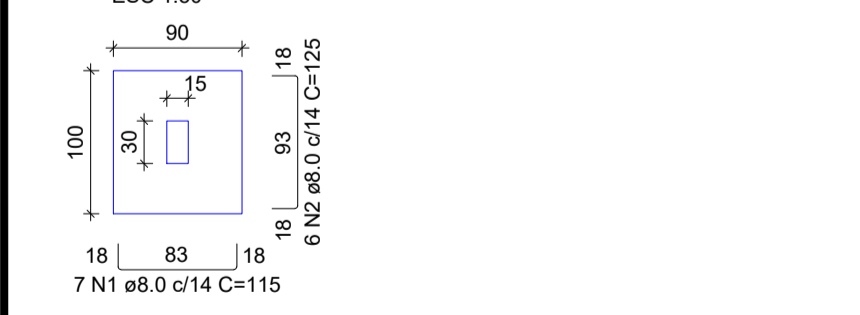
Corte A-A  
escala 1:100



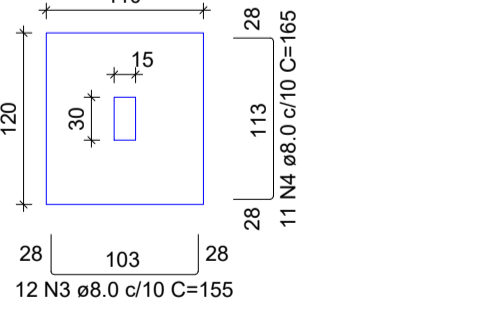
Corte B-B  
escala 1:100



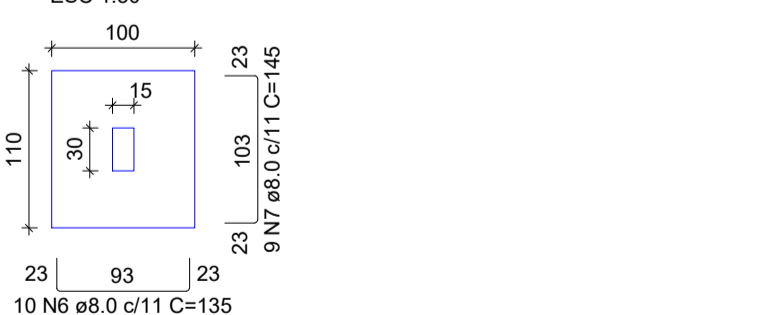
S1=S4=S5=S8=S9=S13=S24=S36=S44=S47=S50  
=S51  
PLANTA  
ESC 1:50



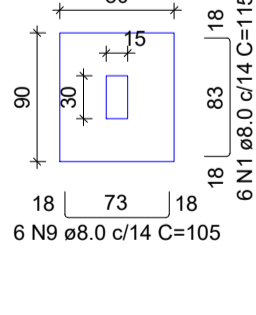
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PLANTA  
ESC 1:50



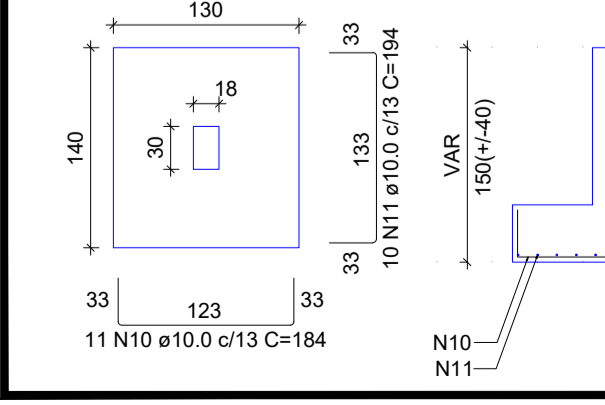
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=S49  
PLANTA  
ESC 1:50



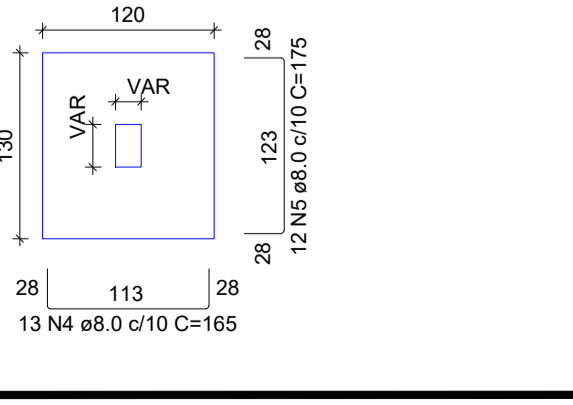
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PLANTA  
ESC 1:50



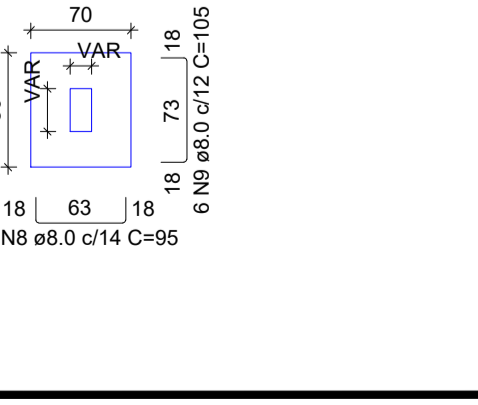
S10  
PLANTA  
ESC 1:50



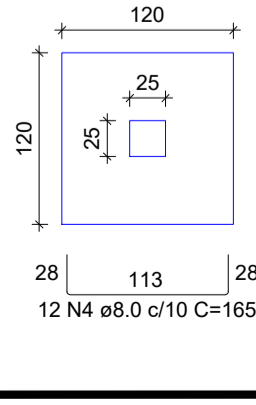
S11=S12=S20=S27=S28=S37=S40  
PLANTA  
ESC 1:50



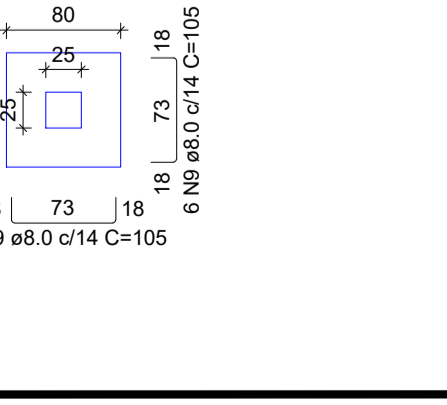
S16=S34=S45=S52=S53=S54  
PLANTA  
ESC 1:50



S17  
PLANTA  
ESC 1:50



S21=S22=S23=S29=S30=S31  
PLANTA  
ESC 1:50



RELAÇÃO DO AÇO				
AÇO	N	DIAM (mm)	QUANT	C.TOTAL (cm)
CA50	1	8.0	102	115
CA50	2	8.0	72	125
CA50	3	8.0	72	155
CA50	4	8.0	181	165
CA50	5	8.0	84	175
CA50	6	8.0	110	135
CA50	7	8.0	99	145
CA50	8	8.0	36	95
CA50	9	8.0	126	105
CA50	10	10.0	11	184
CA50	11	10.0	10	194

RESUMO DO AÇO		
AÇO	DIAM (mm)	C.TOTAL (m)
CA50	8.0	1223.1
CA50	10.0	39.6
PESO TOTAL (kg)		530.9
CA50		557.8

Volume de concreto (C-25) = 16.50 m³  
Área de forma = 62.86 m²

**MUNICÍPIO DE MARCO**

AV. PREFEITO GUIDO OSTENHO, S/N  
CENTRO - MARCO - CE - 83500-000  
FONE: 3661-2210 / 3634-3415  
WWW.MARCO.CE.GOV.BR  
CNPJ: 07.546.516/0001-77

02	REVISÃO	DESENHO	APROVAÇÃO
01	DATA		

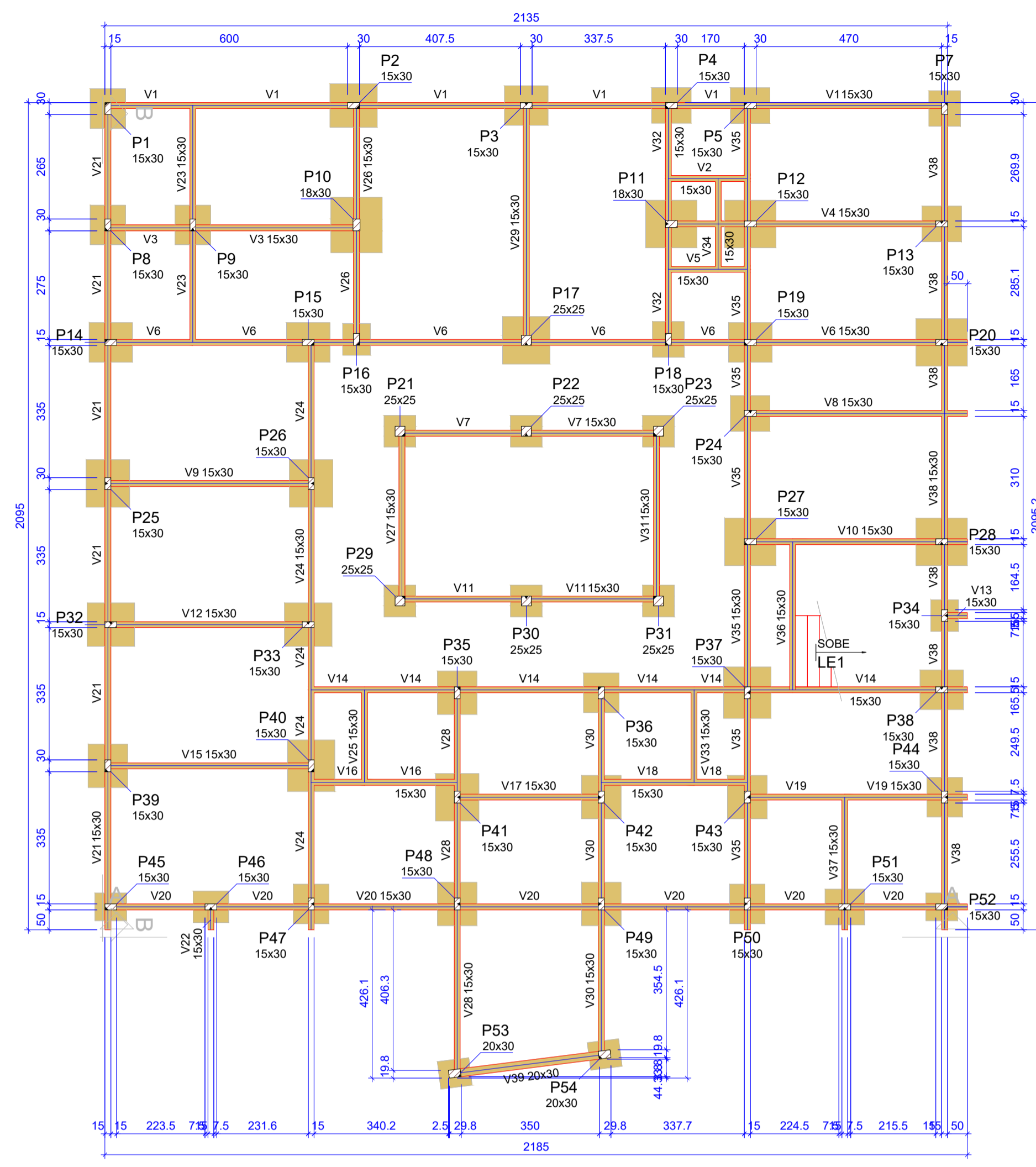
PROJETO: PROJETO ESTRUTURAL  
E.E.F. LEOCÁDIO DAMÁSIO DA COSTA

CLIENTE: MUNICÍPIO DE MARCO

LOCAL: DISTRITO DO MOCAMBO

CONTEÚDO:  
1 Planta de Localização  
2 Detalhamento das Sapatas  
3 Cortes A-A e B-B

ESCALA:	DESENHO:	PRANCHETA:
INDICADA	INFRAESTRUTURA	
DATA:	SETEMBRO/2023	<b>01/11</b>



Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	15x30	0	0
V2	15x30	0	0
V3	15x30	0	0
V4	15x30	0	0
V5	15x30	0	0
V6	15x30	0	0
V7	15x30	0	0
V8	15x30	0	0
V9	15x30	0	0
V10	15x30	0	0
V11	15x30	0	0
V12	15x30	0	0
V13	15x30	0	0
V14	15x30	0	0
V15	15x30	0	0
V16	15x30	0	0
V17	15x30	0	0
V18	15x30	0	0
V19	15x30	0	0
V20	15x30	0	0
V21	15x30	0	0
V22	15x30	0	0
V23	15x30	0	0
V24	15x30	0	0
V25	15x30	0	0
V26	15x30	0	0
V27	15x30	0	0
V28	15x30	0	0
V29	15x30	0	0
V30	15x30	0	0
V31	15x30	0	0
V32	15x30	0	0
V33	15x30	0	0
V34	15x30	0	0
V35	15x30	0	0
V36	15x30	0	0
V37	15x30	0	0
V38	15x30	0	0
V39	20x30	0	0

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	0	0
P2	15x30	0	0
P3	15x30	0	0
P4	15x30	0	0
P5	15x30	0	0
P6	15x30	0	0
P7	15x30	0	0
P8	15x30	0	0
P9	15x30	0	0
P10	18x30	0	0
P11	18x30	0	0
P12	15x30	0	0
P13	15x30	0	0
P14	15x30	0	0
P15	15x30	0	0
P16	15x30	0	0
P17	25x25	0	0
P18	15x30	0	0
P19	15x30	0	0
P20	15x30	0	0
P21	25x25	0	0
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P31	25x25	0	0
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P33	15x30	0	0
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P35	15x30	0	0
P36	15x30	0	0
P37	15x30	0	0
P38	15x30	0	0
P39	15x30	0	0
P40	15x30	0	0
P41	15x30	0	0
P42	15x30	0	0
P43	15x30	0	0
P44	15x30	0	0
P45	15x30	0	0
P46	15x30	0	0
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P48	15x30	0	0
P49	15x30	0	0
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P52	15x30	0	0
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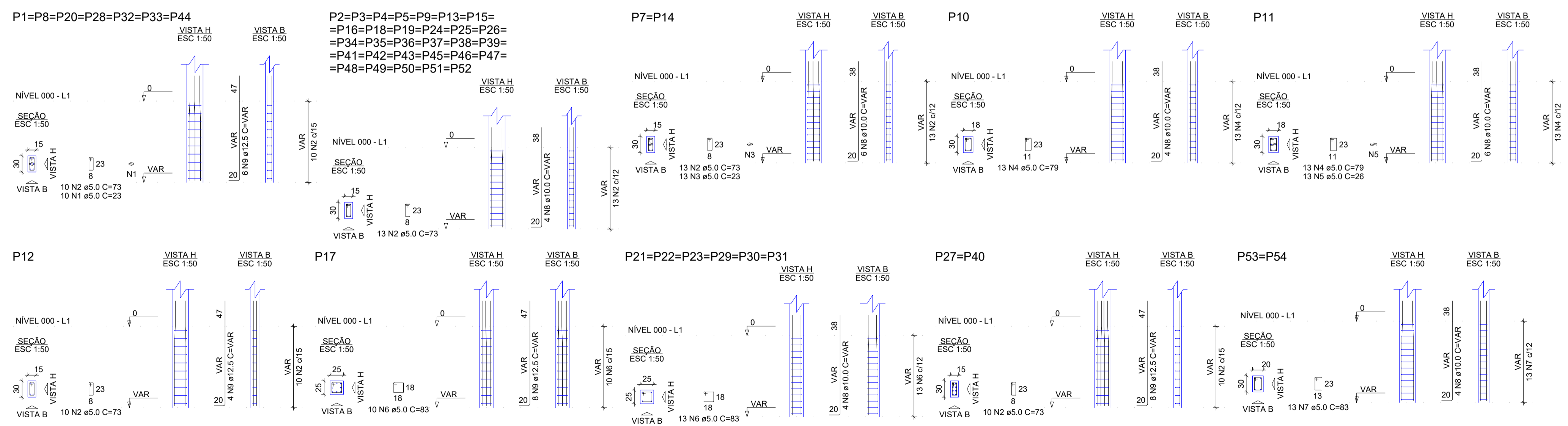
Características dos materiais  
f<sub>ck</sub> (kgf/cm<sup>2</sup>)  
250

Legenda dos pilares  
Pilar que passa

Legenda das vigas e paredes  
Viga

### Forma do pavimento NÍVEL 000 (Nível 0)

escala 1:100



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	70	23	1610
CA60	2	5.0	516	73	37668
CA60	3	5.0	26	23	598
CA60	4	5.0	28	78	2054
CA60	5	5.0	13	26	338
CA60	6	5.0	88	83	7304
CA60	7	5.0	28	83	2158
CA60	8	10.0	174	VAR	VAR
CA60	9	12.5	70	VAR	VAR

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	353.2	239.6
CA60	12.5	147.7	156.5
CA60	5.0	517.3	87.7

PESO TOTAL (kg)  
CA50 396.1  
CA60 87.7

Volume de concreto (C-25) = 3.03 m<sup>3</sup>  
Área de forma = 57.59 m<sup>2</sup>

COR	ESP. PENA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.06
11	1.06
12	1.06
13	1.06

02

01

REVISÃO

DESENHO

APROVAÇÃO

PROJETO: PROJETO ESTRUTURAL E.E.F LEOCÁDIO DAMÁSIO DA COSTA

CLIENTE: MUNICÍPIO DE MARCO

LOCAL: DISTRITO DO MOCAMBO

CONTEÚDO:

