

ANDRÉ RODRIGUES

Engenheiro Estrutural

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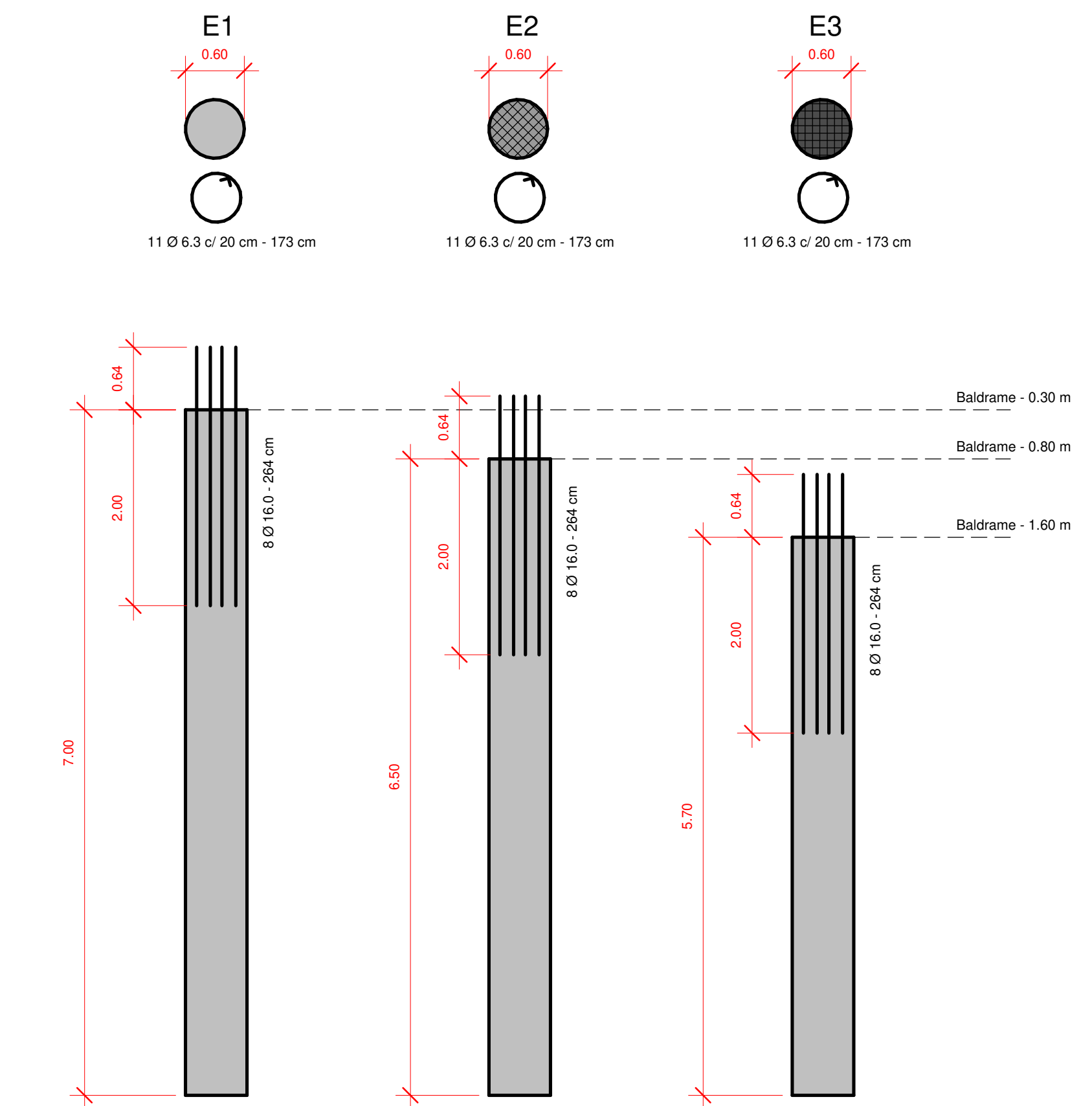
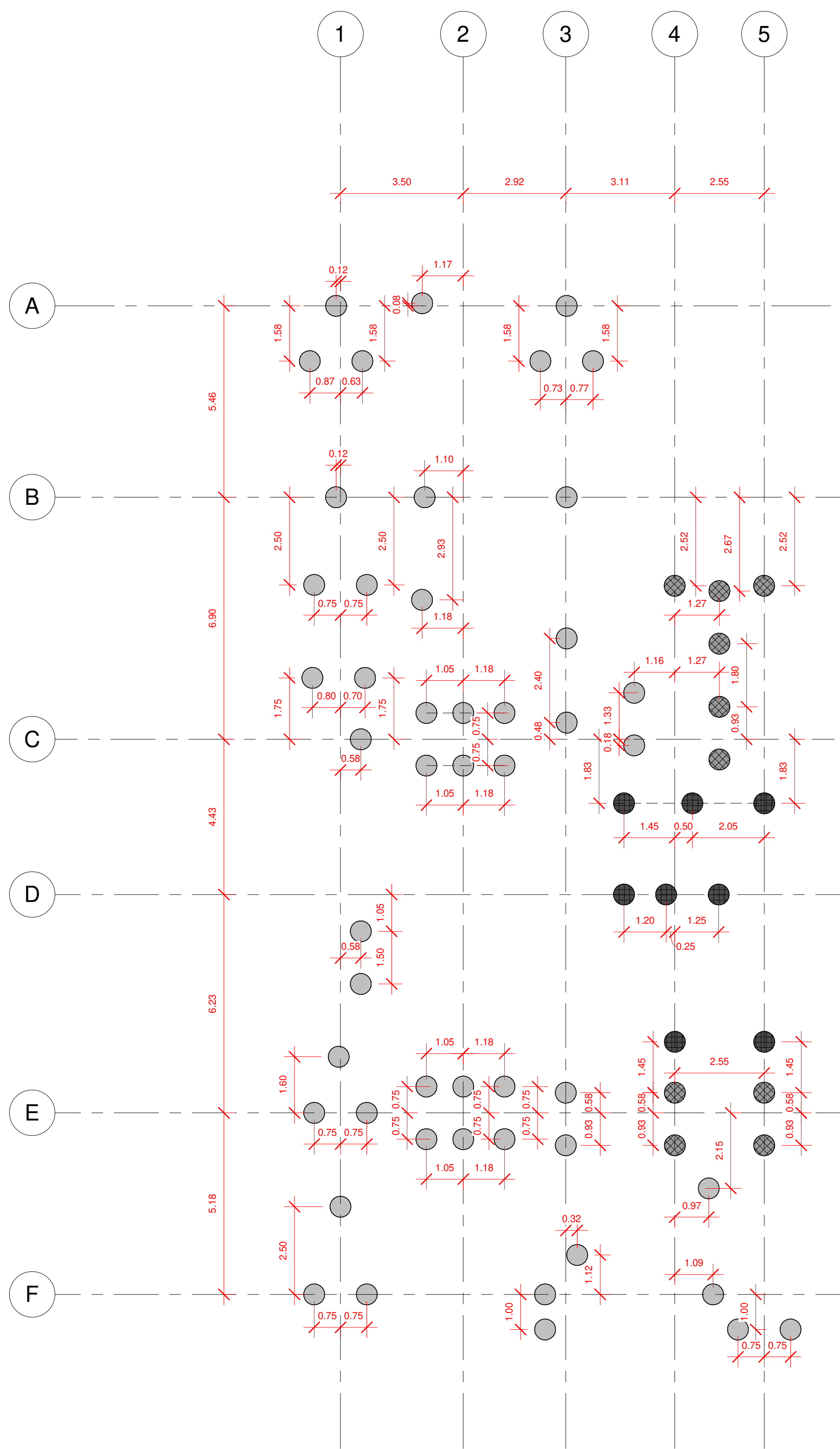
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PROJETO ESTRUTURAL

CASA GM



ESTACAS -
DETALHAMENTO
1 : 50

CONCRETO

	nº	Comprimento	Vol - Concreto/estaca	Vol. de concreto
E1	49	7 m	1.98 m³	96.98 m³
E2	10	6.5 m	1.84 m³	18.38 m³
E3	8	5.7 m	1.61 m³	12.89 m³
				Total 128.25 m³

AÇO

ARMADURA LONGITUDINAL

	nº	Barras/Estaca	Ø	Comp. / estaca	Comp. Total	Nº barras
E1	49	8	16	21.12 m	1034.88 m	87
E2	10	8	16	21.12 m	211.2 m	18
E3	8	8	16	21.12 m	168.96 m	15
				Total: 120 Barras		

ARMADURA TRANSVERSAL

nº	Barras/Estaca	Ø	Comp. / estaca	Comp. Total	Nº barras
67	11	6.3	1.73 m	115.91 m	10

LOCAÇÃO - ESTACAS
1 : 100

Site com:
- Modelos 3D
- Arquivos de obra
- Todos os documentos
do projeto



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CLIENTE:MAXWELL DE OLIVEIRA

OBRA:RESIDÊNCIA UNIFAMILIAR

TÍTULO:Locação e detalhamento de estacas

DATA:02/08/2021

DESENHO Nº: 01

OBS:

Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

ESCALA:INDICADA

A1

31/07/2021 10:15:42

B1, B2, B3, B6, B7, B8, B10, B11, B12, B14, B17, B19, B23, B24, B25, B26, B29, B30, B31, B39, B40, B41, B43, B44, B45, B47				
AÇO	BIT (mm)	QUANT	COMPRIMENTO	
			UNIT (cm)	TOTAL (cm)
60A	5	130	351	45630
50A	10	104	313	32552
50A	10	104	315	32760
B20, B4, B5, B9, B13, B15, B16, B18, B21, B27, B28, B32, B33, B34, B35, B36, B37, B42, B46				
AÇO	BIT (mm)	QUANT	COMPRIMENTO	
			UNIT(cm)	TOTAL (cm)
60A	5	114	651	74214
50A	6.3	95	248	23560
50A	10	114	285	32490
50A	6.3	228	328	74784
B38, B22				
AÇO	BIT (mm)	QUANT	COMPRIMENTO	
			UNIT (cm)	TOTAL (cm)
60A	5	14	651	9114
50A	6.3	10	248	2480
50A	12.5	12	297	3564
50A	6.3	24	328	7872
RESUMO DE AÇO				
AÇO	BIT (mm)	COMPR. (m)	PESO (kgf)	
60A	5	1290	199	
50A	6.3	1087	266	
50A	10	978	603	
50A	12.5	36	34	
Peso Total 60A = 199 kgf Peso Total 50A = 904kgf				
RESUMO DE AÇO POR ELEMENTO				
ELEM	PESO (kgf)		PESO (kgf)	
B1 e equivalentes	473		521	
B20 e equivalentes	556		611	
B38 e B22	74		81	

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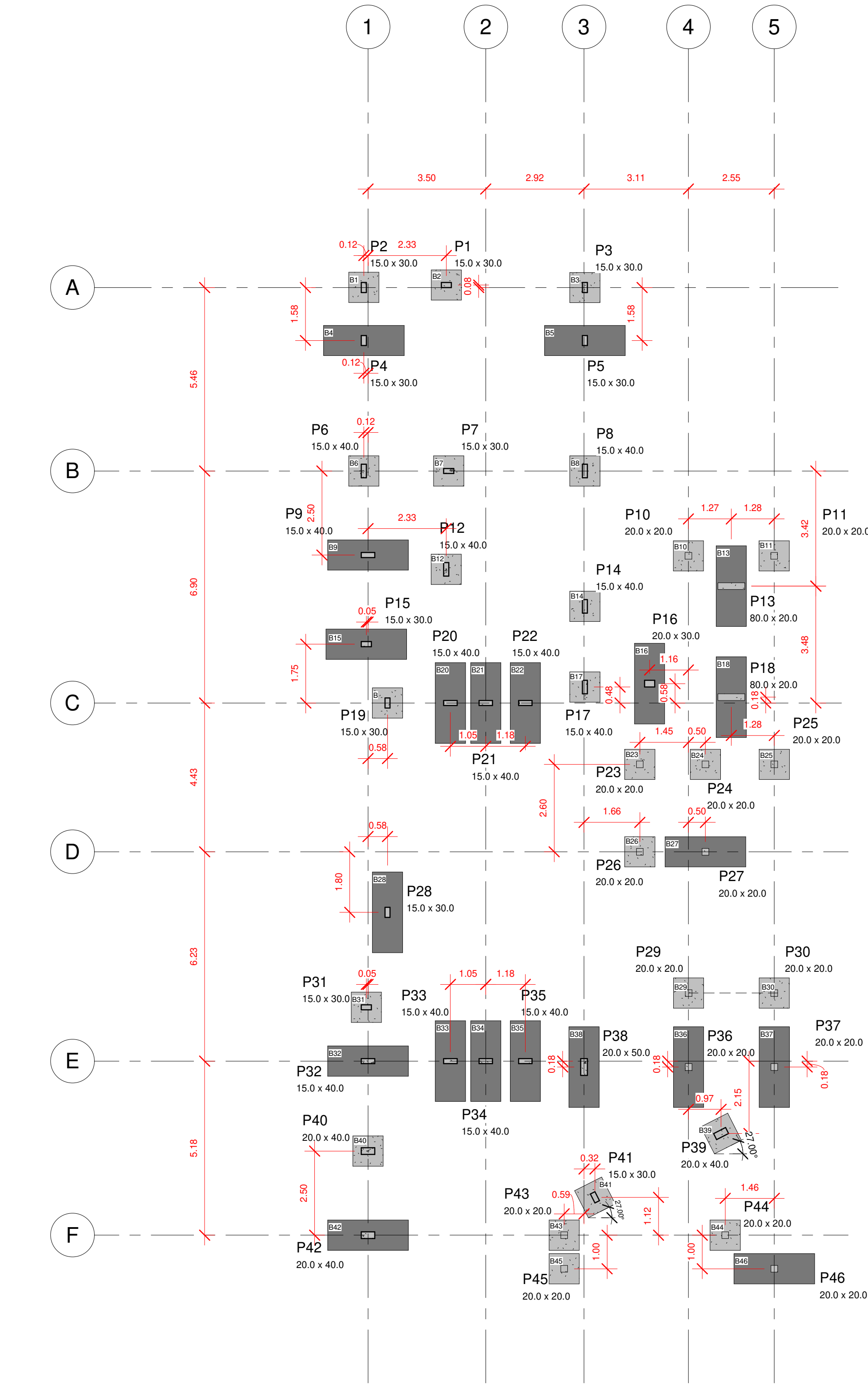
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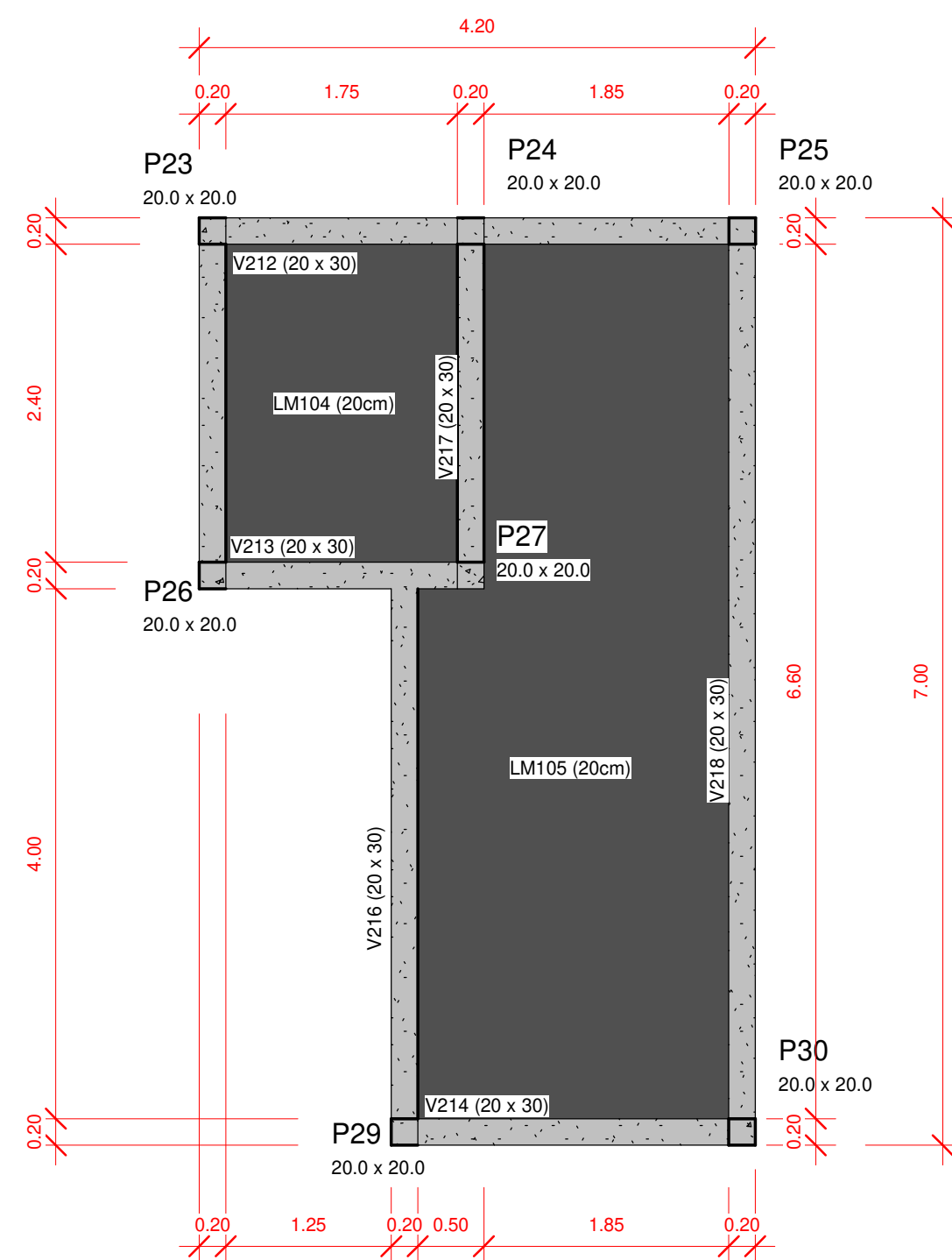
CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 02
OBRA:	RESIDÊNCIA UNIFAMILIAR	
TÍTULO:	Locação de pilares e blocos de fundação	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA: INDICADA



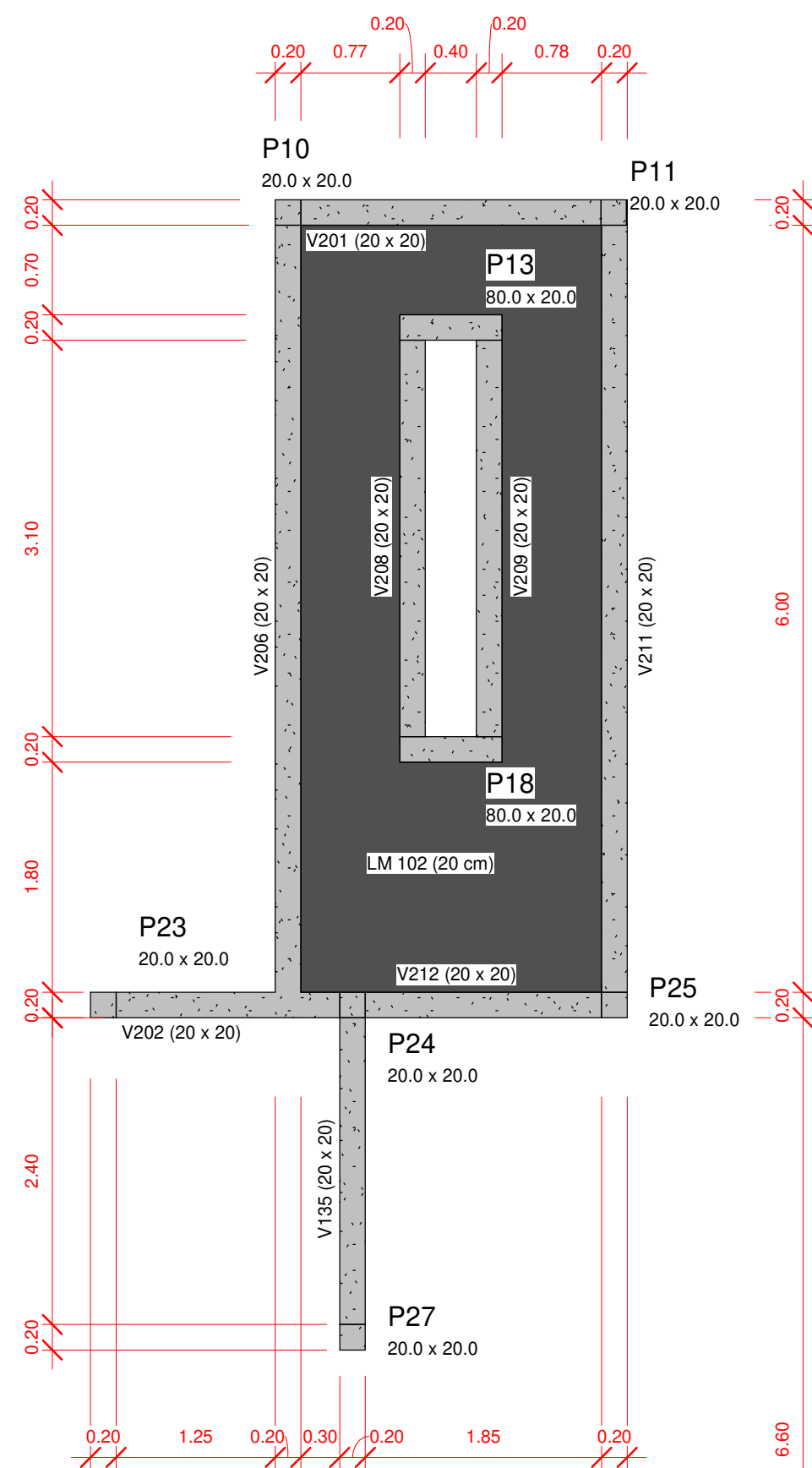
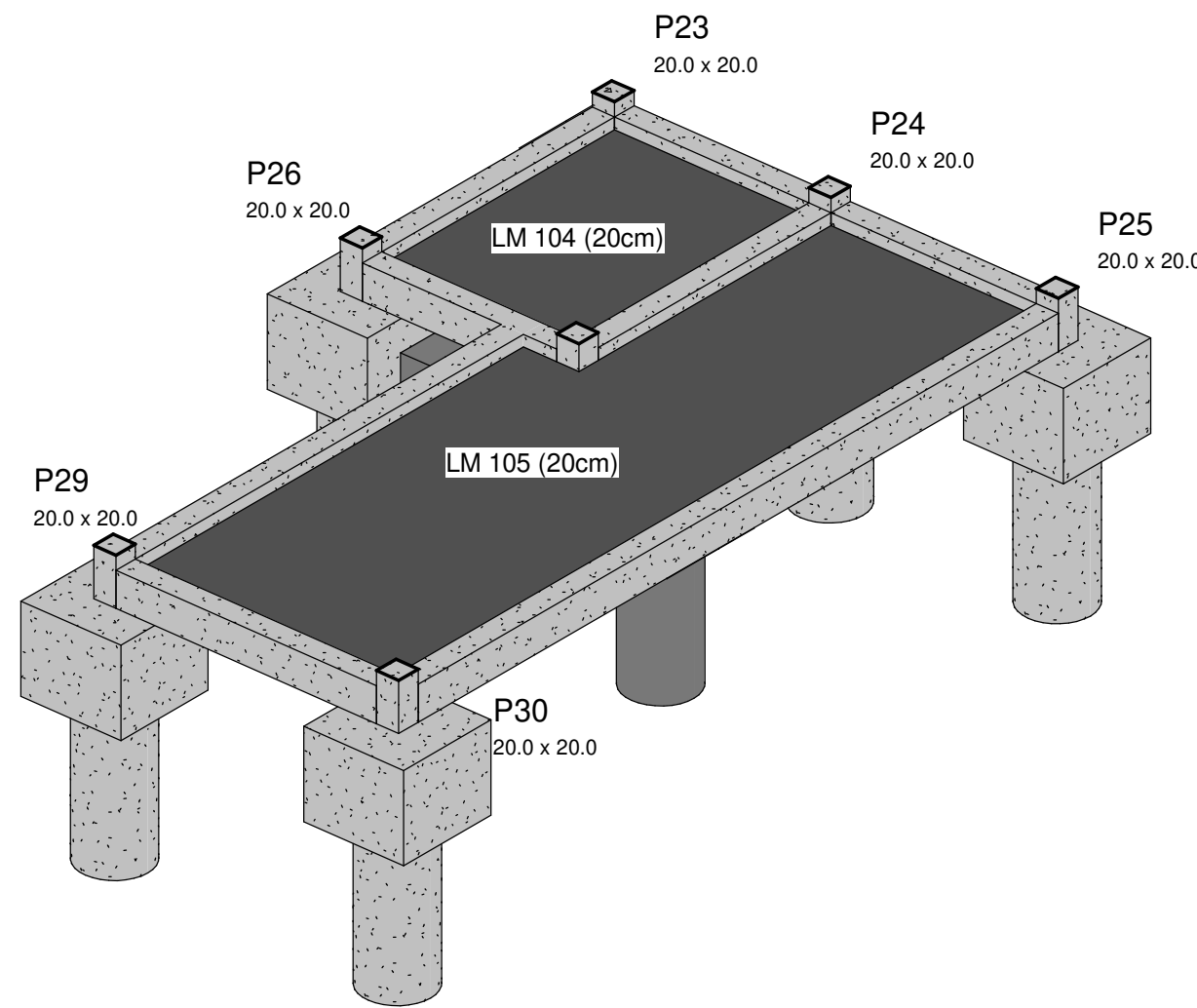
LOCAÇÃO - BLOCOS E PILARES
1 : 100

Dimensões dos Blocos			
BLOCOS	X (m)	Y (m)	H (m)
B1, B2, B3, B6, B7, B8, B10, B11, B12, B14, B17, B19, B23, B24, B25, B26, B29, B30, B31, B39, B40, B41, B43, B44, B45, B47	0.9	0.9	0.7
B20, B4, B5, B9, B13, B15, B16, B18, B21, B27, B28, B32, B33, B34, B35, B36, B37, B42, B46	2.4	0.9	0.8
B38, B22	2.4	0.9	0.8

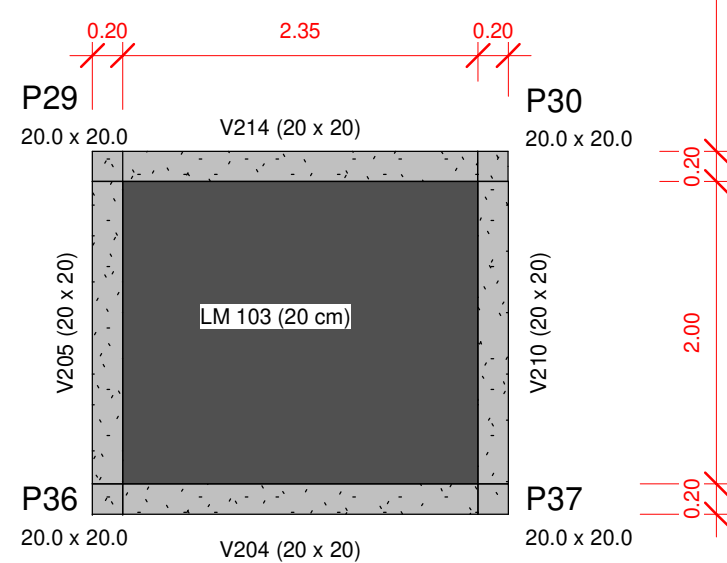
Dimensões dos Pilares		
PILAR	B (m)	H (m)
P1	0.15	0.30
P2	0.15	0.30
P3	0.15	0.30
P4	0.15	0.30
P5	0.15	0.30
P6	0.15	0.40
P7	0.15	0.30
P8	0.15	0.40
P9	0.15	0.40
P10	0.20	0.20
P11	0.20	0.20
P12	0.15	0.40
P13	0.80	0.20
P14	0.15	0.40
P15	0.15	0.30
P16	0.20	0.30
P17	0.15	0.40
P18	0.80	0.20
P19	0.15	0.30
P20	0.15	0.40
P21	0.15	0.40
P22	0.15	0.40
P23	0.20	0.20
P24	0.20	0.20
P25	0.20	0.20
P26	0.20	0.20
P27	0.20	0.20
P28	0.15	0.30
P29	0.20	0.20
P30	0.20	0.20
P31	0.15	0.30
P32	0.15	0.40
P33	0.15	0.40
P34	0.15	0.40
P35	0.15	0.40
P36	0.20	0.20
P37	0.20	0.20
P38	0.20	0.50
P39	0.20	0.40
P40	0.20	0.40
P41	0.15	0.30
P42	0.20	0.40
P43	0.20	0.20
P44	0.20	0.20
P45	0.20	0.20
P46	0.20	0.20
P47	0.15	0.25



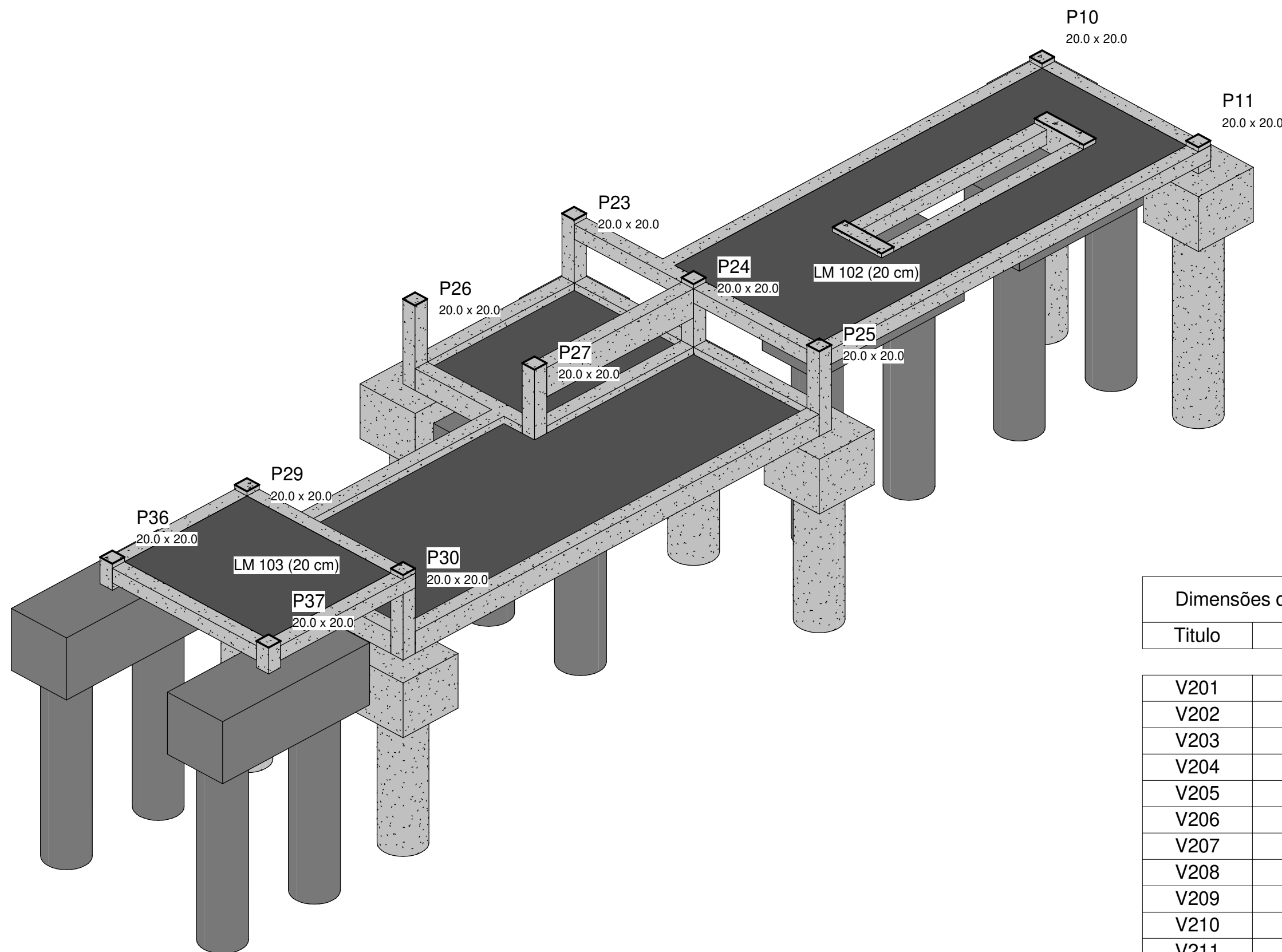
FORMAS - PISCINA-130
1 : 50



FORMAS - PISCINA-050
1 : 50



ISO - PISCINA -050



Dimensões das Vigas (Piscina)		
Titulo	Altura	Largura
V201	0.20	0.20
V202	0.20	0.20
V203	0.20	0.20
V204	0.20	0.20
V205	0.20	0.20
V206	0.20	0.20
V207	0.40	0.20
V208	0.20	0.20
V209	0.30	0.20
V210	0.20	0.20
V211	0.20	0.20
V212	0.30	0.20
V213	0.30	0.20
V214	0.30	0.20
V215	0.30	0.20
V216	0.30	0.20
V217	0.30	0.20
V218	0.30	0.20

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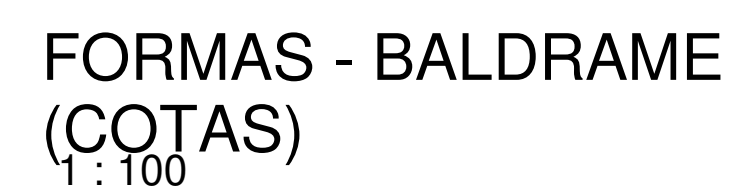
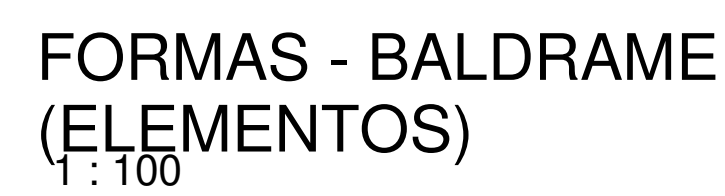
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CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 03
OBRA:	RESIDÊNCIA UNIFAMILIAR	
TÍTULO:	Planta de formas: - PISCINA	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA: INDICADA

A1

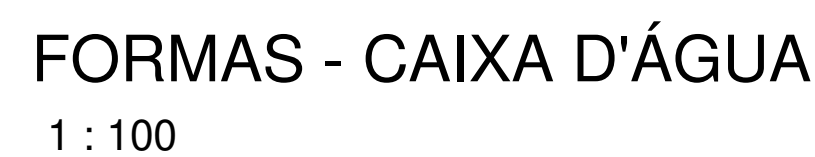
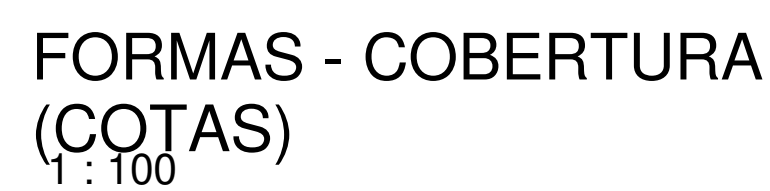
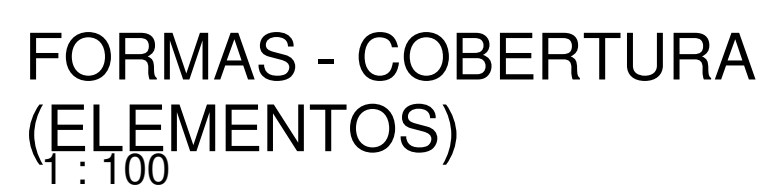
31/07/2021 10:17:49



V122	0.15	0.30
V122	0.15	0.30
V123	0.15	0.30
V124	0.40	0.30
V125	0.15	0.30
V125	0.15	0.30
V126	0.40	0.30
V127	0.40	0.30
V128	0.15	0.30
V128	0.15	0.30
V129	0.15	0.50
V129	0.15	0.50
V130	0.15	0.30
V130	0.15	0.30
V130	0.15	0.30
V130	0.15	0.30
V131	0.15	0.30
V132	0.20	0.40
V132	0.20	0.40
V133	0.15	0.30
V134	0.20	0.20
V135	0.20	0.20
V137	0.20	0.20
V138	0.20	0.20
V139	0.20	0.20
V139	0.20	0.20
V140	0.20	0.20
V141	0.20	0.20
V141	0.20	0.20
V142	0.20	0.20
V143	0.20	0.20
V144	0.20	0.40
V145	0.20	0.40
V146	0.20	0.40
V147	0.20	0.40
V148	0.20	0.20
V149	0.20	0.20



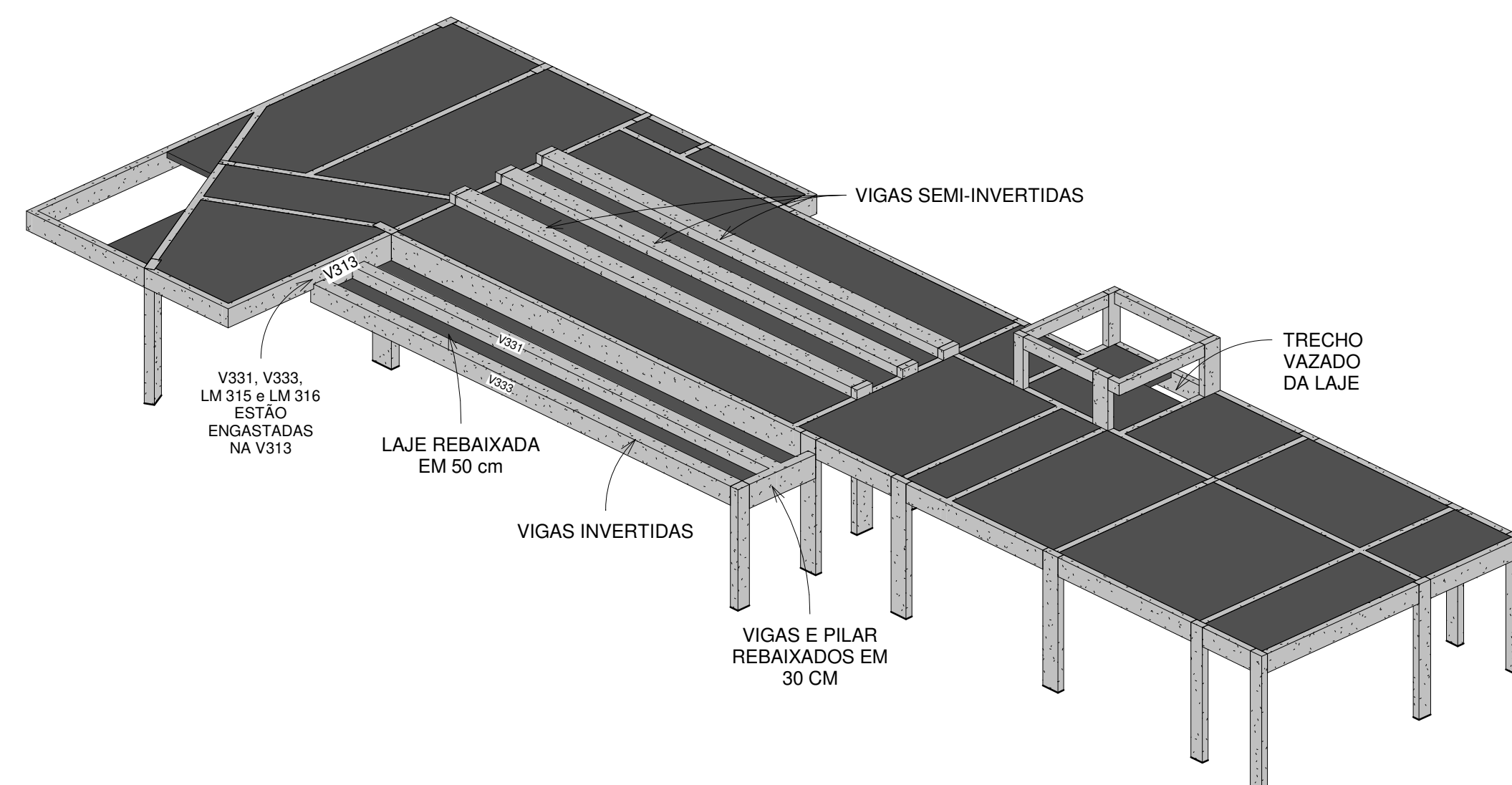
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V301	0.40	0.15
V301	0.40	0.15
V302	0.40	0.15
V302	0.40	0.15
V303	0.40	0.15
V303	0.40	0.15
V304	0.40	0.15
V305	0.40	0.15
V306	0.40	0.15
V307	0.40	0.15
V307	0.40	0.15
V308	0.50	0.20
V308	0.50	0.20
V309	0.40	0.15
V309	0.40	0.15
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V310	0.40	0.15
V311	0.30	0.15
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V312	0.50	0.15
V312	0.50	0.15
V312	0.50	0.15
V312	0.50	0.15
V313	0.70	0.15
V313	0.70	0.15
V314	0.40	0.15
V315	0.40	0.15
V316	0.40	0.15
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V317	0.40	0.15
V317	0.40	0.15
V318	0.40	0.15
V318	0.40	0.15

V319	0.40	0.15
V320	0.40	0.15
V321	0.40	0.15
V321	0.40	0.15
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V321	0.40	0.15
V322	0.30	0.15
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V323	0.40	0.15
V324	0.50	0.40
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V325	0.40	0.15
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V325	0.40	0.15
V325	0.40	0.15
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V327	0.50	0.40
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V330	0.40	0.15
V330	0.40	0.15
V331	0.40	0.30
V332	0.40	0.15
V333	0.40	0.30
V334	0.40	0.15
V335	0.40	0.15

V401	0.25	0.15
V402	0.25	0.15
V403	0.25	0.15
V404	0.25	0.15



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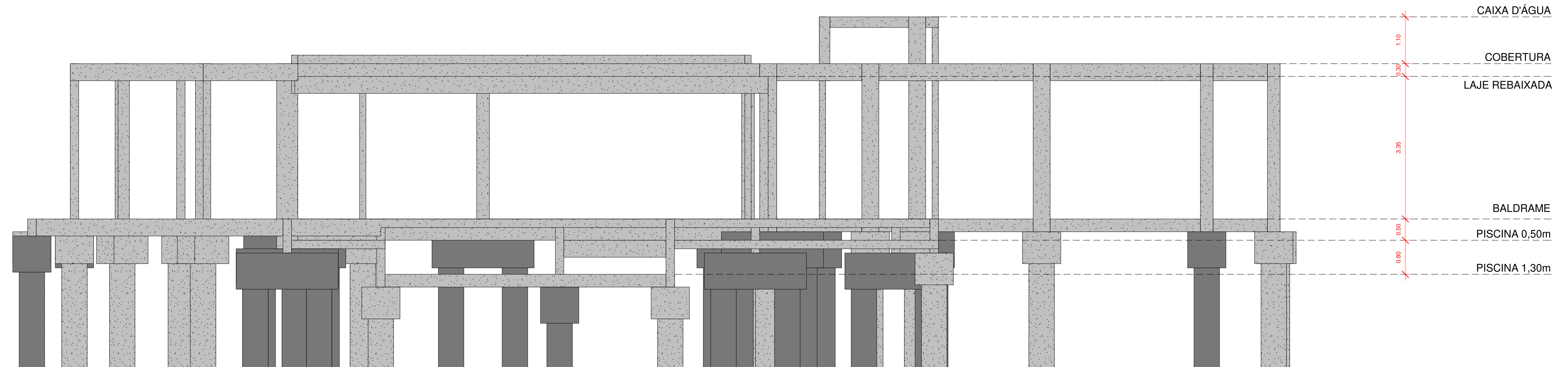
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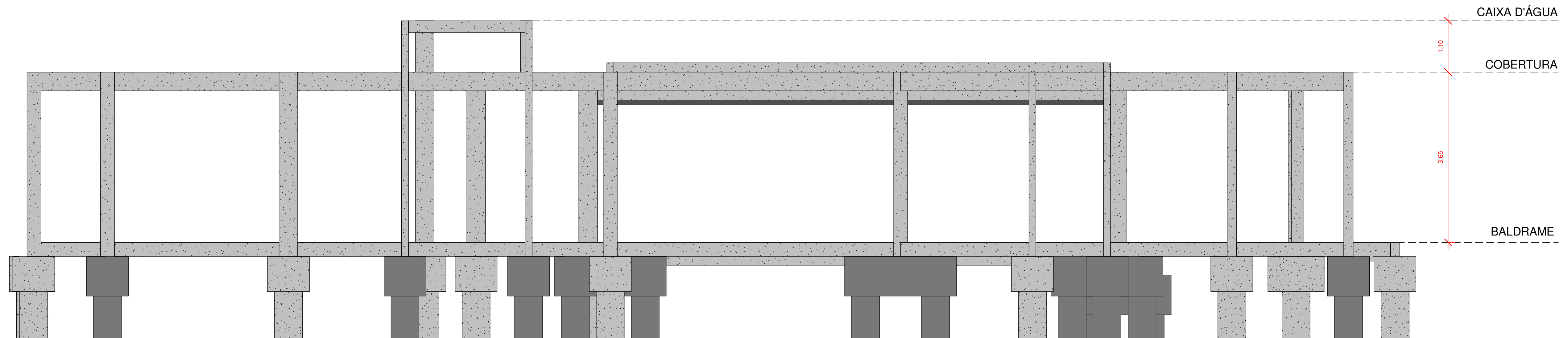
✉ contato@anderodrigues.eng.br

CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 05
OBRA:	RESIDÊNCIA UNIFAMILIAR	OB: Concreto: fck: 25 MPa ECS: 241.50 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
TÍTULO:	Planta de formas: - COBERTURA - CAIXA D'ÁGUA	
DATA:	02/08/2021	ESCALA: INDICADA



