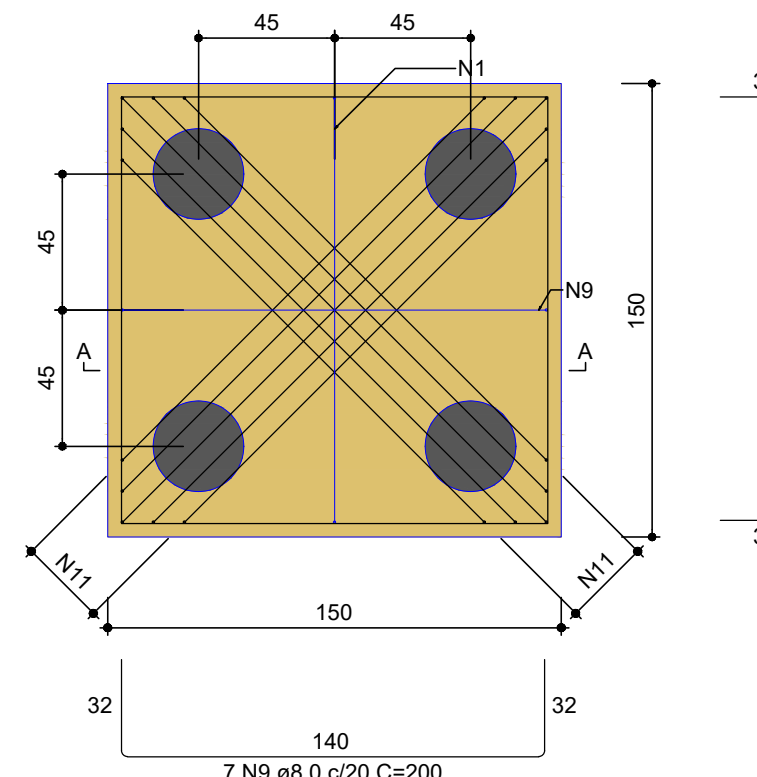
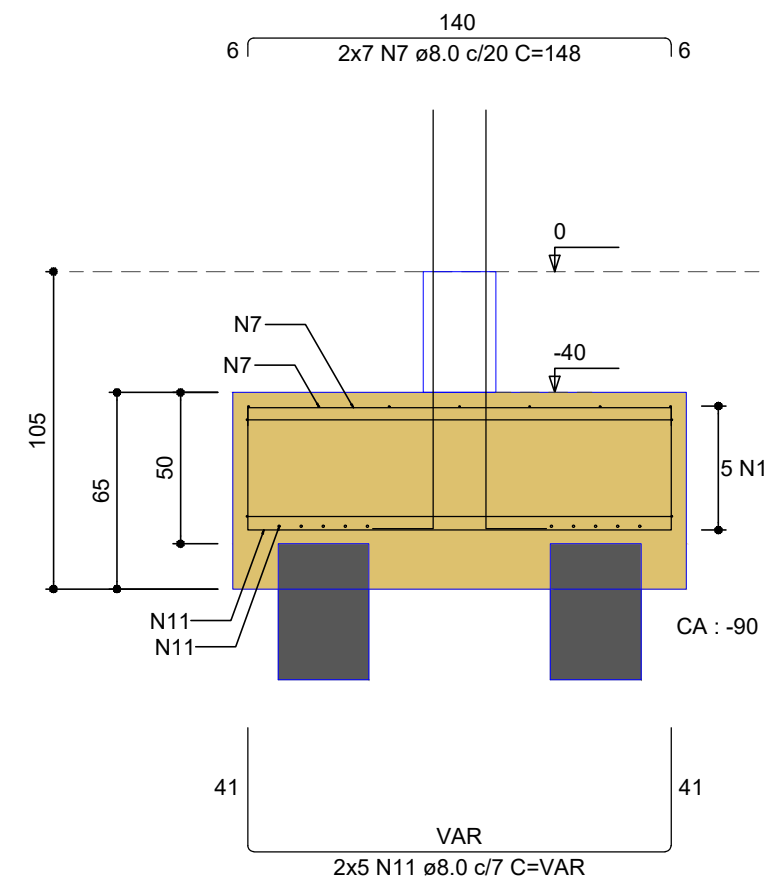