1 Forma Nível 000

2 Detalhamento dos Pilares Nível 000

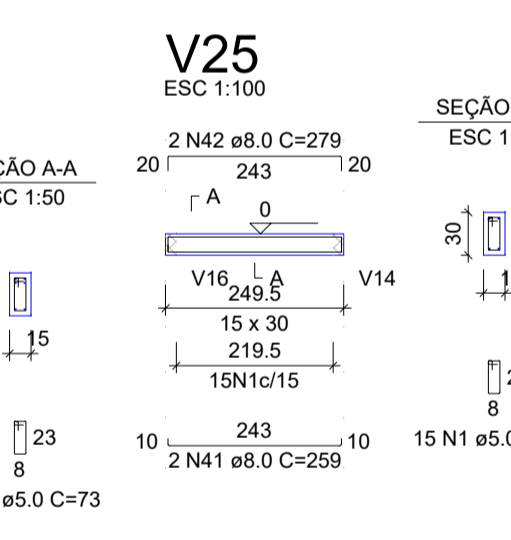
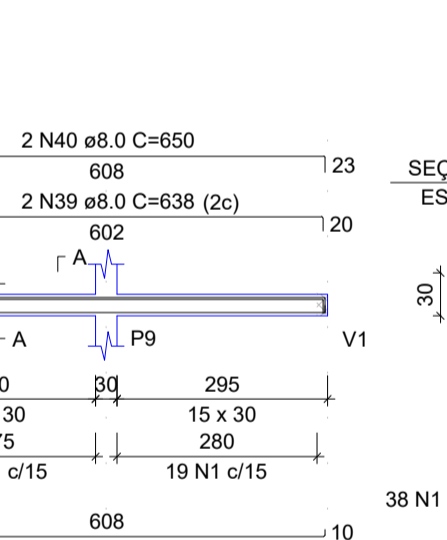
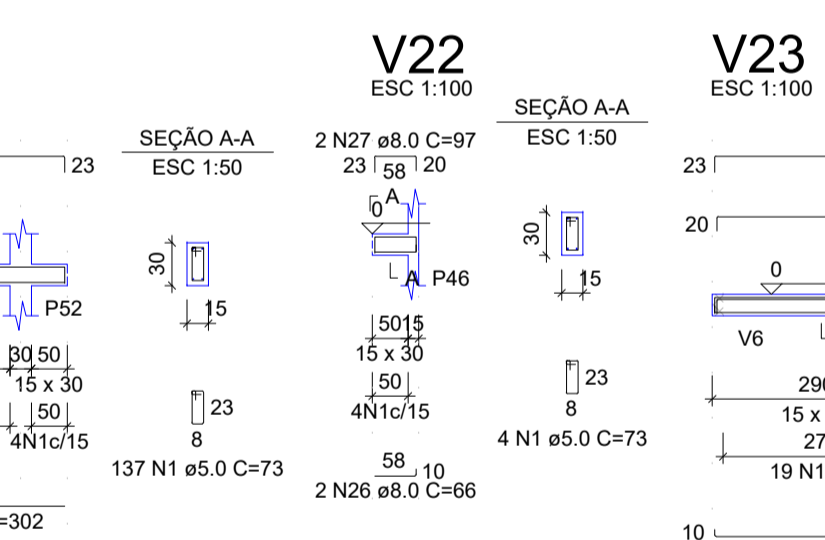
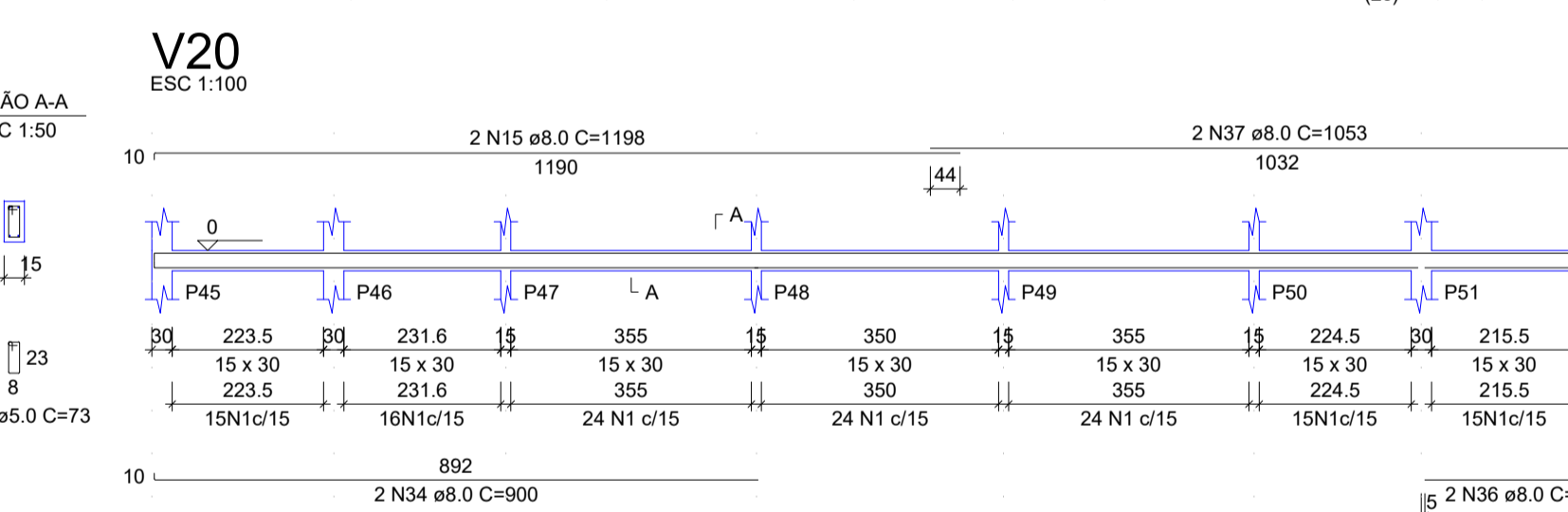
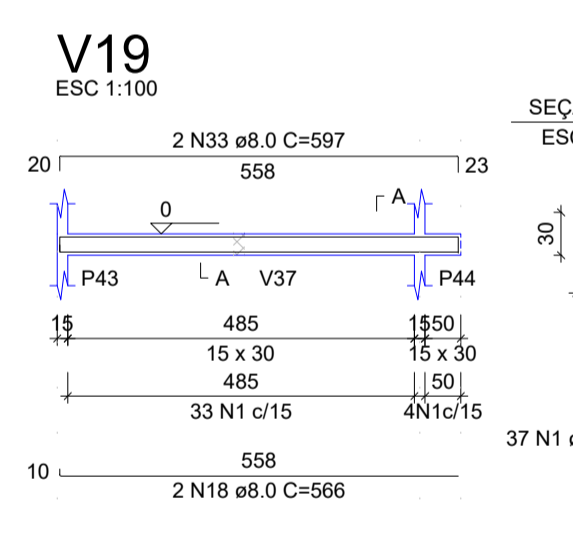
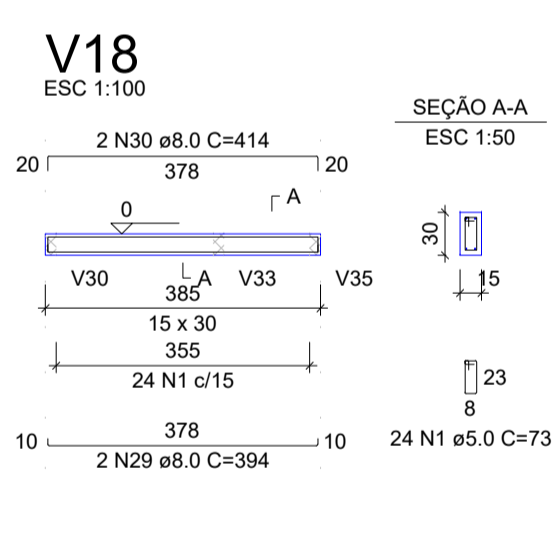
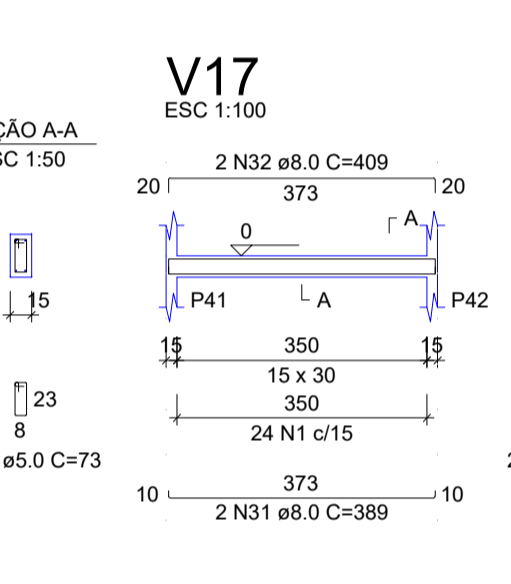
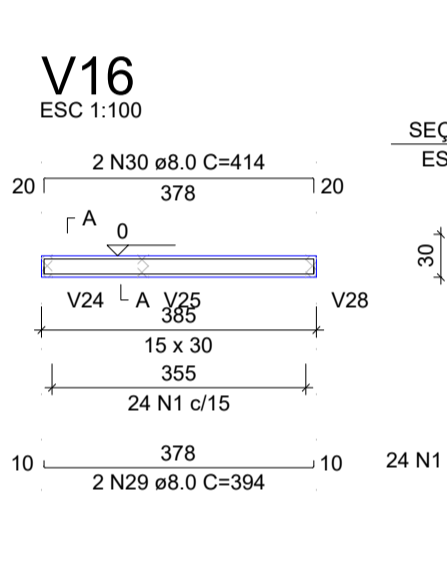
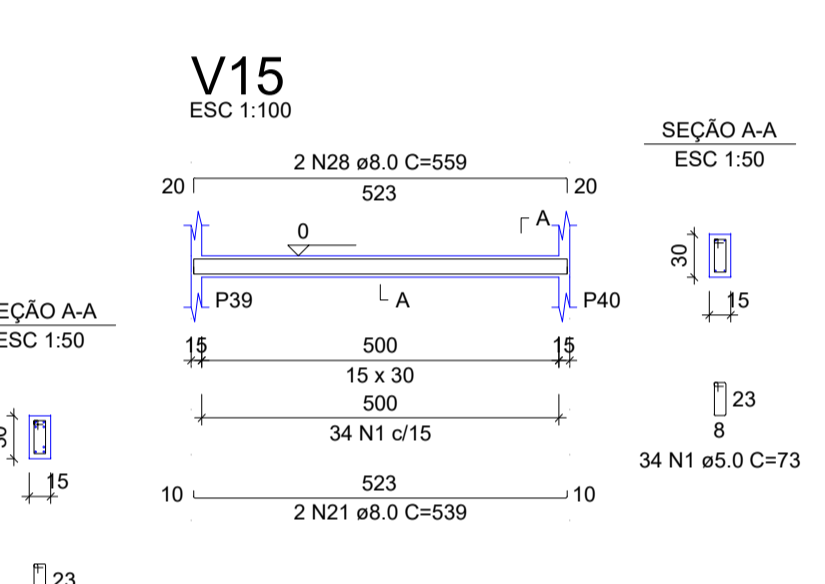
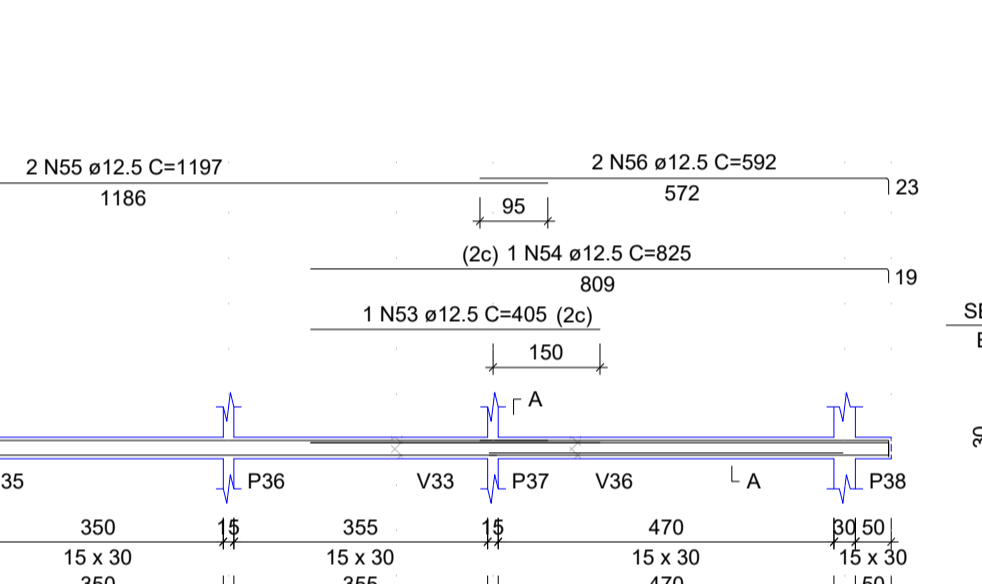
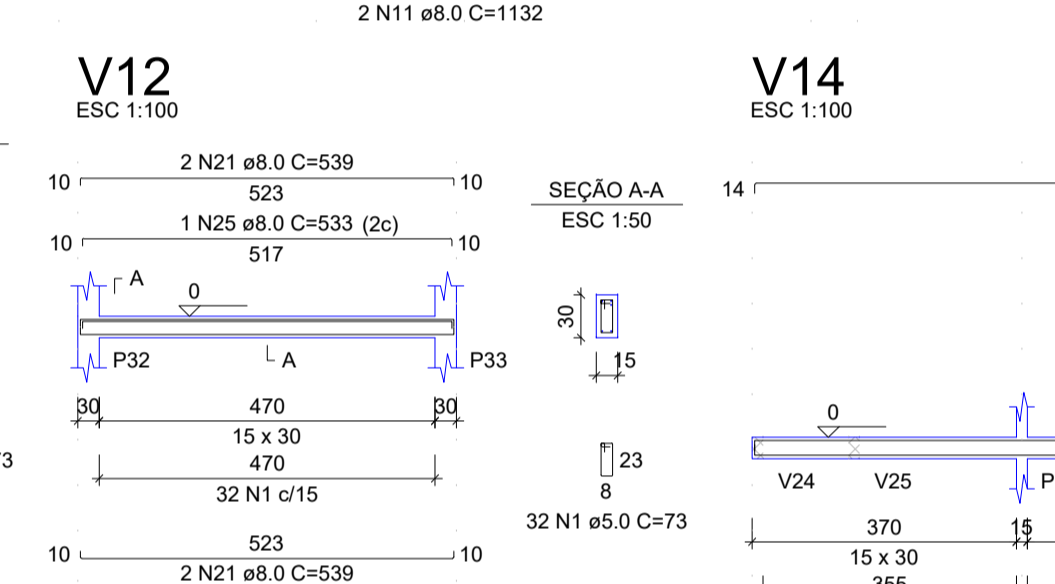
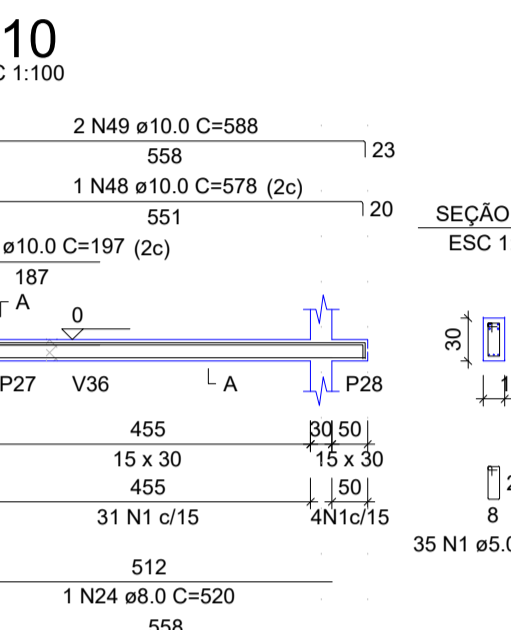
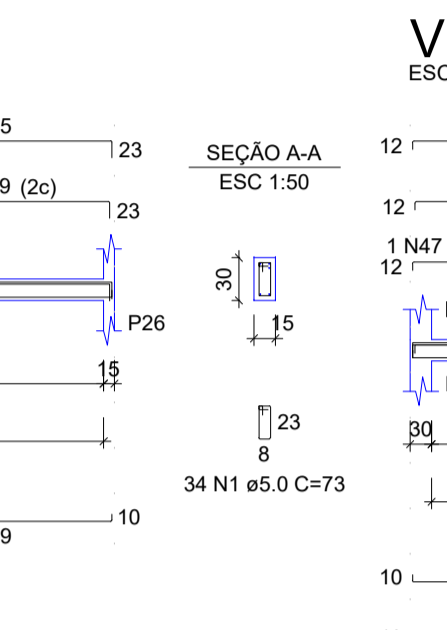
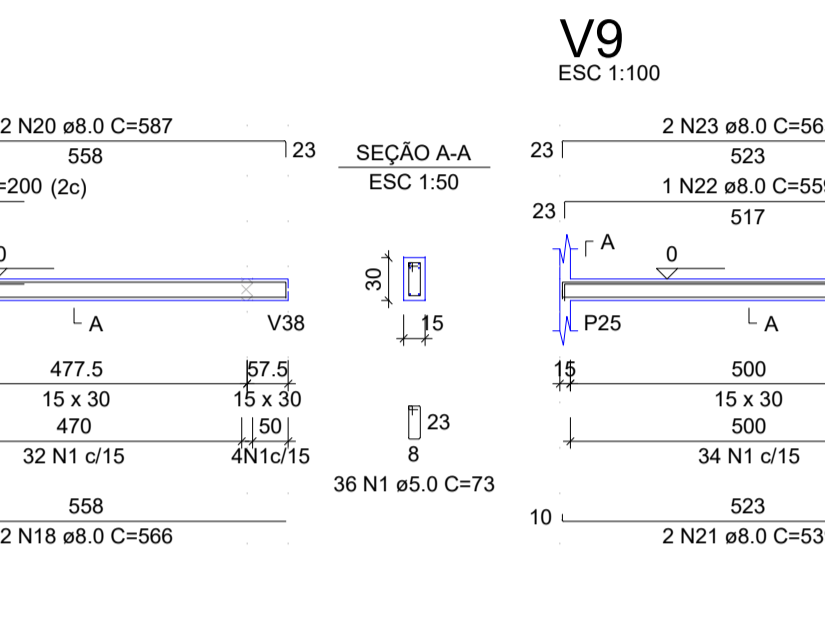
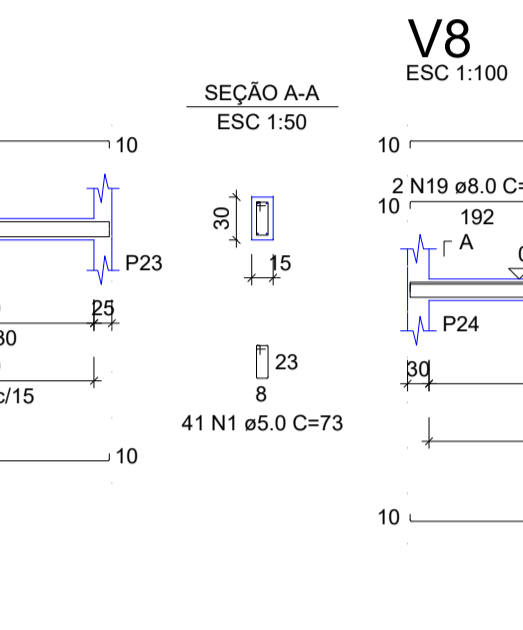
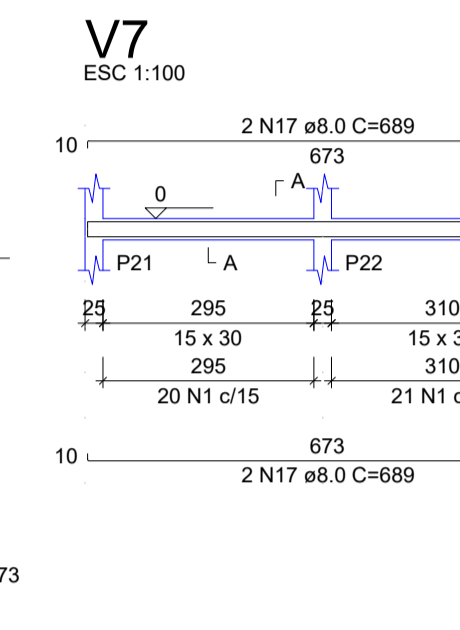
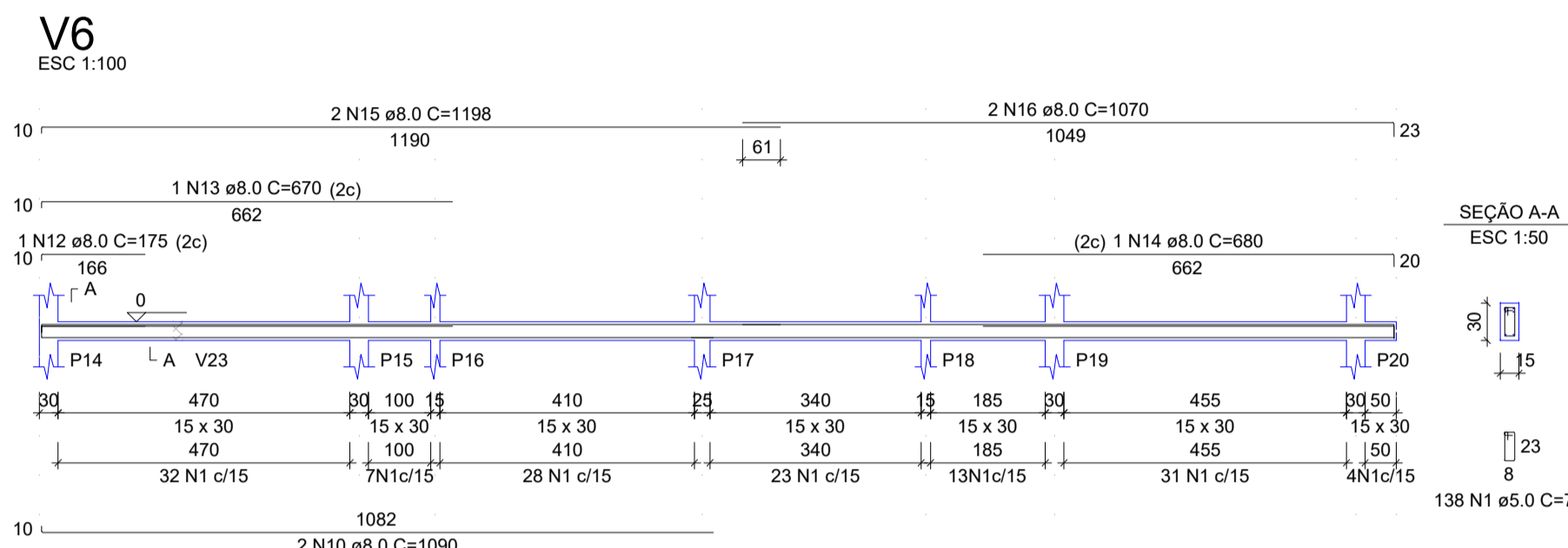
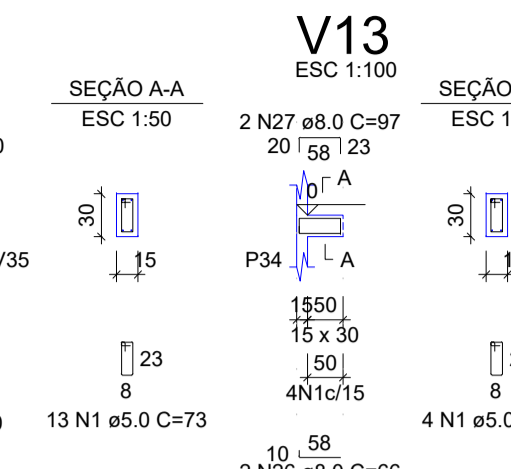
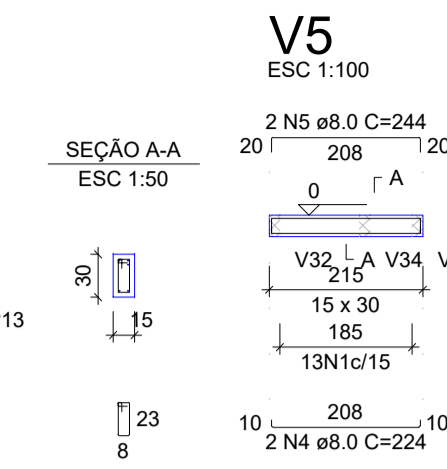
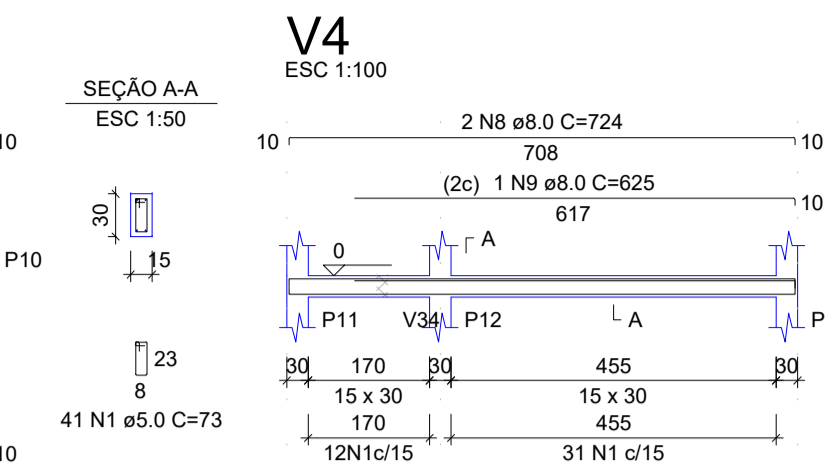
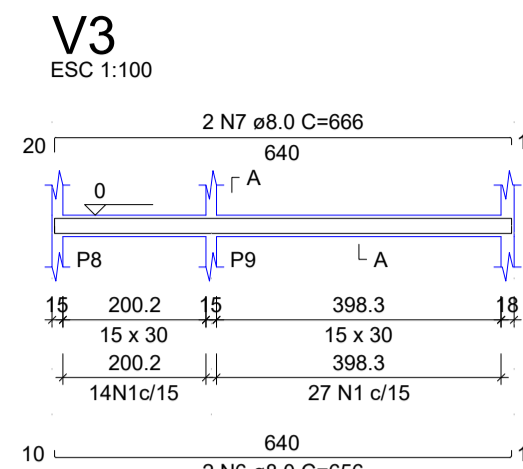
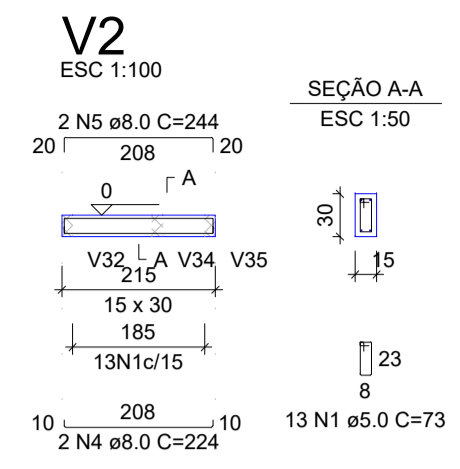
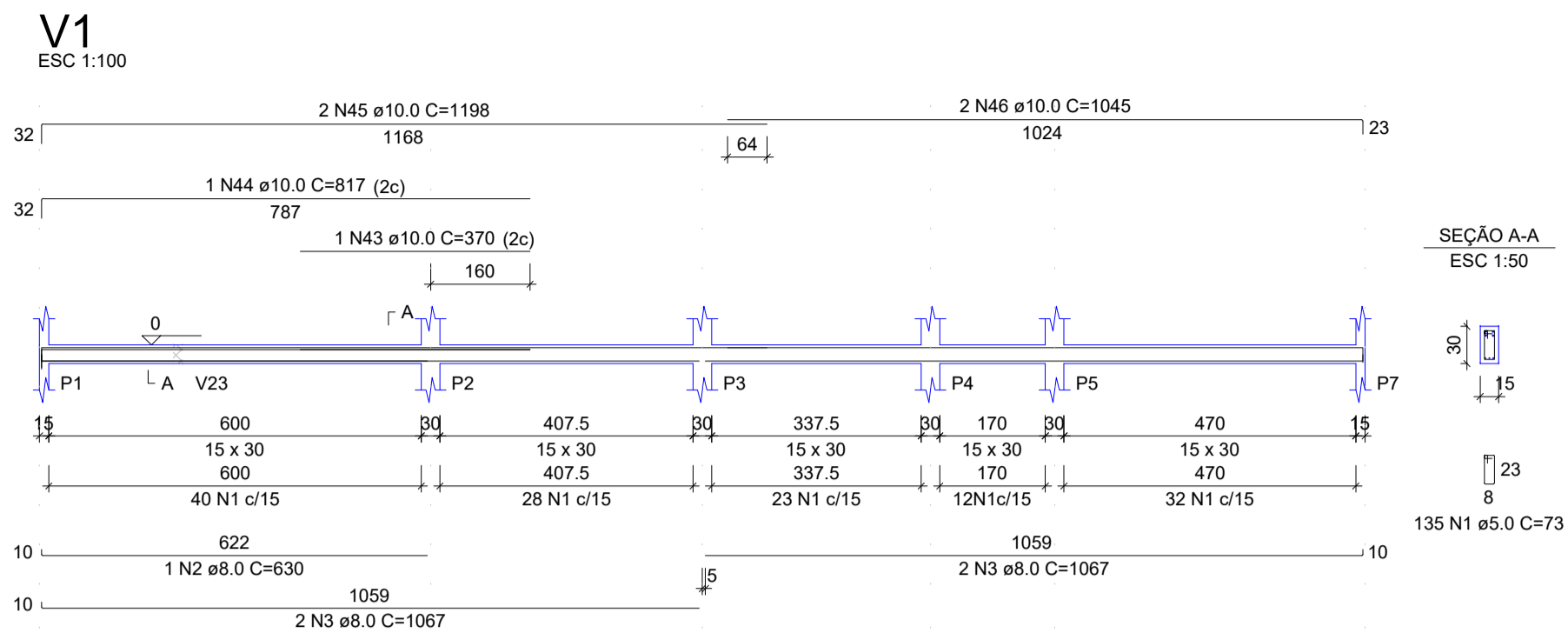
ESCALA: INDICADA

DESENHO: INFRAESTRUTURA

PRANCHAS: DATA: SETEMBRO/2023

02/11

AV. PREFEITO GUIDO OSTENHO, S/N  
CENTRO - MARCO - CE - 82500-000  
FONE: 3661-1210 / 36.364-1415  
WWW.ATAULFO-ATAULFO.COM.BR  
CNPJ: 07.546.316/0001-47



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1098	73	80154
CA50	2	8.0	630	530	33060
	3	8.0	4	1067	4268
	4	8.0	4	224	896
	5	8.0	4	244	976
	6	8.0	2	656	1312
	7	8.0	2	666	1332
	8	8.0	4	724	2896
	9	8.0	1	625	625
	10	8.0	2	1090	2180
	11	8.0	2	1132	2264
	12	8.0	1	175	175
	13	8.0	1	670	670
	14	8.0	1	680	680
	15	8.0	4	1198	4792
	16	8.0	2	1070	2140
	17	8.0	3	689	2067
	18	8.0	6	566	3396
	19	8.0	2	200	400
	20	8.0	2	587	1174
	21	8.0	8	539	4312
	22	8.0	1	559	559
	23	8.0	2	955	1910
	24	8.0	1	520	520
	25	8.0	1	533	533
	26	8.0	4	66	264
	27	8.0	4	97	388
	28	8.0	2	559	1118
	29	8.0	2	394	788
	30	8.0	4	414	1656
	31	8.0	2	389	778
	32	8.0	2	409	818
	33	8.0	2	597	1194
	34	8.0	2	900	1800
	35	8.0	2	980	1960
	36	8.0	2	302	604
	37	8.0	2	1053	2106
	38	8.0	2	624	1248
	39	8.0	2	638	1276
	40	8.0	2	650	1300
	41	8.0	2	259	518
	42	8.0	2	279	558
	43	10.0	1	370	370
	44	10.0	1	617	617
	45	10.0	2	1198	2396
	46	10.0	2	1045	2090
	47	10.0	1	197	197
	48	10.0	1	578	578
	49	10.0	2	588	1176
	50	12.5	2	1126	2252
	51	12.5	1	495	495
	52	12.5	2	559	1118
	53	12.5	1	405	405
	54	12.5	1	825	825
	55	12.5	2	1197	2394
	56	12.5	2	592	1184

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	625.3	271.4
	10.0	76.2	51.7
	12.5	86.7	91.9
CA60	5.0	801.5	135.9
<b>PESO TOTAL (kg)</b>			
CA50		415	
CA60		135.9	

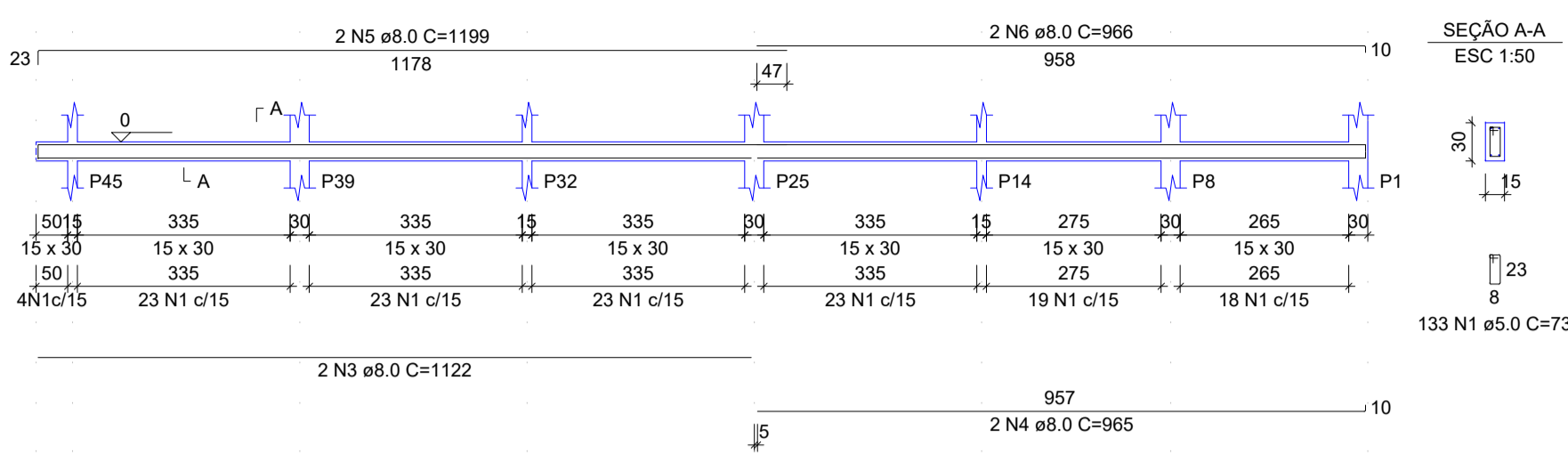
Volume de concreto (C-25) = 6.96 m³  
Área de forma = 116.46 m²

CDR	ESP. PDNA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.0%
13	15%

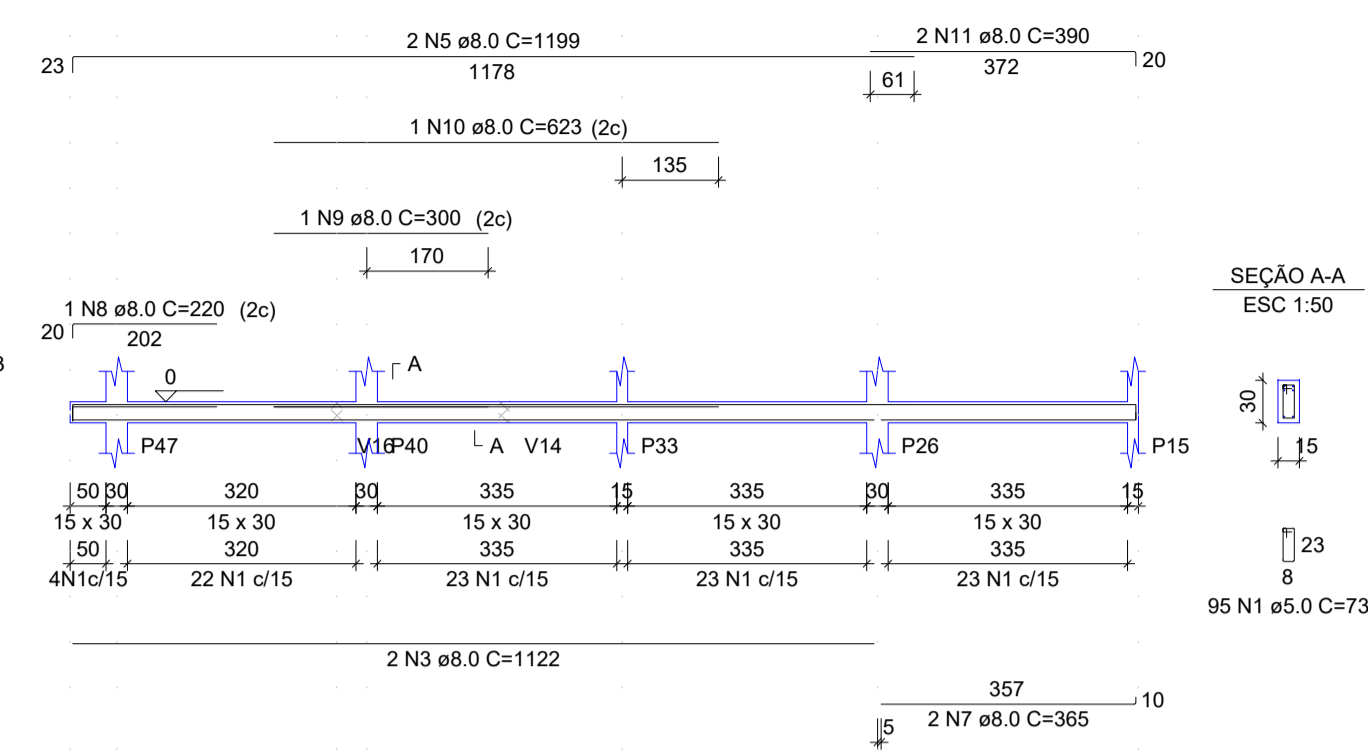


02			
01			
Nº	DATA	DESENHO	APROVAÇÃO
PROJETO: PROJETO ESTRUTURAL E.E.F LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Detalhamento das Vigas Nível 000			
 AV. PREFEITO GUIDO OSTERHO, S/N CENTRO - MARCO - CE - 82504-000 BR 366-1210   BR 364-1415 www.marco.ce.gov.br CNPJ: 07.546.316/0001-77			
ESCALA:	DESENHO:	PRANCHA:	
INDICADA	INFRAESTRUTURA	DATA:	<b>03/11</b>
	SETEMBRO/2023		