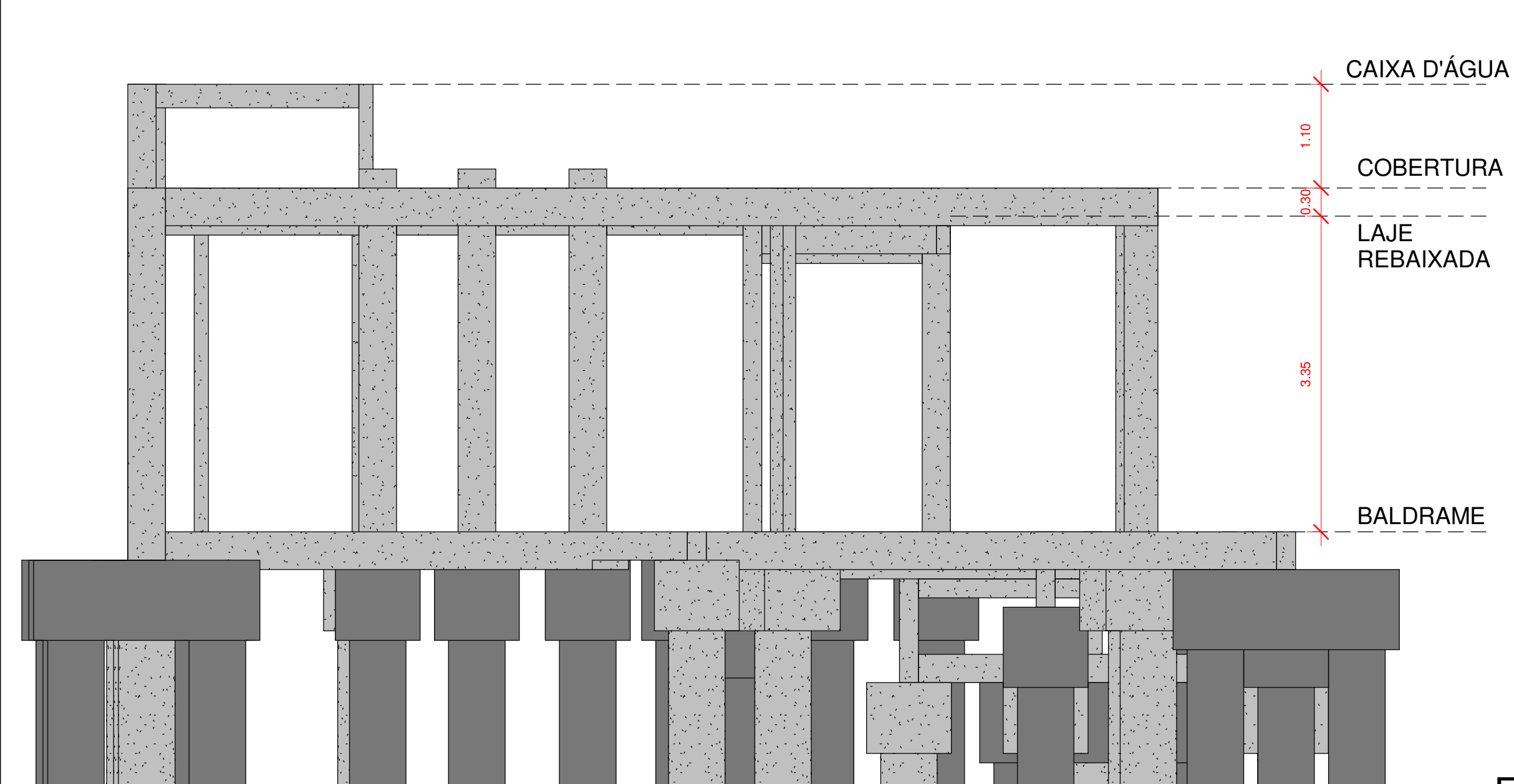
FACHADA 01

1 : 50



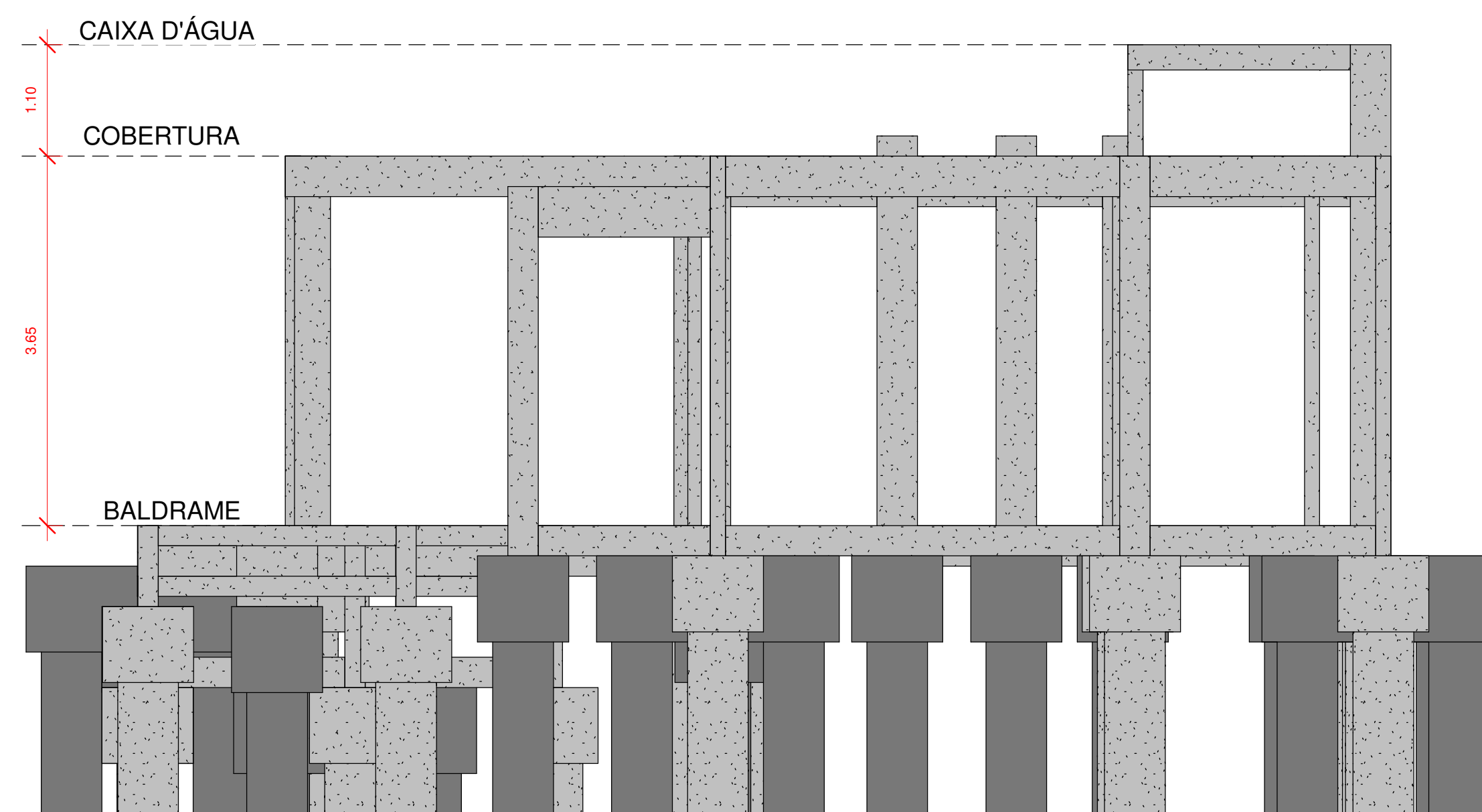
FACHADA 02

1 : 50



FACHADA 03

1 : 50



FACHADA 04

1 : 50

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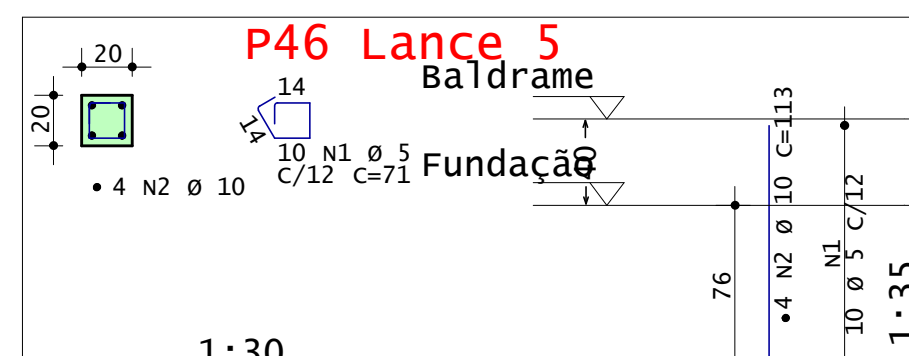
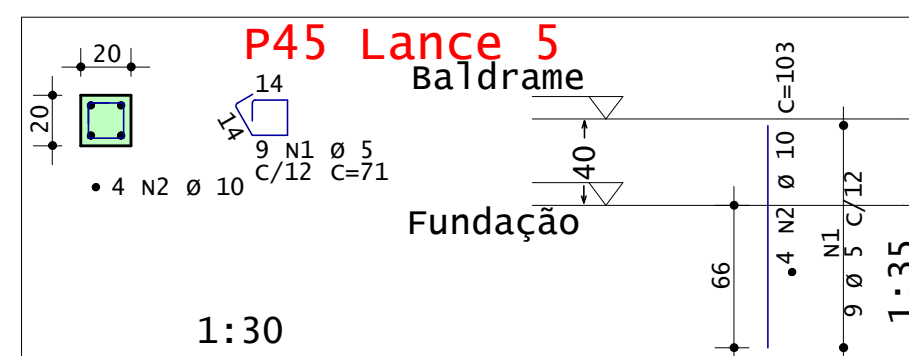
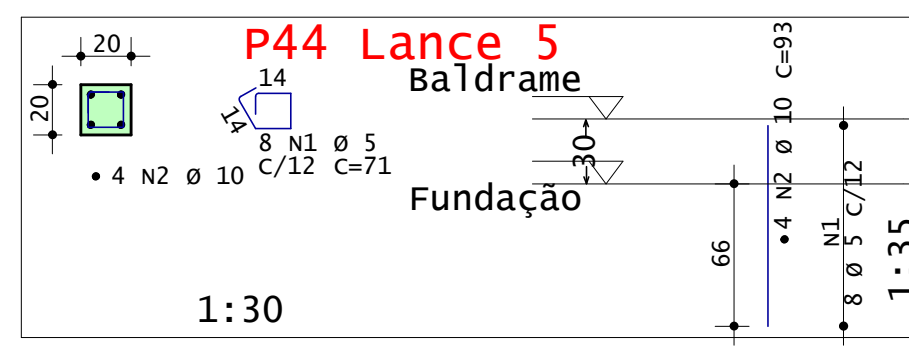
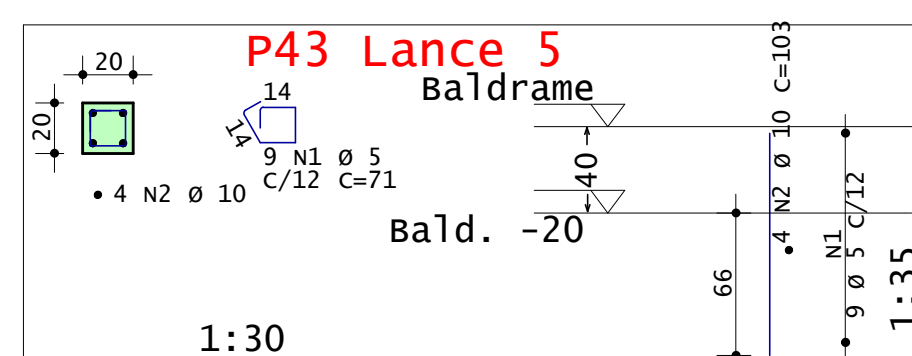
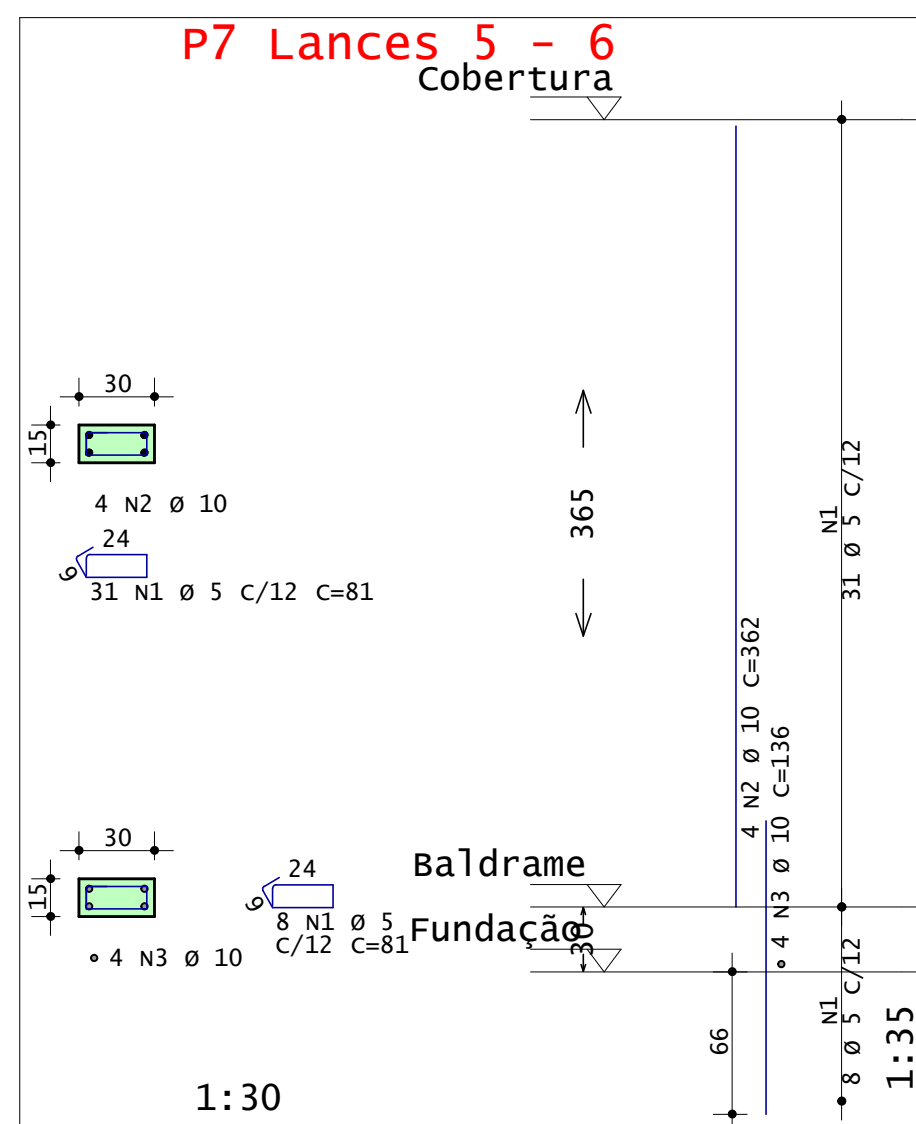
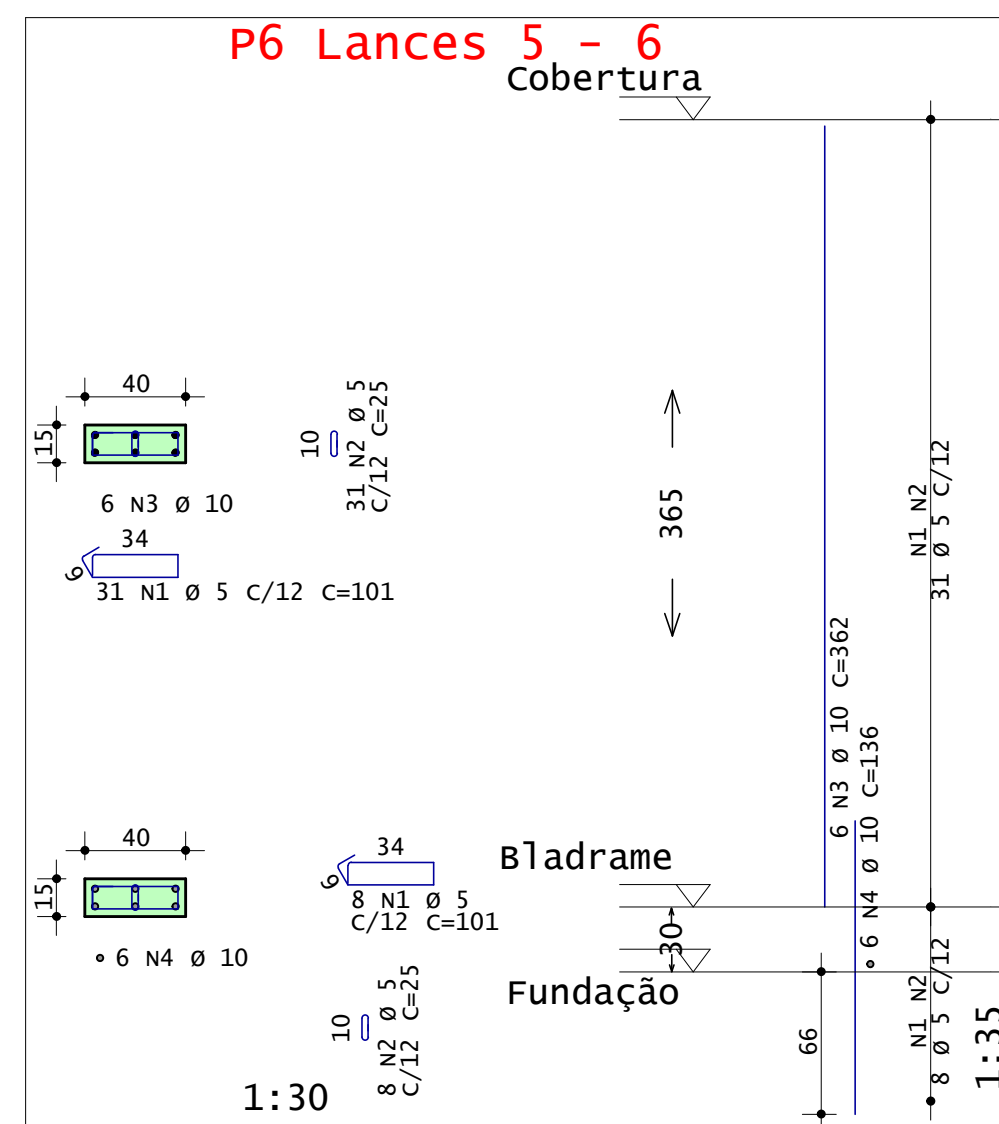
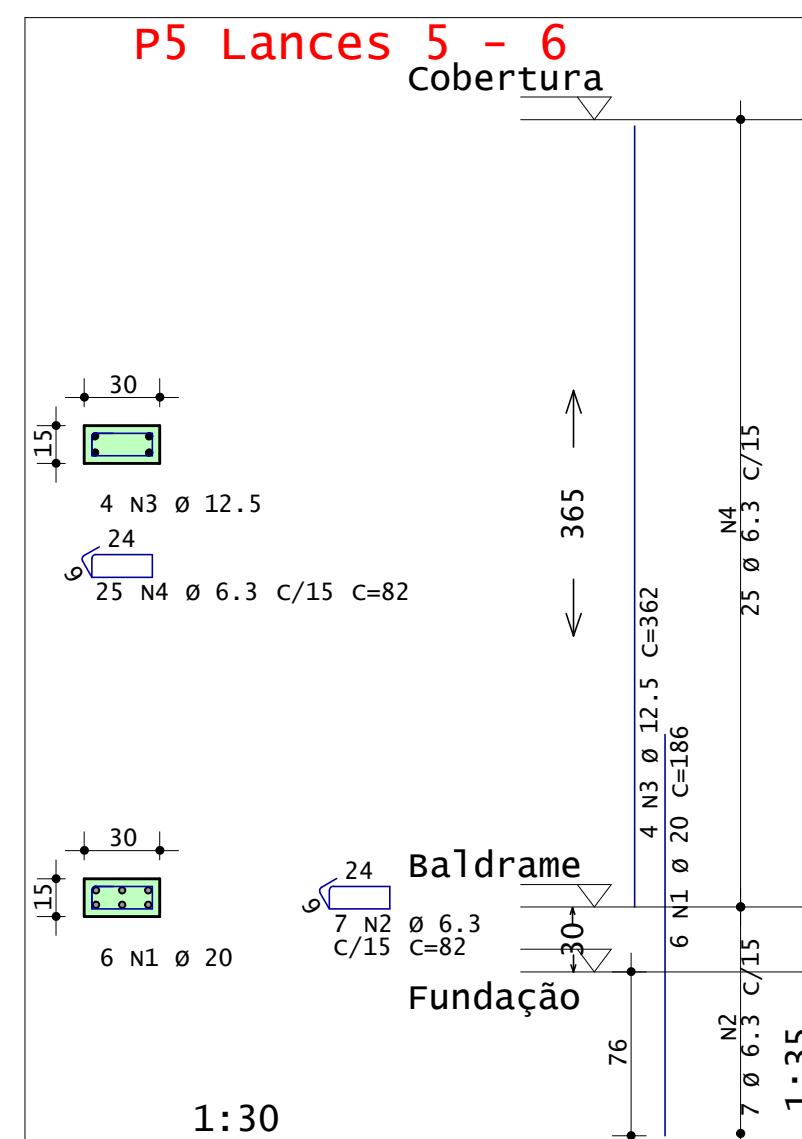
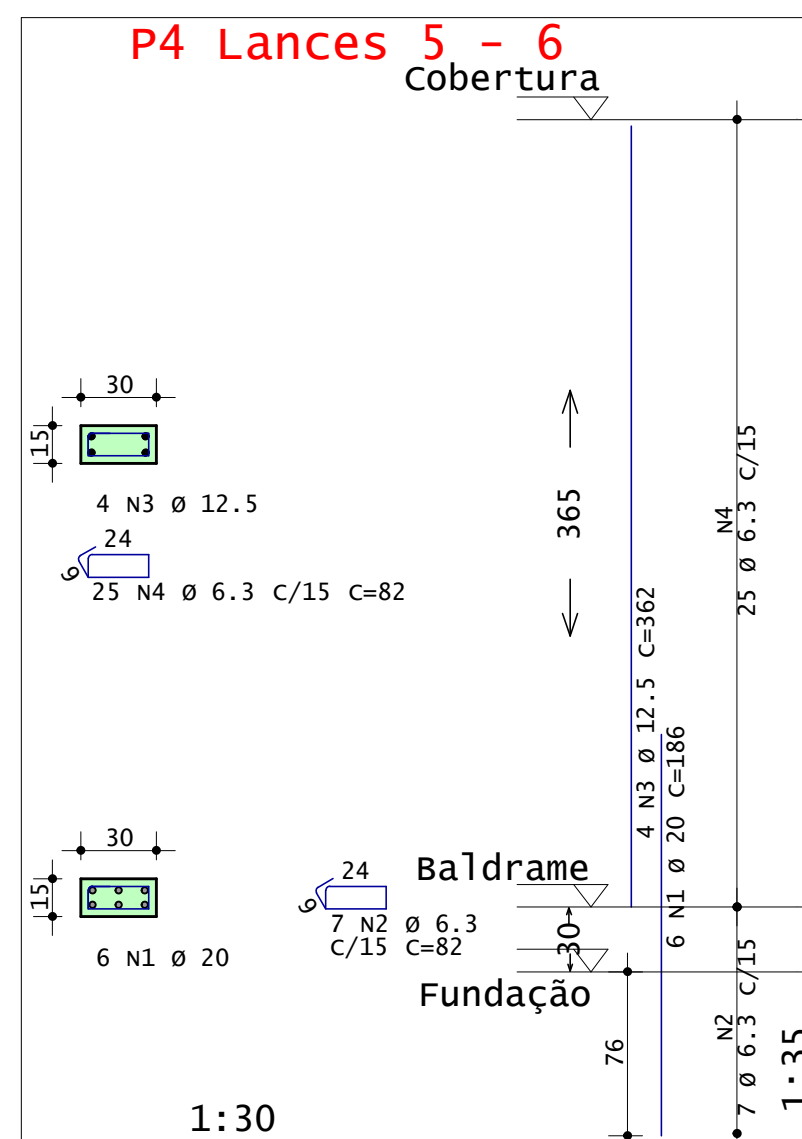
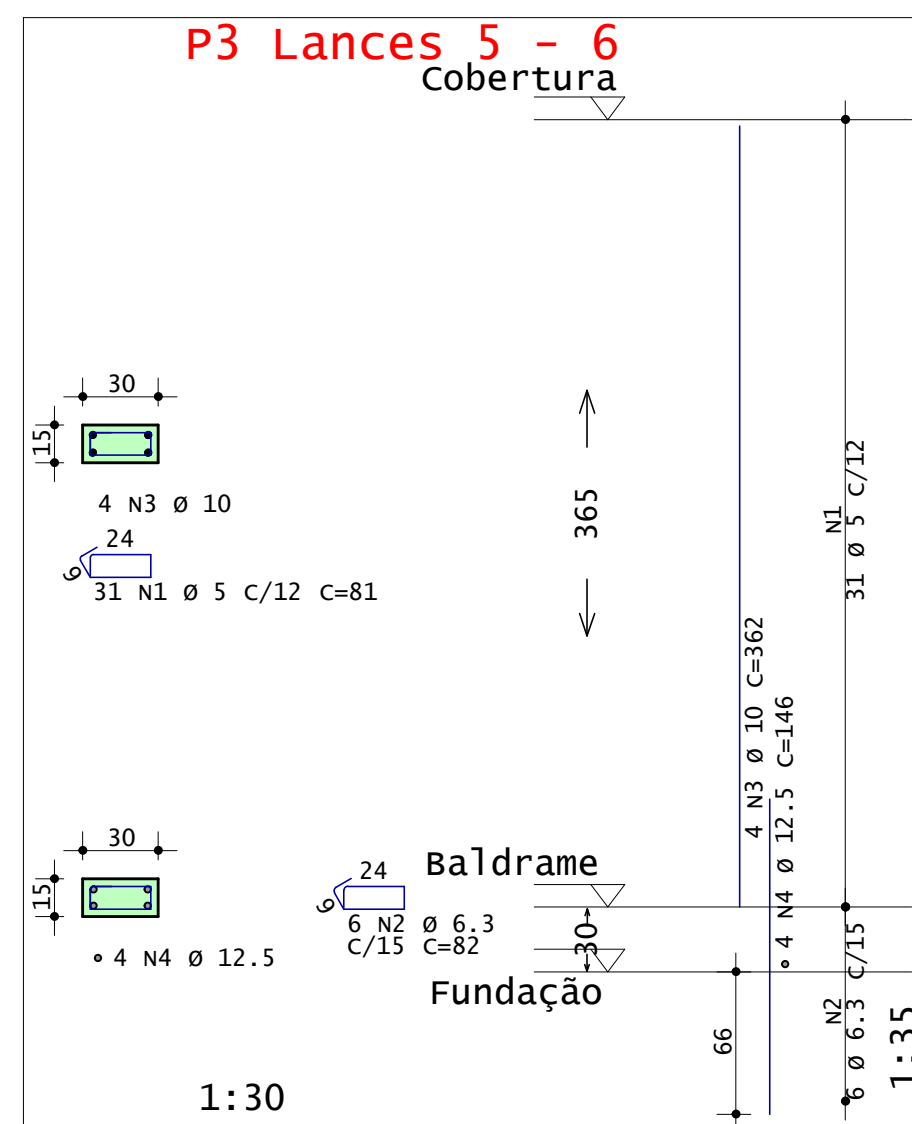
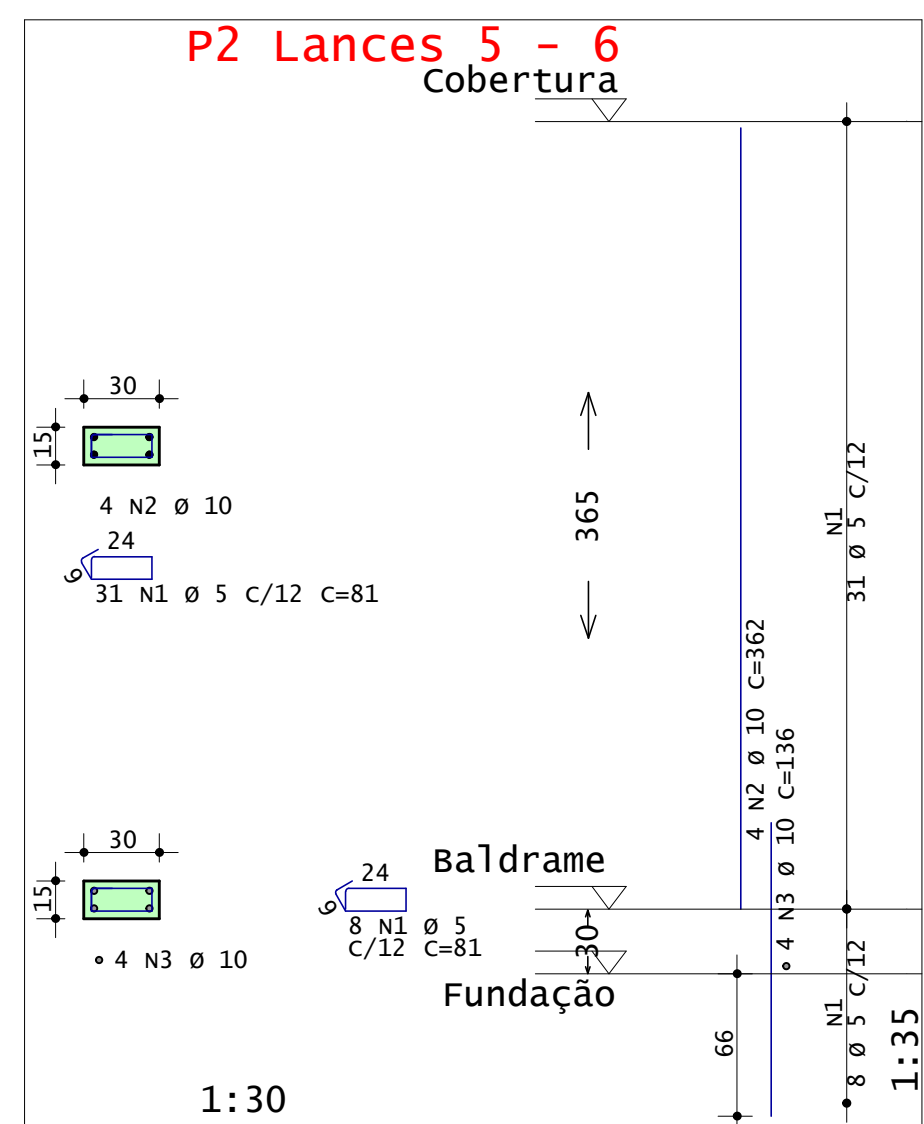
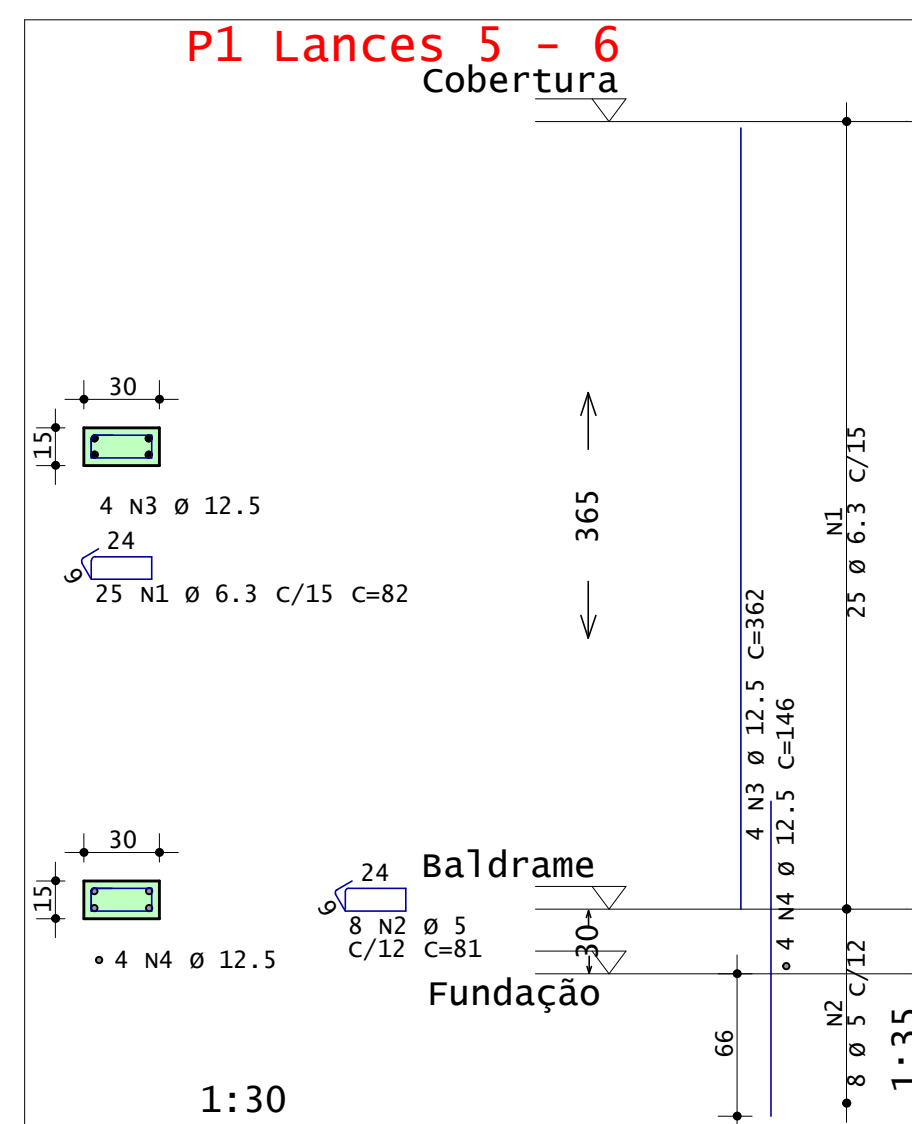
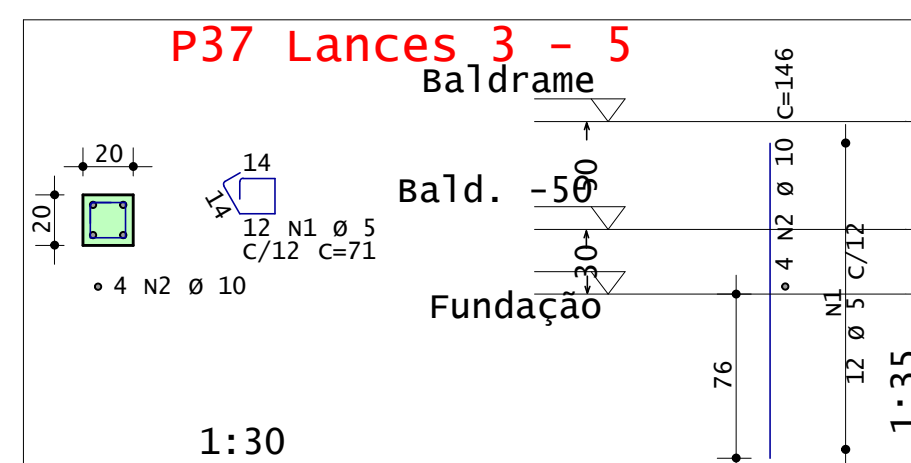
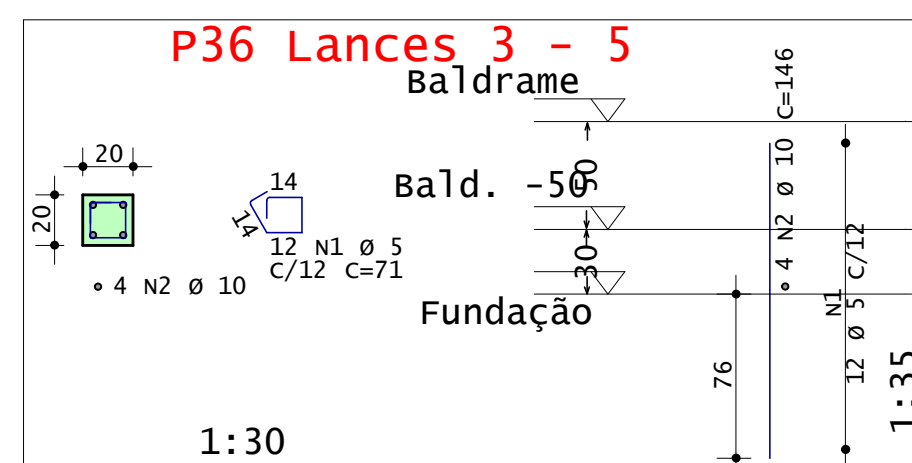
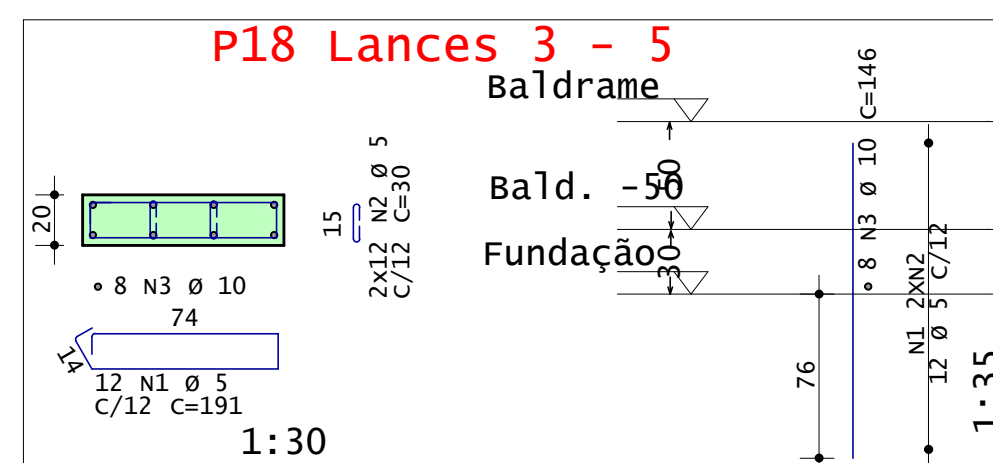
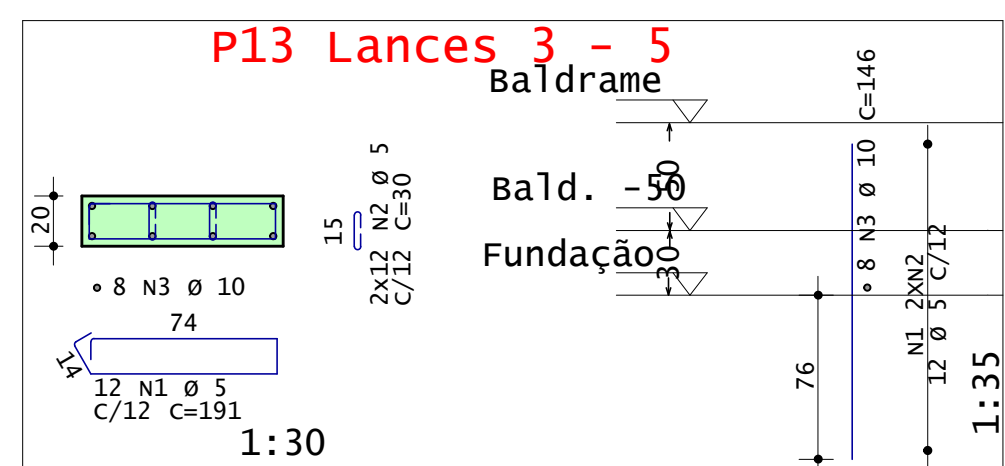
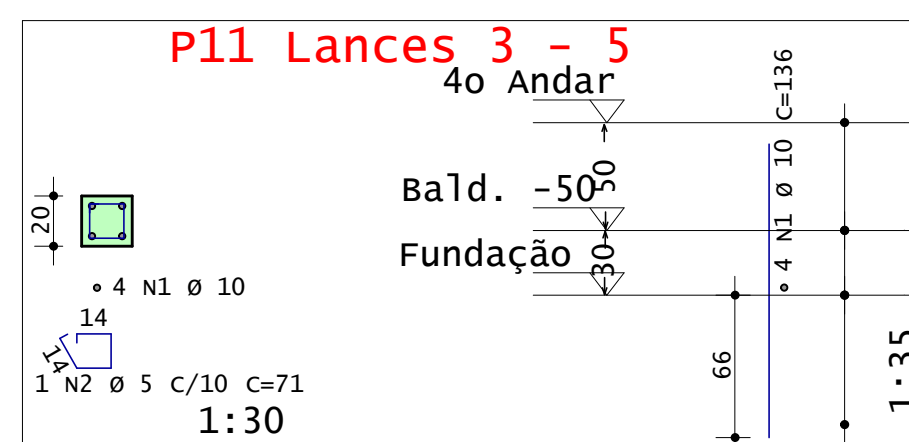
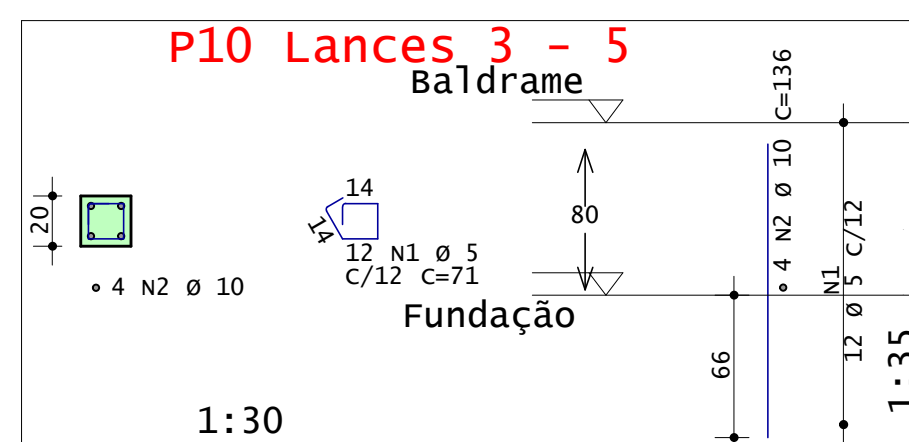
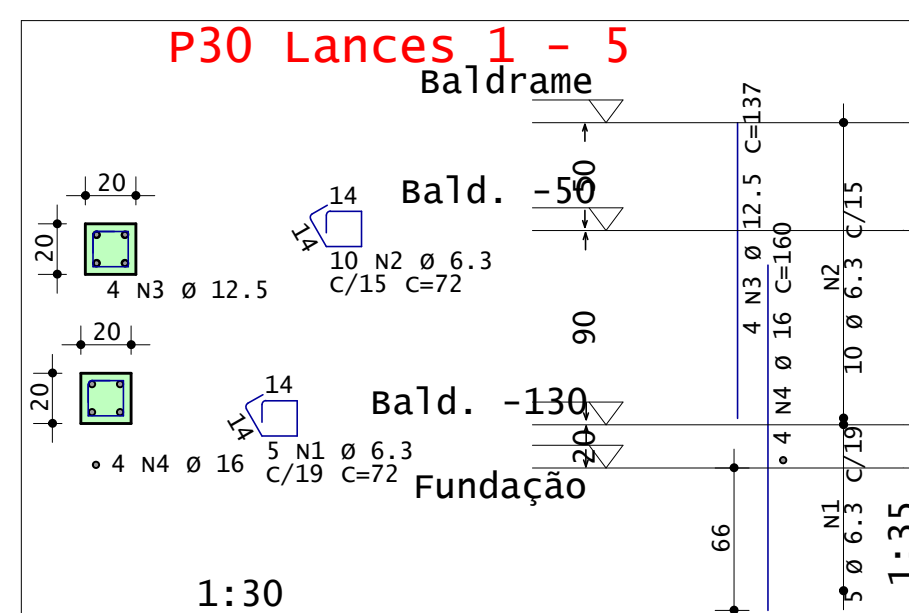
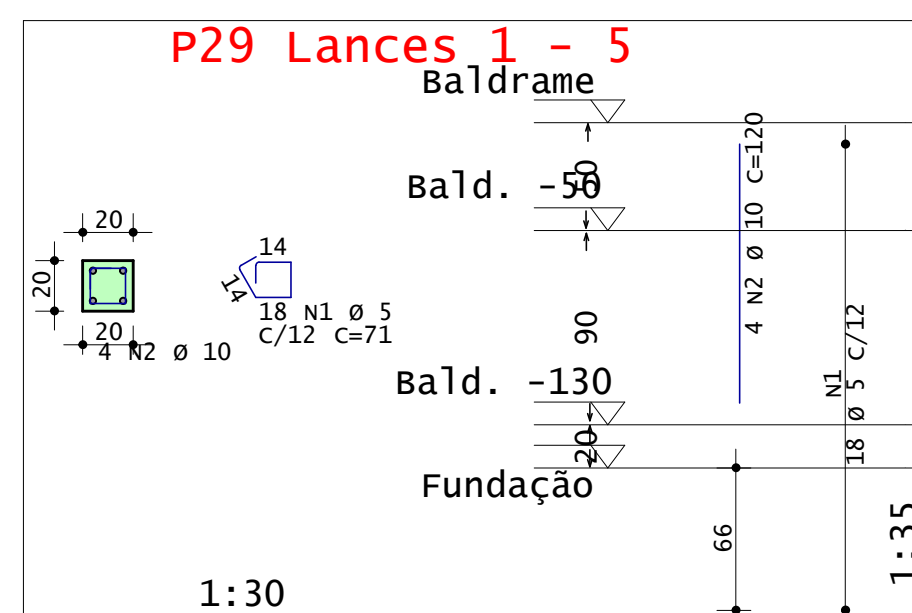
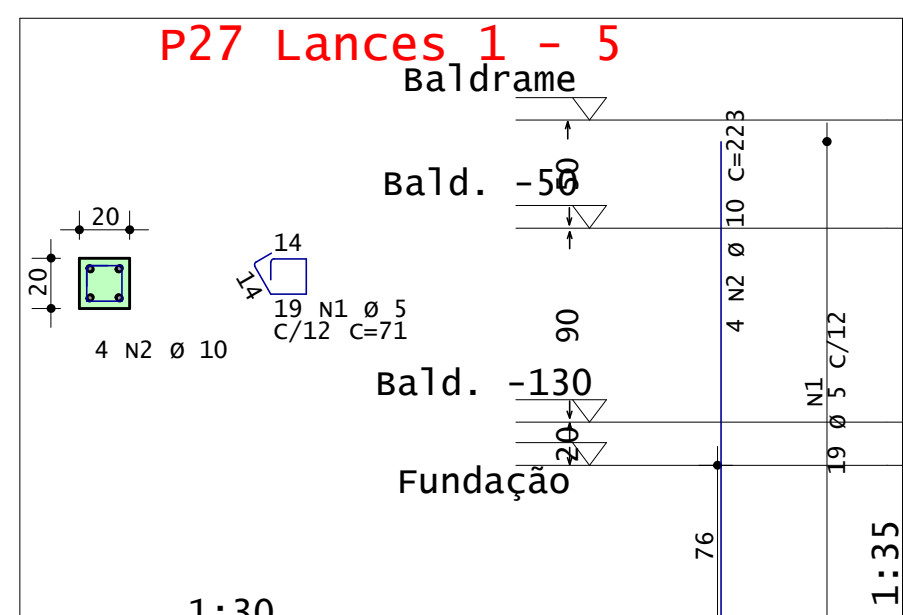
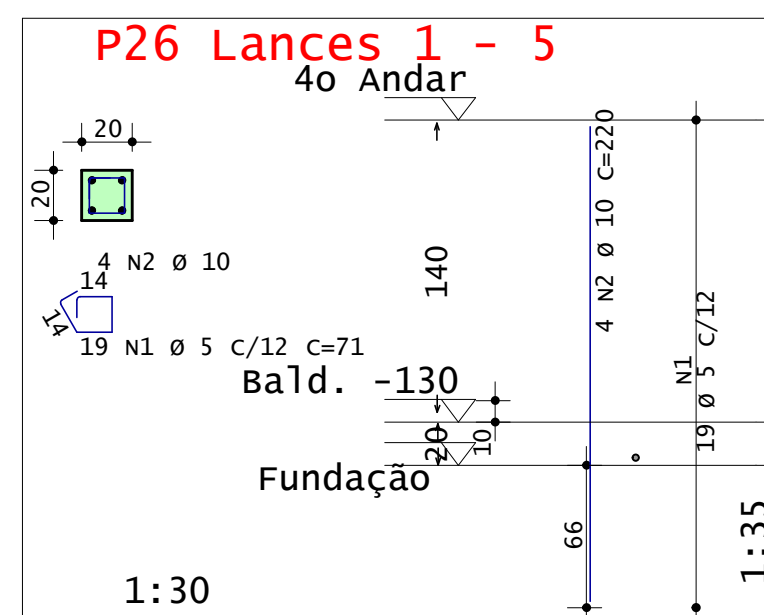
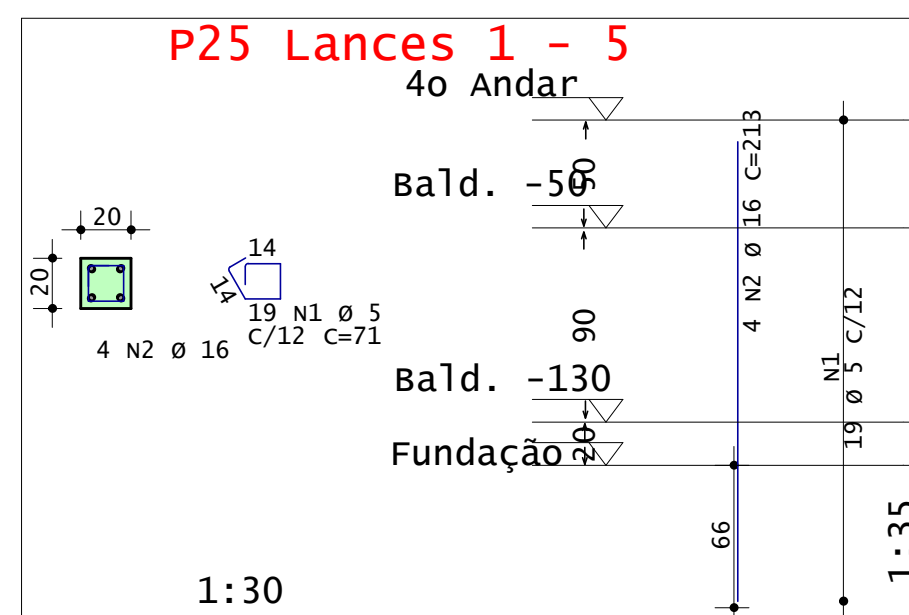
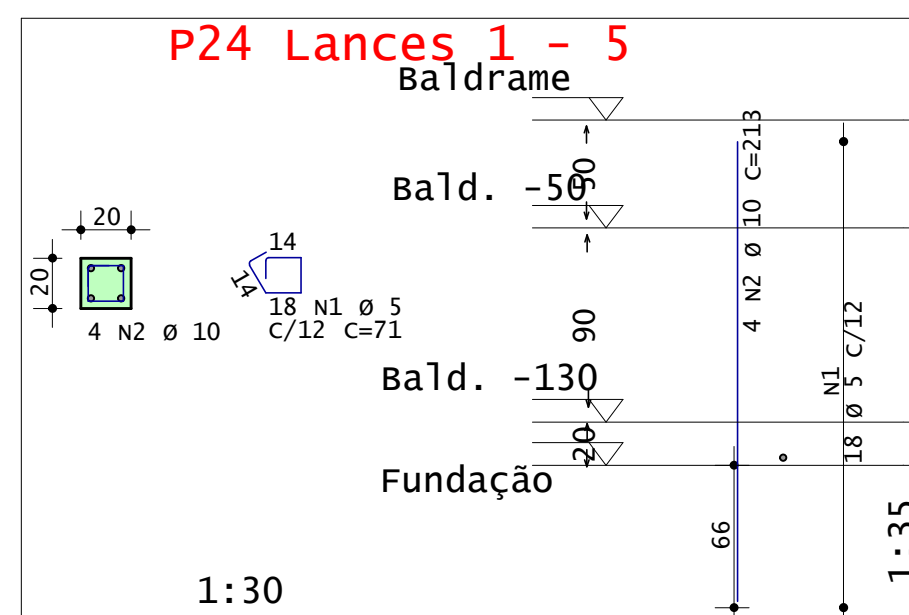
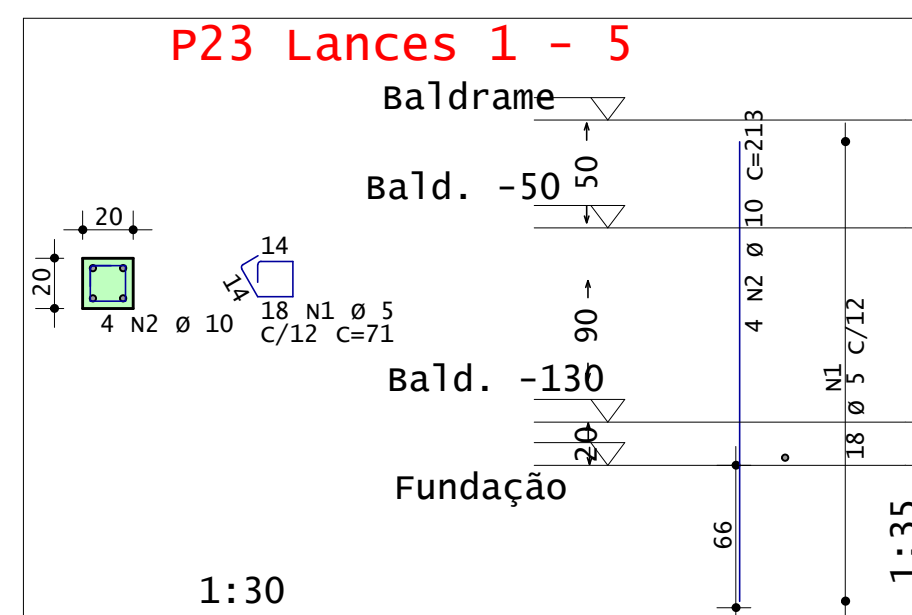
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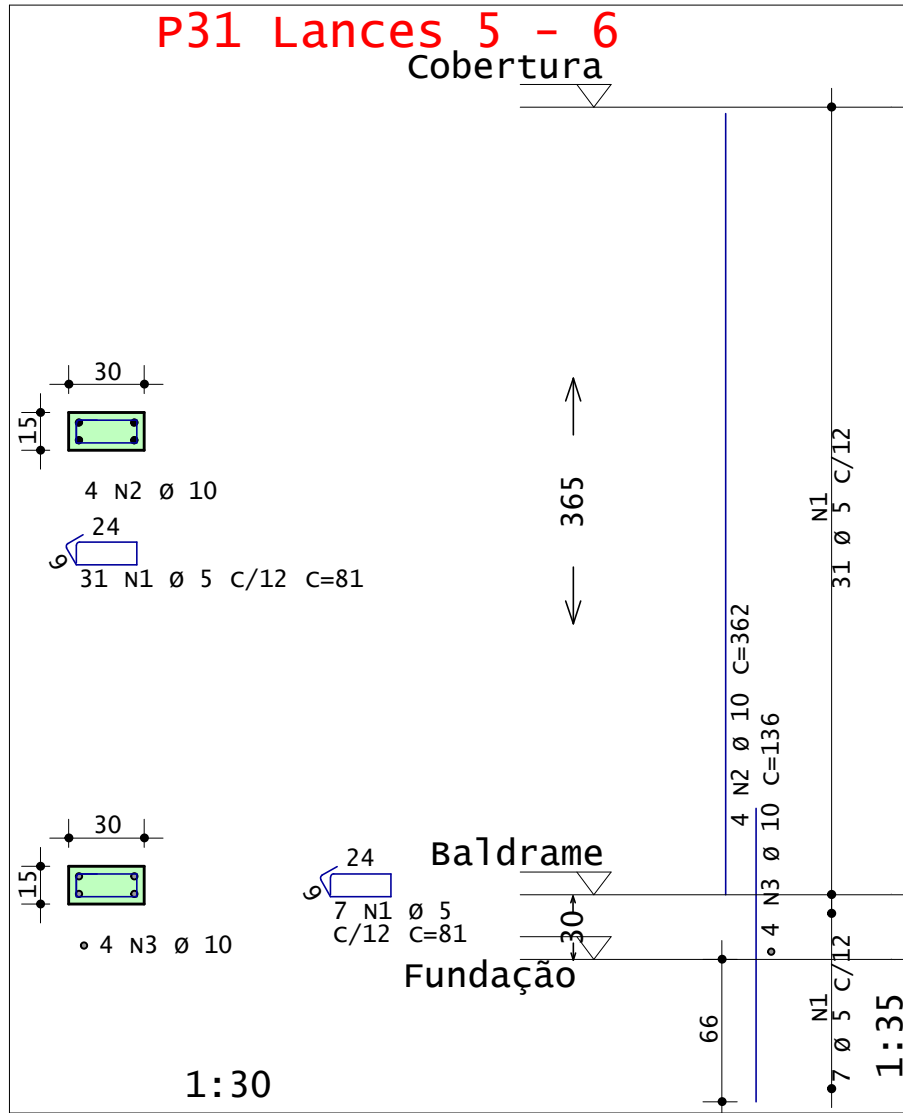
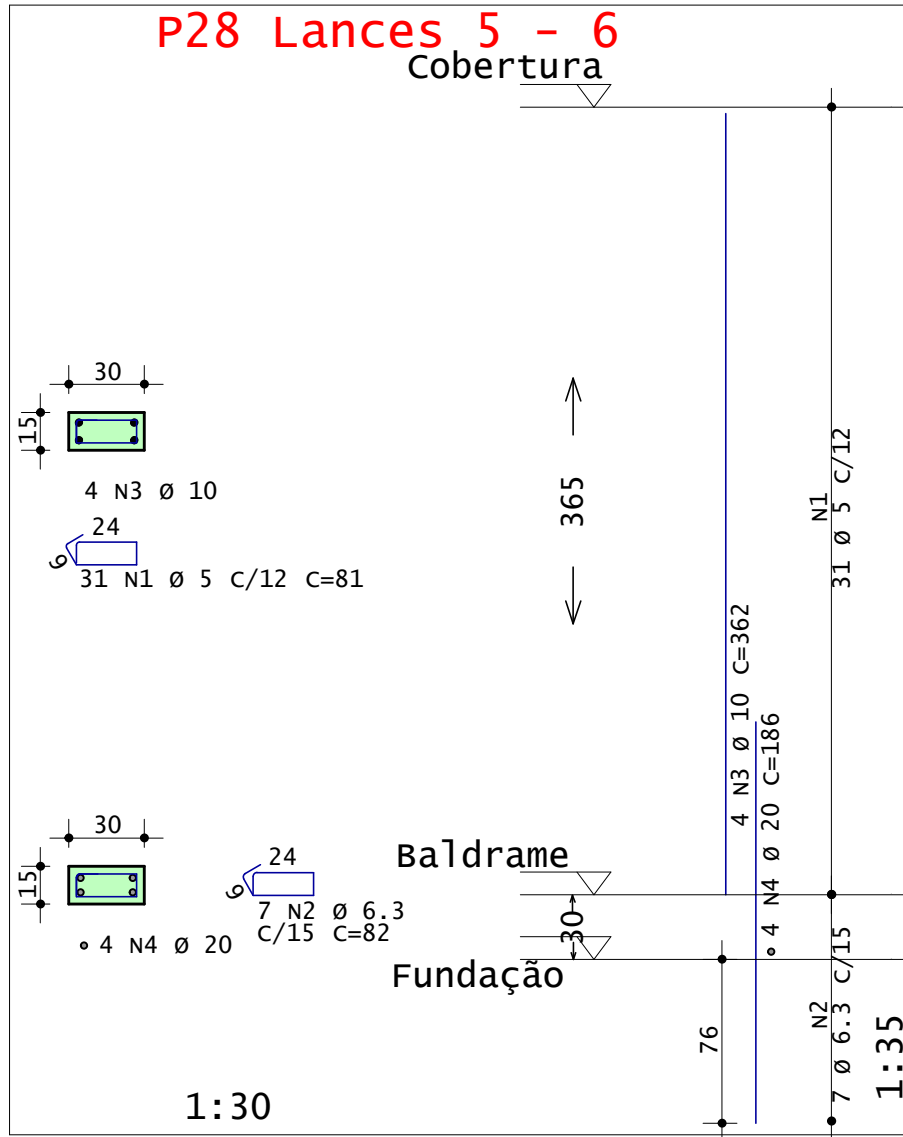
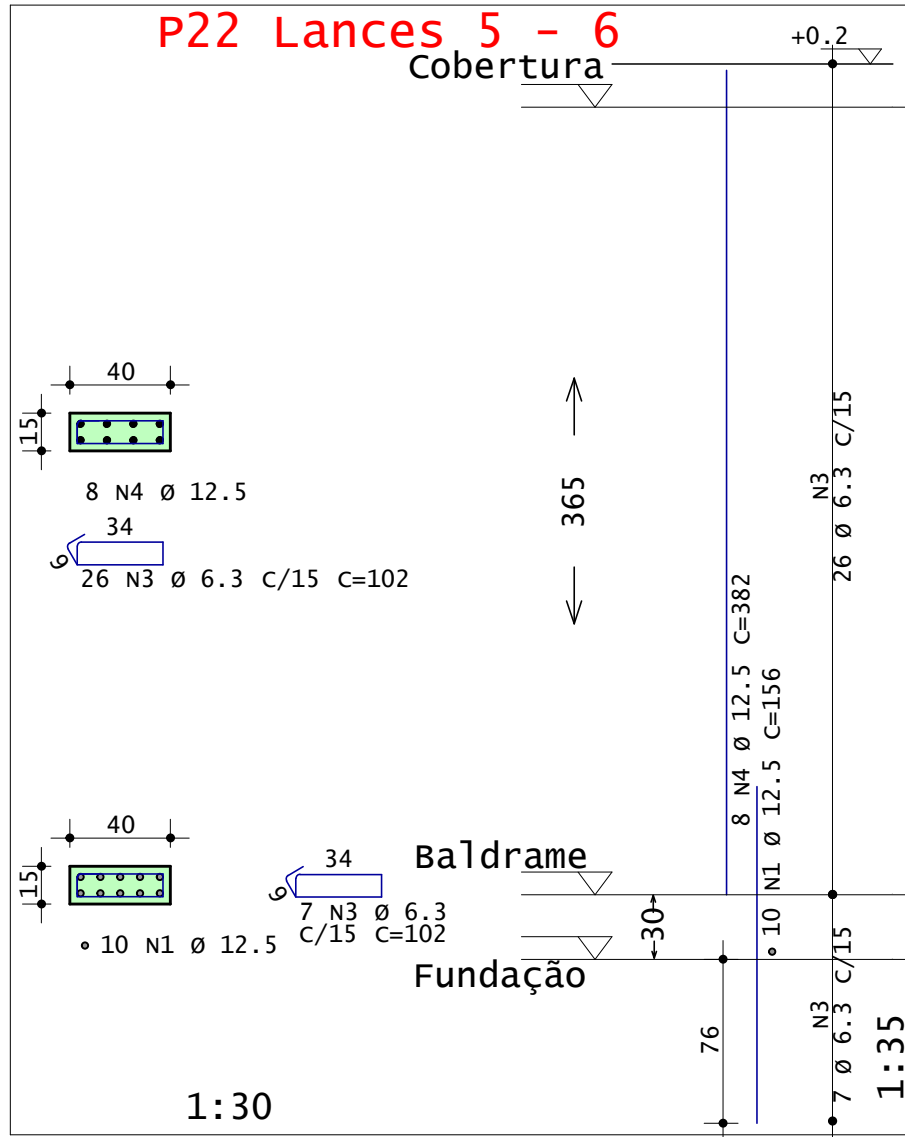
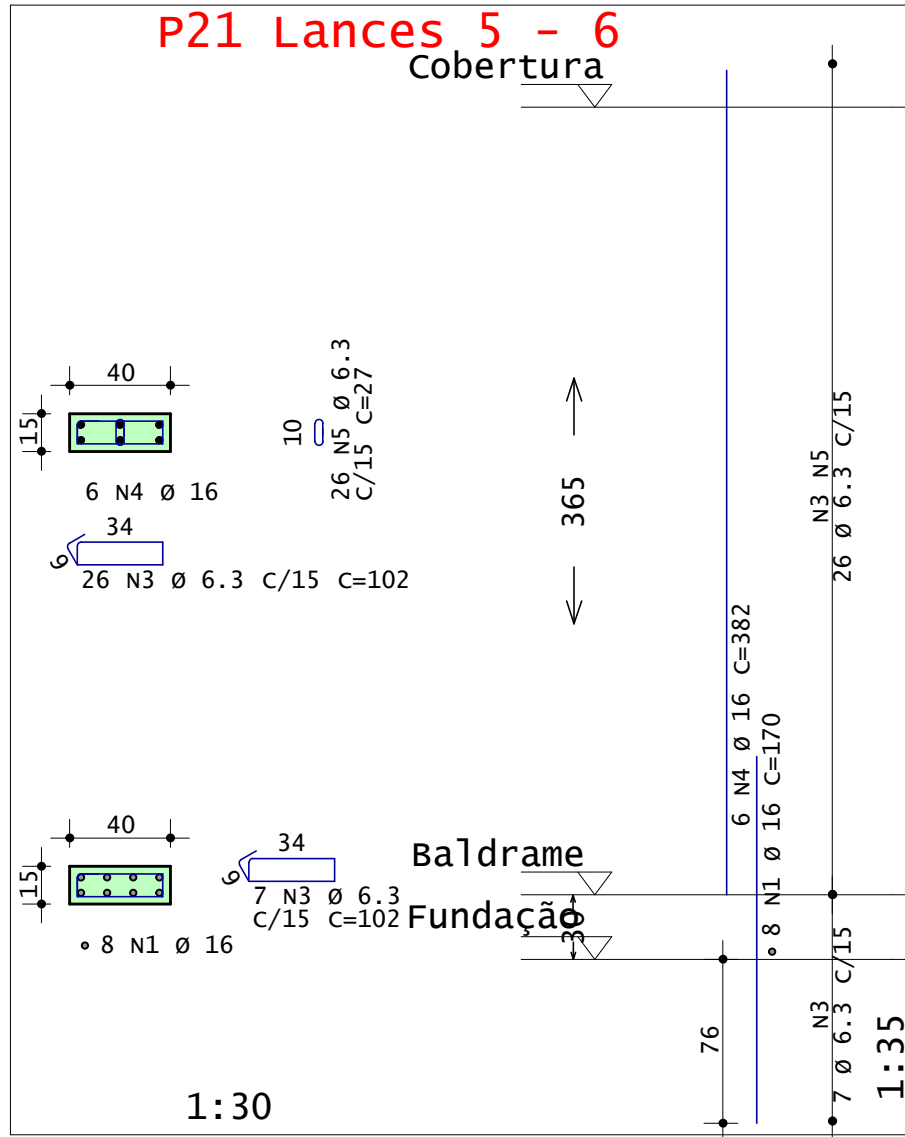
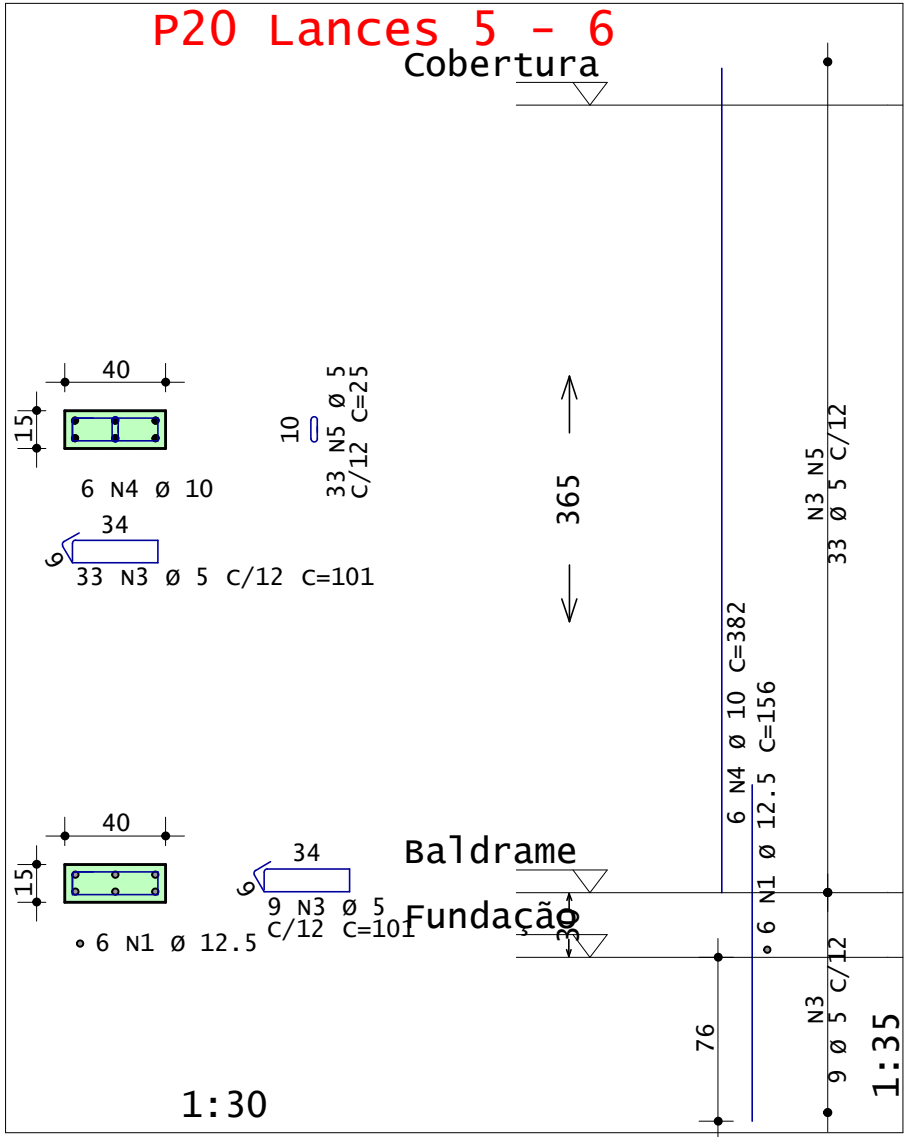
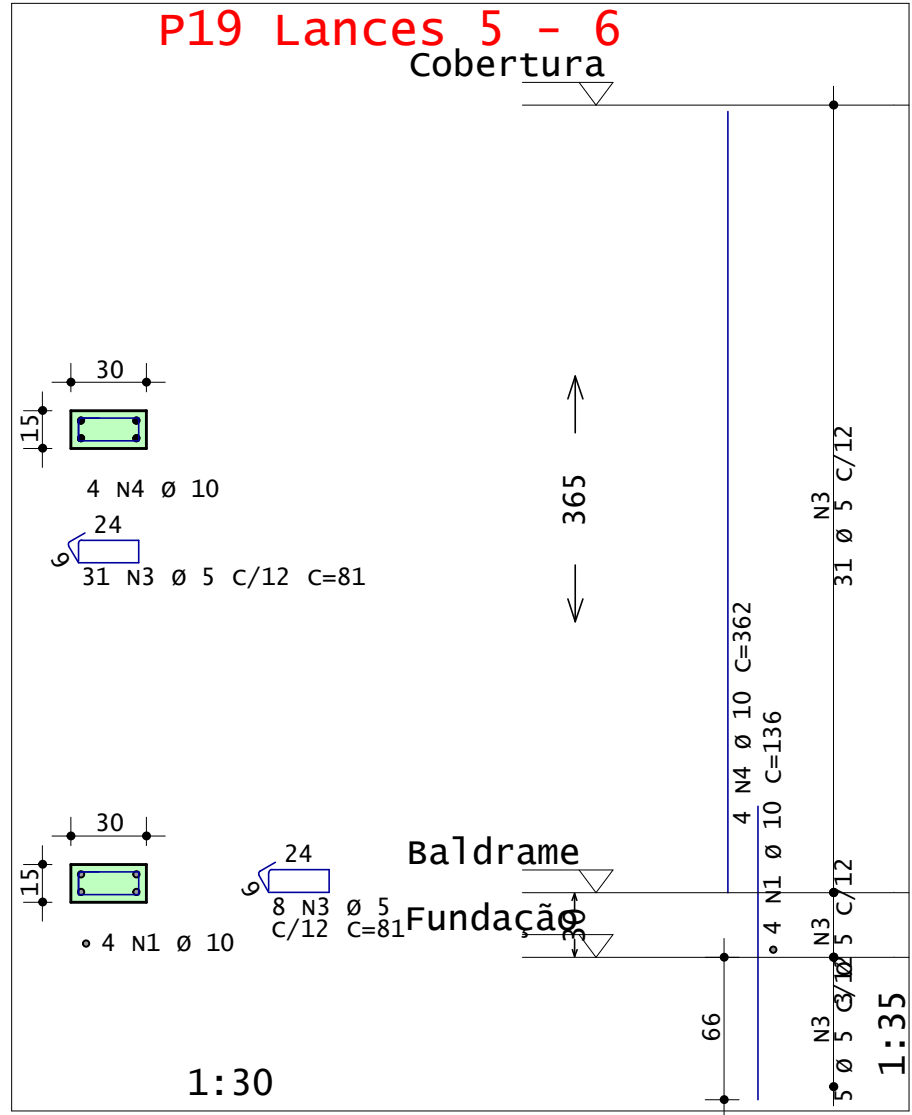
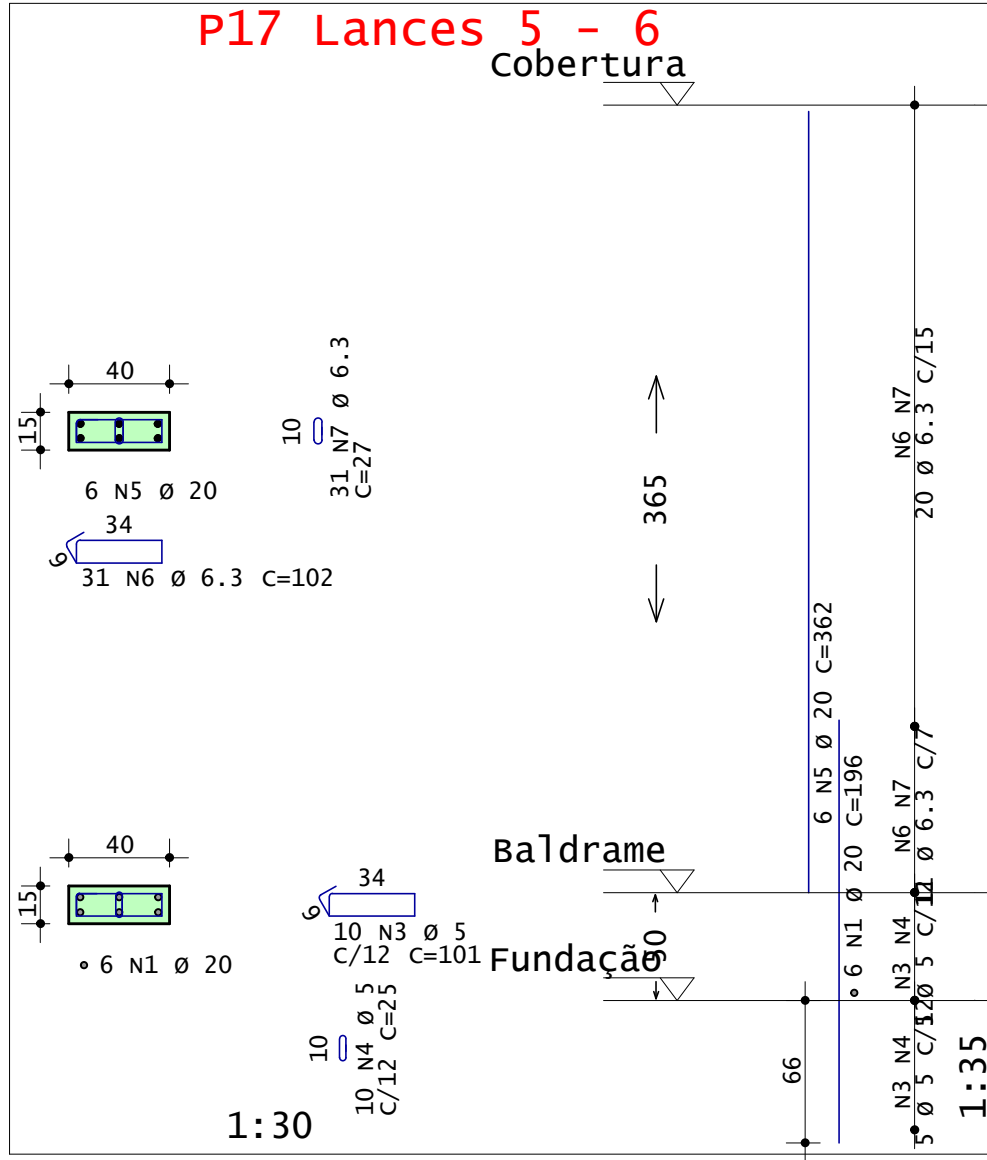
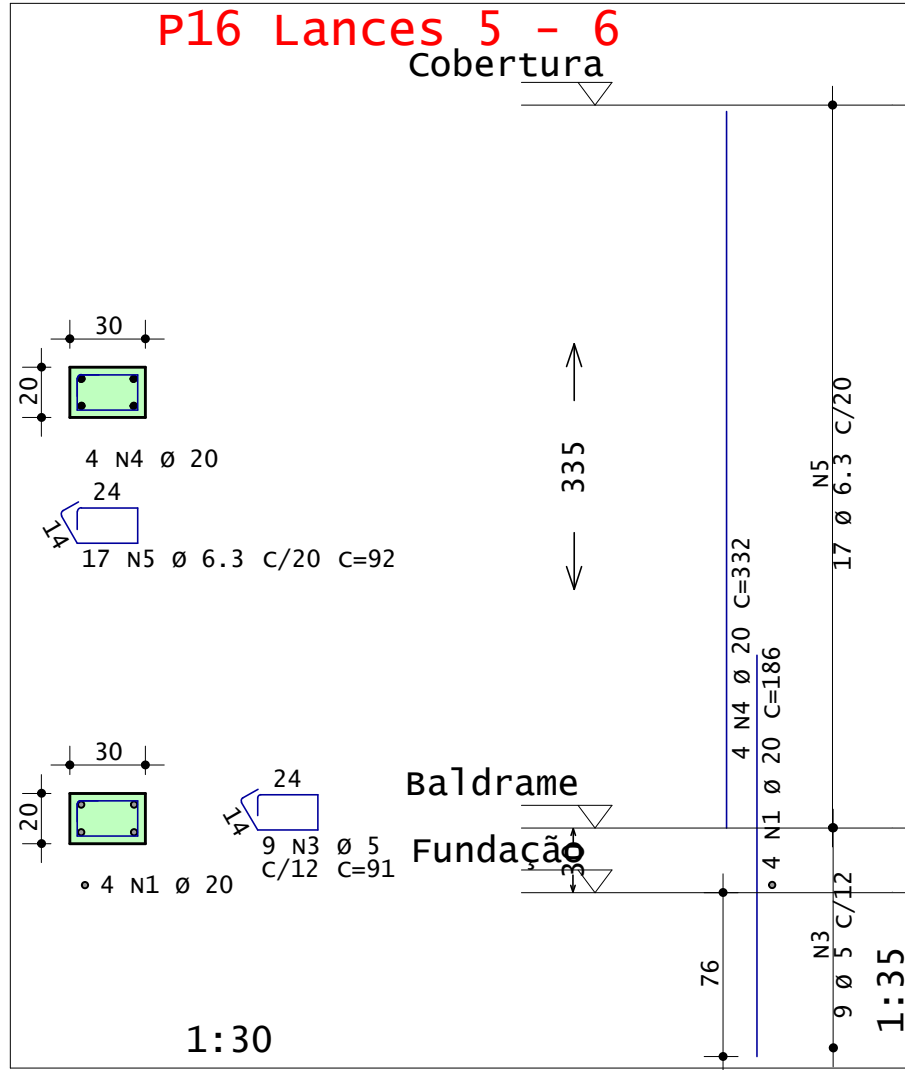
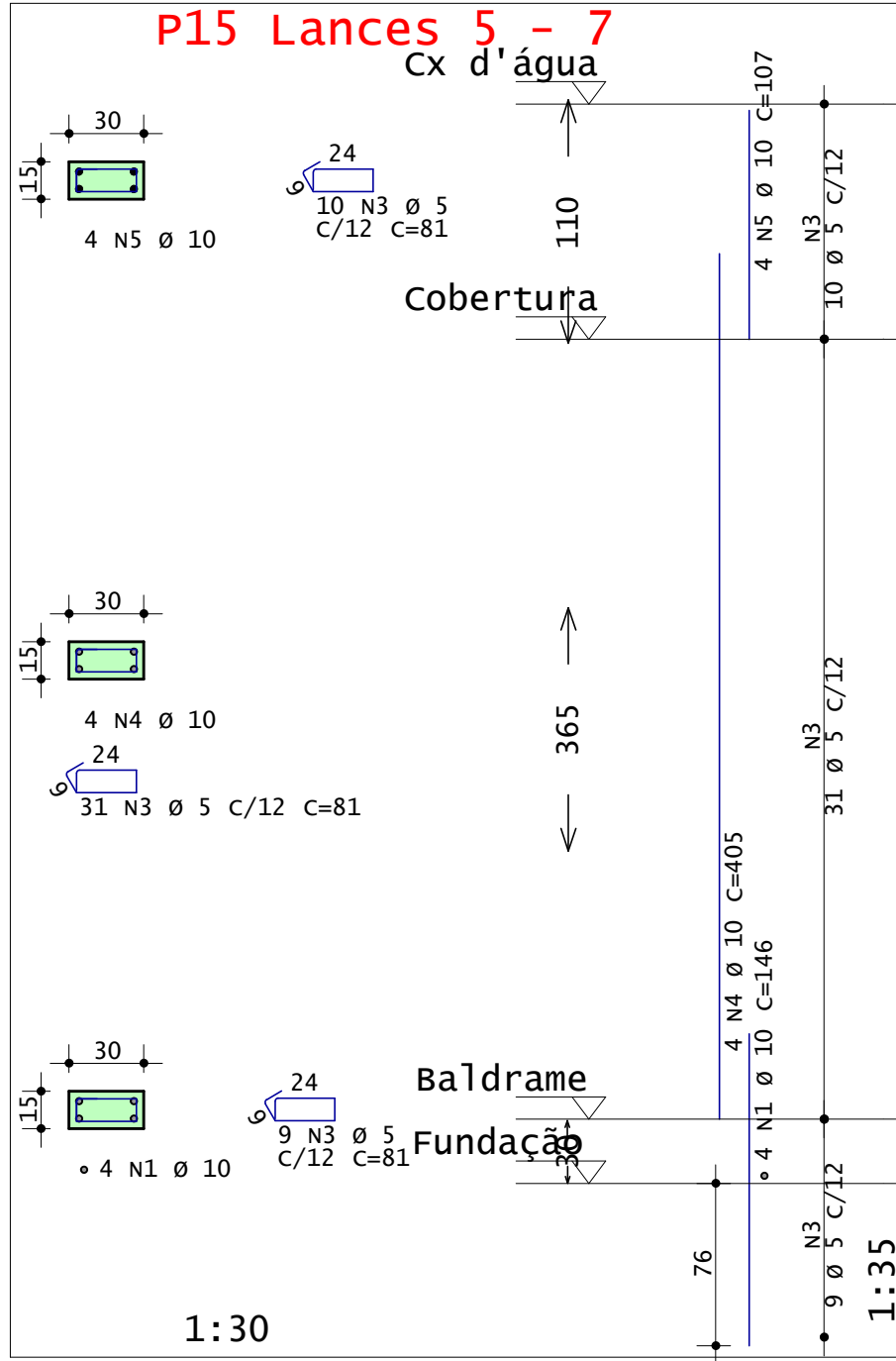
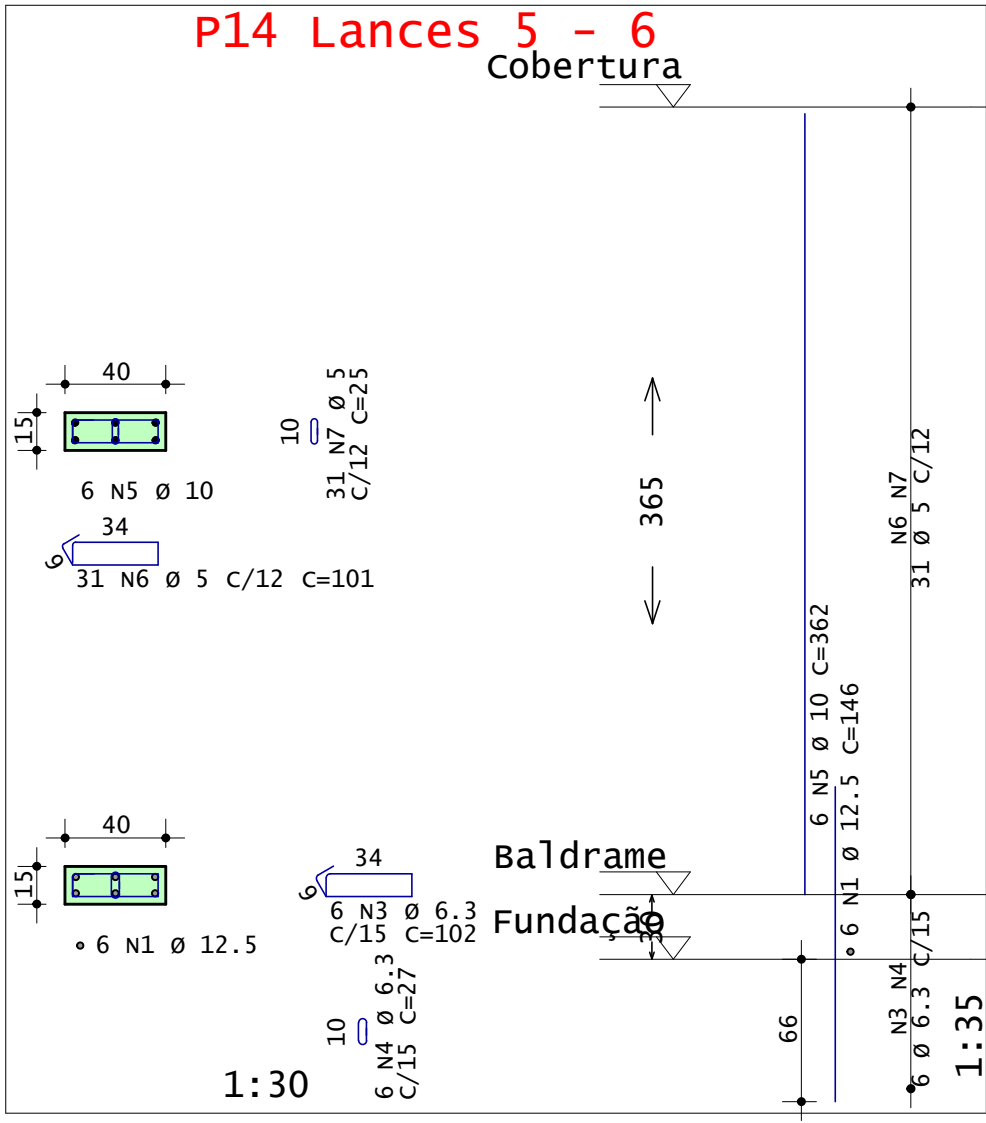
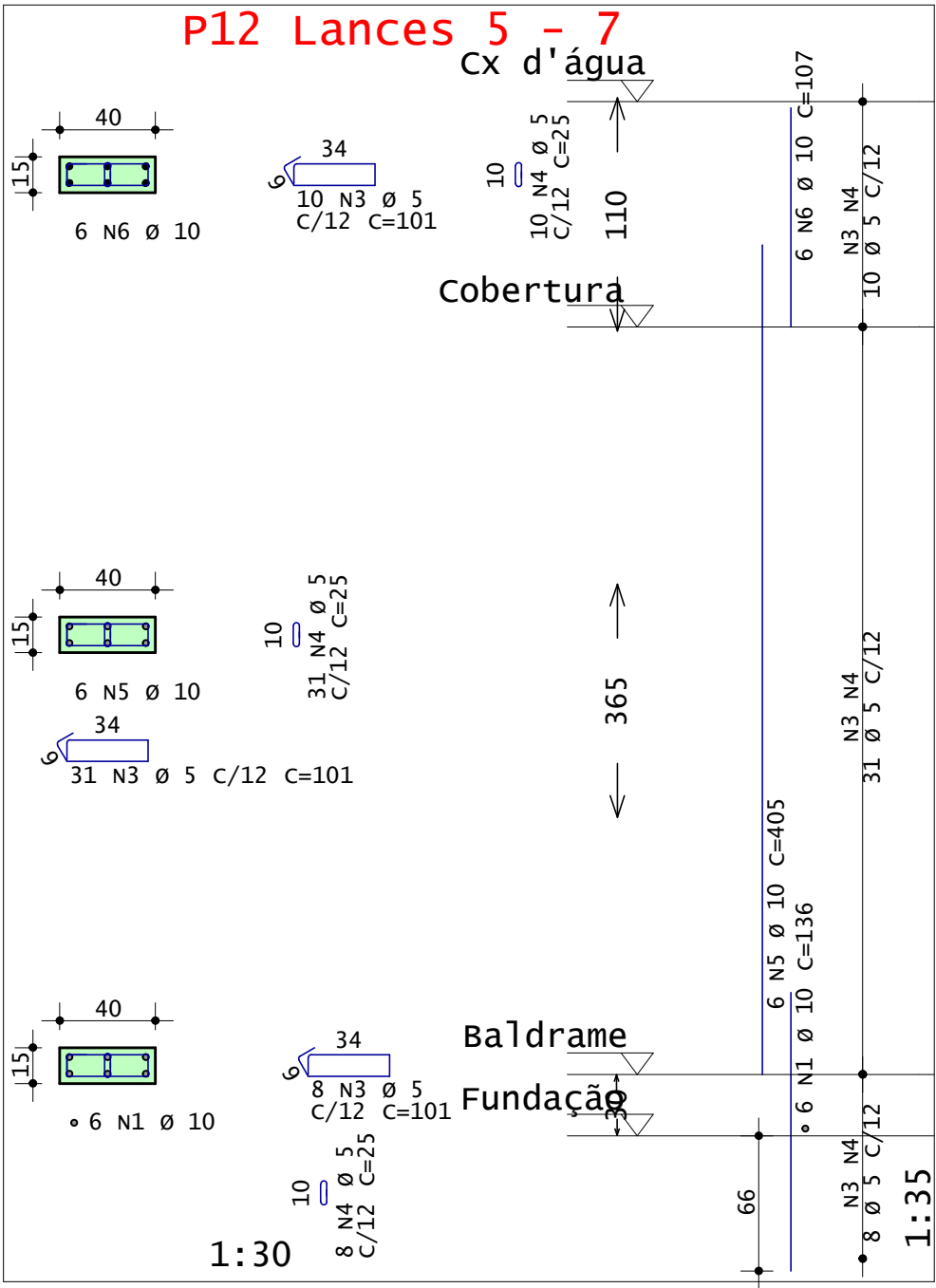
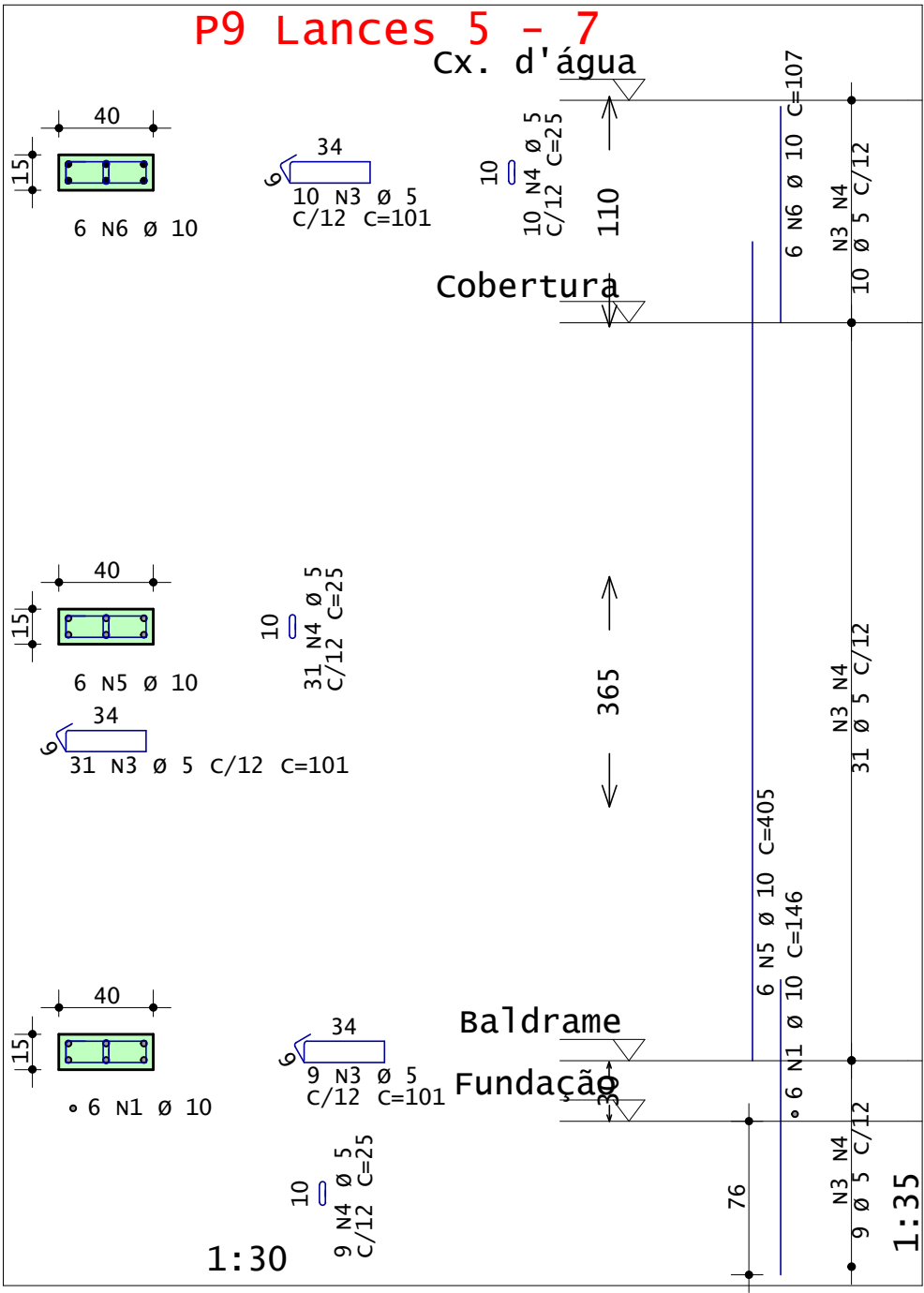
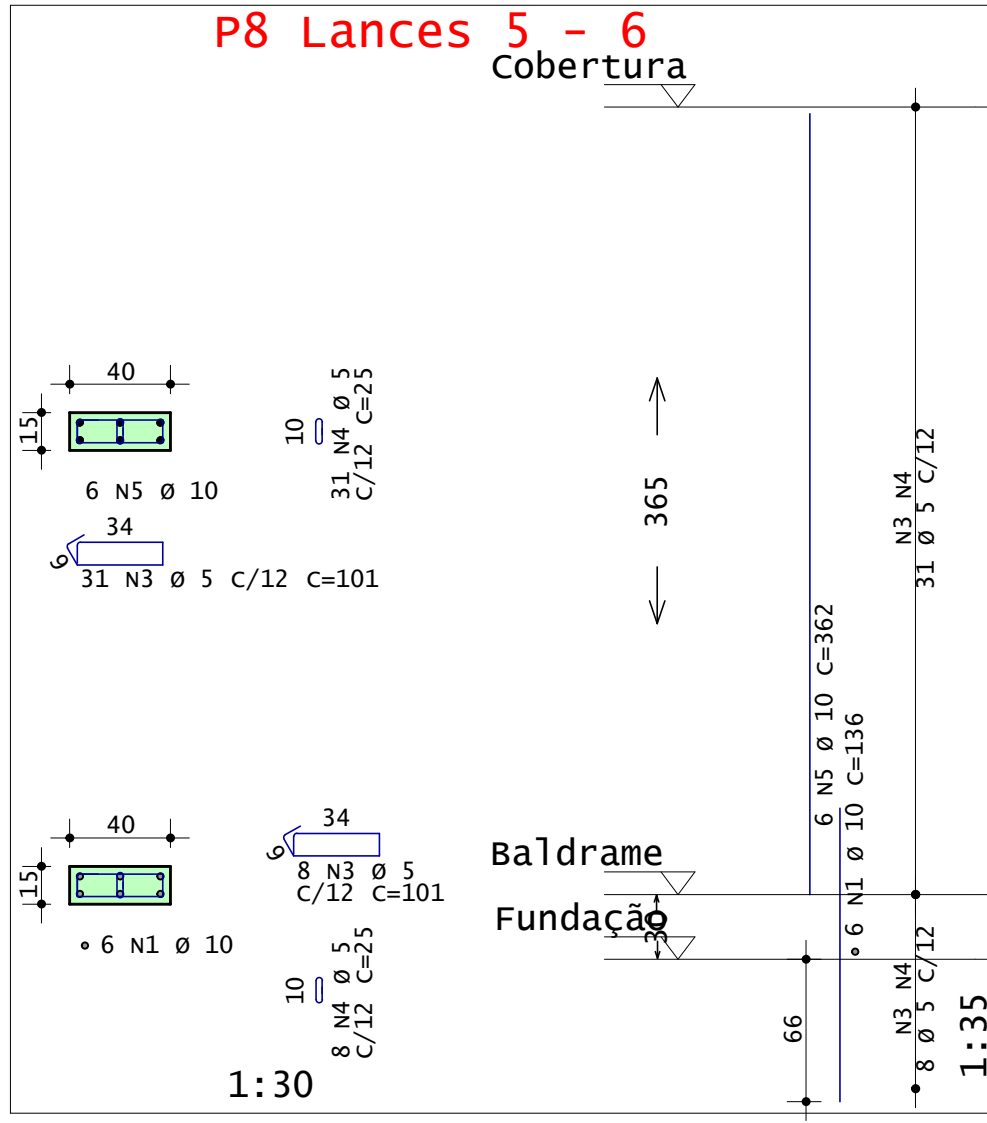
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					UNIT	TOTAL	
			mm		cm	cm	
P1 Lances 5 - 6	60A	1	6.3	25	82	2050	
	50A	2	5	8	81	648	
	50A	3	12.5	4	362	1448	
	50A	4	12.5	4	146	584	
P2 Lances 5 - 6	60A	1	5	39	81	3159	
	50A	2	10	4	362	1448	
	50A	3	10	4	136	544	
	60A	1	6.3	6	81	2511	
P3 Lances 5 - 6	50A	2	6.3	7	82	492	
	50A	3	10	4	362	1444	
	50A	4	12.5	4	146	584	
	60A	1	20	6	186	1116	
P4 Lances 5 - 6	50A	2	6.3	7	82	492	
	50A	3	12.5	4	362	1448	
	50A	4	6.3	25	82	2050	
	60A	1	20	6	186	1116	
P5 Lances 5 - 6	50A	1	20	6	186	1116	
	50A	2	6.3	7	82	492	
	50A	3	12.5	4	362	1448	
	50A	4	6.3	25	82	2050	
P6 Lances 5 - 6	60A	1	5	39	101	3939	
	60A	2	5	39	25	97	
	50A	3	10	6	362	2172	
	50A	4	10	6	136	816	
P7 Lances 5 - 6	60A	1	5	39	81	3159	
	50A	2	10	4	362	1448	
	50A	3	10	4	136	544	
	60A	1	5	12	71	852	
P10 Lances 3 - 5	50A	2	10	4	136	544	
	50A	1	10	4	136	544	
	50A	2	5	1	71	71	
	60A	1	5	12	191	2292	
P11 Lances 3 - 5	50A	2	5	24	30	720	
	50A	3	10	8	146	1168	
	60A	1	5	12	191	2292	
	50A	2	5	24	30	720	
P13 Lances 3 - 5	50A	3	10	8	146	1168	
	60A	1	5	12	191	2292	
	50A	2	5	24	30	720	
	50A	3	10	8	146	1168	
P18 Lances 3 - 5	60A	1	5	12	191	2292	
	60A	2	5	24	30	720	
	50A	3	10	8	146	1168	
	60A	1	5	12	191	2292	
P23 Lances 1 - 5	60A	2	10	4	213	852	
	50A	1	5	18	71	1278	
	50A	2	10	4	213	852	
	60A	1	5	18	71	1278	
P24 Lances 1 - 5	50A	2	10	4	213	852	
	60A	1	5	19	71	1349	
	50A	1	2	16	4	213	852
	60A	1	5	19	71	1349	
P25 Lances 1 - 5	50A	2	10	4	223	892	
	60A	1	5	18	71	1278	
	50A	2	10	4	120	480	
	50A	1	6.3	5	72	360	
P26 Lances 1 - 5	50A	2	6.3	10	72	720	
	50A	3	12.5	4	137	548	
	50A	4	16	4	160	640	
	60A	1	5	12	71	852	
P36 Lances 3 - 5	50A	2	10	4	146	584	
	60A	1	5	12	71	852	
	50A	2	10	4	146	584	
	60A	1	5	9	71	639	
P37 Lances 5	50A	2	10	4	103	412	
	60A	1	5	8	71	568	
	50A	2	10	4	93	372	
	60A	1	5	9	71	639	
P44 Lances 5	50A	2	10	4	103	412	
	60A	1	5	10	71	710	
	50A	2	10	4	113	451	
	60A	1	5	10	71	710	