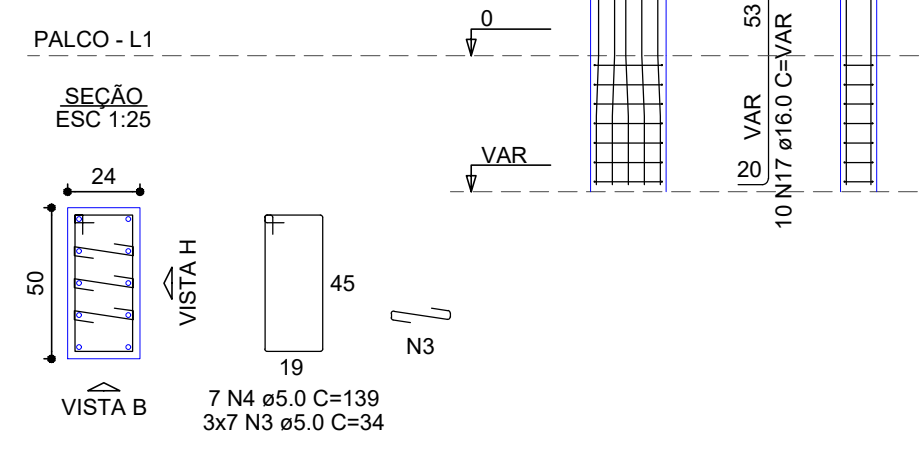
B167=B170
4xC30
PLANTA
ESC 1:25



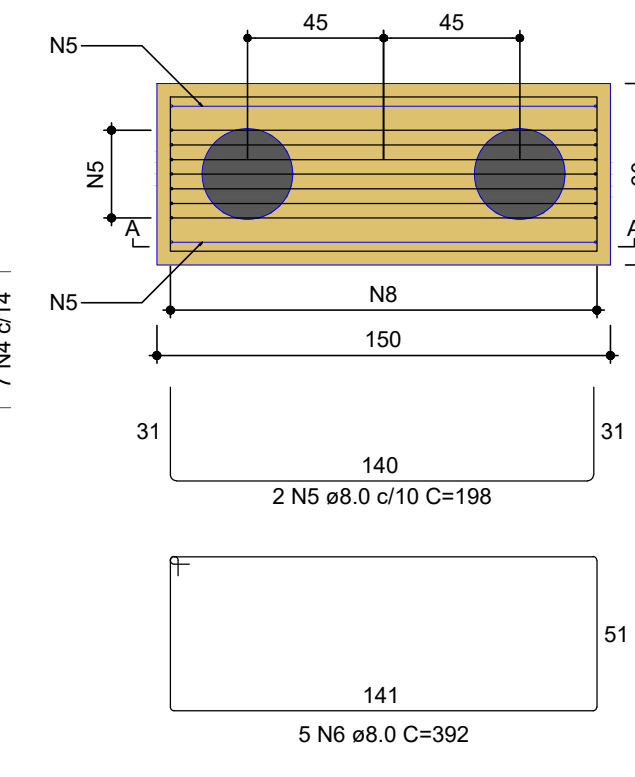
CORTE A-A
ESC 1:25



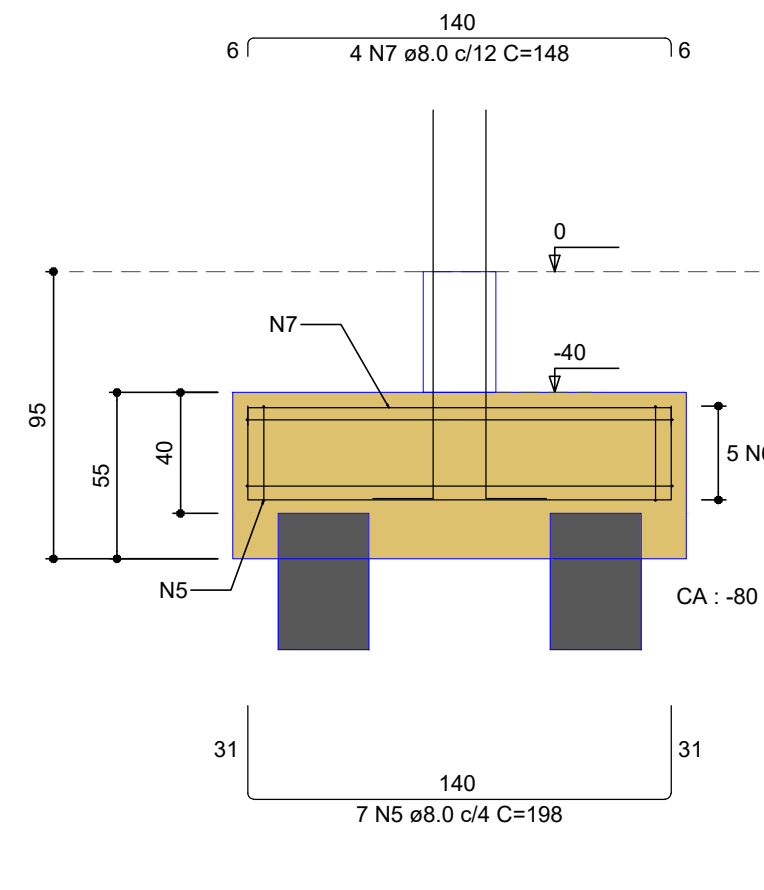
P167=P170



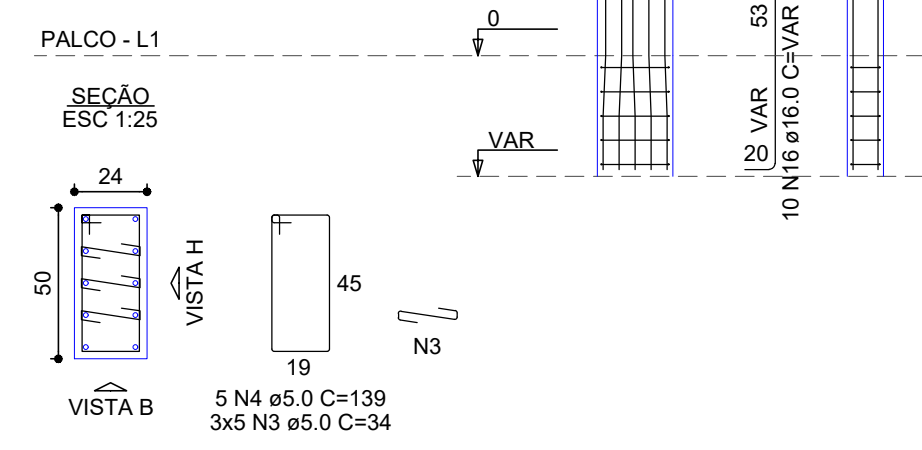
B146=B153
2xC30
PLANTA
ESC 1:25



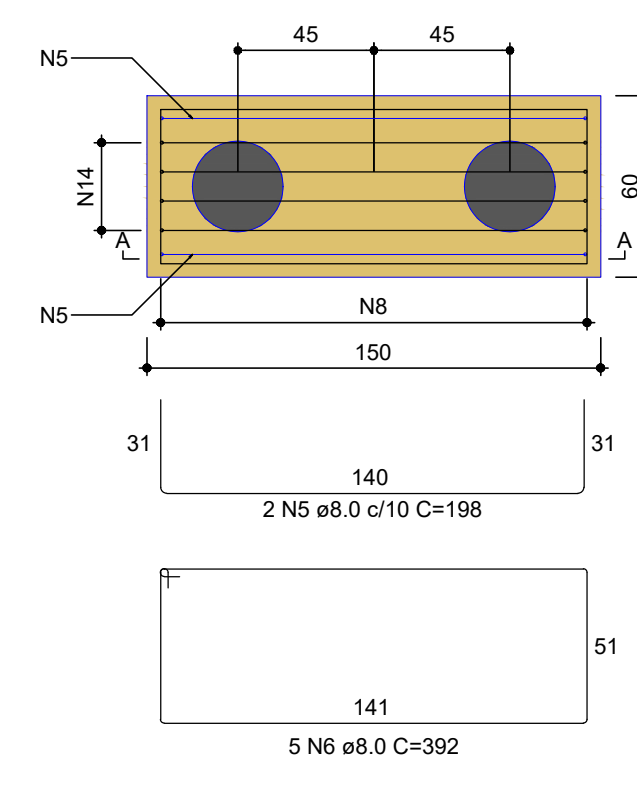
CORTE A-A
ESC 1:25



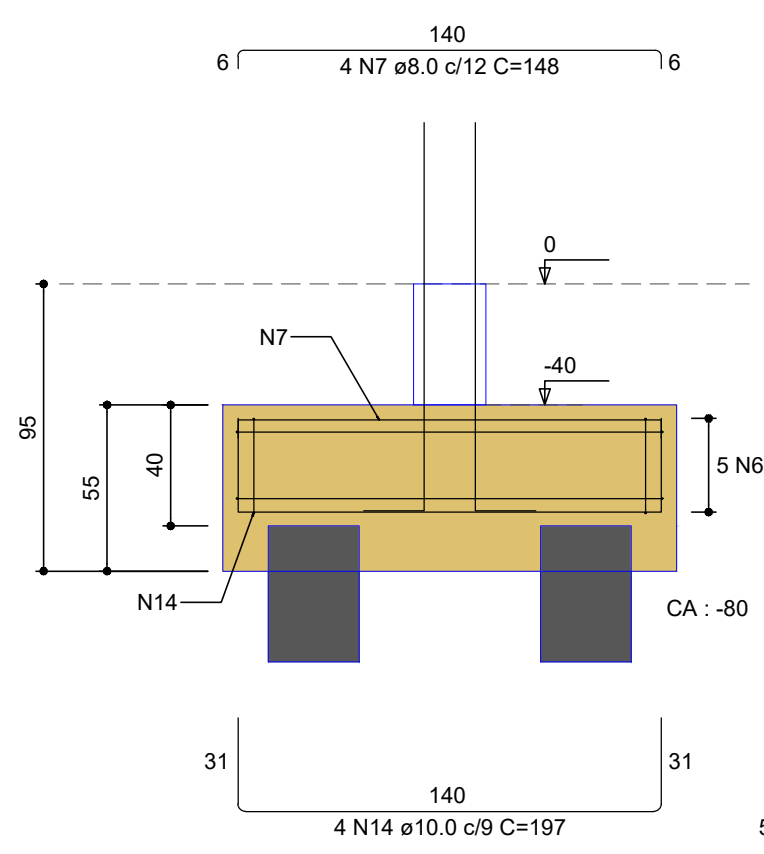
P146=P153



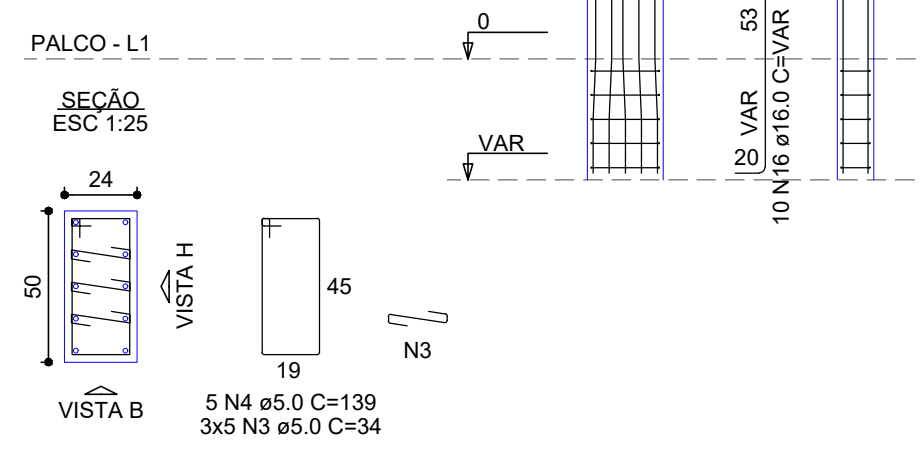
B129=B130
2xC30
PLANTA
ESC 1:25



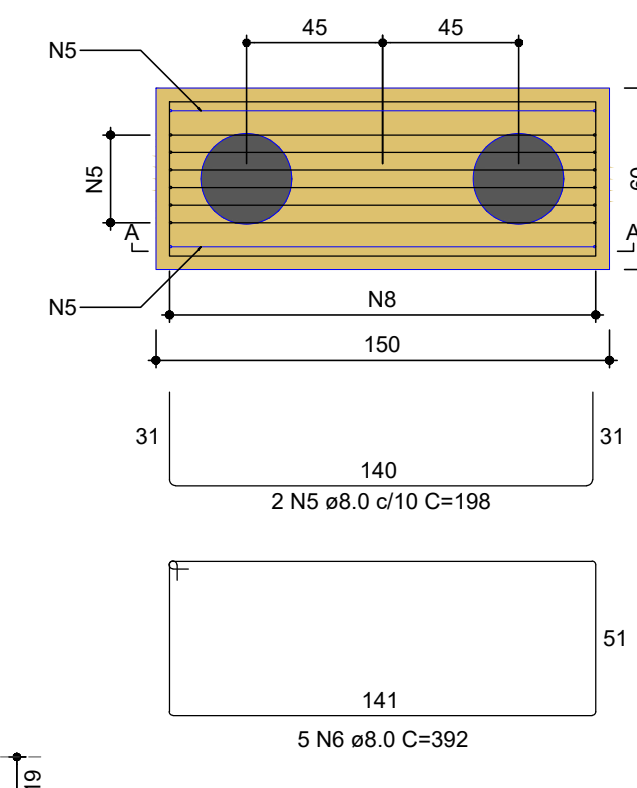
CORTE A-A
ESC 1:25



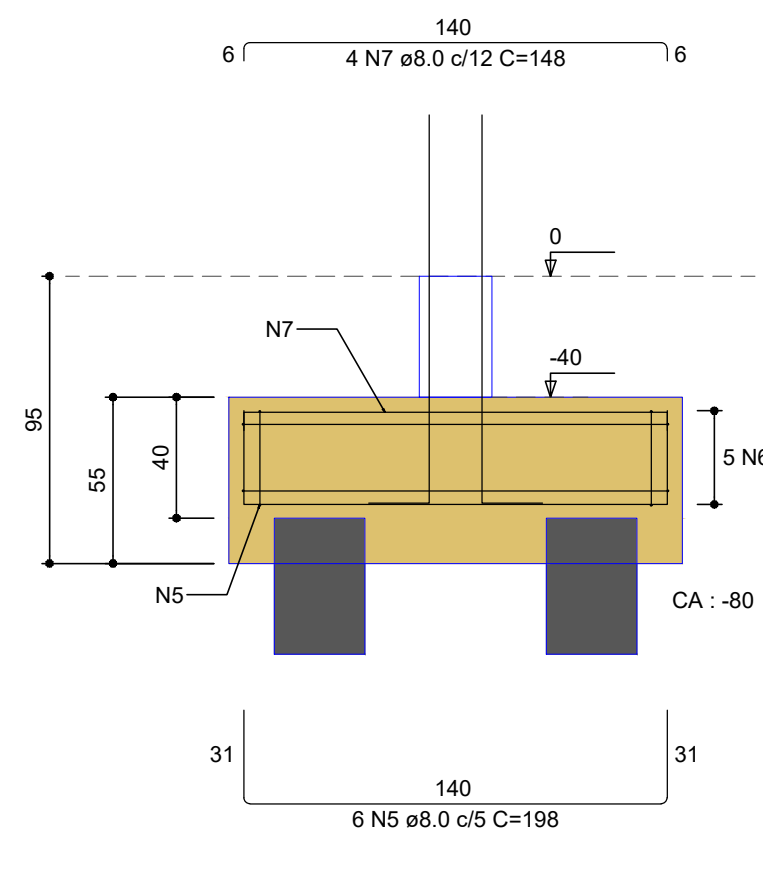
P129=P130



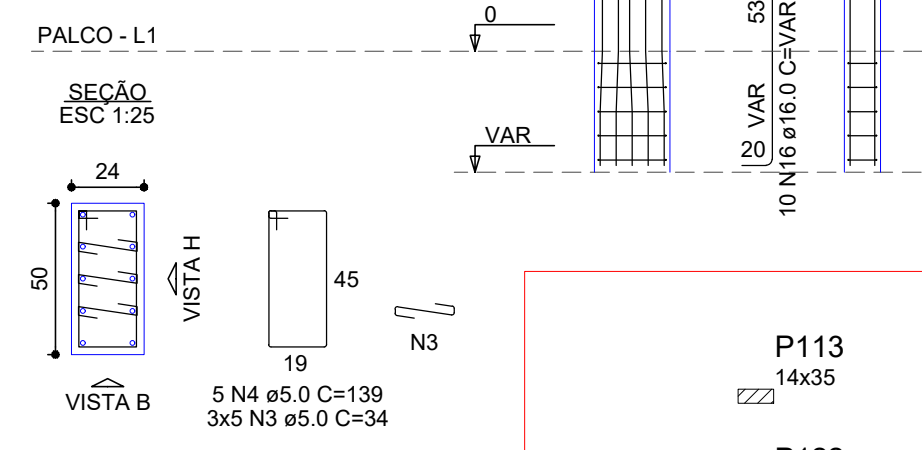
B183=B187
2xC30
PLANTA
ESC 1:25



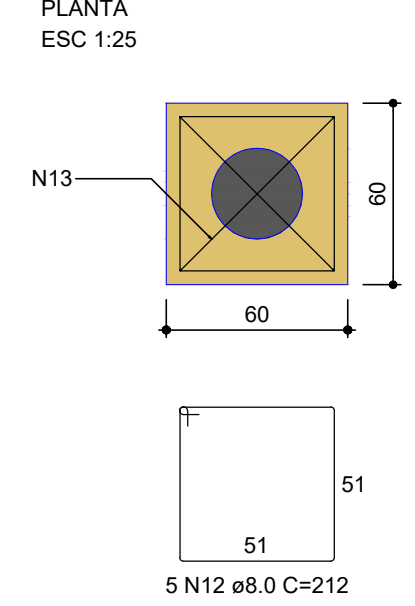
CORTE A-A
ESC 1:25



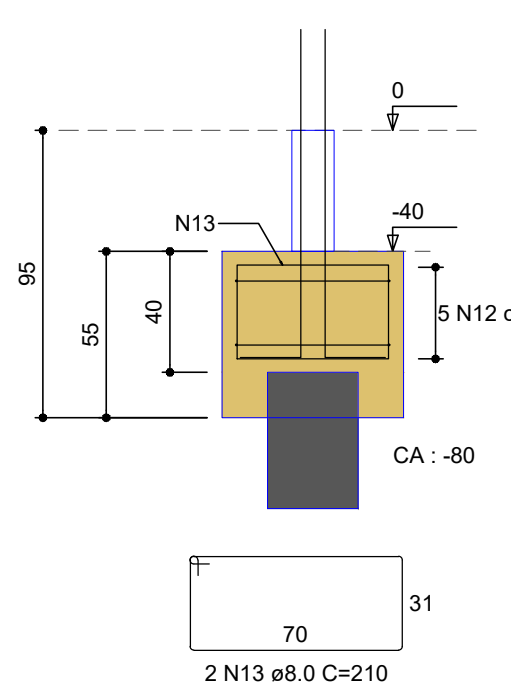
P183=P187



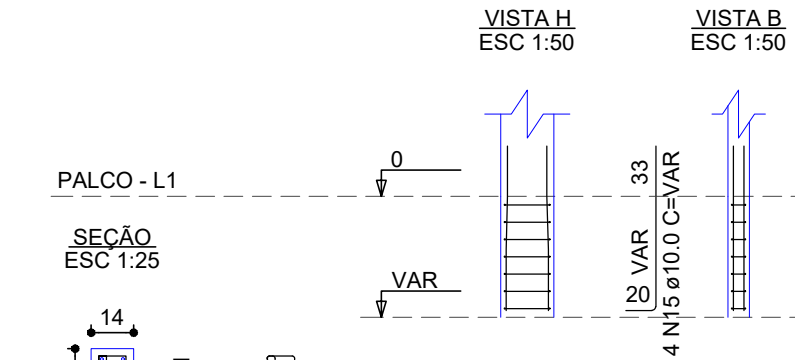
B113=B114=B122=B123=B131=B132=B139=B140
=B147=B148=B157=B158=B160=B161=B168=B169
=B184=B185=B186=B200=B202
1xC30
PLANTA
ESC 1:25



CORTE
ESC 1:25



P113=P114=P122=P123=
=P131=P132=P139=P140=
=P147=P148=P157=P158=
=P160=P161=P168=P169=
=P184=P185=P186=P200=
=P202



RELAÇÃO DO AÇO

2xB130	2xB146	2xB170
2xB187	21xB202	21xP113
2xP129	P146	2xP167
2xP183		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	8.0	14	201	2814
CA60	2	5.0	147	89	13083
CA60	3	5.0	117	34	3978
CA60	4	5.0	39	139	5421
CA50	5	8.0	38	198	7524
CA60	6	8.0	30	382	11590
CA60	7	8.0	52	148	7696
CA60	8	8.0	30	170	5100
CA60	9	8.0	14	200	2800
CA60	10	8.0	10	572	5720
CA60	11	8.0	20	VAR	VAR
CA60	12	8.0	105	212	22260
CA60	13	8.0	42	210	8820
CA60	14	10.0	8	197	1576
CA60	15	10.0	84	VAR	VAR
CA60	16	16.0	50	VAR	VAR
CA60	17	16.0	20	VAR	VAR

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	788.8	347.1
CA50	10.0	122.4	83
CA60	16.0	103.5	179.7
CA60	5.0	224.9	38.6
PESO TOTAL (kg)			
CA50		597.4	
CA60		42.9	

Volume de concreto (C-30) = 11.16 m³
Área de forma = 72.12 m²

RELAÇÃO DO AÇO

V1	V2	V3
CA60	1	5.0
CA50	2	8.0
CA50	3	10.0
CA50	4	10.0
CA50	5	10.0
CA50	6	10.0
CA50	7	10.0

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	29.6	12.8
CA60	10.0	135.2	91.7
CA60	5.0	138.6	23.5
PESO TOTAL (kg)			
CA50		104.5	
CA60		23.5	

Volume de concreto (C-30) = 1.88 m³
Área de forma = 31.48 m²

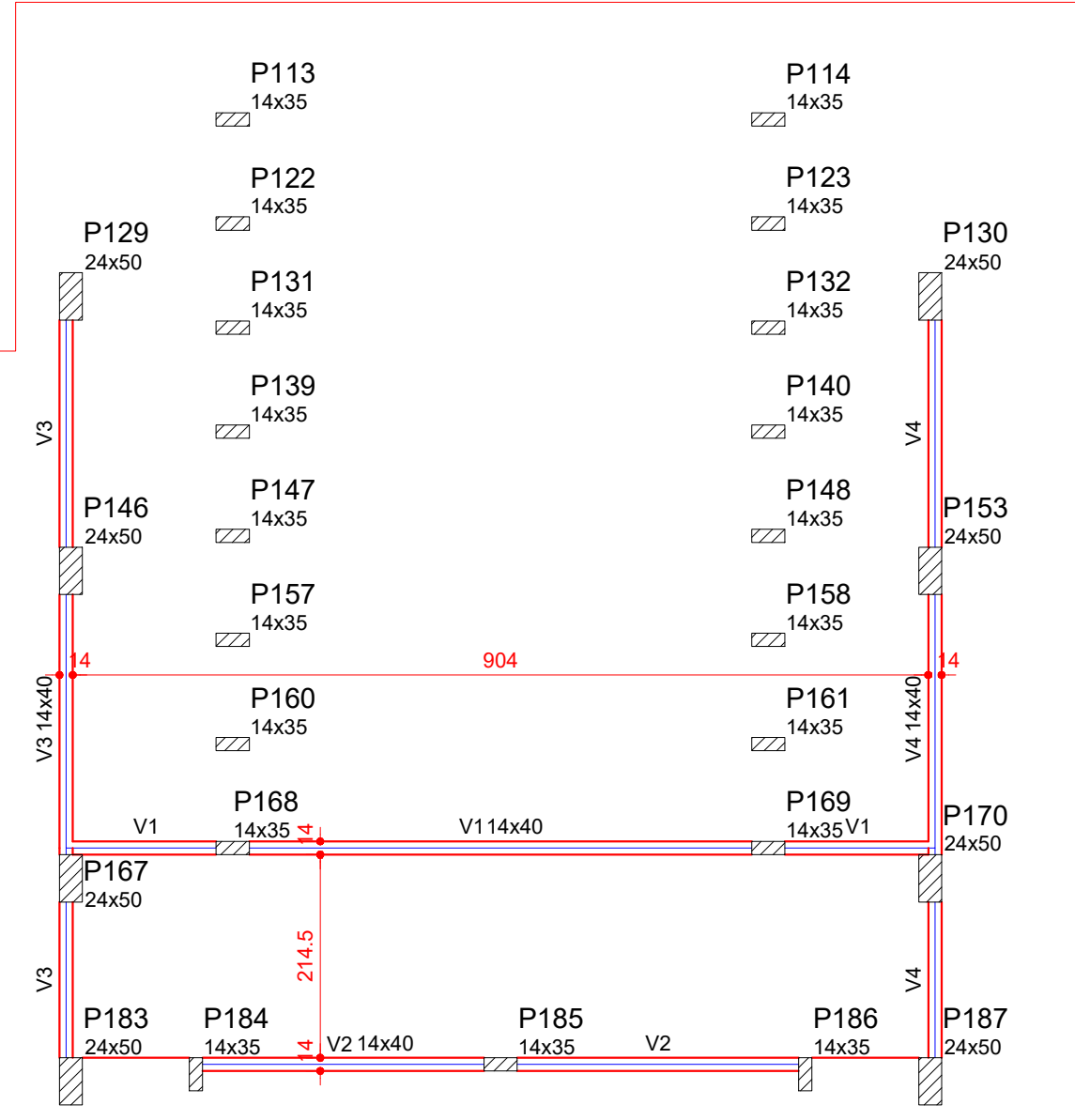
Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	14x40	0	0
V2	14x40	0	0
V3	14x40	0	0
V4	14x40	0	0

Características dos materiais		
fck (kgf/cm²)	Ecs (kgf/cm²)	
300	268384	

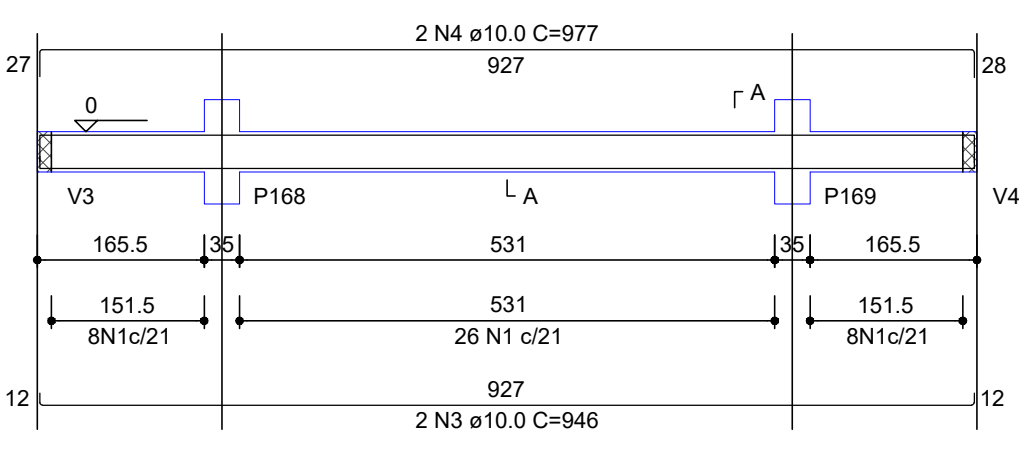
Legenda das vigas e paredes



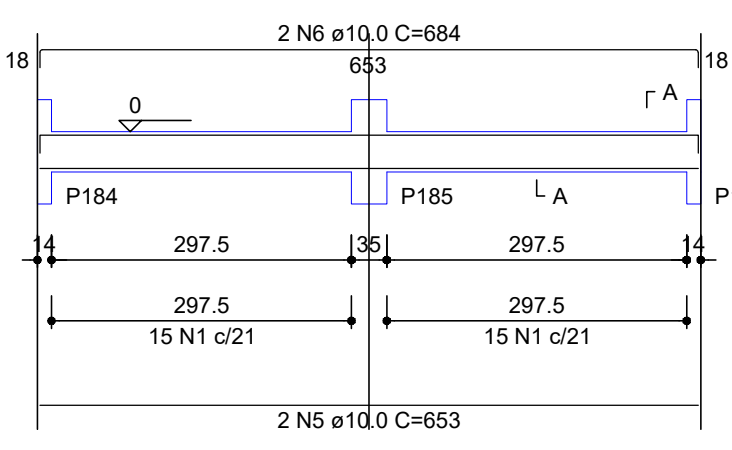
Forma do pavimento Palco (Nível 0) escala 1:75



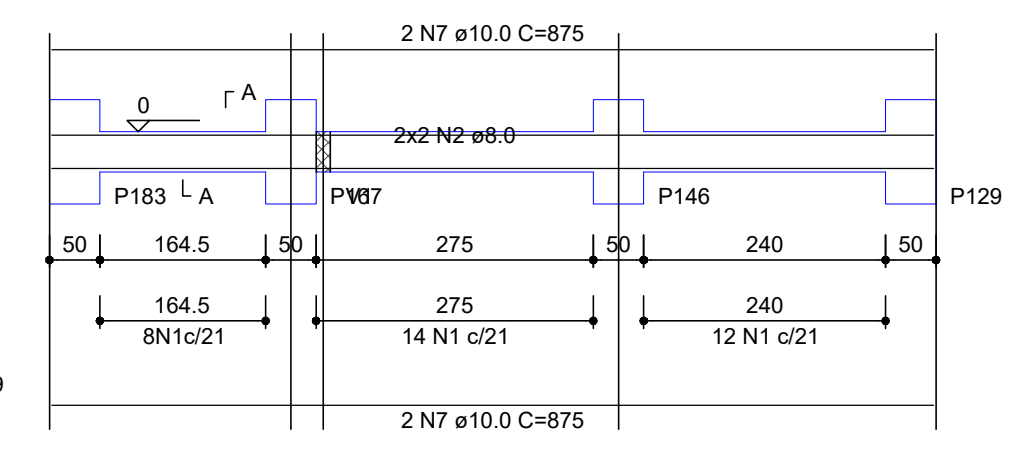
V1
ESC 1:75



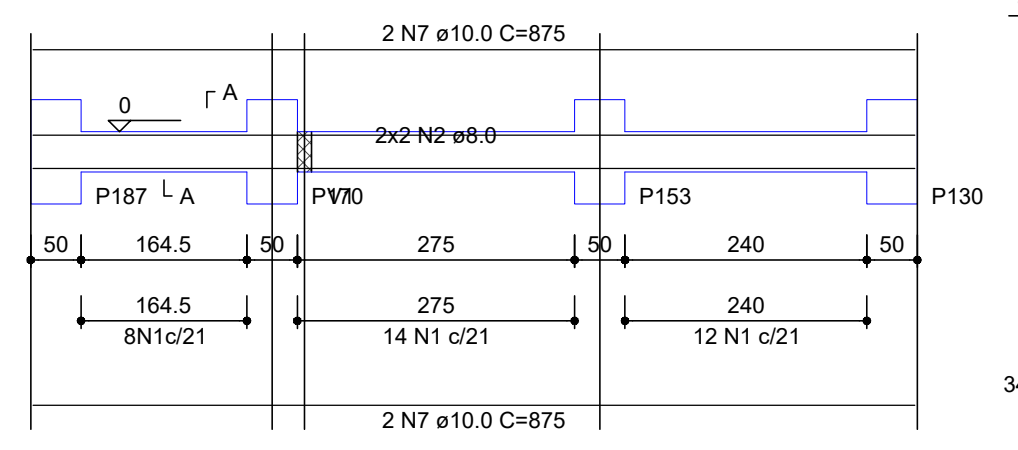
V2
ESC 1:75



V3
ESC 1:75



V4
ESC 1:75



JR ARQUITETURA E ENGENHARIA
FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

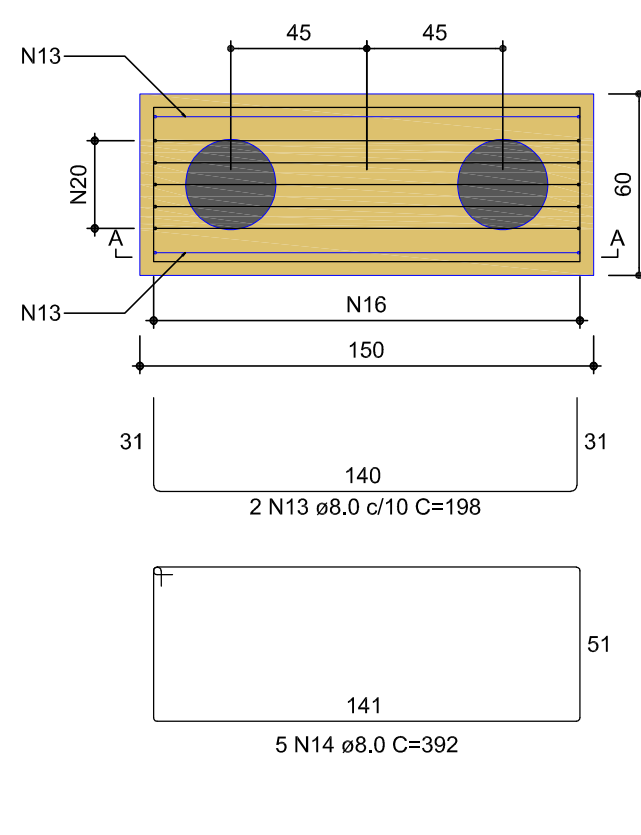
AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR
REFERÊNCIA: PROJETO ESTRUTURAL - FORMA, FERRAGEM BLOCO E FERRAGEM VIGA NÍVEL 0,00
LOCAL: RUA ALBERTO KOGLIN
PROPRIETÁRIO: RUA ALBERTO KOGLIN, Bairro Centro - Dona Emma/SC
MUNICÍPIO DE DONA EMMA
ENGENHEIRA RESPONSÁVEL: JULIANA LANGE DOS SANTOS
ARQUITETA E PLANEJADORA
CAUSC 50019-B

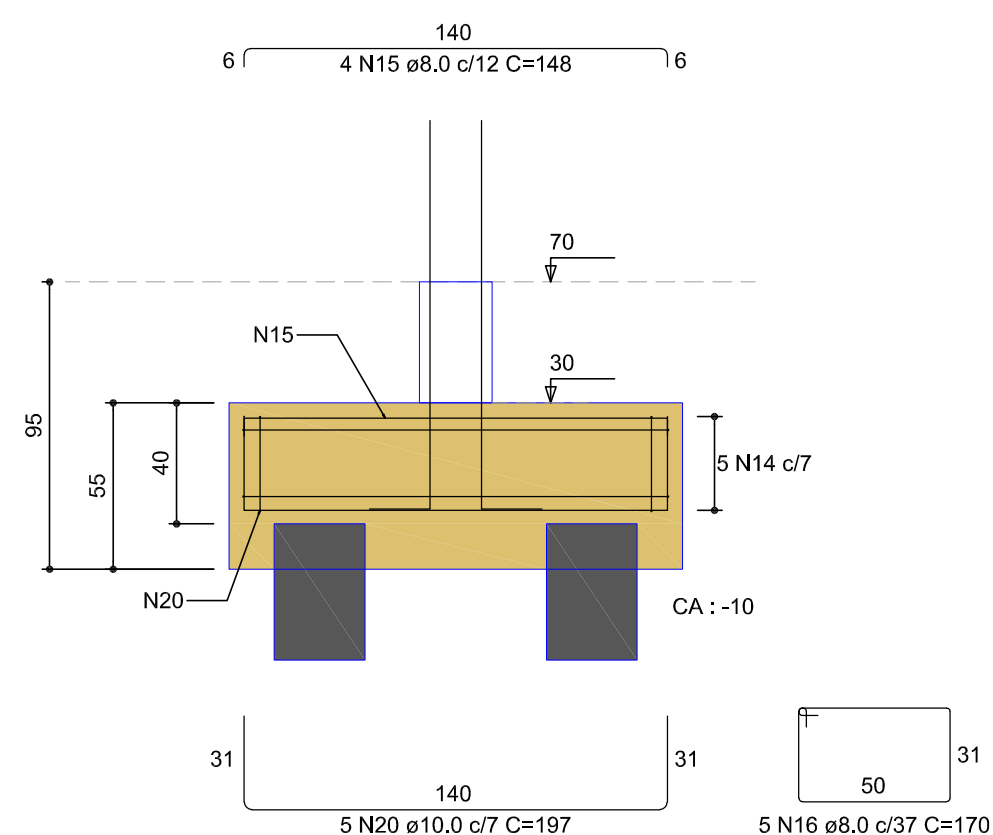
ROSENEI MELO GOETTEN DE LIMA
ENGENHEIRO CIVIL
CREA/SC 020985-5