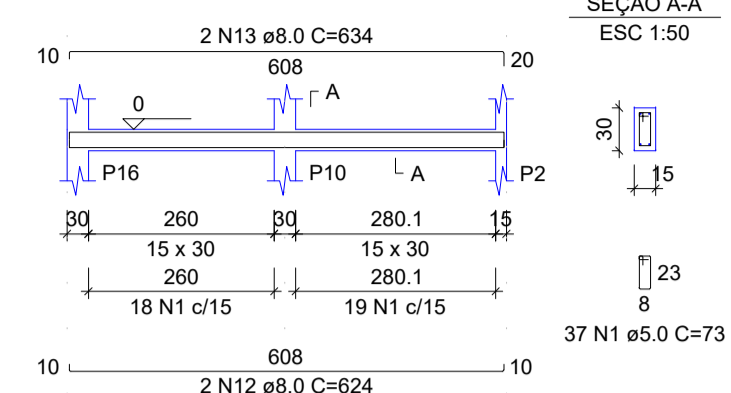
**V21**  
ESC 1:100



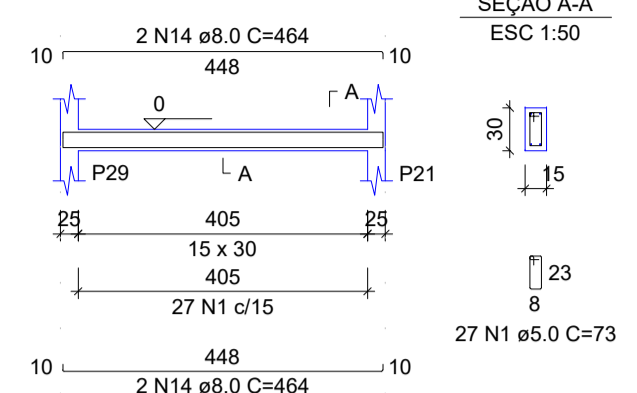
**V24**  
ESC 1:100



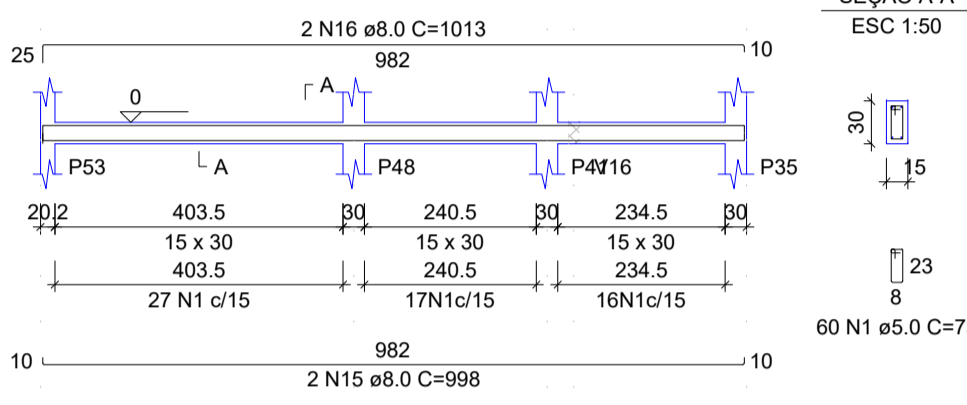
**V26**  
ESC 1:100



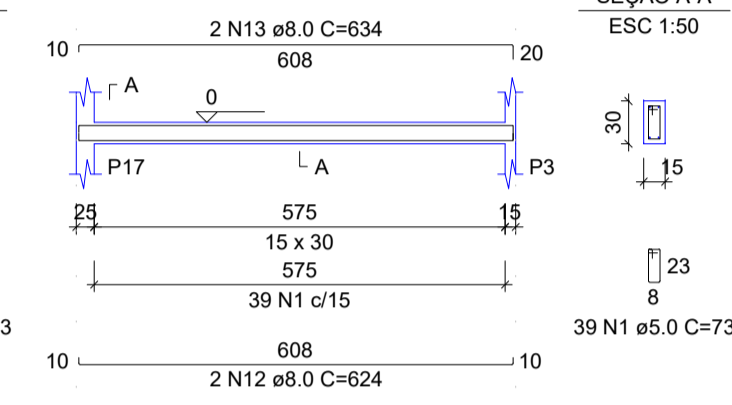
**V27**  
ESC 1:100



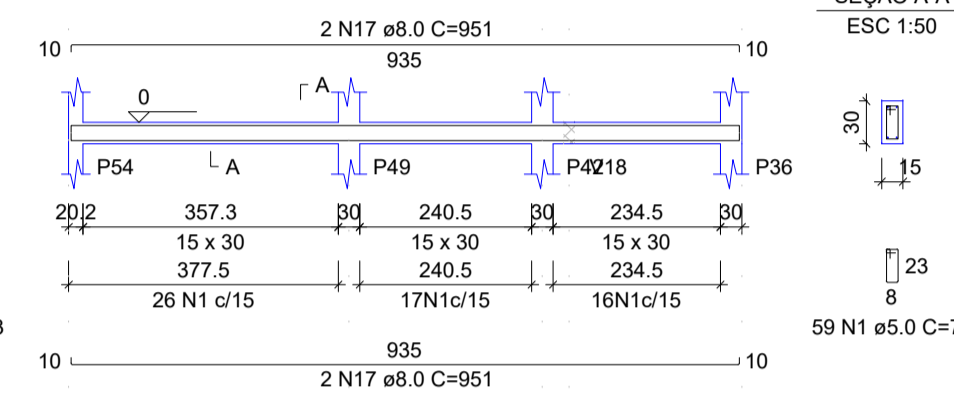
**V28**  
ESC 1:100



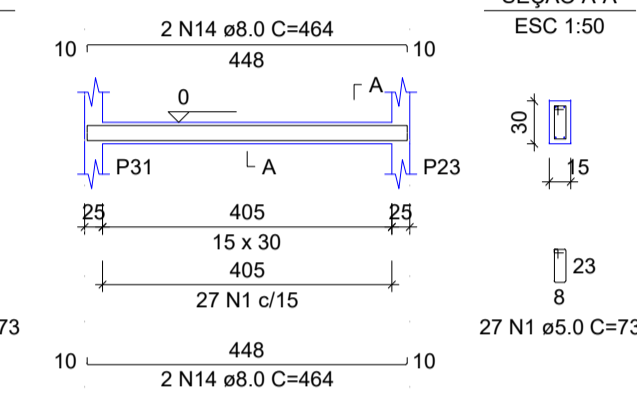
**V29**  
ESC 1:100



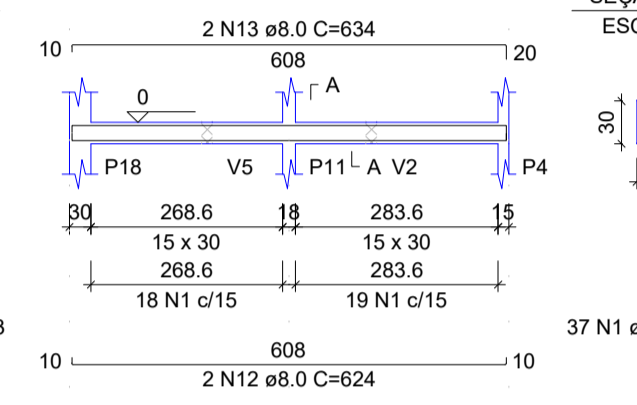
**V30**  
ESC 1:100



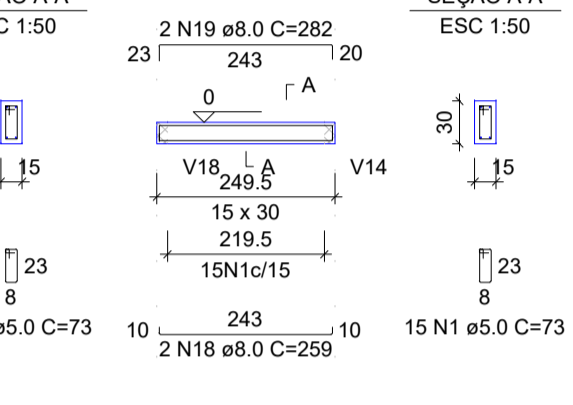
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ESC 1:100



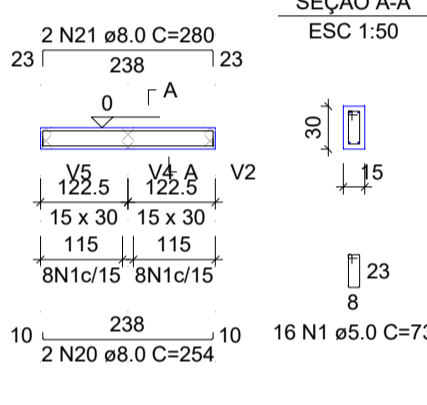
**V32**  
ESC 1:100



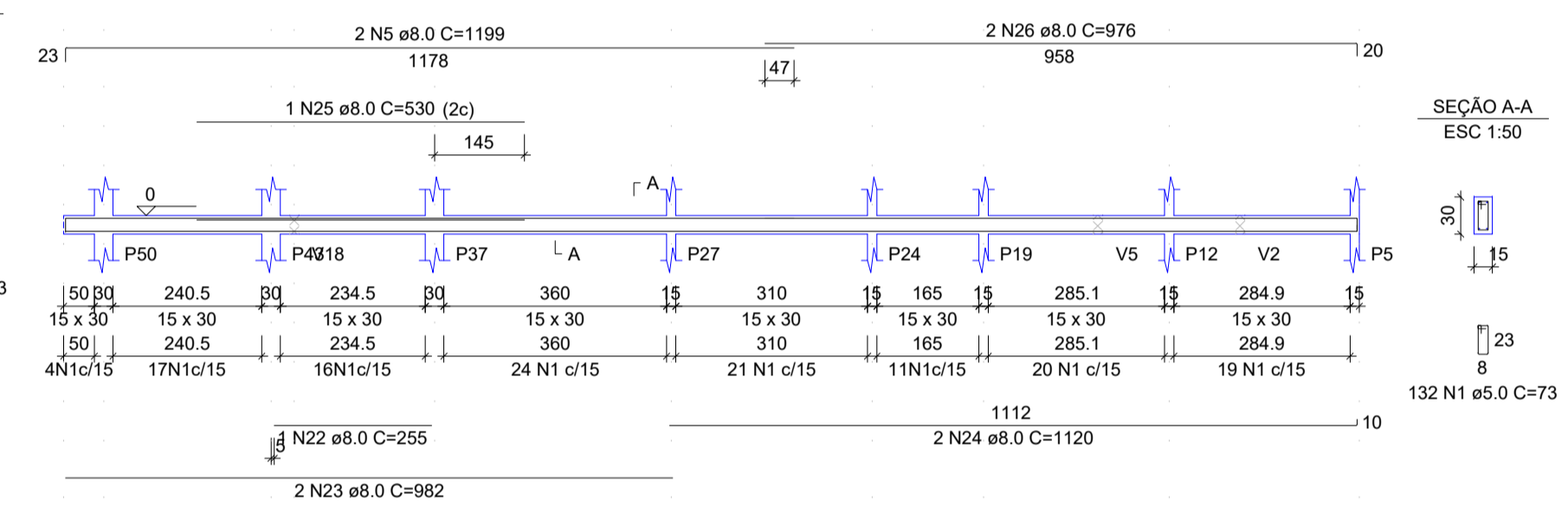
**V33**  
ESC 1:100



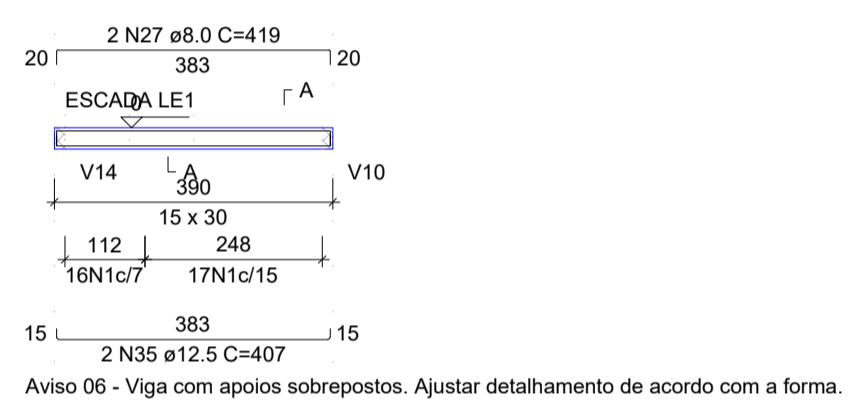
**V34**  
ESC 1:100



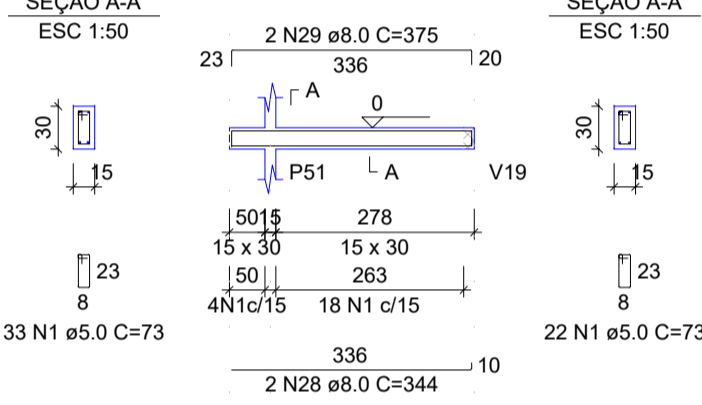
**V35**  
ESC 1:100



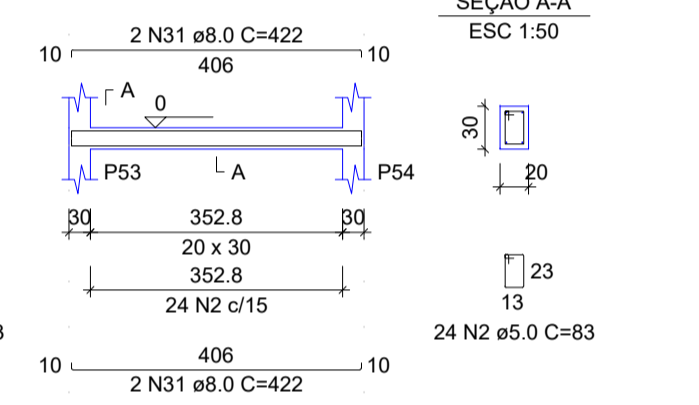
**V36**  
ESC 1:100



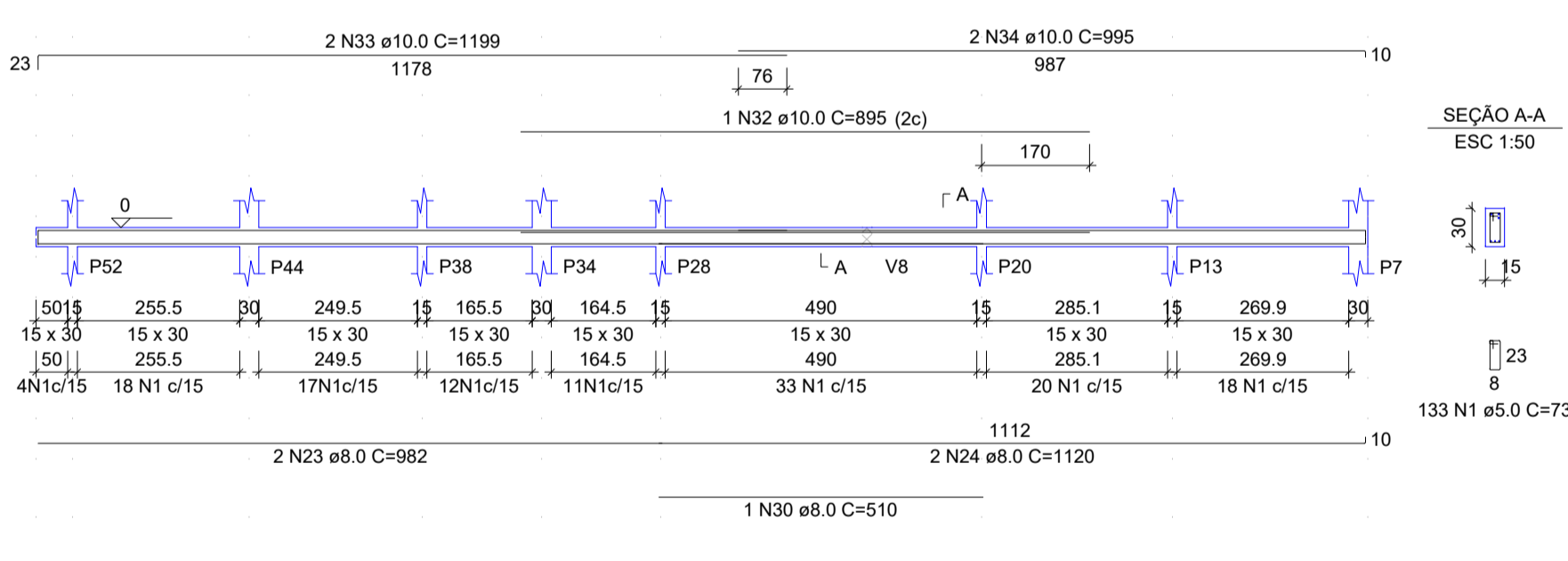
**V37**  
ESC 1:100



**V39**  
ESC 1:100



**V38**  
ESC 1:100



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	5.0	865	73	63145
CA50	2	8.0	24	83	1992
CA50	3	8.0	4	1122	4488
CA50	4	8.0	2	965	1930
CA50	5	8.0	6	1199	7194
CA50	6	8.0	2	966	1932
CA50	7	8.0	2	365	730
CA50	8	8.0	1	220	220
CA50	9	8.0	1	300	300
CA50	10	8.0	1	623	623
CA50	11	8.0	2	300	760
CA50	12	8.0	6	624	3744
CA50	13	8.0	6	634	3804
CA50	14	8.0	8	464	3712
CA50	15	8.0	2	998	1996
CA50	16	8.0	2	1013	2026
CA50	17	8.0	4	951	3804
CA50	18	8.0	2	259	518
CA50	19	8.0	2	282	564
CA50	20	8.0	2	254	508
CA50	21	8.0	2	280	560
CA50	22	8.0	1	255	255
CA50	23	8.0	4	982	3928
CA50	24	8.0	4	1120	4480
CA50	25	8.0	1	530	530
CA50	26	8.0	2	375	750
CA50	27	8.0	2	419	838
CA50	28	8.0	2	344	688
CA50	29	8.0	2	375	750
CA50	30	8.0	1	510	510
CA50	31	8.0	4	422	1688
CA50	32	10.0	1	895	895
CA50	33	10.0	2	1199	2398
CA50	34	10.0	2	995	1990
CA50	35	12.5	2	407	814

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	550.5	238.9
CA50	10.0	52.8	35.8
CA50	12.5	8.1	8.6
CA60	5.0	651.4	110.4

PESO TOTAL (kg)  
CA50 283.4  
CA60 110.4

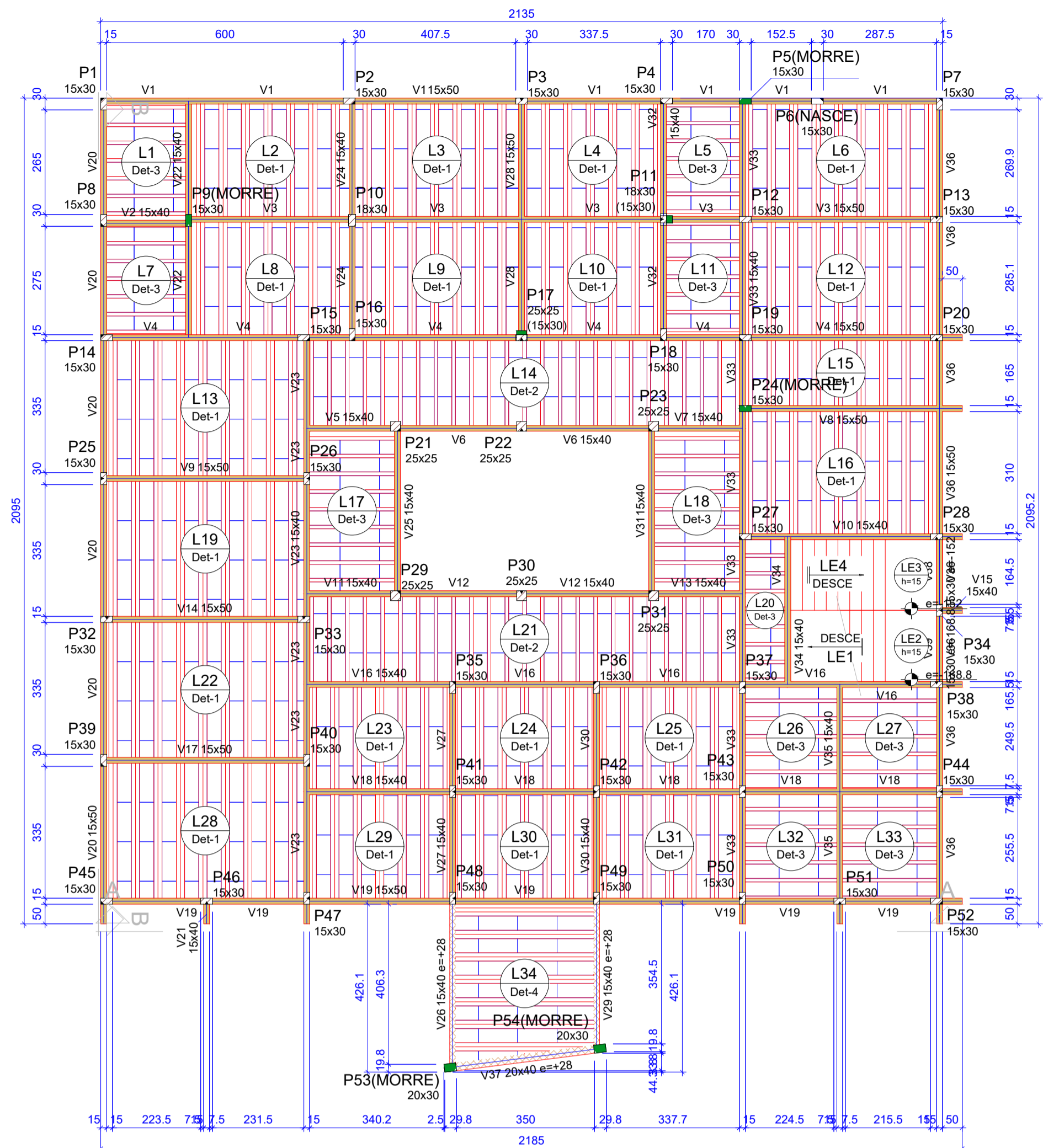
Volume de concreto (C-25) = 5.83 m³  
Área de forma = 96.13 m²

CDR	ESP. PENIA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.00
11	1.00
12	1.00
13	1.00

MODELAGEM 3D FORMAS



02				
01				
Nº	DATA	REVISÃO	DESENHO	APROVAÇÃO
PROJETO: PROJETO ESTRUTURAL E.E.F LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Detalhamento das Vigas Nível 000 ESCALA: INDICADA DESENHO: INFRAESTRUTURA PRANCHIA: DATA: SETEMBRO/2023				
		AV. PREFEITO GUIDO OSTENHO, S/N CENTRO - MARCO - CE - 82500-000 FONE: 3654-1210 / 36.364-1415 WWW.MARCO.CE.GOV.BR CNPJ: 07.546.514/0001-47		
		<b>04/11</b>		



Blocos de enchimento				
Detalhe	Tipo	Nome	Dimensões (cm)	Quantidade
1/2/3/4	EPS Unidirecional	B7/36/100/5	7 x 36 x 100	858

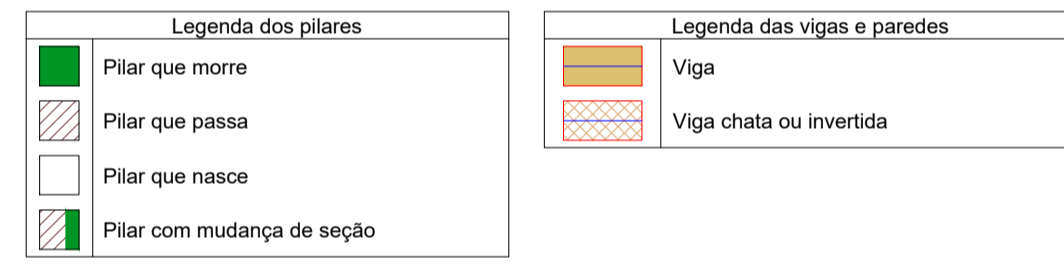
Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	15x50	0	320
V2	15x40	0	320
V3	15x50	0	320
V4	15x50	0	320
V5	15x40	0	320
V6	15x40	0	320
V7	15x40	0	320
V8	15x50	0	320
V9	15x50	0	320
V10	15x40	0	320
V11	15x40	0	320
V12	15x40	0	320
V13	15x40	0	320
V14	15x50	0	320
V15	15x40	0	320
V16	15x40	0	320
V17	15x50	0	320
V18	15x40	0	320
V19	15x50	0	320
V20	15x50	0	320
V21	15x40	0	320
V22	15x40	0	320
V23	15x40	0	320
V24	15x40	0	320
V25	15x40	0	320
V26	15x40	28	348
V27	15x40	0	320
V28	15x50	0	320
V29	15x40	28	348
V30	15x40	0	320
V31	15x40	0	320
V32	15x40	0	320
V33	15x40	0	320
V34	15x40	0	320
V35	15x40	0	320
V36	15x50	0	320
V37	20x40	28	348
V38	15x30	-152	168
V39	15x30	-168,8	151,2

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	15x30	0	320
P2	15x30	0	320
P3	15x30	0	320
P4	15x30	0	320
P5	15x30	0	320
P6	15x30	0	320
P7	15x30	0	320
P8	15x30	0	320
P9	15x30	0	320
P10	18x30	0	320
P11	18x30	0	320
P12	15x30	0	320
P13	15x30	0	320
P14	15x30	0	320
P15	15x30	0	320
P16	15x30	0	320
P17	25x25	0	320
P18	15x30	0	320
P19	15x30	0	320
P20	15x30	0	320
P21	25x25	0	320
P22	25x25	0	320
P23	25x25	0	320
P24	15x30	0	320
P25	15x30	0	320
P26	15x30	0	320
P27	15x30	0	320
P28	15x30	0	320
P29	25x25	0	320
P30	25x25	0	320
P31	25x25	0	320
P32	15x30	0	320
P33	15x30	0	320
P34	15x30	0	320
P35	15x30	0	320
P36	15x30	0	320
P37	15x30	0	320
P38	15x30	0	320
P39	15x30	0	320
P40	15x30	0	320
P41	15x30	0	320
P42	15x30	0	320
P43	15x30	0	320
P44	15x30	0	320
P45	15x30	0	320
P46	15x30	0	320
P47	15x30	0	320
P48	15x30	0	320
P49	15x30	0	320
P50	15x30	0	320
P51	15x30	0	320
P52	15x30	0	320
P53	20x30	28	348
P54	20x30	28	348

Lajes									
Nome	Tipo	Altura (cm)	Dados			Sobrecarga (kgf/m²)			
			Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada	
L1	Trelaçada 1D	12	0	320	161	155	200	-	
L2	Trelaçada 1D	12	0	320	190	155	200	-	
L3	Trelaçada 1D	12	0	320	190	155	200	-	
L4	Trelaçada 1D	12	0	320	190	155	200	-	
L5	Trelaçada 1D	12	0	320	161	155	200	-	
L6	Trelaçada 1D	12	0	320	190	155	200	-	
L7	Trelaçada 1D	12	0	320	161	155	200	-	
L8	Trelaçada 1D	12	0	320	190	155	200	-	
L9	Trelaçada 1D	12	0	320	190	155	200	-	
L10	Trelaçada 1D	12	0	320	190	155	200	-	
L11	Trelaçada 1D	12	0	320	161	155	200	-	
L12	Trelaçada 1D	12	0	320	190	155	200	-	
L13	Trelaçada 1D	12	0	320	190	155	200	-	
L14	Trelaçada 1D	12	0	320	161	155	200	-	
L15	Trelaçada 1D	12	0	320	190	155	200	-	
L16	Trelaçada 1D	12	0	320	161	155	200	-	
L17	Trelaçada 1D	12	0	320	190	155	200	-	
L18	Trelaçada 1D	12	0	320	161	155	200	-	
L19	Trelaçada 1D	12	0	320	190	155	200	-	
L20	Trelaçada 1D	12	0	320	161	155	200	-	
L21	Trelaçada 1D	12	0	320	161	155	200	-	
L22	Trelaçada 1D	12	0	320	190	155	200	-	
L23	Trelaçada 1D	12	0	320	190	155	200	-	
L24	Trelaçada 1D	12	0	320	190	155	200	-	
L25	Trelaçada 1D	12	0	320	190	155	200	-	
L26	Trelaçada 1D	12	0	320	161	155	200	-	
L27	Trelaçada 1D	12	0	320	161	155	200	-	
L28	Trelaçada 1D	12	0	320	190	155	200	-	
L29	Trelaçada 1D	12	0	320	190	155	200	-	
L30	Trelaçada 1D	12	0	320	190	155	200	-	
L31	Trelaçada 1D	12	0	320	190	155	200	-	
L32	Trelaçada 1D	12	0	320	161	155	200	-	
L33	Trelaçada 1D	12	0	320	190	155	200	-	
L34	Trelaçada 1D	12	0	320	190	155	200	-	
LE1	Maciça	15	-169	151,2	654	165	250	-	
LE2	Maciça	15	-169	151,2	375	165	250	-	
LE3	Maciça	15	-152	168	375	165	250	-	
LE4	Maciça	15	0	320	655	165	250	-	

Características dos materiais

fck (kgf/cm²)	250
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RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5,0	154	23	3542
CA60	2	5,0	1084	73	79132
CA60	3	5,0	54	23	1242
CA60	4	5,0	54	79	4266
CA60	5	5,0	27	26	702
CA60	6	5,0	184	83	15272
CA60	7	5,0	58	83	4814
CA60	8	10,0	149	358	53342
CA60	9	10,0	17	316	5372
CA60	10	10,0	4	92	368
CA60	11	10,0	4	344	2752
CA60	12	12,5	13	316	4108
CA60	13	12,5	57	367	20919
CA60	14	12,5	1	94	94
CA60	15	12,5	1	94	94

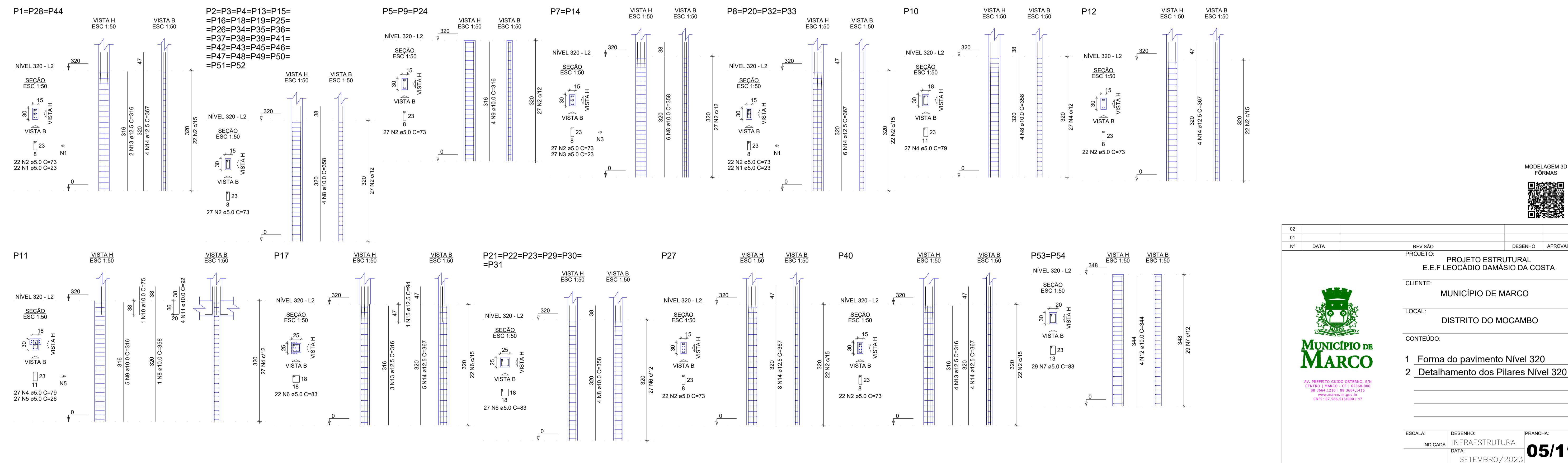
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO * 10% (kg)
CA50	10,0	619,1	419,9
CA60	12,5	251,2	266,2
CA60	5,0	1089,7	184,8
PESO TOTAL (kg)			
CA50		686,1	
CA60		184,8	