RESUMO DE AÇO			
AÇO	BIT mm	COMPR m	PESO kgf
60A	5	335	52
50A	6.3	89	22
50A	10	186	115
50A	12.5	61	58
50A	16	15	24
50A	20	22	55
Peso Total	60A =		52 kgf
Peso Total	50A =		274 kgf

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ACO	POS	BIT	QUANT	COMPRIMENTO	UNIT	TOTAL
		mm		cm	cm	
P8 Lances 5 - 6						
50A	1	10	6	136	816	
60A	3	5	39	101	3939	
60A	4	5	39	25	975	
50A	5	10	6	362	2172	
P9 Lances 5 - 7						
50A	1	10	6	146	876	
60A	3	5	50	101	5050	
60A	4	5	50	25	1250	
50A	5	10	6	405	2430	
50A	6	10	6	107	642	
P12 Lances 5 - 7						
50A	1	10	6	136	816	
60A	3	5	49	101	4949	
60A	4	5	25	1225		
50A	5	10	6	405	2430	
50A	6	10	6	107	642	
P14 Lances 5 - 6						
50A	1	12.5	6	146	876	
50A	3	6.3	6	102	612	
50A	4	6.3	6	27	162	
50A	5	10	6	362	2172	
60A	6	5	31	101	3131	
60A	7	5	31	25	775	
P15 Lances 5 - 7						
50A	1	10	4	146	584	
60A	3	5	50	81	4050	
50A	4	10	4	405	1620	
50A	5	10	4	107	428	
P16 Lances 5 - 6						
50A	1	20	4	186	744	
60A	3	5	4	91	819	
50A	4	20	4	332	1328	
50A	5	6.3	17	92	1564	
P17 Lances 5 - 6						
50A	1	20	6	196	1176	
60A	3	5	10	1010		
60A	4	5	10	25	250	
50A	5	20	6	362	2172	
50A	6	6.3	31	102	3162	
50A	7	6.3	31	27	837	
P19 Lances 5 - 6						
50A	1	10	4	136	544	
60A	3	5	39	81	3159	
50A	4	10	4	362	1448	
P20 Lances 5 - 6						
50A	1	12.5	6	156	936	
60A	3	5	42	101	4242	
50A	4	10	6	382	2292	
60A	5	5	33	25	825	
P21 Lances 5 - 6						
50A	1	16	8	170	1360	
50A	3	6.3	33	102	3366	
50A	4	16	6	382	2292	
50A	5	6.3	26	27	702	
P22 Lances 5 - 6						
50A	1	12.5	10	156	1560	
50A	3	6.3	33	102	3366	
50A	4	12.5	8	382	3056	
P28 Lances 5 - 6						
50A	1	5	31	81	2511	
50A	2	6.3	7	82	574	
50A	3	10	4	362	1448	
50A	4	20	4	186	744	
P31 Lances 5 - 6						
60A	1	5	38	81	3078	
50A	2	10	4	362	1448	
50A	3	10	4	136	544	

RESUMO DE AÇO			
ACO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	412	64
50A	6.3	143	35
50A	10	234	144
50A	12.5	64	62
50A	16	37	58
50A	20	62	152
Peso Total	60A =		64 kgf
Peso Total	50A =		451 kgf

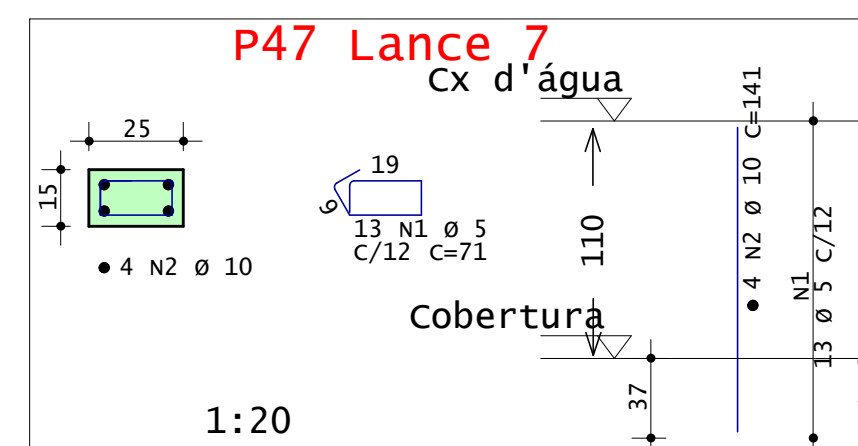
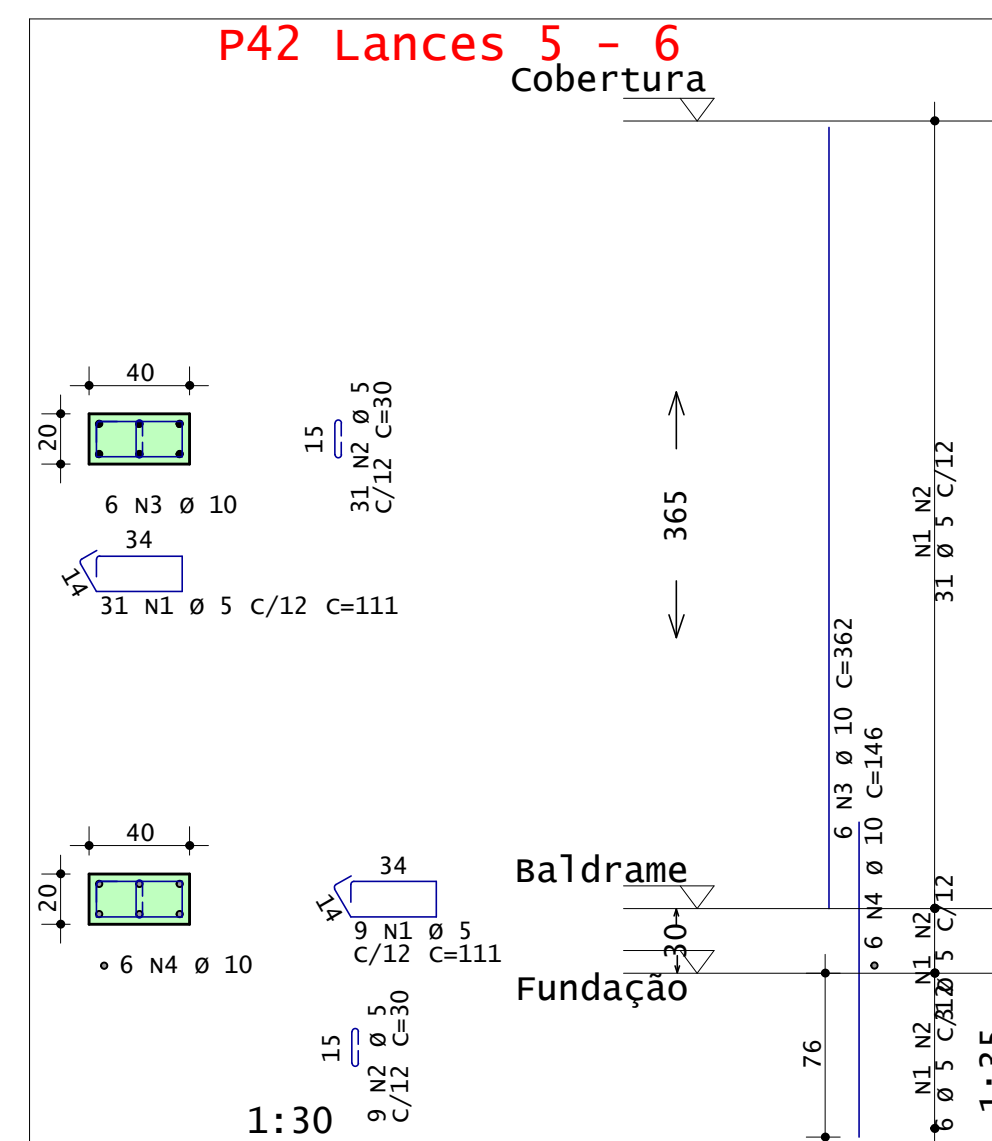
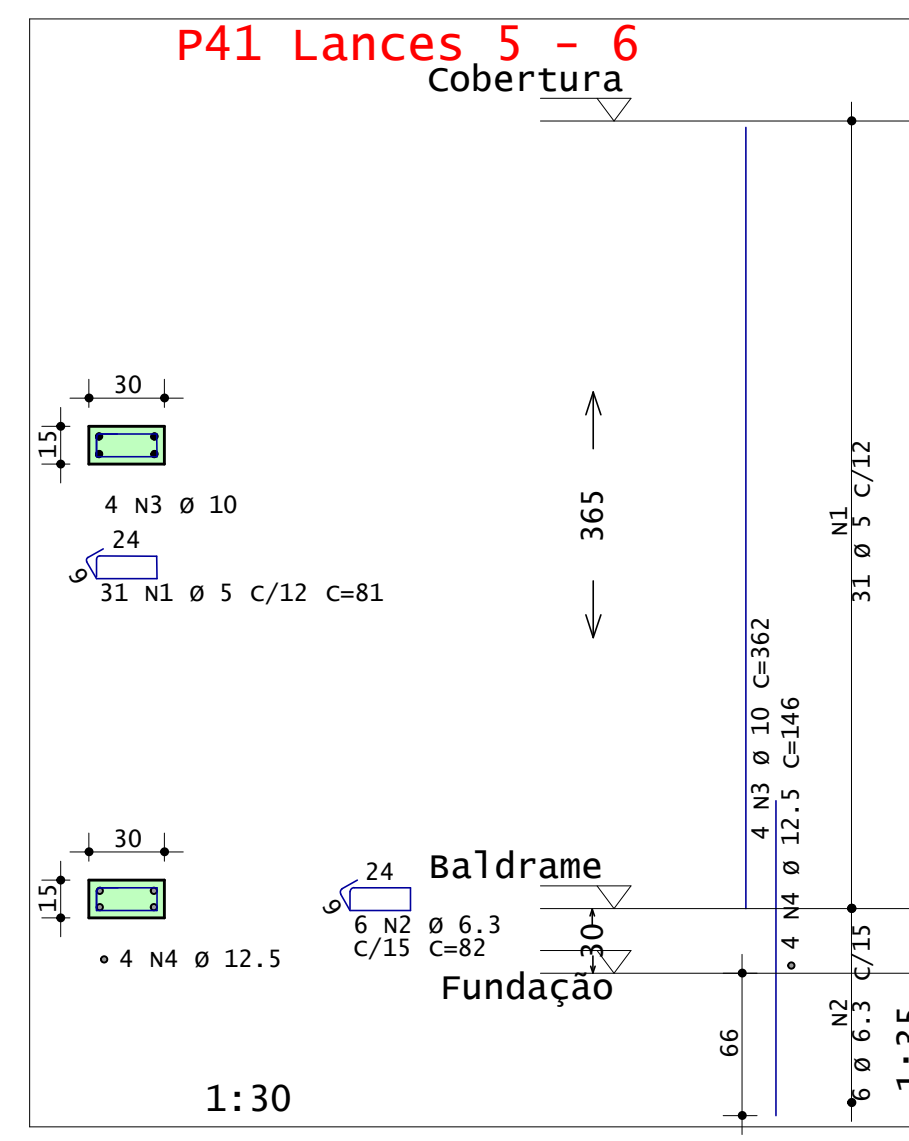
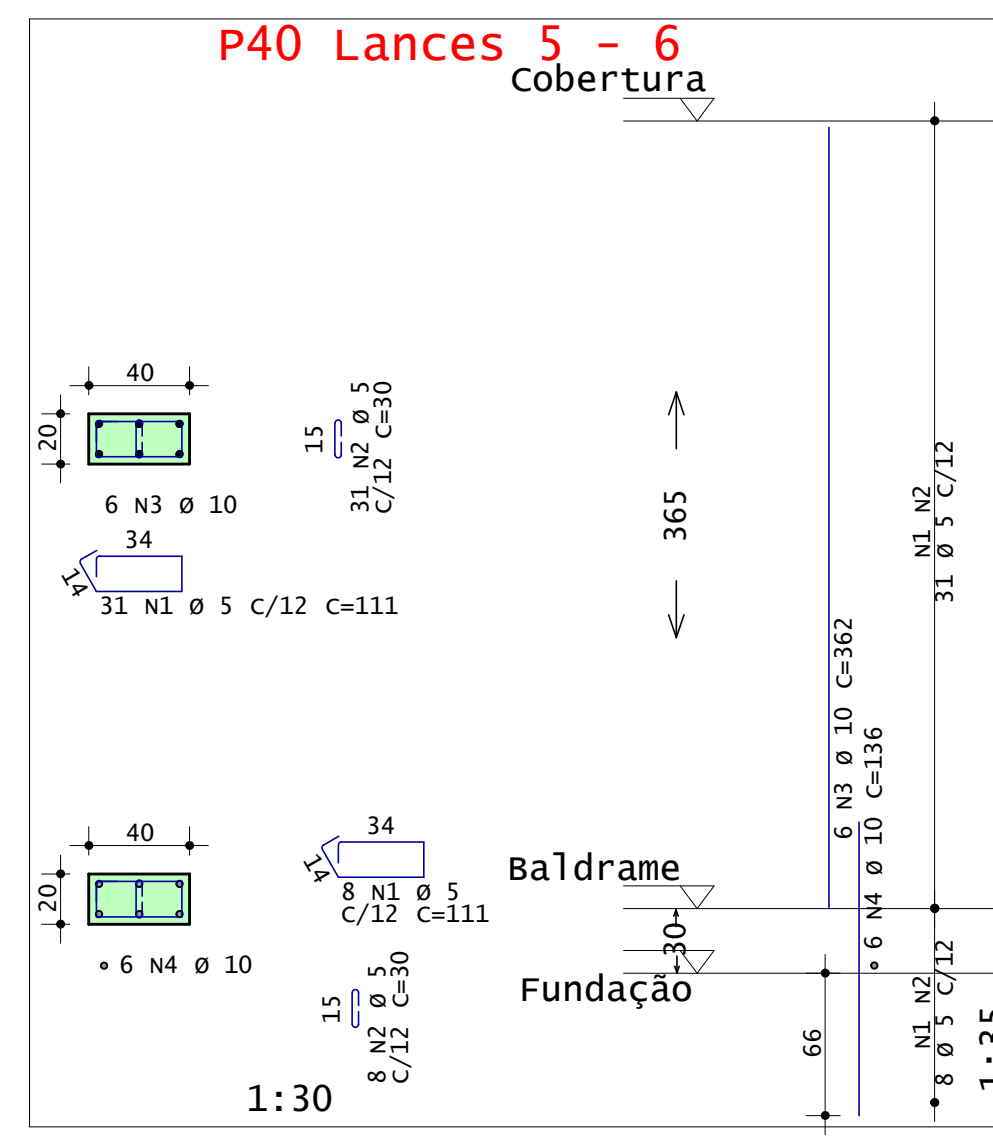
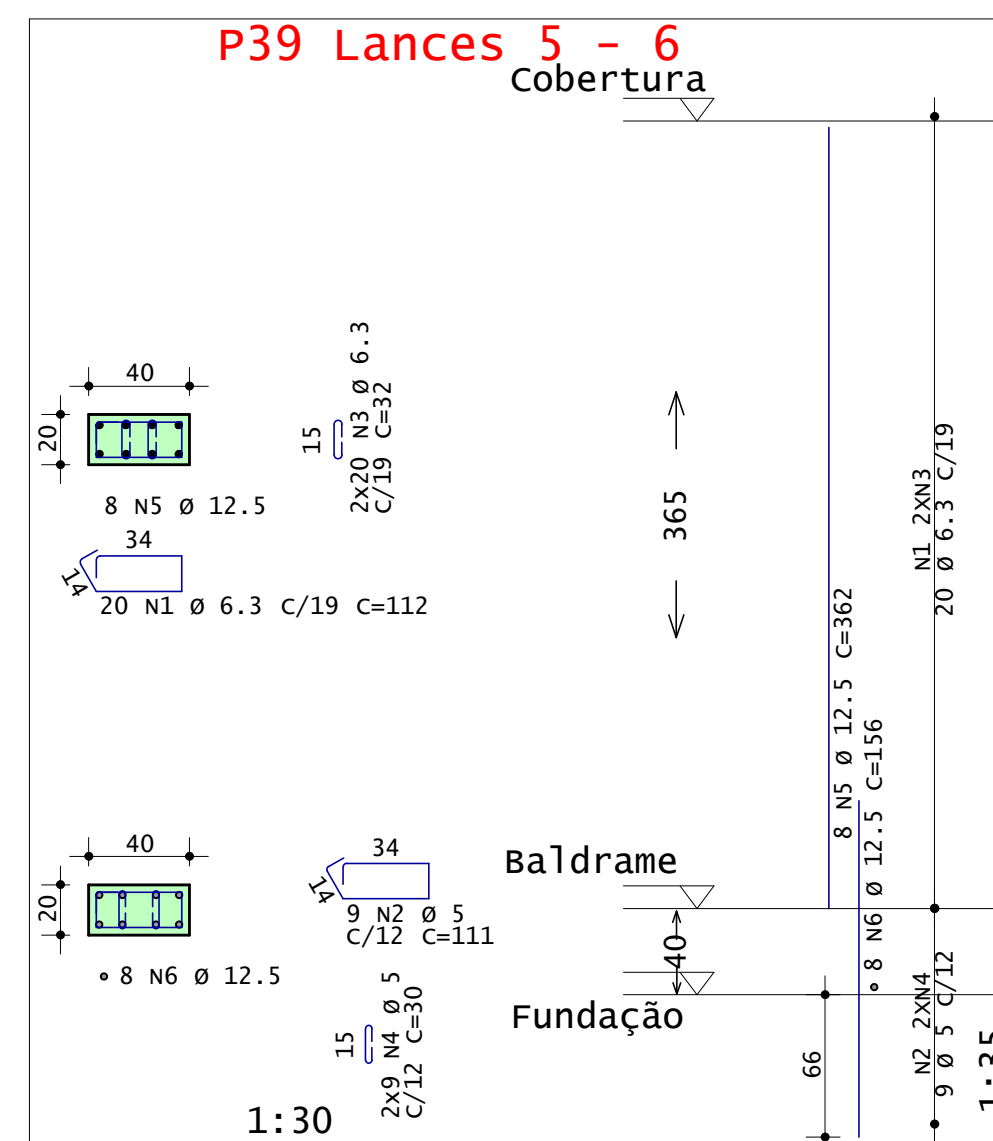
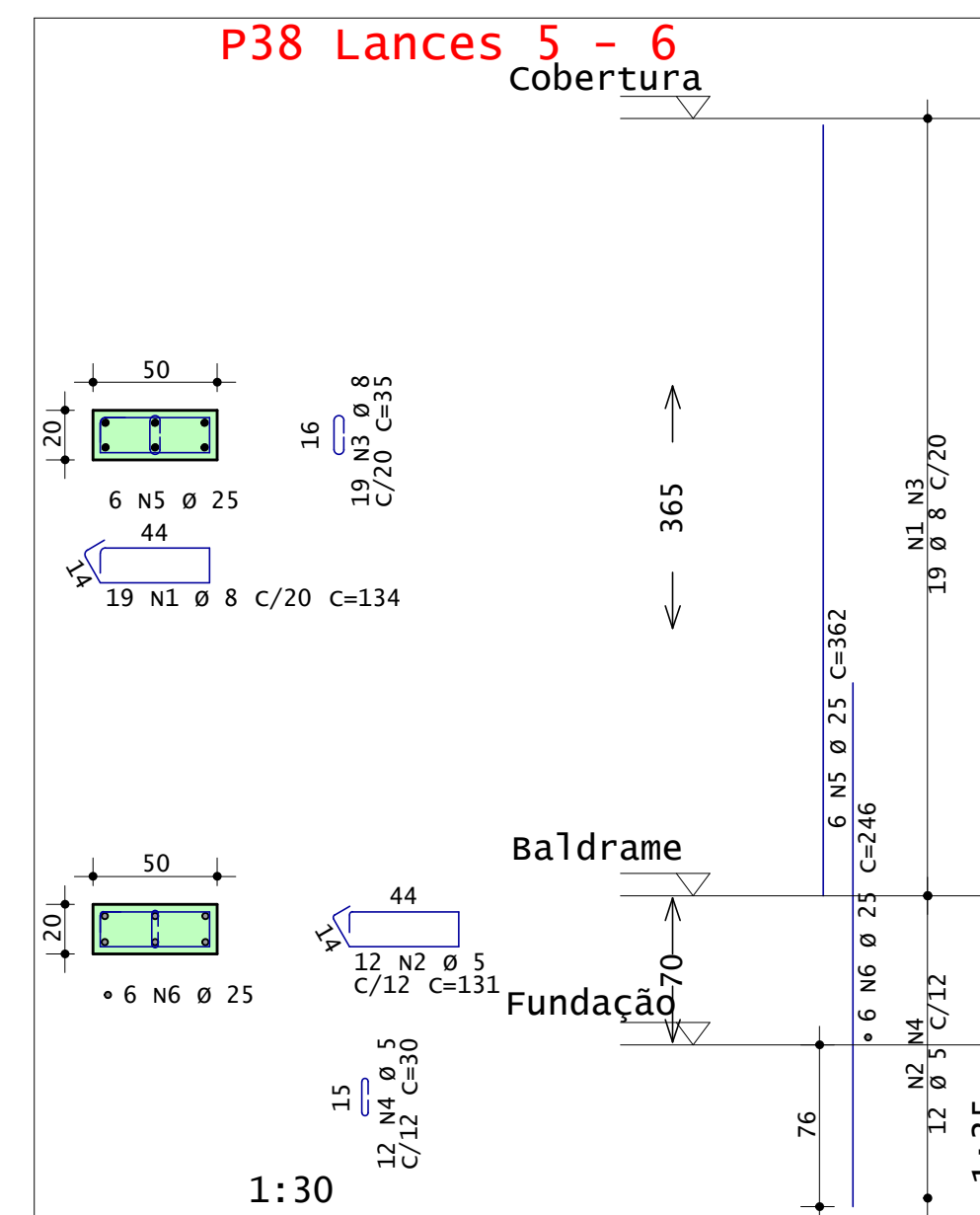
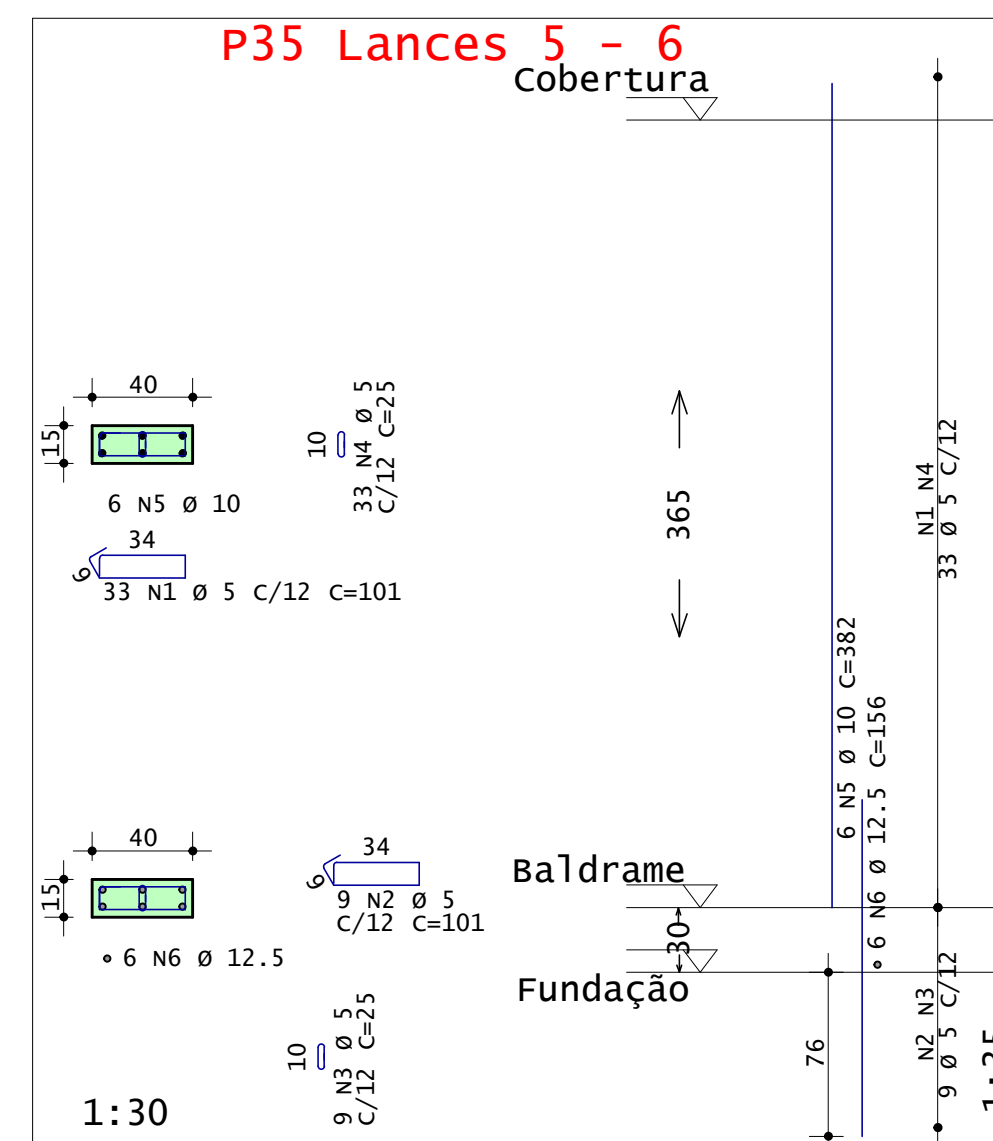
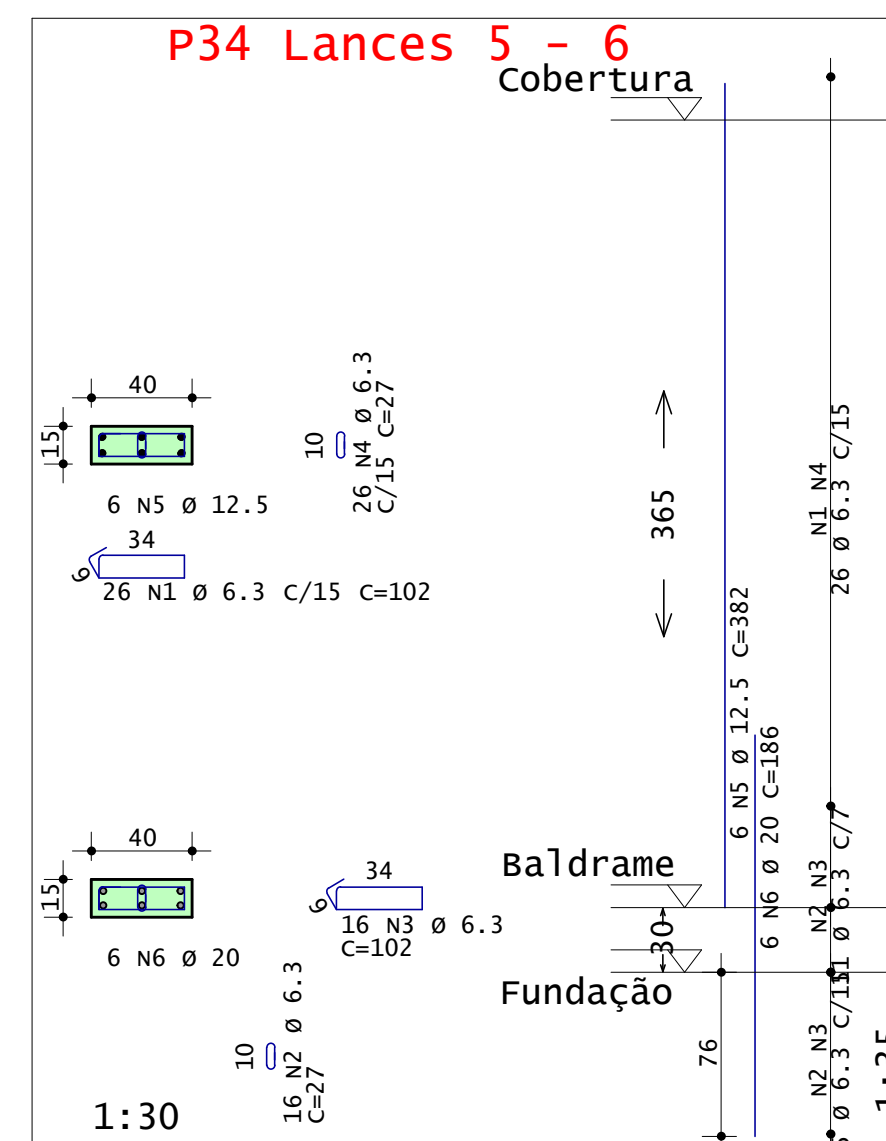
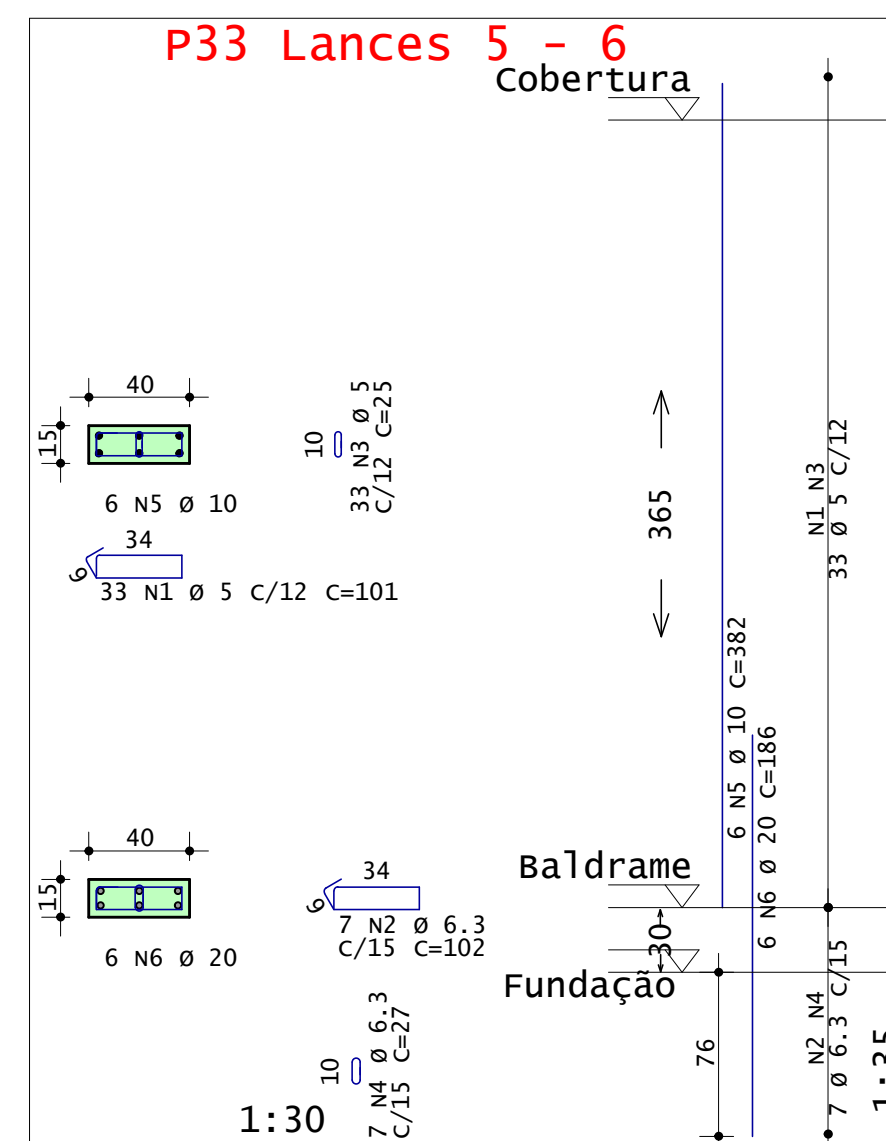
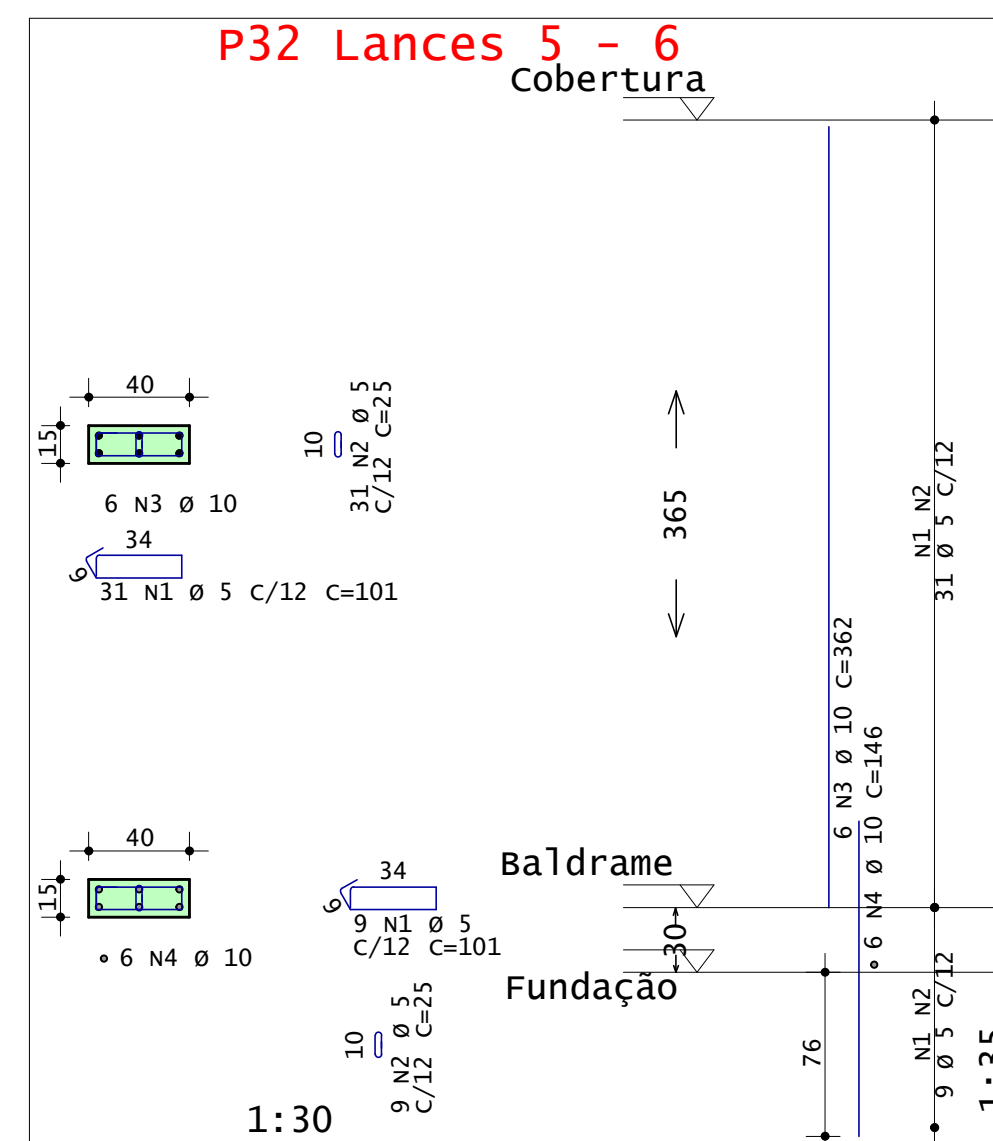
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do projeto