EST. 02

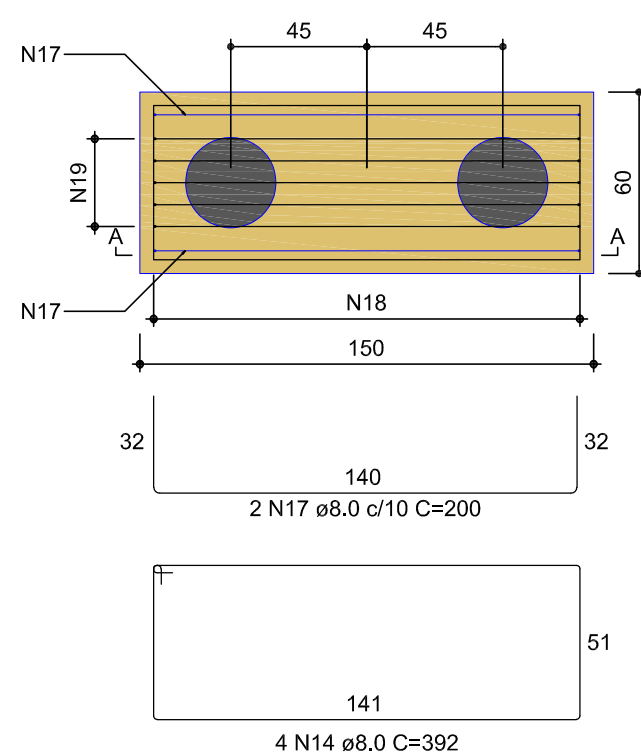
B105=B108
2x30
PLANTA
ESC 1:25



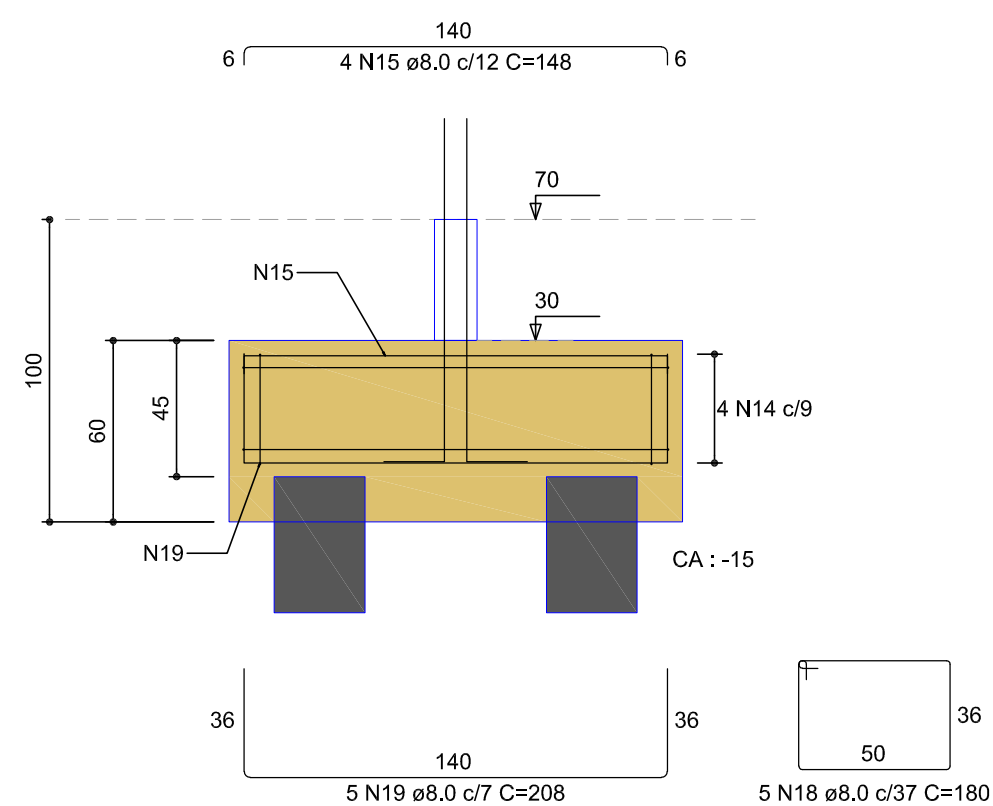
CORTE A-A
ESC 1:25



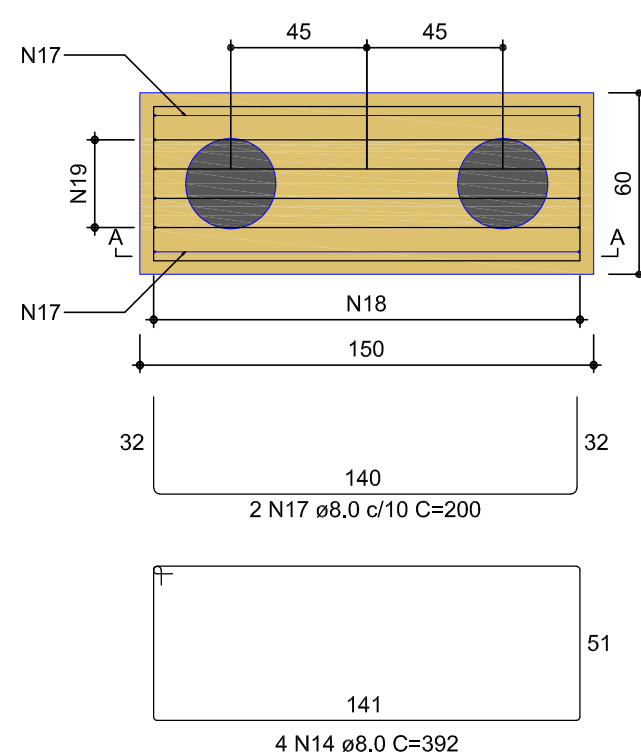
B78=B199
2x30
PLANTA
ESC 1:25



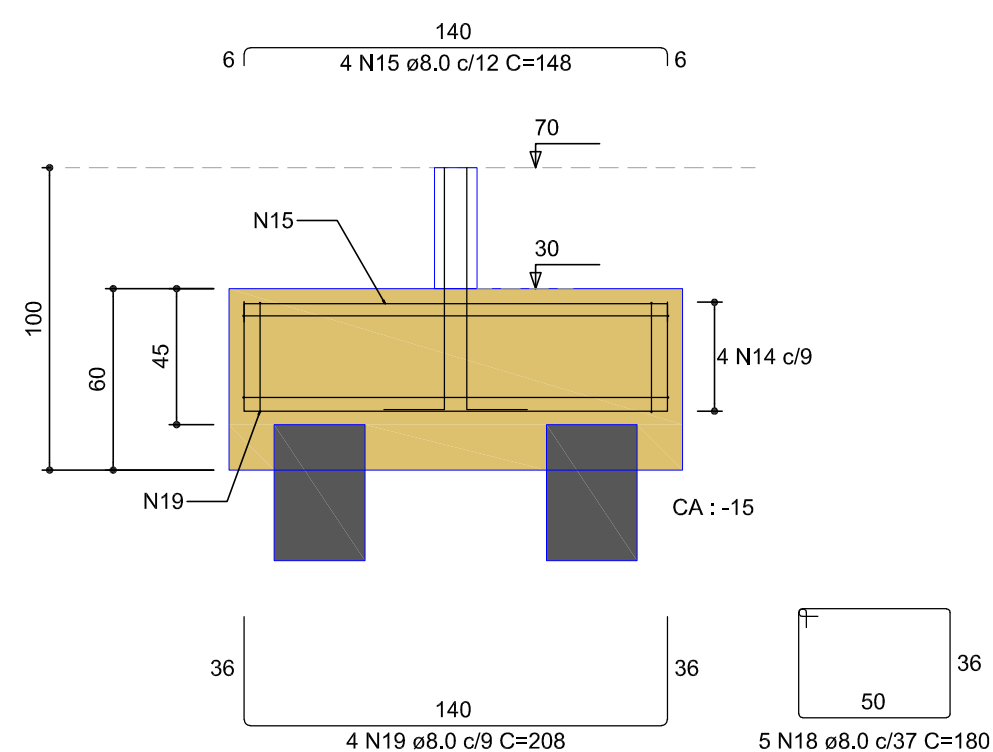
CORTE A-A
ESC 1:25



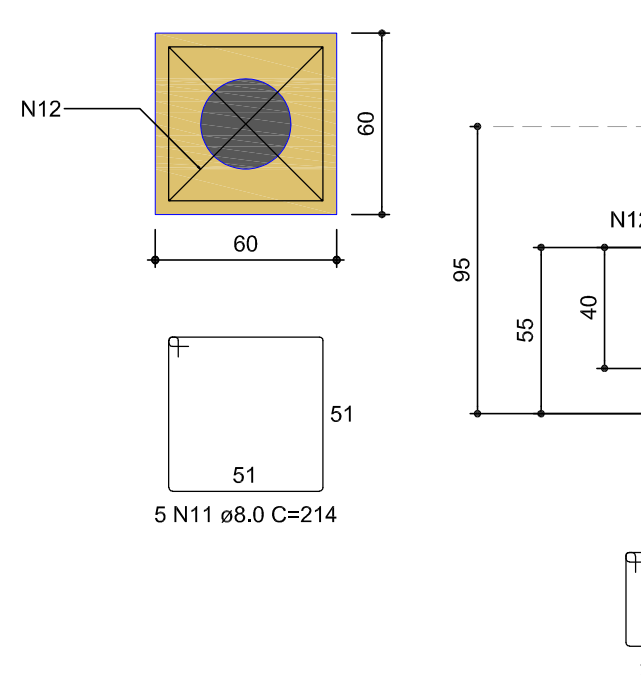
B77=B182=B220=B221
2x30
PLANTA
ESC 1:25



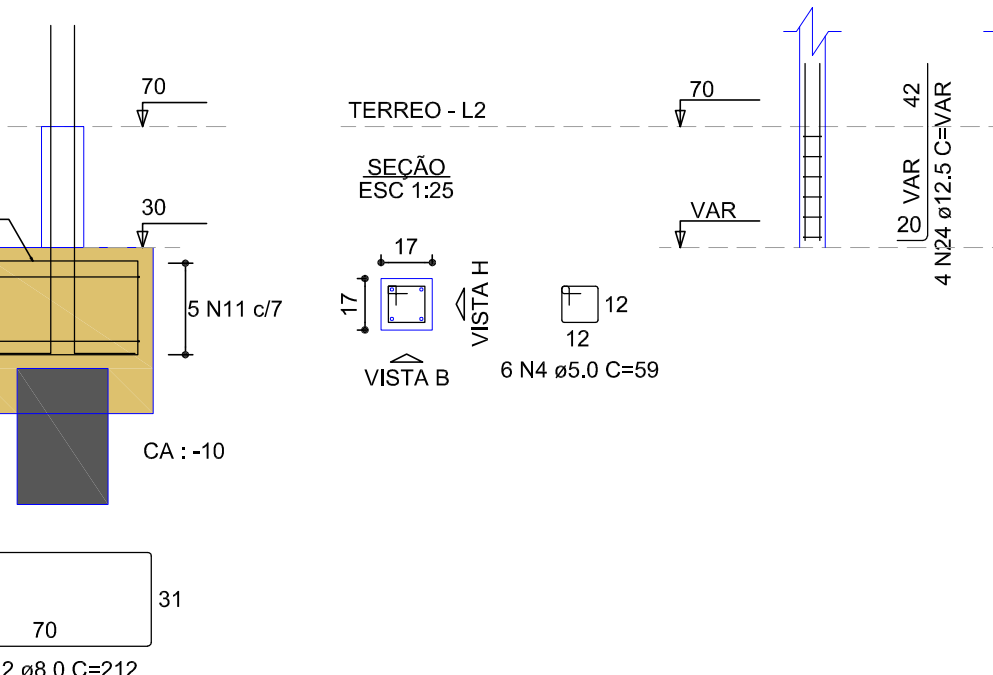
CORTE A-A
ESC 1:25



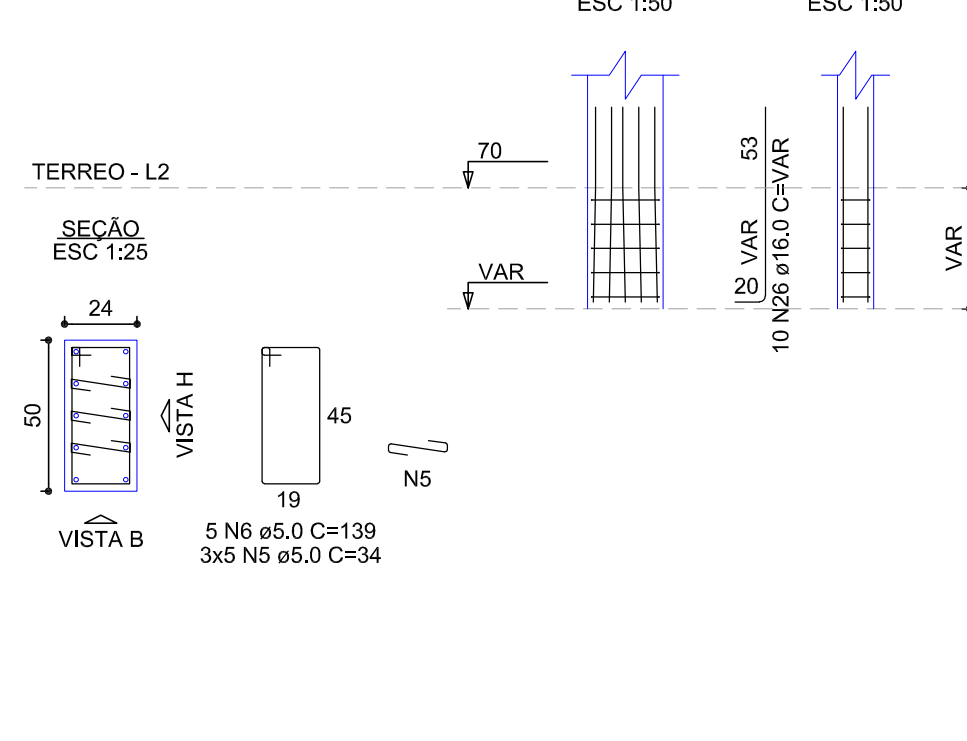
B91=B93=B94=B111=B112=B124=B159
1x30
PLANTA
ESC 1:25