Volume de concreto (C-25) = 8,21 m³  
Área de forma = 156,46 m²

## Forma do pavimento NÍVEL 320

escala 1:100



REV	DATA	REVISÃO	DESENHO	APROVAÇÃO
02				
01				
00				

PROJETO: PROJETO ESTRUTURAL  
E.E.F. LEOCÁDIO DAMÁSIO DA COSTA

CLIENTE: MUNICÍPIO DE MARCO

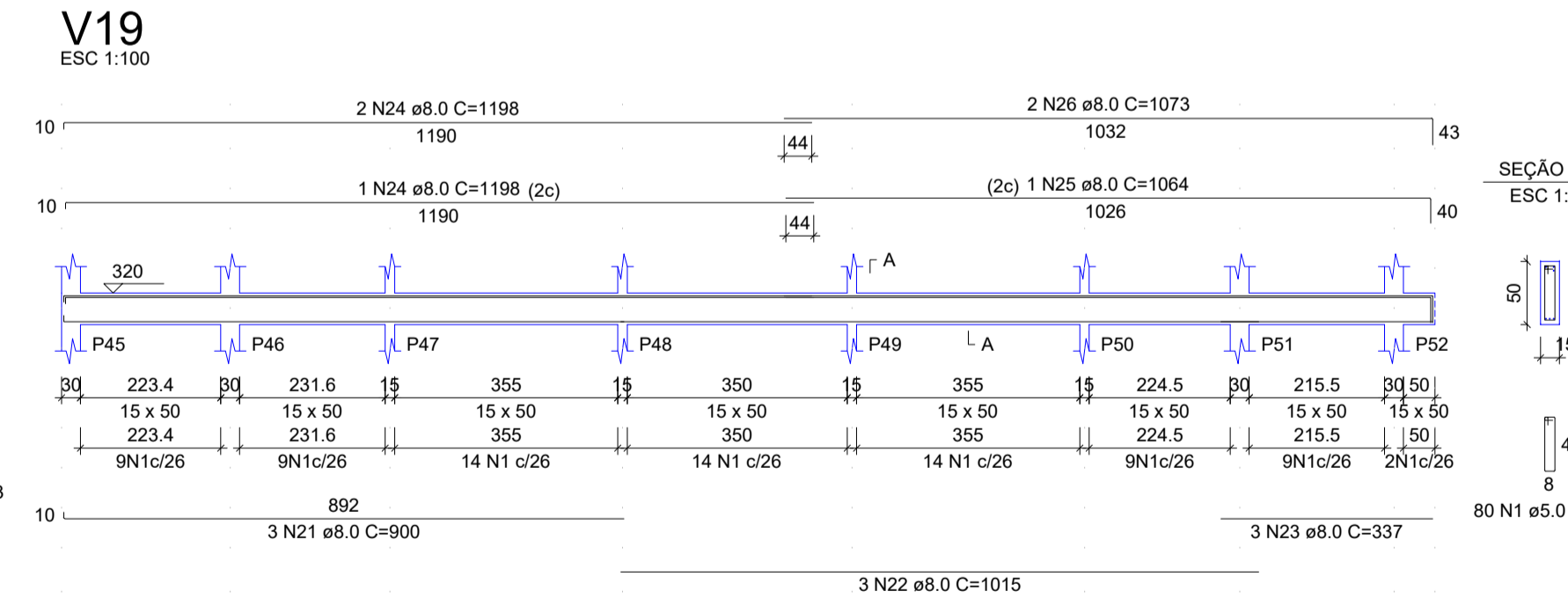
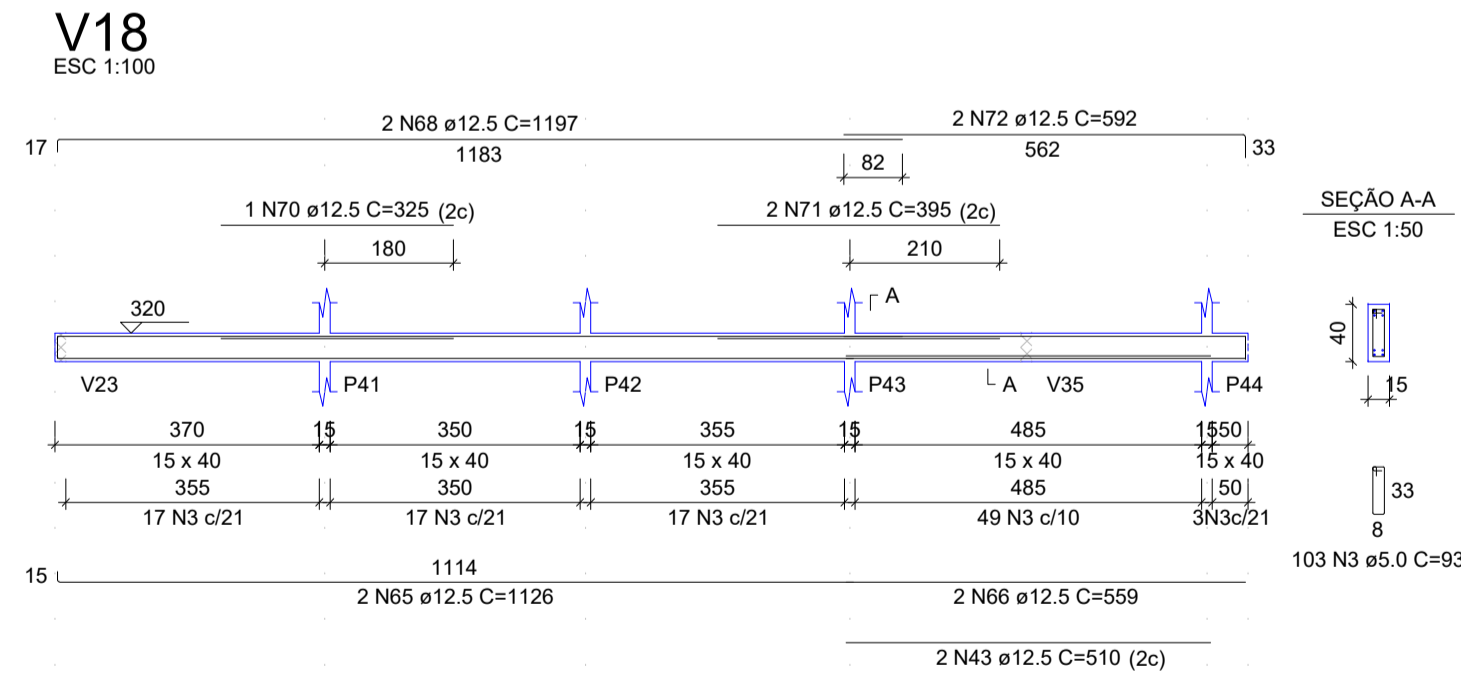
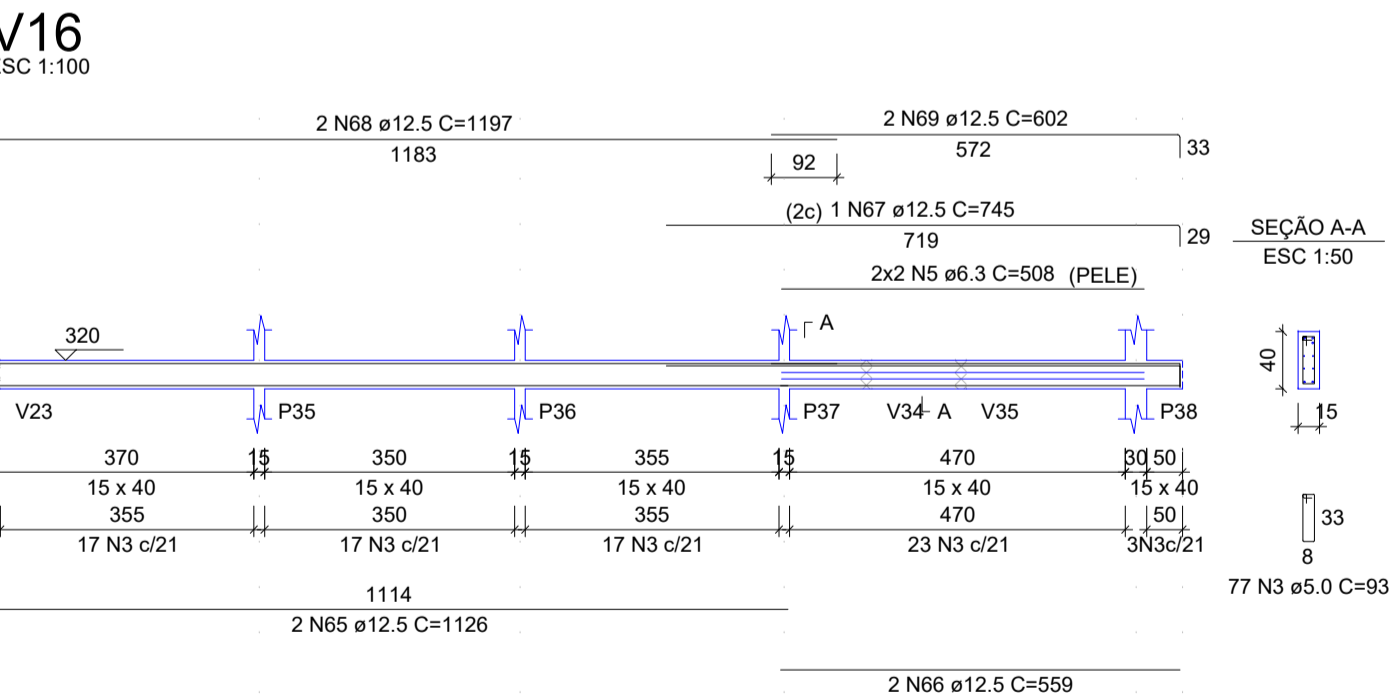
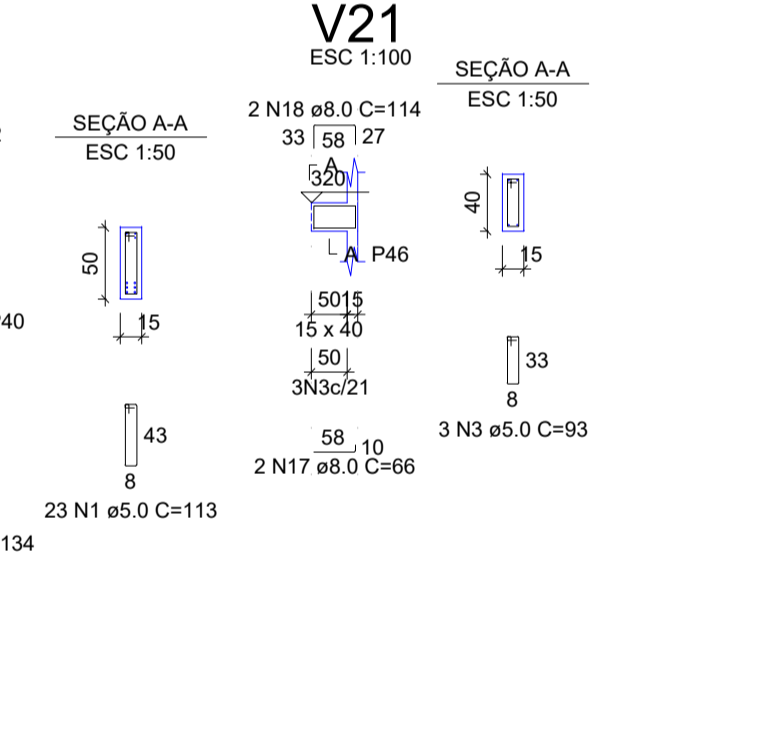
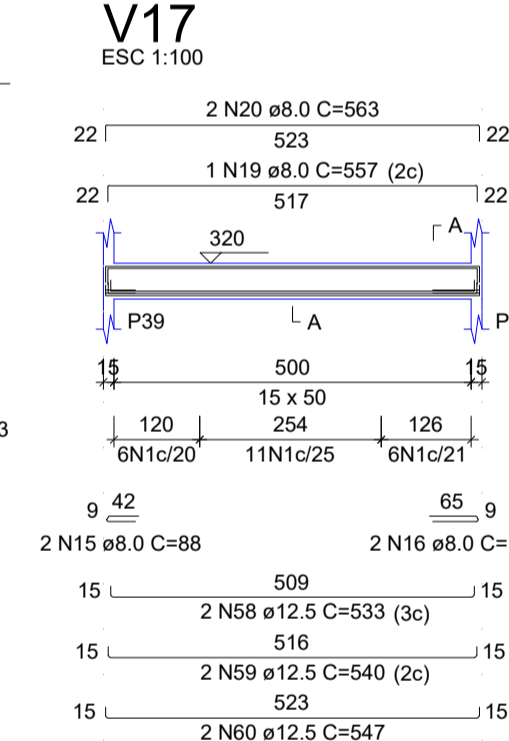
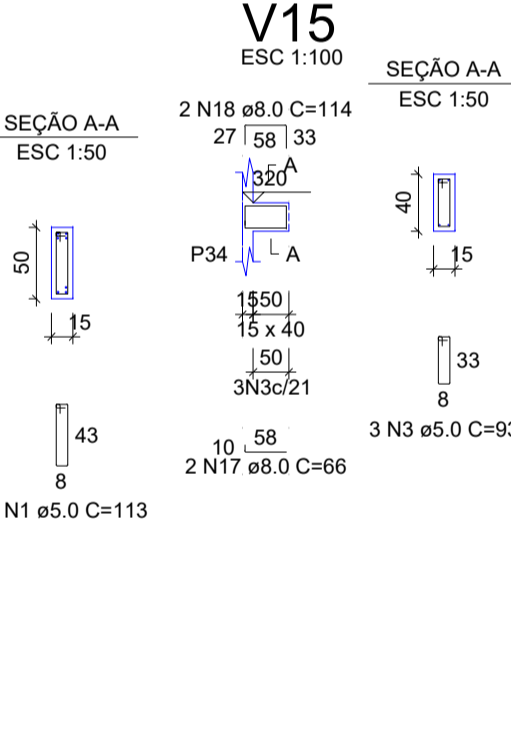
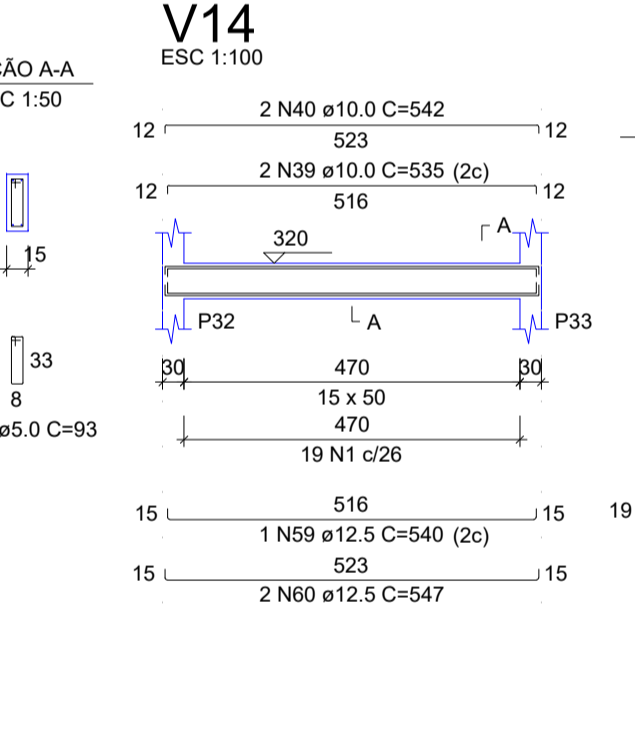
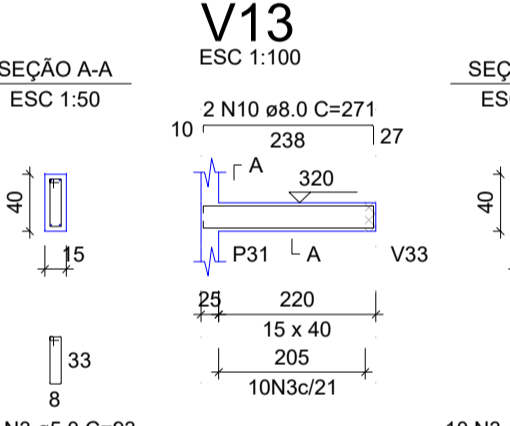
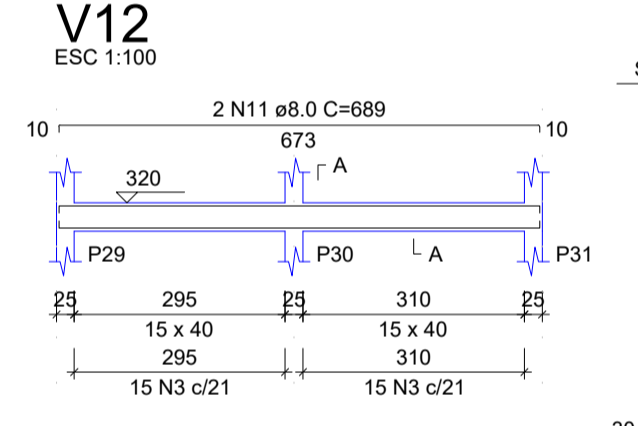
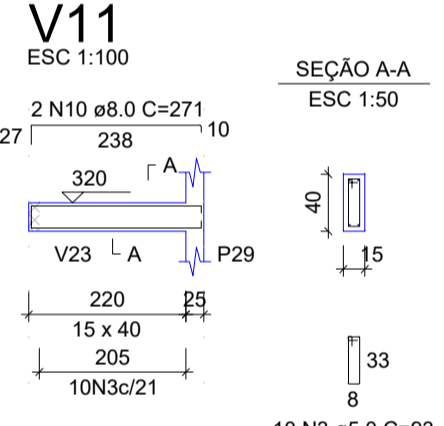
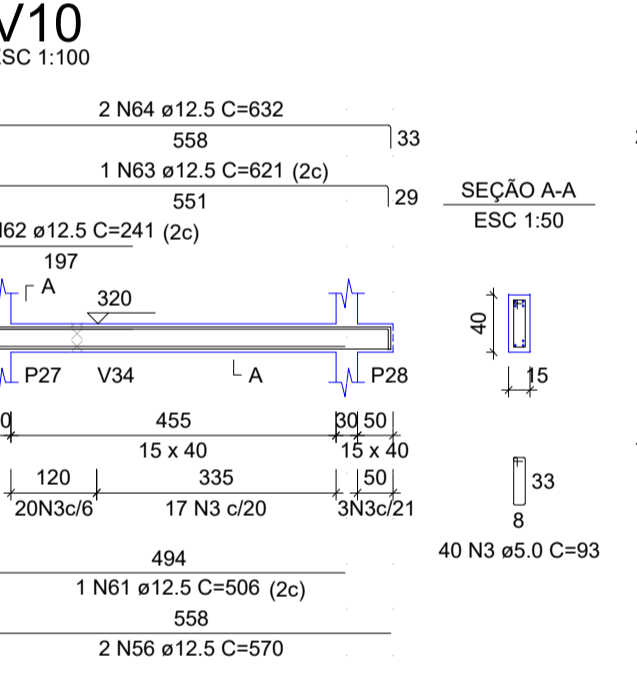
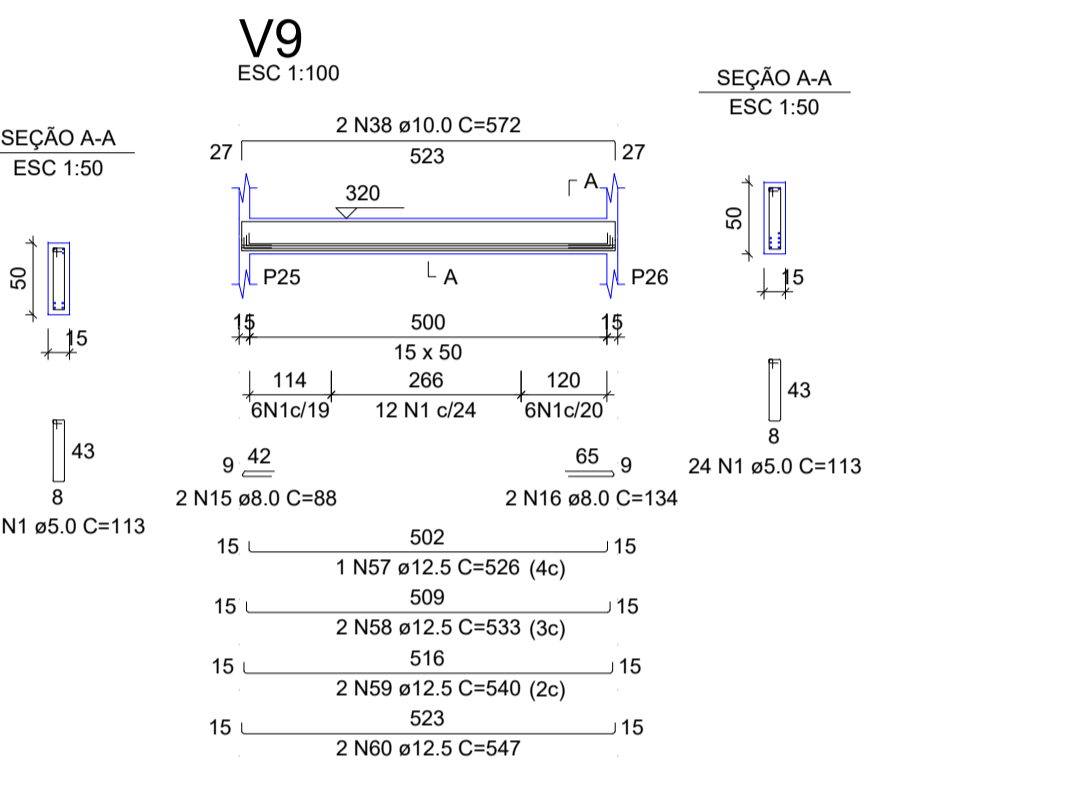
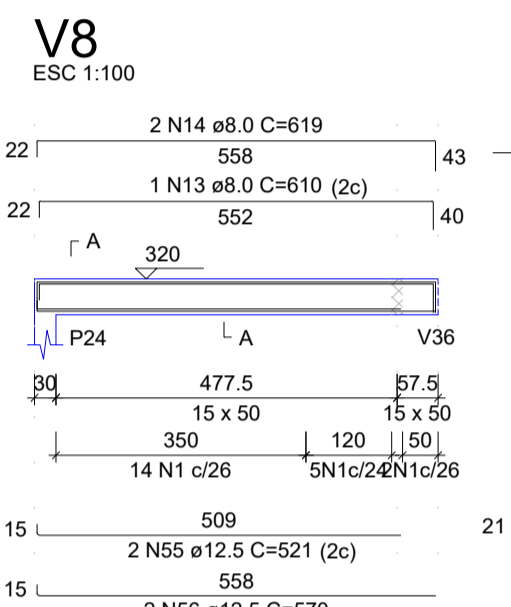
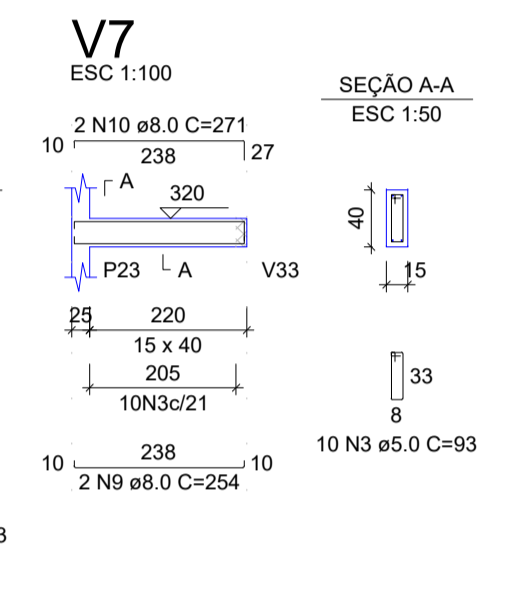
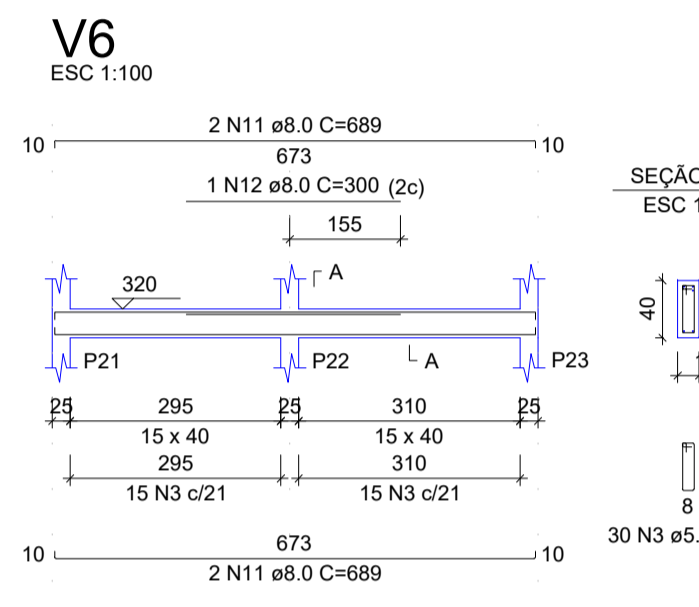
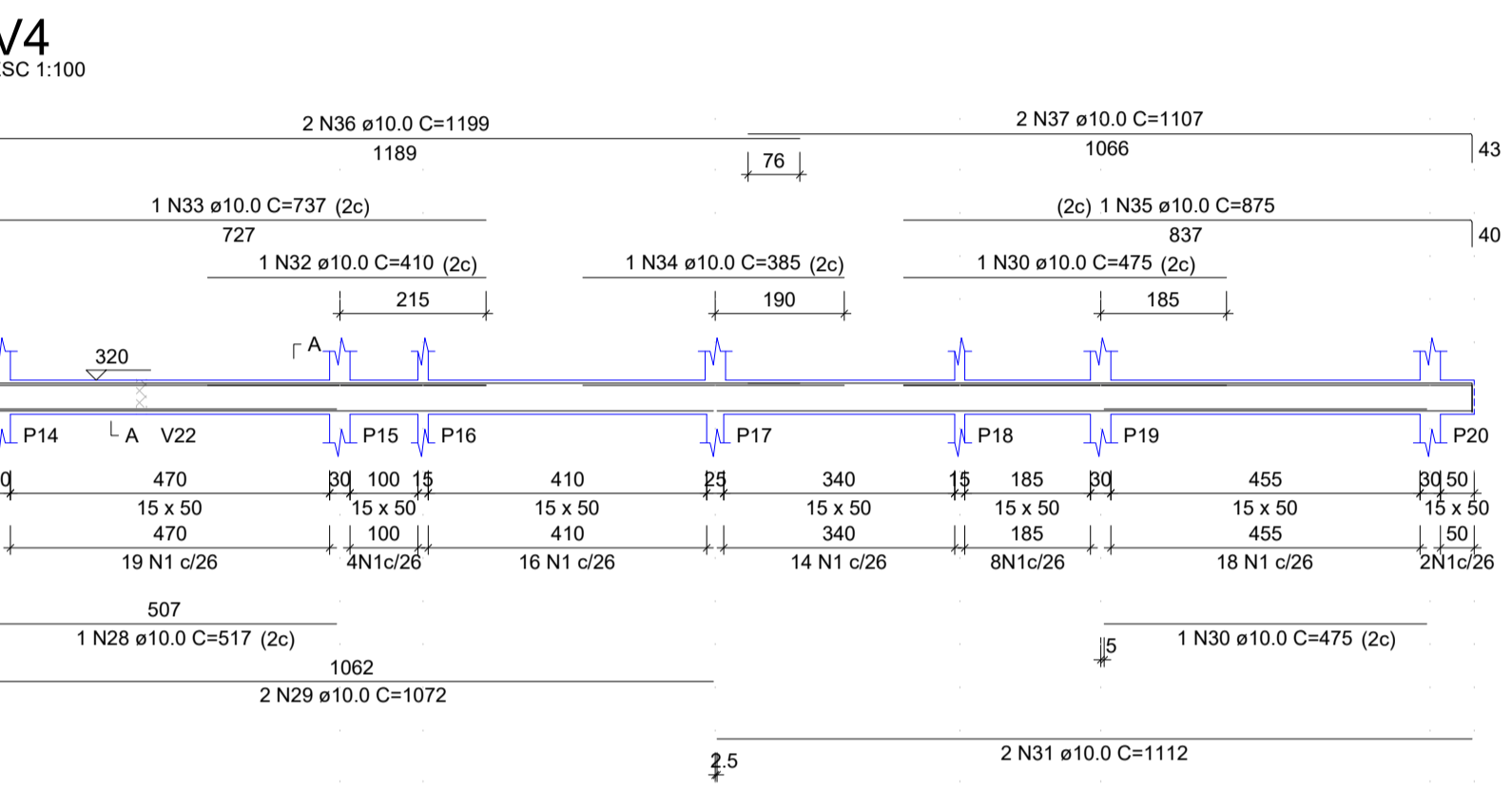
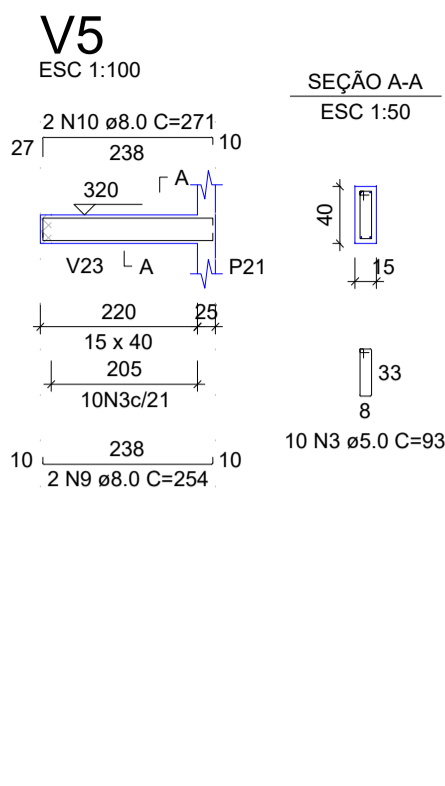
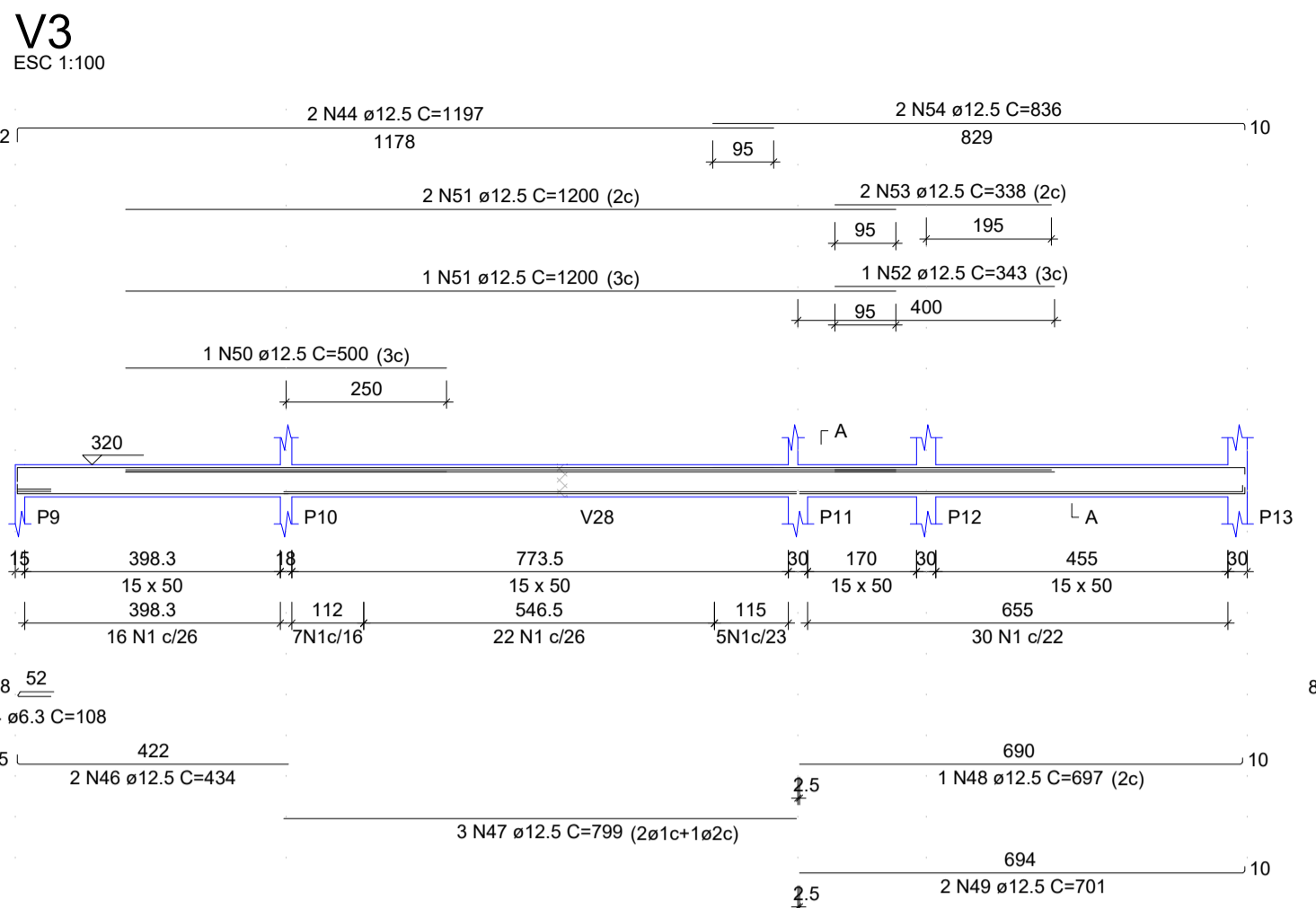
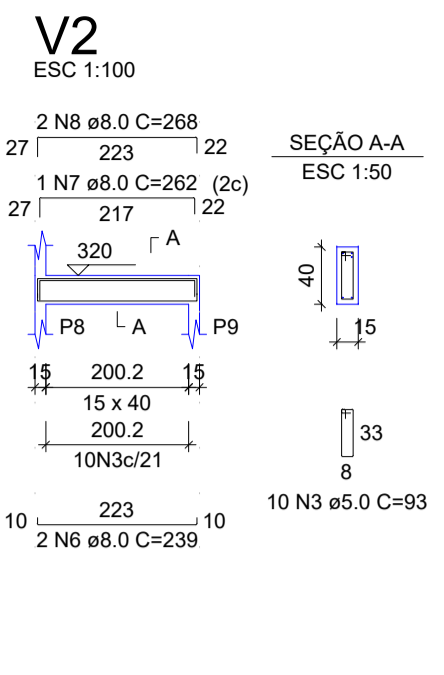
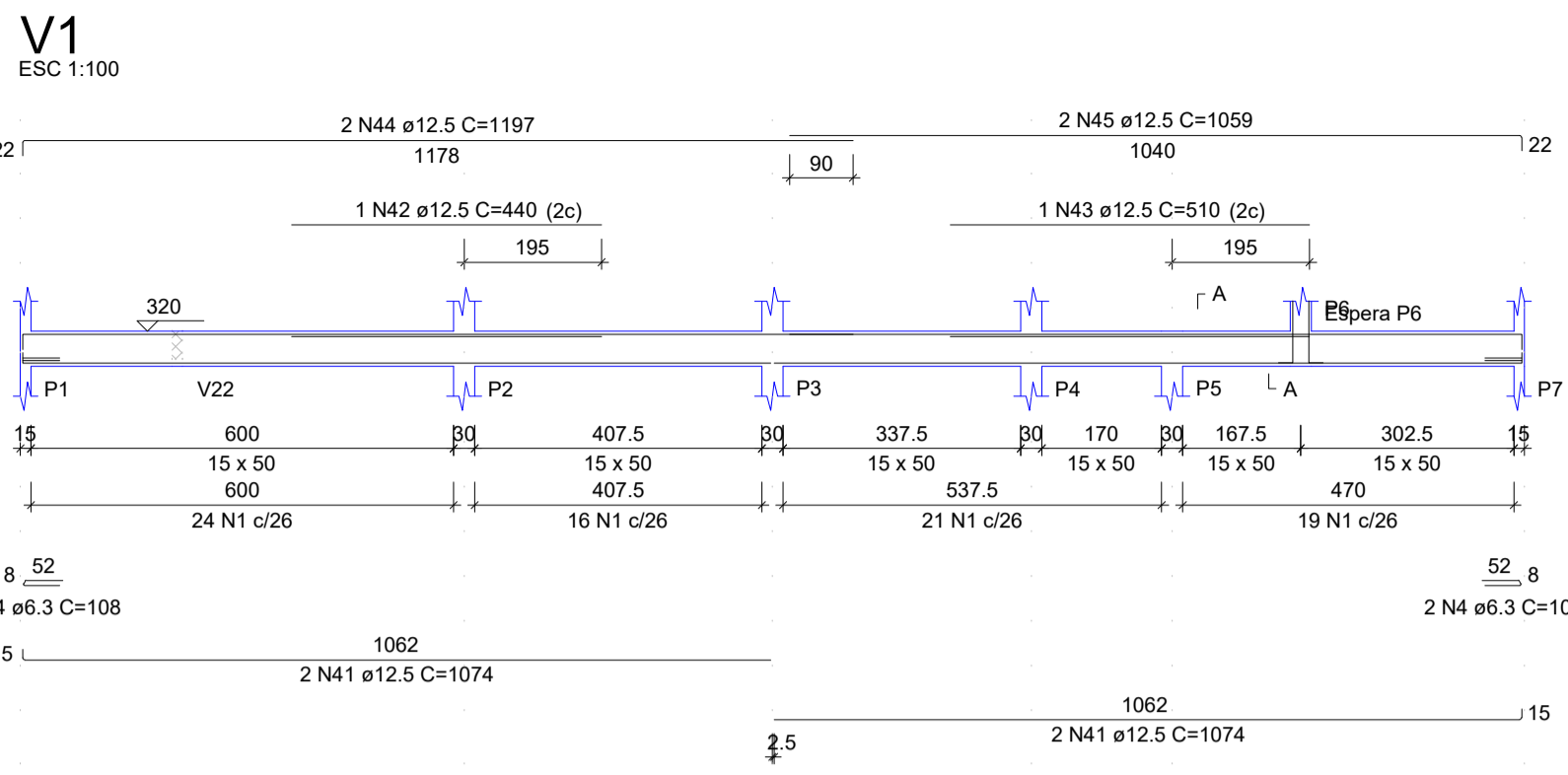
LOCAL: DISTRITO DO MOCAMBO