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CLIENTE: MAXWELL DE OLIVEIRA
OBRA: RESIDÊNCIA UNIFAMILIAR
TÍTULO: Detalhamento:
- PILARES
DATA: 02/08/2021
ESCALA: INDICADA

DESENHO Nº: 09
OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo



AÇO	POS	BIT	QUANT	COMPROMENTO	
				UNIT	TOTAL
		mm		cm	cm
P32	Lances 5 - 6				
	60A	1	5	40	101
	60A	2	5	40	25
	50A	3	10	6	362
	50A	4	10	6	146
P33	Lances 5 - 6				
	60A	1	5	33	101
	60A	2	6,3	7	102
	60A	3	5	33	25
	50A	4	6,3	7	27
	50A	5	10	6	382
	50A	6	20	6	186
P34	Lances 5 - 6				
	50A	1	6,3	26	102
	50A	2	6,3	16	27
	50A	3	6,3	16	102
	50A	4	6,3	26	27
	50A	5	12,5	6	382
	50A	6	20	6	186
P35	Lances 5 - 6				
	60A	1	5	33	101
	60A	2	5	9	101
	60A	3	5	9	25
	60A	4	5	33	25
	50A	5	10	6	382
	50A	6	12,5	6	156
P38	Lances 5 - 6				
	50A	1	8	19	134
	50A	2	5	12	131
	50A	3	8	19	35
	60A	4	12	5	360
	50A	5	25	6	362
	50A	6	25	6	246
P39	Lances 5 - 6				
	50A	1	6,3	20	112
	60A	2	5	9	111
	50A	3	6,3	40	32
	60A	4	5	18	30
	50A	5	12,5	8	362
	50A	6	12,5	8	156
P40	Lances 5 - 6				
	60A	1	5	39	111
	60A	2	5	39	30
	50A	3	10	6	362
	50A	4	10	6	136
P41	Lances 5 - 6				
	60A	1	5	31	81
	50A	2	6,3	6	82
	50A	3	10	4	362
	50A	4	12,5	4	146
P42	Lances 5 - 6				
	60A	1	5	40	111
	60A	2	5	40	30
	50A	3	10	6	362
	50A	4	10	6	146
P47	Lance 5				
	60A	1	5	13	71
	50A	2	10	4	141
	50A	3	10	4	923
	50A	4	10	4	564

RESUMO DE AÇO			
AÇO	mm	COMPR m	PESO kgf
60A	5	325	50
50A	6,3	103	25
50A	8	32	13
50A	10	157	97
50A	12,5	80	77
50A	20	22	55
50A	25	36	141
Peso Total	60A =		50 kgf
Peso Total	50A =		407 kgf

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CLIENTE: MAXWELL DE OLIVEIRA

DESENHO Nº: 10

OBRA: RESIDÊNCIA UNIFAMILIAR

TÍTULO: Detalhamento:
- PILARES

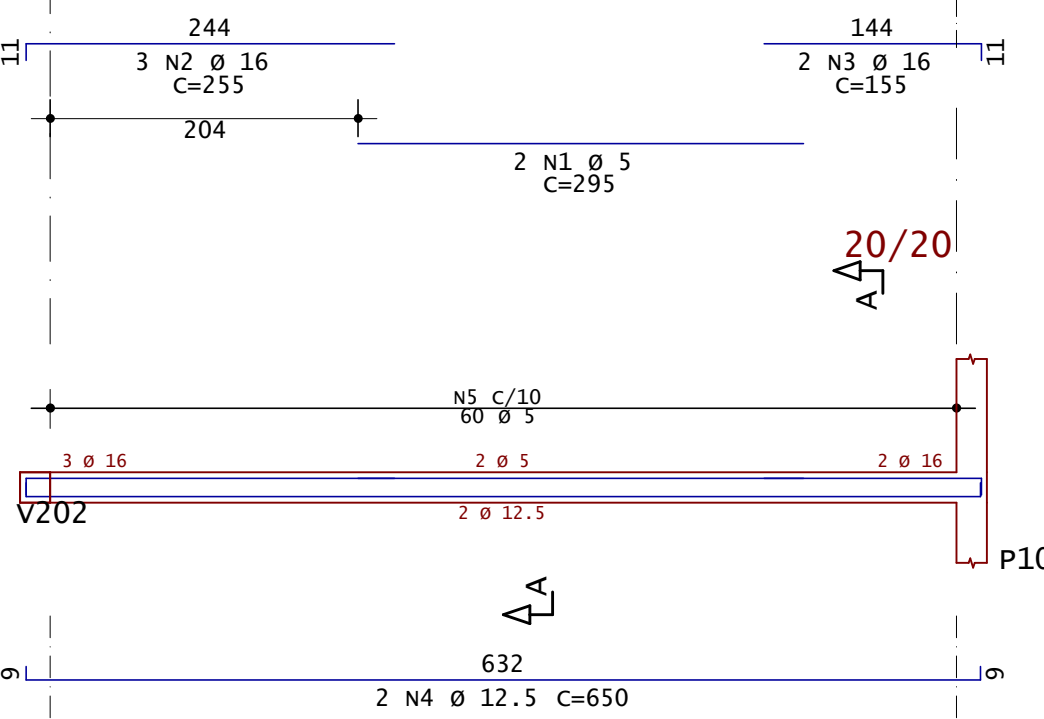
OBS:

Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

DATA: 02/08/2021

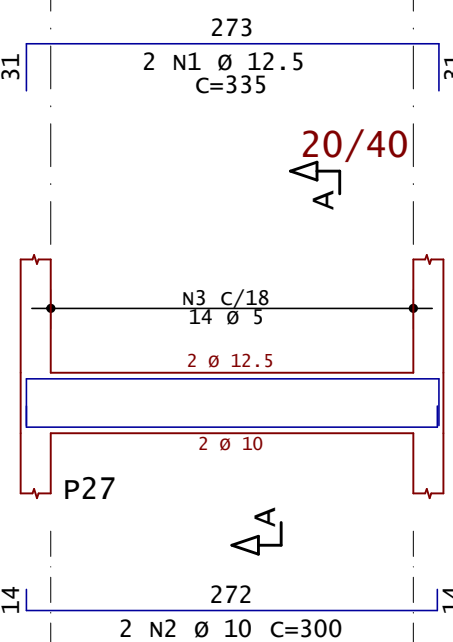
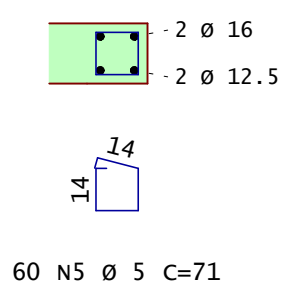
ESCALA: INDICADA

v206

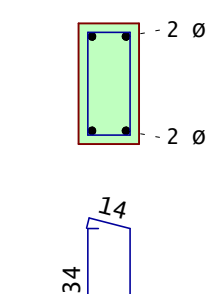


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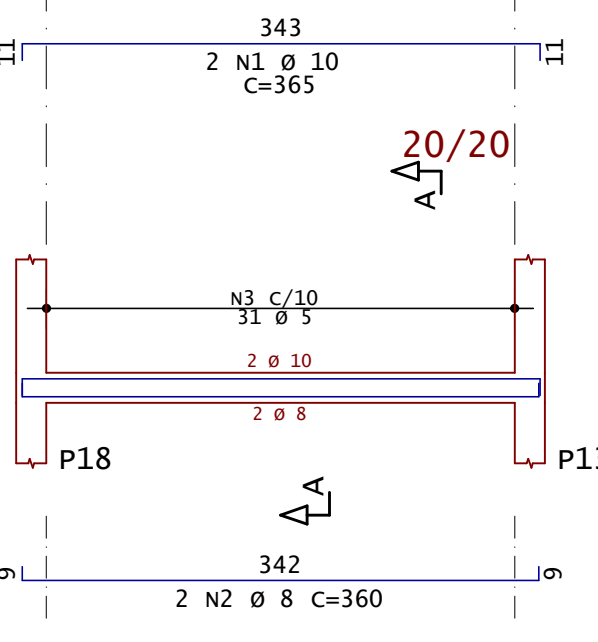
Corte A



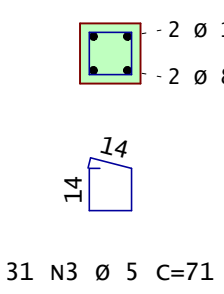
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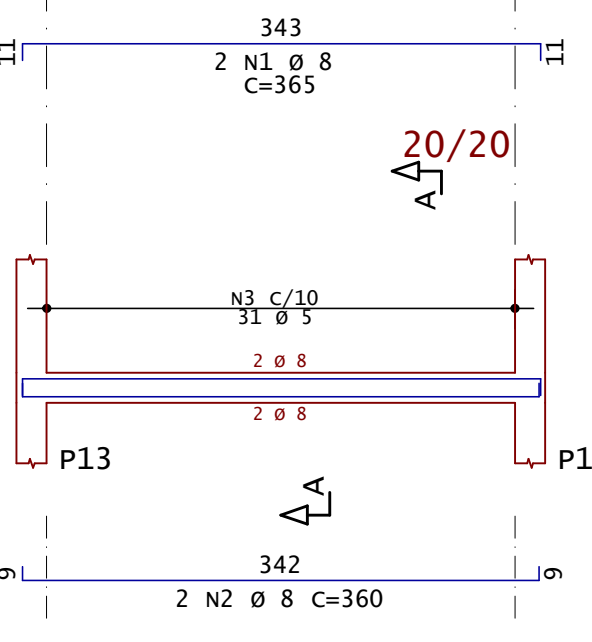
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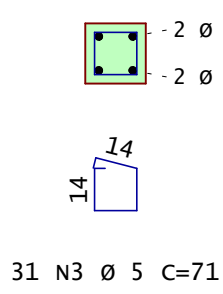
Corte A



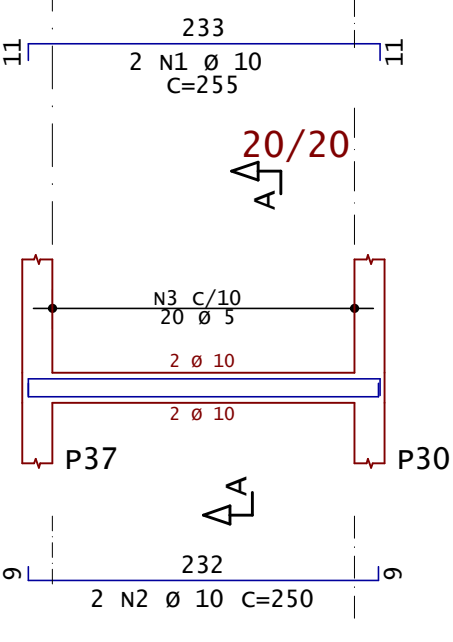
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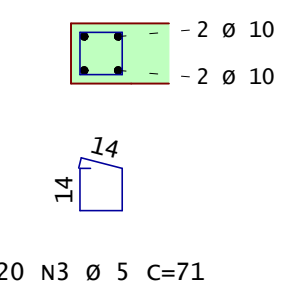
Corte A



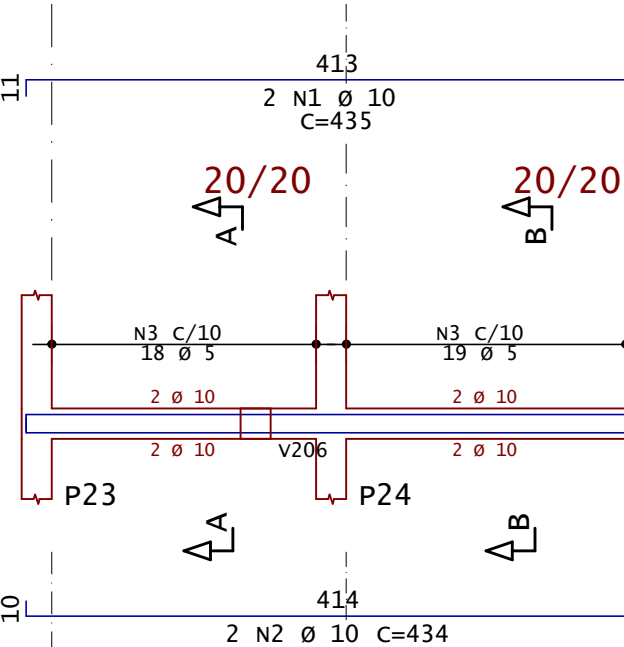
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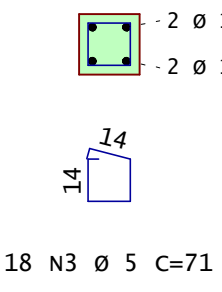
Corte A



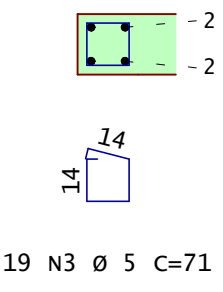
v202



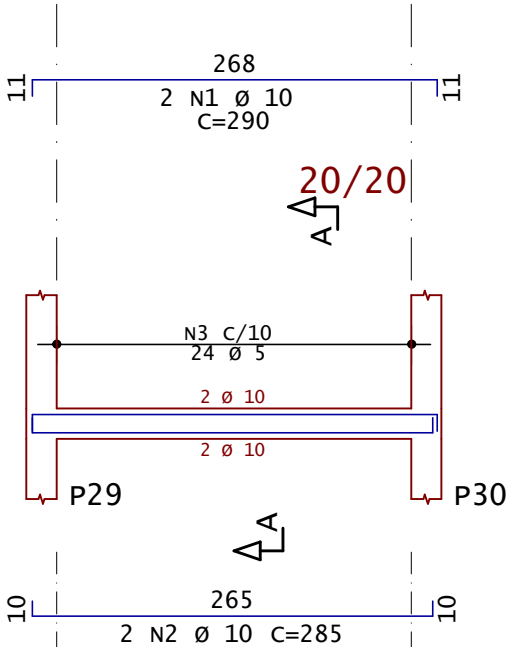
Corte A



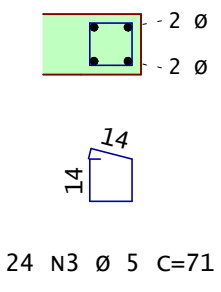
Corte B



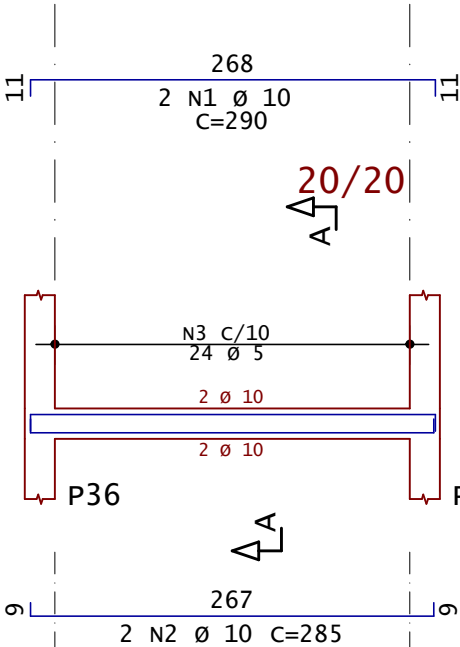
v203



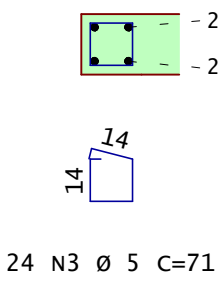
Corte A



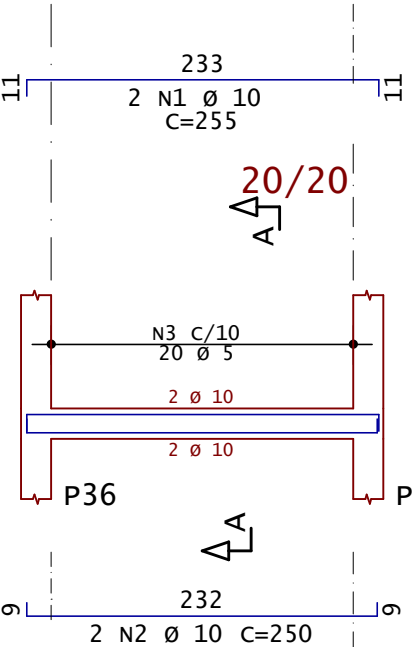
v204



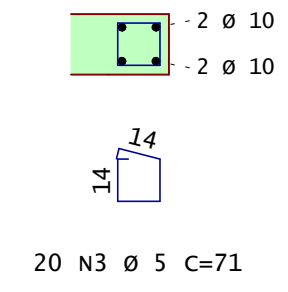
Corte A



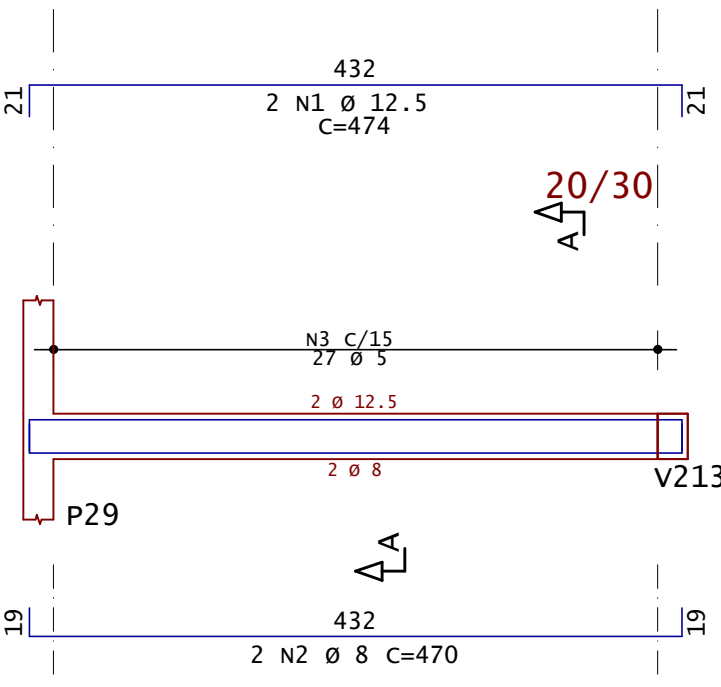
v205



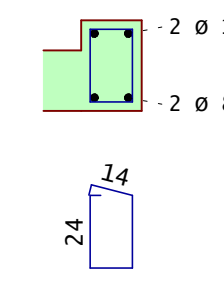
Corte A



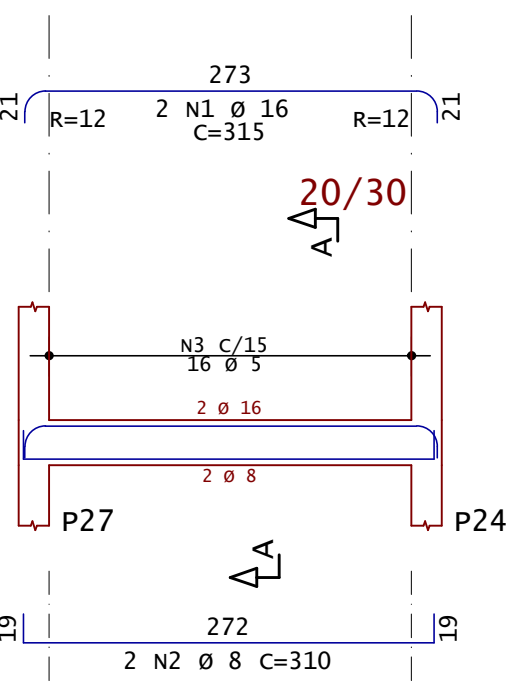
v216



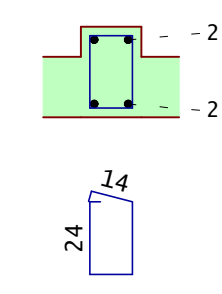
Corte A



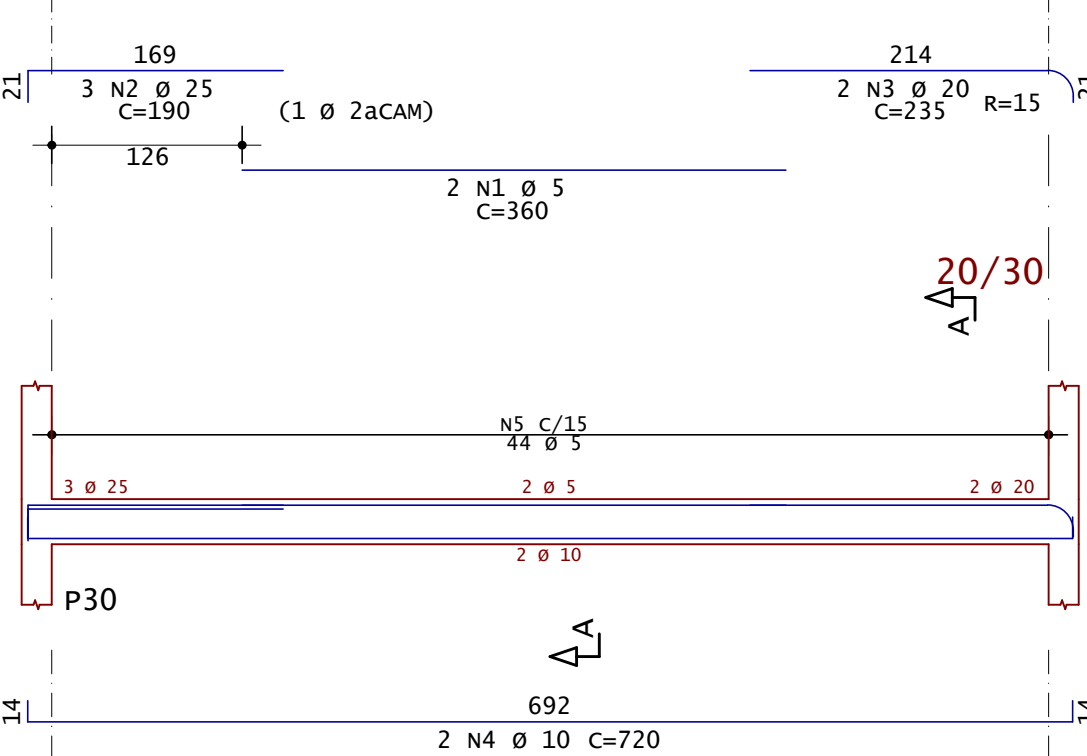
v217



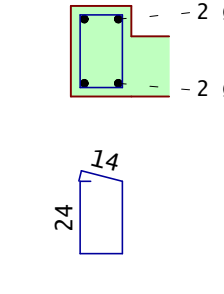
Corte A



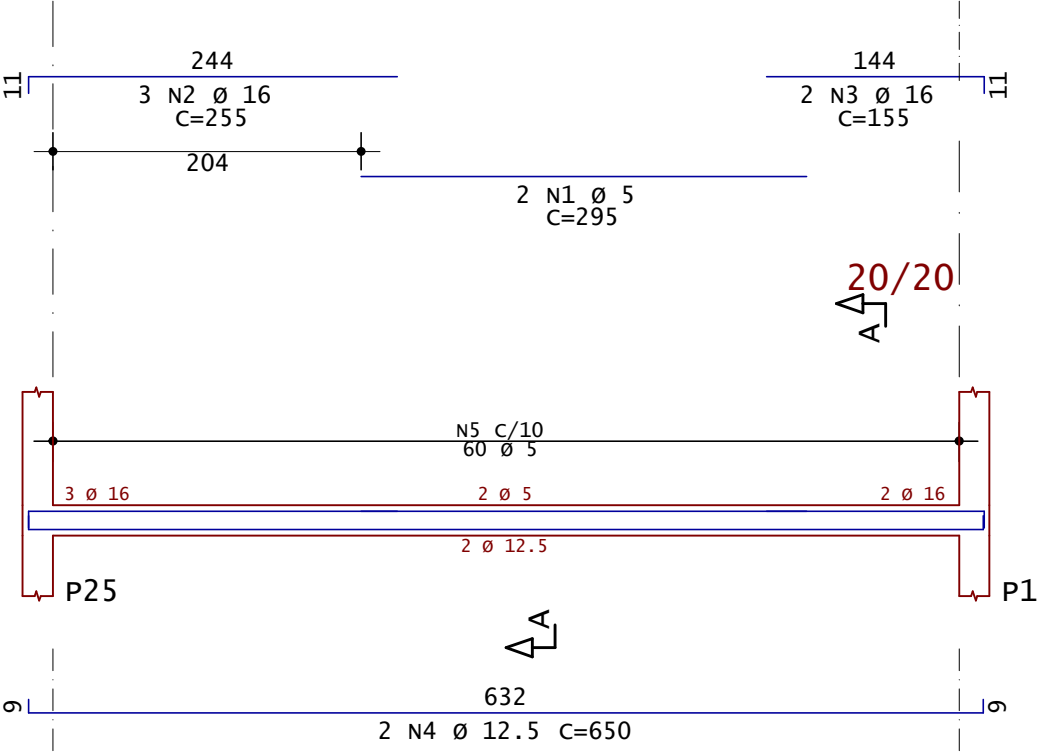
v218



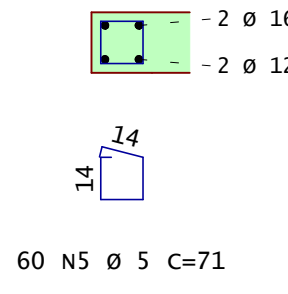
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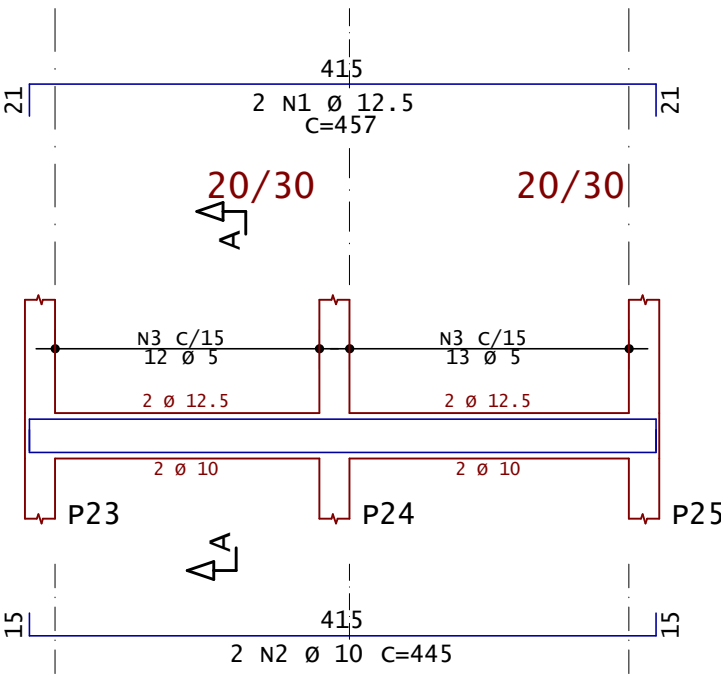
v211



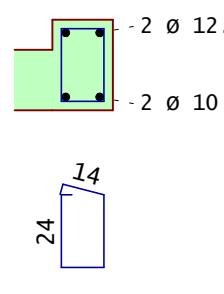
Corte A



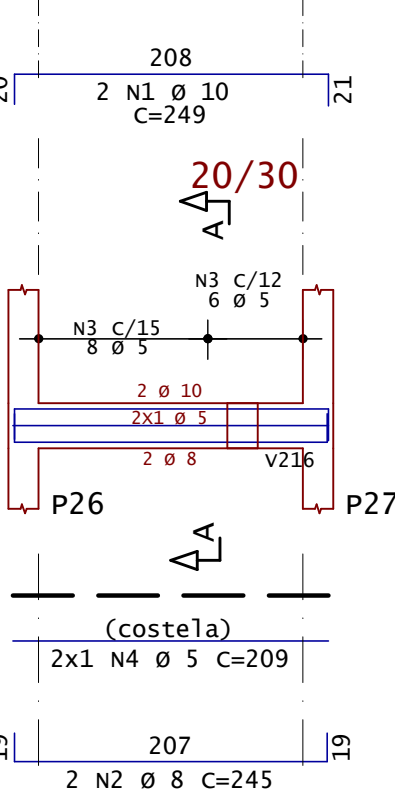
v212



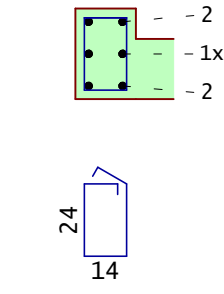
Corte A



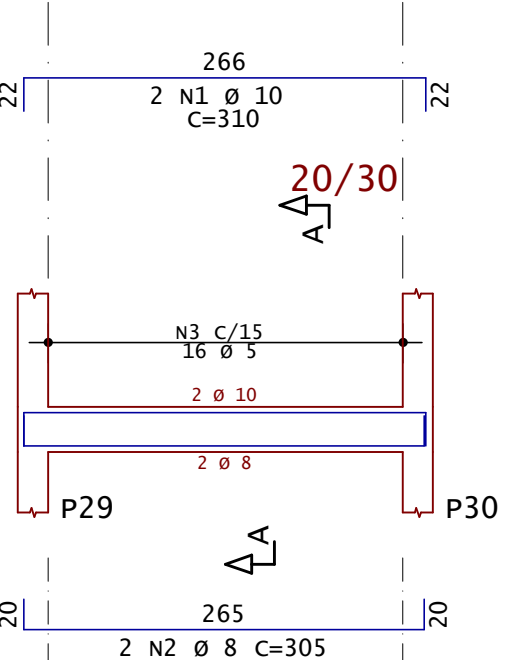
v213



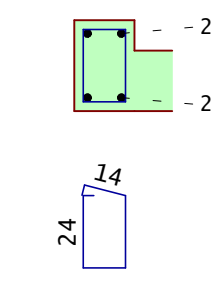
Corte A



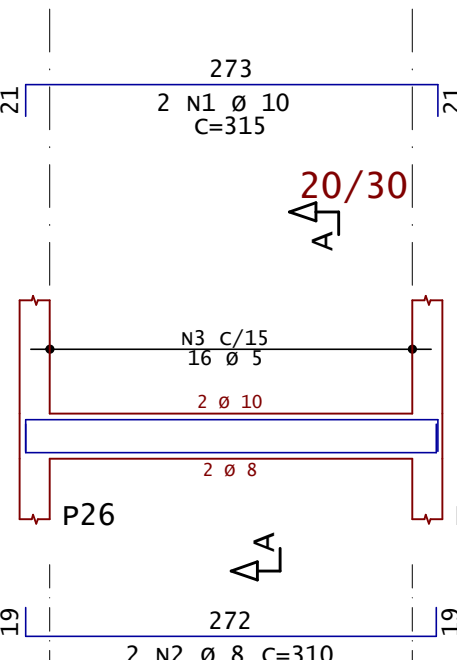
v214



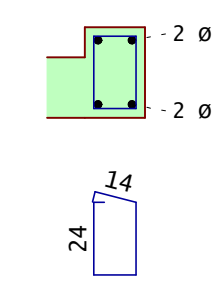
Corte A



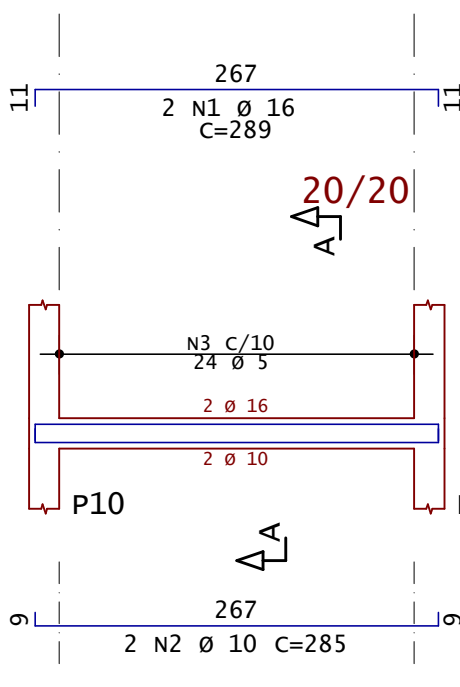
v215



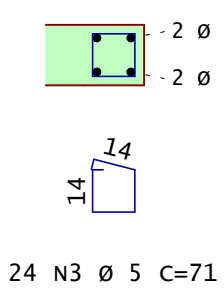
Corte A



v201



Corte A



	AÇO	POS	BIT	QUANT	COMPRIMENTO	
					UNIT	TOTAL
			mm		cm	cm
V201	50A	1	16	2	289	578
	50A	2	10	2	285	570
	60A	3	5	24	71	1704
V202	50A	1	10	2	435	870
	50A	2	10	2	434	868
	60A	3	5	37	71	2627
V203	50A	1	10	2	290	580
	50A	2	10	2	285	570
	60A	3	5	24	71	1704
V204	50A	1	10	2	290	580
	50A	2	10	2	285	570
	60A	3	5	24	71	1704
V205	50A	1	10	2	255	510
	50A	2	10	2	250	500
	60A	3	5	20	71	1420
V206	60A	1	5	2	285	570
	50A	2	16	3	255	765
	50A	3	16	2	155	310
	50A	4	12.5	2	650	1300
	60A	5	5	60	71	4260
V207	50A	1	12.5	2	335	670
	50A	2	10	2	300	600
	60A	3	5	14	111	1554
V208	50A	1	10	2	365	730
	50A	2	8	2	360	720
	60A	3	5	31	71	2201
V209	50A	1	8	2	365	730
	50A	2	8	2	360	720
	60A	3	5	31	71	2201
V210	50A	1	10	2	255	510
	50A	2	10	2	250	500
	60A	3	5	20	71	1420
V211	60A	1	5	2	295	590
	50A	2	16	3	255	765
	50A	3	16	2	155	310
	50A	4	12.5	2	650	1300
	60A	5	5	60	71	4260
V212	50A	1	12.5	2	457	914
	50A	2	10	2	445	890
	60A	3	5	25	91	2275
V213	50A	1	10	2	249	498
	50A	2	8	2	245	490
	60A	3	5	14	105	1470
	60A	4	5	2	209	418
V214	50A	1	10	2	310	620
	50A	2	8	2	305	610
	60A	3	5	16	91	1456
V215	50A	1	10	2	315	630
	50A	2	8	2	310	620
	60A	3	5	16	91	1456
V216	50A	1	12.5	2	474	948
	50A	2	8	2	470	940
	60A	3	5	27	91	2457
V217	50A	1	16	2	315	630
	50A	2	8	2	310	620
	60A	3	5	16	91	1456
V218	60A	1	5	2	360	720
	50A	2	25	3	190	570
	50A	3	20	2	235	470
	50A	4	10	2	720	1440
	60A	5	5	44	91	4004

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	419	65
50A	8	55	22
50A	10	120	74
50A	12.5	51	49
50A	16	34	53
50A	20	5	12
50A	25	6	22
Peso Total	60A =		65 kgf
Peso Total	50A =		232 kgf

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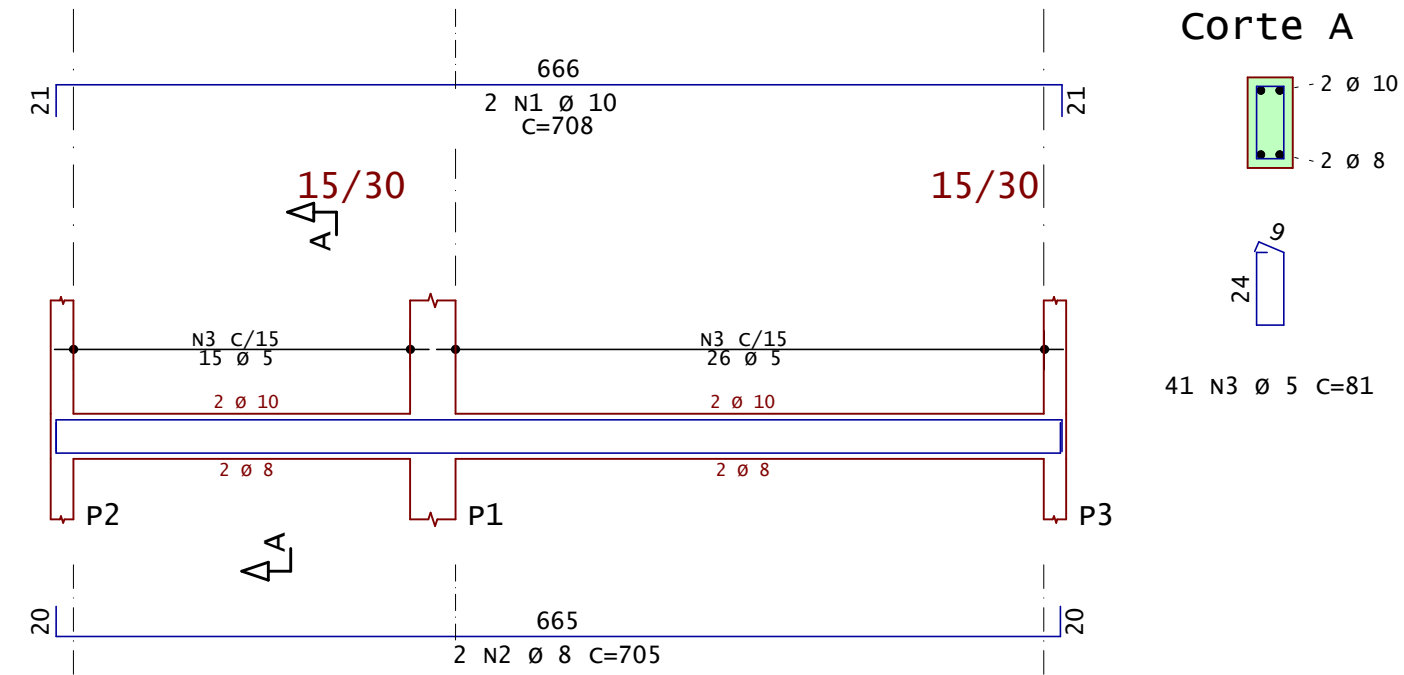
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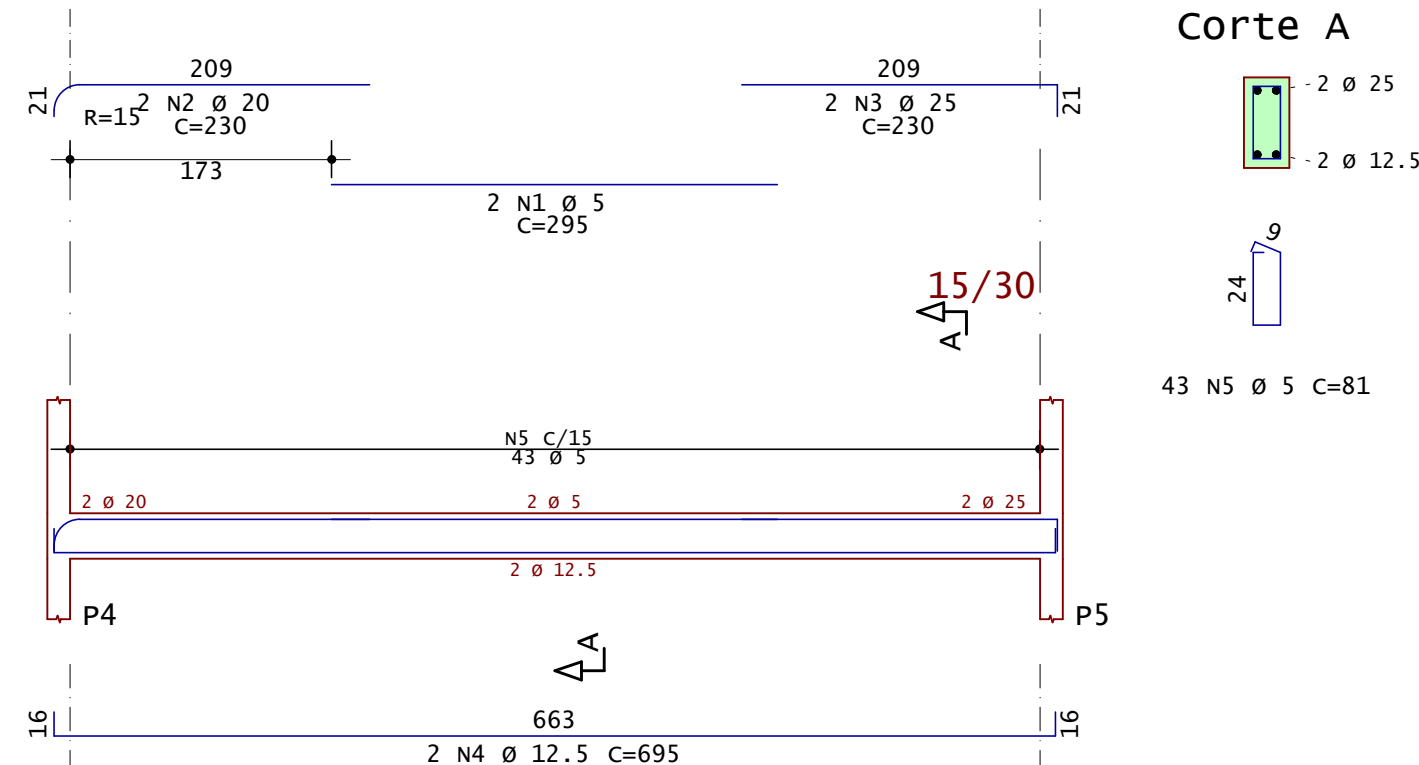
contato@anderodrigues.eng.br

CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 11
OBRA:	RESIDÊNCIA UNIFAMILIAR	
TÍTULO:	Detalhamento: - VIGAS / PISCINA	OBs: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA: INDICADA