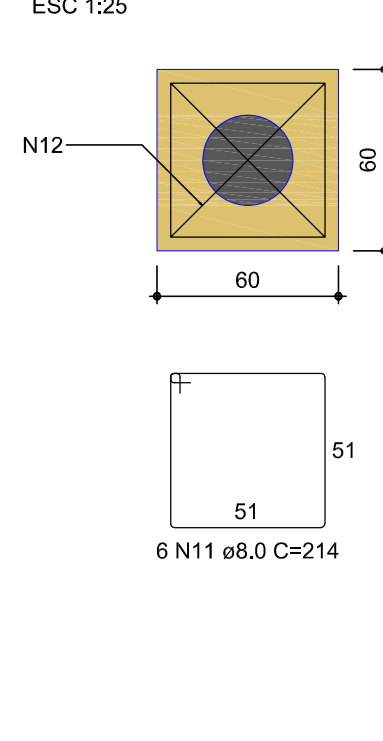
CORTE
ESC 1:25



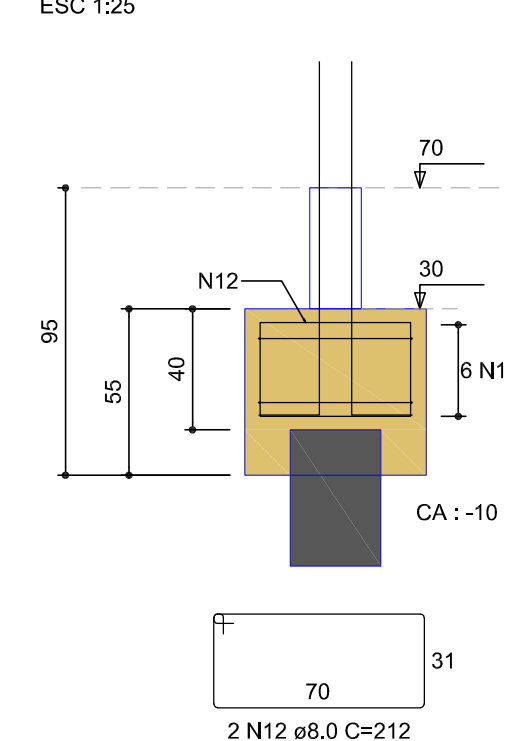
P105=P108



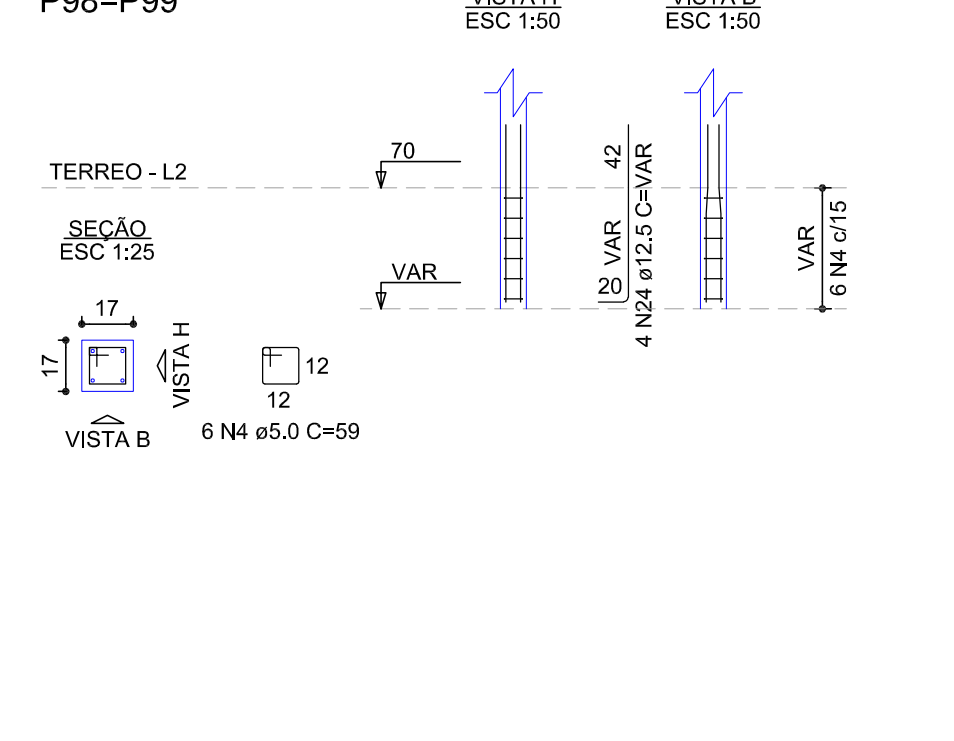
B98=B99
1x30
PLANTA
ESC 1:25



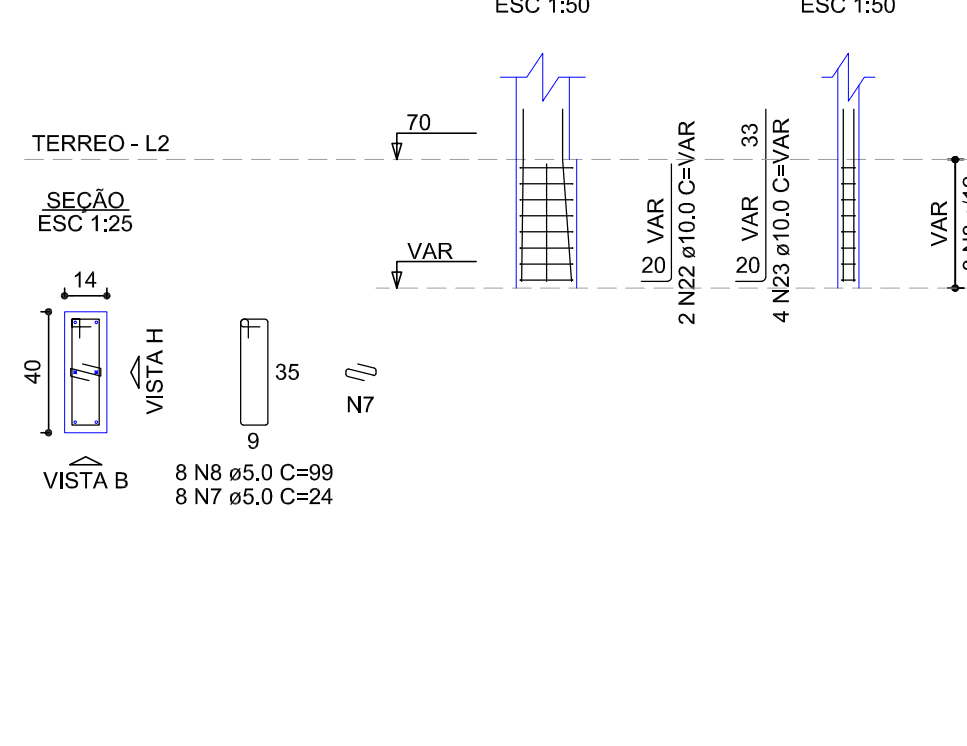
CORTE
ESC 1:25



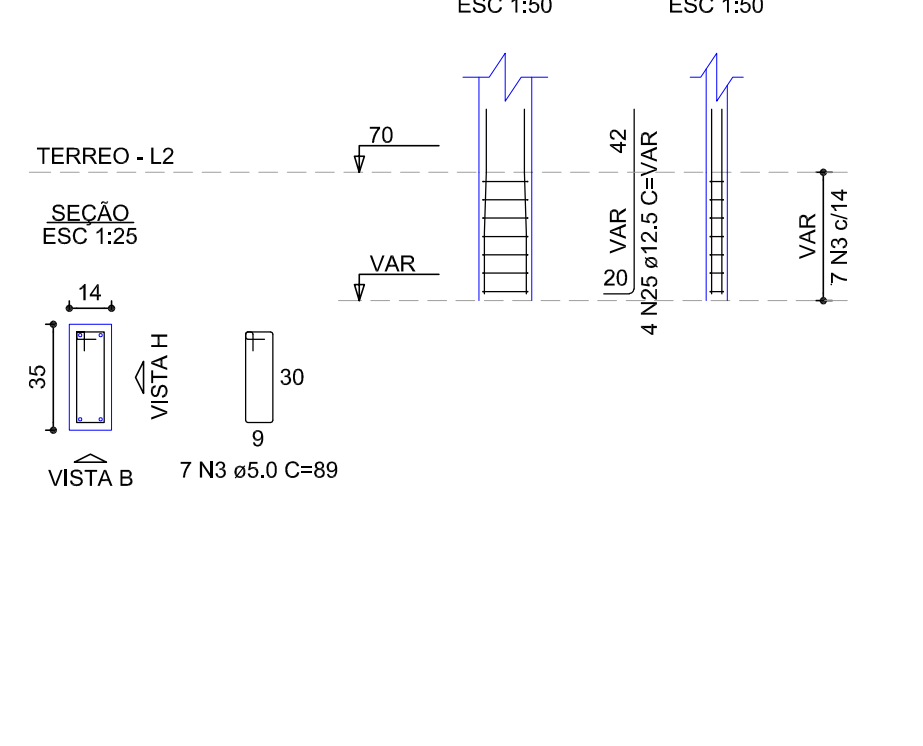
P98=P99



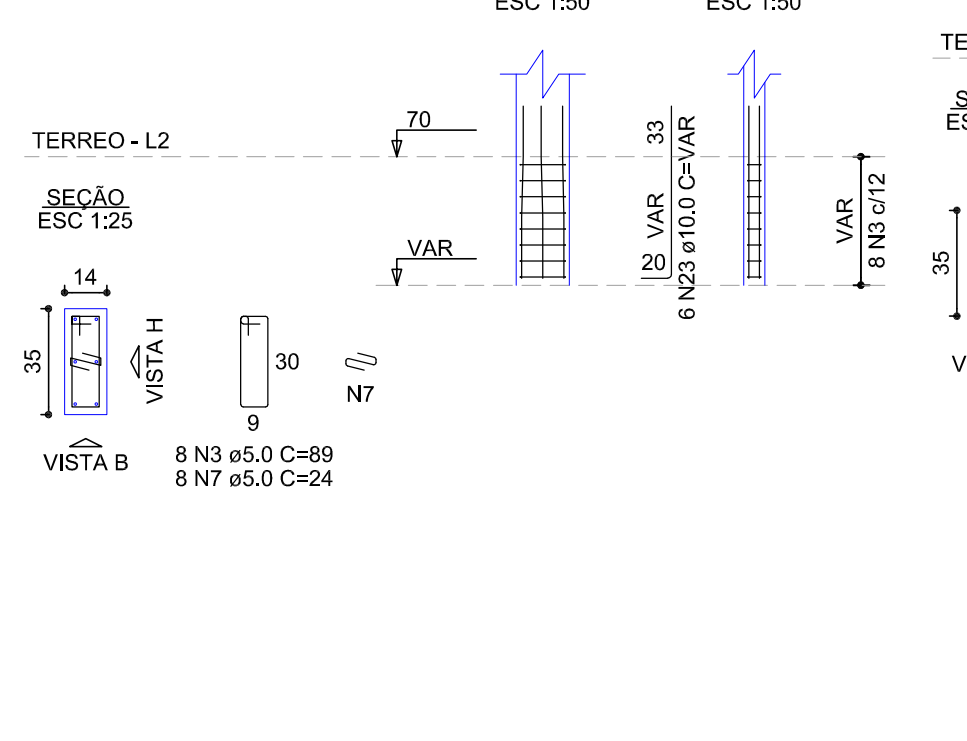
P199



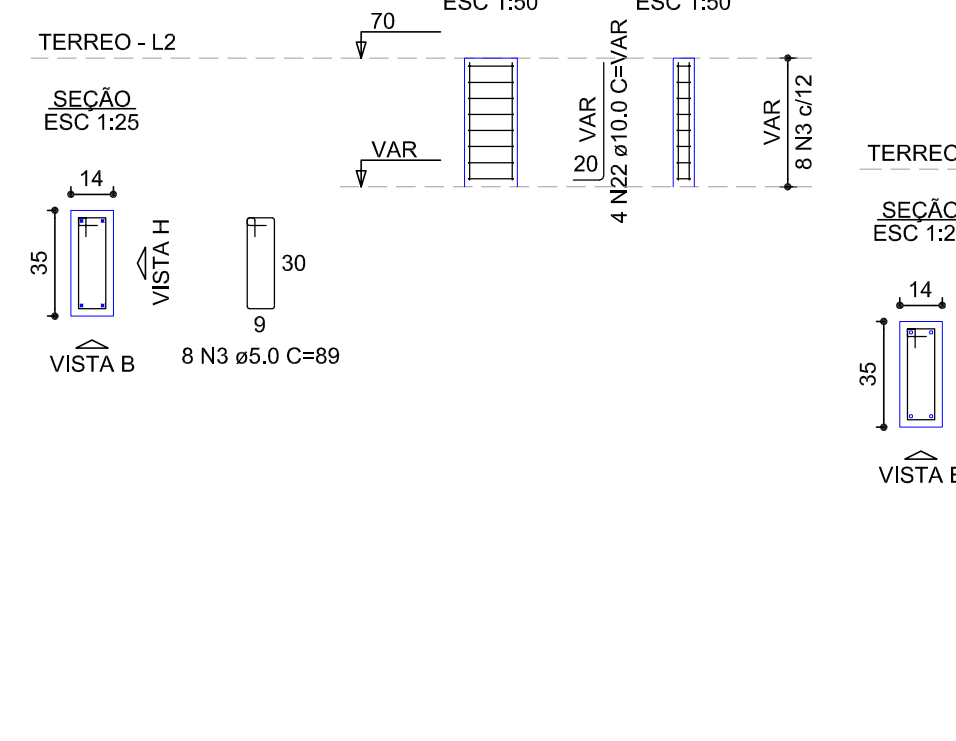
P78



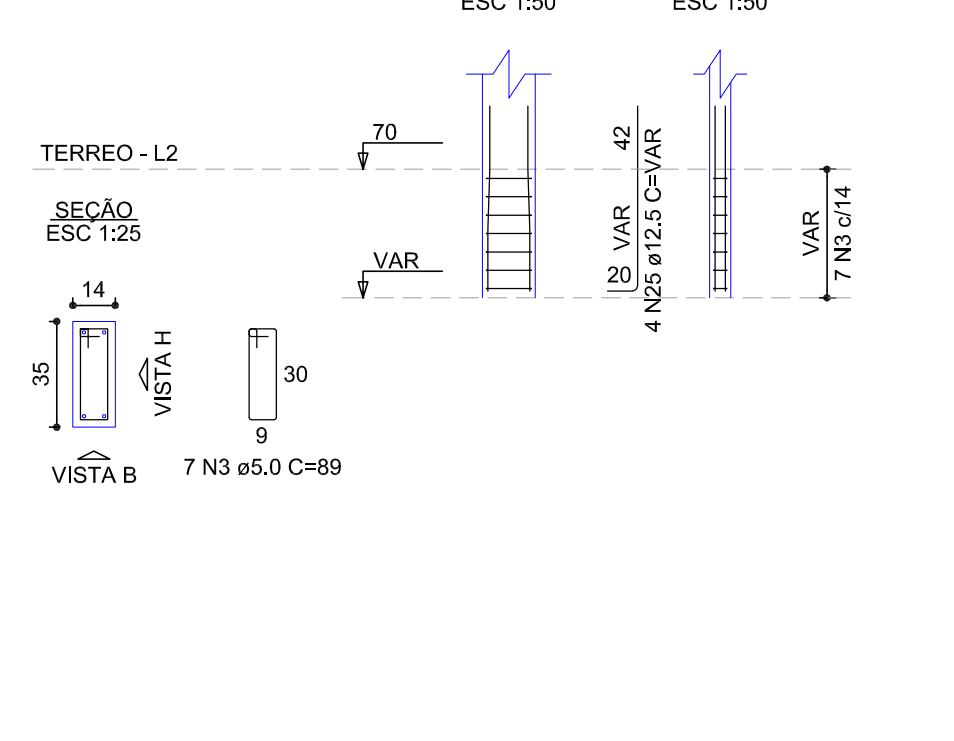
P220



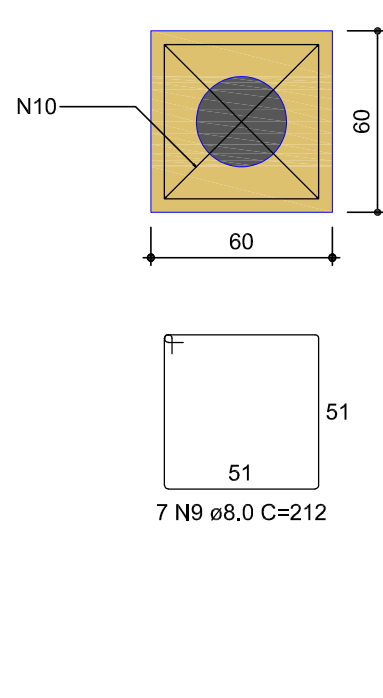
P182=P221



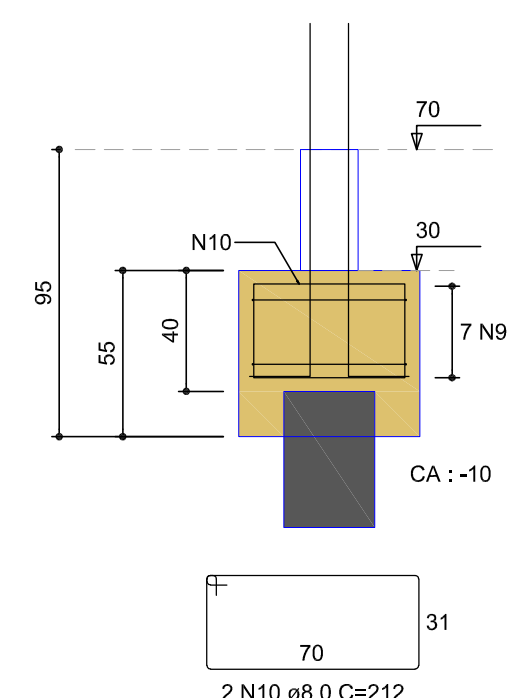
P77



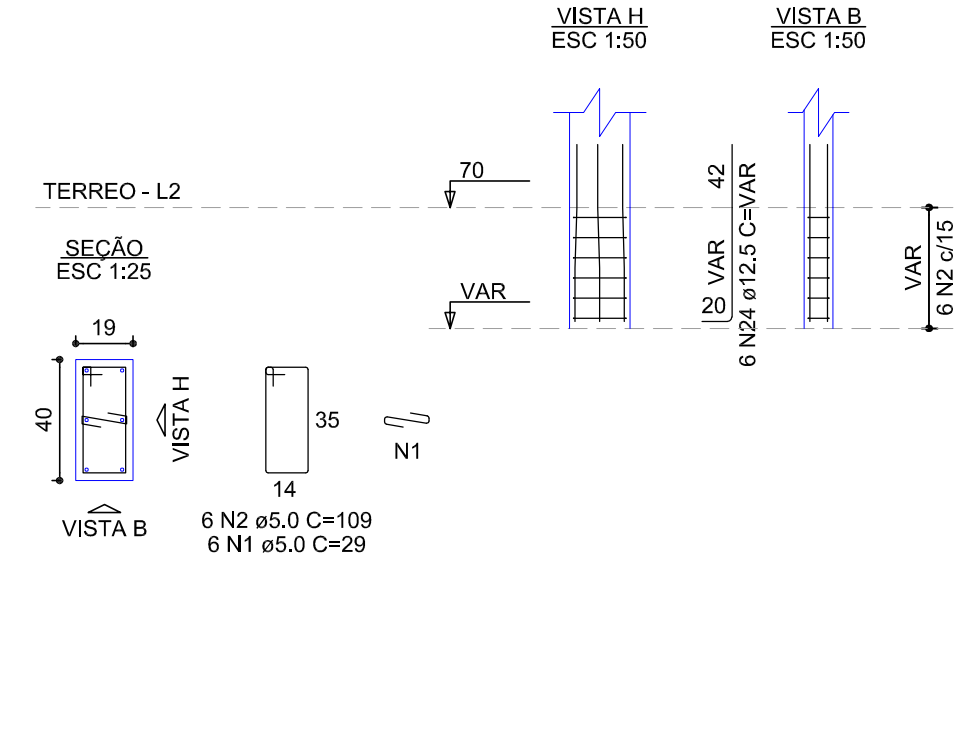
B4=B25=B26
1x30
PLANTA
ESC 1:25



CORTE
ESC 1:25



P4=P25=P26



RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	18	29	522
	2	5.0	18	109	1962
	3	5.0	59	89	5251
	4	5.0	36	59	2124
	5	5.0	30	34	1020
	6	5.0	10	139	1390
	7	5.0	16	24	384
	8	5.0	8	99	792
	9	8.0	21	212	4452
	10	8.0	6	212	1272
	11	8.0	47	214	10058
	12	8.0	18	212	3816
	13	8.0	4	198	792
	14	8.0	34	392	13228
	15	8.0	32	148	4736
	16	8.0	26	208	5408
	17	8.0	10	197	1970
	18	8.0	30	180	5400
	19	8.0	26	208	5408
	20	10.0	10	197	1970
	21	10.0	12	VAR	VAR
	22	10.0	10	VAR	VAR
	23	10.0	10	VAR	VAR
	24	12.5	42	VAR	VAR
	25	12.5	8	VAR	VAR
	26	16.0	20	VAR	VAR

RESUMO DO AÇO

ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	533.6	231.6
	10.0	57.7	39.2
	12.5	67.9	72
	16.0	29	50.3
	5.0	134.4	22.8
PESO TOTAL (kg)			
CA50		393.1	
CA60			22.8

Volume de concreto (C-30) = 7.20 m³
Área de forma = 51.48 m²

**JR ARQUITETURA
E ENGENHARIA**

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM BLOCO**

LOCAL: **RUA ALBERTO KOGLIN** ENGENHEIRO DA OBRA: **Rua Alberto Koglin**

PROPRIETÁRIO: **Bairro Centro - Dona Emma/SC**

MUNICÍPIO DE DONA EMMA

ENGENHEIRA RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** INSCREVAÇÃO: **ROSEINEI MELO GOETTEN DE LIMA**

ENGENHEIRO CIVIL: **ENGENHEIRO CIVIL** CREA/SC: **092985-6**

RESENDA: **ROSEINEI MELO G. DE LIMA**

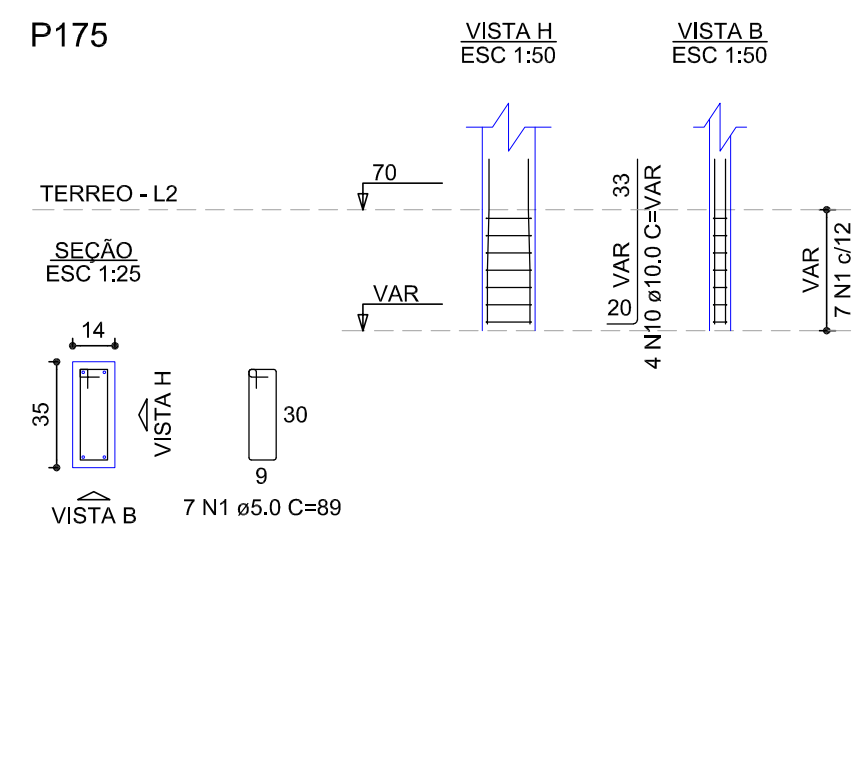
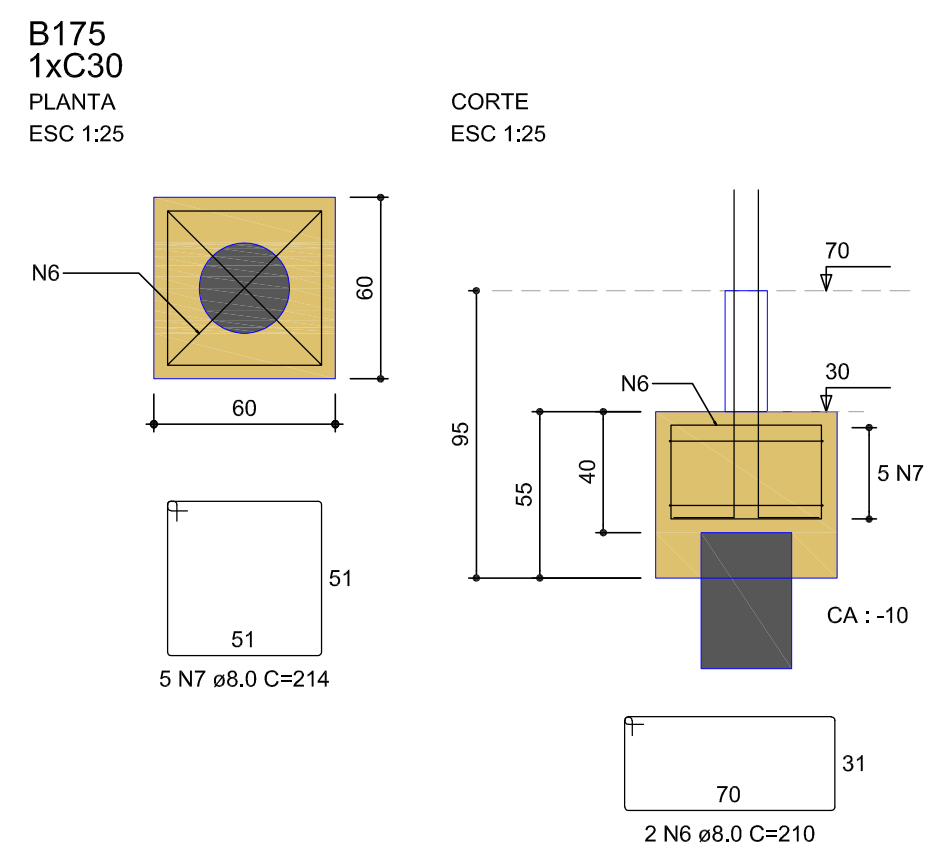
ESCALA: **1/75**