CONTEÚDO:

- Forma do pavimento Nível 320
- Detalhamento dos Pilares Nível 320

ESCALA: INDICADA DESENHO: INFRAESTRUTURA PRANCHA: 05/11  
DATA: SETEMBRO/2023

MUNICÍPIO DE MARCO  
AV. PREFEITO GUIDO OSTENHO, S/N  
CENTRO - MARCO - CE - 84300-000  
FONE: (41) 3641-1210 | 3641-3415  
WWW.MARCO.CE.GOV.BR  
CNPJ: 07.546.316/0001-17



#### RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	CUNIT (cm)	C.TOTAL (cm)
CA80	1	5.0	408	46104
CA50	2	5.0	4	292
	3	5.0	396	3048
	4	6.3	6	108
	5	6.3	4	508
	6	8.0	2	239
	7	8.0	2	262
	8	8.0	2	268
	9	8.0	4	254
	10	8.0	8	271
	11	8.0	8	689
	12	8.0	1	300
	13	8.0	1	610
	14	8.0	2	619
	15	8.0	4	134
	16	8.0	4	134
	17	8.0	4	66
	18	8.0	4	114
	19	8.0	1	557
	20	8.0	2	563
	21	8.0	3	2700
	22	8.0	3	1015
	23	8.0	3	337
	24	8.0	3	1198
	25	8.0	1	1064
	26	8.0	2	1073
	27	10.0	4	106
	28	10.0	1	517
	29	10.0	2	1072
	30	10.0	2	475
	31	10.0	2	1112
	32	10.0	1	410
	33	10.0	1	737
	34	10.0	1	385
	35	10.0	1	875
	36	10.0	2	1189
	37	10.0	2	1107
	38	10.0	2	572
	39	10.0	2	535
	40	10.0	2	542
	41	12.5	4	1074
	42	12.5	1	440
	43	12.5	3	510
	44	12.5	4	1197
	45	12.5	2	1059
	46	12.5	2	434
	47	12.5	3	799
	48	12.5	1	697
	49	12.5	2	701
	50	12.5	1	500
	51	12.5	3	1200
	52	12.5	1	343
	53	12.5	2	338
	54	12.5	2	836
	55	12.5	2	521
	56	12.5	4	570
	57	12.5	1	526
	58	12.5	4	533
	59	12.5	5	540
	60	12.5	6	547
	61	12.5	1	506
	62	12.5	1	241
	63	12.5	1	821
	64	12.5	2	632
	65	12.5	4	1126
	66	12.5	4	559
	67	12.5	1	745
	68	12.5	4	1197
	69	12.5	2	802
	70	12.5	1	325
	71	12.5	2	395
	72	12.5	2	992

#### RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	5.0	26.8	7.2
CA50	8.0	299.9	130.2
CA50	10.0	165.8	112.4
CA60	5.0	776.4	580.2
<b>CA60</b>			<b>131.6</b>
<b>CA50 TOTAL</b>			<b>210.8</b>
<b>CA60</b>			<b>840</b>
<b>CA60</b>			<b>131.6</b>

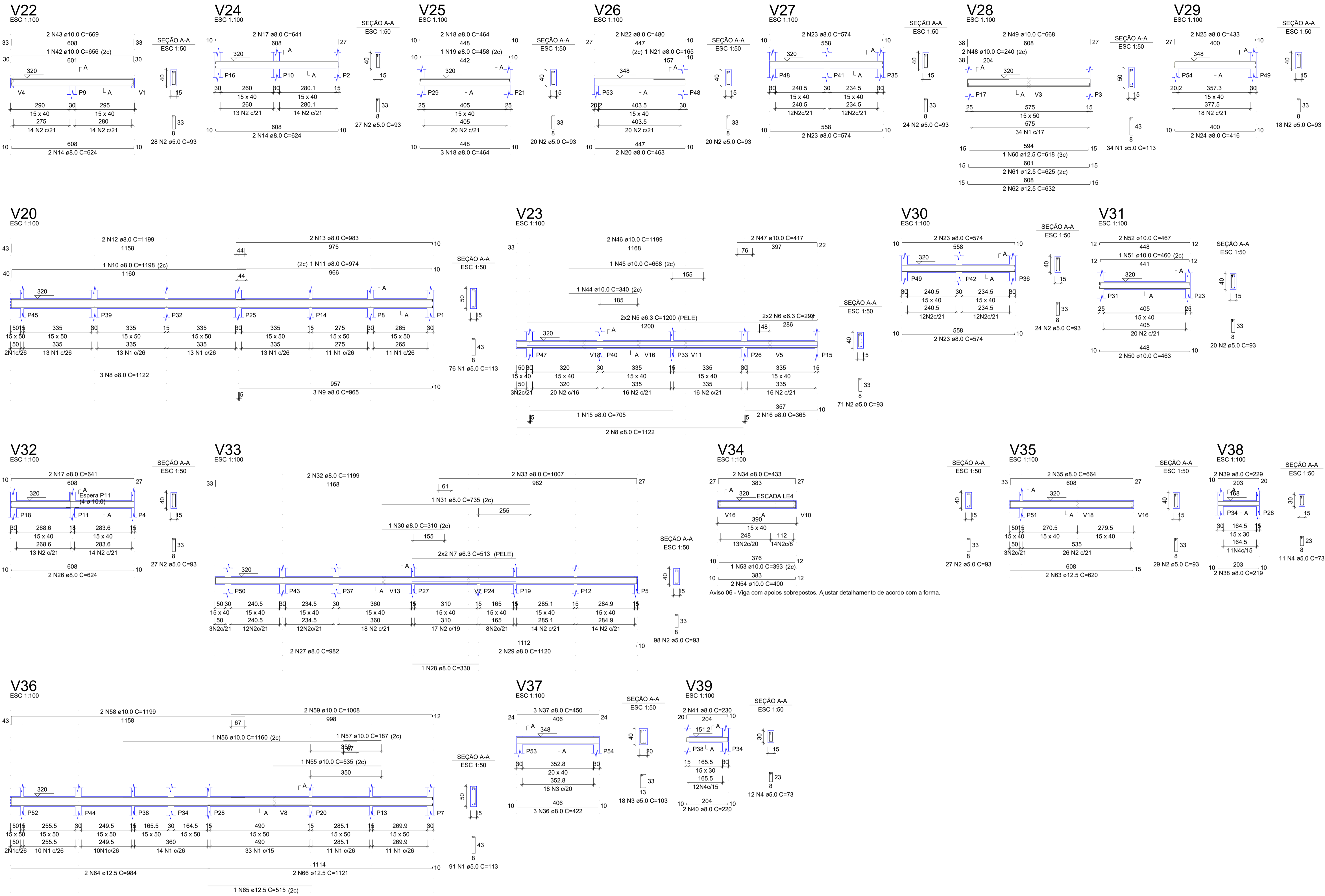
Volume de concreto (C-25) = 10.99 m³  
Área de forma = 139.93 m²

CDR	ESP. PENNA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.06
11	1.06
13	1.56



REVISÃO	DESENHO	APROVAÇÃO
02		
01		
PROJETO:	PROJETO ESTRUTURAL E.E.F. LEOCÁDIO DAMÁSIO DA COSTA	
CLIENTE:	MUNICÍPIO DE MARCO	
LOCAL:	DISTRITO DO MOCAMBO	
CONTEÚDO:	1 Detalhamento das Vigas Nível 320	
ESCALA:	DESENHO:	PRANCHA:
INDICADA	INFRAESTRUTURA	06/11
DATA:	SETEMBRO/2023	





RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
V20					
V24					
V25					
V26					
V27					
V28					
V29					
V30					
V31					
V32					
V33					
V34					
V35					
V38					

RESUMO DO AÇO

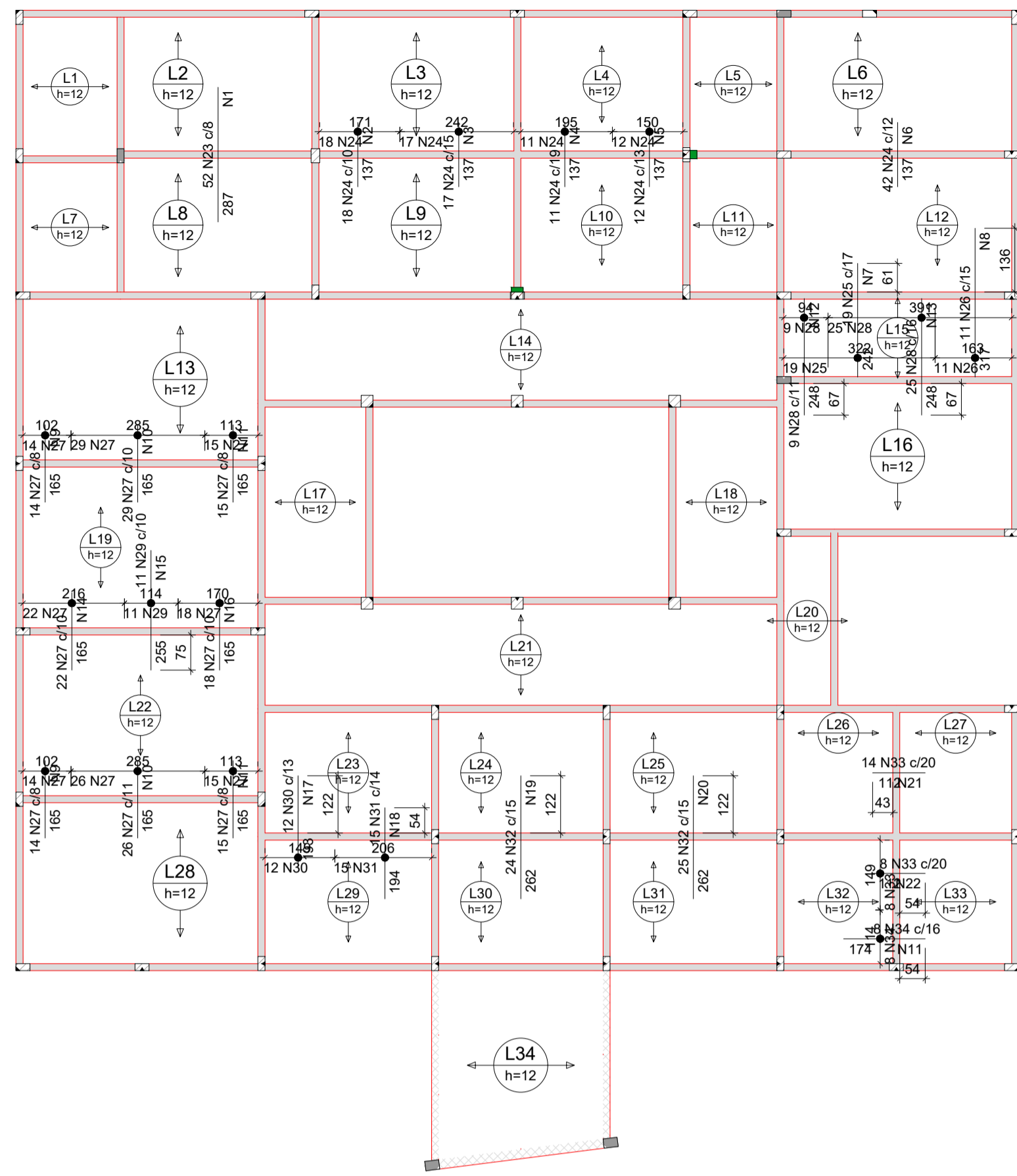
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	80.2	21.6
	8.0	505	219.2
	10.0	178.6	121.1
	12.5	91	96.4
	5.0	665.1	112.8
<b>PESO TOTAL (kg)</b>			
CA50		458.3	
CA60		112.8	

Volume de concreto (C-25) = 8.84 m³  
Área de forma = 113.26 m²

COR	ESP. PENNA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.00
13	1.50

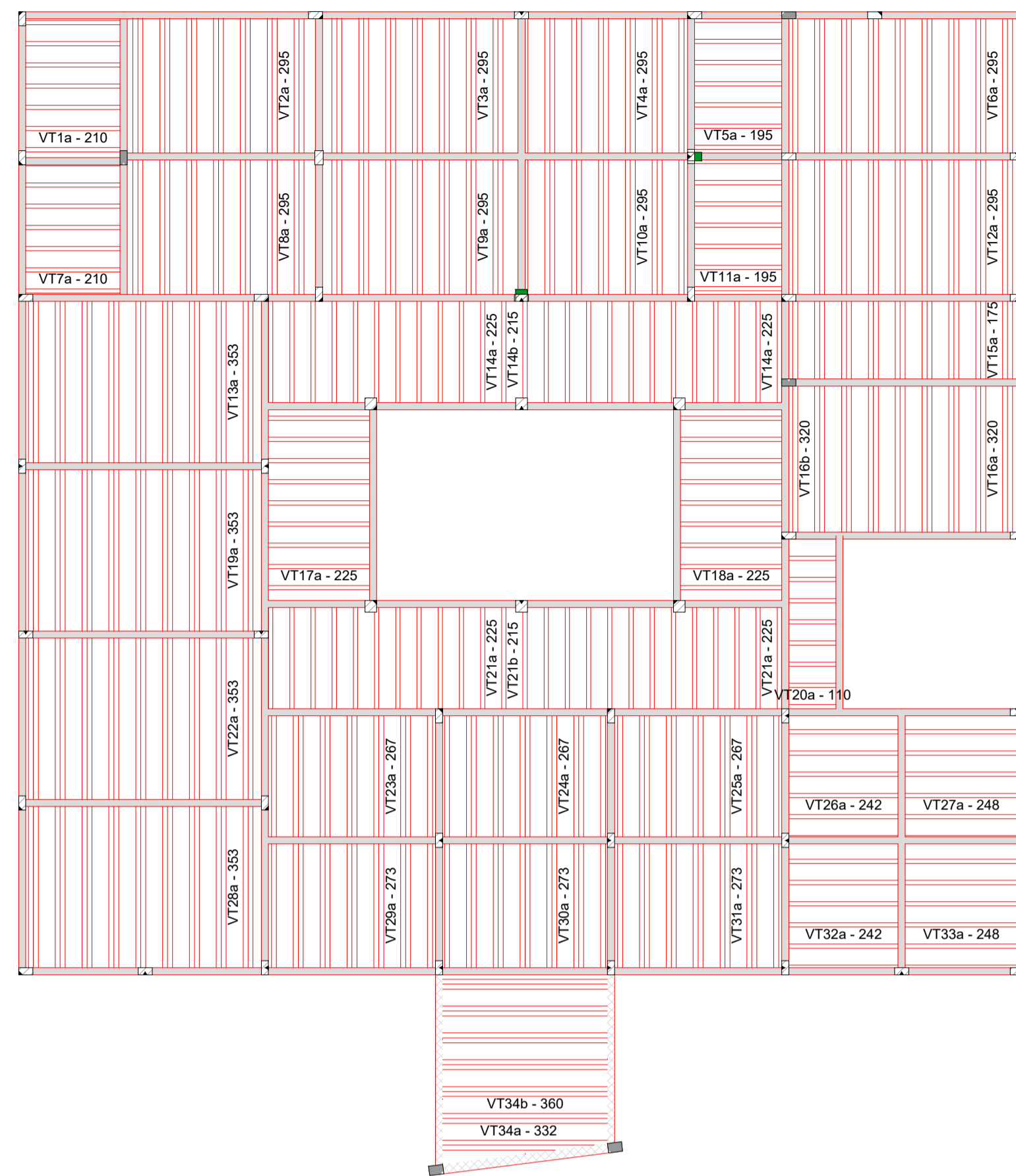
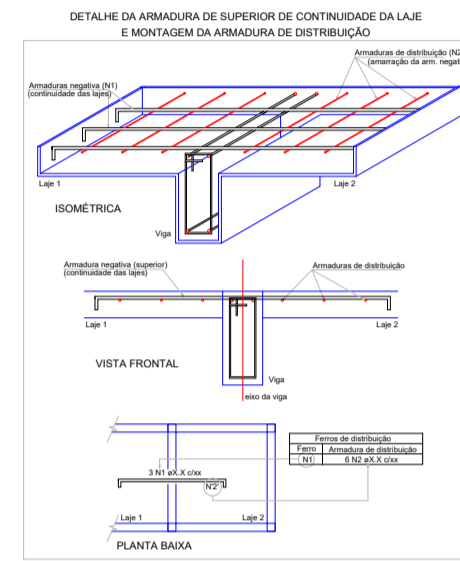


02			
01			
Nº	DATA	DESENHO	APROVAÇÃO
REVISÃO: PROJETO ESTRUTURAL E.E.F. LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Detalhamento das Vigas Nível 320			
 <p>AV. PREFEITO GUIDO OSTERHO, S/N CENTRO - MARCO - CE - 85300-000 FONE: 3661-1210 / 3634-1415 WWW.MARCO.CE.GOV.BR CNPJ: 07.546.310/0001-71</p>			
ESCALA:	DESENHO:	PRANCHA:	
INDICADA	INFRAESTRUTURA	DATA:	<b>07/11</b>
			SETEMBRO/2023



**Armaduras de distribuição**

Armadura	Armadura de distribuição
N23	15 N1 ø5.0 c/20 C=415
N24	7 N2 ø5.0 c/20 C=181
N24	7 N3 ø5.0 c/20 C=250
N24	7 N4 ø5.0 c/20 C=203
N24	7 N5 ø5.0 c/20 C=158
N24	7 N6 ø5.0 c/20 C=600
N25	13 N7 ø5.0 c/20 C=330
N26	16 N8 ø5.0 c/20 C=171
N27	9 N9 ø5.0 c/20 C=109
N27	9 N10 ø5.0 c/20 C=285
N27	9 N11 ø5.0 c/20 C=121
N28	13 N12 ø5.0 c/20 C=102
N28	13 N13 ø5.0 c/20 C=399
N27	9 N14 ø5.0 c/20 C=223
N29	13 N15 ø5.0 c/20 C=114
N27	9 N16 ø5.0 c/20 C=178
N27	9 N9 ø5.0 c/20 C=109
N27	9 N10 ø5.0 c/20 C=285
N27	9 N11 ø5.0 c/20 C=121
N30	10 N17 ø5.0 c/20 C=157
N31	10 N18 ø5.0 c/20 C=214
N32	14 N19 ø5.0 c/20 C=365
N32	14 N20 ø5.0 c/20 C=370
N33	6 N21 ø5.0 c/20 C=272
N34	9 N11 ø5.0 c/20 C=121
N33	6 N22 ø5.0 c/20 C=157



**RELAÇÃO DO AÇO**

Negativos

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	15	415	6225
	2	5.0	7	181	1267
	3	5.0	7	250	1750
	4	5.0	7	203	1421
	5	5.0	7	158	1106
	6	5.0	7	500	3500
	7	5.0	13	330	4290
	8	5.0	16	171	2736
	9	5.0	18	109	1962
	10	5.0	18	285	5130
	11	5.0	27	121	3267
	12	5.0	13	102	1326
	13	5.0	13	399	5187
	14	5.0	9	223	2007
	15	5.0	13	114	1482
	16	5.0	9	178	1602
	17	5.0	10	157	1570
	18	5.0	10	214	2140
	19	5.0	14	365	5110
	20	5.0	14	370	5180
	21	5.0	6	272	1632
	22	5.0	6	157	942
CA50	23	6.3	52	287	14924
	24	6.3	100	137	13700
	25	6.3	19	242	4598
	26	6.3	11	317	3487
	27	6.3	153	165	25245
	28	6.3	34	248	8432
	29	6.3	11	255	2805
	30	6.3	12	193	2316
	31	6.3	15	194	2910
	32	6.3	49	262	12838
	33	6.3	22	112	2464
	34	6.3	8	174	1392