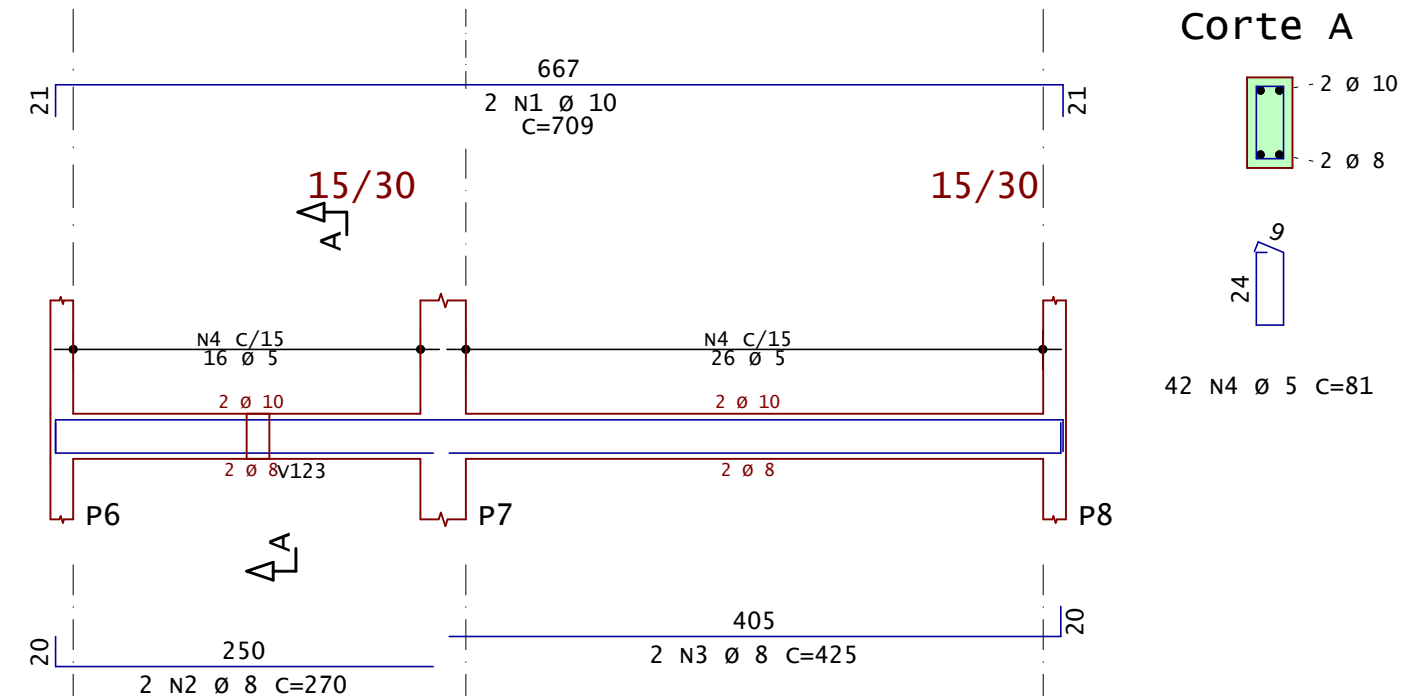
v101



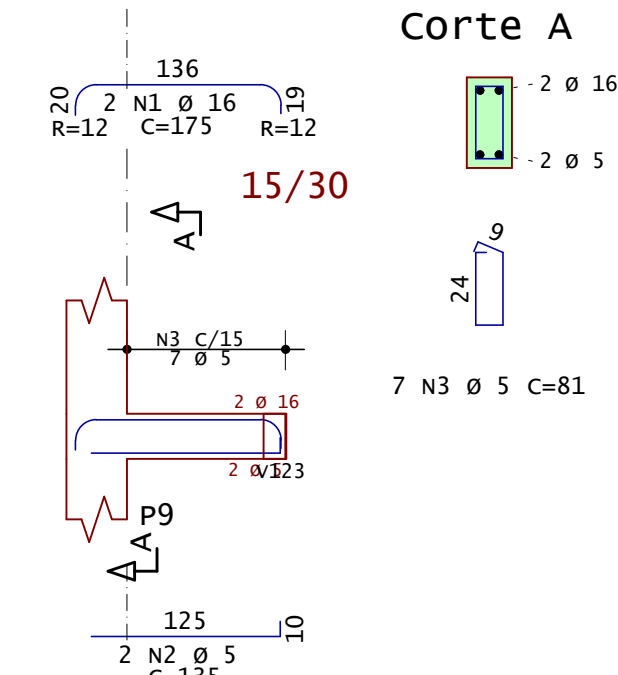
v102



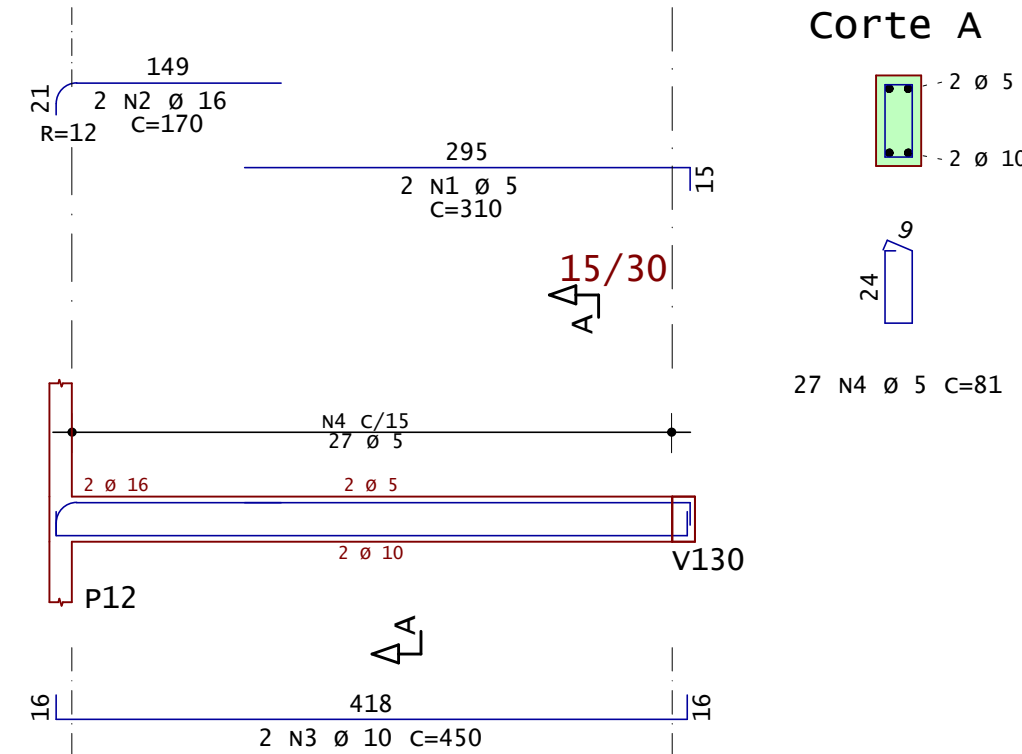
v103



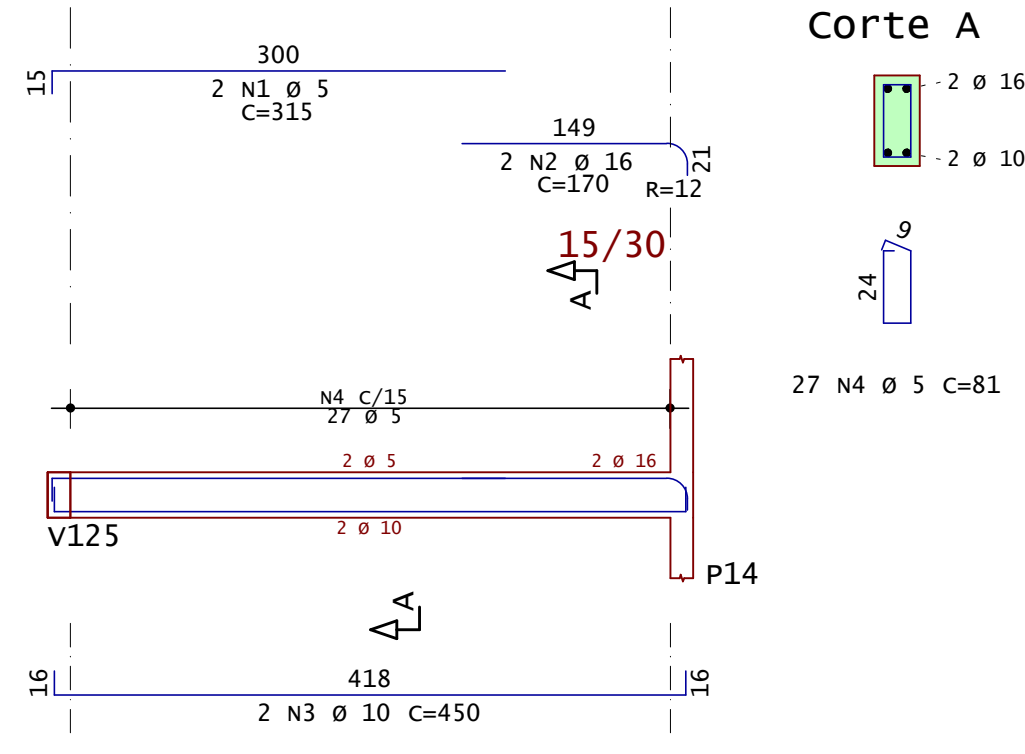
v104



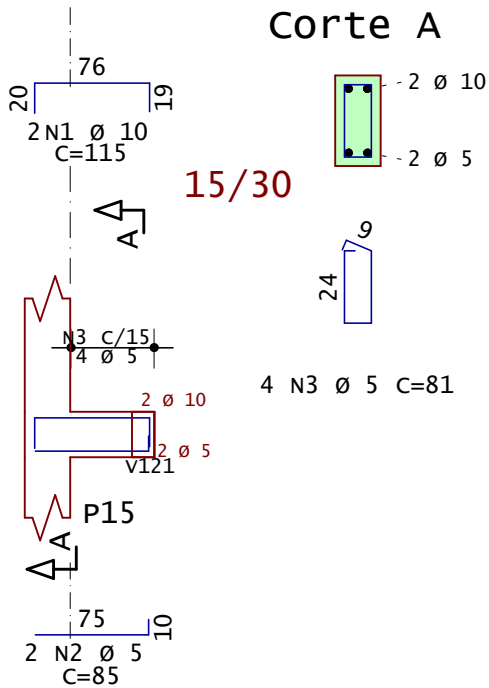
v105



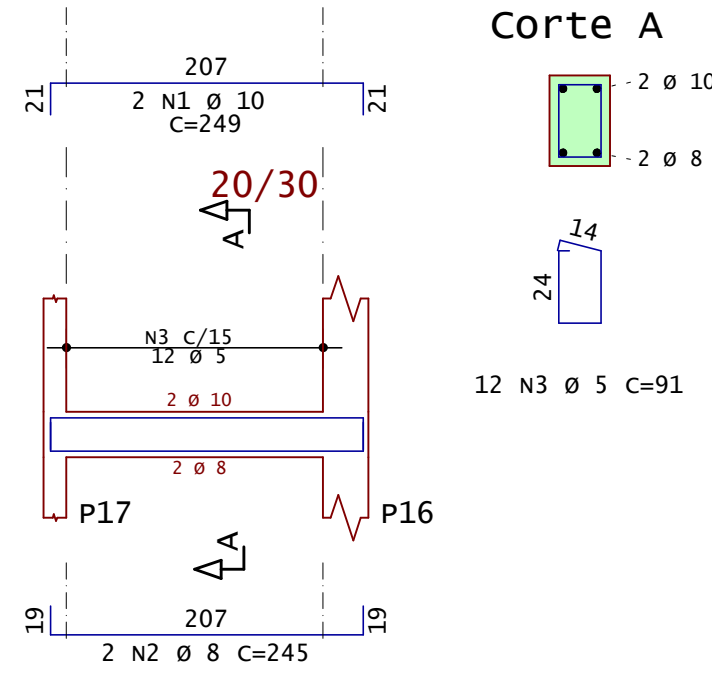
v106



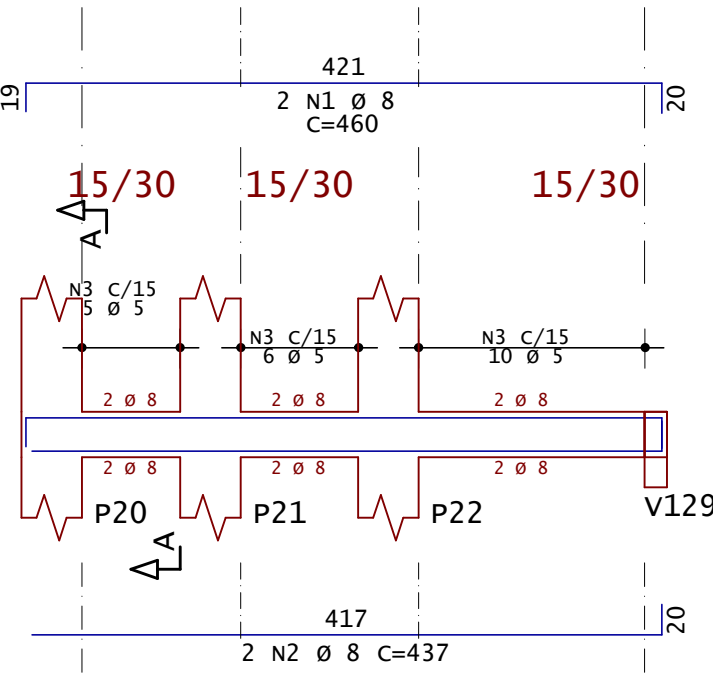
v107



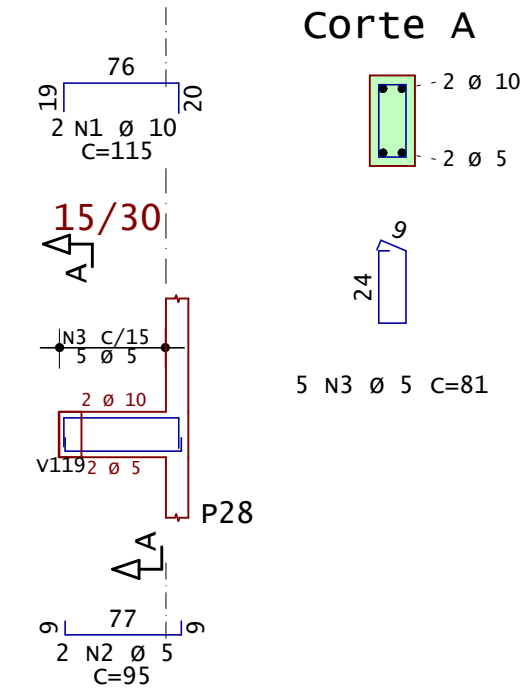
v108



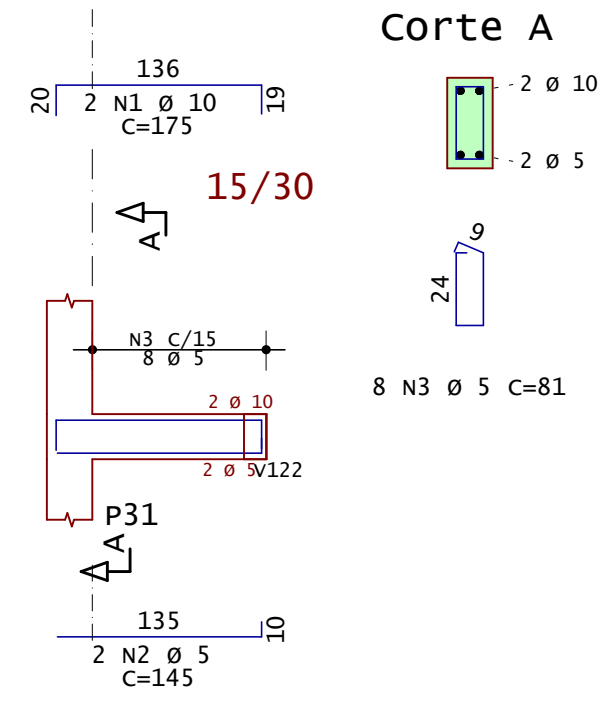
v109



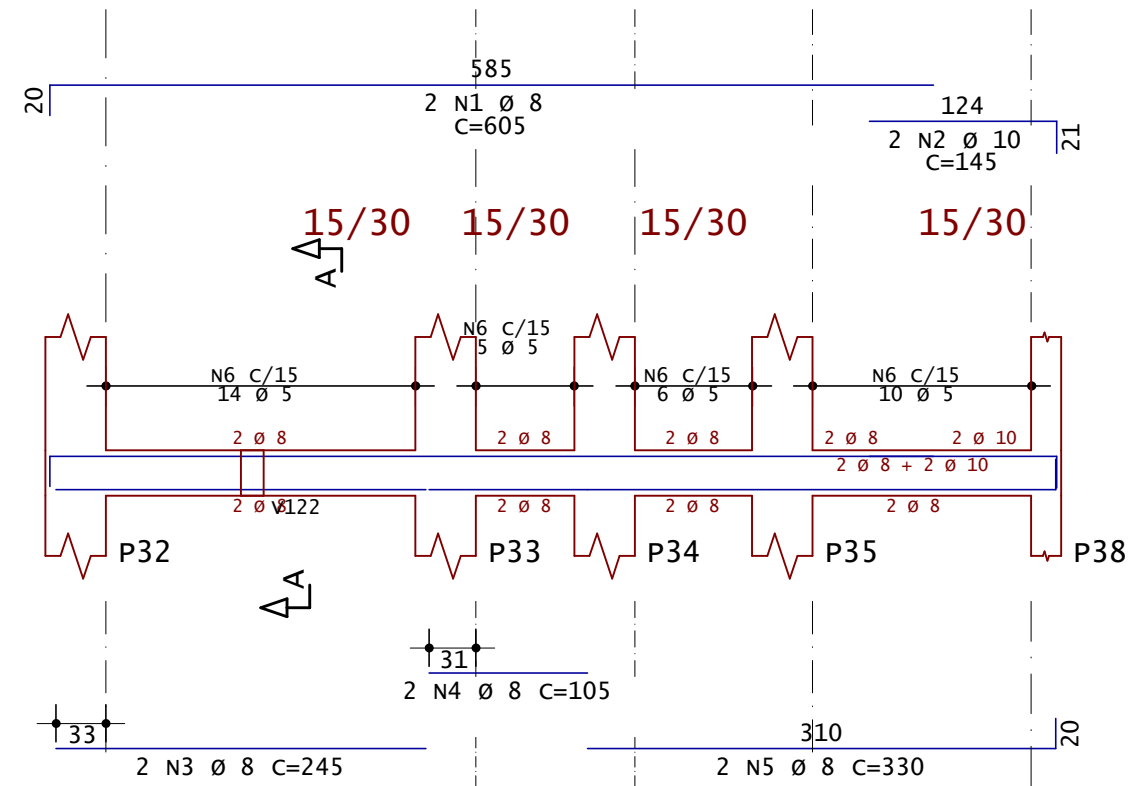
v110



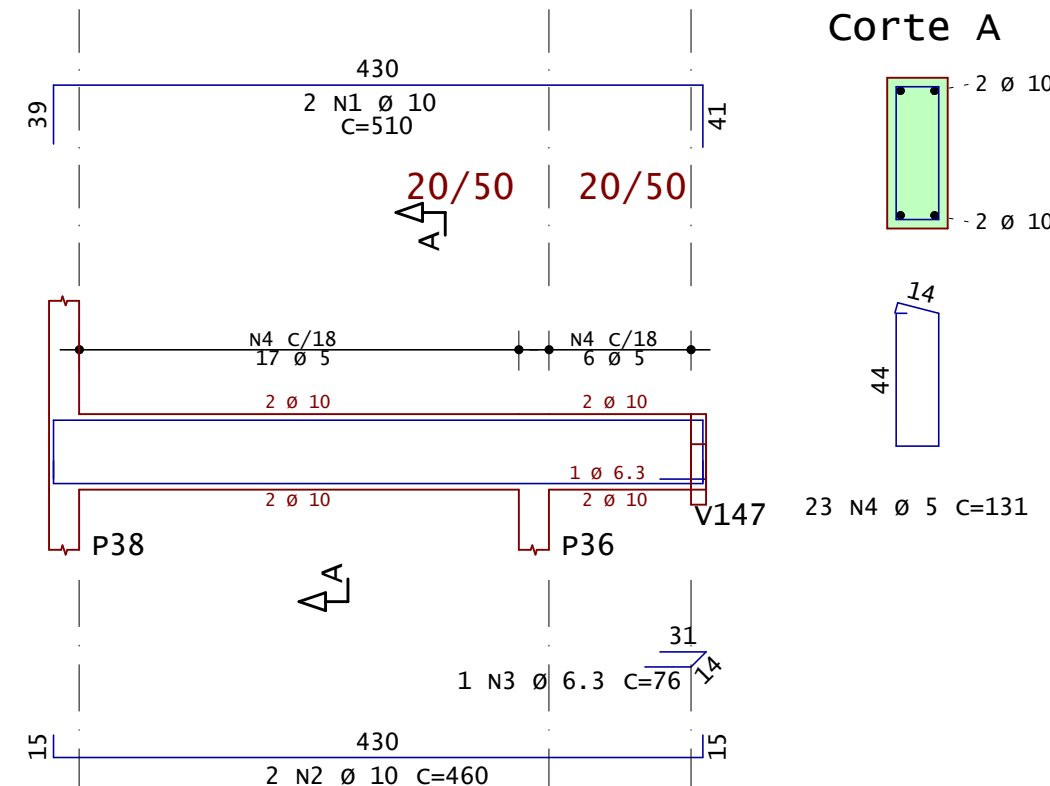
v111



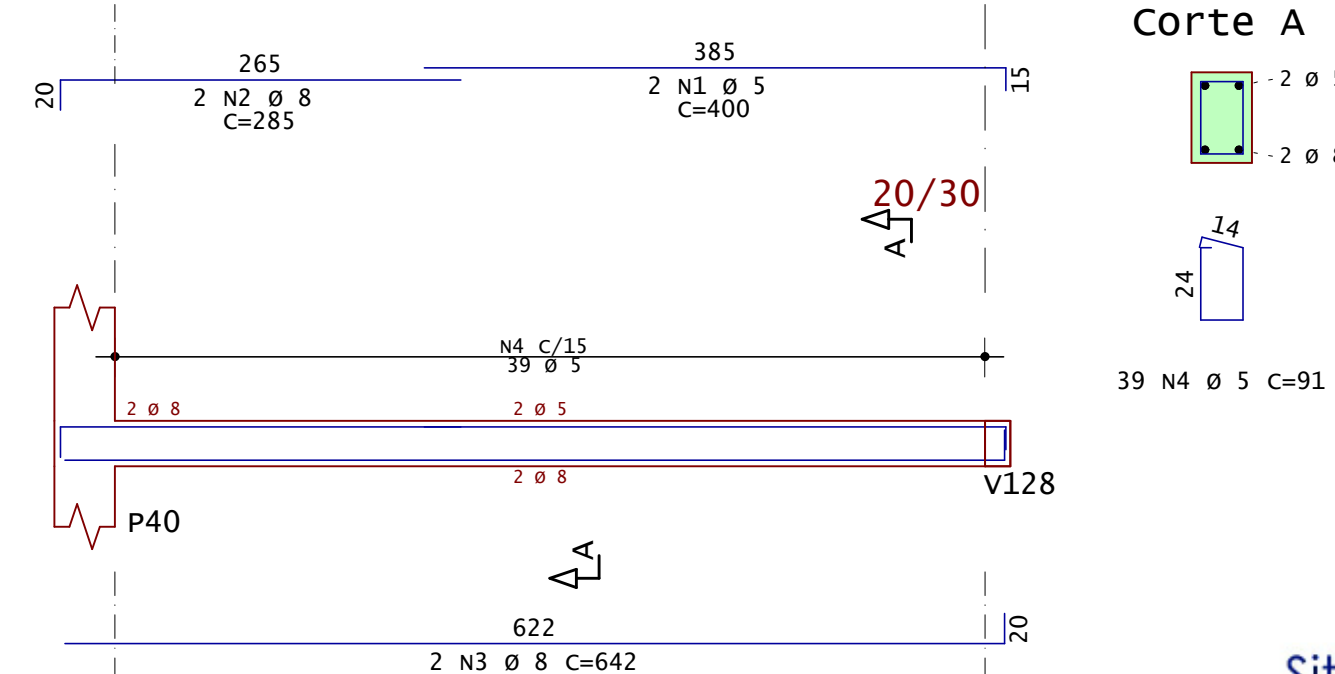
v112



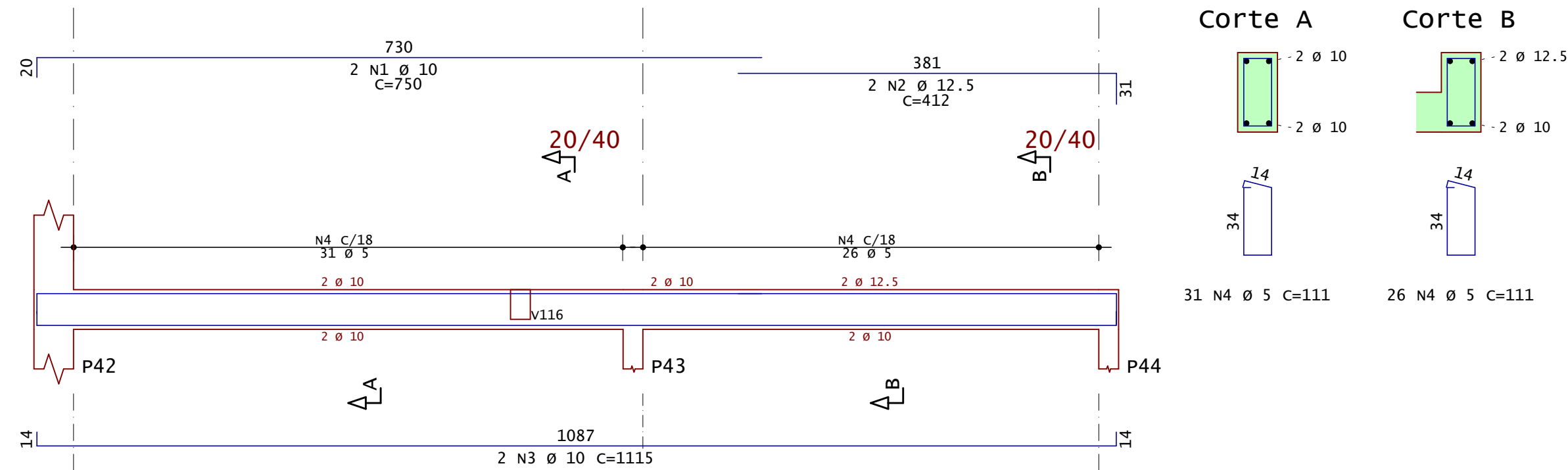
v113



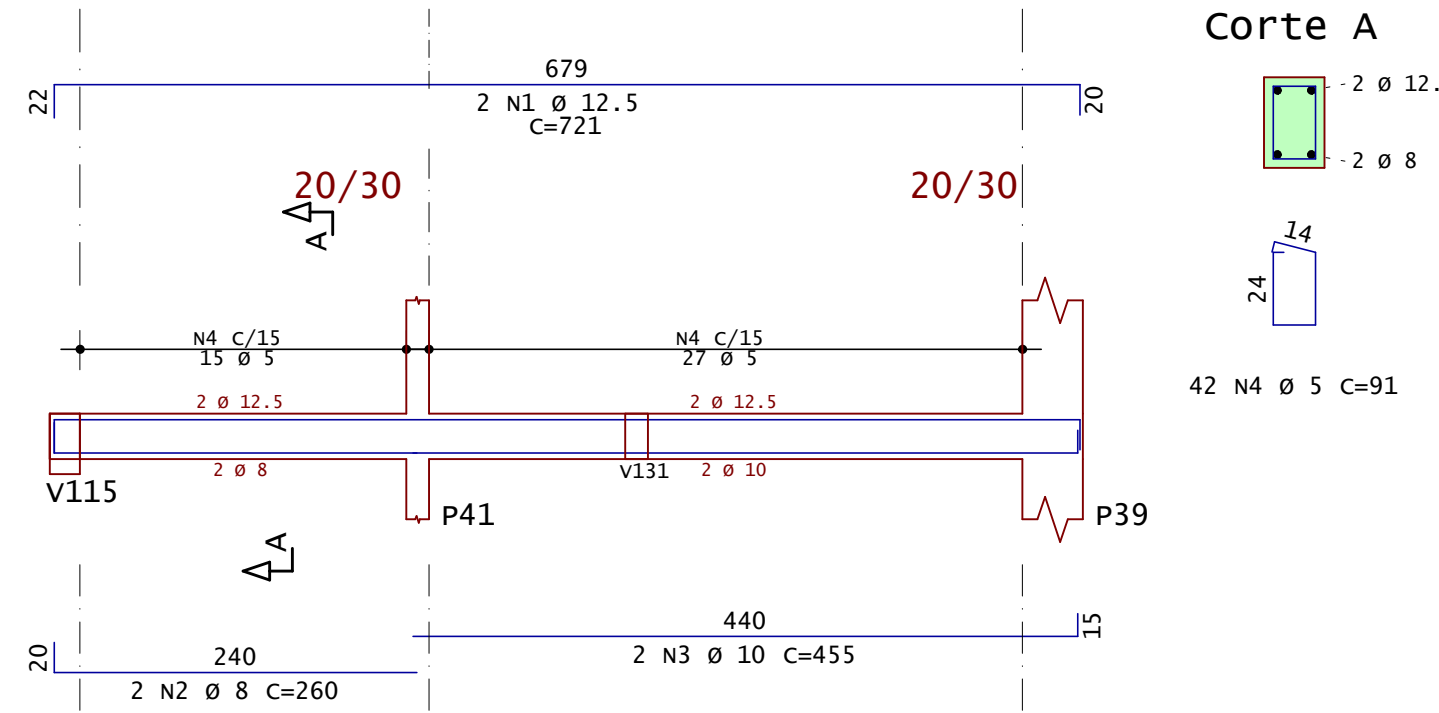
v114



v115



v116



	AÇO	POS	BIT	QUANT	COMPRIMENTO	
					UNIT	TOTAL
			mm		cm	cm
V101	50A	1	10	2	708	1416
	50A	2	8	2	705	1410
	60A	3	5	41	81	3321
V102	60A	1	5	2	295	590
	50A	2	20	2	230	460
	50A	3	25	2	230	460
	50A	4	12.5	5	695	1390
	60A	5	5	43	81	3483
V103	50A	1	10	2	709	1418
	50A	2	8	2	270	540
	50A	3	8	2	425	850
	60A	4	5	42	81	3402
V104	50A	1	16	2	175	350
	60A	2	5	2	135	270
	60A	3	5	7	81	567
V105	60A	1	5	2	310	620
	50A	2	16	2	170	340
	50A	3	10	2	450	900
	60A	4	5	27	81	2187
V106	60A	1	5	2	315	630
	50A	2	16	2	170	340
	50A	3	10	2	450	900
	60A	4	5	27	81	2187
V107	50A	1	10	2	115	230
	60A	2	5	2	85	170
	60A	3	5	4	81	324
V108	50A	1	10	2	249	498
	50A	2	8	2	245	490
	60A	3	5	12	91	1092
V109	50A	1	8	2	460	920
	50A	2	8	2	437	874
	60A	3	5	21	81	1701
V110	50A	1	10	2	115	230
	60A	2	5	2	170	340
	60A	3	5	5	81	405
V111	50A	1	10	2	175	350
	60A	2	5	2	145	290
	60A	3	5	8	81	648
V112	50A	1	8	2	605	1210
	50A	2	10	2	145	290
	50A	3	8	2	245	490
	50A	4	8	2	105	210
	50A	5	8	2	330	660
	60A	6	5	35	81	2835
V113	50A	1	10	2	510	1020
	50A	2	10	2	460	920
	50A	3	6.3	1	76	76
	60A	4	5	23	131	3013
V114	60A	1	5	2	400	800
	50A	2	8	2	285	570
	50A	3	8	2	642	1284
	60A	4	5	39	91	3549
V115	50A	1	10	2	750	1500
	50A	2	12.5	2	412	824
	50A	3	10	2	1115	2230
	60A	4	5	57	111	6327
V116	50A	1	12.5	2	721	1442
	50A	2	8	2	260	520
	50A	3	10	2	455	910
	60A	4	5	42	91	3822

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	424	65
50A	6.3	1	0
50A	8	100	40
50A	10	128	79
50A	12.5	37	35
50A	16	10	16
50A	20	5	11
50A	25	5	18
Peso Total = 60A =			65 kgf
Peso Total = 50A =			199 kgf

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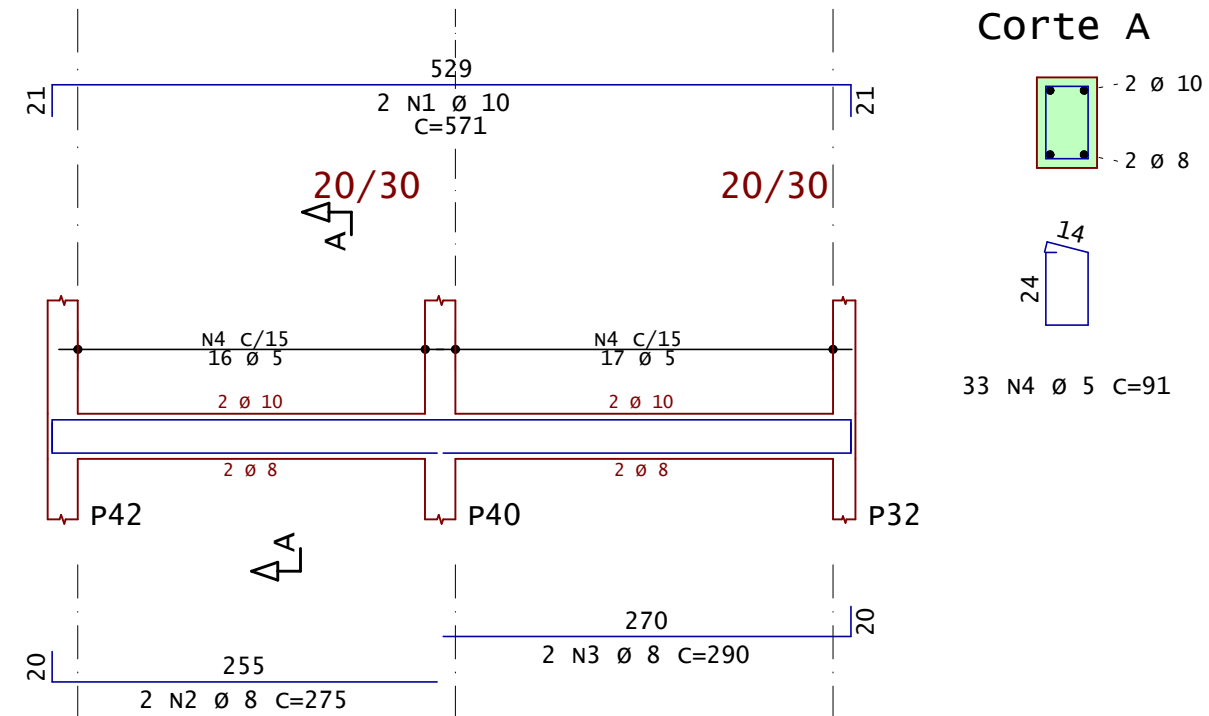
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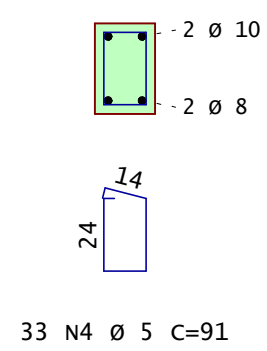
contato@anderodrigues.eng.br

CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 12
OBRA:	RESIDÊNCIA UNIFAMILIAR	
TÍTULO:	Detalhamento: - VIGAS / BALDRAME	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA: INDICADA

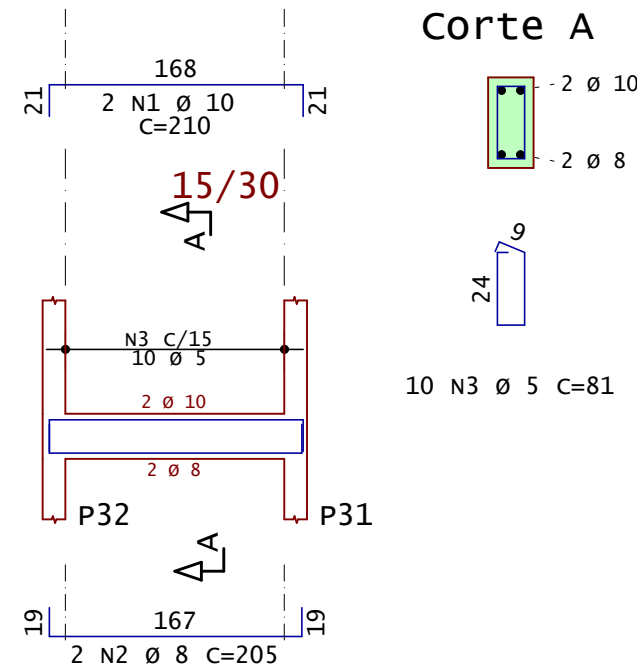
v117



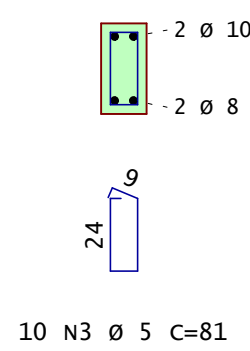
Corte A



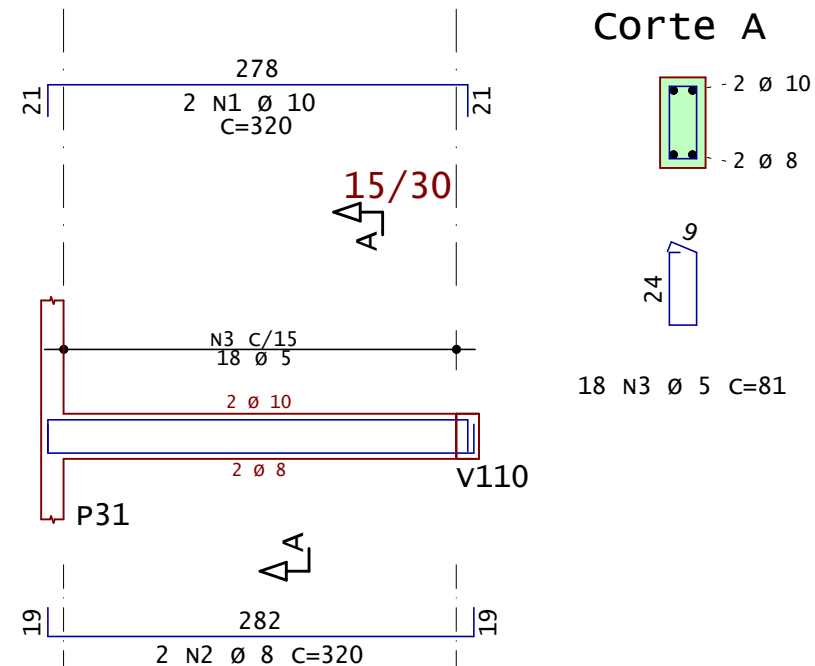
v118



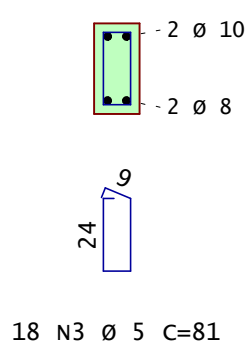
Corte A



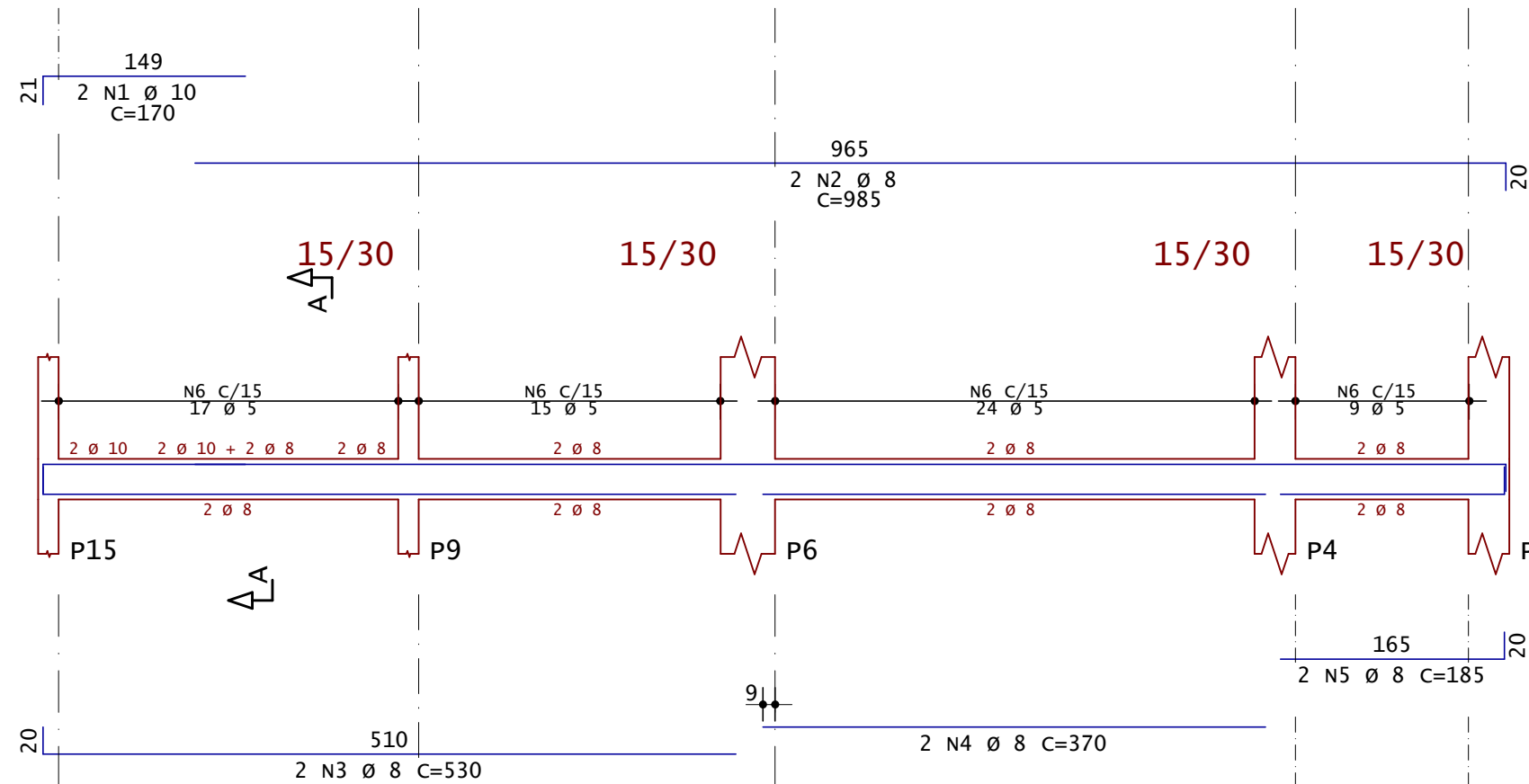
v119



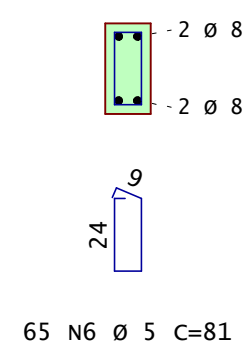
Corte A



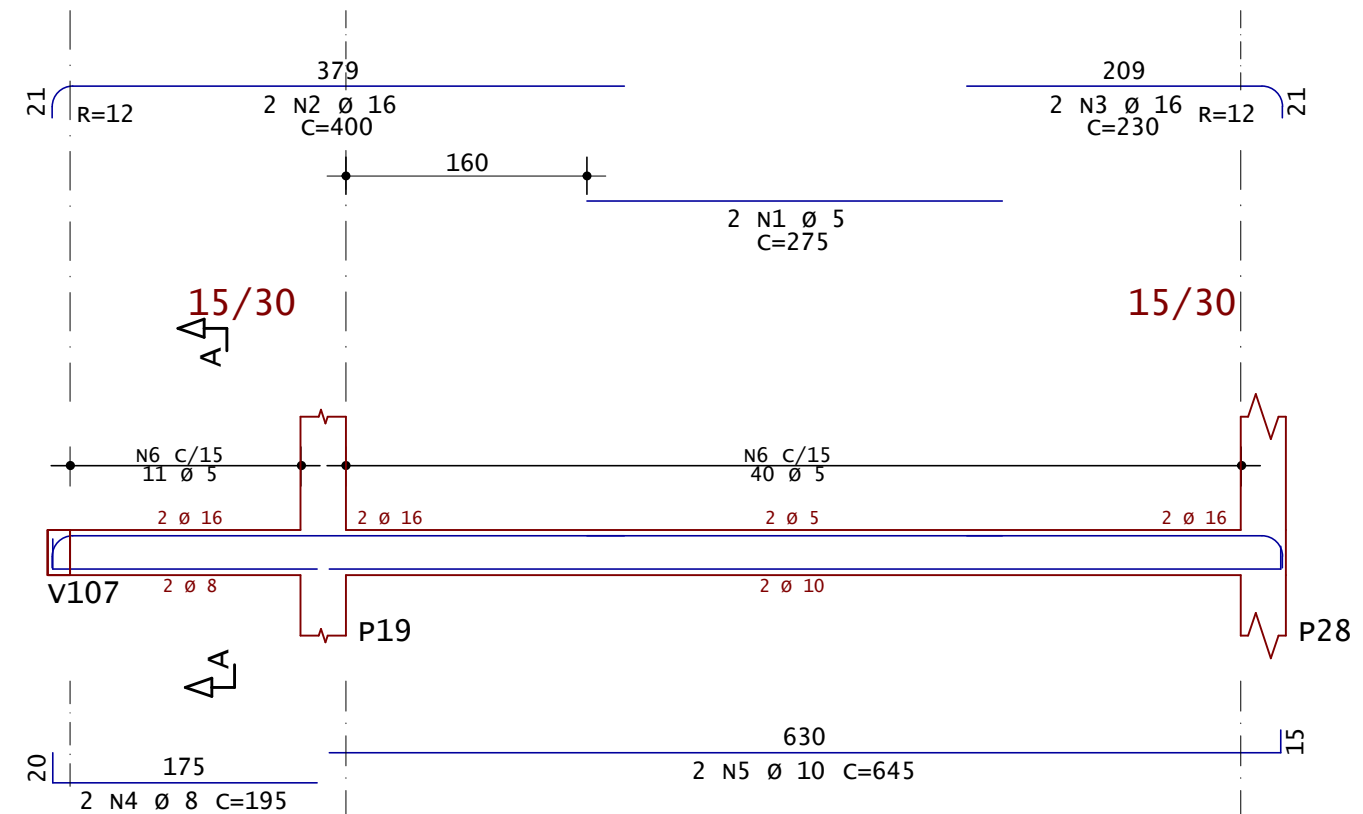
v120



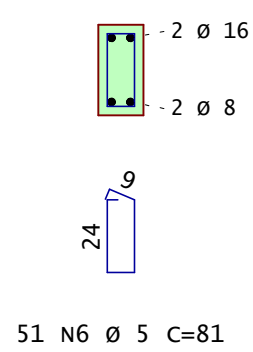
Corte A



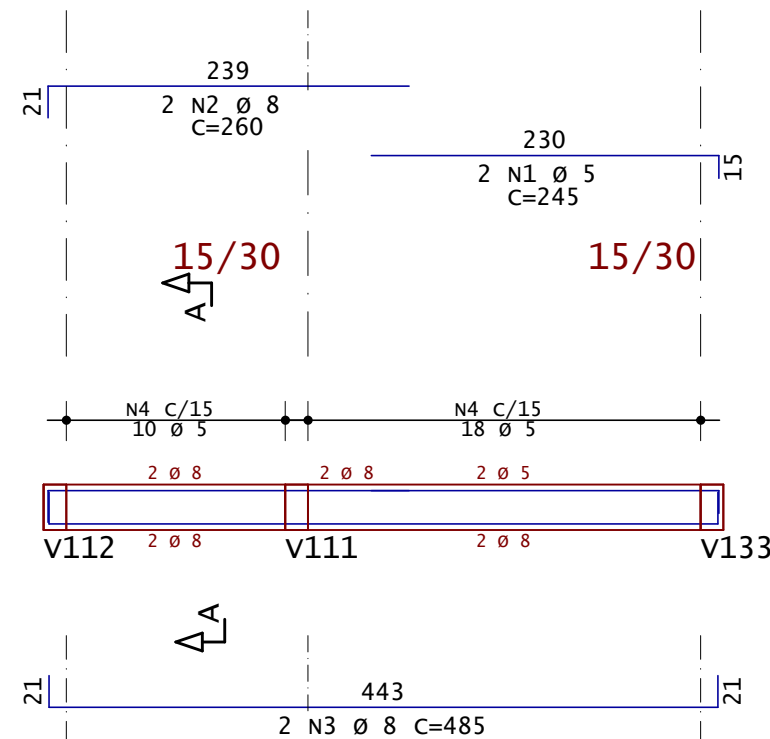
v121



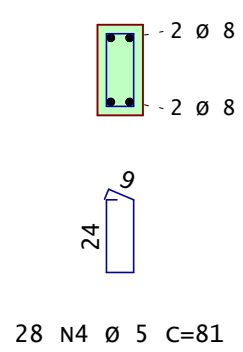
Corte A



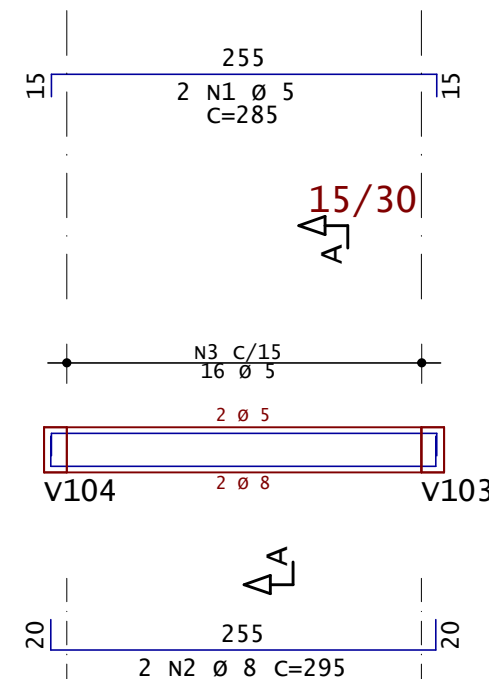
v122



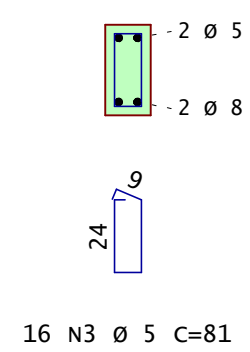
Corte A



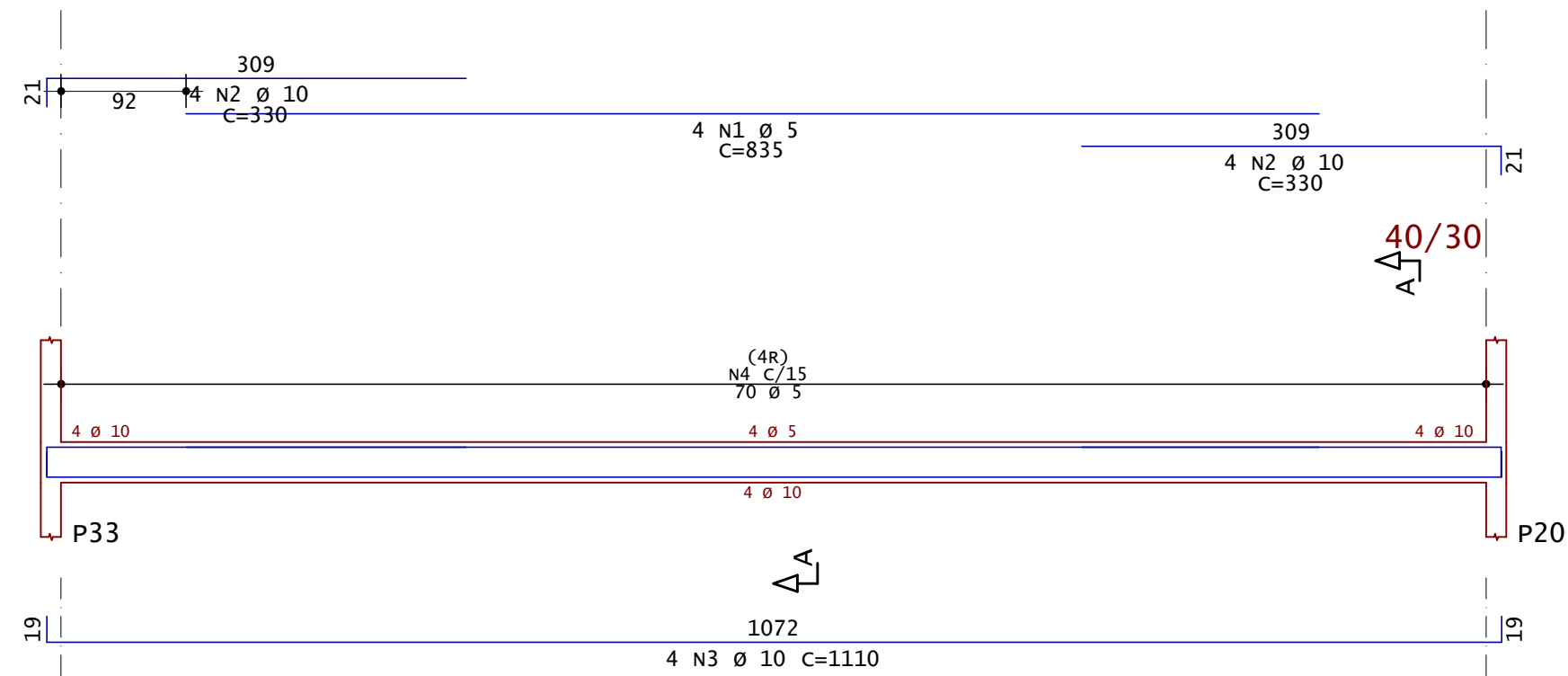
v123



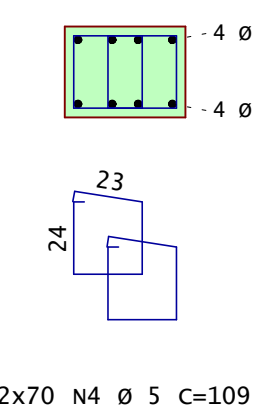
Corte A



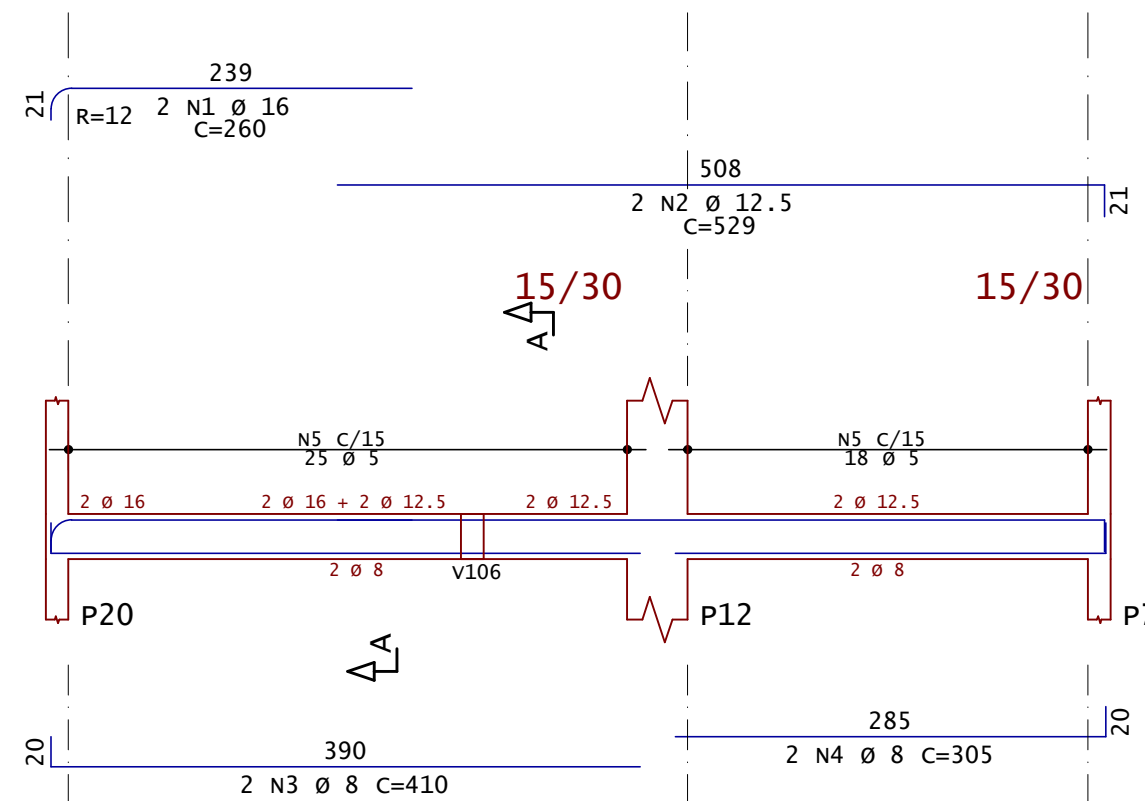
v124



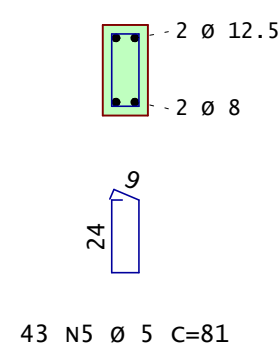
Corte A



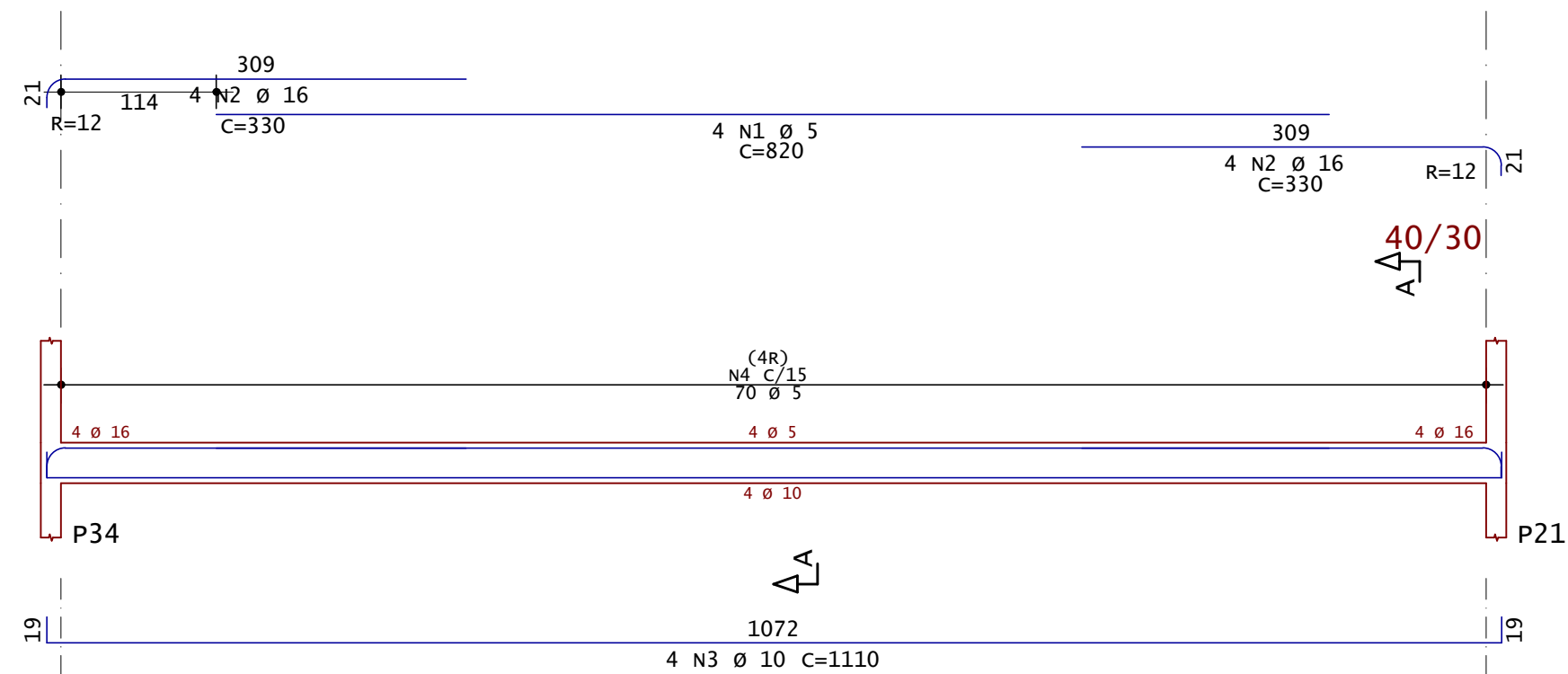
v125



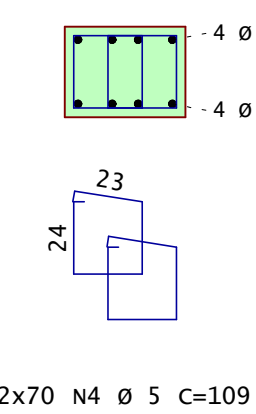
Corte A



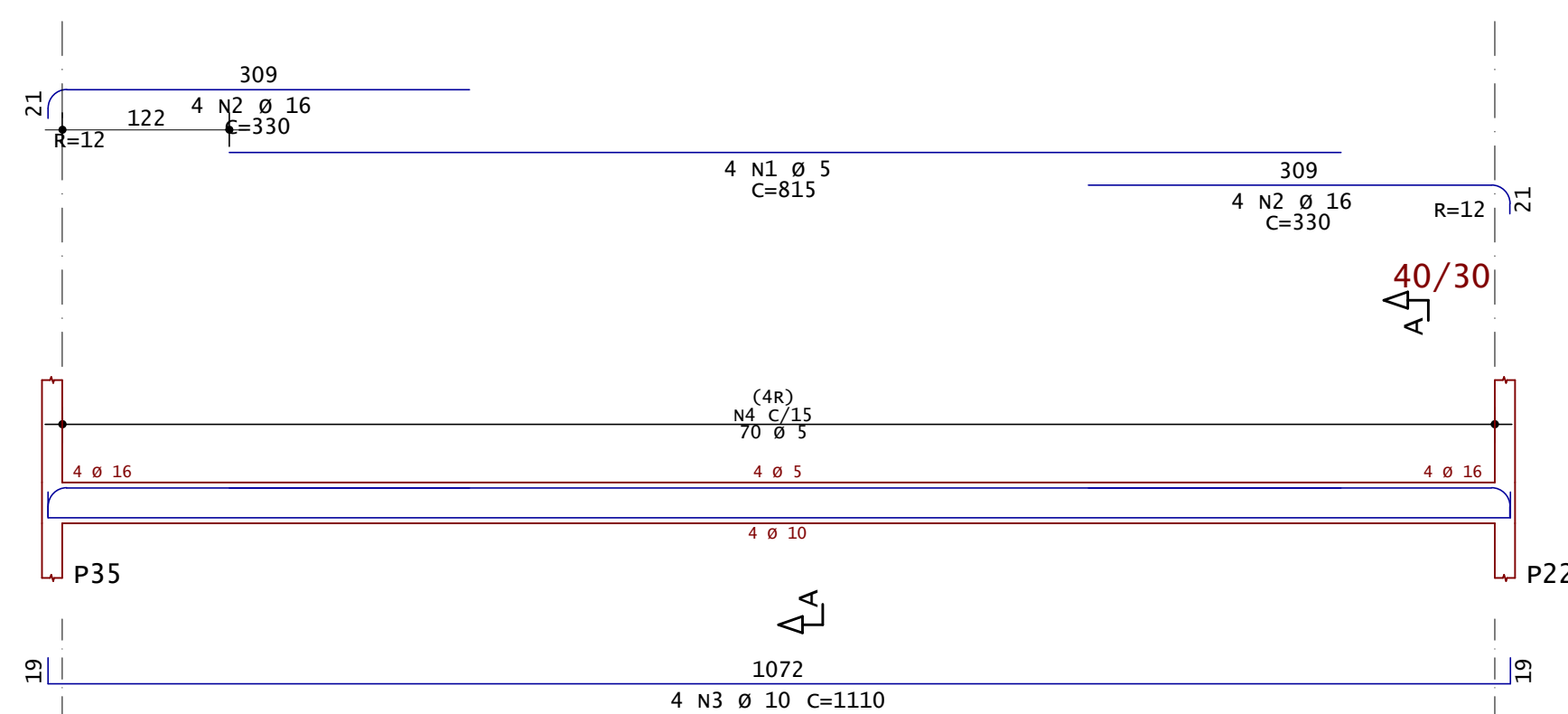
v126



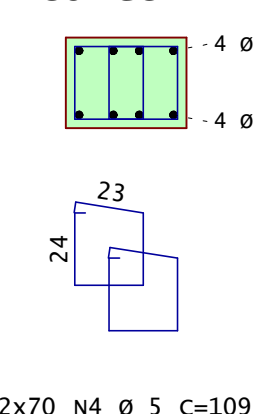
Corte A



v127



Corte A



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
		mm		cm	cm
V117					
50A	1	10	2	571	1142
50A	2	8	2	275	550
50A	3	8	2	290	580
60A	4	5	33	91	3003
V118					
50A	1	10	2	210	420
50A	2	8	2	205	410
60A	3	5	10	81	810
V119					
50A	1	10	2	320	640
50A	2	8	2	320	640
60A	3	5	18	81	1458
V120					
50A	1	10	2	170	340
50A	2	8	2	985	1970
50A	3	8	2	530	1060
50A	4	8	2	370	740
50A	5	8	2	185	370
60A	6	5	65	81	5265
V121					
60A	1	5	2	275	550
50A	2	16	2	400	800
50A	3	16	2	230	460
50A	4	8	2	195	390
50A	5	10	2	645	1290
60A	6	5	51	81	4131
V122					
60A	1	5	2	285	570
50A	2	8	2	260	520
50A	3	8	2	485	970
60A	4	5	28	81	2268
V123					
60A	1	5	2	285	570
50A	2	8	2	295	590
60A	3	5	16	81	1296
V124					
60A	1	5	4	835	3340
50A	2	10	8	330	2640
50A	3	10	4	1110	4440
60A	4	5	140	109	15260
V125					
50A	1	16	2	260	520
50A	2	12.5	2	529	1058
50A	3	8	2	410	820
50A	4	8	2	305	610
60A	5	5	43	81	3483
V126					
60A	1	5	4	820	3280
50A	2	16	8	330	2640
50A	3	10	4	1110	4440
60A	4	5	140	109	15260
V127					
60A	1	5	4	815	3260
50A	2	16	8	330	2640
50A	3	10	4	1110	4440
60A	4	5	140	109	15260