DATA: **15/02/2022**

TIPO: **EST.**

PRONCHIA: **03**

20



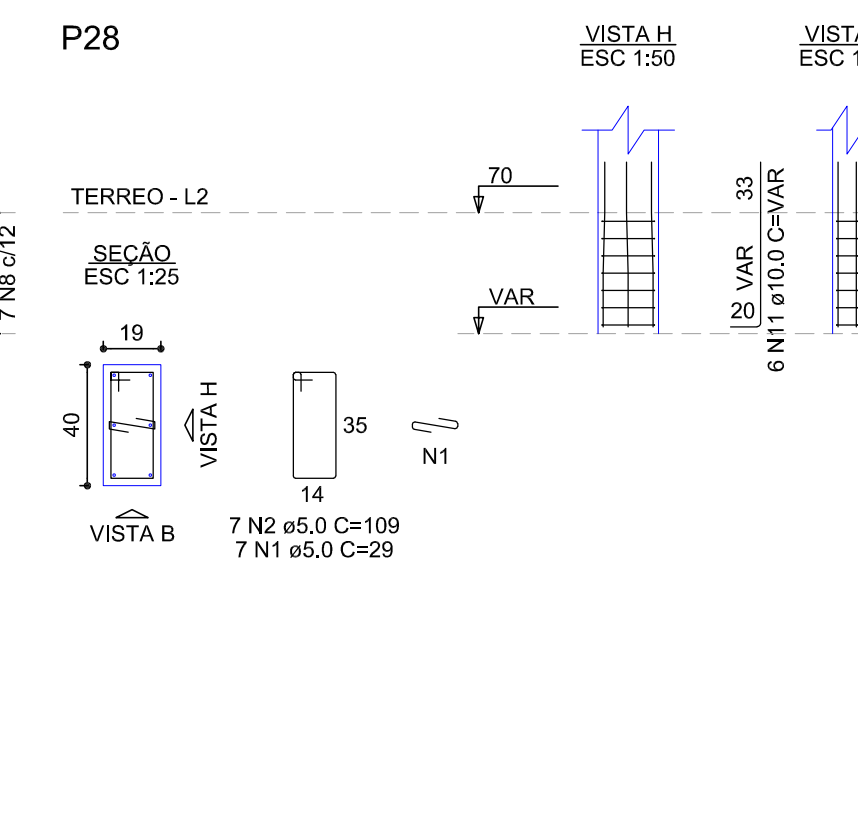
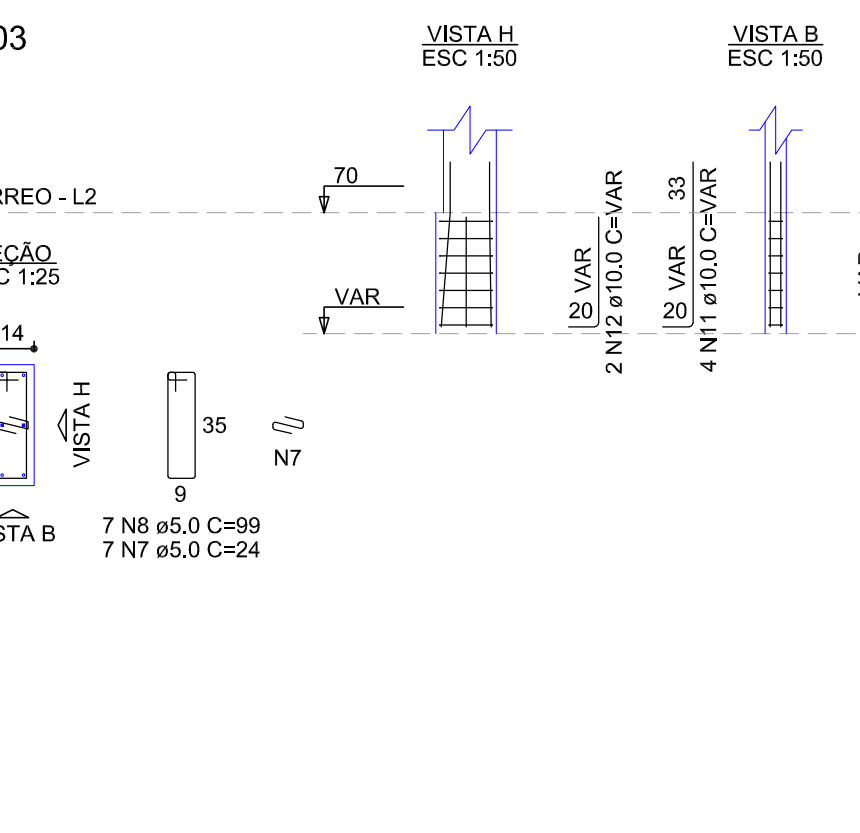
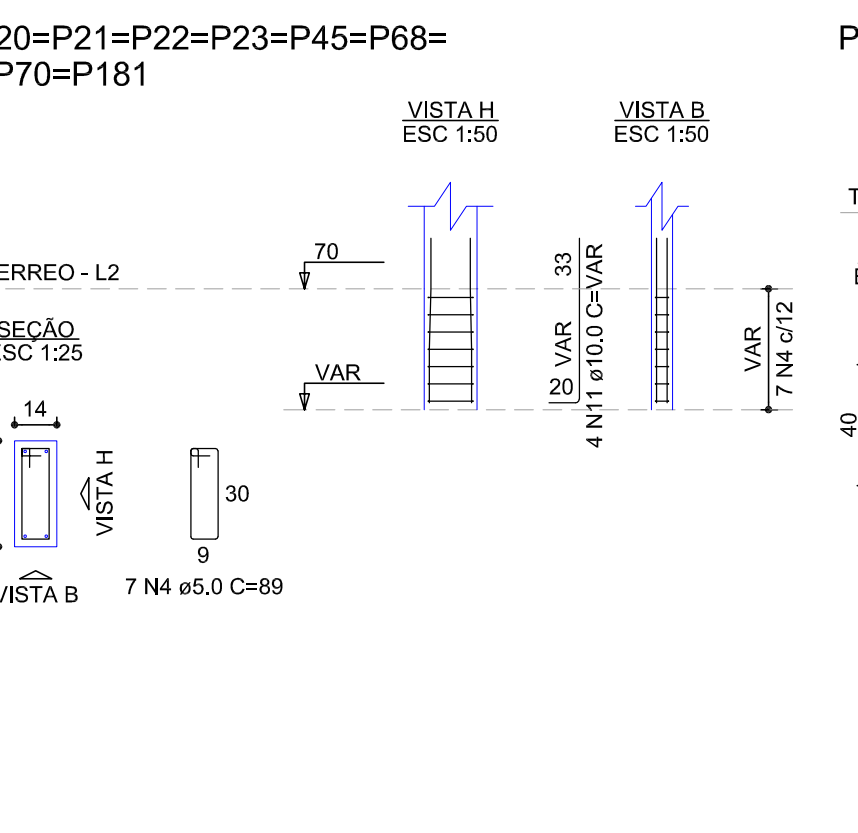
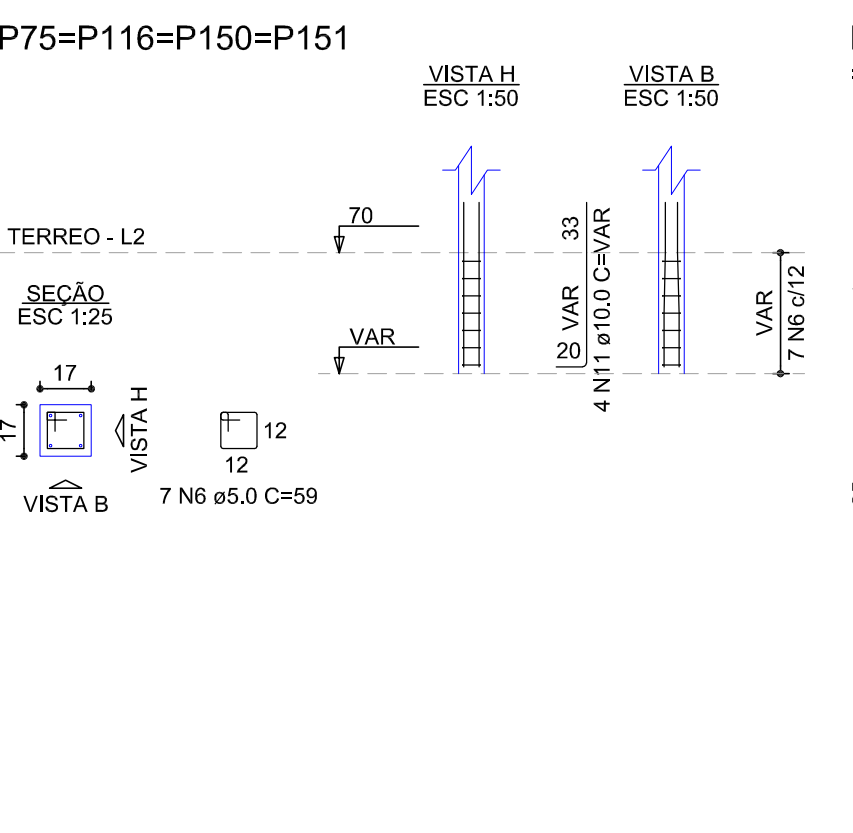
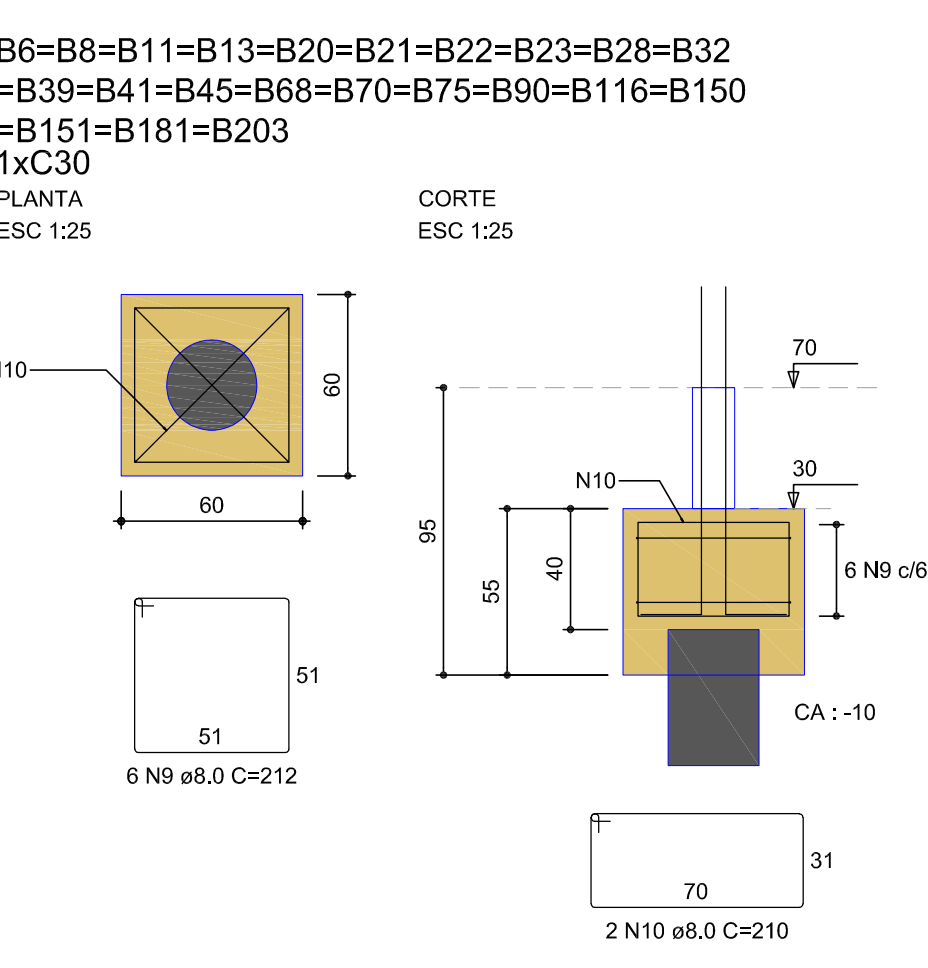
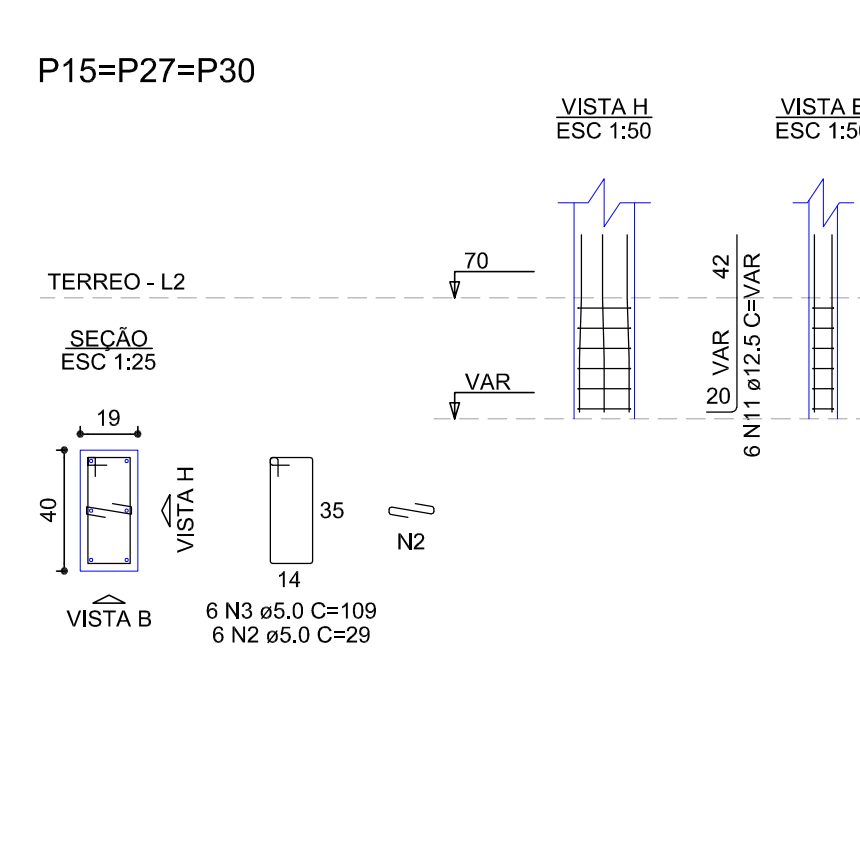
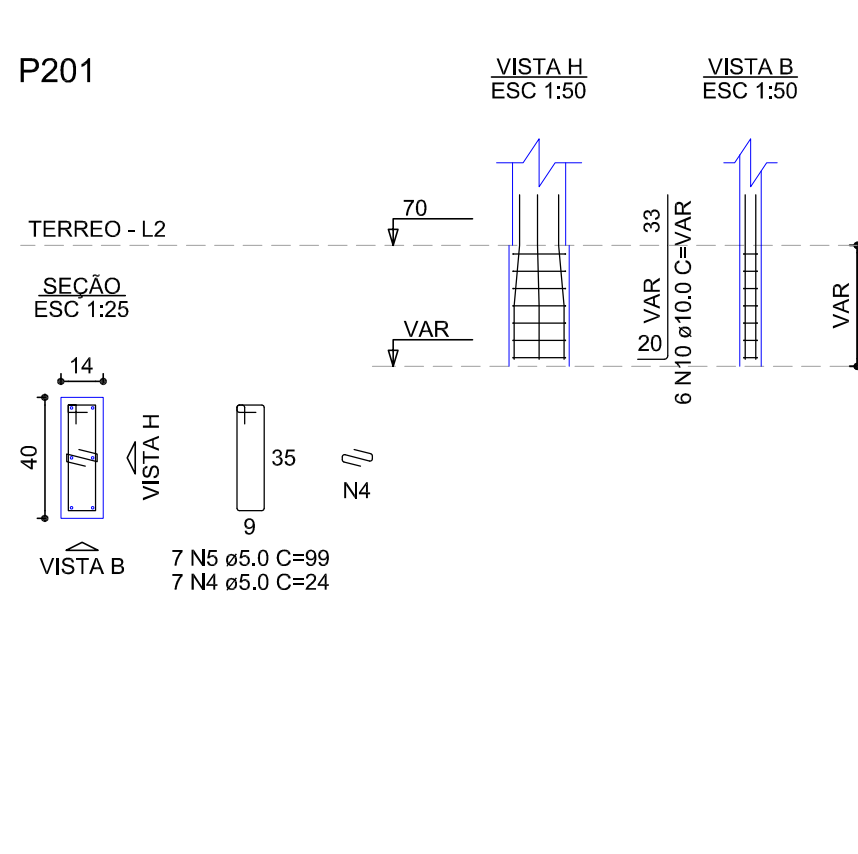
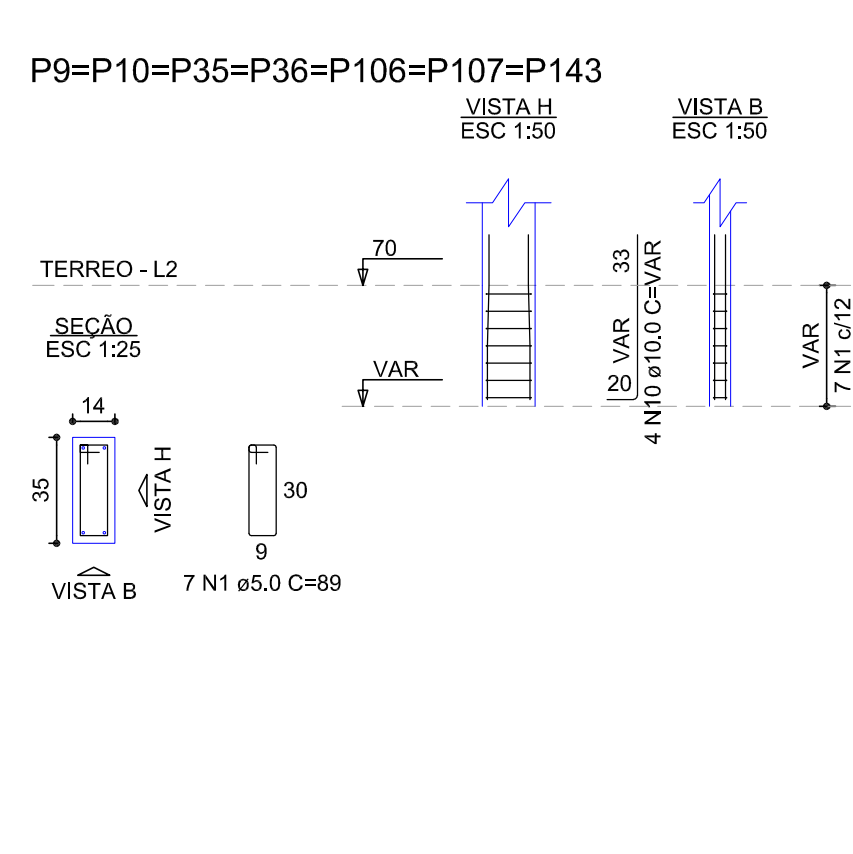
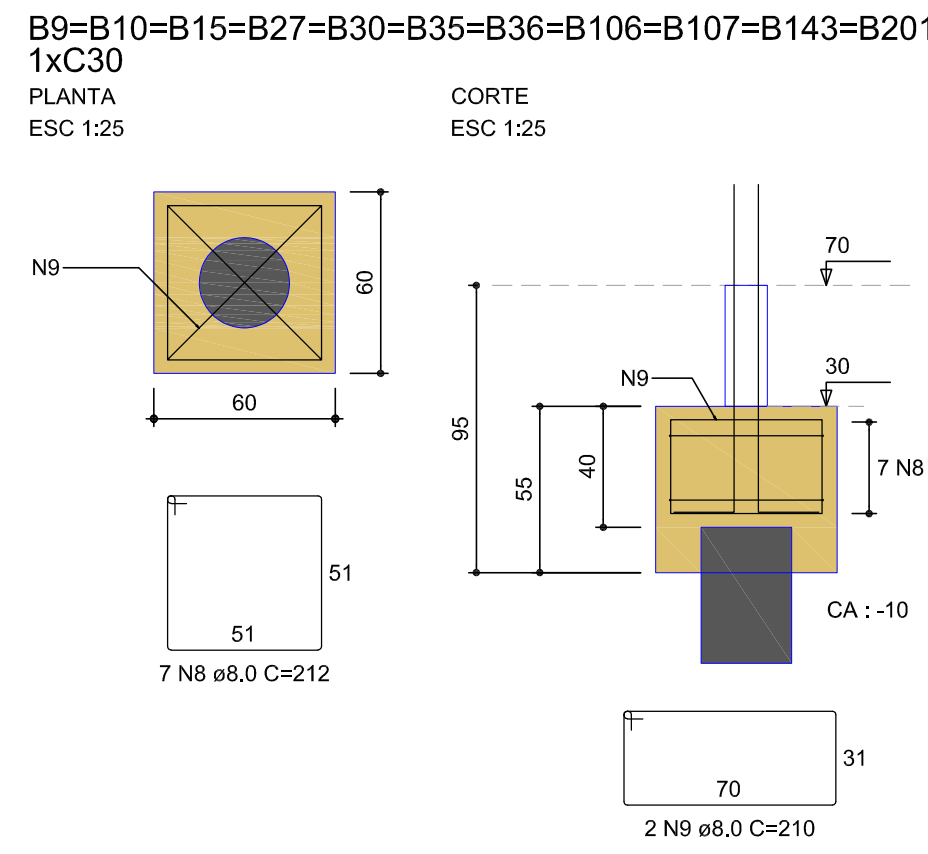
RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	42	89	3738
	2	5.0	18	29	522
	3	5.0	18	109	1962
CA50	4	5.0	7	24	168
	5	5.0	7	99	693
	6	8.0	2	210	420
	7	8.0	5	214	1070
	8	8.0	77	212	16324
	9	8.0	20	210	4200
10	10.0	30	VAR	VAR	
11	12.5	18	VAR	VAR	