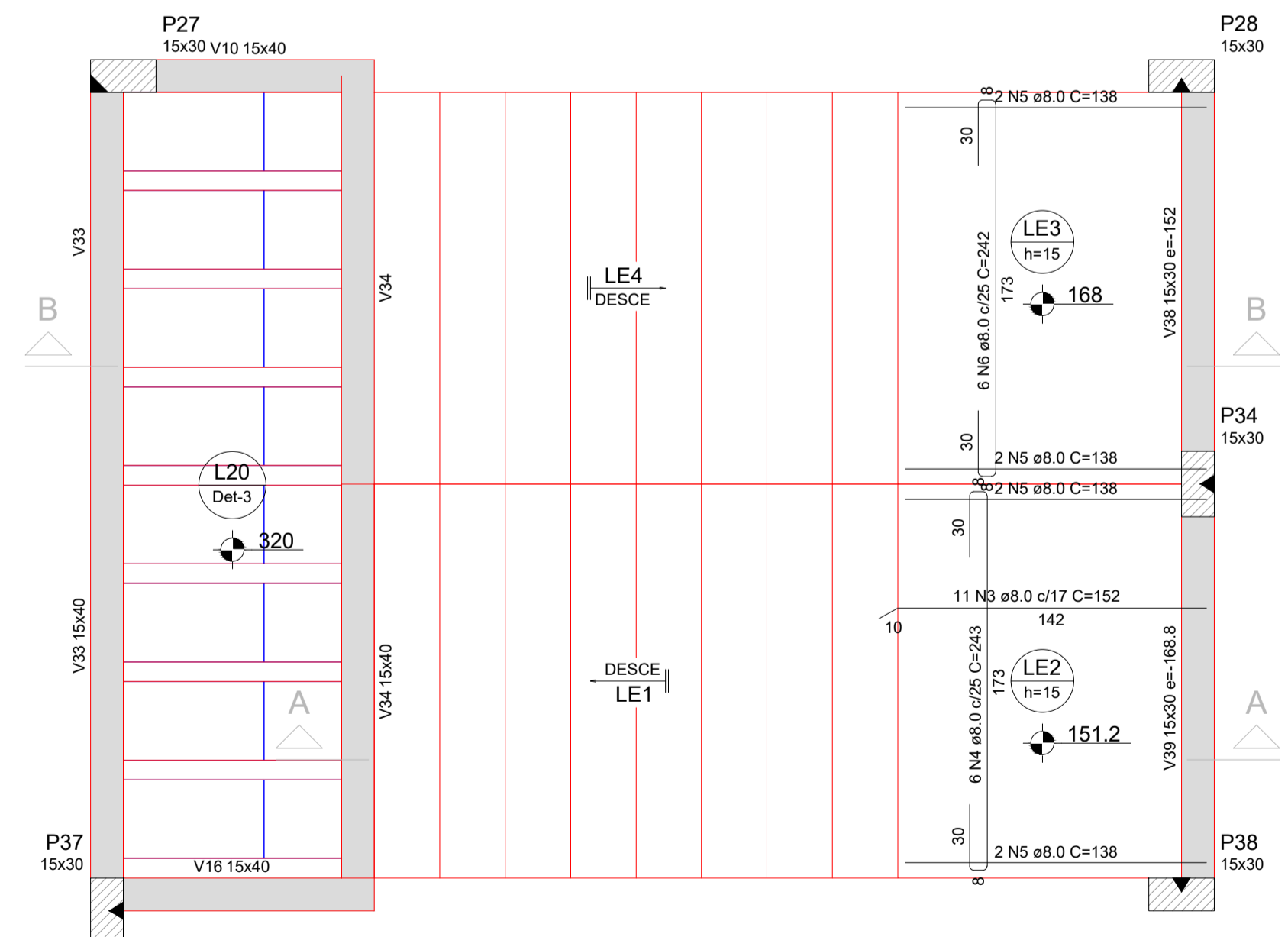
**RESUMO DO AÇO**

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	951.1	256
CA60	5.0	808.3	103.1
<b>PESO TOTAL (kg)</b>			
CA50		256	
CA60		103.1	

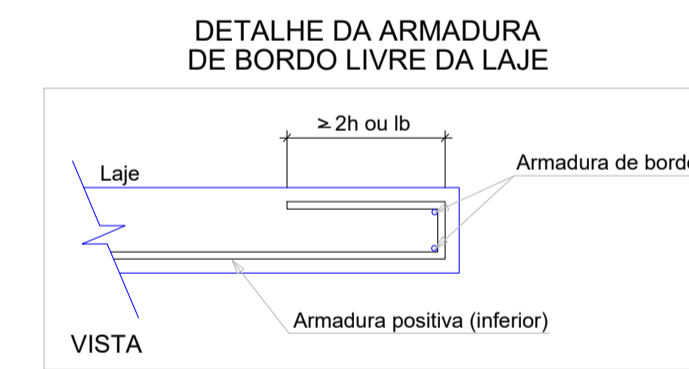
Volume de concreto (C-25) = 22.97 m³  
Área de forma = 0.00 m²

Armação negativa das lajes do pavimento NÍVEL 320  
escala 1:100

Planta de vigotas pré-moldadas  
escala 1:100



Armação positiva da escada E1  
ESC 1:25



Corte A-A (LE1)  
ESC 1:50

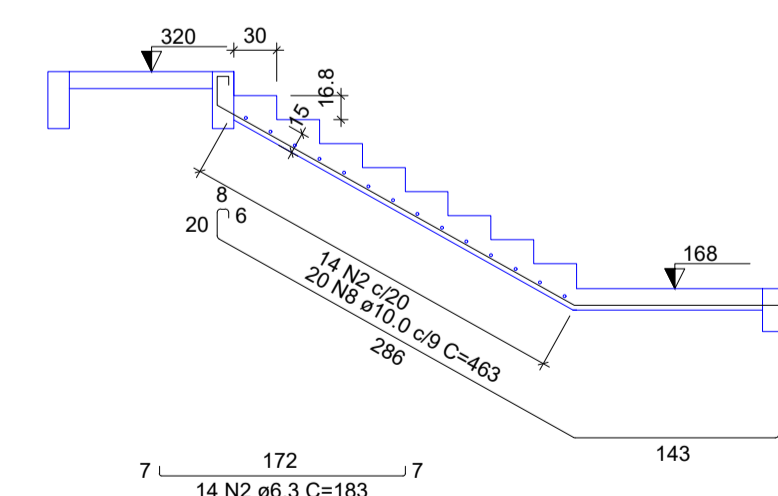
**RELAÇÃO DO AÇO**

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	6.3	24	184	4416
	2	6.3	14	183	2562
	3	8.0	11	152	1672
	4	8.0	6	243	1458
	5	8.0	8	138	1104
	6	8.0	6	242	1452
	7	10.0	11	397	4367
	8	10.0	20	463	9260

**RESUMO DO AÇO**

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	69.8	18.8
	8.0	55.9	24.7
	10.0	136.3	92.4
<b>PESO TOTAL (kg)</b>			
CA50		135.9	

Volume de concreto (C-25) = 2.97 m³  
Área de forma = 25.13 m²

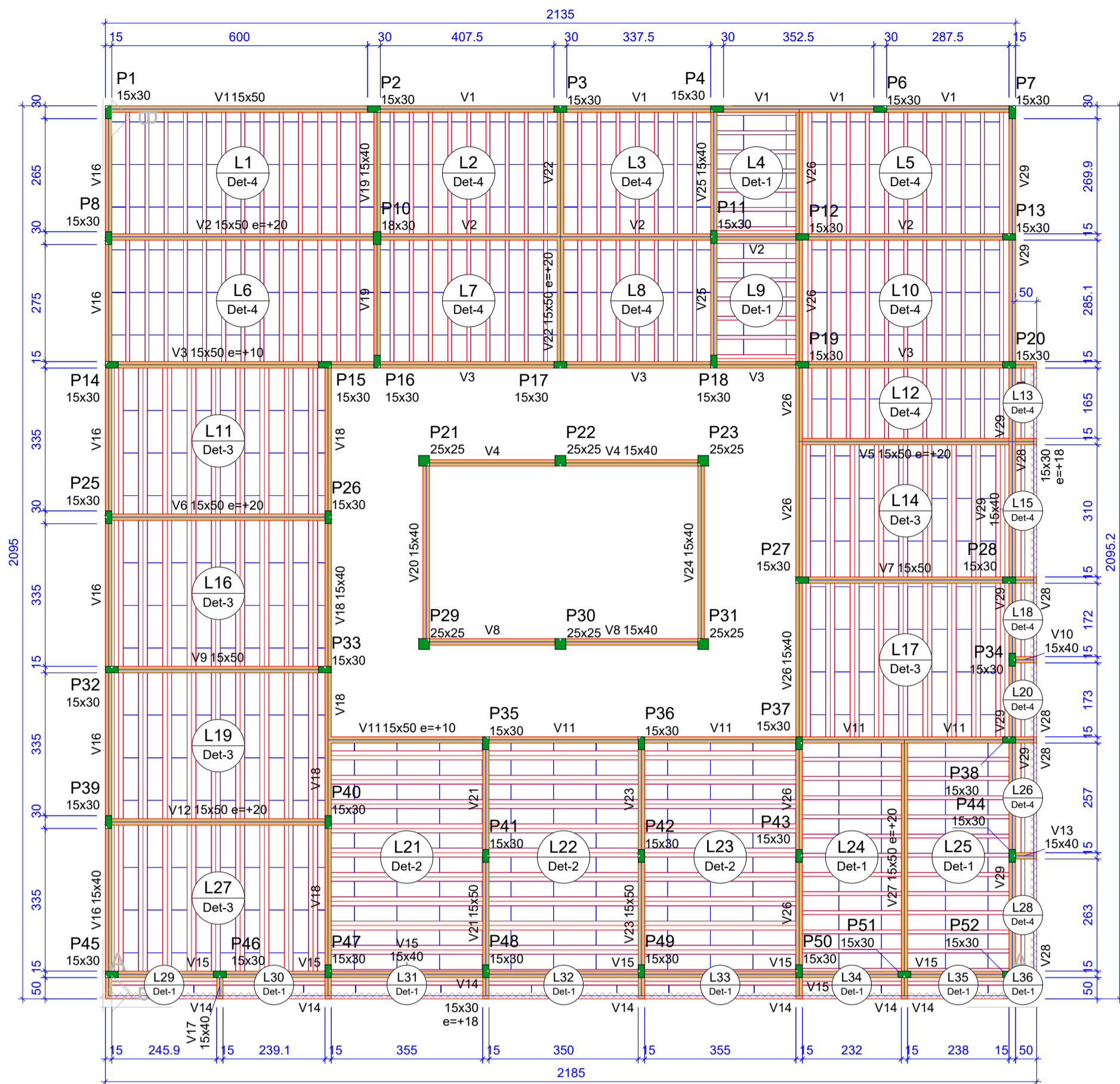


Corte B-B (LE4)  
ESC 1:50



DATA	REVISÃO	DESENHO	APROVAÇÃO
PROJETO: PROJETO ESTRUTURAL E.E.F LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Armação neg. das lajes do Nível 320 2 Planta de vigotas pré-moldadas 3 Vigotas pré-moldadas			
ESCALA: DESENHO: PRANCHA: INDICADA: INFRAESTRUTURA DATA: 08/11 SETEMBRO/2023			





**Forma do pavimento NÍVEL 640**  
escala 1:100

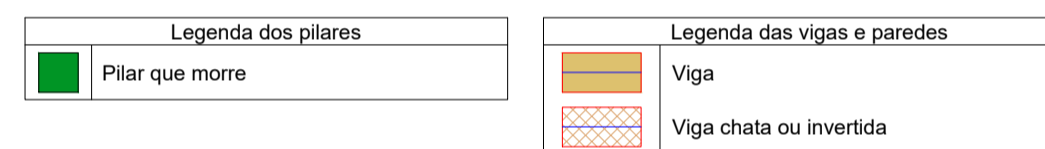
Blocos de enchimento				
Detalhe	Tipo	Nome	Dimensões (cm)	Quantidade
			hb   bx   by	
1/2/3/4	EPS Unidirecional	B7/36/100/5	7   36   100	816

Vigas		
Nome	Seção (cm)	Nível (cm)
V1	15x50	0 640
V2	15x50	20 660
V3	15x50	10 650
V4	15x40	0 640
V5	15x50	20 660
V6	15x50	20 660
V7	15x50	0 640
V8	15x40	0 640
V9	15x50	0 640
V10	15x40	0 640
V11	15x50	10 650
V12	15x50	20 660
V13	15x40	0 640
V14	15x30	18 658
V15	15x40	0 640
V16	15x40	0 640
V17	15x40	0 640
V18	15x40	0 640
V19	15x40	0 640
V20	15x40	0 640
V21	15x50	0 640
V22	15x50	20 660
V23	15x40	0 640
V24	15x40	0 640
V25	15x40	0 640
V26	15x40	0 640
V27	15x50	20 660
V28	15x30	18 658
V29	15x40	0 640

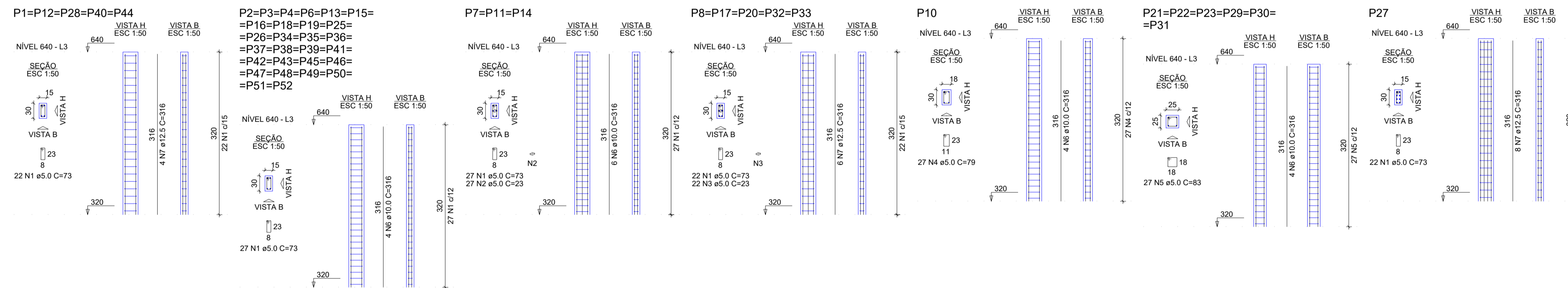
Pilares		
Nome	Seção (cm)	Nível (cm)
P1	15x30	0 640
P2	15x30	0 640
P3	15x30	0 640
P4	15x30	0 640
P6	15x30	0 640
P7	15x30	0 640
P8	15x30	0 640
P10	18x30	0 640
P11	15x30	0 640
P12	15x30	0 640
P13	15x30	0 640
P14	15x30	0 640
P15	15x30	0 640
P16	15x30	0 640
P17	15x30	0 640
P18	15x30	0 640
P19	15x30	0 640
P20	15x30	0 640
P21	25x25	0 640
P22	25x25	0 640
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P24	15x30	0 640
P25	15x30	0 640
P26	15x30	0 640
P27	15x30	0 640
P28	15x30	0 640
P29	25x25	0 640
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P31	25x25	0 640
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P35	15x30	0 640
P36	15x30	0 640
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P39	15x30	0 640
P40	15x30	0 640
P41	15x30	0 640
P42	15x30	0 640
P43	15x30	0 640
P44	15x30	0 640
P45	15x30	0 640
P46	15x30	0 640
P47	15x30	0 640
P48	15x30	0 640
P49	15x30	0 640
P50	15x30	0 640
P51	15x30	0 640
P52	15x30	0 640

Lajes							
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Sobrecarga (kgf/m²)		
					Peso próprio (kgf/m²)	Adicional	Acidental
L1	Trelçada 1D	12	0	640	161	155	10
L2	Trelçada 1D	12	0	640	161	155	10
L3	Trelçada 1D	12	0	640	161	155	10
L4	Trelçada 1D	12	0	640	161	155	10
L5	Trelçada 1D	12	0	640	161	155	10
L6	Trelçada 1D	12	0	640	161	155	10
L7	Trelçada 1D	12	0	640	161	155	10
L8	Trelçada 1D	12	0	640	161	155	10
L9	Trelçada 1D	12	0	640	161	155	10
L10	Trelçada 1D	12	0	640	161	155	10
L11	Trelçada 1D	12	0	640	190	155	10
L12	Trelçada 1D	12	0	640	161	155	10
L13	Trelçada 1D	12	0	640	161	155	10
L14	Trelçada 1D	12	0	640	190	155	10
L15	Trelçada 1D	12	0	640	161	155	10
L16	Trelçada 1D	12	0	640	190	155	10
L17	Trelçada 1D	12	0	640	190	155	10
L18	Trelçada 1D	12	0	640	161	155	10
L19	Trelçada 1D	12	0	640	190	155	10
L20	Trelçada 1D	12	0	640	161	155	10
L21	Trelçada 1D	12	0	640	190	155	50
L22	Trelçada 1D	12	0	640	190	155	50
L23	Trelçada 1D	12	0	640	190	155	10
L24	Trelçada 1D	12	0	640	161	155	10
L25	Trelçada 1D	12	0	640	161	155	10
L26	Trelçada 1D	12	0	640	161	155	10
L27	Trelçada 1D	12	0	640	190	155	10
L28	Trelçada 1D	12	0	640	161	155	10
L29	Trelçada 1D	12	0	640	161	155	10
L30	Trelçada 1D	12	0	640	161	155	10
L31	Trelçada 1D	12	0	640	161	155	10
L32	Trelçada 1D	12	0	640	161	155	10
L33	Trelçada 1D	12	0	640	161	155	10
L34	Trelçada 1D	12	0	640	161	155	10
L35	Trelçada 1D	12	0	640	161	155	10
L36	Trelçada 1D	12	0	640	161	155	10

Características dos materiais  
(kgf/cm²)  
250



CDR	ESP. PENIA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.06
11	1.06
13	1.06



RELAÇÃO DO AÇO				
AÇO	N	DIAM (mm)	QUANT	C.TOTAL (cm)
CA60	1	5.0	1079	73
CA60	2	5.0	81	23
CA60	3	5.0	110	23
CA60	4	5.0	27	79
CA60	5	5.0	102	63
CA60	6	10.0	158	316
CA60	7	12.5	58	316