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	790	122
50A	8	102	40
50A	10	198	122
50A	12.5	11	10
50A	16	71	111
Peso Total		60A =	122 kgf
Peso Total		50A =	284 kgf

Site com:
- Modelos 3D
- Arquivos de obra
- Todos os documentos
do projeto



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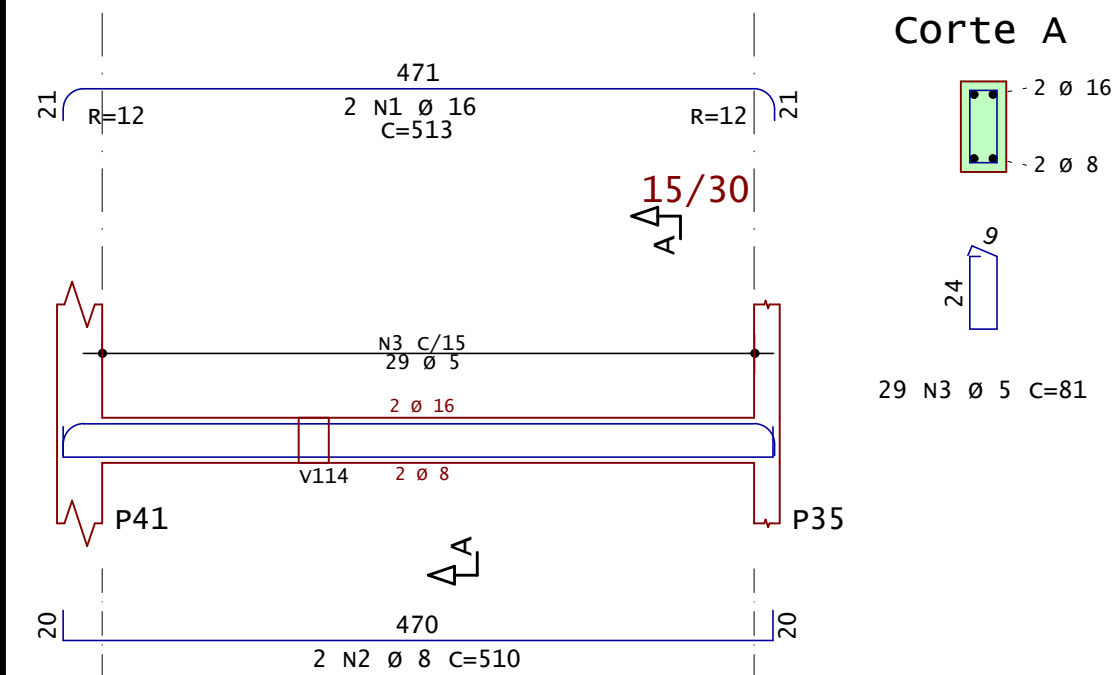
@anderodrigueseng

anderodrigues.eng.br

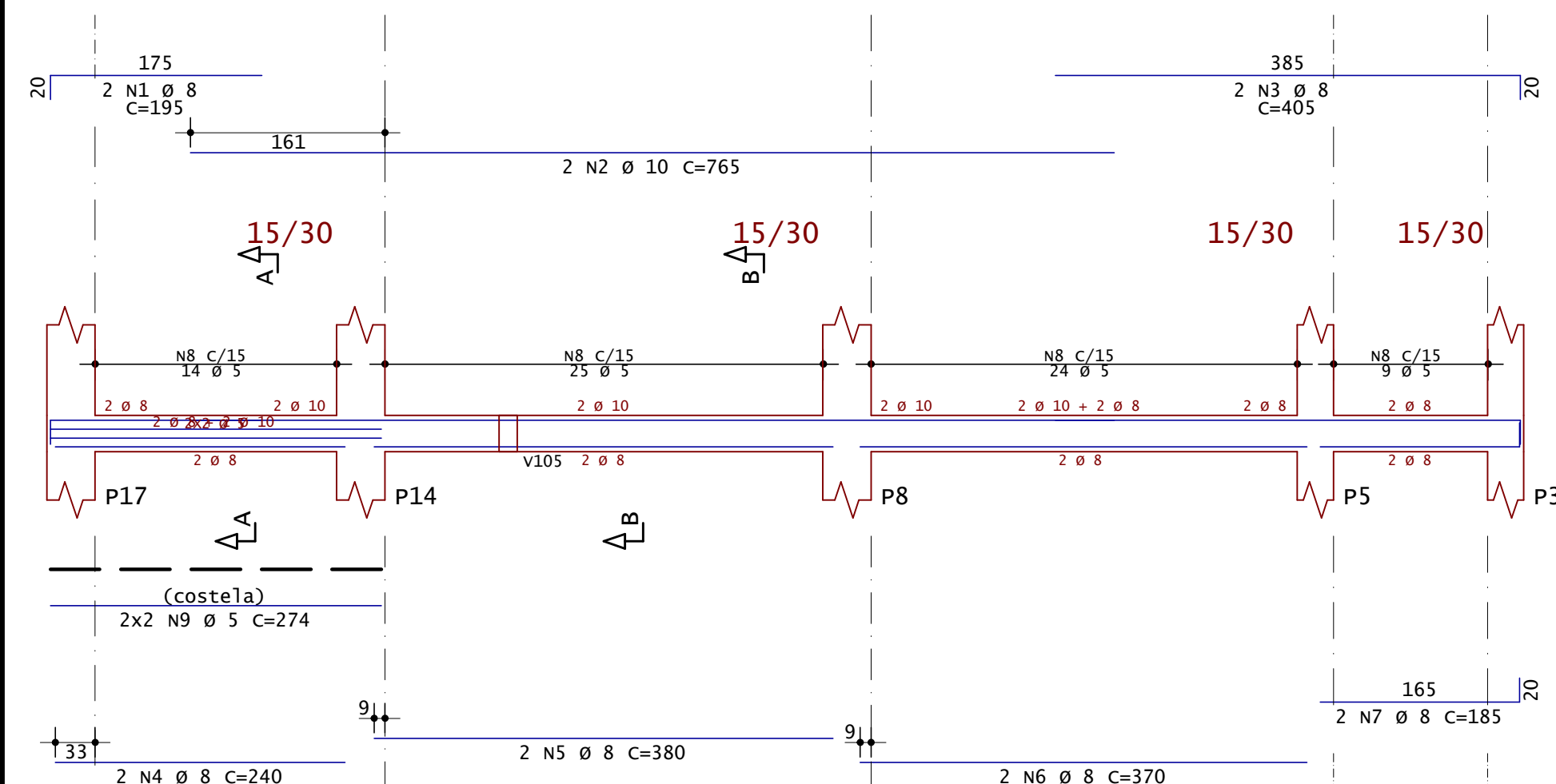
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CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº: 13
OBRA:	RESIDÊNCIA UNIFAMILIAR	
TÍTULO:	Detalhamento: - VIGAS / BALDRAME	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA: INDICADA

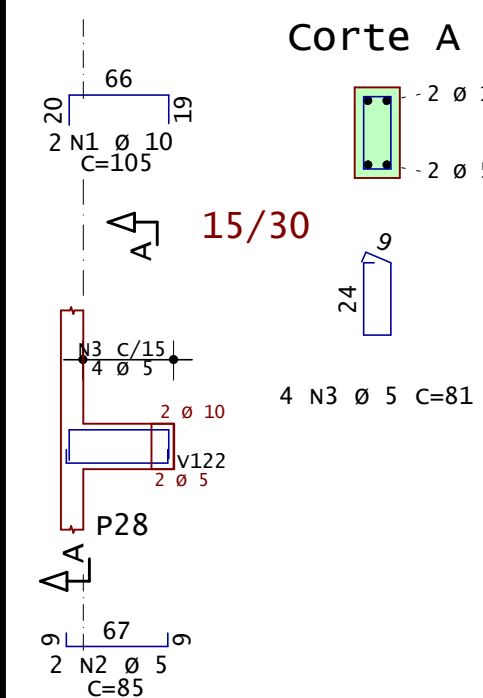
v128



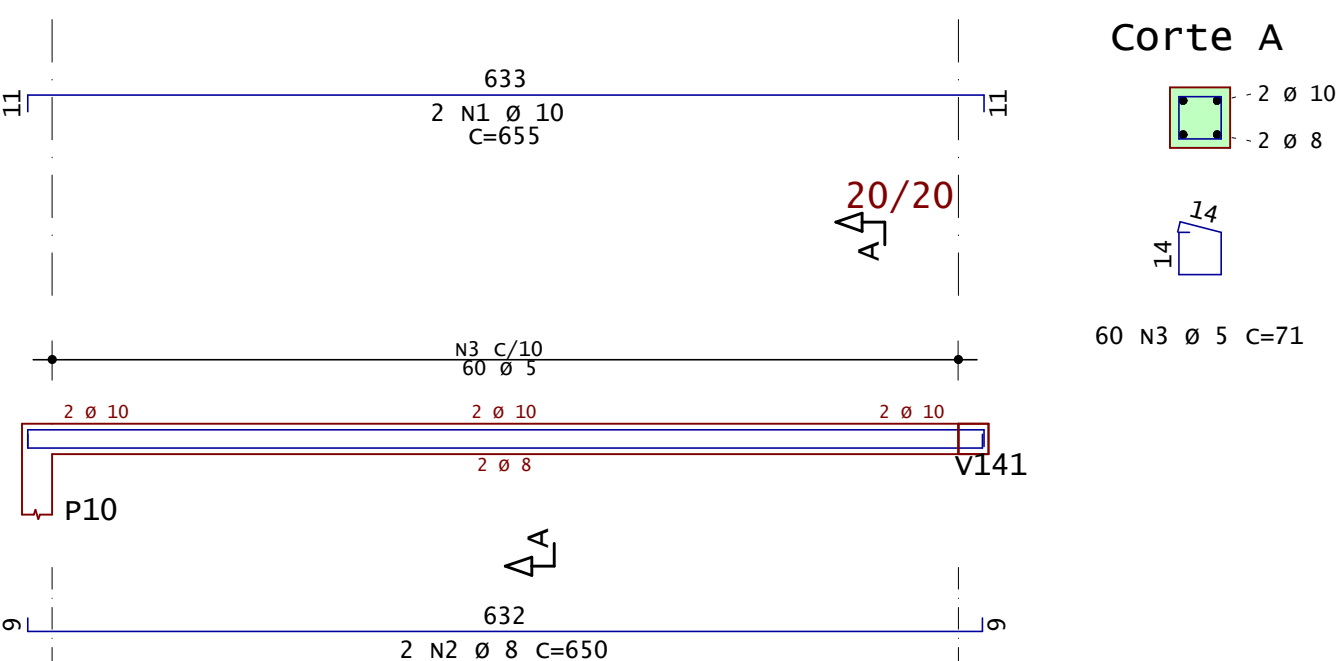
v130



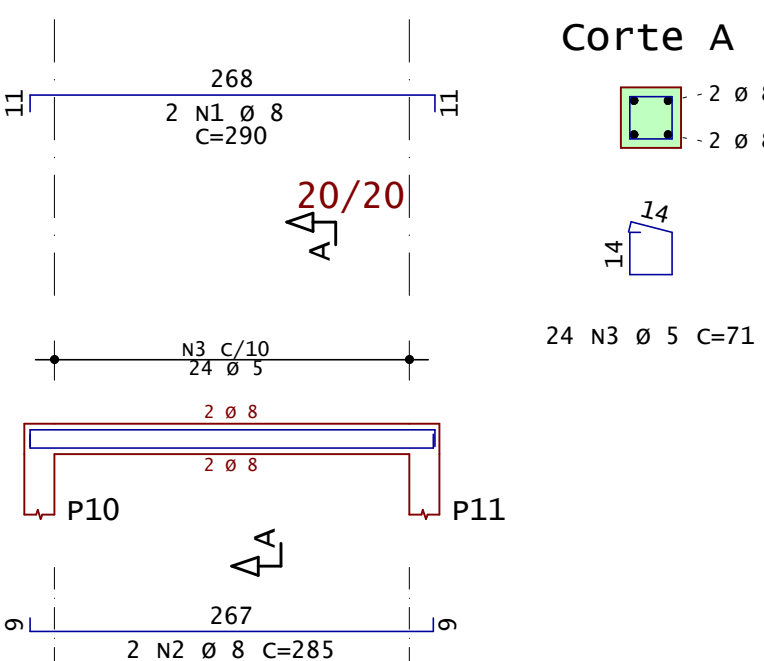
v133



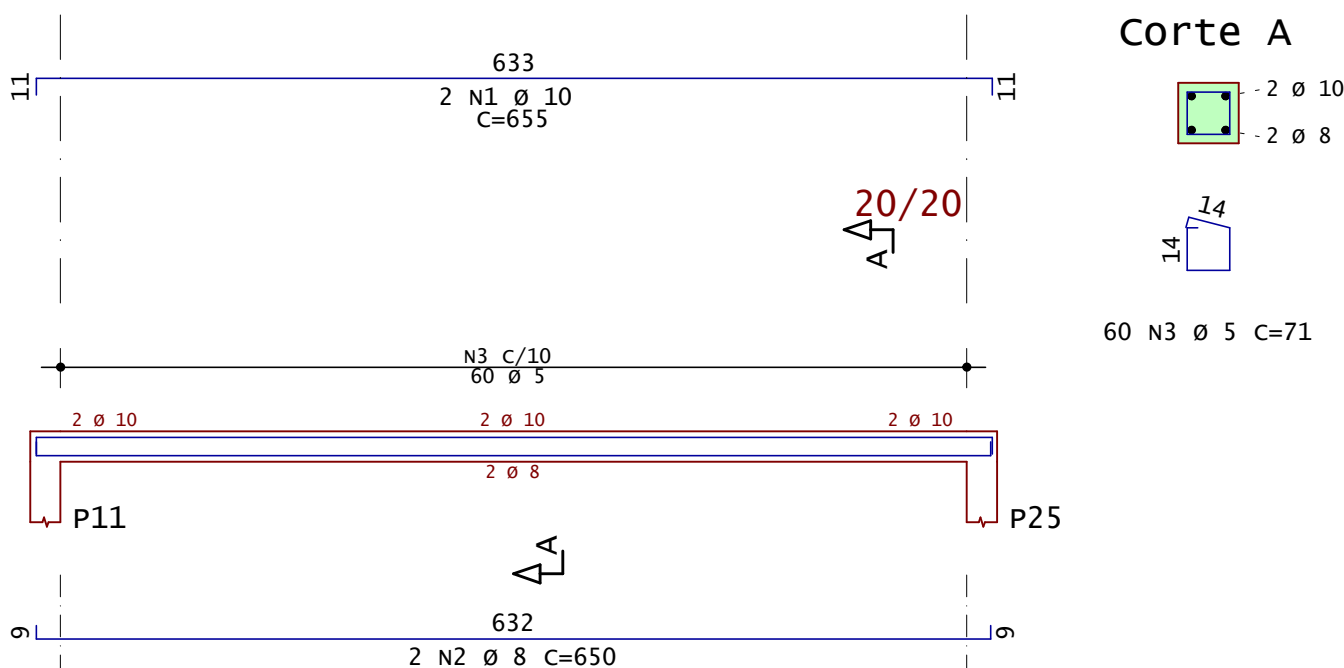
v134



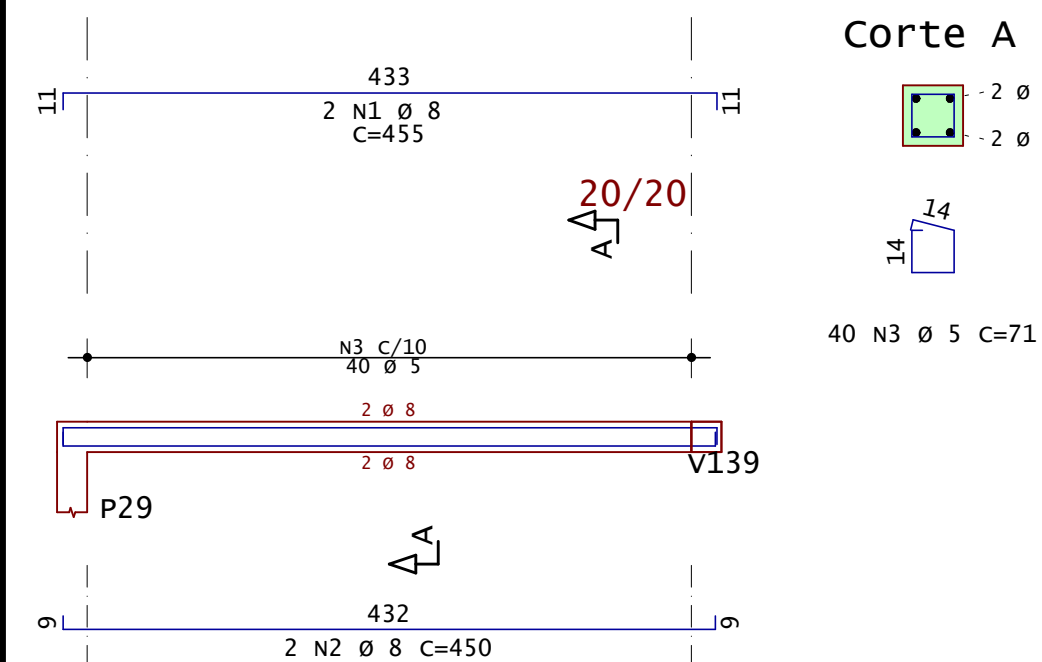
v135



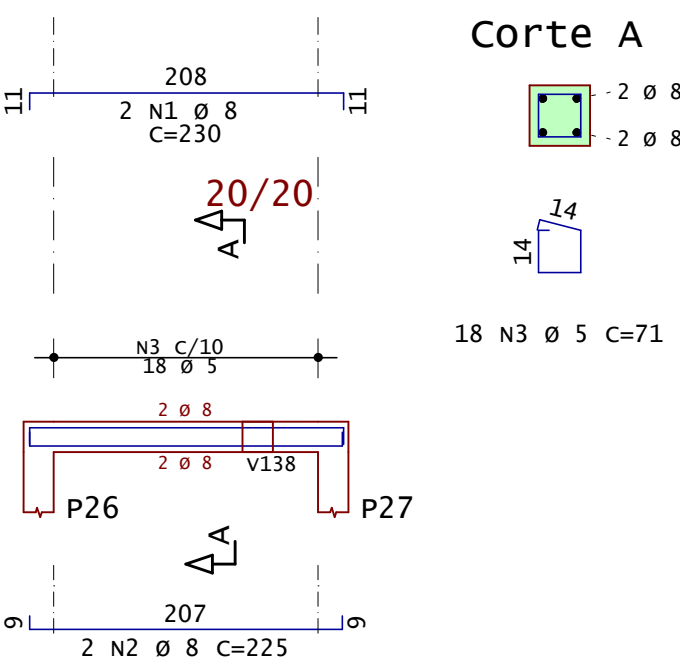
v137



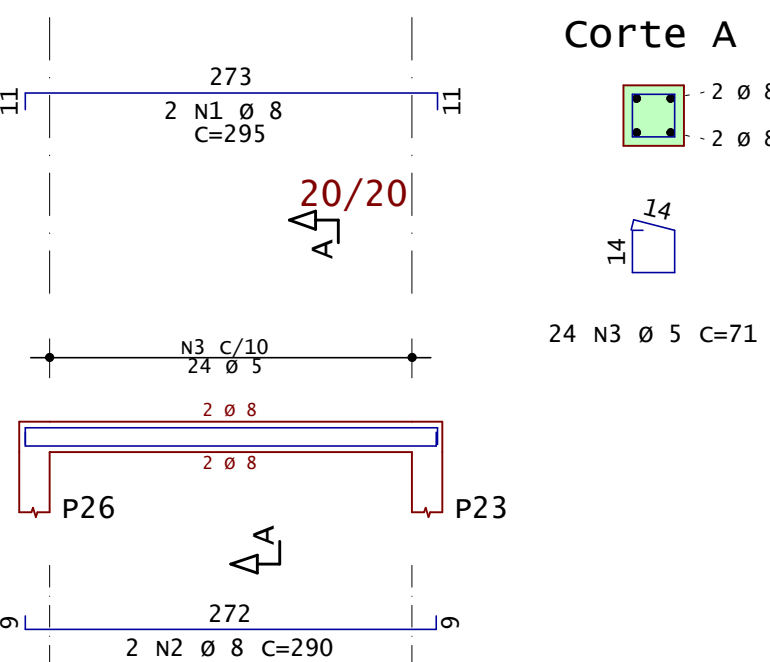
v138



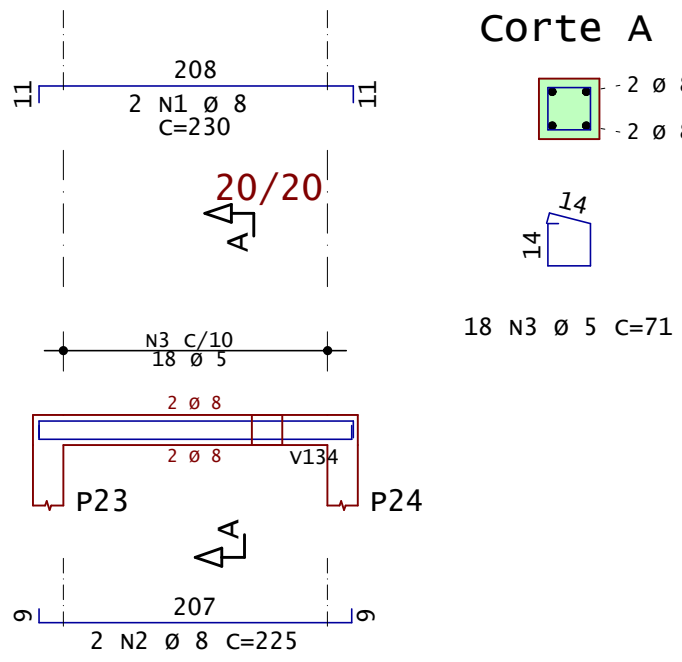
v139



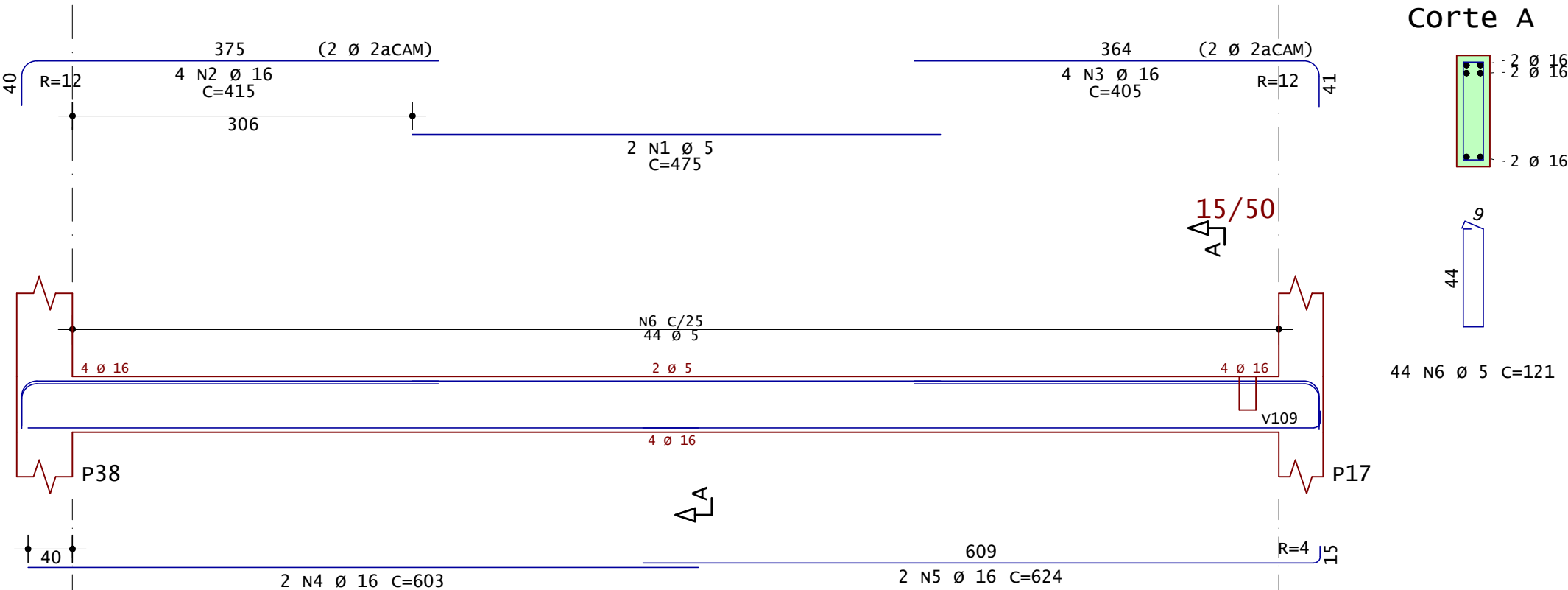
v140



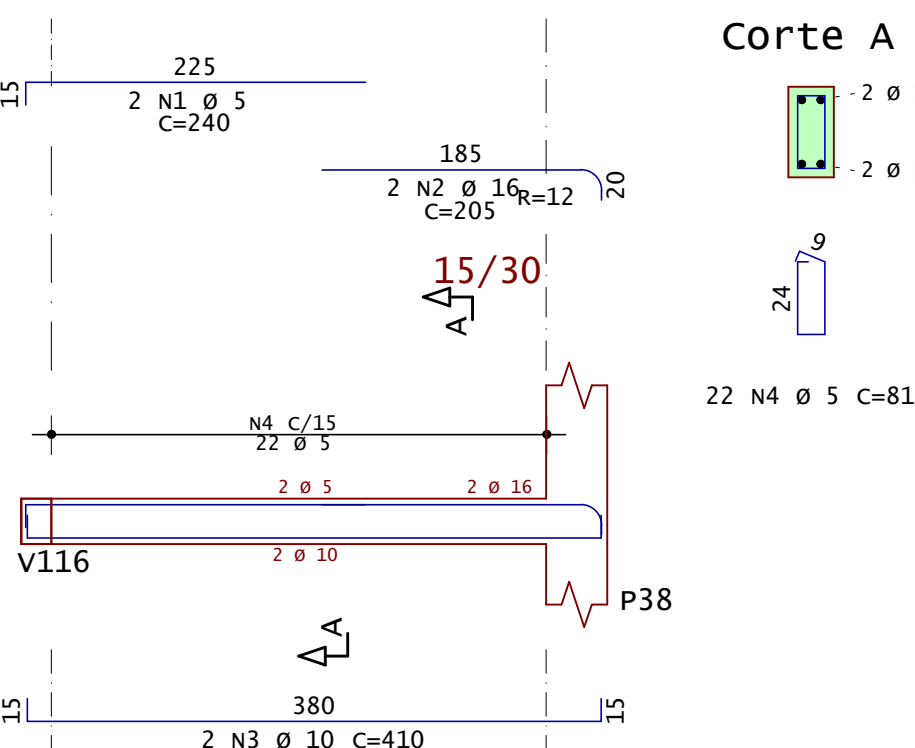
v141



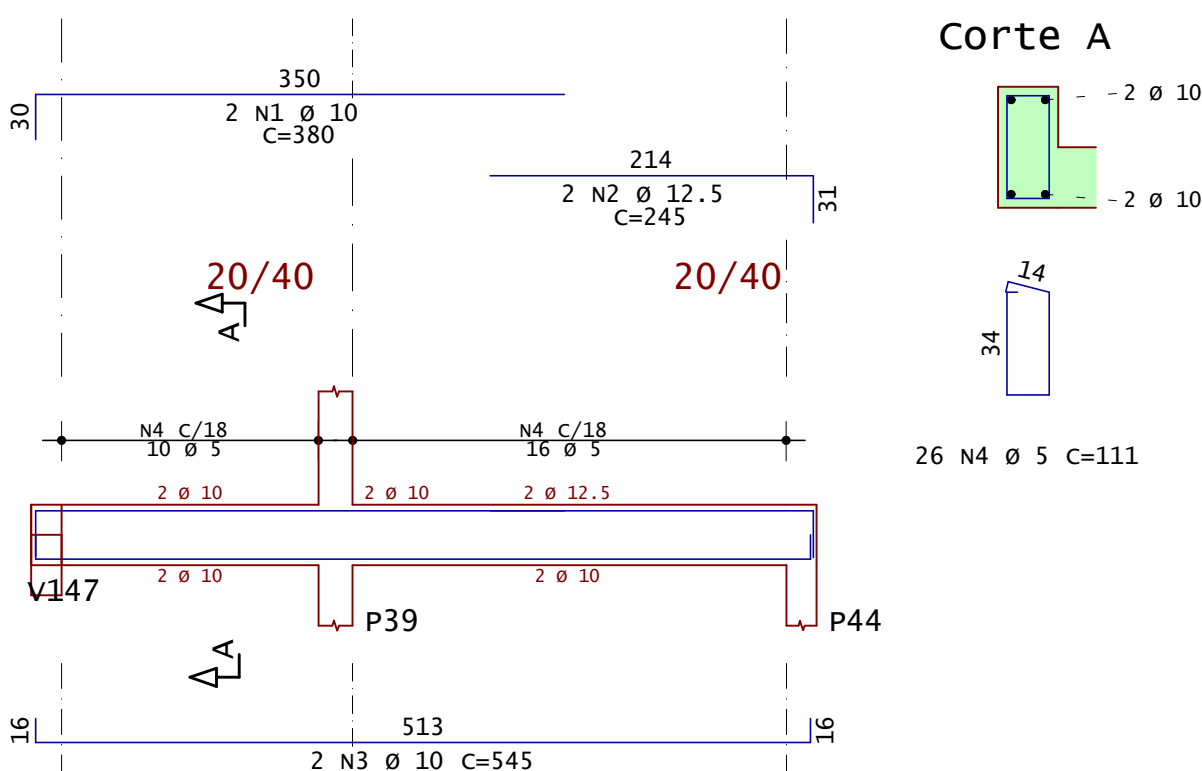
v129



v131



v132



	AÇO	POS	BIT	QUANT	COMPROMITO	
					UNIT	TOTAL
			mm		cm	cm
V128	50A	1	16	2	513	1026
	50A	2	8	2	510	1020
	60A	3	5	29	81	2349
V129	60A	1	5	2	475	950
	50A	2	16	4	415	1660
	50A	3	16	4	405	1620
	50A	4	16	2	603	1206
	50A	5	16	2	624	1248
	60A	6	5	44	121	5324
V130	50A	1	8	2	195	390
	50A	2	10	2	765	1530
	50A	3	8	2	405	810
	50A	4	8	2	240	480
	50A	5	8	2	380	760
	50A	5	8	2	370	740
	50A	7	8	2	185	370
	60A	8	5	73	81	5832
	60A	9	5	4	274	1096
V131	60A	1	5	2	240	480
	50A	2	16	2	205	410
	50A	3	10	2	410	820
	60A	4	5	22	81	1782
V132	50A	1	10	2	380	760
	50A	2	12,5	2	245	490
	50A	3	10	2	545	1090
	60A	4	5	26	111	2886
V133	50A	1	10	2	105	210
	60A	2	5	2	85	170
	60A	3	5	4	81	324
V134	50A	1	10	2	655	1310
	50A	2	8	2	650	1300
	60A	3	5	60	71	4260
V135	50A	1	8	2	290	580
	50A	2	8	2	285	570
	60A	3	5	24	71	1704
V137	50A	1	10	2	655	1310
	50A	2	8	2	650	1300
	60A	3	5	60	71	4260
V138	50A	1	8	2	455	910
	50A	2	8	2	450	900
	60A	3	5	40	71	2840
V139	50A	1	8	2	230	460
	50A	2	8	2	225	450
	60A	3	5	18	71	1278
V140	50A	1	8	2	295	590
	50A	2	8	2	290	580
	60A	3	5	24	71	1704
V141	50A	1	8	2	230	460
	50A	2	8	2	225	450
	60A	3	5	18	71	1278

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	385	59
50A	8	131	52
50A	10	70	43
50A	12,5	5	5
50A	16	72	113
Peso Total		60A =	59 kgf
Peso Total		50A =	213 kgf

Site com:

- Modelos 3D
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CLIENTE:	MAXWELL DE OLIVEIRA
----------	---------------------

DESENHO Nº:14

TÍTULO:

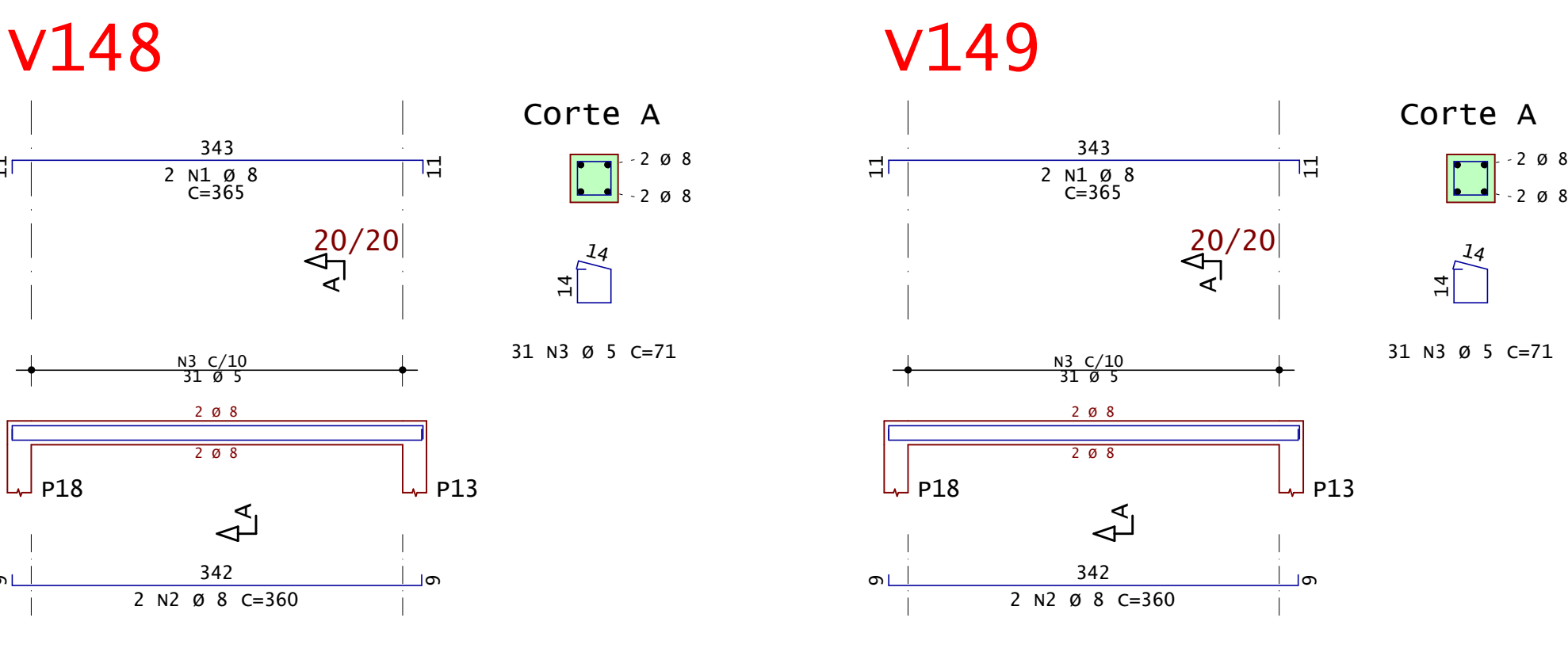
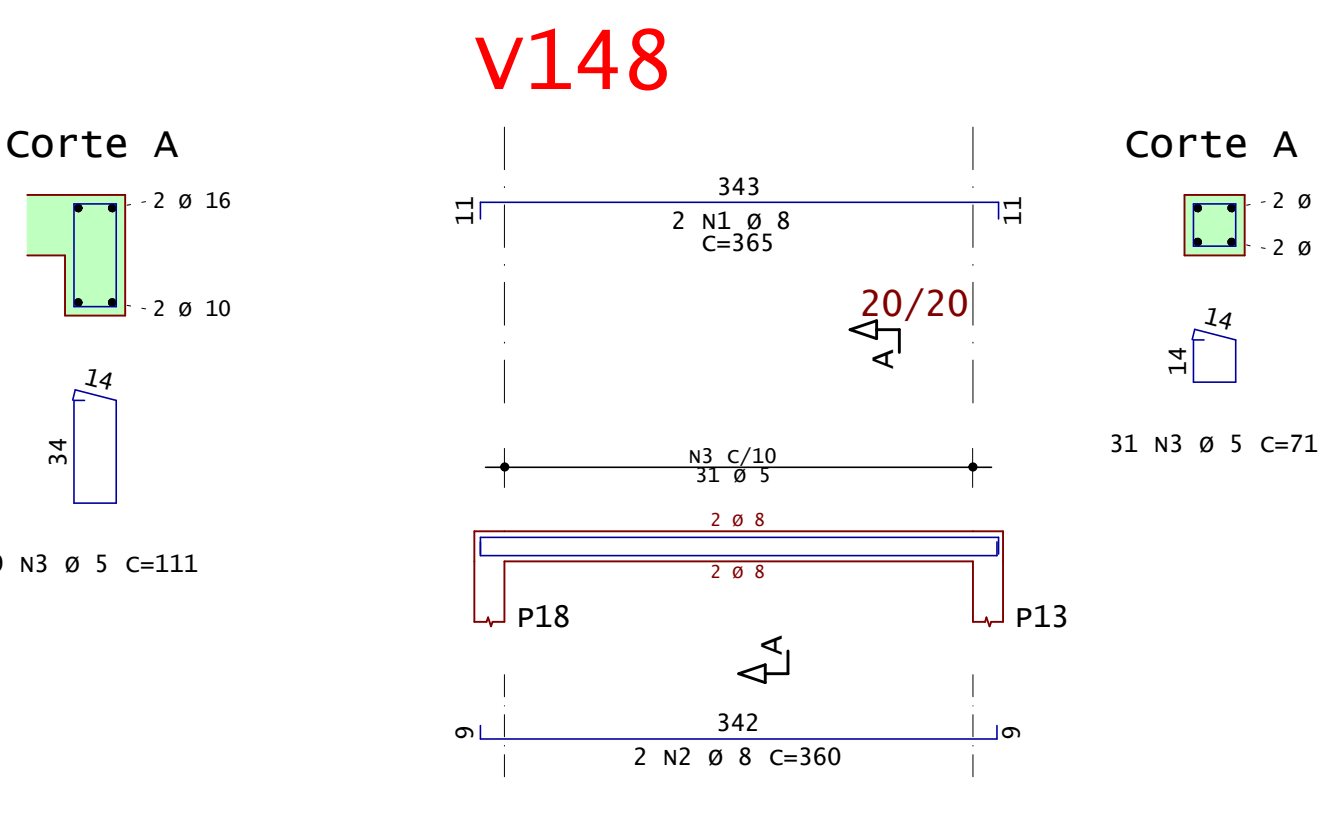
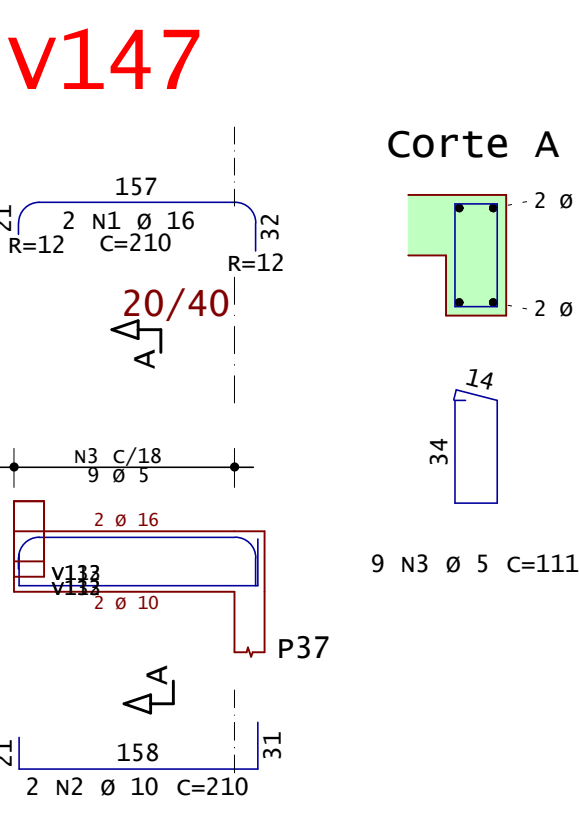
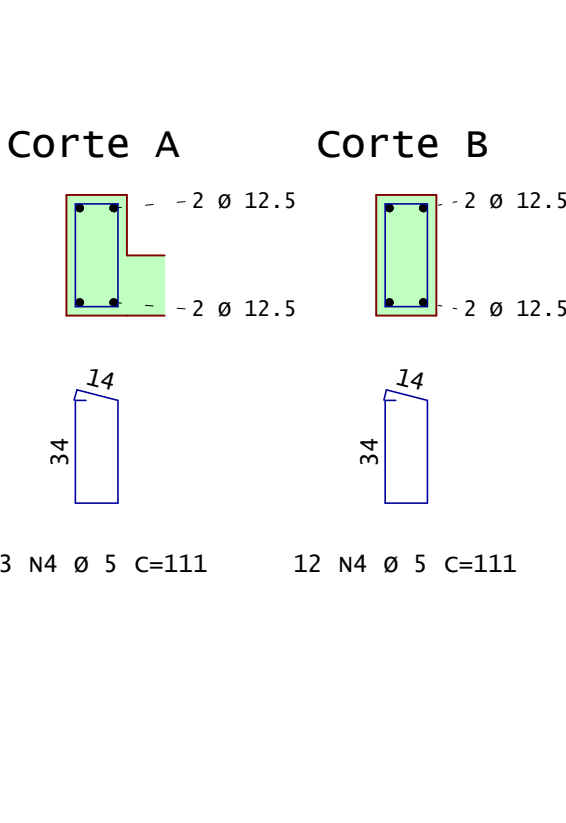
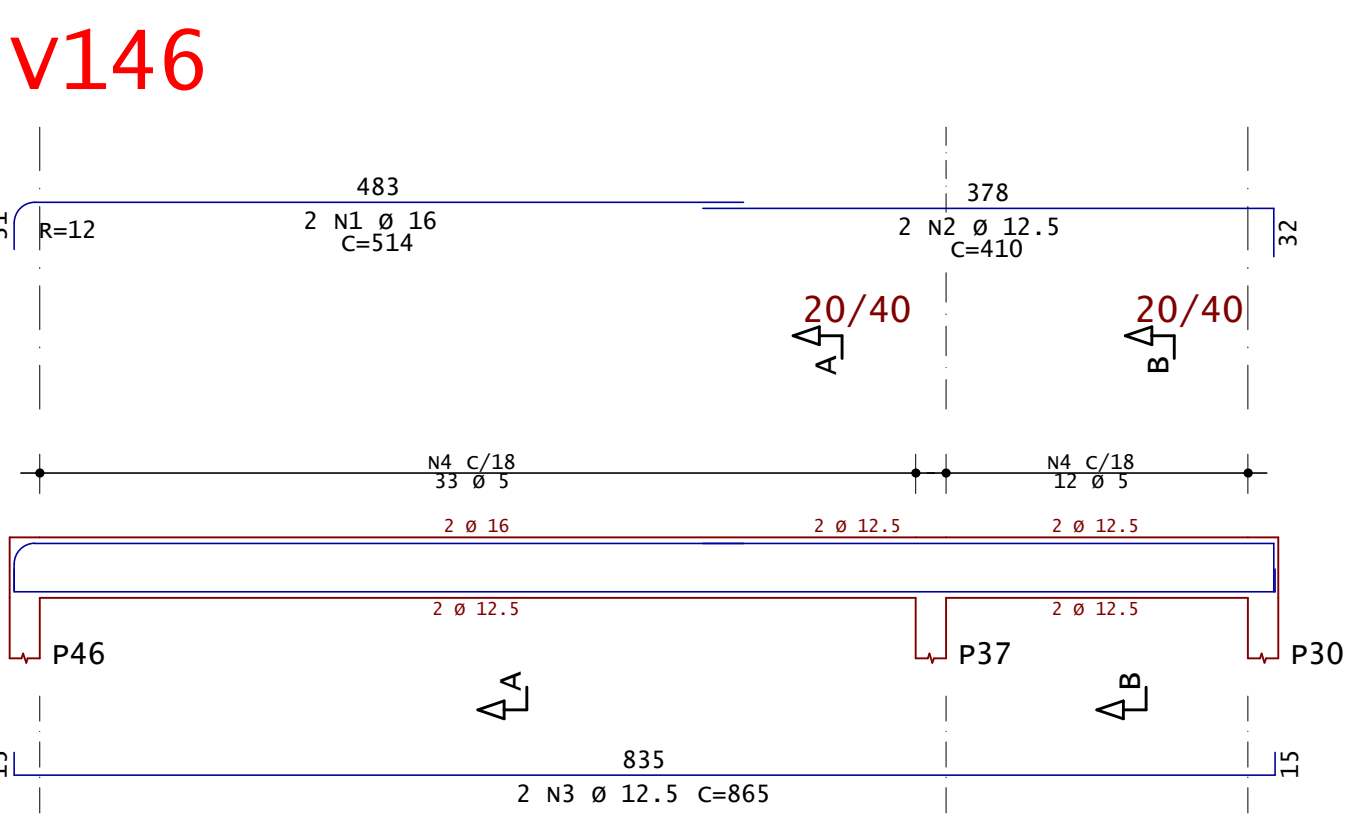
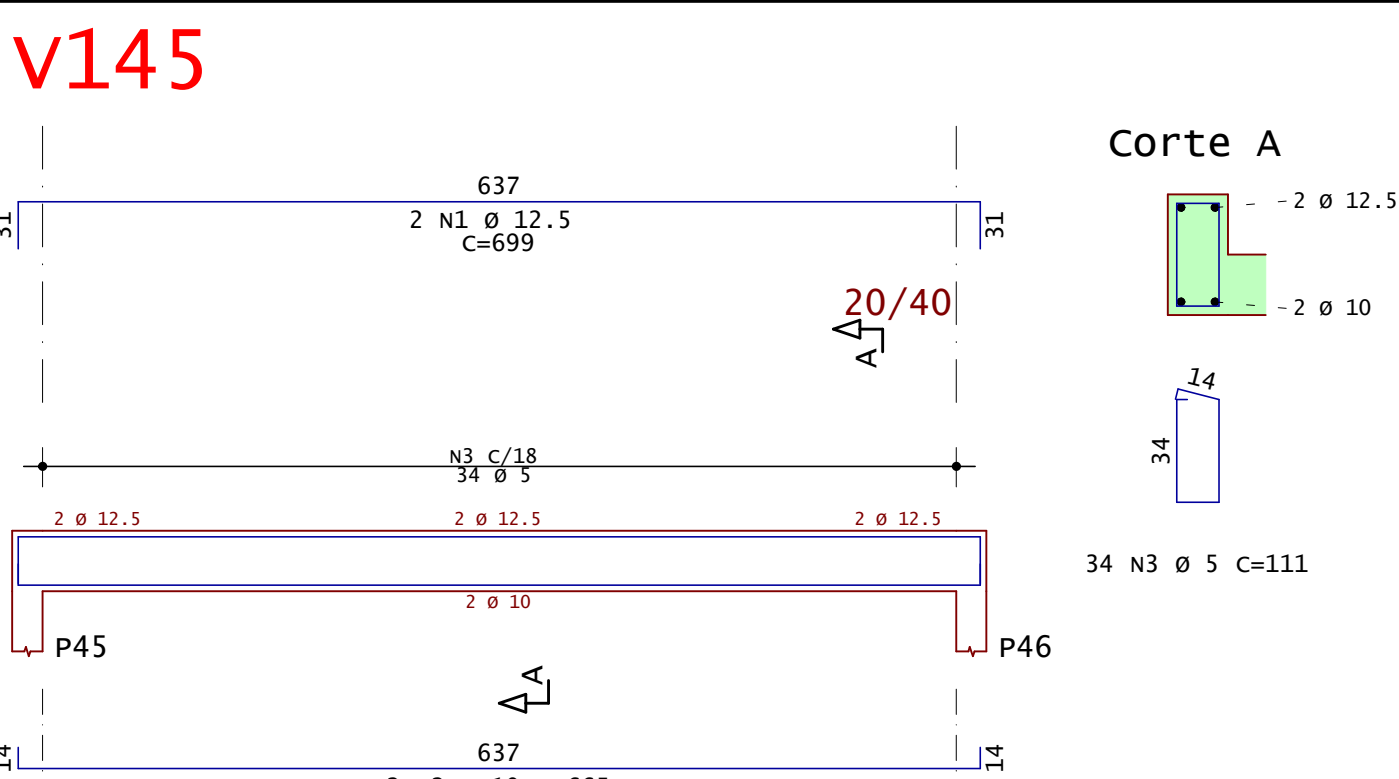
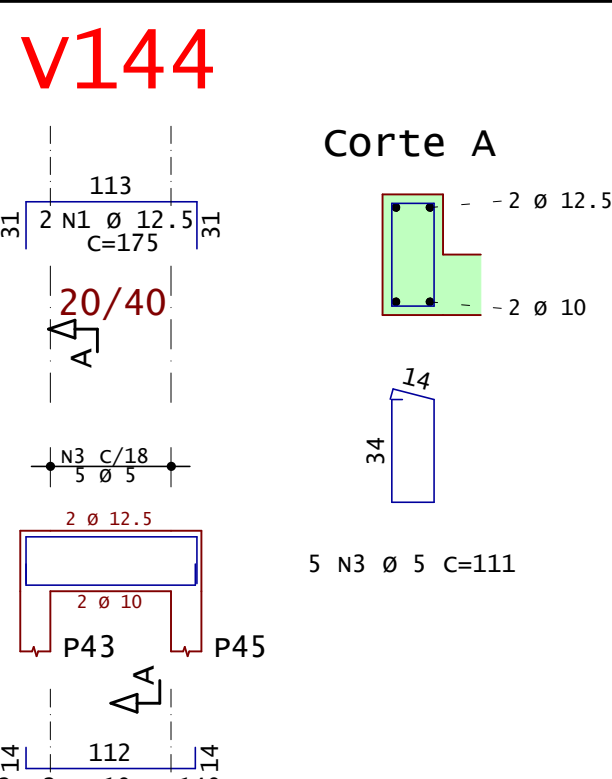
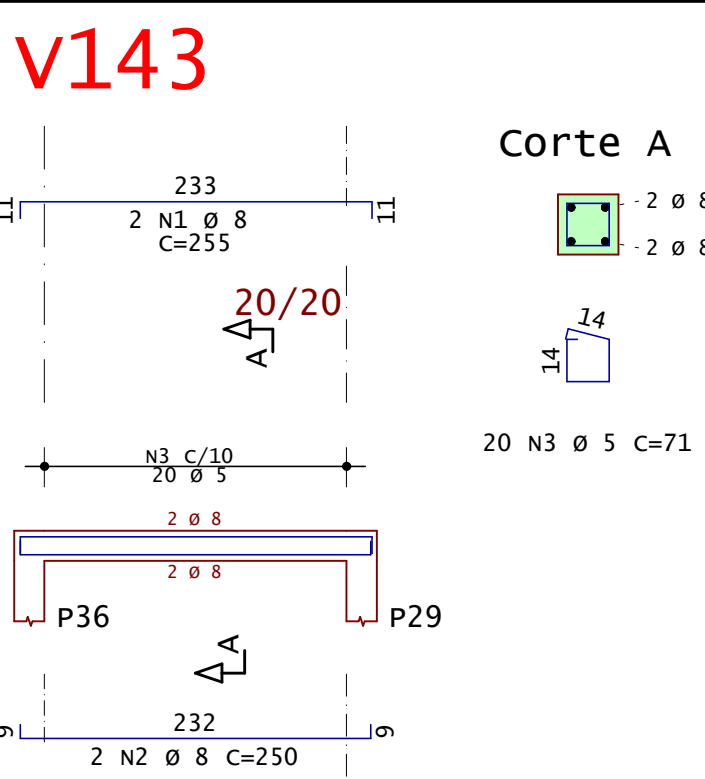
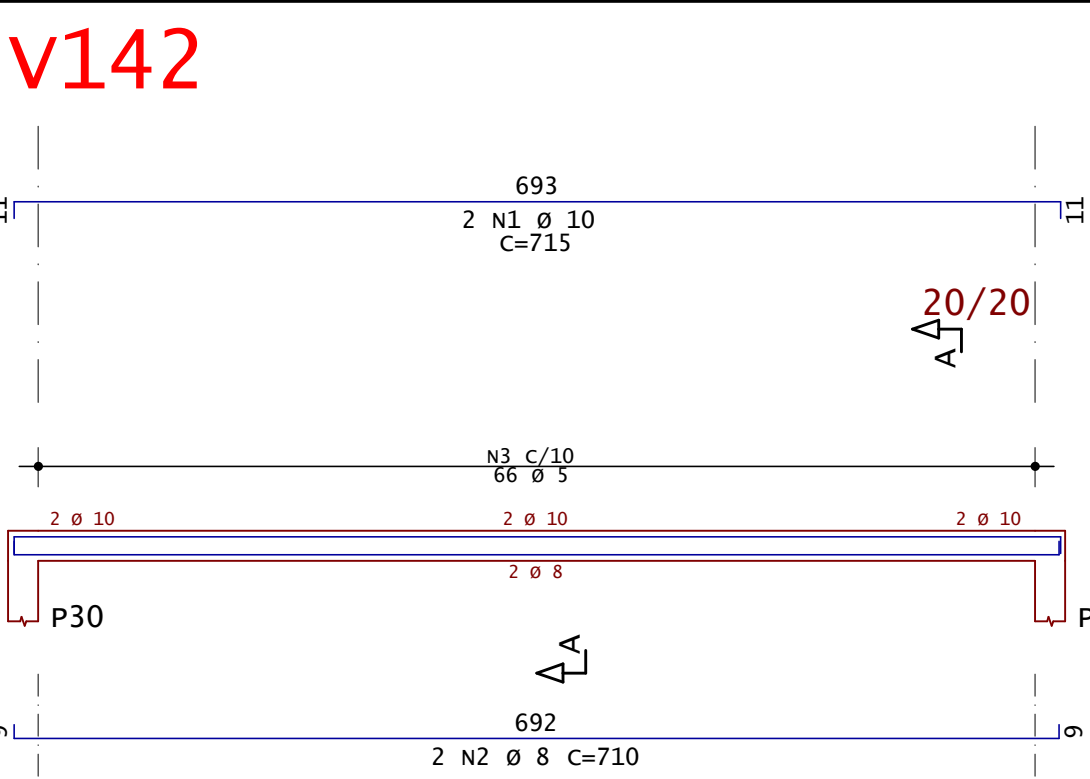
Detalhamento:
- VIGAS / BALDRAME