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	220.2	96.8
	10.0	38.1	25.8
	12.5	24.3	25.8
CA60	5.0	70.8	12
PESO TOTAL (kg)			
CA50			132.4
CA60			12

Volume de concreto (C-30) = 2.54 m³
Área de forma = 21.60 m²



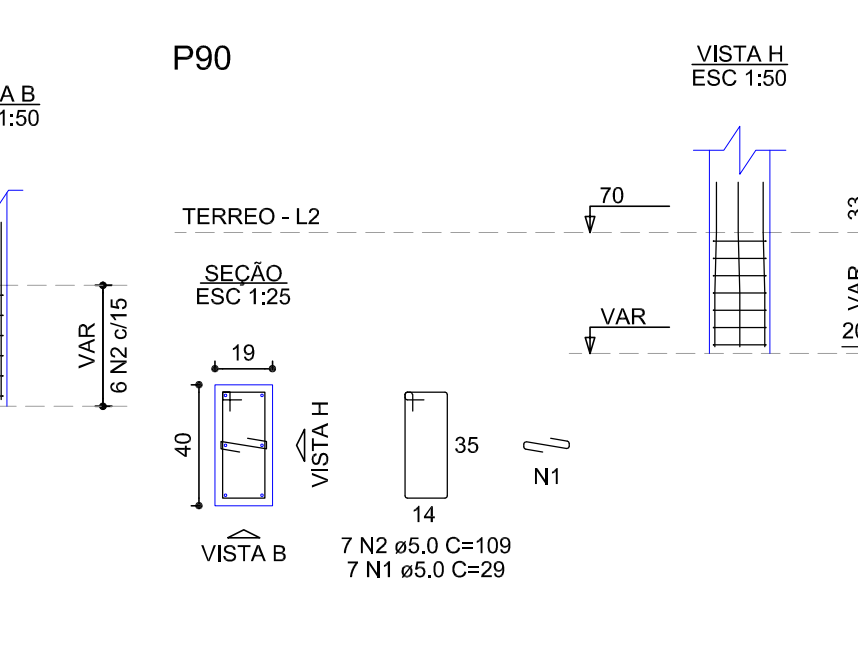
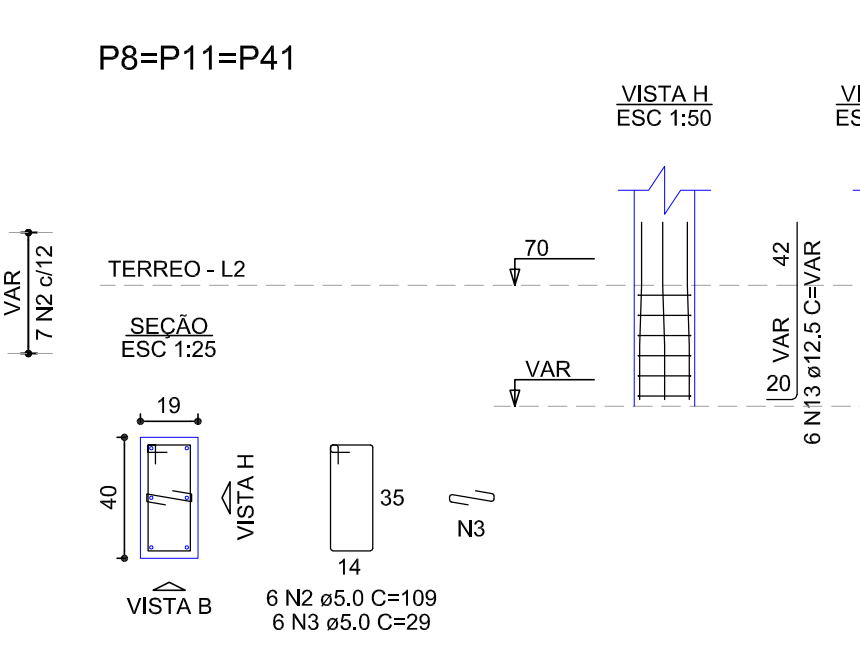
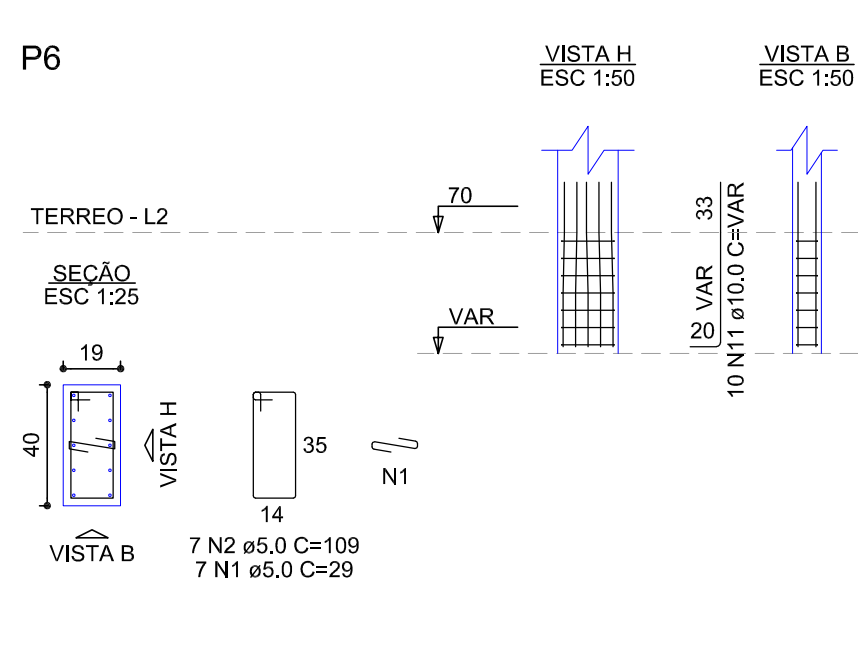
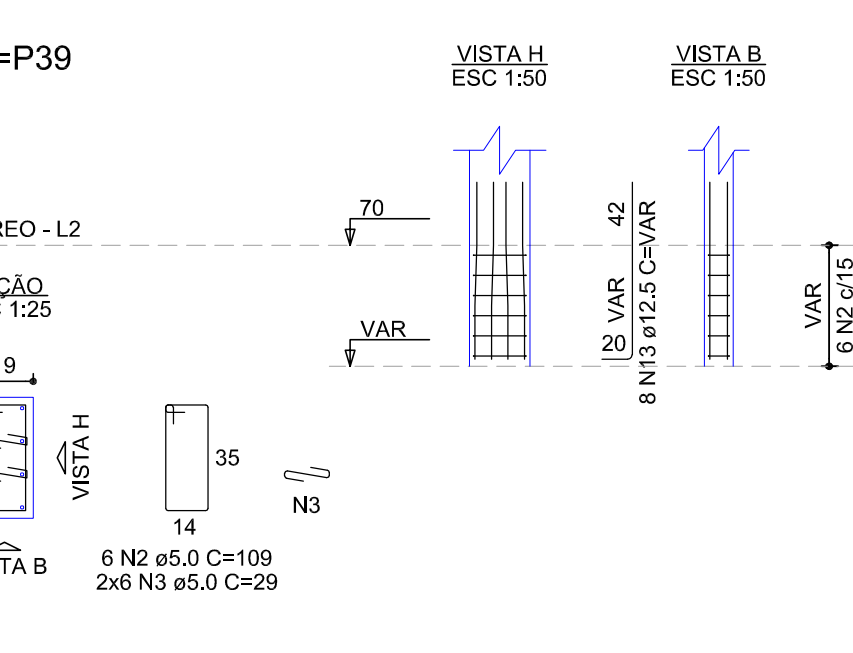
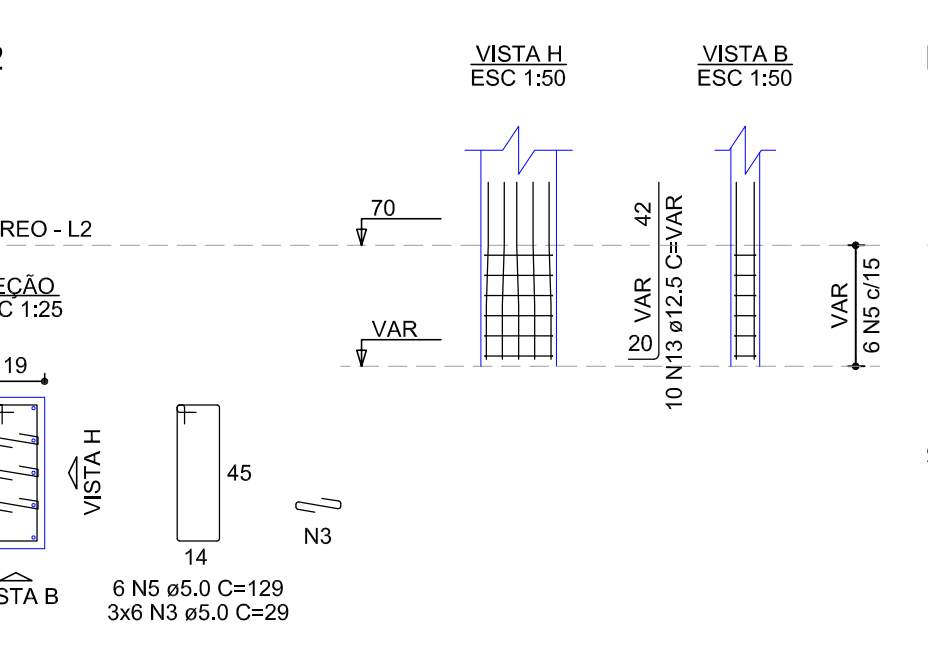
RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	21	29	609
	2	5.0	51	109	5559
	3	5.0	60	29	1740
CA50	4	5.0	56	89	4984
	5	5.0	6	129	774
	6	5.0	28	59	1652
	7	5.0	7	24	168
	8	5.0	7	99	693
	9	8.0	132	212	27984
	10	8.0	44	210	9240
	11	10.0	74	VAR	VAR
	12	10.0	2	VAR	VAR
	13	12.5	44	VAR	VAR

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	372.2	161.6
	10.0	95.8	65
	12.5	59.4	62.9
	5.0	161.8	27.4
PESO TOTAL (kg)			
CA50			289.5
CA60			27.4

Volume de concreto (C-30) = 5.14 m³
Área de forma = 47.01 m²



JR ARQUITETURA E ENGENHARIA

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM BLOCO**

LOCAL: **RUA ALBERTO KOGLIN** | ENDEREÇO DA OBRA: **Rua Alberto Koglin**
Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

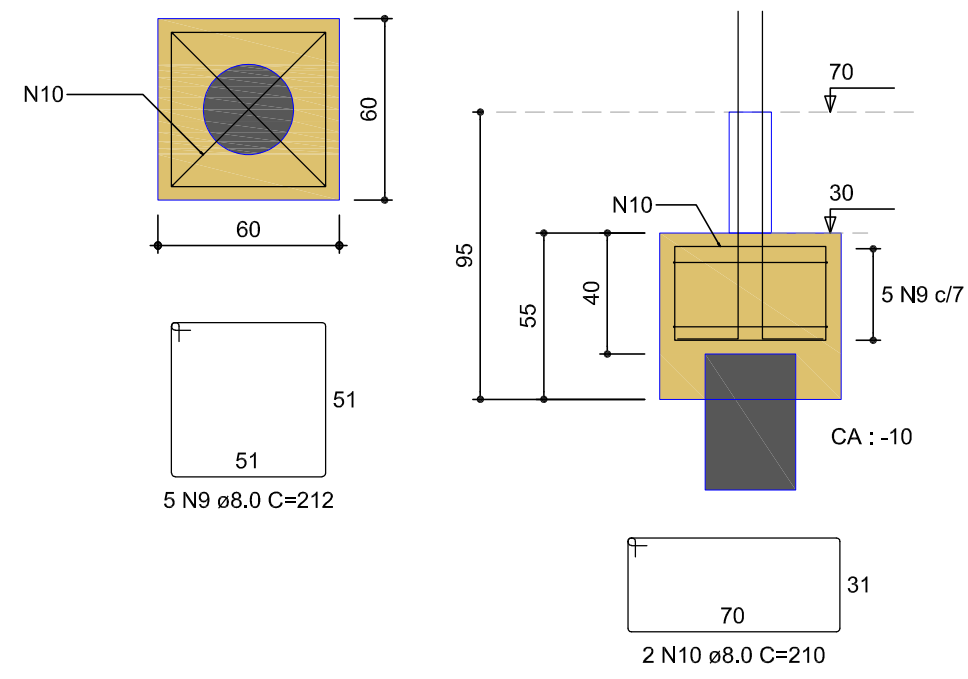
ENGENHEIRO RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** | **ROSINEI MELO GOETTEN DE LIMA**
ARQUITETA E URBANISTA | ENGENHEIRO CIVIL
CREA/SC 450619-2 | CREA/SC 99285-6

RESENDA: ROSINEI MELO G. DE LIMA
ESCALA: 1/75
DATA: 15/02/2022
TIPO: **EST.**
PRANCHAS: **04** / 20

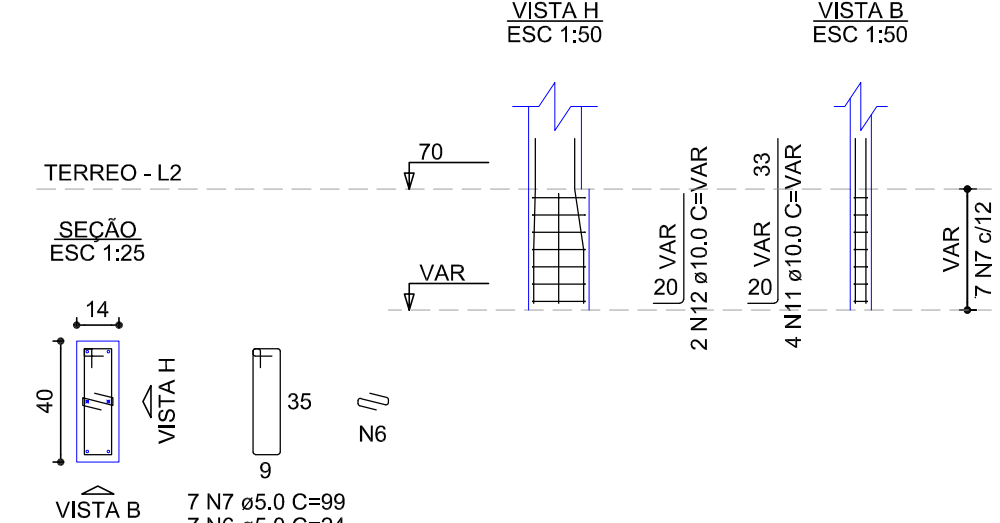
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1x30
 PLANTA
 ESC 1:25

CORTE
 ESC 1:25

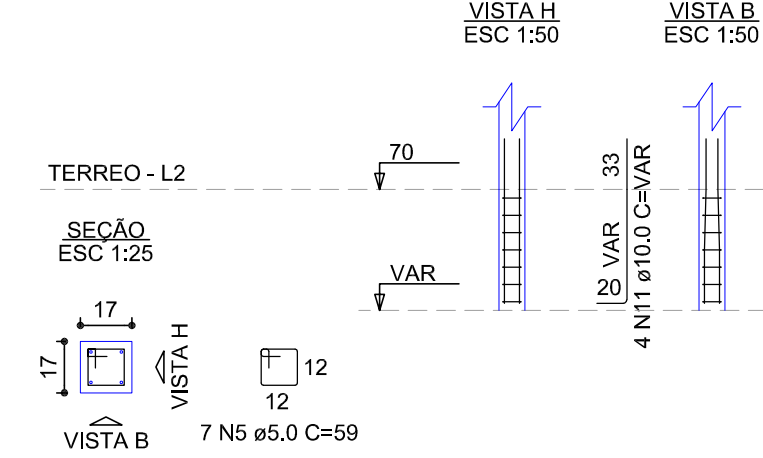
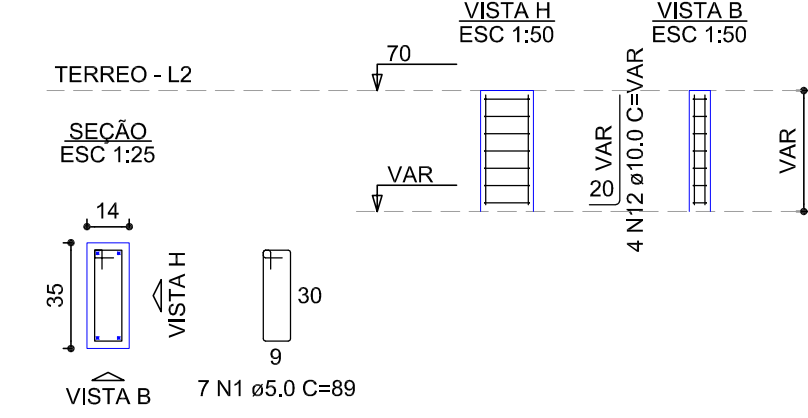


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RELAÇÃO DO AÇO

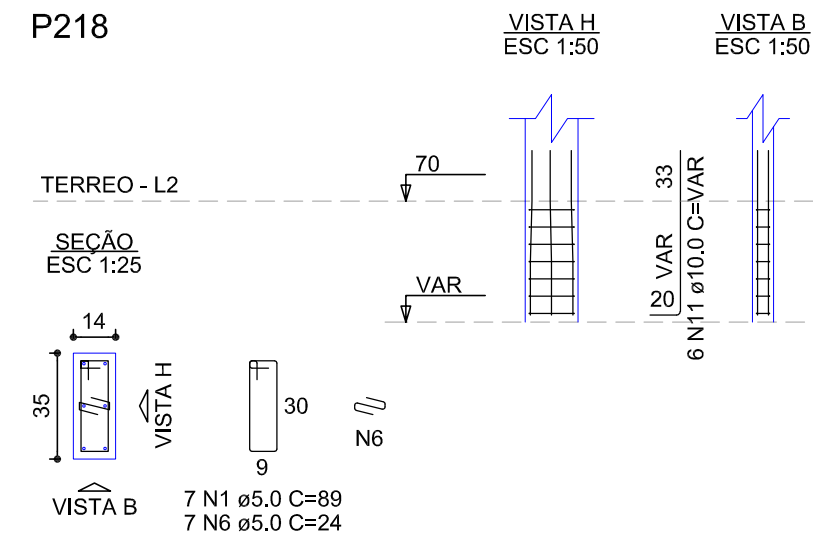
AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	518	89	46102
	2	5.0	30	29	870
	3	5.0	6	129	774
	4	5.0	13	109	1417
	5	5.0	406	59	23954
	6	5.0	28	24	672
	7	5.0	21	99	2079
	8	5.0	7	29	203
CA50	9	8.0	690	212	146280
	10	8.0	276	210	57960
	11	10.0	508	VAR	VAR
	12	10.0	46	VAR	VAR
	13	12.5	18	VAR	VAR