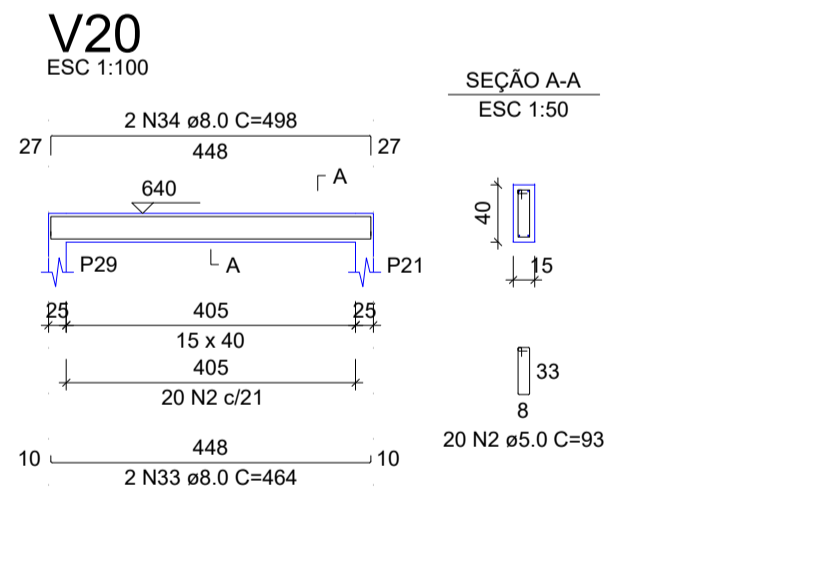
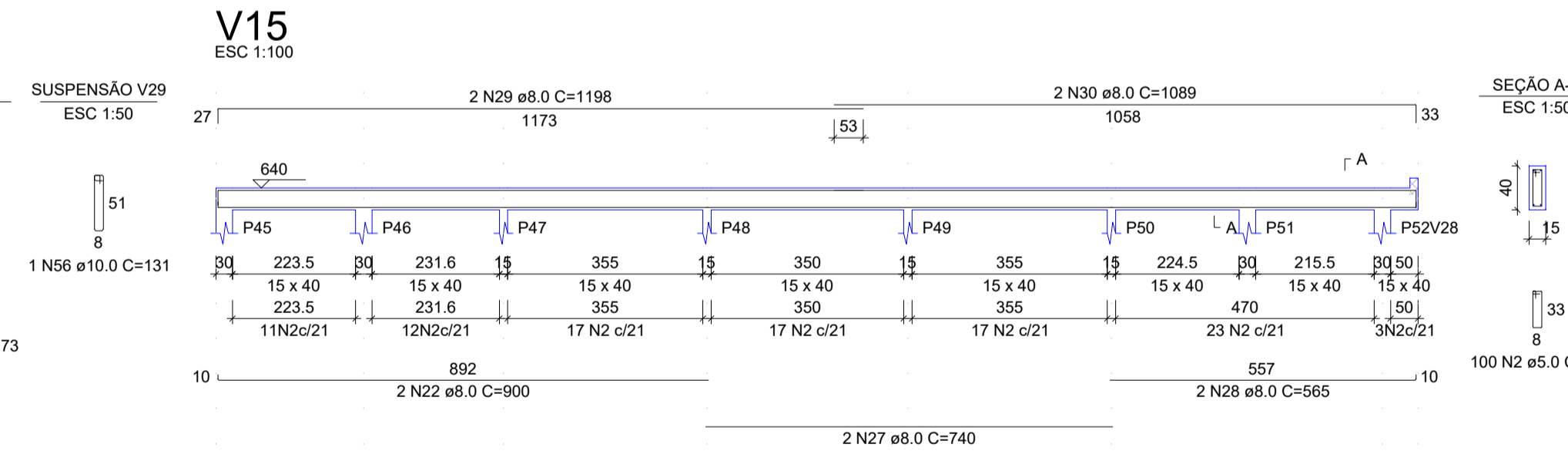
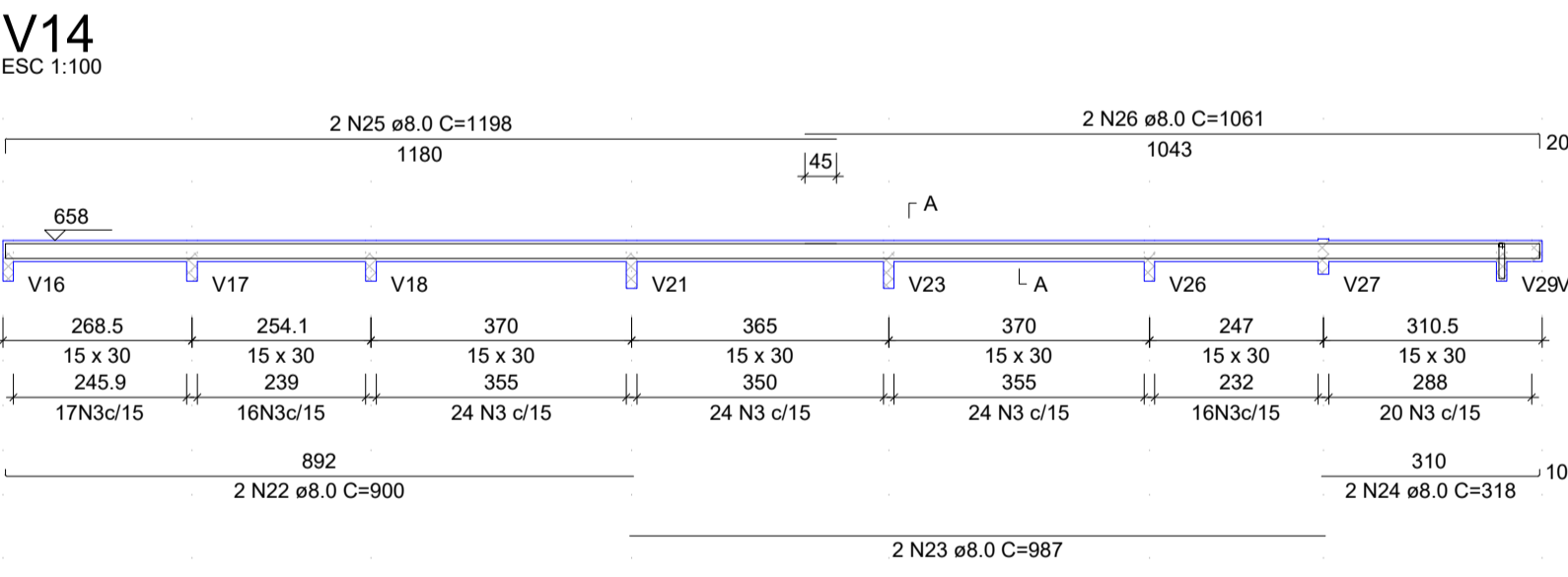
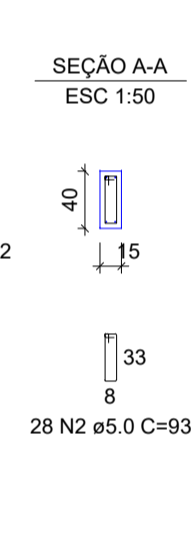
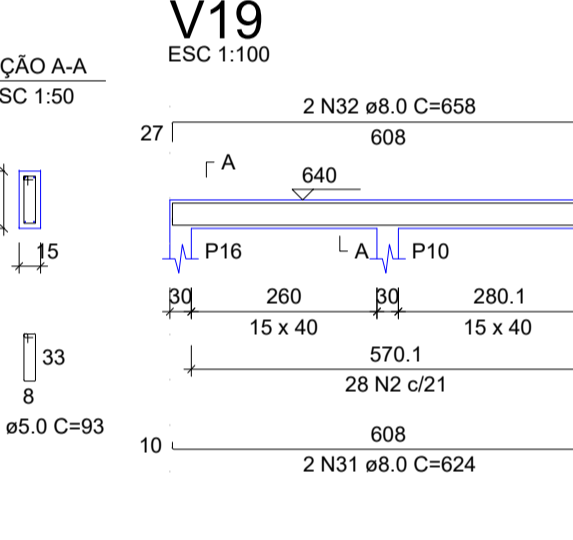
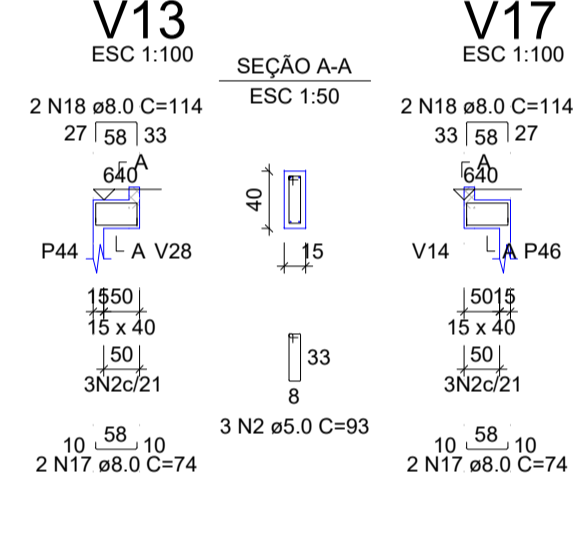
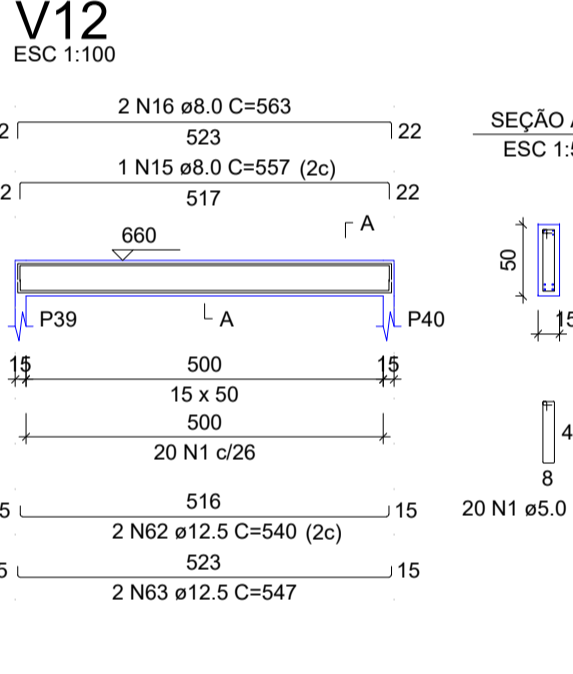
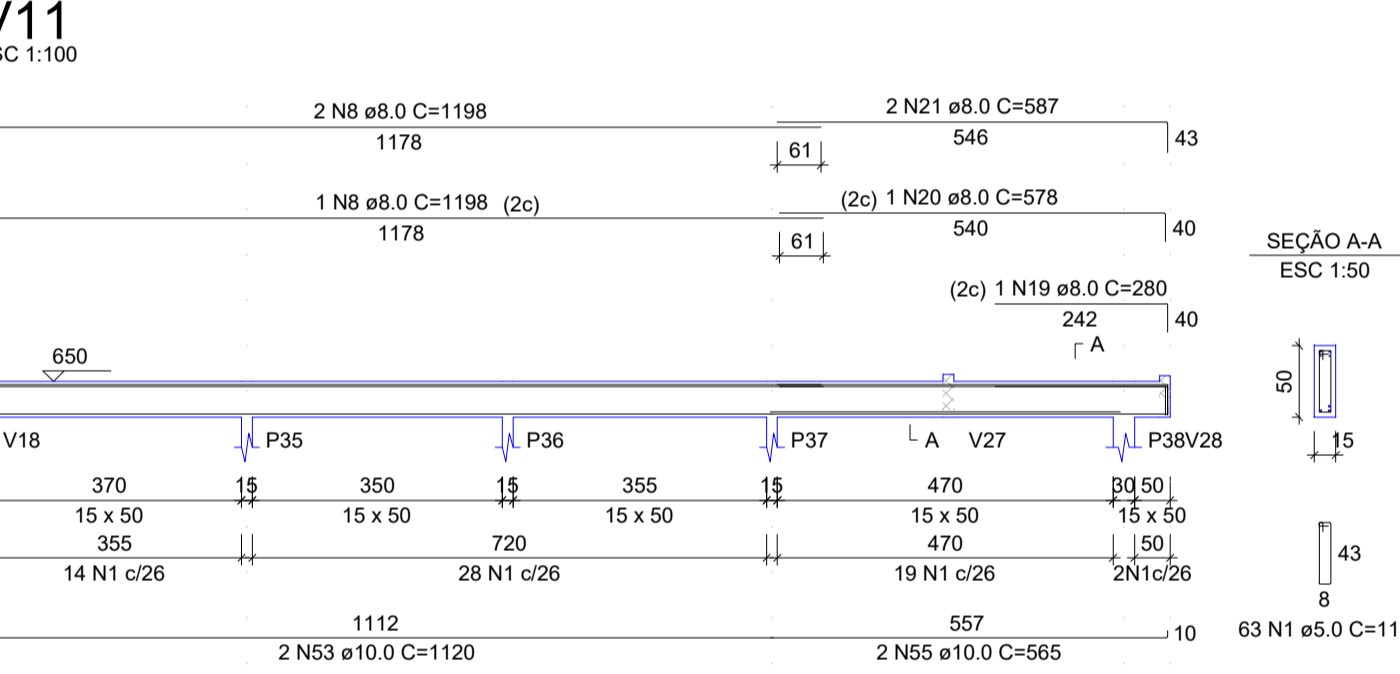
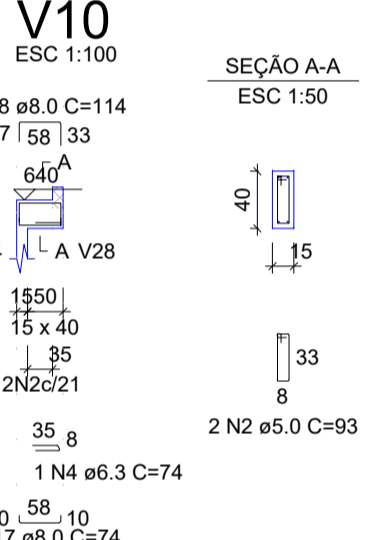
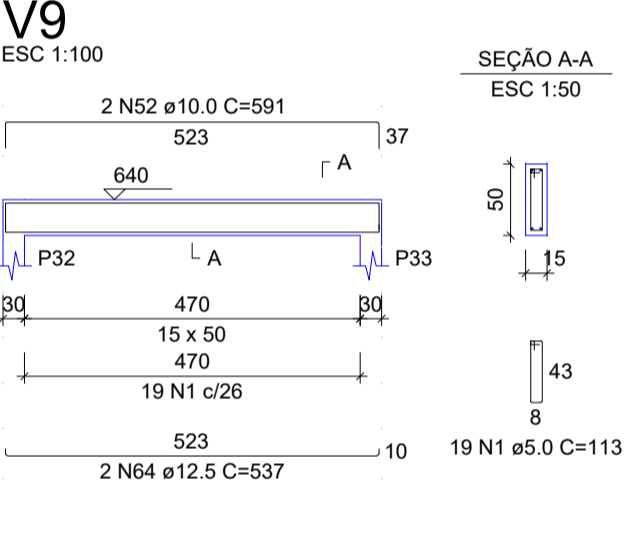
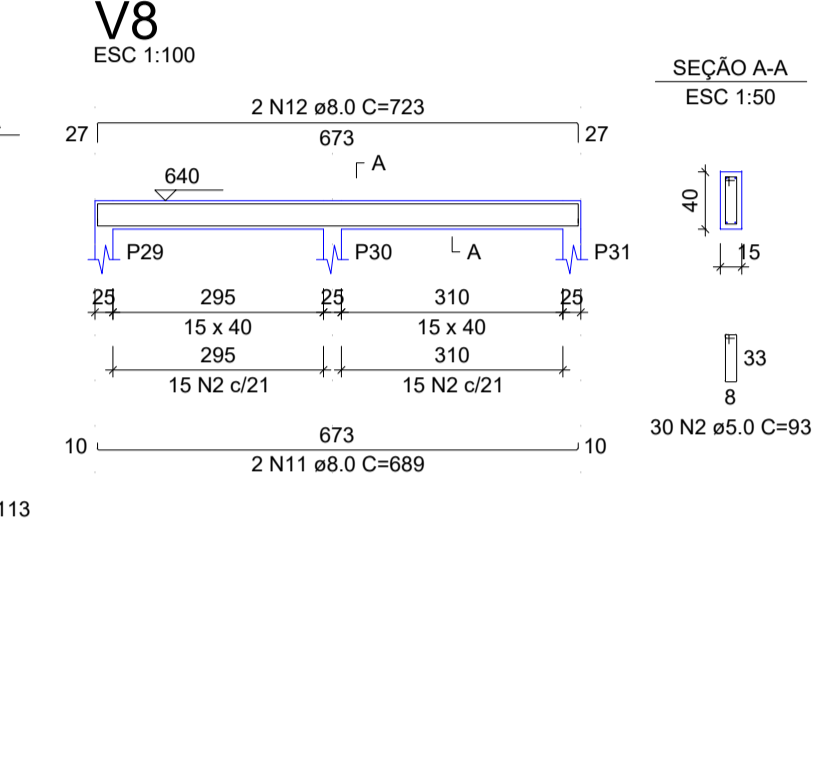
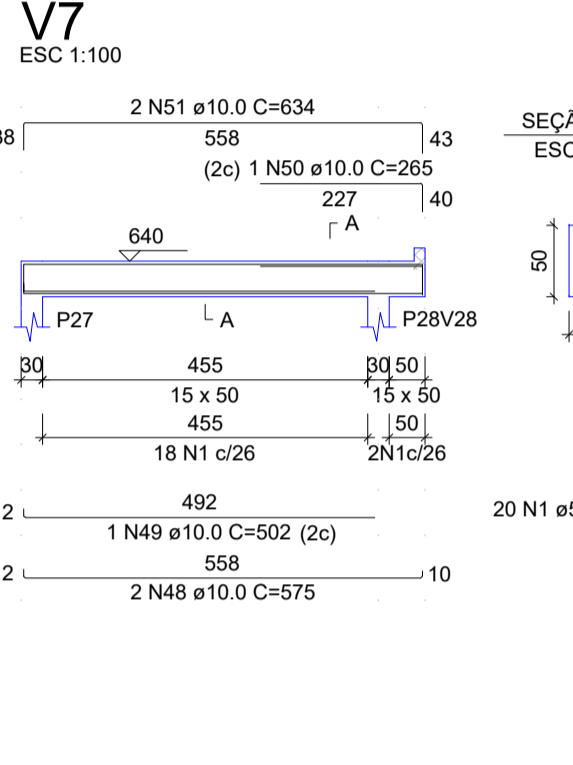
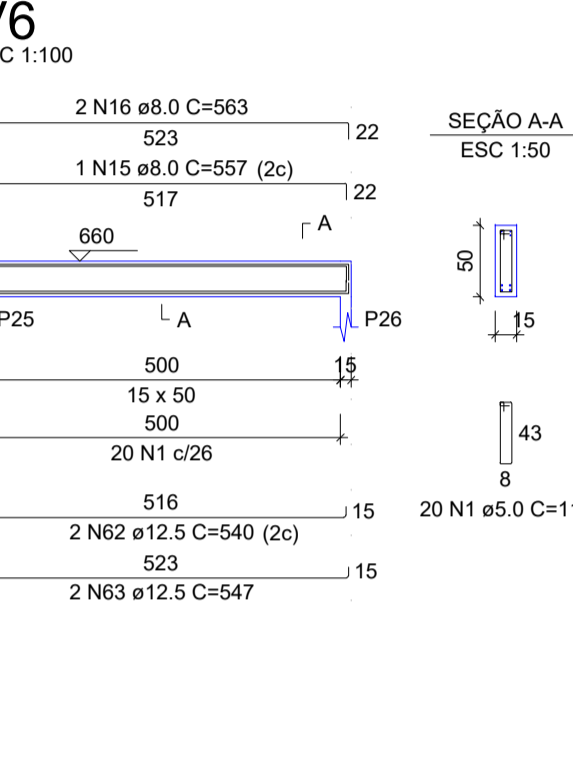
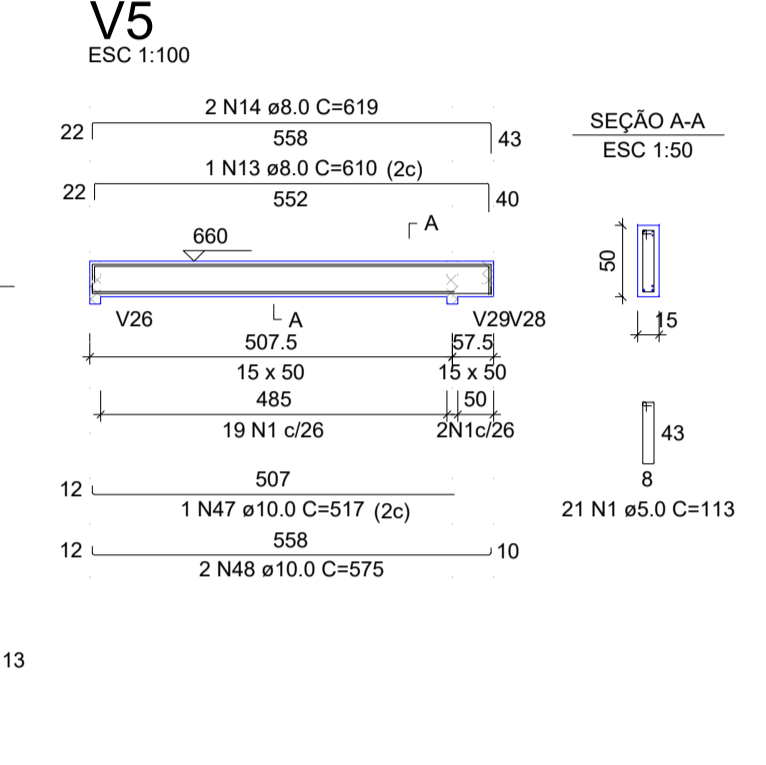
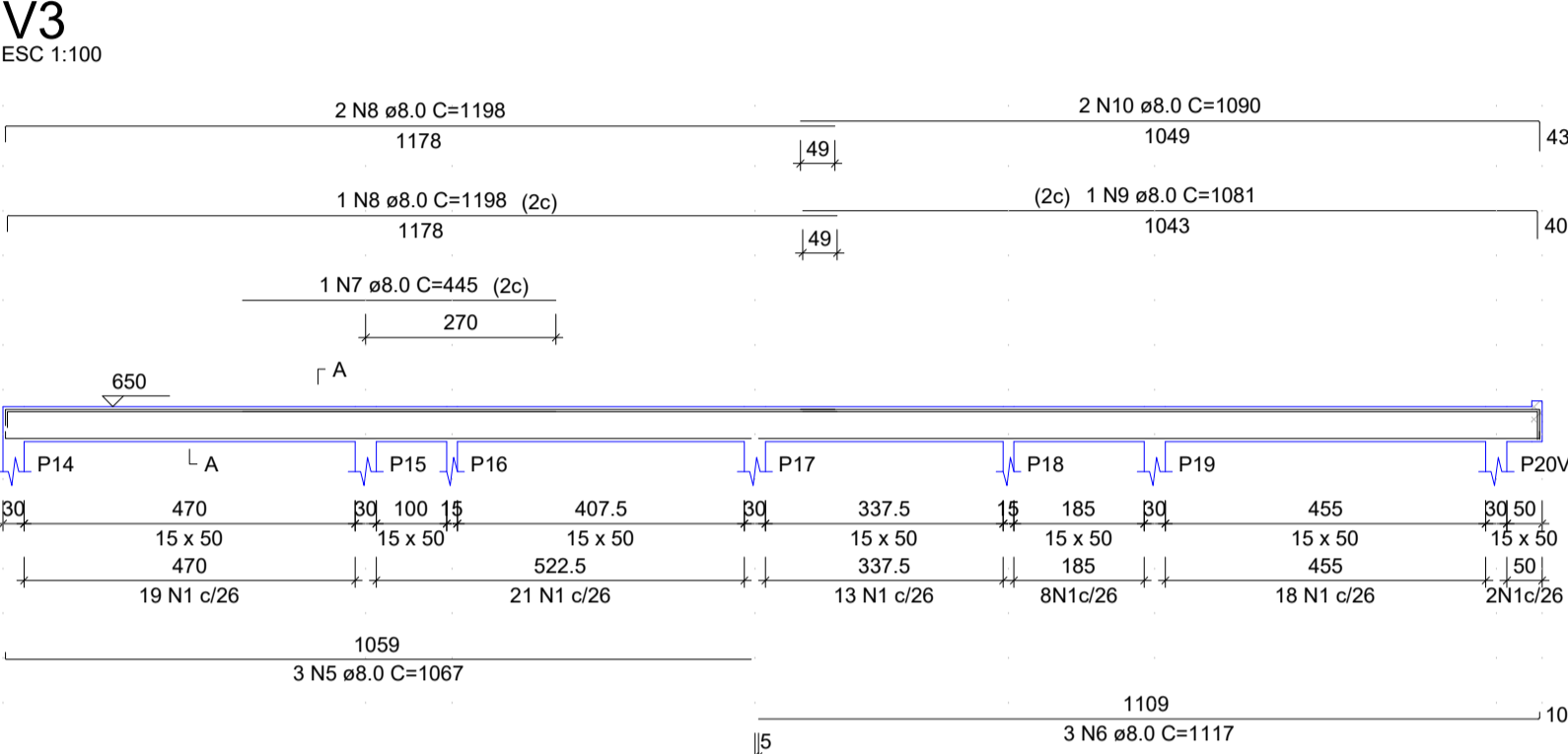
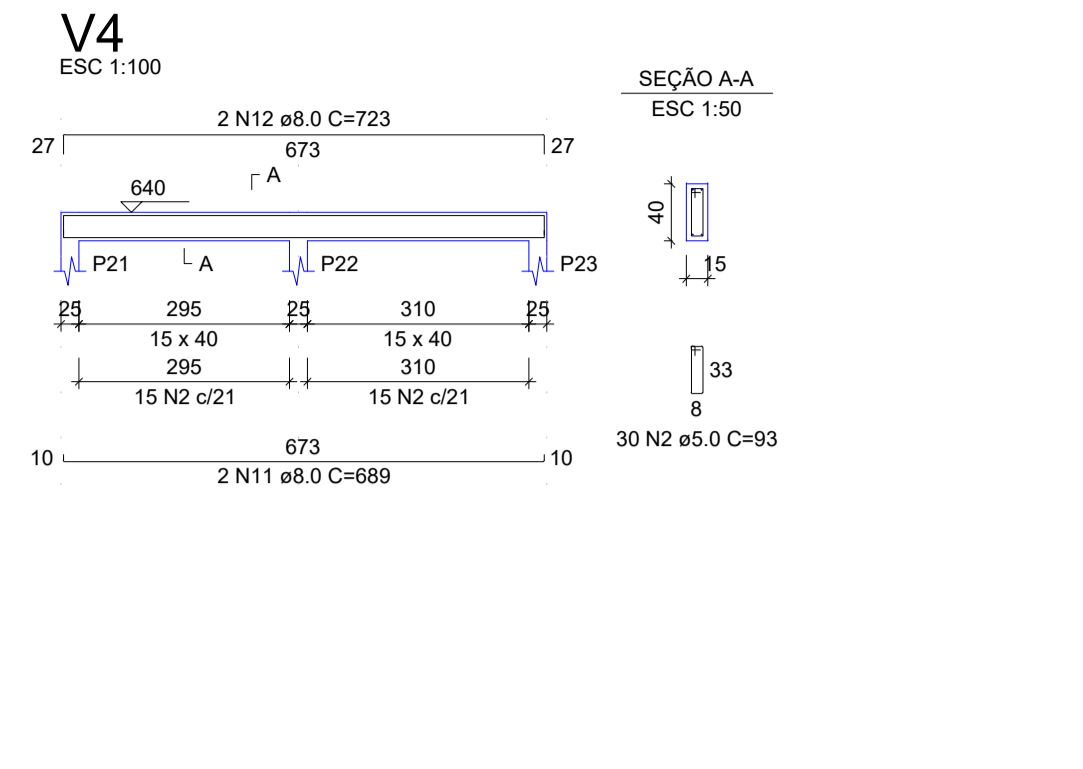
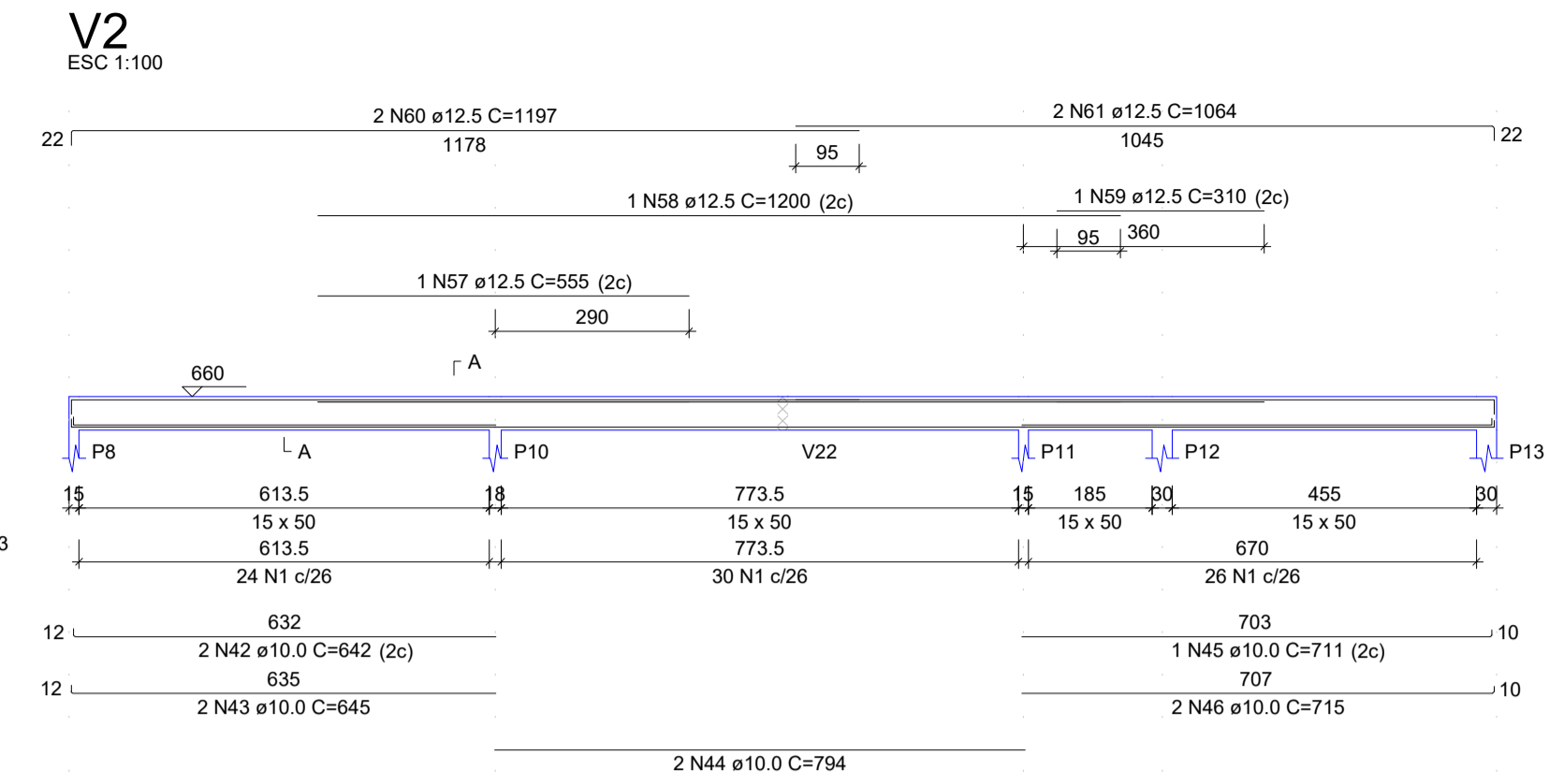
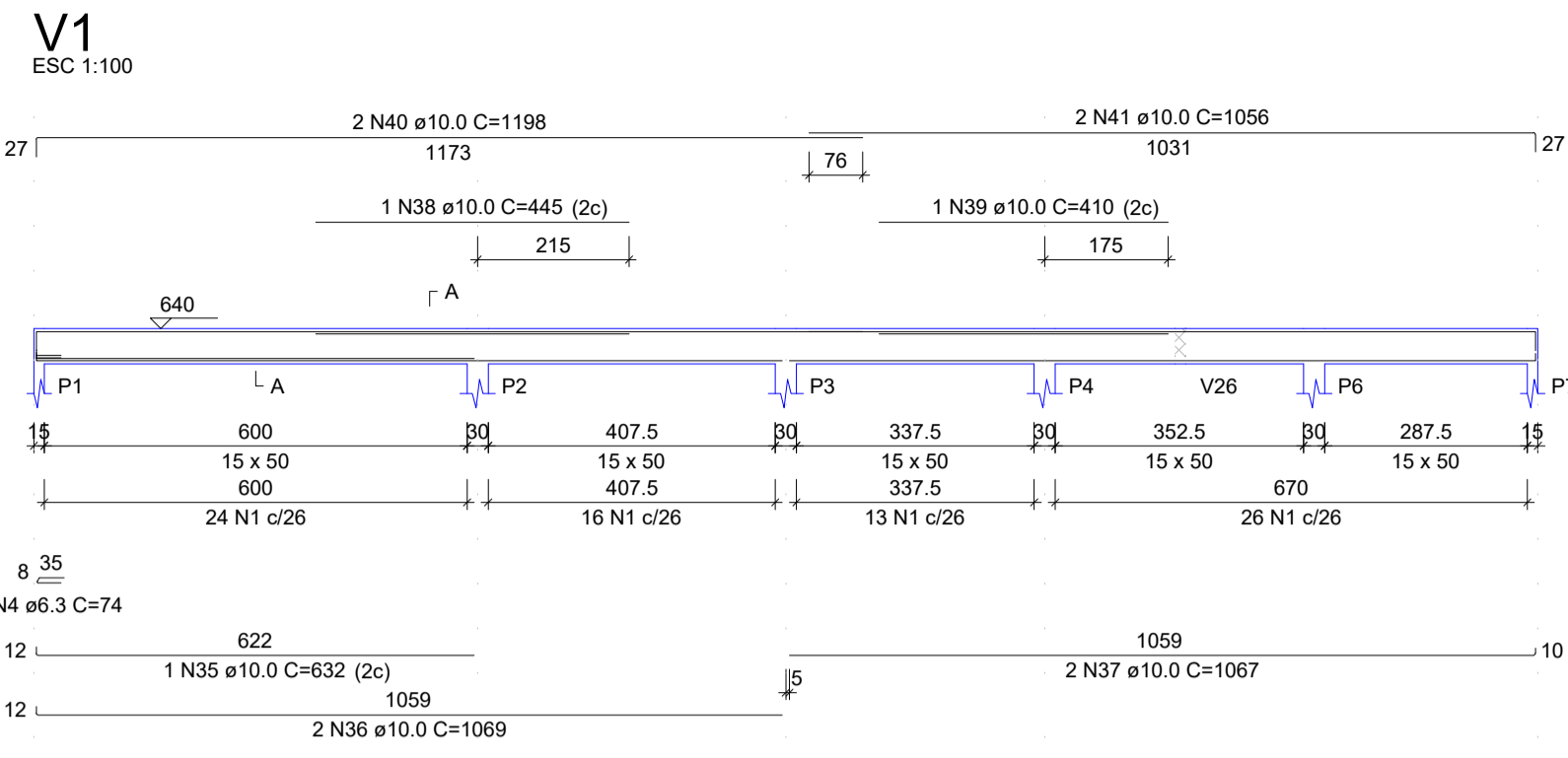
RESUMO DO AÇO			
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	488.3	330.6
CA60	12.5	183.3	194.2
CA60	5.0	987.4	167.4
<b>PESO TOTAL (kg)</b>			
CA50		532.8	
CA60		167.4	

Volume de concreto (C-25) = 7.42 m³  
Área de forma = 143.23 m²

MODELAGEM 3D FÓRMAS



02	REVISÃO	DESENHO	APROVAÇÃO
01			
Nº	DATA		
PROJETO: PROJETO ESTRUTURAL E.E.F. LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Forma do pavimento Nível 640 2 Detalhamento dos Pilares Nível 640			
			
AV. PREFEITO GUIDO OSTENHO, S/N CENTRO - MARCO - CE - 82500-000 FONE: (35) 3341-1111   3341-1415 WWW.MARCO.CE.GOV.BR CNPJ: 07.546.316/0001-17			
ESCALA:	DESENHO:	PRANCHA:	
INDICADA	INFRAESTRUTURA		
DATA:	SETEMBRO/2023		<b>09/11</b>



RELAÇÃO DO AÇO

CAÇO	N	DIAM (mm)	QUANT	C.LINITE (cm)	C.TOTAL (cm)
V1	1	5.0	403	113	45539
V4	2	5.0	216	93	20088
V5	3	5.0	141	73	10293
V7	4	6.3	3	74	222
V10	5	8.0	3	1067	3201
V11	6	8.0	3	1117	3351
V12	7	8.0	1	445	445
V13	8	8.0	6	1198	7188
V14	9	8.0	1	1081	1081
V15	10	8.0	2	1090	2180
V17	11	8.0	4	989	2756
V19	12	8.0	4	723	2892
	13	8.0	1	610	610
	14	8.0	2	619	1238
	15	8.0	2	557	1114
	16	8.0	4	563	2252
	17	8.0	6	74	444
	18	8.0	6	114	684
	19	8.0	1	280	280
	20	8.0	1	578	578
	21	8.0	2	587	1174
	22	8.0	4	900	3600
	23	8.0	2	987	1974
	24	8.0	2	313	626
	25	8.0	2	1198	2396
	26	8.0	2	1091	2182
	27	8.0	2	740	1480
	28	8.0	2	565	1130
	29	8.0	2	1198	2396
	30	8.0	2	1089	2178
	31	8.0	2	624	1248
	32	8.0	2	658	1316
	33	8.0	2	464	928
	34	8.0	2	498	996
	35	10.0	1	632	632
	36	10.0	2	1069	2138
	37	10.0	2	1067	2134
	38	10.0	1	445	445
	39	10.0	1	410	410
	40	10.0	2	1198	2396
	41	10.0	2	1056	2112
	42	10.0	2	642	1284
	43	10.0	2	645	1290
	44	10.0	2	794	1588
	45	10.0	1	711	711
	46	10.0	2	715	1430
	47	10.0	2	517	1034
	48	10.0	4	575	2300
	49	10.0	1	502	502
	50	10.0	1	265	265
	51	10.0	2	634	1268
	52	10.0	2	591	1182
	53	10.0	2	1120	2240
	54	10.0	1	490	490
	55	10.0	2	565	1130
	56	10.0	1	131	131
	57	12.5	1	555	555
	58	12.5	1	1200	1200
	59	12.5	1	310	310
	60	12.5	2	1197	2394
	61	12.5	2	1064	2128
	62	12.5	4	540	2160
	63	12.5	4	547	2188
	64	12.5	2	537	1074

RESUMO DO AÇO

CAÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	2.2	0.6
	8.0	538.7	233.8
	10.0	265.9	180.4
CA60	12.5	120.1	127.3
	5.0	758.2	128.7
PESO TOTAL (kg)			
CA50		542	
CA60		128.7	

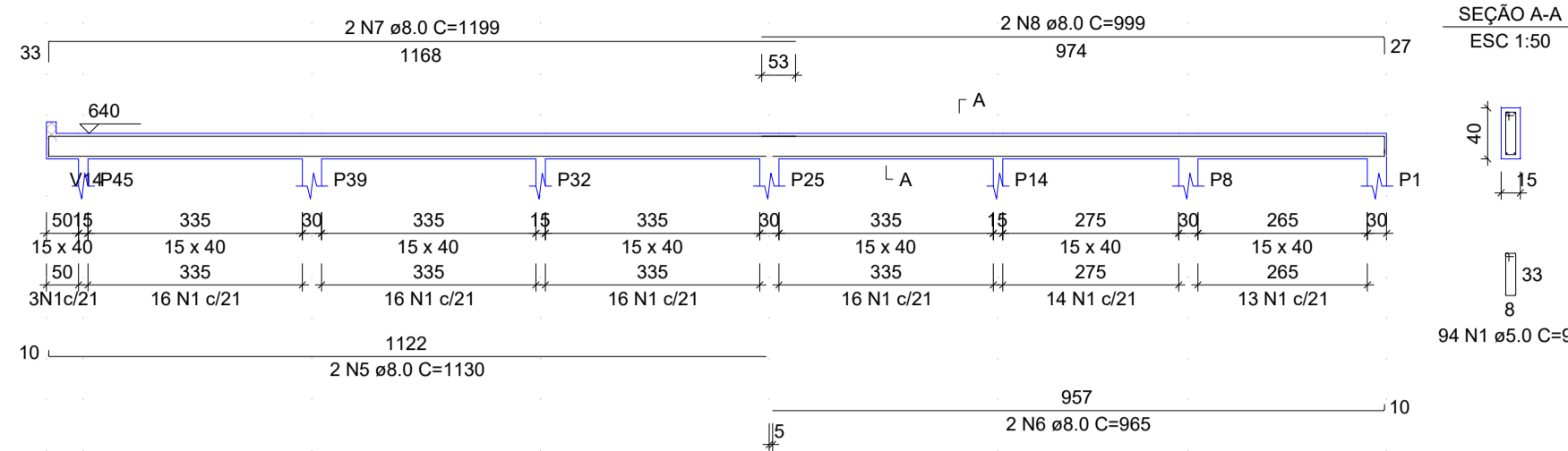
Volume de concreto (C-25) = 114.8 m³  
Área de forma = 149.75 m²