OBS:

Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

DATA:	02/08/2021
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ESCALA:	INDICADA
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	AÇO	POS	BIT	QUANT	COMPRIMENTO	
					UNIT	TOTAL
			mm		cm	cm
V142	50A	1	10	2	715	1430
	50A	2	8	2	710	1420
	60A	3	5	66	71	4686
V143	50A	1	8	2	255	510
	50A	2	8	2	250	500
	60A	3	5	20	71	1420
V144	50A	1	12.5	2	175	350
	50A	2	10	2	140	280
	60A	3	5	5	111	555
V145	50A	1	12.5	2	699	1398
	50A	2	10	2	665	1330
	60A	3	5	34	111	3774
V146	50A	1	16	2	514	1028
	50A	2	12.5	2	410	820
	50A	3	12.5	2	865	1730
	60A	4	5	45	111	4995
V147	50A	1	16	2	210	420
	50A	2	10	2	210	420
	60A	3	5	9	111	999
V148	50A	1	8	2	365	730
	50A	2	8	2	360	720
	60A	3	5	31	71	2201
V149	50A	1	8	2	365	730
	50A	2	8	2	360	720
	60A	3	5	31	71	2201

AÇO	RESUMO DE AÇO		PESO
	BIT	COMPR	
	mm	m	kgf
60A	5	208	32
50A	8	53	21
50A	10	35	21
50A	12.5	43	41
50A	16	14	23
Peso Total	60A	=	32 kgf
Peso Total	50A	=	107 kgf

Site com:
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do projeto



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CLIENTE: MAXWELL DE OLIVEIRA

OBRA: RESIDÊNCIA UNIFAMILIAR

TÍTULO: Detalhamento:
- VIGAS / BALDRAME

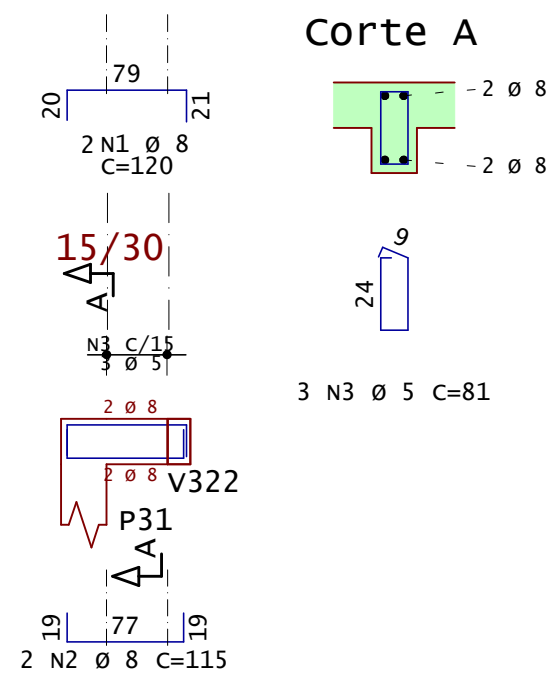
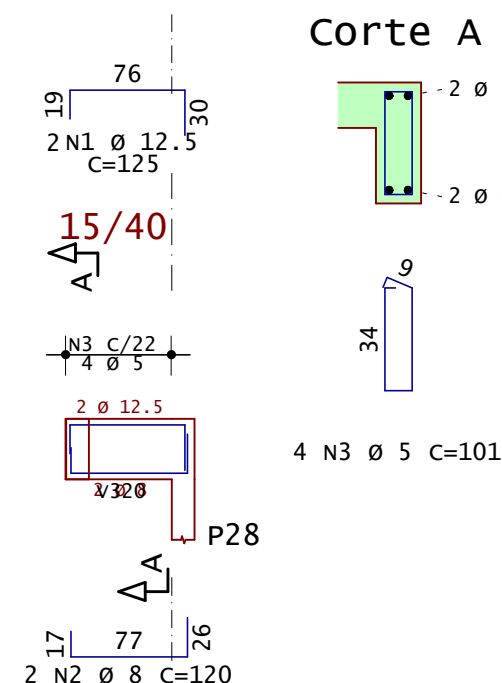
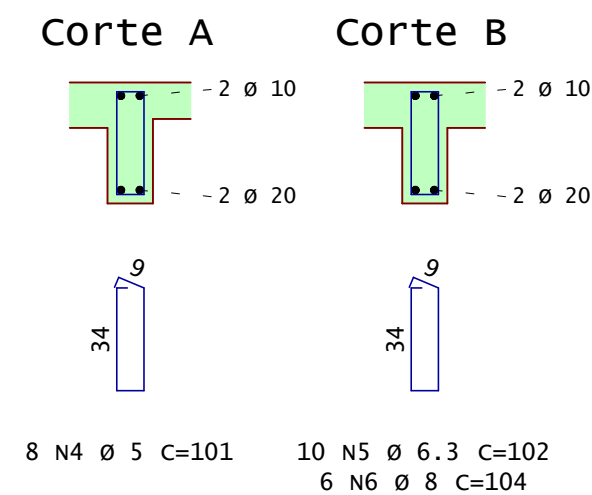
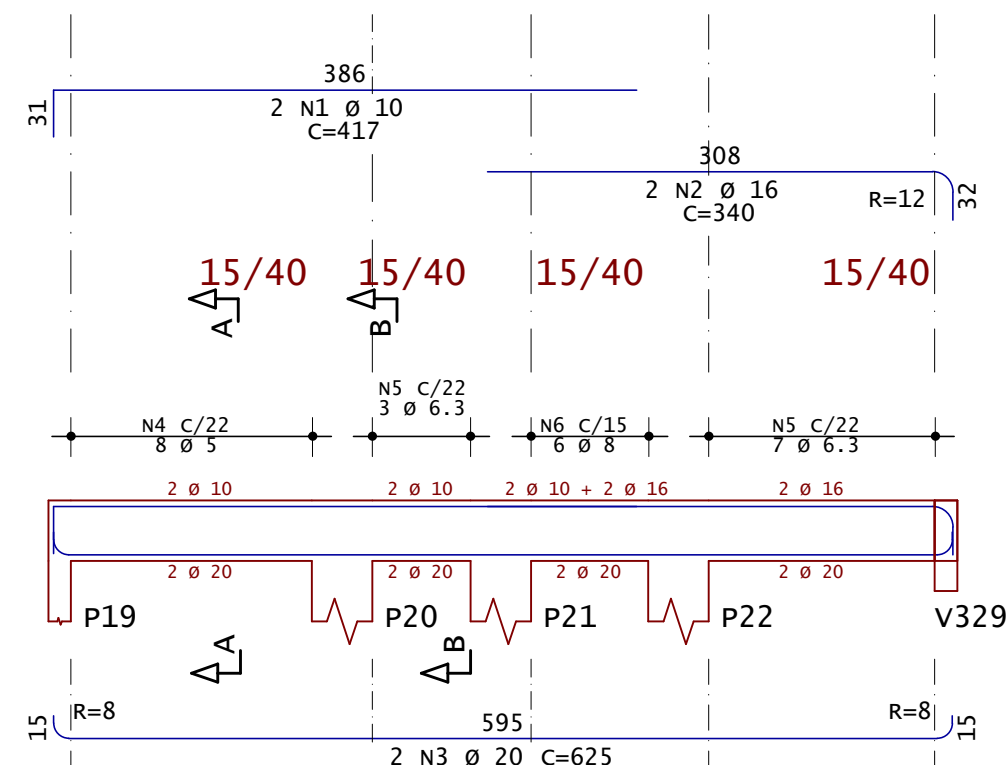
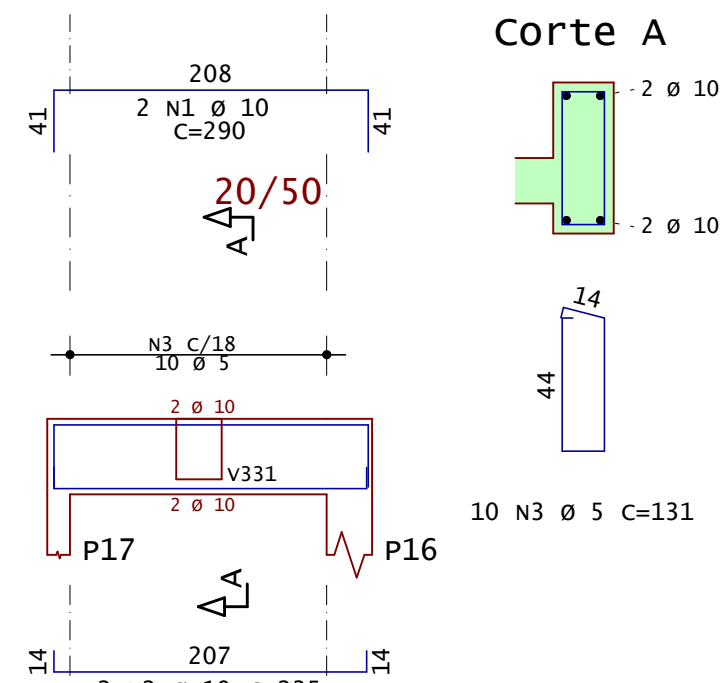
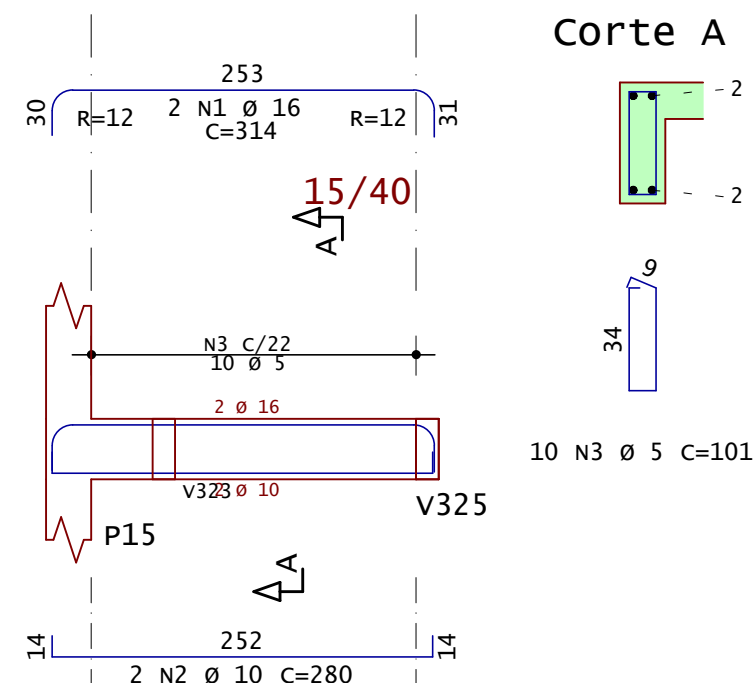
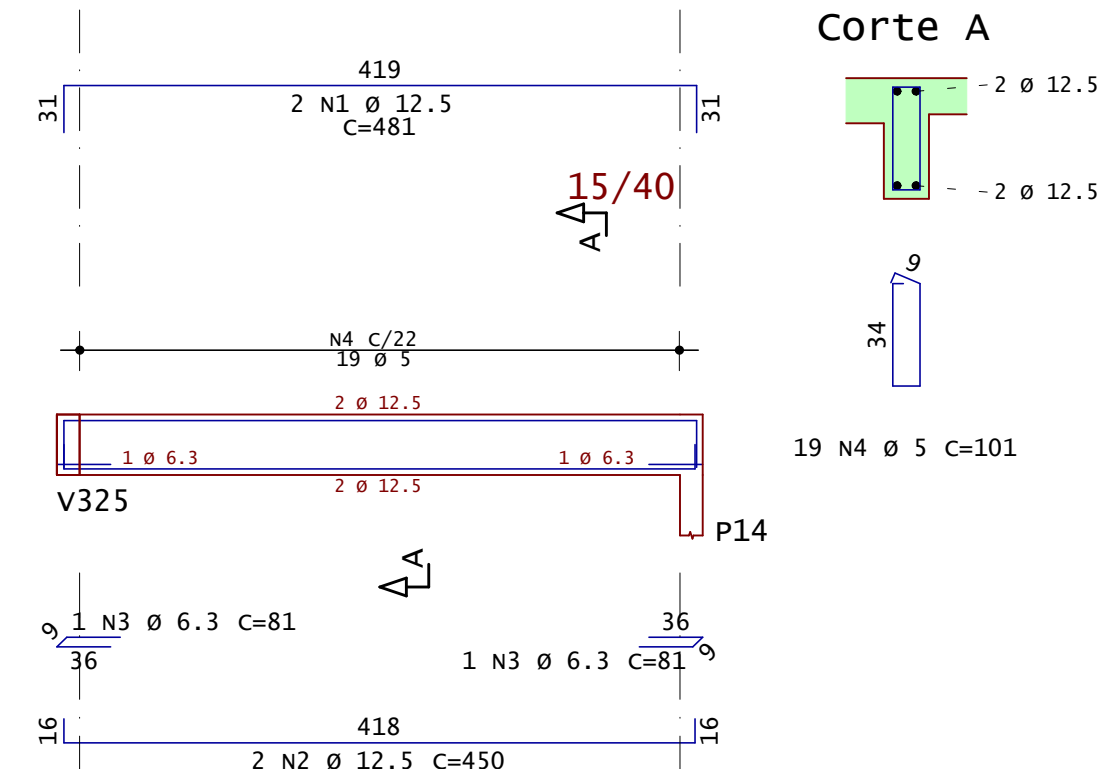
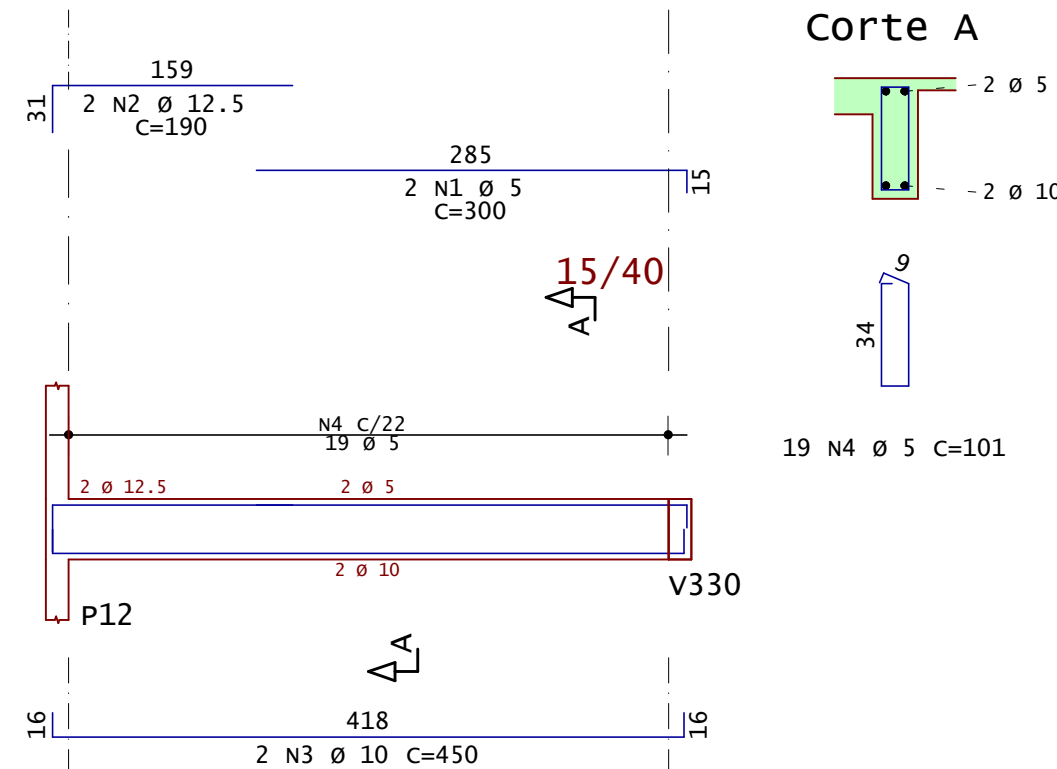
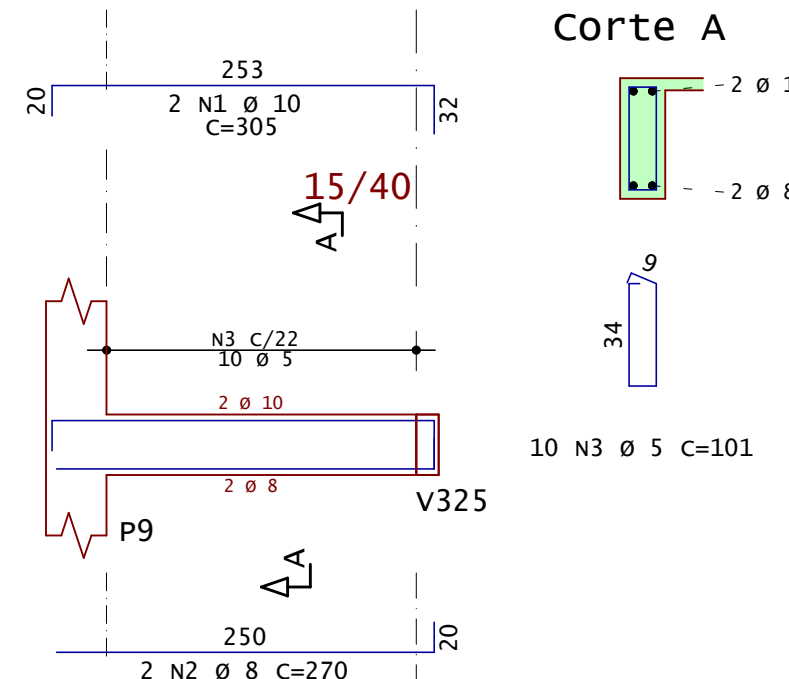
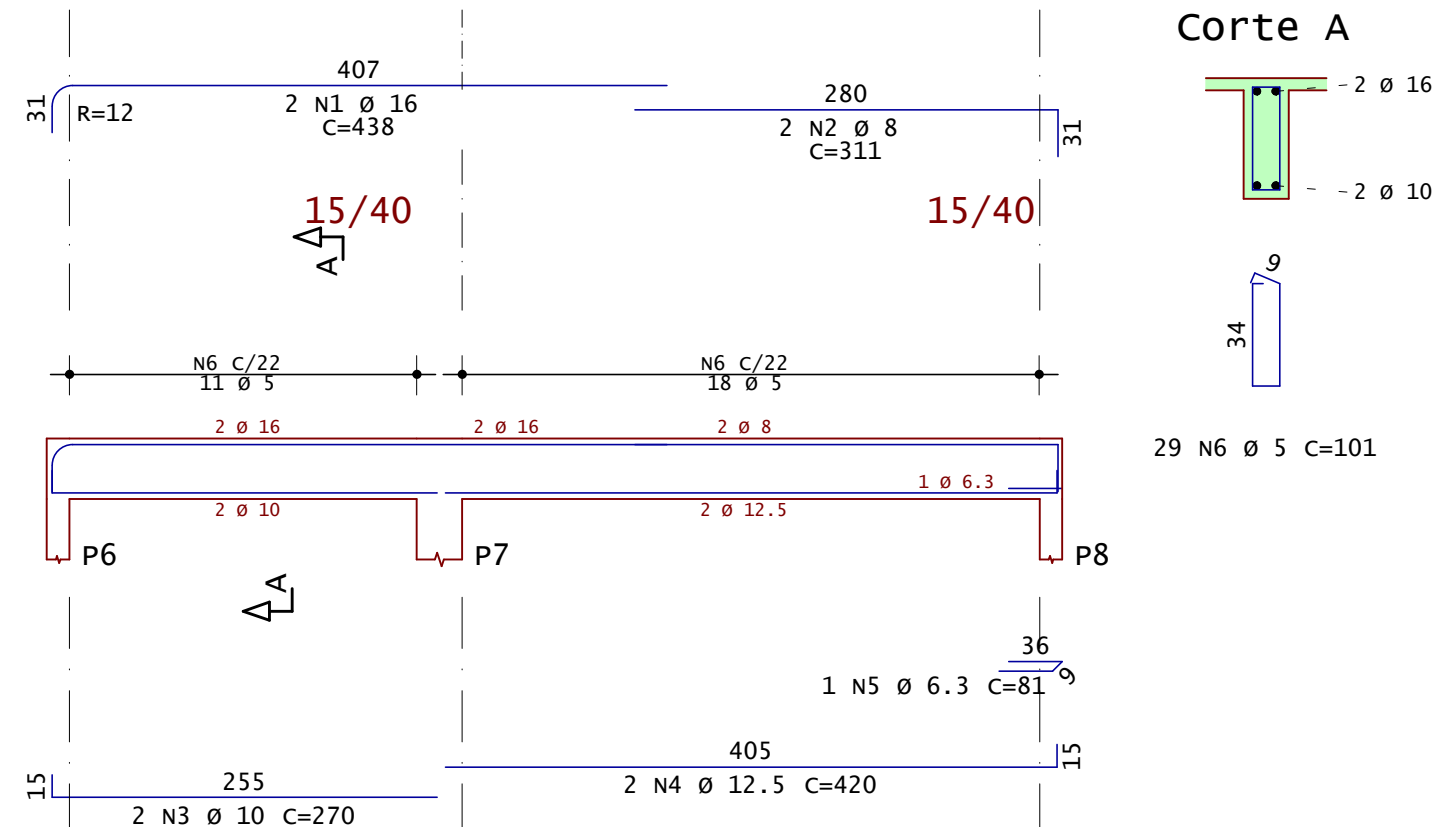
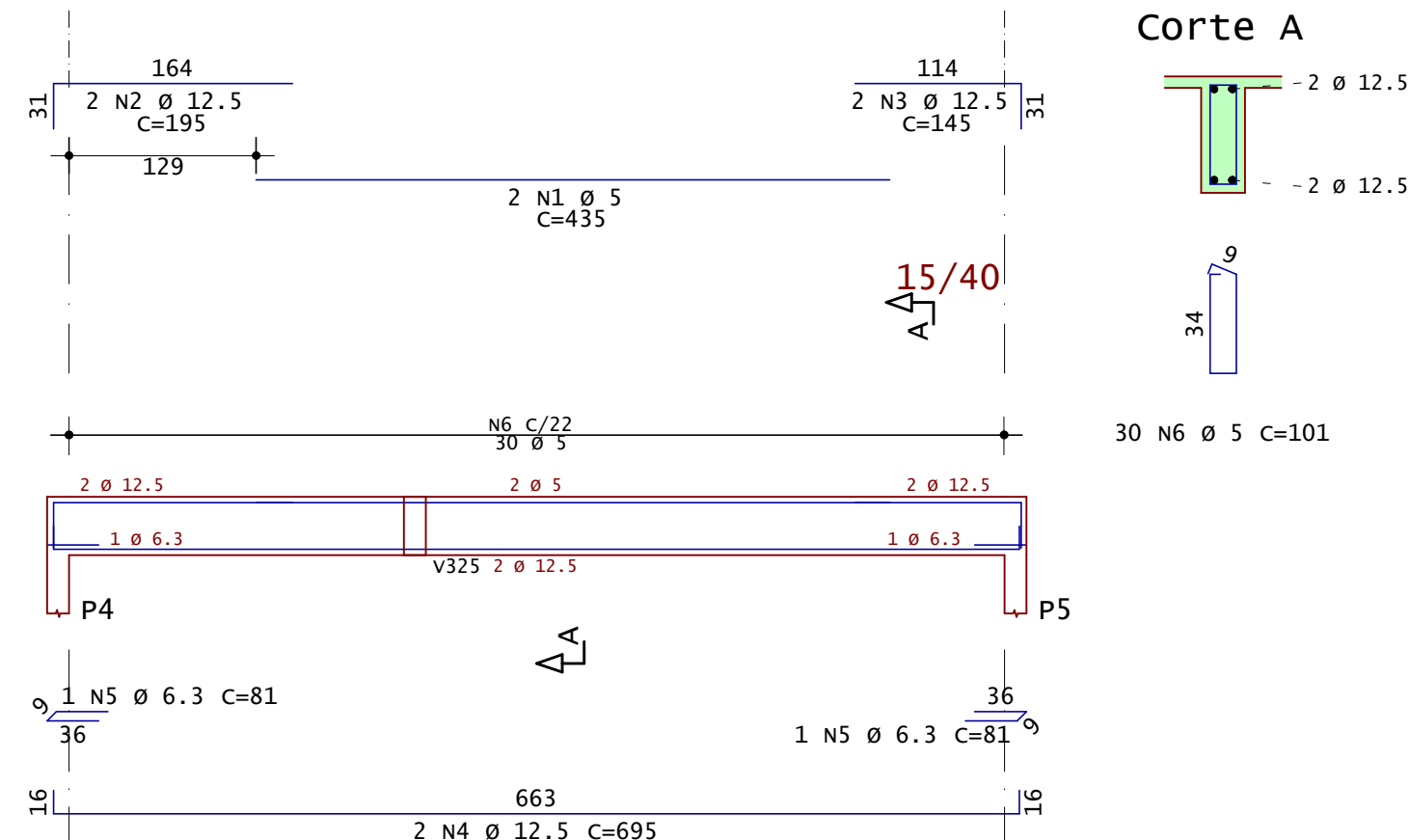
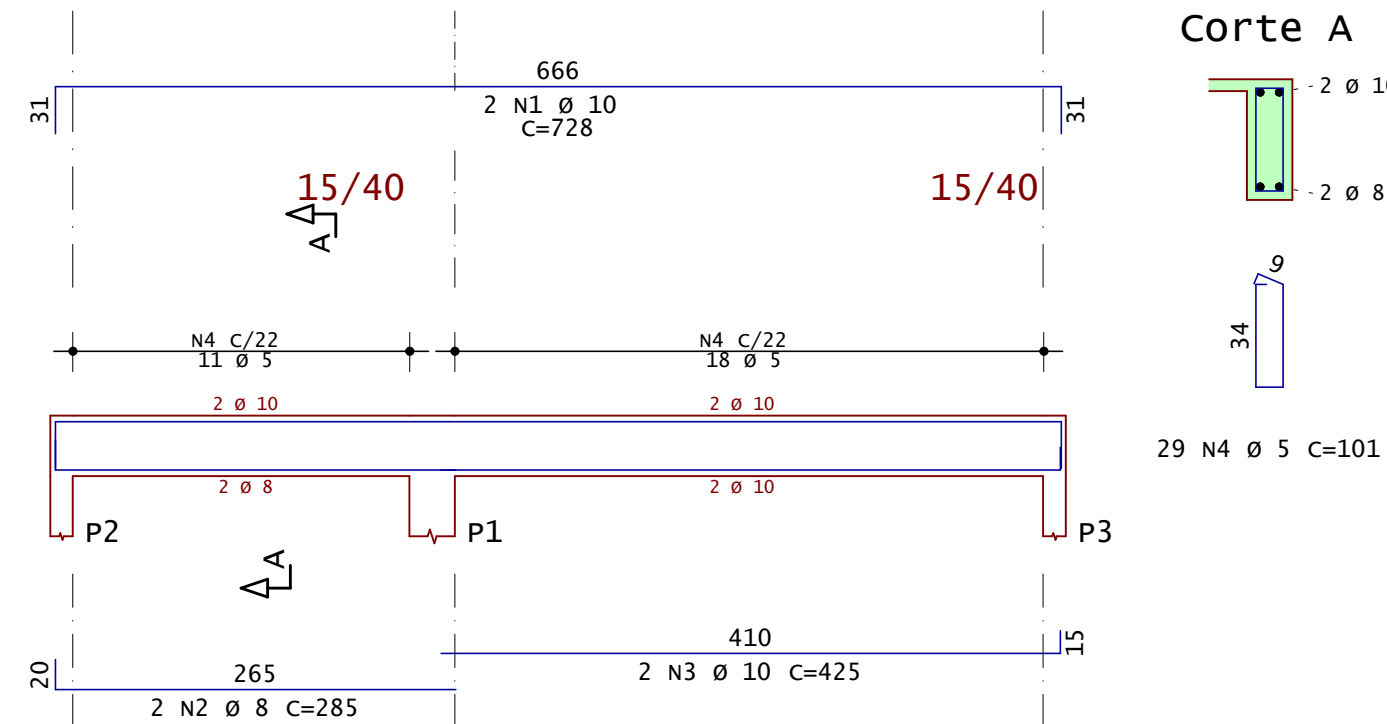
DESENHO Nº:15

OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

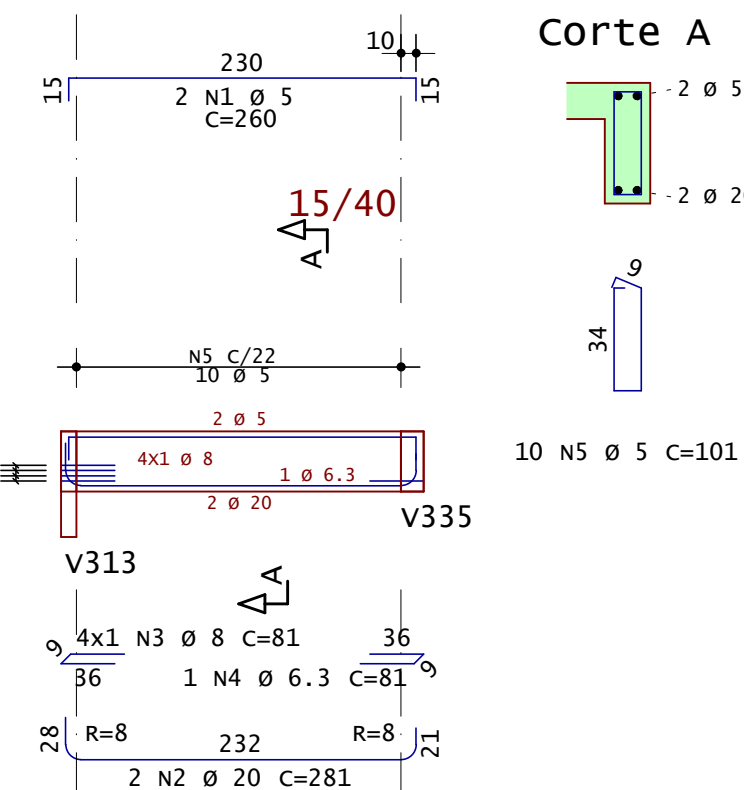
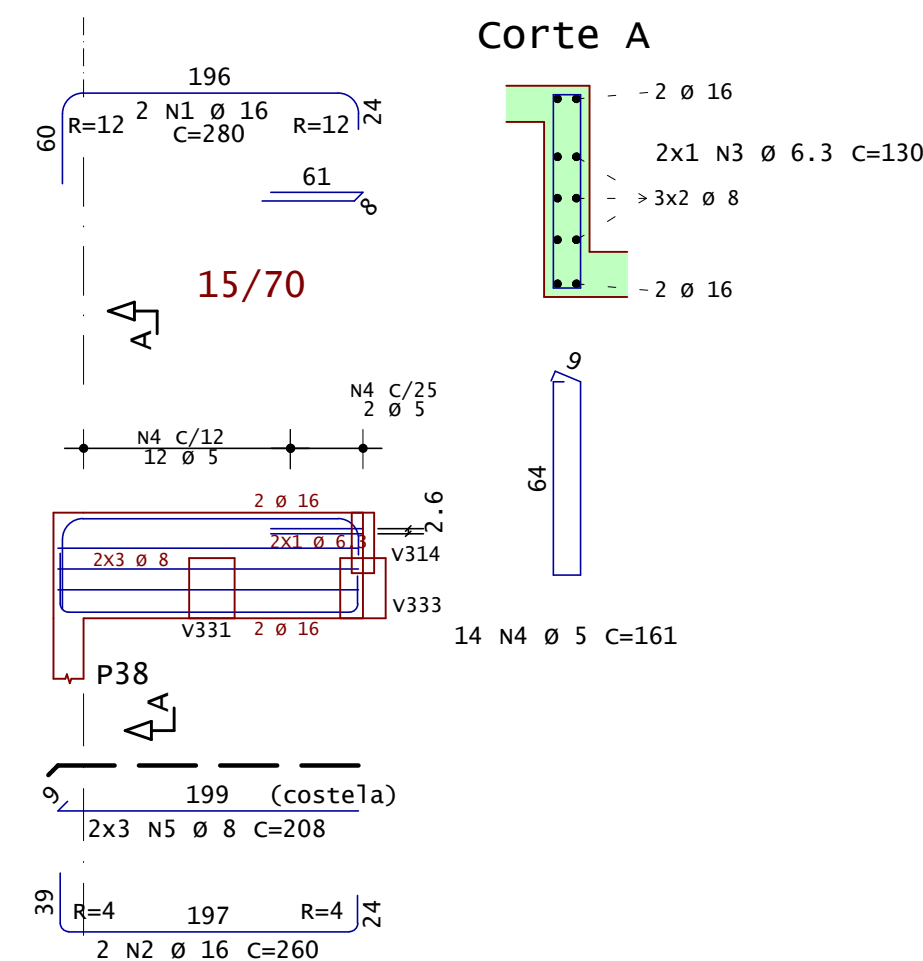
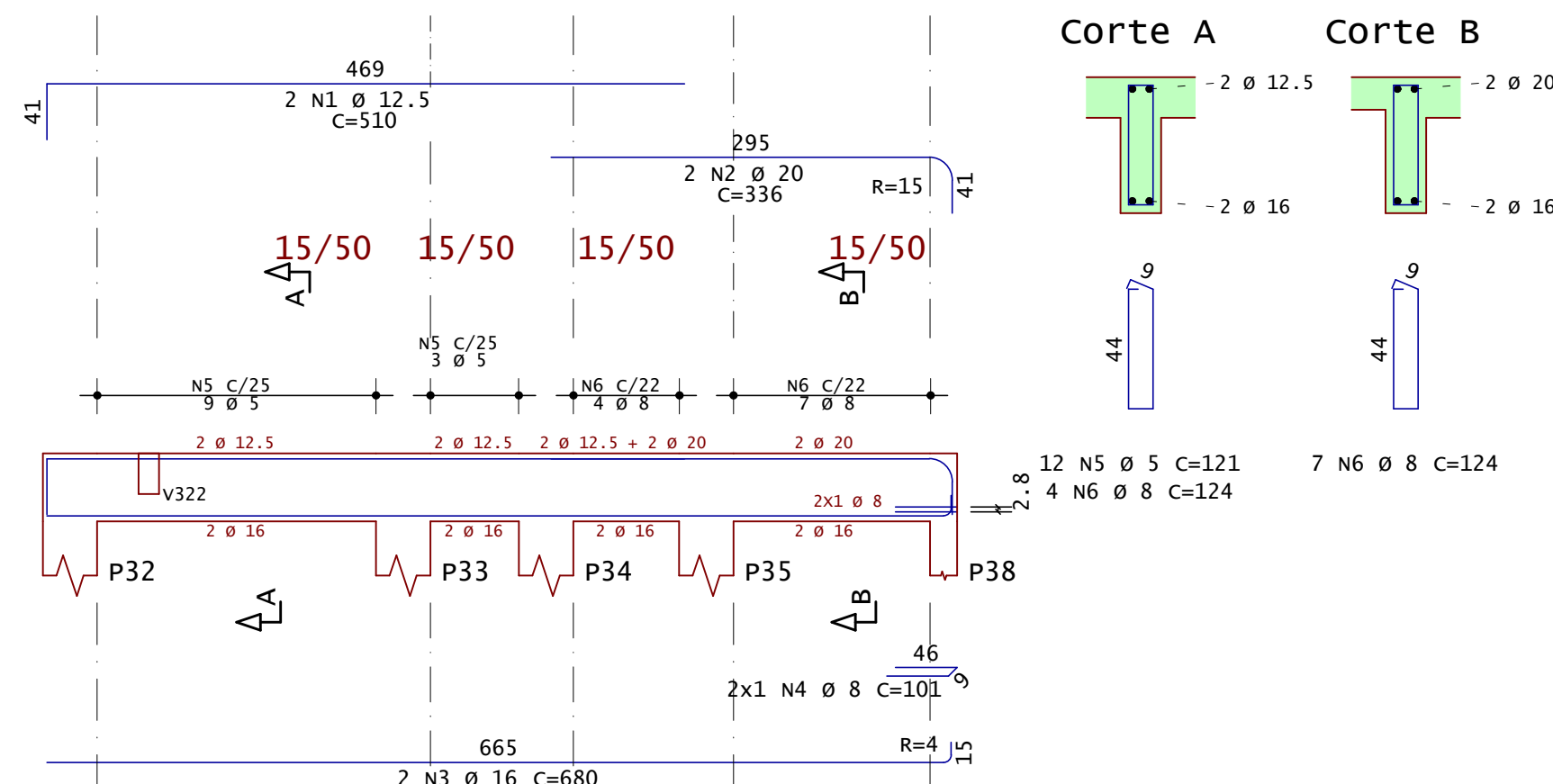
DATA: 02/08/2021

ESCALA: INDICADA

ANDRÉ RODRIGUES DE VASCONCELOS PL CAS-BAL-VIG-009-000-PLT 31/07/2021 09:37:35



RESUMO		DE AÇO	
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	242	37
50A	6,3	18	4
50A	8	62	25
50A	10	68	42
50A	12,5	64	62
50A	16	46	73
50A	20	25	61
Peso Total		60A =	37 kgf
Peso Total		50A =	267 kgf



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CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº:16
OBRA:	RESIDÊNCIA UNIFAMILIAR	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
TÍTULO:	Detalhamento: - VIGAS / COBERTURA	
DATA:	02/08/2021	ESCALA: INDICADA

Technical drawing of a mechanical part, likely a shaft or pipe, showing dimensions and material specifications.

Top View (Cross-section):

- Outer diameter: 174
- Inner diameter: 2 N2 Ø 12.5
- Material: C=205
- Length: 31

Side View (Elevation):

- Outer diameter: 475
- Inner diameter: 2 N1 Ø 5
- Material: C=490
- Section line: A-A
- Dimension: 15/40

Bottom View (Cross-section):

- Outer diameter: 16
- Inner diameter: 2 N3 Ø 16
- Material: C=655
- Length: 623
- Section line: A-A
- Dimension: 16/40

[illegible]

The drawing shows a rectangular area representing a roof plan. Key features include:

- Top Boundary:** A blue dashed line at the top.
- Bottom Boundary:** A blue solid line at the bottom.
- Left Boundary:** A vertical dashed line on the left, labeled "31" at the top and "14" at the bottom.
- Right Boundary:** A vertical dashed line on the right, labeled "1086" at the top and "1087" at the bottom.
- Internal Dimensions:**
 - A horizontal dimension of "2 N1 Ø 12.5 C=1132" is shown near the top right corner.
 - A horizontal dimension of "2 Ø 12.5" is shown in the center, spanning most of the width.
 - A horizontal dimension of "2 Ø 12.5" is shown below the central one, also spanning most of the width.
- Structural Elements:**
 - A red zigzag line labeled "P42" is located on the left side, connected to the lower boundary.
 - A black dot labeled "N3 Ø 22" is positioned on the upper part of the central horizontal line.
 - A small rectangle labeled "V317" is located on the right side, between the two main horizontal dimensions.
- Annotations:**
 - A red annotation " $\Delta_{\text{A}}^{15/40}$ " is located in the upper right quadrant.
 - A black annotation " Δ_{A} " is located in the lower center.

Technical drawing of a 15/40 V310 profile. The drawing shows the profile's dimensions and material specifications. The top view indicates a width of 282 mm and a height of 31 mm. The side view shows a height of 14 mm and a width of 282 mm. The material is specified as 2 N1 Ø 12.5 C=344 and 2 Ø 10. The profile is labeled 15/40 V310. The drawing also shows the profile's cross-section with dimensions 15/40 and 12 Ø 5. The material is specified as N3 C/22 12 Ø 5. The profile is labeled 2 Ø 10. The drawing also shows the profile's cross-section with dimensions 2 Ø 10 and 2 Ø 12.5. The material is specified as P31 and V310. The drawing also shows the profile's cross-section with dimensions 2 N2 Ø 10 C=310.

Technical drawing of a mechanical part, likely a shaft or tube, showing dimensions and tolerances. The drawing includes a top view and a side view.

Top View Dimensions:

- Overall length: 458
- Section 1: $N1 \text{ } \varnothing 16 \text{ } C=500$
- Section 2: $N4 \text{ } C/15 \text{ } 28 \text{ } \varnothing 5$
- Section 3: $N3 \text{ } \varnothing 6.3 \text{ } C=81$
- Section 4: $N2 \text{ } \varnothing 16 \text{ } C=485$

Side View Dimensions:

- Overall length: 455
- Section 1: $N4 \text{ } C/15 \text{ } 28 \text{ } \varnothing 5$
- Section 2: $V3112 \text{ } \varnothing 16$
- Section 3: $V311 \text{ } \varnothing 16$
- Section 4: $N3 \text{ } \varnothing 6.3 \text{ } C=81$
- Section 5: $N2 \text{ } \varnothing 16 \text{ } C=485$

Other Labels:

- $R=12$ (top left and right)
- $R=4$ (bottom left and right)
- $P28$ (bottom right)
- A and $A1$ (section lines)
- $15/30$ (top right)

Technical drawing of a mechanical part, likely a shaft or tube, showing various dimensions and specifications.

Top View (Left):

- Overall length: 154
- Section A-A: 4 N2 Ø 10 C=195
- Distance from section A-A to centerline: 118
- Section A-A: 4 N1 Ø 5 C=815

Side View (Right):

- Overall length: 1070
- Section A-A: 4 N5 C/18 Ø 5
- Section A-A: 4 Ø 10
- Section A-A: 4 Ø 5
- Section A-A: 4 Ø 12.5
- Section A-A: 2 Ø 6.3
- Section A-A: 2 Ø 6.3
- Section A-A: 2 N4 Ø 6.3 C=90

Section A-A:

- Material: P33
- Dimensions: 4 Ø 10, 4 Ø 5, 4 Ø 12.5, 2 Ø 6.3

	AÇO	POS	BIT	QUANT	COMPRIMENTO	
			mm		UNIT cm	TOTAL cm
V315	60A	1	5	2	490	980
	50A	2	12.5	2	205	410
	50A	3	16	2	655	1310
	50A	4	6.3	1	85	85
	60A	5	5	27	101	2727
V316	50A	1	12.5	2	1132	2264
	50A	2	12.5	2	1115	2230
	60A	3	5	48	101	4848
V317	50A	1	16	2	740	1480
	50A	2	10	2	305	610
	50A	3	10	2	485	970
	60A	4	5	30	101	3030
V318	50A	1	12.5	2	592	1184
	50A	2	10	2	560	1120
	60A	3	5	23	101	2323
V319	50A	1	8	2	229	458
	50A	2	10	2	195	390
	60A	3	5	7	101	707
V320	50A	1	12.5	2	344	688
	50A	2	10	2	310	620
	60A	3	5	12	101	1212
V321	50A	1	8	2	415	830
	50A	2	12.5	2	373	746
	50A	3	8	2	530	1060
	50A	4	8	2	370	740
	60A	5	8	2	185	370
V322	50A	5	5	46	101	4646
	50A	1	16	2	500	1000
	50A	2	16	2	485	970
	50A	3	6.3	1	81	81
	60A	4	5	28	81	2268
V323	60A	1	5	2	310	620
	50A	2	10	2	200	400
	50A	3	12.5	2	420	840
	50A	4	12.5	2	645	1290
	60A	5	10	2	190	380
V324	50A	6	5	34	101	3434
	60A	1	5	4	815	3260
	50A	2	10	8	195	1560
	50A	3	12.5	4	1100	4400
	50A	4	6.3	4	90	360
	50A	5	5	118	149	17560

RESUMO DE AÇO			
AÇO	BIT mm	COMPR m	PESO kgf
60A	5	476	73
50A	6.3	5	1
50A	8	35	14
50A	10	61	37
50A	12.5	149	143
50A	16	48	75
Peso Total	60A =		73 kgf
Peso Total	50A =		270 kaf

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CLIENTE: MAXWELL DE OLIVEIRA

DESENHO Nº:17

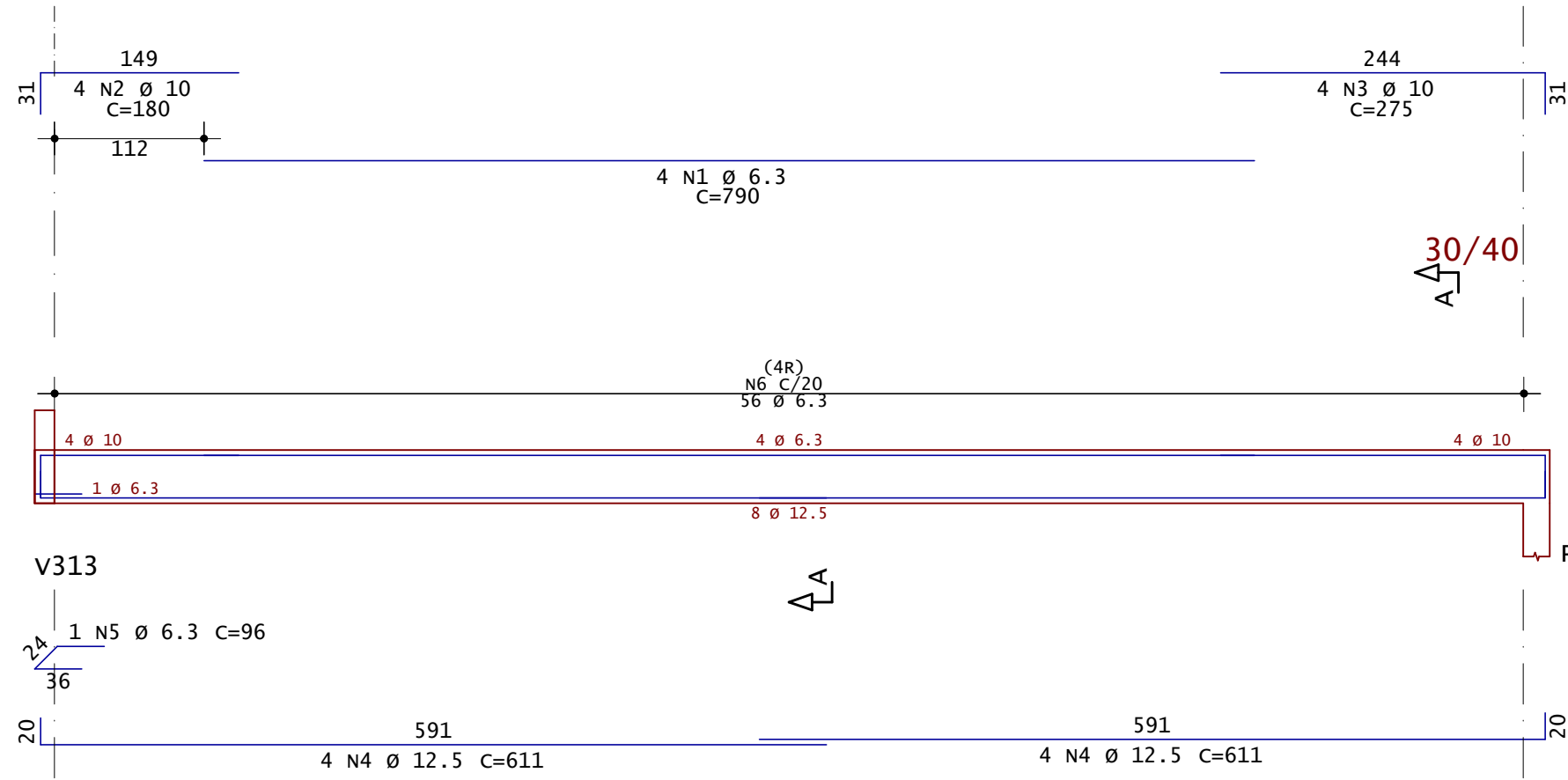
OBRA:	RESIDÊNCIA UNIFAMILIAR
-------	------------------------

OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

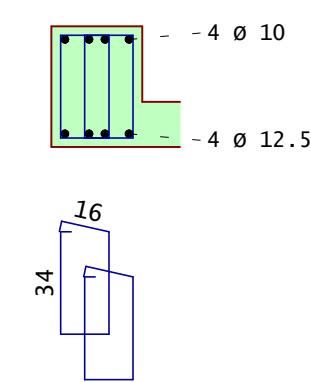
DATA:	02/08/2021
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ESCALA:	INDICADA
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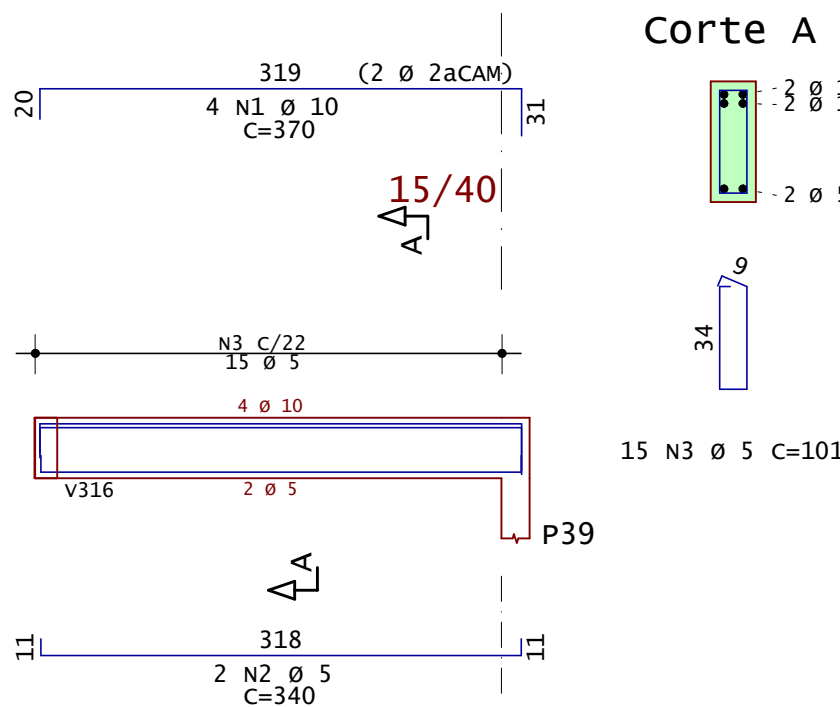
V333



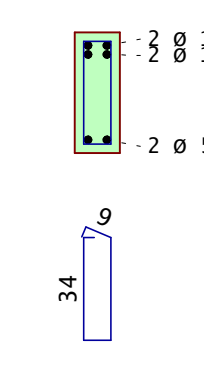
Corte A



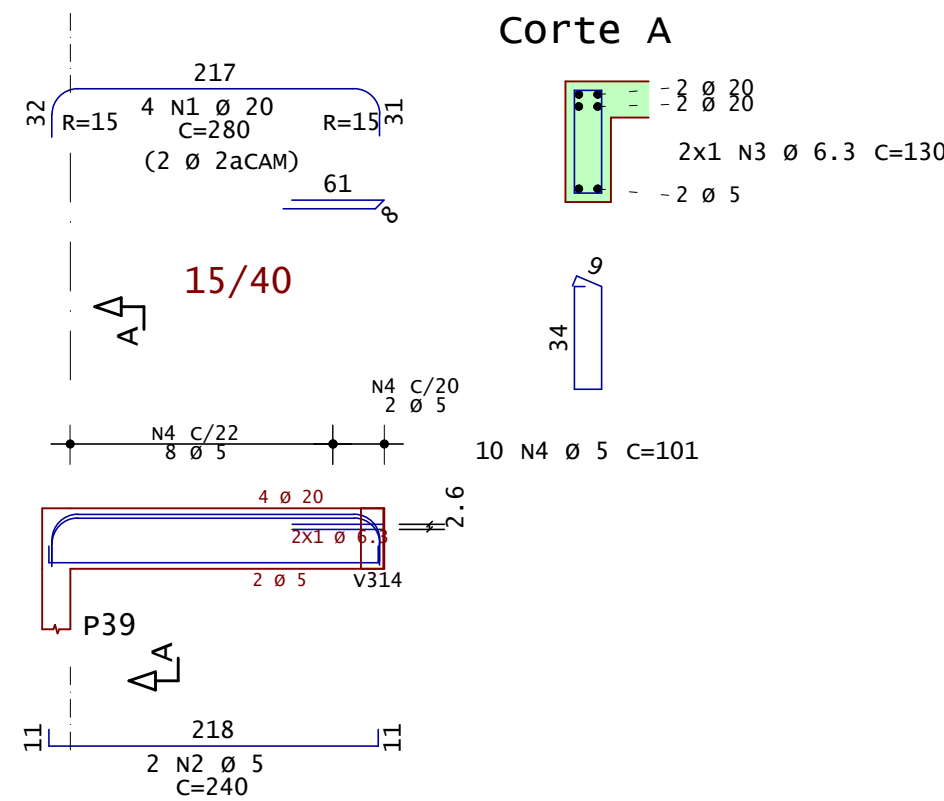
V334



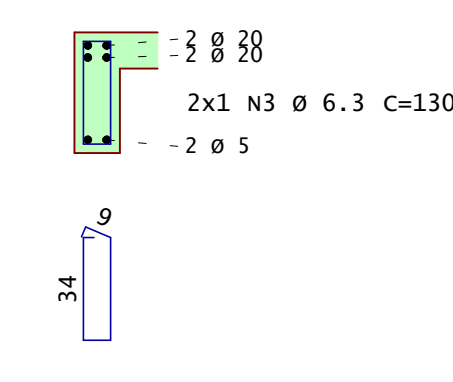
Corte A



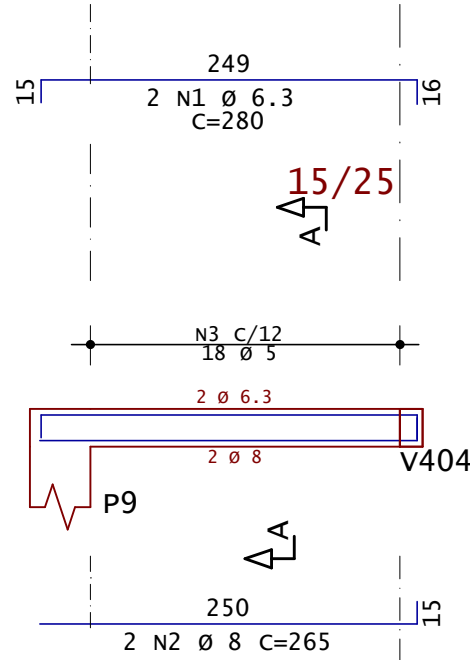
V335



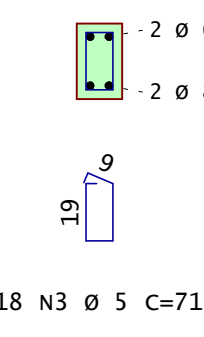
Corte A



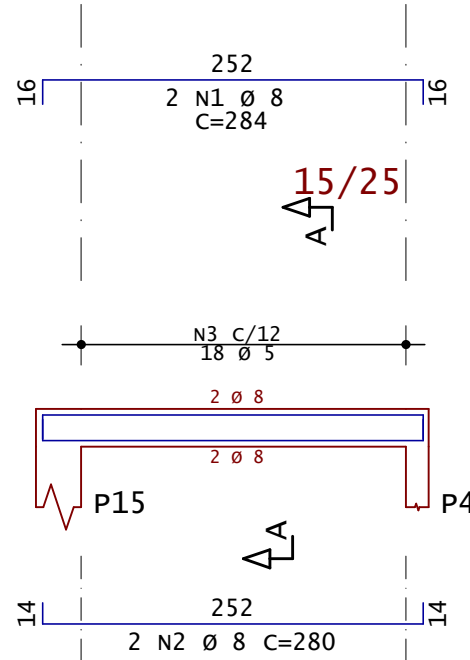
V401



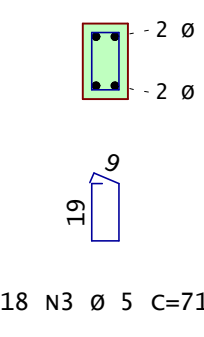
Corte A



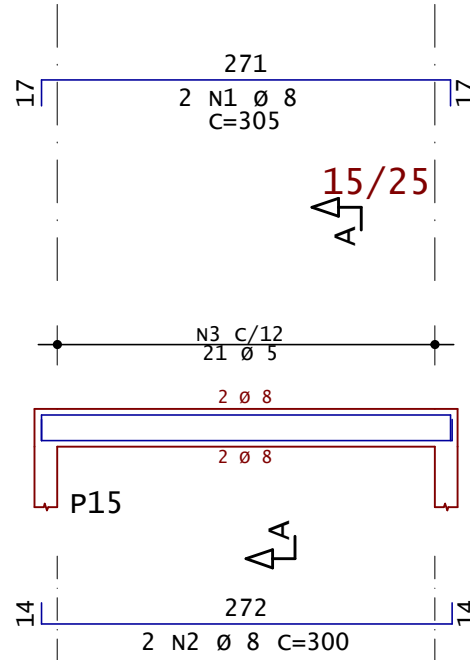
V402



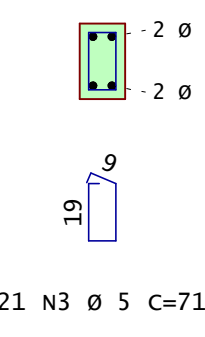
Corte A



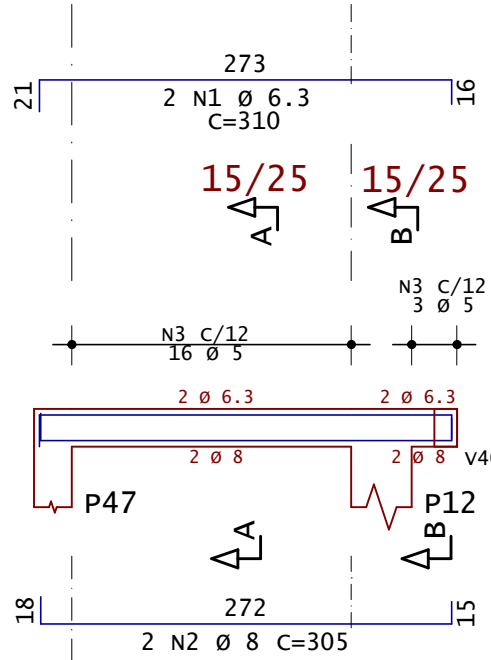
V403



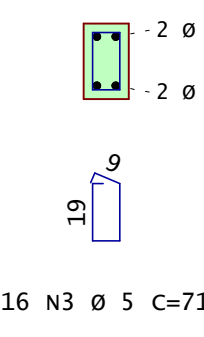
Corte A



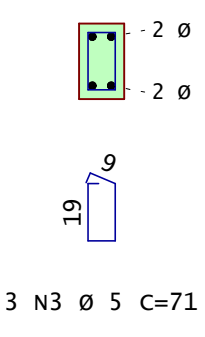
V404



Corte A



Corte B



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
		mm		cm	cm
V333					
50A	1	6.3	4	790	3160
50A	2	10	4	180	720
50A	3	10	4	275	1100
50A	4	12.5	8	611	4888
50A	5	6.3	1	96	96
50A	6	6.3	112	116	12992
V334					
50A	1	10	4	370	1480
60A	2	5	2	340	680
60A	3	5	15	101	1515
V335					
50A	1	20	4	280	1120
60A	2	5	2	240	480
50A	3	6.3	2	130	260
60A	4	5	10	101	1010
V401					
50A	1	6.3	2	280	560
50A	2	8	2	265	530
60A	3	5	18	71	1278
V402					
50A	1	8	2	284	568
50A	2	8	2	280	560
60A	3	5	18	71	1278
V403					
50A	1	8	2	305	610
50A	2	8	2	300	600
60A	3	5	21	71	1491
V404					
50A	1	6.3	2	310	620
50A	2	8	2	305	610
60A	3	5	19	71	1349