RESUMO DO AÇO

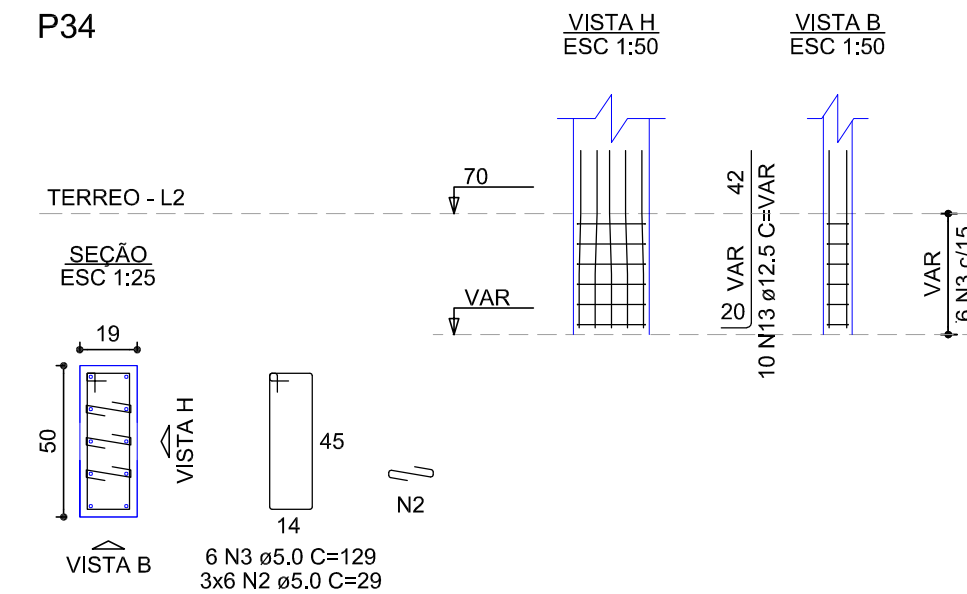
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	2042.4	896.5
	10.0	507	465.9
	12.5	24.3	25.8
CA60	5.0	760.7	129
PESO TOTAL (kg)			
CA50		1378.2	
CA60		129	

Volume de concreto (C-30) = 30.43 m³
 Área de forma = 277.31 m²

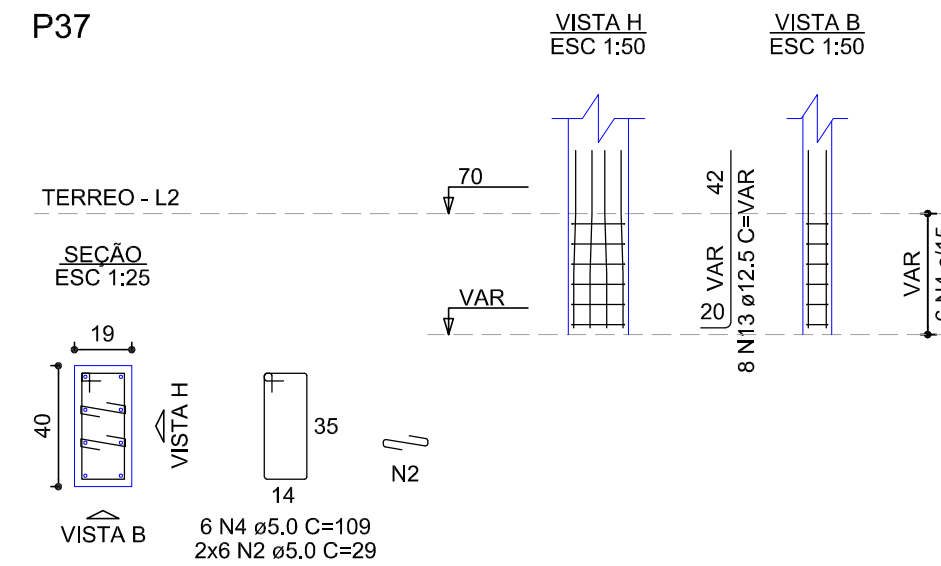
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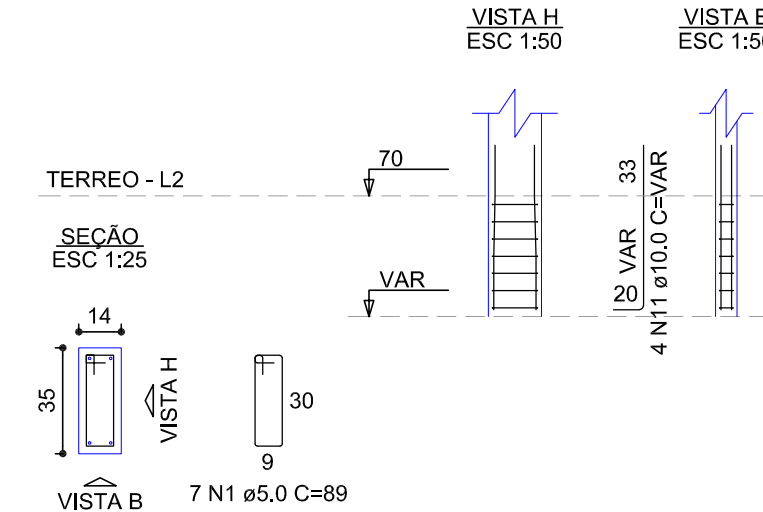
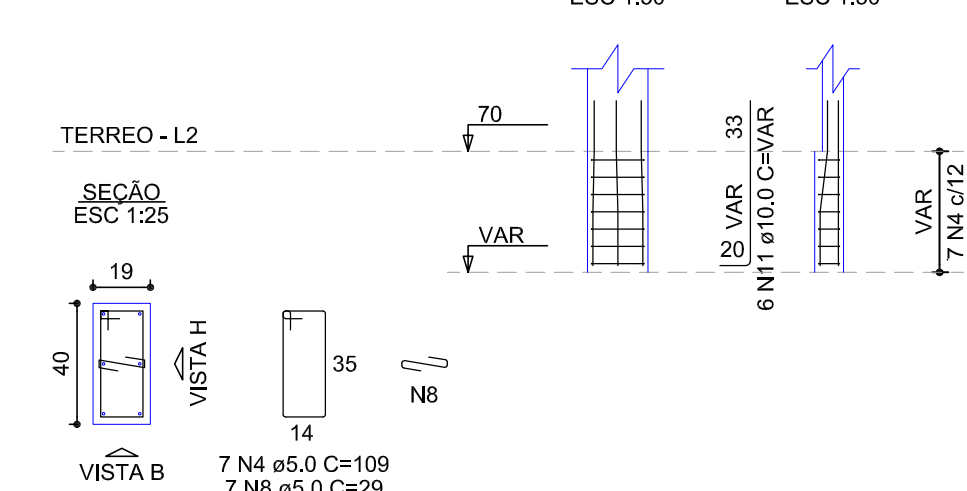



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P92





**JR ARQUITETURA
E ENGENHARIA**

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 RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC



ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

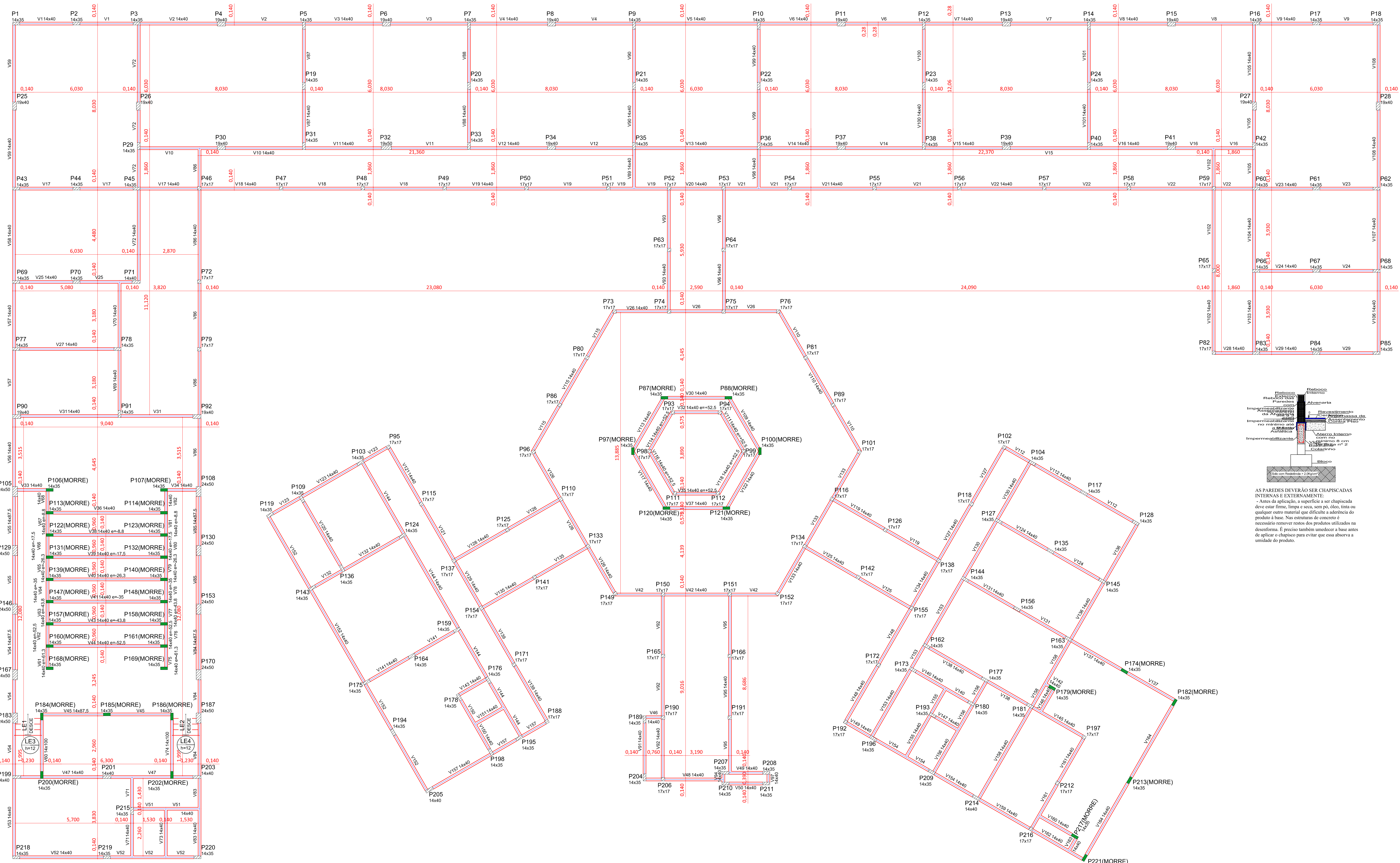
REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM BLOCO**

LOCAL: **RUA ALBERTO KOGLIN** | ENDEREÇO DA OBRA: **Rua Alberto Koglin**
 Bairro Centro - Dona Emma/SC

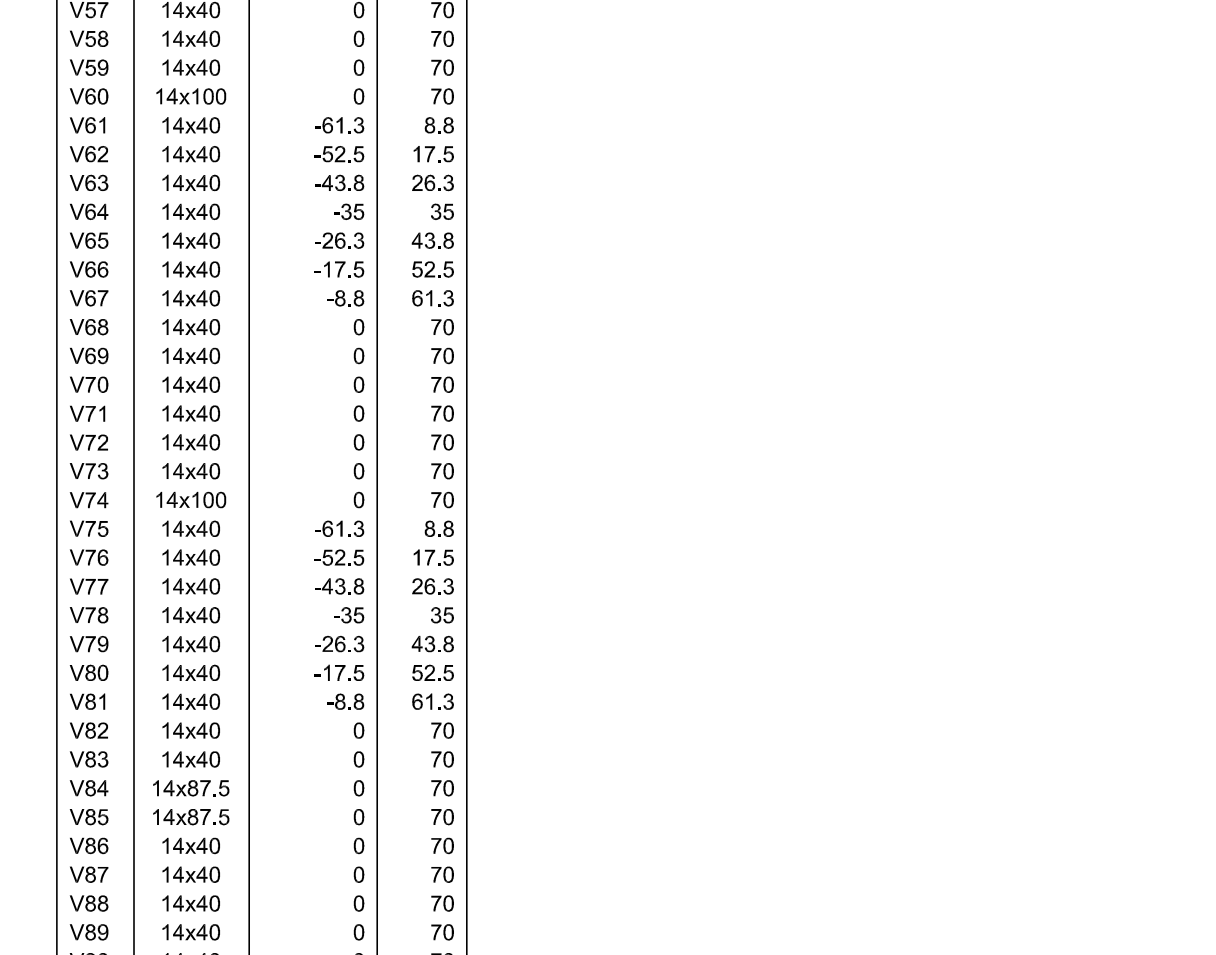
PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

ENGENHEIRO RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** (ARQUITETA E URBANISTA) | **ROSINEI MELO GOETTEN DE LIMA** (ENGENHEIRO CIVIL)

ESCALA: 1/75
 DATA: 15/02/2022
 TIPO: **EST.**
 PLANCHA: **05** / 20



Nome	Seção	Vigão	Elevação (cm)	Nível (cm)
V1	14x40	0	70	70
V2	14x40	0	70	70
V3	14x40	0	70	70
V4	14x40	0	70	70
V5	14x40	0	70	70
V6	14x40	0	70	70
V7	14x40	0	70	70
V8	14x40	0	70	70
V9	14x40	0	70	70
V10	14x40	0	70	70
V11	14x40	0	70	70
V12	14x40	0	70	70
V13	14x40	0	70	70
V14	14x40	0	70	70
V15	14x40	0	70	70
V16	14x40	0	70	70
V17	14x40	0	70	70
V18	14x40	0	70	70
V19	14x40	0	70	70
V20	14x40	0	70	70
V21	14x40	0	70	70
V22	14x40	0	70	70
V23	14x40	0	70	70
V24	14x40	0	70	70
V25	14x40	0	70	70
V26	14x40	0	70	70
V27	14x40	0	70	70
V28	14x40	0	70	70
V29	14x40	0	70	70
V30	14x40	0	70	70
V31	14x40	0	70	70
V32	14x40	0	122,5	70
V33	14x40	0	70	70
V34	14x40	0	70	70
V35	14x40	0	122,5	70
V36	14x40	0	70	70
V37	14x40	0	70	70
V38	14x40	-8	61,3	70
V39	14x40	-17,5	52,5	70
V40	14x40	-26,3	43,8	70
V41	14x40	-35	35	70
V42	14x40	-43,8	26,3	70
V43	14x40	-52,5	17,5	70
V44	14x40	-61,3	8,8	70
V45	14x40	-70	0	70
V46	14x40	-78,8	-8,8	70
V47	14x40	-87,5	-17,5	70
V48	14x40	-96,3	-26,3	70
V49	14x40	-105	-35	70
V50	14x40	-113,8	-43,8	70
V51	14x40	-122,5	-52,5	70
V52	14x40	-131,3	-61,3	70
V53	14x40	-140	-70	70
V54	14x40	-148,8	-78,8	70
V55	14x40	-157,5	-87,5	70
V56	14x40	-166,3	-96,3	70
V57	14x40	-175	-105	70
V58	14x40	-183,8	-113,8	70
V59	14x40	-192,5	-122,5	70
V60	14x100	0	70	70
V61	14x40	-61,3	8,8	70
V62	14x40	-70	0	70
V63	14x40	-78,8	-8,8	70
V64	14x40	-87,5	-17,5	70
V65	14x40	-96,3	-26,3	70
V66	14x40	-105	-35	70
V67	14x40	-113,8	-43,8	70
V68	14x40	-122,5	-52,5	70
V69	14x40	-131,3	-61,3	70
V70	14x40	-140	-70	70
V71	14x40	-148,8	-78,8	70
V72	14x40	-157,5	-87,5	70
V73	14x40	-166,3	-96,3	70
V74	14x100	0	70	70
V75	14x40	-61,3	8,8	70
V76	14x40	-70	0	70
V77	14x40	-78,8	-8,8	70
V78	14x40	-87,5	-17,5	70
V79	14x40	-96,3	-26,3	70
V80	14x40	-105	-35	70
V81	14x40	-113,8	-43,8	70
V82	14x40	-122,5	-52,5	70
V83	14x40	-131,3	-61,3	70
V84	14x40	-140	-70	70
V85	14x40	-148,8	-78,8	70
V86	14x40	-157,5	-87,5	70
V87	14x40	-166,3	-96,3	70
V88	14x40	-175	-105	70
V89	14x40	-183,8	-113,8	70
V90	14x100	0	70	70
V91	14x40	-61,3	8,8	70
V92	14x40	-70	0	70
V93	14x40	-78,8	-8,8	70
V94	14x40	-87,5	-17,5	70
V95	14x40	-96,3	-26,3	70
V96	14x40	-105	-35	70
V97	14x40	-113,8	-43,8	70
V98	14x40	-122,5	-52,5	70
V99	14x40	-131,3	-61,3	70
V100	14x40	-140	-70	70
V101	14x40	-148,8	-78,8	70
V102	14x40	-157,5	-87,5	70
V103	14x40	-166,3	-96,3	70
V104	14x40	-175	-105	70
V105	14x40	-183,8	-113,8	70
V106	14x40	-192,5	-122,5	70
V107	14x40	-201,3	-131,3	70
V108	14x40	-210	-140	70



Forma do pavimento Terreo (Nível 70) escala 1:75

- NOTAS IMPORTANTES:**
 A fundação apresentada foi dimensionada para ser apoiada sobre solo com resistência mínima de 1,0 kgf/cm².
- É de inteira responsabilidade do Fabricante as Lajes Pré-Fabricadas, ficando o fabricante responsável pelo cálculo, segurança e desempenho das mesmas.
 - Aplicar sobre a laje armadura de distribuição e negativas, conforme necessidade e especificação do fabricante;
 - Solicitar ART da laje informando a sobre-carga de suporte, conforme especificado em projeto;
 - Solicitar ART da execução de todos os serviços prestados/executados;
 - Usar mão de obra qualificada;
 - Utilizar alvenaria com largura de 0,115m;
 - Verificar memorial descritivo antes de iniciar os serviços;
 - Em caso de alteração de projeto, dúvidas, consultar o engenheiro responsável pelo projeto e a fiscalização antes da execução do serviço;

Concreto:
 - fck = 25 MPa (Classe II - Agressividade) conforme a NBR 6118/2003
 - Fator AC = 0,60
 - Consumo mínimo de cimento = 350kg/m³

Aço:
 - Aço: CA-60 - Ø5,0mm
 - Aço: CA-50 - demais bitolas

Cobertura da armadura:
 * Garantir o cobertura mínimo com o uso de espaçadores ou pastilhas.