CDR	ESP. PENNA
01	0.70
02	0.50
03	0.30
04	0.40
05	0.70
06	0.20
07	0.20
08	0.08
09	0.10
10	1.00
11	1.00
13	15%

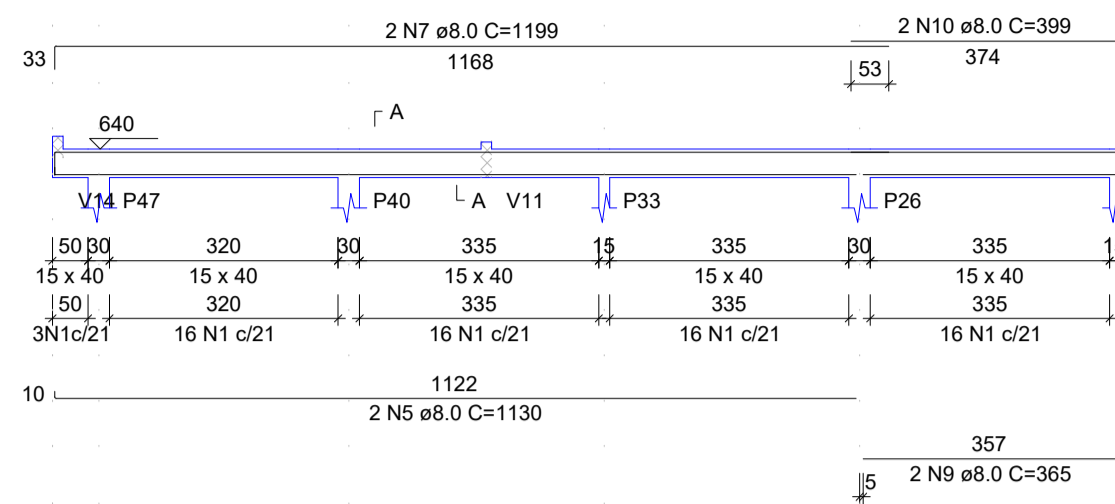


02				
01				
Nº	DATA	REVISÃO	DESENHO	APROVAÇÃO
PROJETO: PROJETO ESTRUTURAL E.E.F LEOCÁDIO DAMÁSIO DA COSTA CLIENTE: MUNICÍPIO DE MARCO LOCAL: DISTRITO DO MOCAMBO CONTEÚDO: 1 Detalhamento das Vigas Nível 640				
<p>AV. PREFEITO GUIDO OSTERHO, S/N CENTRO - MARCO - CE - 82500-000 FONE: (85) 3364-1210 / 3364-3415 WWW.MARCO.CE.GOV.BR CNPJ: 07.546.316/0001-17</p>				
ESCALA:	DESENHO:	PRANCHAS:		
INDICADA	INFRAESTRUTURA	DATA:	10/11	
		SETEMBRO/2023		

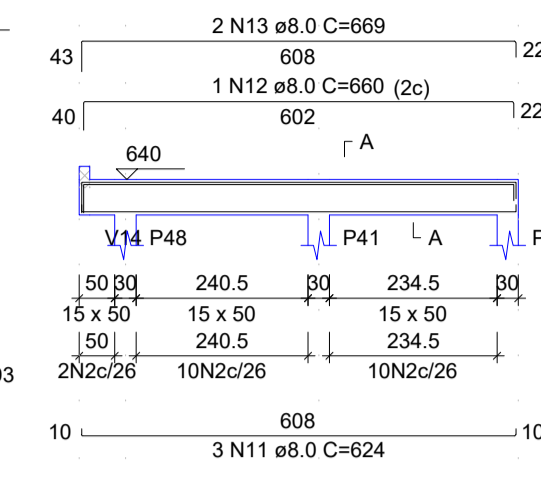
V16  
ESC 1:100



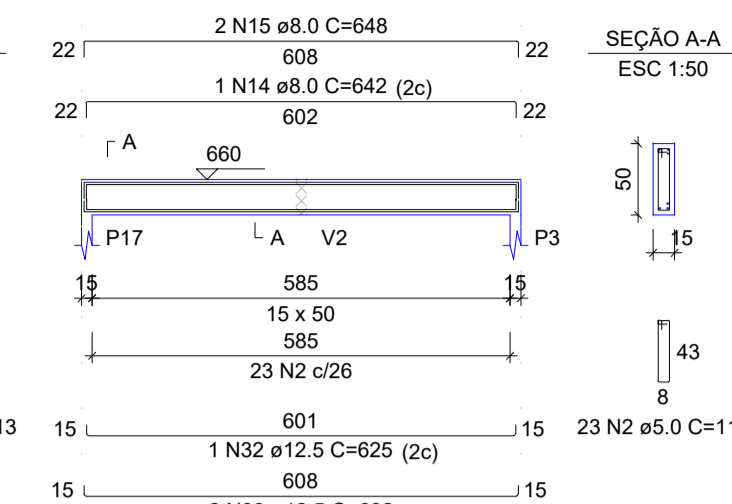
V18  
ESC 1:100



V21  
ESC 1:100



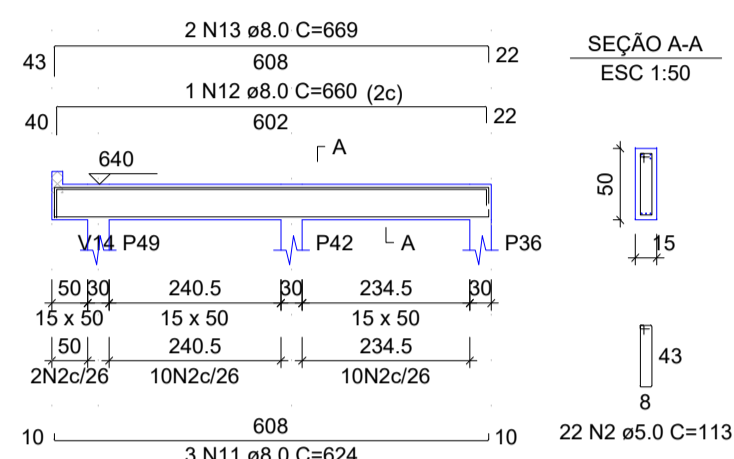
V22  
ESC 1:100



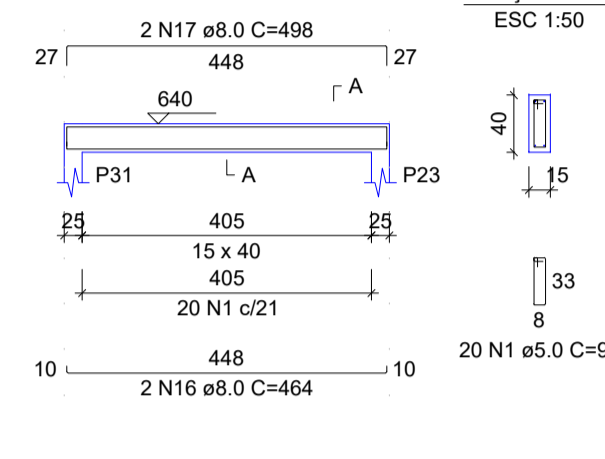
RELAÇÃO DO AÇO

CAÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	5.0	402	93	37386
	2	5.0	90	113	10170
	3	5.0	97	73	7081
	4	6.3	1	74	74
	5	8.0	4	1130	4520
	6	8.0	2	965	1930
	7	8.0	8	1199	9592
	8	8.0	2	999	1998
	9	8.0	2	365	730
	10	8.0	2	399	798
	11	8.0	6	624	3744
	12	8.0	3	860	1980
	13	8.0	6	669	4014
	14	8.0	1	642	642
	15	8.0	2	648	1296
	16	8.0	2	464	928
	17	8.0	2	498	996
	18	8.0	2	624	1248
	19	8.0	2	656	1316
	20	8.0	6	990	5940
	21	8.0	4	510	2040
	22	8.0	4	1120	4480
	23	8.0	1	807	807
	24	8.0	2	1013	2026
	25	8.0	2	520	1040
	26	8.0	2	1199	2398
	27	8.0	2	376	752
	28	8.0	1	1065	1065
	29	8.0	1	175	175
	30	8.0	2	1001	2002
	31	10.0	1	208	208
	32	12.5	1	625	625
	33	12.5	2	632	1264
	34	12.5	1	571	571
	35	12.5	2	627	1254

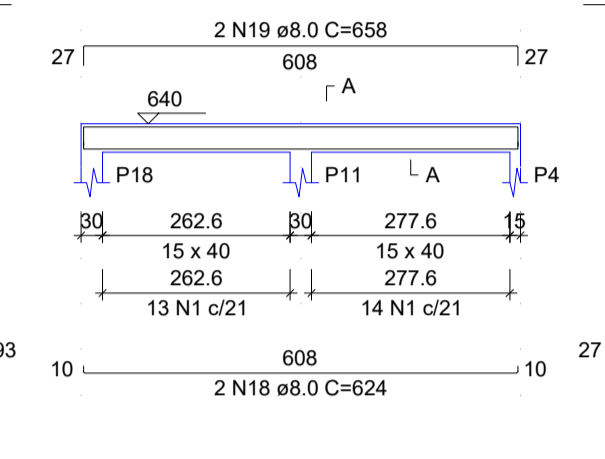
V23  
ESC 1:100



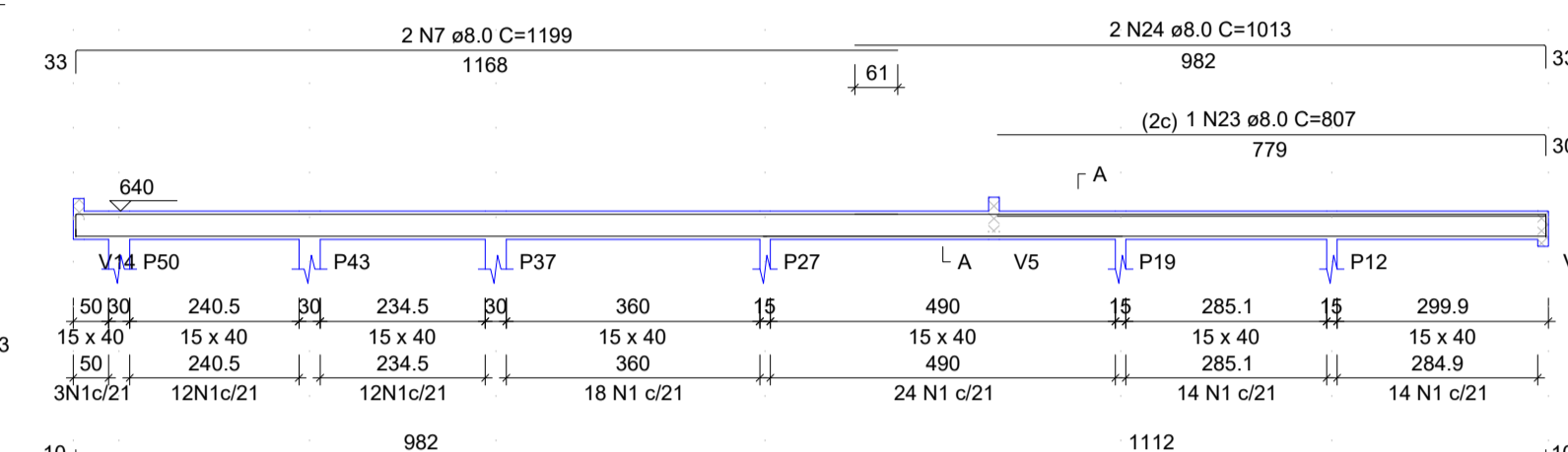
V24  
ESC 1:100



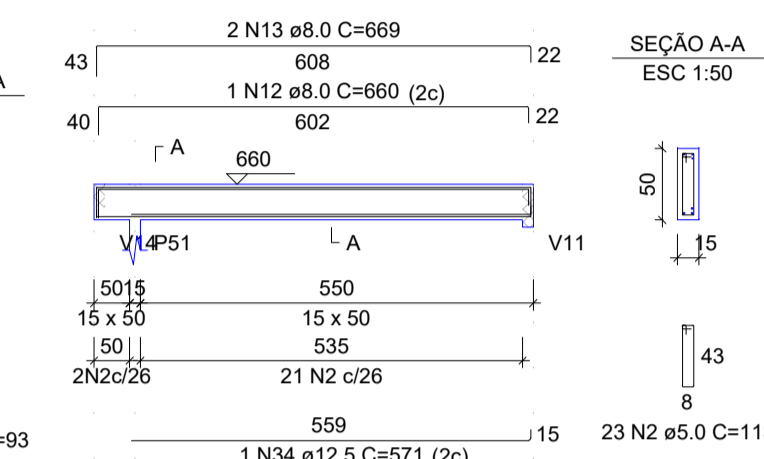
V25  
ESC 1:100



V26  
ESC 1:100



V27  
ESC 1:100

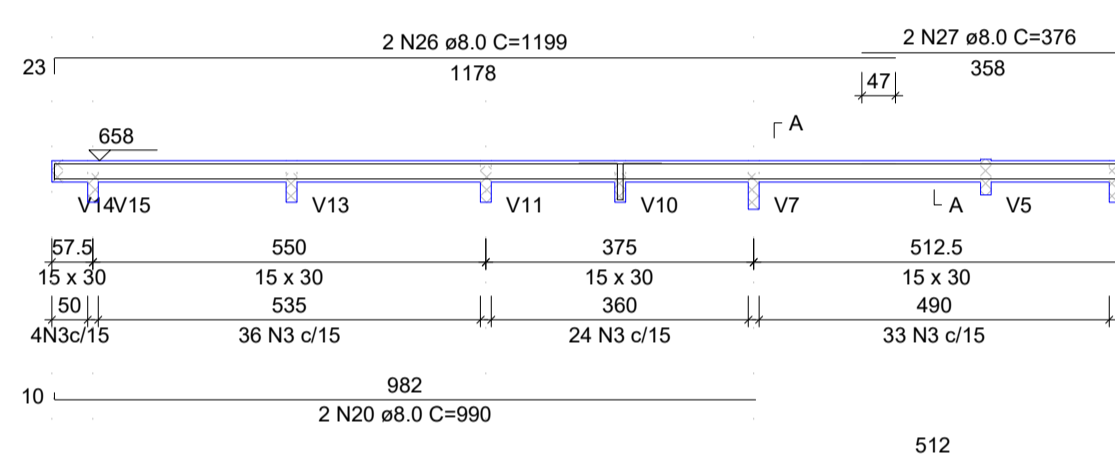


RESUMO DO AÇO

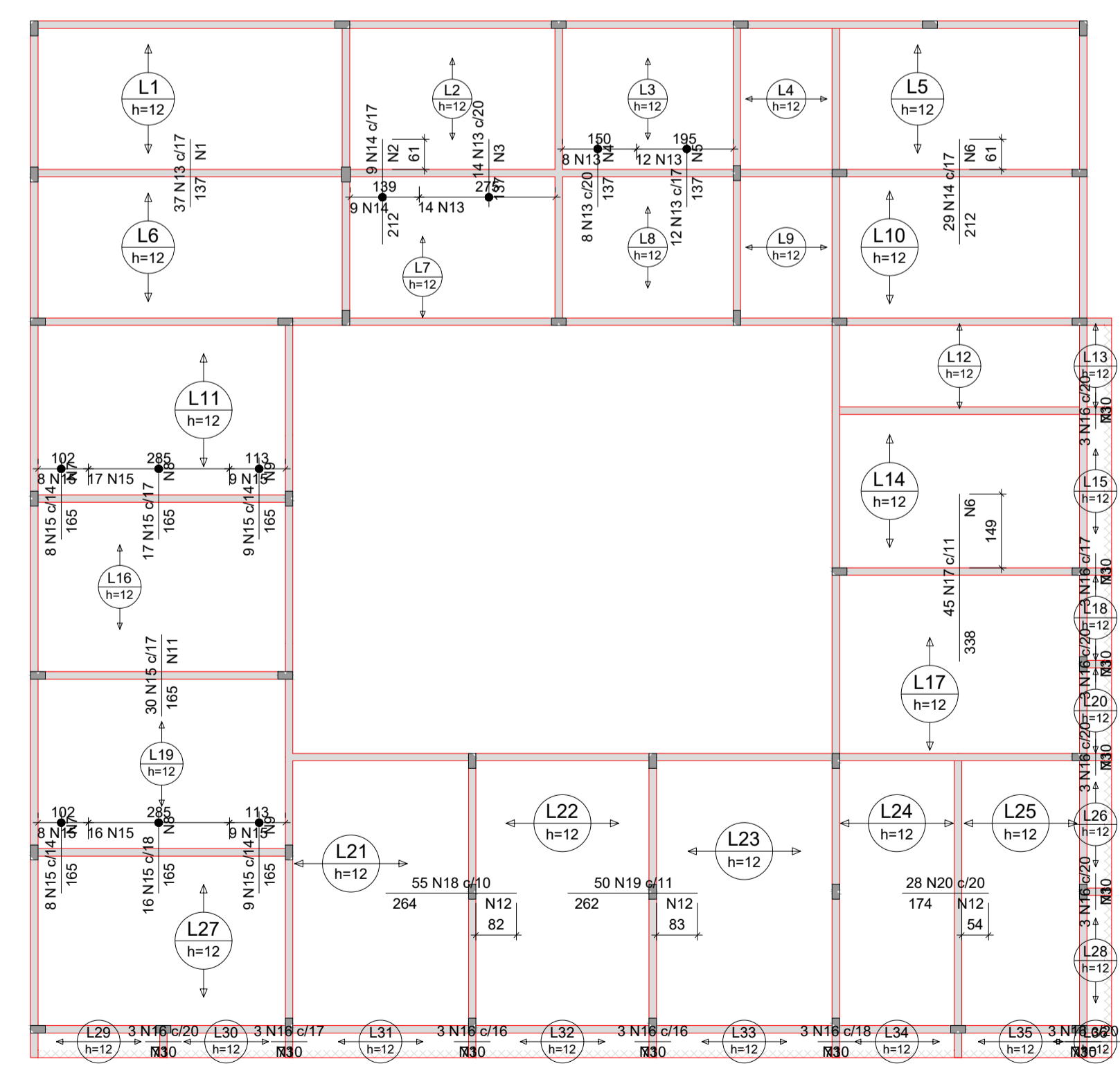
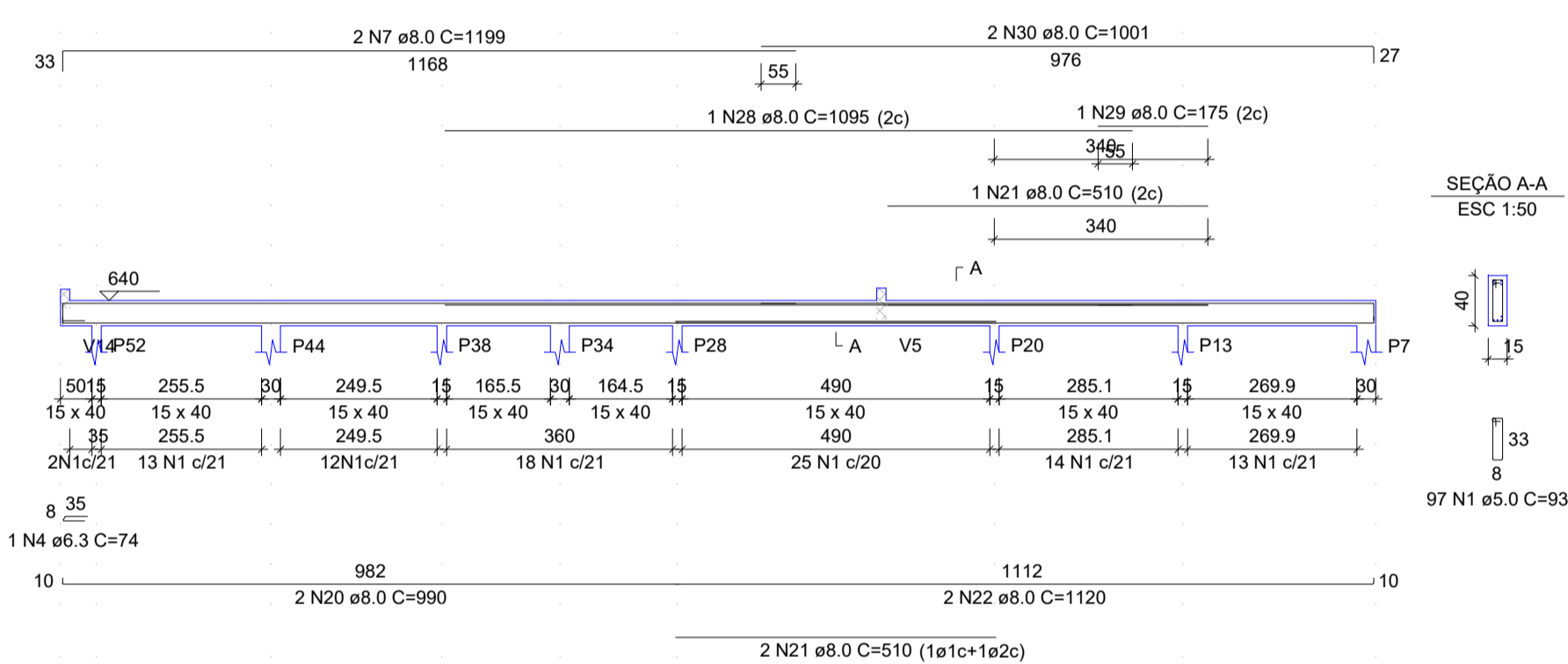
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	0.7	0.2
	8.0	584.9	253.9
	10.0	2.1	1.4
	12.5	37.1	39.4
	5.0	546.4	92.6
<b>PESO TOTAL (kg)</b>			
CA50		294.8	
CA60		92.6	

Volume de concreto (C-25) = 7.24 m³  
Área de forma = 93.98 m²

V28  
ESC 1:100

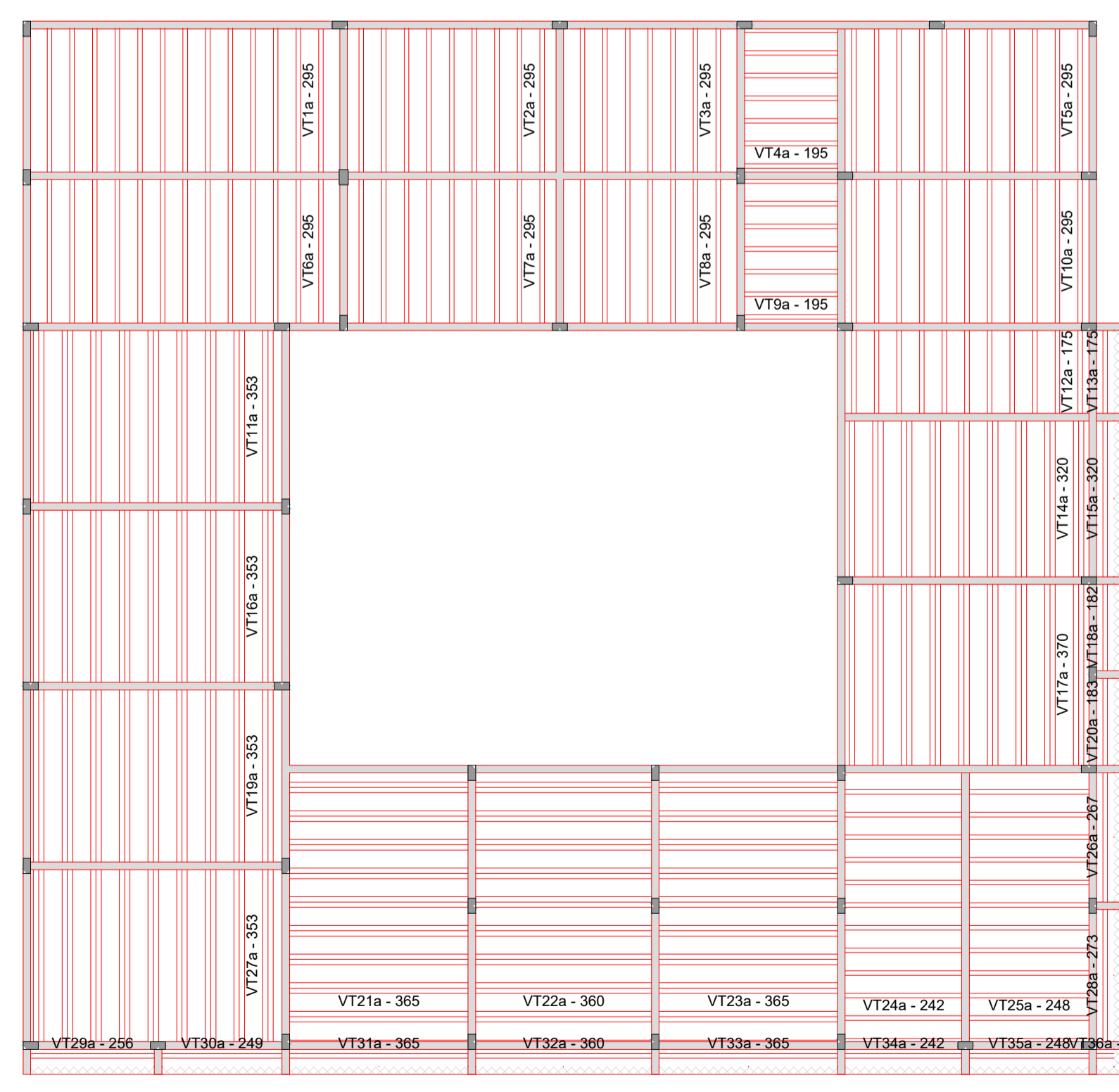


V29  
ESC 1:100



Armaduras de distribuição

Armadura	Armadura de distribuição
N13	7 N1 ø5.0 c/20 C=630
N14	11 N2 ø5.0 c/20 C=148
N13	7 N3 ø5.0 c/20 C=283
N13	7 N4 ø5.0 c/20 C=158
N13	7 N5 ø5.0 c/20 C=203
N14	11 N6 ø5.0 c/20 C=500
N15	9 N7 ø5.0 c/20 C=109
N15	9 N8 ø5.0 c/20 C=285
N15	9 N9 ø5.0 c/20 C=121
N16	4 N10 ø5.0 c/20 C=50
N17	17 N6 ø5.0 c/20 C=500
N16	4 N10 ø5.0 c/20 C=50
N15	9 N11 ø5.0 c/20 C=515
N16	4 N10 ø5.0 c/20 C=50
N15	9 N7 ø5.0 c/20 C=109
N15	9 N8 ø5.0 c/20 C=285
N16	4 N10 ø5.0 c/20 C=50
N18	14 N12 ø5.0 c/20 C=550
N19	14 N12 ø5.0 c/20 C=550
N20	9 N12 ø5.0 c/20 C=550
N16	4 N10 ø5.0 c/20 C=50
N16	4 N10 ø5.0 c/20 C=50
N16	4 N10 ø5.0 c/20 C=50
N16	4 N10 ø5.0 c/20 C=50
N16	4 N10 ø5.0 c/20 C=50



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	7	630	4410
	2	5.0	11	148	1628
	3	5.0	7	283	1981
	4	5.0	7	158	1106
	5	5.0	7	203	1421
	6	5.0	28	500	14000
	7	5.0	18	109	1962
	8	5.0	18	285	5130
	9	5.0	18	121	2178
	10	5.0	44	50	2200
	11	5.0	9	515	4635
	12	5.0	37	550	20350
	13	6.3	71	137	9727
	14	6.3	38	212	8056
	15	6.3	97	165	16005
	16	6.3	33	73	2409
	17	6.3	45	338	15210
	18	6.3	55	264	14520
	19	6.3	50	262	13100
	20	6.3	28	174	4872

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	839	225.8
CA60	6.3	610	103.4
<b>PESO TOTAL (kg)</b>			
CA50		225.8	
CA60		103.4	

Volume de concreto (C-25) = 19.51 m³  
Área de forma = 0.00 m²

Armação negativa das lajes do pavimento NÍVEL 640  
escala 1:100

Planta de vigotas pré-moldadas  
escala 1:100



REVISÃO	DESENHO	APROVAÇÃO
02		
01		
Nº	DATA	

PROJETO: PROJETO ESTRUTURAL  
E.E.F LEOCÁDIO DAMÁSIO DA COSTA

CLIENTE: MUNICÍPIO DE MARCO

LOCAL: DISTRITO DO MOCAMBO

CONTEÚDO:

- 1 Detalhamento das Vigas Nível 640
- 1 Armação neg. das lajes do Nível 640
- 2 Planta de vigotas pré-moldadas
- 3 Vigotas pré-moldadas

ESCALA: DESENHO: PRANCHA:  
INDICADA: INFRAESTRUTURA  
DATA: SETEMBRO/2023

11/11