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
60A	5	91	14
50A	6.3	177	43
50A	8	35	14
50A	10	33	20
50A	12.5	49	47
50A	20	11	28
Peso Total		60A =	14 kgf
Peso Total		50A =	152 kgf

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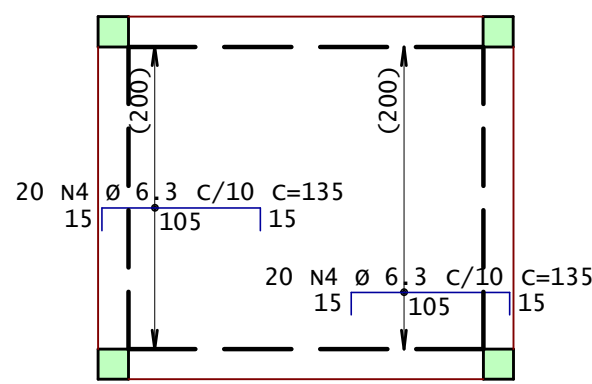
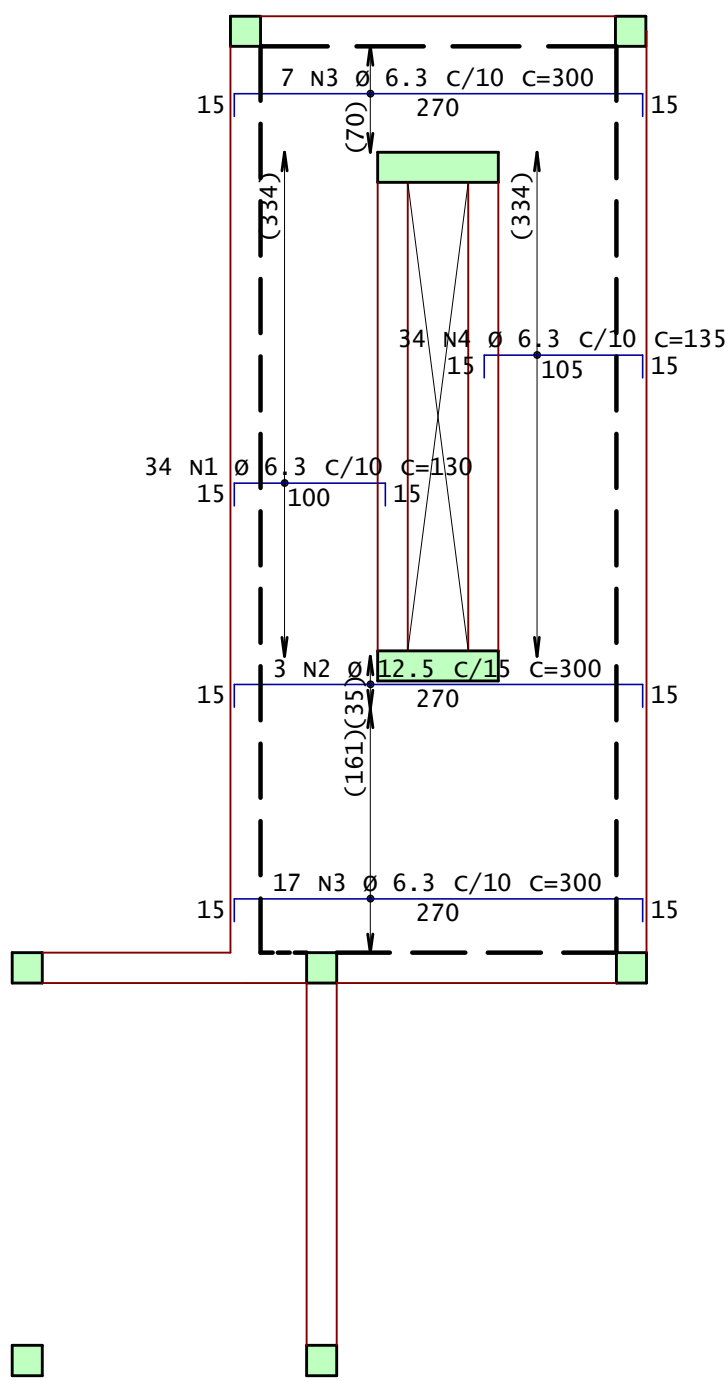
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CLIENTE:	MAXWELL DE OLIVEIRA	DESENHO Nº:19
OBRA:	RESIDÊNCIA UNIFAMILIAR	OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
TÍTULO:	Detalhamento: - VIGAS / COBERTURA E CAIXA D'ÁGUA	
DATA:	02/08/2021	ESCALA: INDICADA

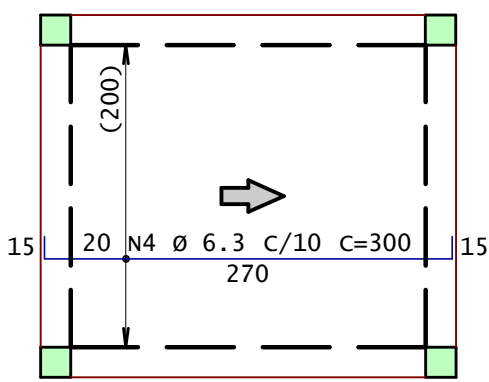
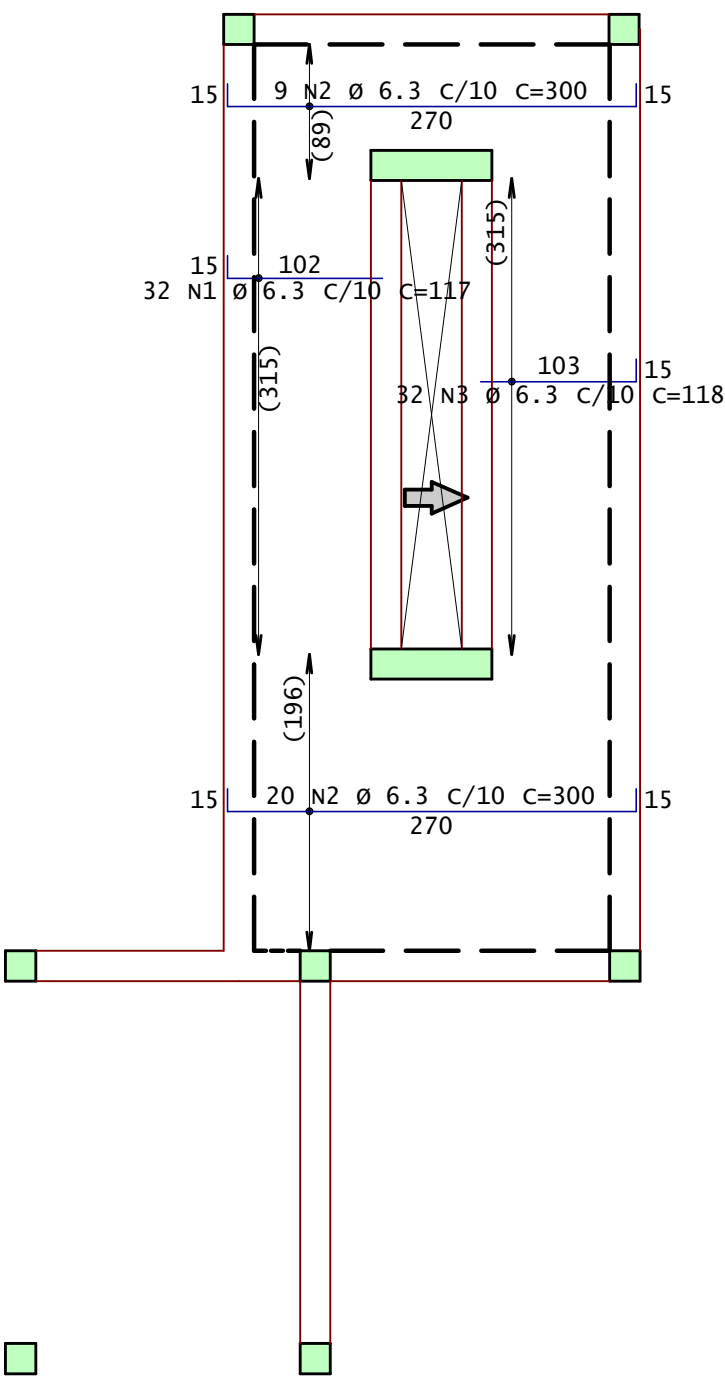
PISCINA - 0.50m - Armadura negativa principal

1x



PISCINA - 0.50m - Armadura positiva principal

1x



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
		mm		cm	cm
PISCINA - 0.50m - Armadura negativa principal					
50A	1	6.3	34	130	4420
50A	2	12.5	3	300	900
50A	3	6.3	24	300	7200
50A	4	6.3	74	135	9990
PISCINA - 0.50m - Armadura positiva principal					
50A	1	6.3	32	117	3744
50A	2	6.3	29	300	8700
50A	3	6.3	32	118	3776
50A	4	6.3	20	300	6000

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
50A	6.3	438	107
50A	12.5	9	9
Peso Total		50A =	116 kgf

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CLIENTE:MAXWELL DE OLIVEIRA

OBRA:RESIDÊNCIA UNIFAMILIAR

TÍTULO:Detalhamento:
- LAJES / PISCINA

DESENHO Nº: 20

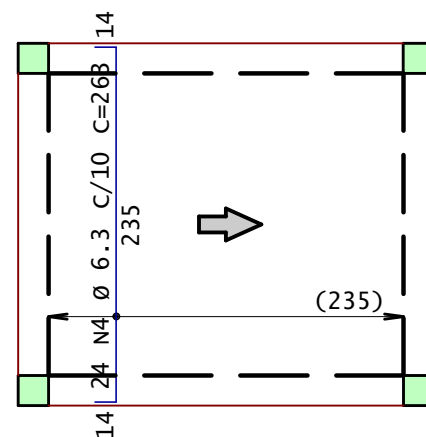
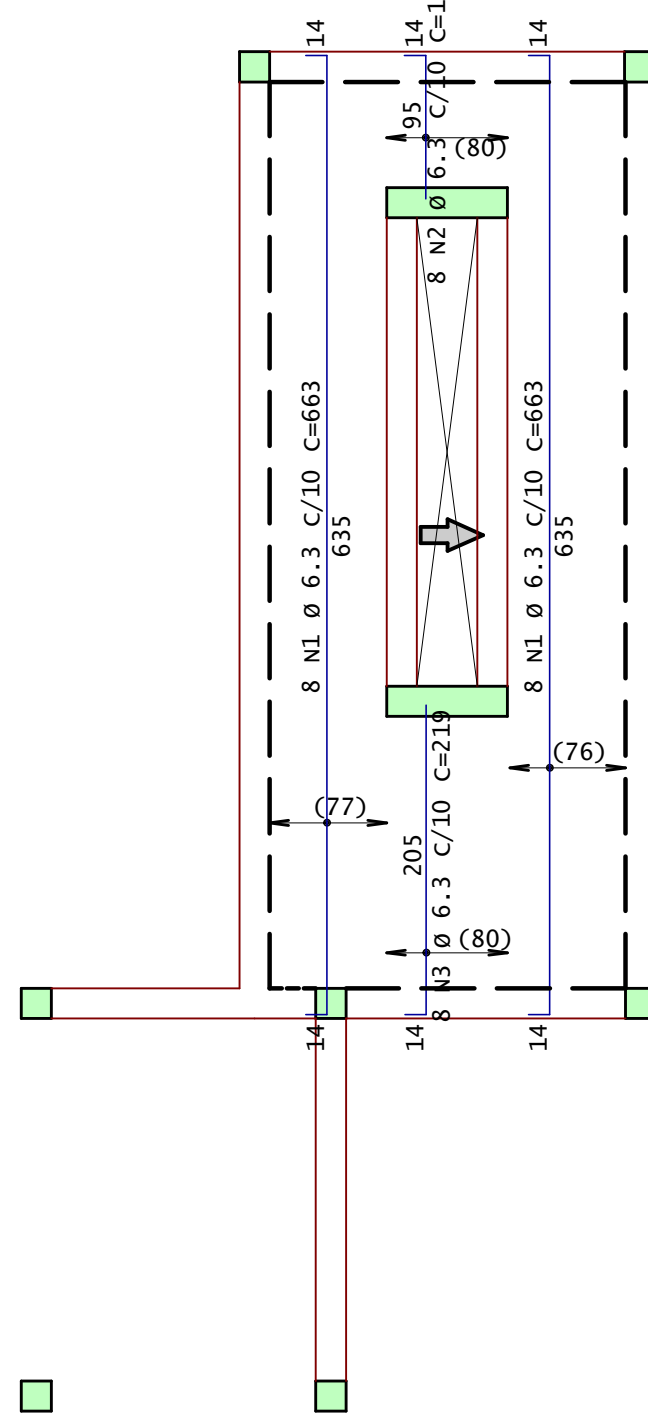
OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

DATA:02/08/2021

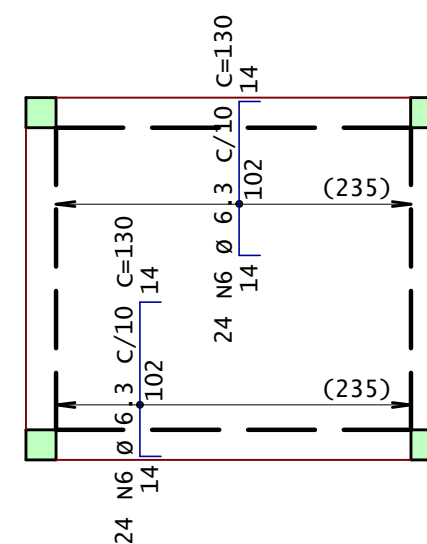
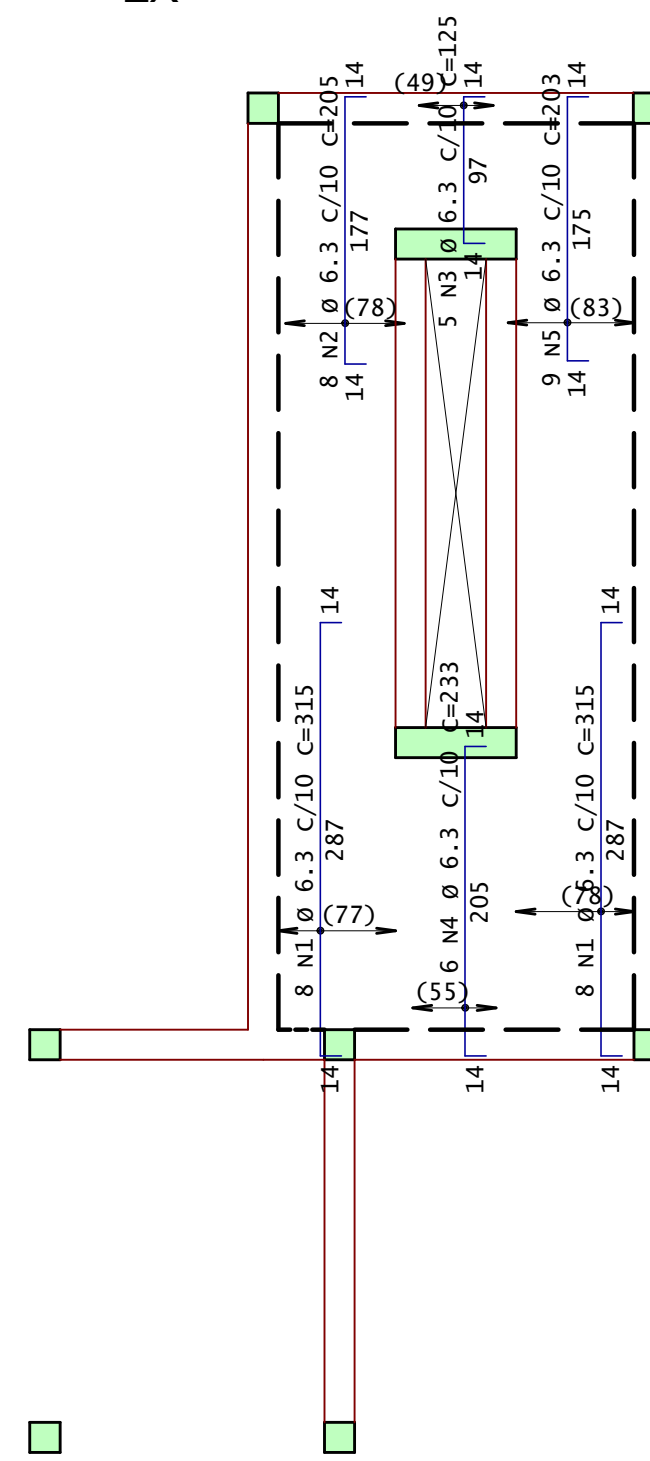
ESCALA:INDICADA

ANDRÉ RODRIGUES DE VASCONCELOS PL CAS-VL -LAJ-014-R00-PLT 31/07/2021 09:57:47

1x



1x



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
		mm		cm	cm
PISCINA - 0.50m - Armadura negativa secundária					
50A	1	6.3	16	315	5040
50A	2	6.3	8	165	1640
50A	3	6.3	5	125	625
50A	4	6.3	6	233	1398
50A	5	6.3	9	203	1827
50A	6	6.3	4	130	6240
PISCINA - 0.50m - Armadura positiva secundária					
50A	1	6.3	16	663	10608
50A	2	6.3	8	109	872
50A	3	6.3	8	219	1752
50A	4	6.3	24	263	6312

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
50A	6.3	363	89
Peso Total		50A =	89 kgf

Site com:

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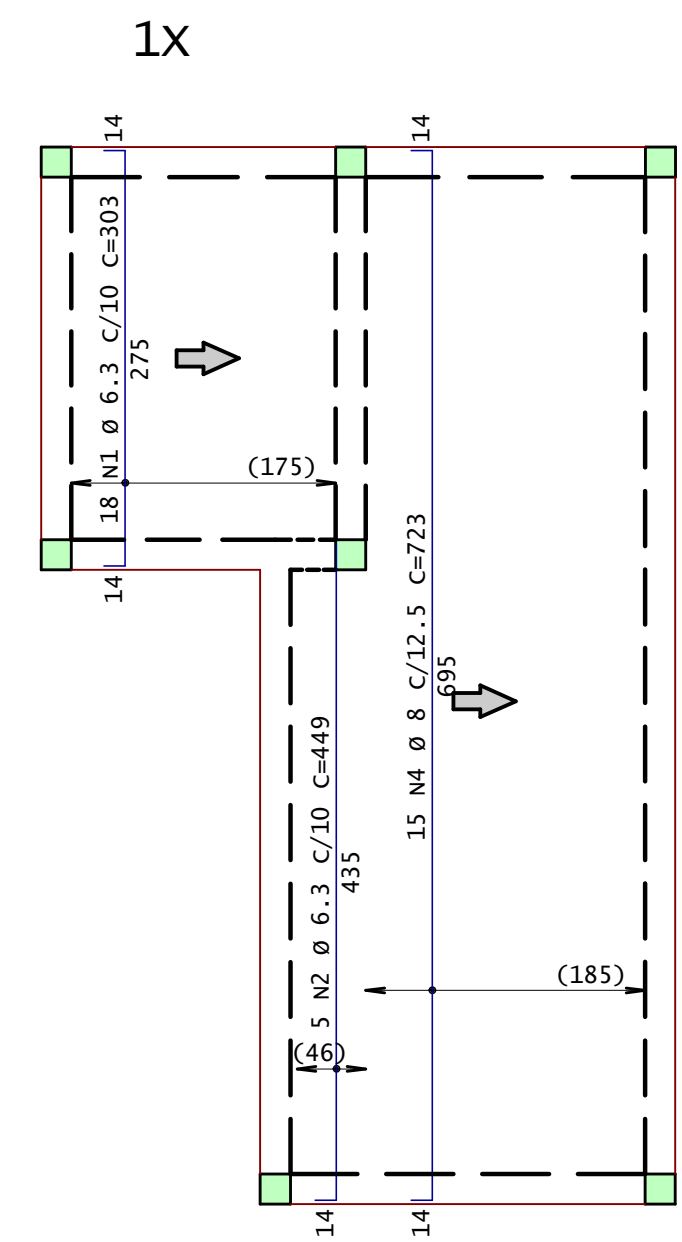
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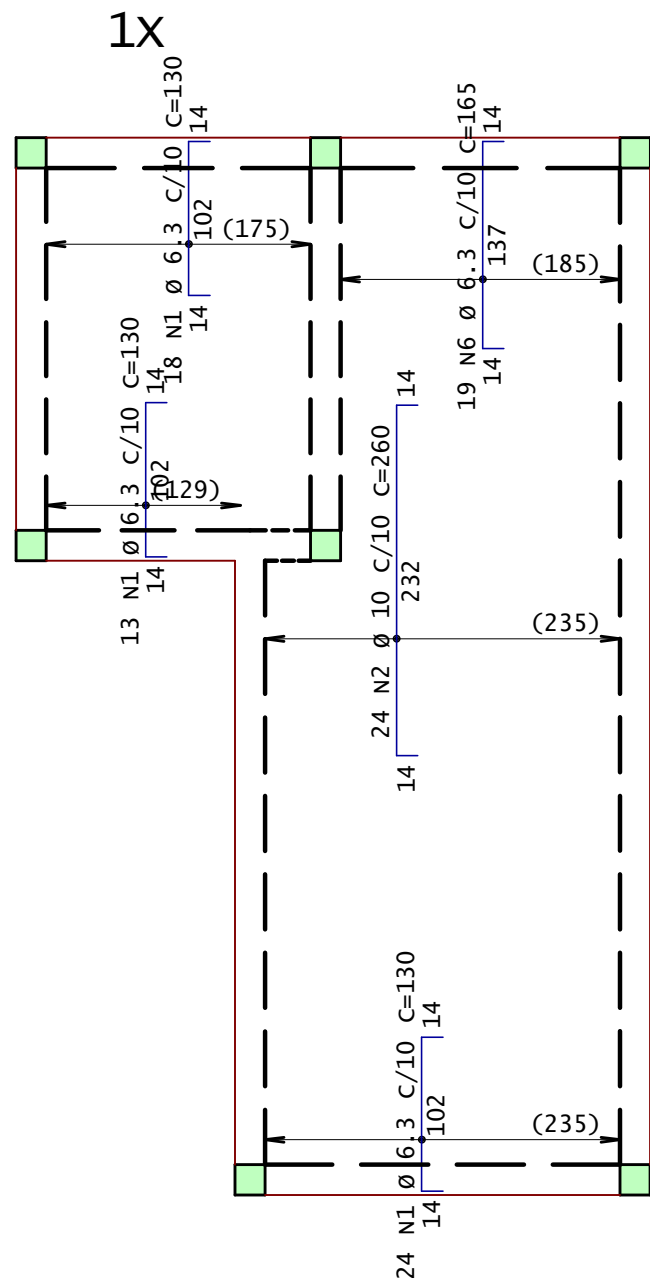
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CLIENTE:	MAXWELL DE OLIVEIRA		DESENHO Nº: 21
OBRA:	RESIDÊNCIA UNIFAMILIAR		
TÍTULO:	Detalhamento: - LAJES / PISCINA		OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo
DATA:	02/08/2021	ESCALA:	

PISCINA - 1.3m - Armadura positiva secundaria



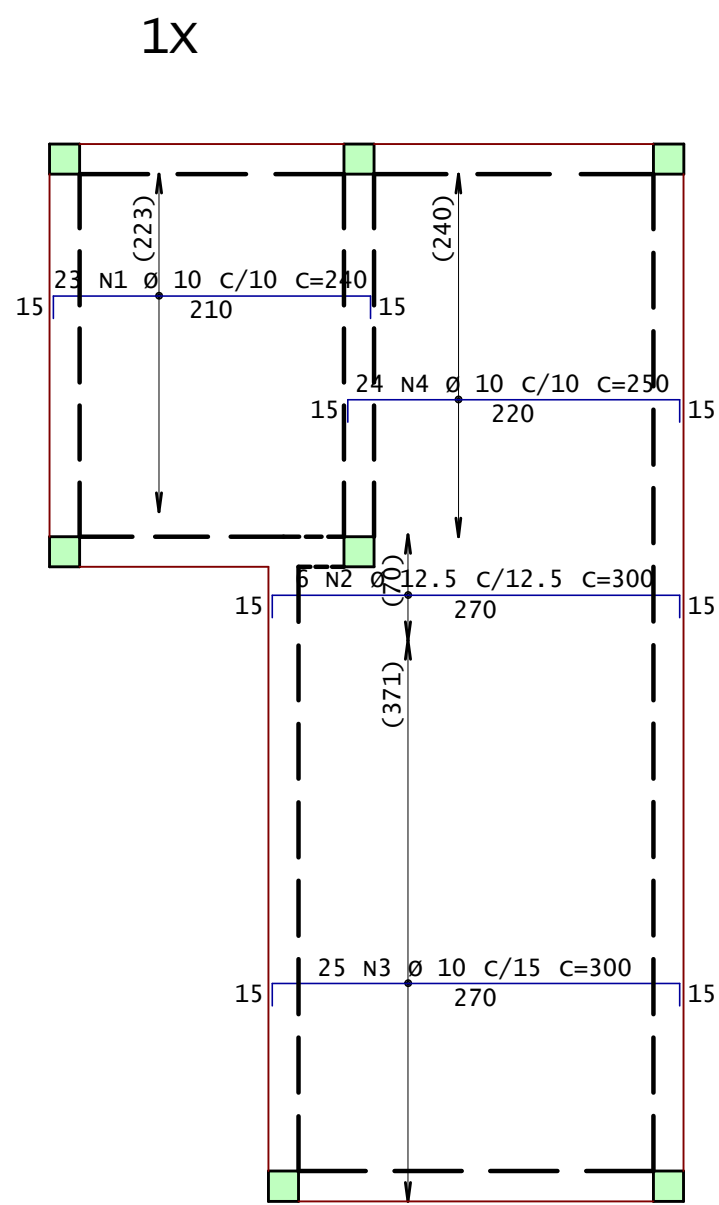
PISCINA - 1.3m - Armadura negativa secundaria



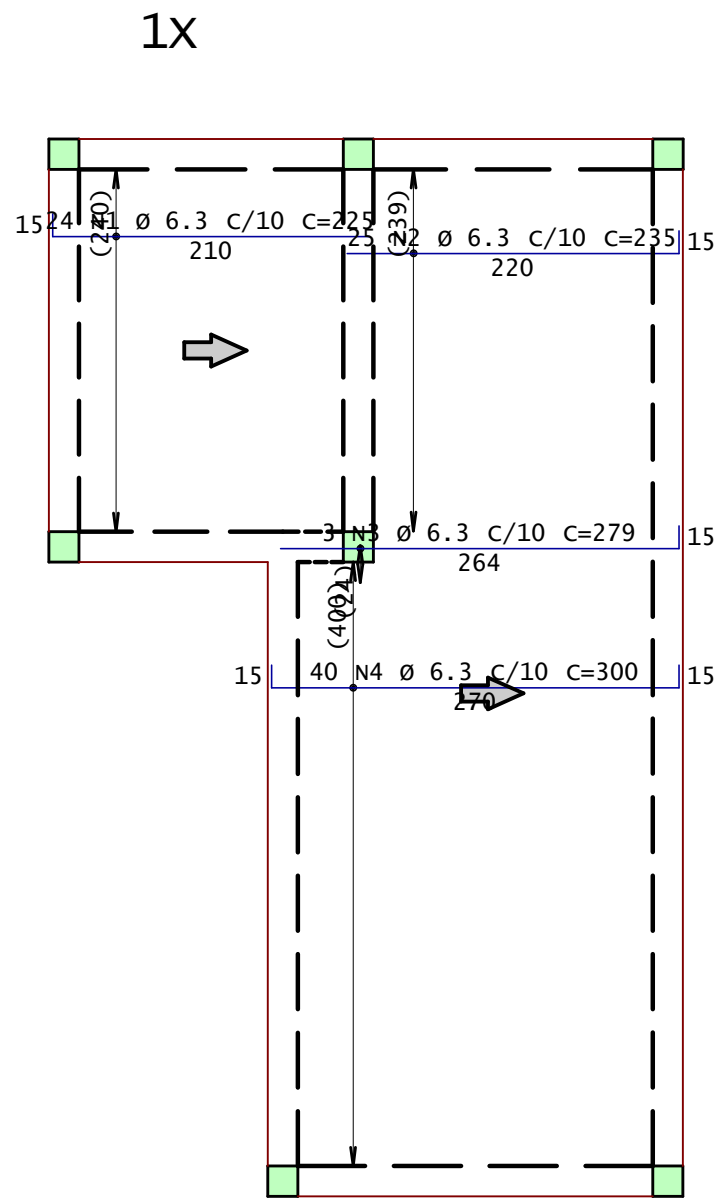
AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
mm					
cm					
cm					
PISCINA - 1.3m - Armadura negativa principal					
50A	1	10	23	240	5520
50A	2	12.5	6	300	1800
50A	3	10	25	300	7500
50A	4	10	24	250	6000
PISCINA - 1.3m - Armadura negativa secundaria					
50A	1	6.3	55	130	7150
50A	2	10	24	260	6240
50A	6	6.3	19	165	3135
PISCINA - 1.3m - Armadura positiva principal					
50A	1	6.3	24	225	5400
50A	2	6.3	25	235	5875
50A	3	6.3	3	279	837
50A	4	6.3	40	300	12000
PISCINA - 1.3m - Armadura positiva secundaria					
50A	1	6.3	18	303	5454
50A	2	6.3	5	449	2245
50A	4	8	15	723	10845

RESUMO DE AÇO			
AÇO	BIT mm	COMPR m	PESO kgf
50A	6.3	421	103
50A	8	108	43
50A	10	253	156
50A	12.5	18	17
Peso Total		50A =	319 kgf

PISCINA - 1.3m - Armadura negativa principal



PISCINA - 1.3m - Armadura positiva principal



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CLIENTE:MAXWELL DE OLIVEIRA

OBRA:RESIDÊNCIA UNIFAMILIAR

TÍTULO:Detalhamento:
- LAJES / PISCINA

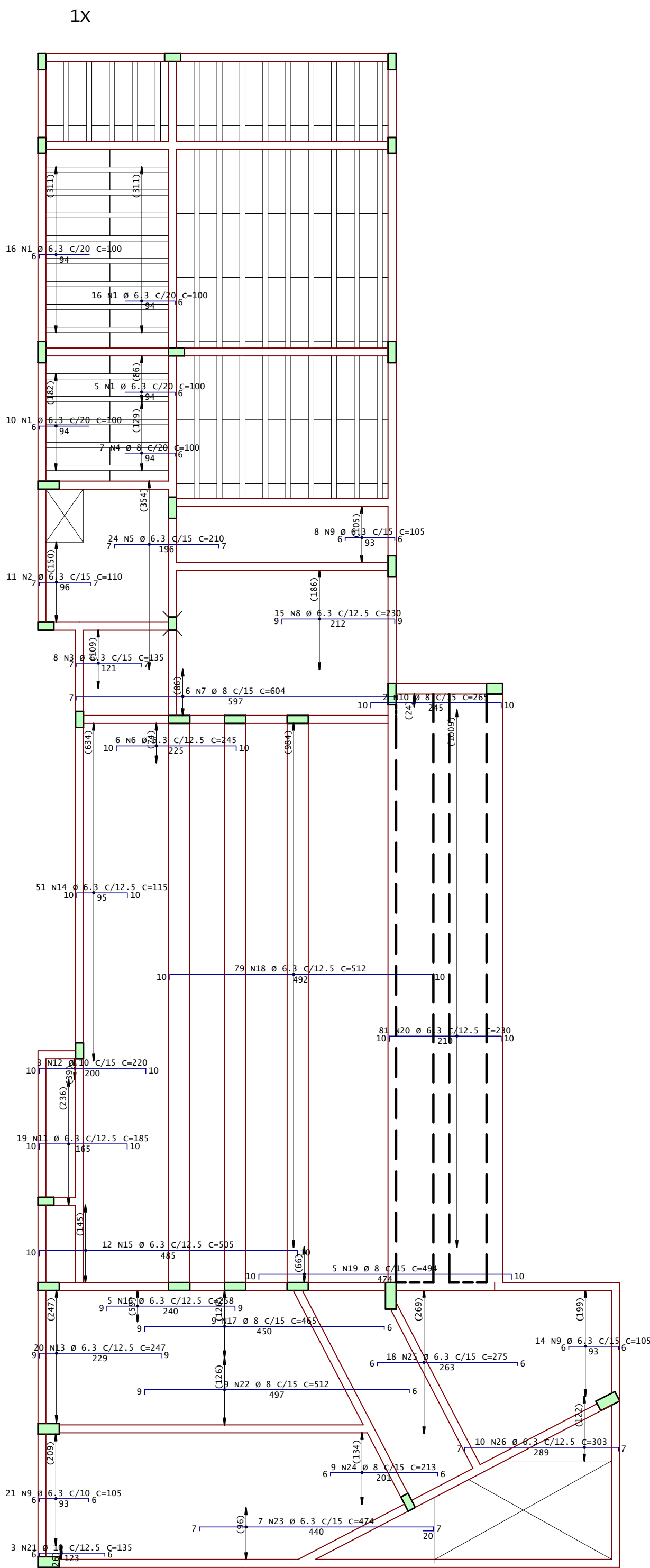
DESENHO Nº: 22

OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

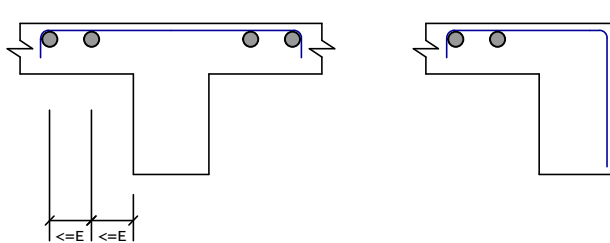
DATA:02/08/2021

ESCALA:INDICADA

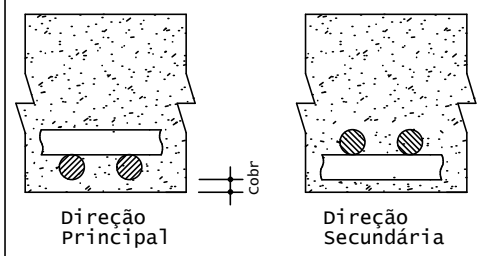
Cobertura - Armadura negativa principal



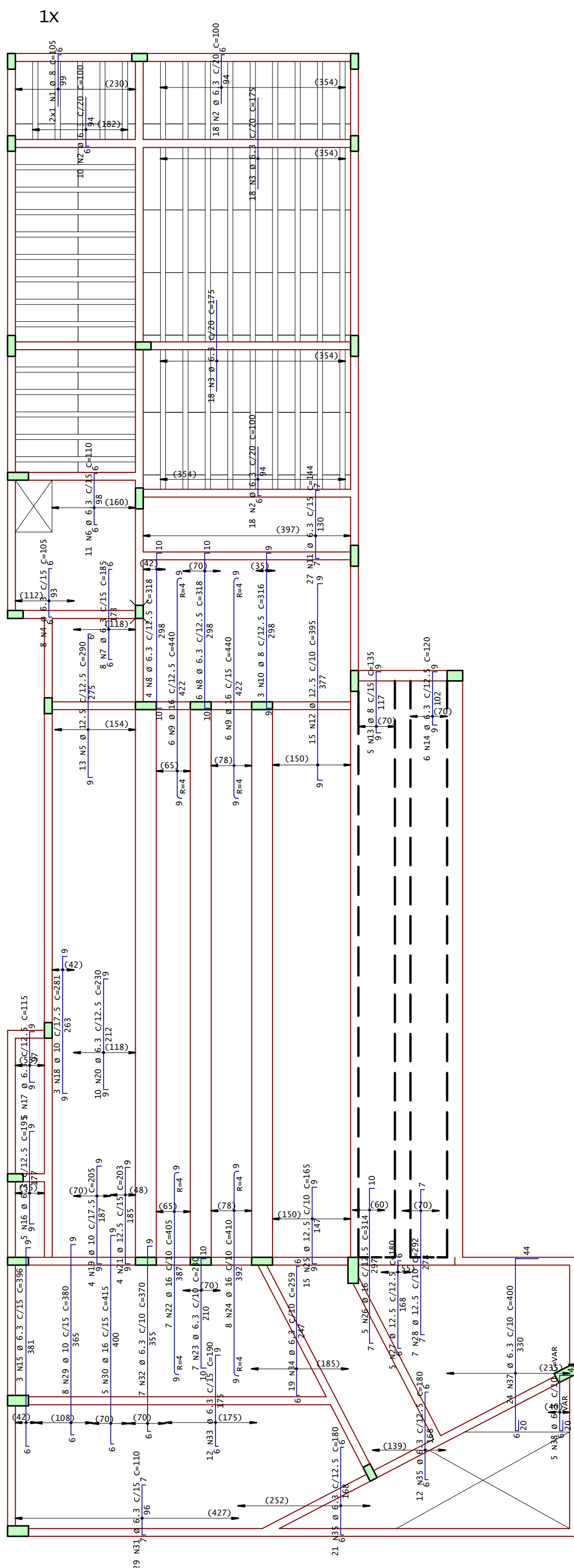
DETALHE TÍPICO DE FERROS DE DISTRIBUIÇÃO DE ARMADURA NEGATIVA



Detalhe genérico do alojamento de armaduras positivas



Cobertura - Armadura negativa secundaria



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
		mm		cm	cm
Cobertura - Armadura negativa principal					
50A	1	6.3	47	100	4700
50A	2	6.3	11	110	1210
50A	3	6.3	8	135	1080
50A	4	6.3	7	100	700
50A	5	6.3	24	210	5040
50A	6	6.3	6	245	1470
50A	7	8	6	604	3624
50A	8	6.3	15	230	3450
50A	9	6.3	43	105	4515
50A	10	8	2	265	530
50A	11	6.3	19	185	3515
50A	12	10	3	220	660
50A	13	6.3	20	247	4940
50A	14	6.3	51	115	5865
50A	15	6.3	12	505	6060
50A	16	6.3	5	258	1290
50A	17	8	9	465	4185
50A	18	6.3	79	512	40448
50A	19	8	5	494	2470
50A	20	6.3	81	230	18630
50A	21	10	3	135	405
50A	22	8	9	512	4608
50A	23	6.3	7	474	3318
50A	24	8	9	213	1917
50A	25	6.3	18	275	4950
50A	26	6.3	10	303	3030
Cobertura - Armadura negativa secundaria					
50A	1	8	2	105	210
50A	2	6.3	46	100	4600
50A	3	6.3	36	175	6300
50A	4	6.3	8	105	840
50A	5	12.5	13	290	3770
50A	6	6.3	11	110	1210
50A	7	6.3	8	185	1480
50A	8	6.3	10	318	3180
50A	9	14	12	440	5280
50A	10	8	3	316	948
50A	11	6.3	27	144	3888
50A	12	12.5	15	395	5925
50A	13	8	5	135	675
50A	14	6.3	6	120	720
50A	15	6.3	3	396	1188
50A	16	6.3	5	195	975
50A	17	6.3	5	115	575
50A	18	10	3	281	843
50A	19	10	4	205	820
50A	20	6.3	10	230	2300
50A	21	12.5	4	203	812
50A	22	16	7	405	2835
50A	23	6.3	7	230	1610
50A	24	16	8	410	3280
50A	25	12.5	15	165	2475
50A	26	16	5	314	1570
50A	27	12.5	5	180	900
50A	28	12.5	7	292	2044
50A	29	10	8	380	3040
50A	30	16	5	415	2075
50A	31	6.3	29	110	3190
50A	32	6.3	7	370	2590
50A	33	6.3	12	190	2280
50A	34	6.3	19	259	4921
50A	35	6.3	33	180	5940
50A	37	6.3	24	400	9600
50A	38	6.3	5	--VAR--	880

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
50A	6.3	1718	421
50A	8	199	78
50A	10	58	36
50A	12.5	159	153
50A	16	150	237
Peso Total		50A =	926 kgf

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CLIENTE: MAXWELL DE OLIVEIRA

OBRA: RESIDÊNCIA UNIFAMILIAR

TÍTULO: Detalhamento:
- LAJES / COBERTURA

DESENHO Nº: 25

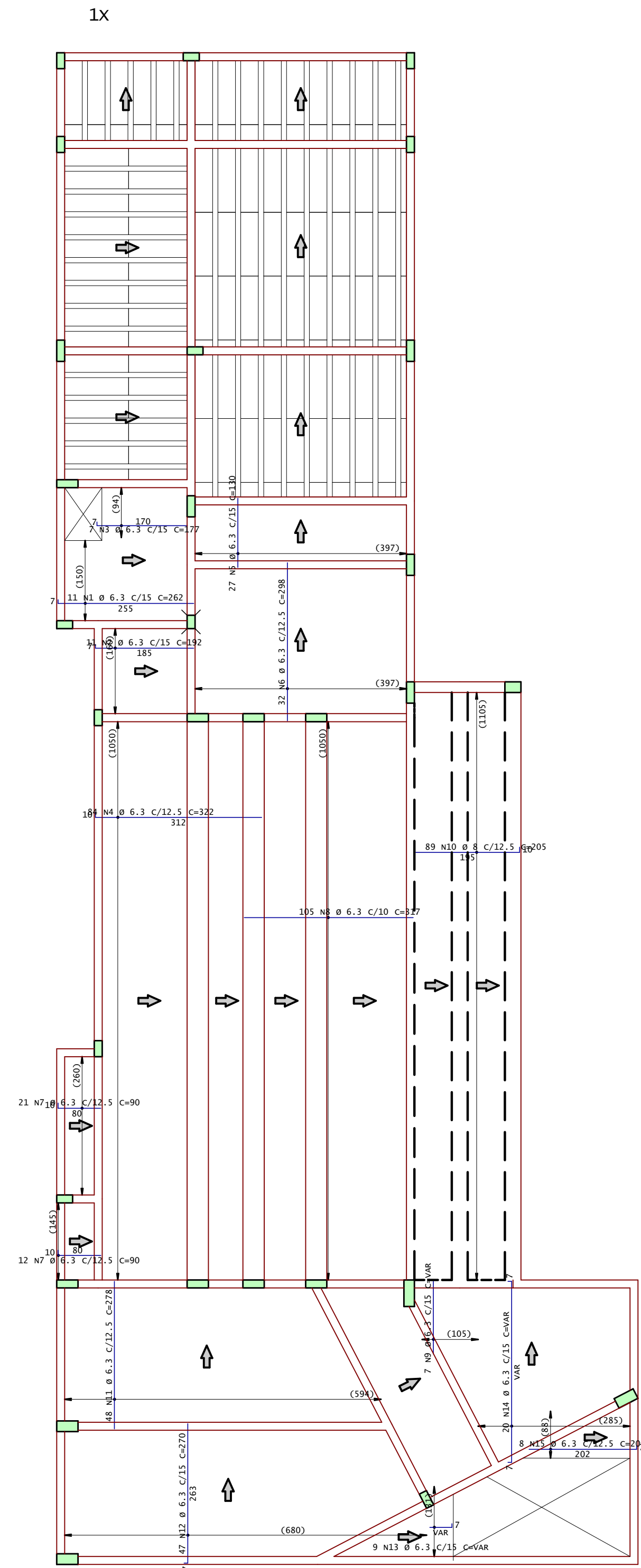
OBS:
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

DATA: 02/08/2021

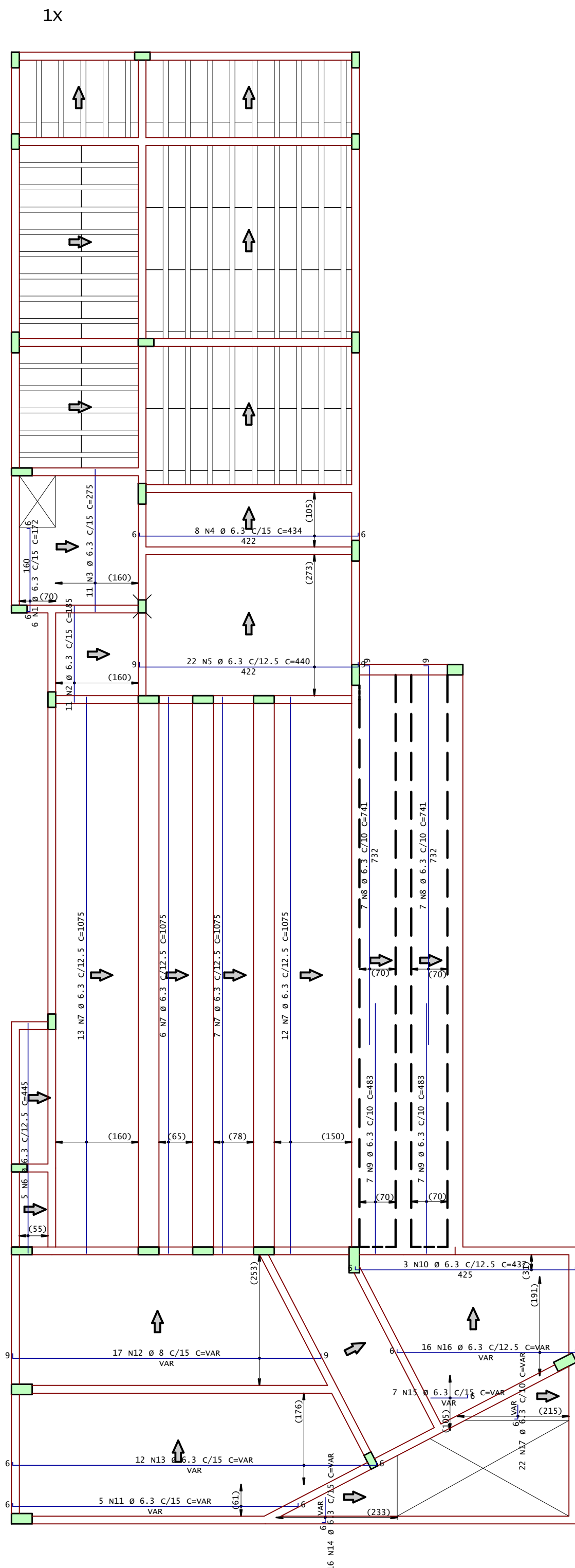
ESCALA: INDICADA

ANDRÉ RODRIGUES DE VASCONCELOS PL CAS-COB-LAJ-019-R00-PLT 31/07/2021 10:09:41

Cobertura - Armadura positiva principal



Cobertura - Armadura positiva secundaria



AÇO	POS	BIT	QUANT	COMPRIMENTO	
				UNIT	TOTAL
				mm	cm
Cobertura – Armadura positiva principal					
50A	1	6.3	11	262	2882
50A	2	6.3	11	192	2112
50A	3	6.3	7	177	1239
50A	4	6.3	84	322	27048
50A	5	6.3	27	130	3510
50A	6	6.3	32	298	9536
50A	7	6.3	33	90	2970
50A	8	6.3	105	317	33285
50A	9	6.3	7	--VAR--	1365
50A	10	8	89	205	18245
50A	11	6.3	48	278	13344
50A	12	6.3	47	270	12690
50A	13	6.3	9	--VAR--	1197
50A	14	6.3	20	--VAR--	6180
50A	15	6.3	8	209	1672
Cobertura – Armadura positiva secundaria					
50A	1	6.3	6	172	1032
50A	2	6.3	11	185	2035
50A	3	6.3	11	275	3025
50A	4	6.3	8	434	3472
50A	5	6.3	22	440	9680
50A	6	6.3	5	445	2225
50A	7	6.3	38	1075	40850
50A	8	6.3	14	741	10374
50A	9	6.3	14	483	6762
50A	10	6.3	3	437	1311
50A	11	6.3	5	--VAR--	2935
50A	12	8	17	--VAR--	9775
50A	13	6.3	12	--VAR--	8160
50A	14	6.3	16	--VAR--	1424
50A	15	6.3	7	--VAR--	1057
50A	16	6.3	16	--VAR--	6112
50A	17	6.3	22	--VAR--	1474

RESUMO DE AÇO			
AÇO	BIT mm	COMPR m	PESO kgf
50A	6.3	2210	541
50A	8	280	111
Peso Total		50A =	652 kgf

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CLIENTE:

MAXWELL DE OLIVEIRA

OBRA:

RESIDÊNCIA UNIFAMILIAR

TÍTULO:

Detalhamento:
- LAJES / COBERTURA

DATA:

02/08/2021

DESENHO Nº:

26

OBS:

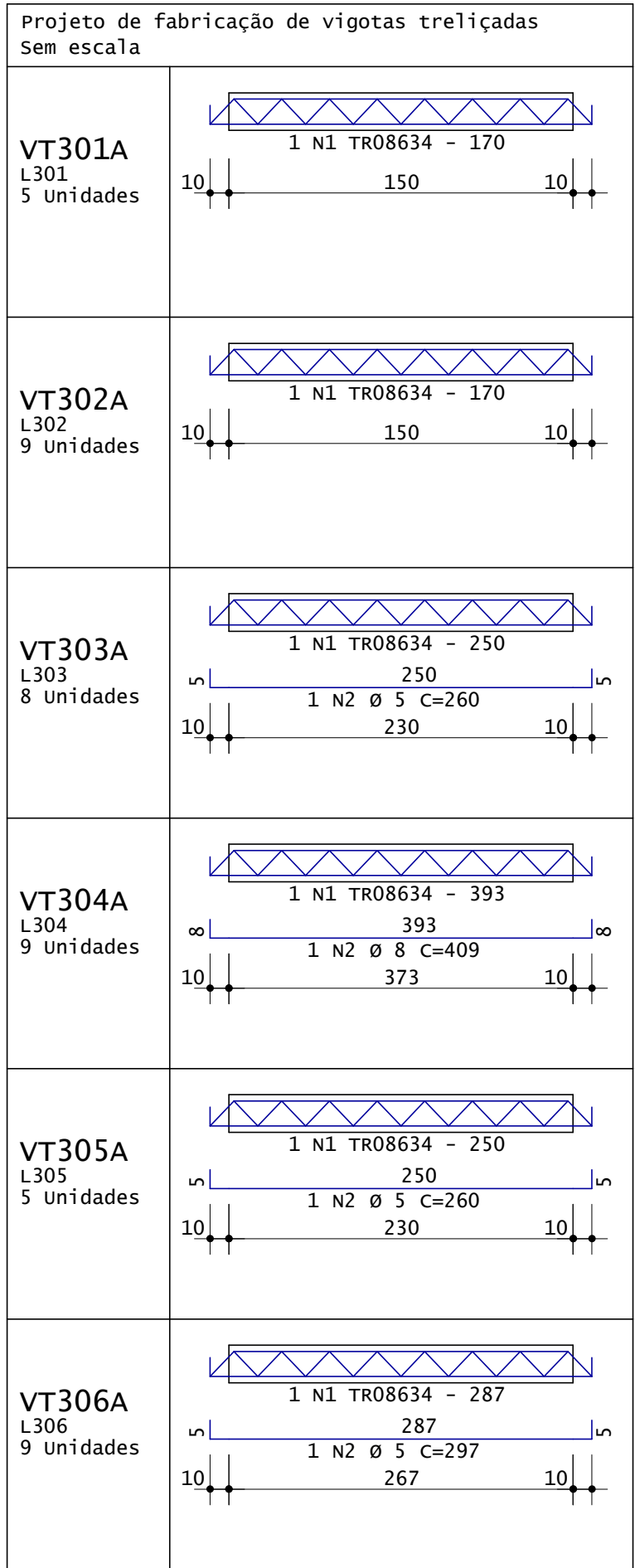
Concreto:
fck: 25 MPa
ECS: 24150 MPa
Atente-se aos
cobrimentos
Leia o Memorial Descritivo

ESCALA:

INDICADA

ANDRÉ RODRIGUES DE VASCONCELOS PL_CAS-COB-LAJ-001-R00-PLT_06/08/2021_10:12:30

Tabela de Vigotas Trelaçadas																					
Dados			Vãos / Apoios				Armação Trelaçada				Armadura Adicional (1)						Armadura Adicional (2)				
Laje	Vigota	No	LapE cm	Liv cm	LapD cm	Ltot cm	Trelça	Unit cm	Total cm	No bar	Ø mm	DE cm	DD cm	Unit cm	Total cm	No bar	Ø mm	DE cm	DD cm	Unit cm	Total cm
L301	VT301A	5	10	150	10	170	TR08634	170	850												
L302	VT302A	9	10	150	10	170	TR08634	170	1530												
L303	VT303A	8	10	230	10	250	TR08634	250	2000	1	5	5	5	260	2080						
L304	VT304A	9	10	373	10	393	TR08634	393	3537	1	8	8	8	409	3681						
L305	VT305A	5	10	230	10	250	TR08634	250	1250	1	5	5	5	260	1300						
L306	VT306A	9	10	267	10	287	TR08634	287	2586	1	5	5	5	297	2676						



AÇO	POS	BIT	QUANT	COMPRIMENTO	UNIT	TOTAL
		mm			cm	cm
VT301A	(X5)					
TR08634	1		5	170		850
VT302A	(X9)					
TR08634	1		9	170		1530
VT303A	(X8)					
TR08634	1		8	250		2000
60A	2	5	8	260		2080
VT304A	(X9)					
TR08634	1		9	393		3537
50A	2	8	9	409		3681
VT305A	(X5)					
TR08634	1		5	250		1250
60A	2	5	5	260		1300
VT306A	(X9)					
TR08634	1		9	287		2583
60A	2	5	9	297		2673

RESUMO DE AÇO			
AÇO	BIT	COMPR	PESO
	mm	m	kgf
TR08634		118	74
60A	5	61	9
50A	8	37	15
Peso Total	TR08634 =		74 kgf
Peso Total	60A =		9 kgf
Peso Total	50A =		15 kgf

Site com:
- Modelos 3D
- Arquivos de obra
- Todos os documentos
do projeto



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CLIENTE: MAXWELL DE OLIVEIRA

DESENHO Nº: 28

OBRA: RESIDÊNCIA UNIFAMILIAR

OBS: Concreto: fck: 25 MPa ECS: 24150 MPa Atente-se aos cobrimentos Leia o Memorial Descritivo

TÍTULO: Detalhamento: - LAJES TRELIÇADAS / COBERTURA

DATA: 02/08/2021

ESCALA: INDICADA