- Executar verga e contra-verga em todas as Janelas
- Executar Verga em todas as portas;

TABELA DE CONVERSÃO

Milímetros para Polegada

5 mm = 3/16"	12,5 mm = 1/2"
6,3 mm = 1/4"	16 mm = 5/8"
8 mm = 5/16"	20 mm = 3/4"
10 mm = 3/8"	

LEITURA DAS ARMADURAS
 SEM ESCALA - COTAS EM CENTÍMETROS

Tabela de Conversões e

AÇO	DIAM (mm)	DIAM (polegada)	PRÓX (mm)	PRÓX (polegada)
CASO	5,0	3/16	5,0	3/16
CASO	6,3	1/4	3	3/16
CASO	8,0	5/16	4	1/4
CASO	10,0	3/8	5	1/4
CASO	12,5	1/2	6,5	1/4
CASO	16,0	5/8	8	3/8

Quantidade de Barras = 2 Barras

Número de Barras no Detalhamento = N3

Blota = ±10,0mm ou 3/8"

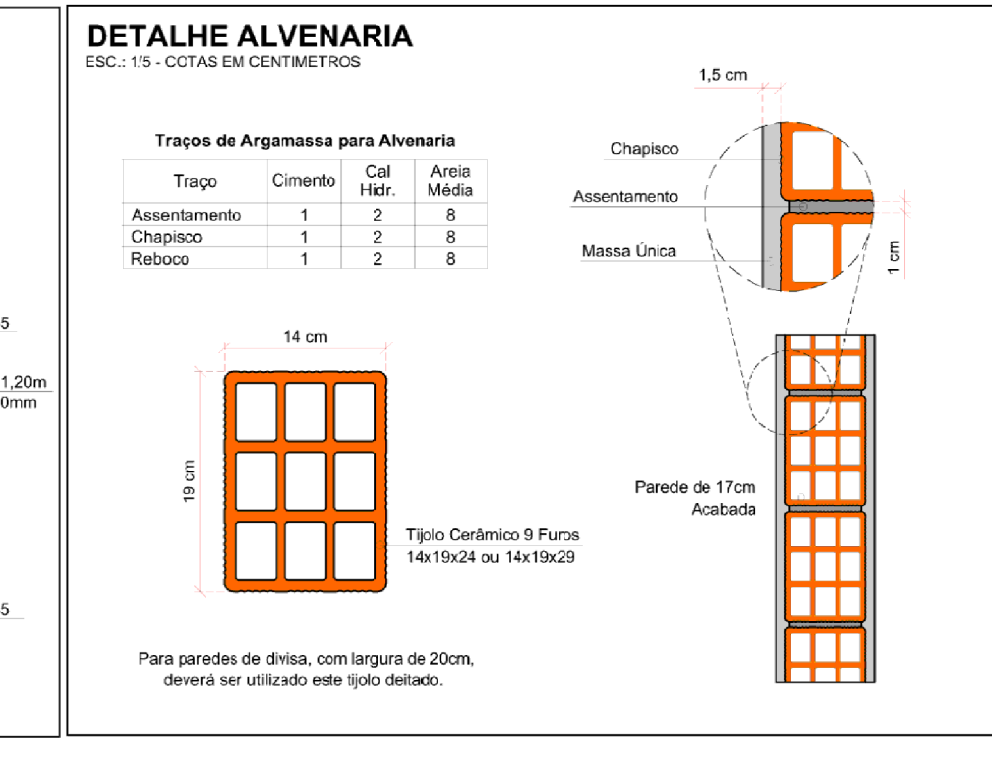
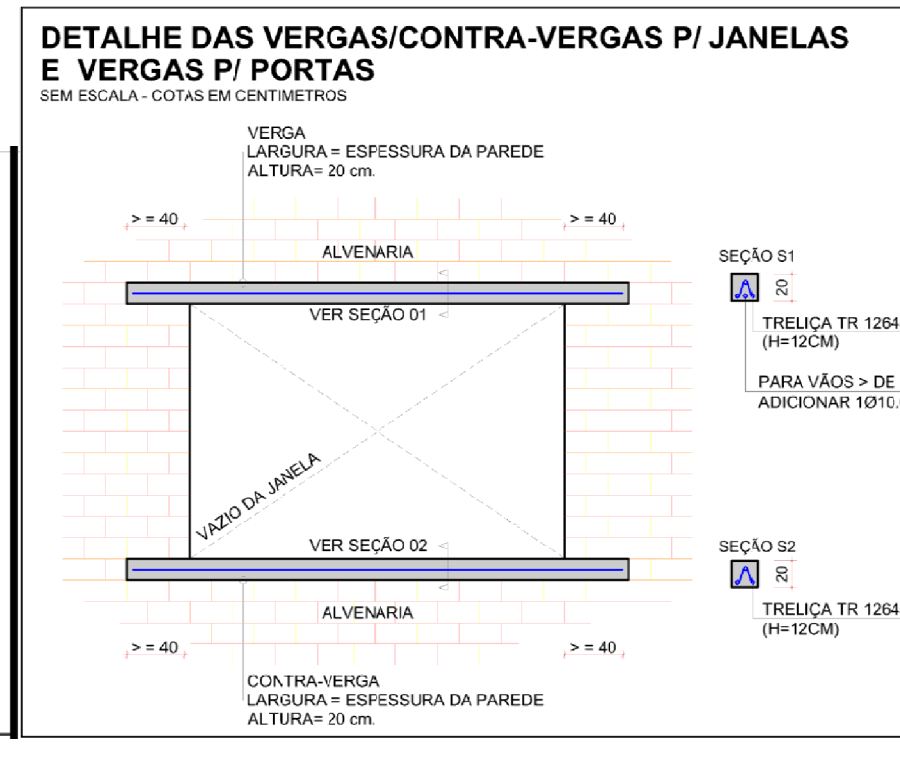
Espacamento entre as Barras = 15cm

Complemento Total da Barra = 65cm

2 N3 ±168 ±16 C=65

Dobra na Extremidade = 30cm

Complemento Horizontal = 60cm



JR ARQUITETURA E ENGENHARIA

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ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAI

UNIDADE ESCOLAR - CONSTRUIR

PROJETO ESTRUTURAL - FORMA DO PAVIMENTO TERREO

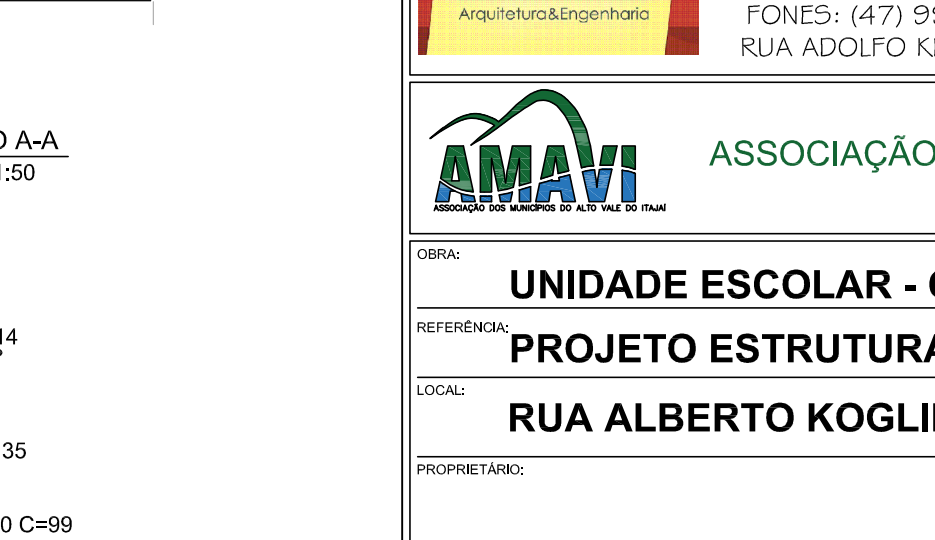
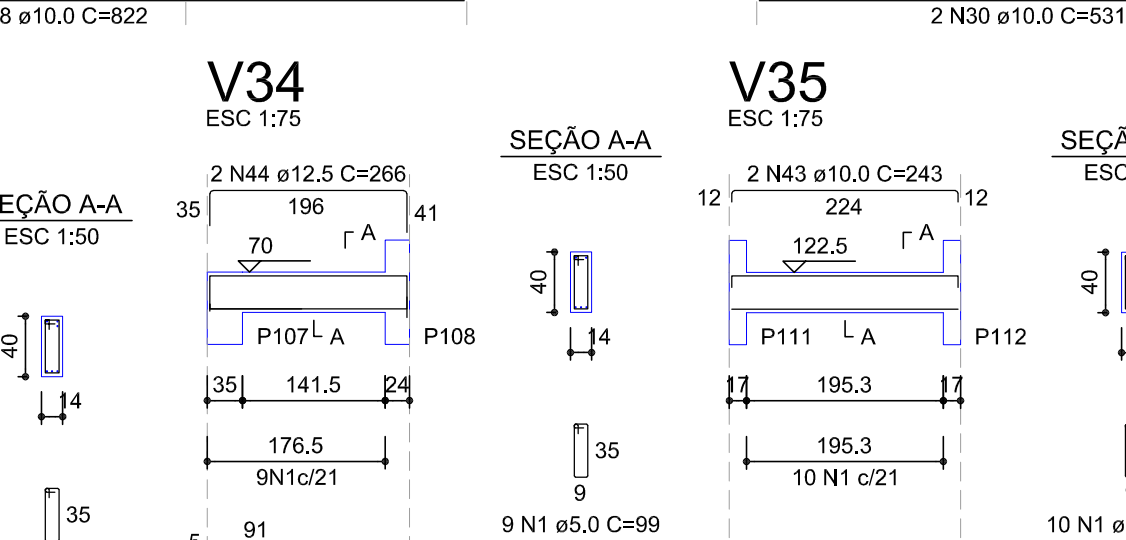
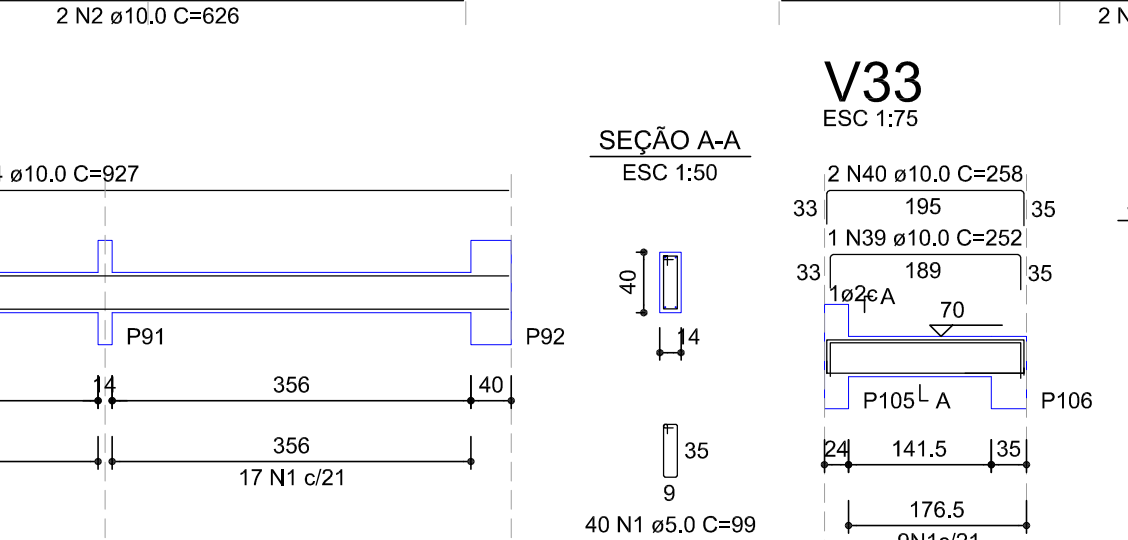
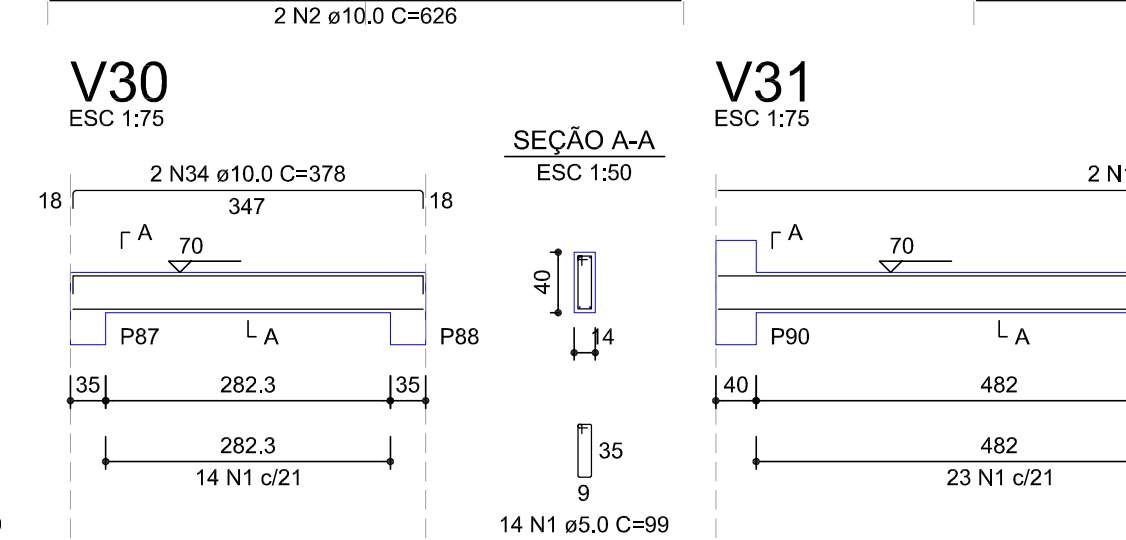
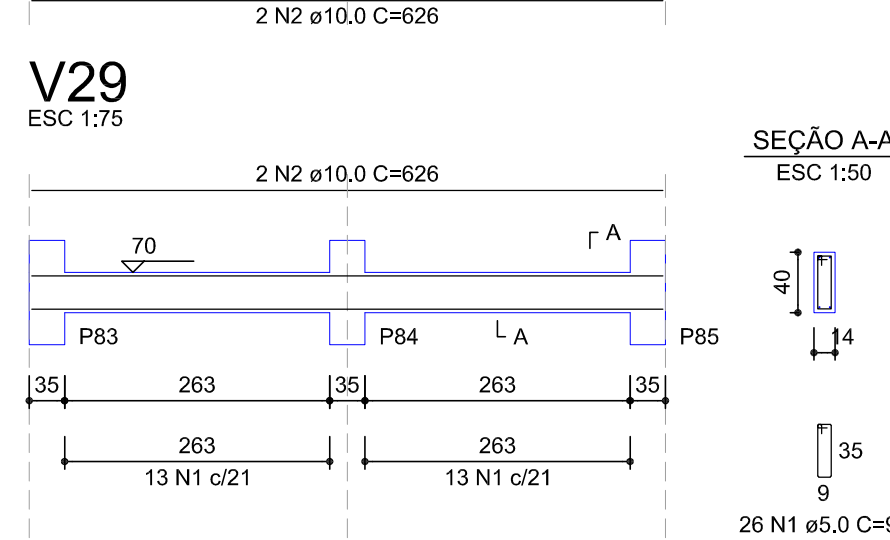
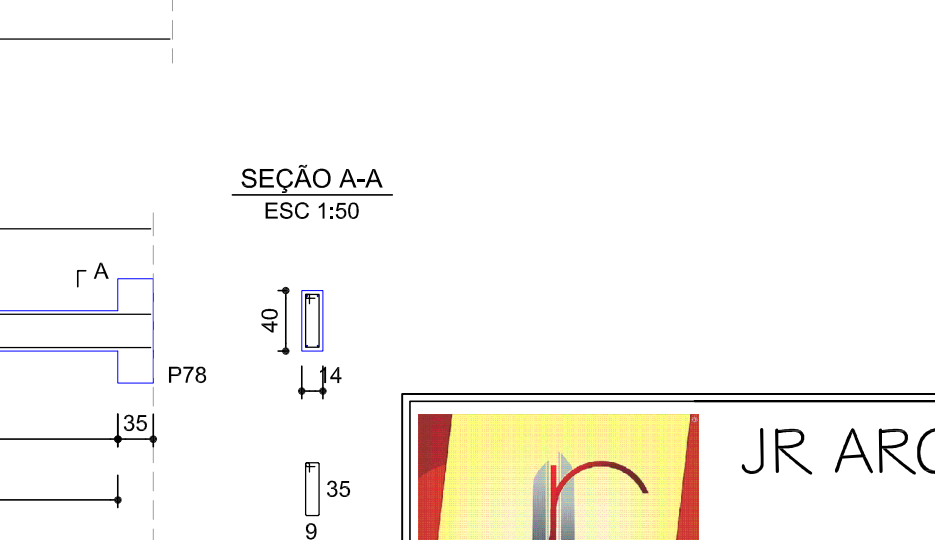
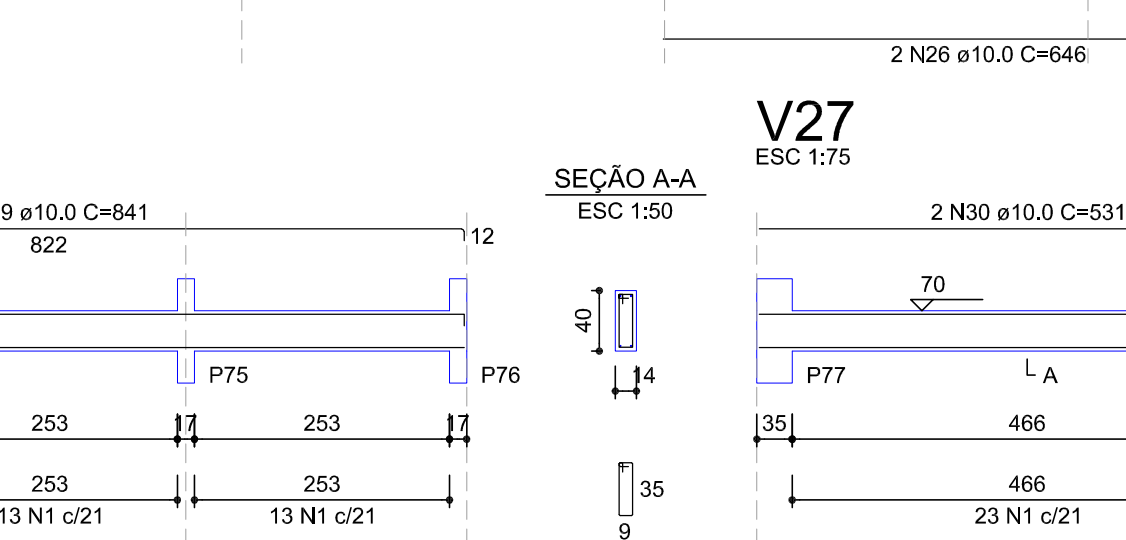
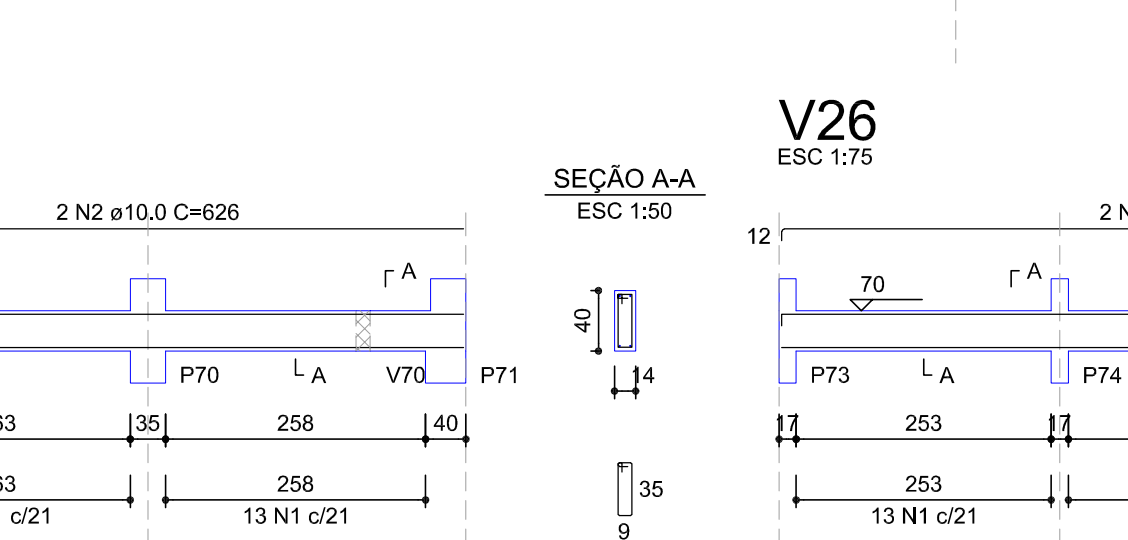
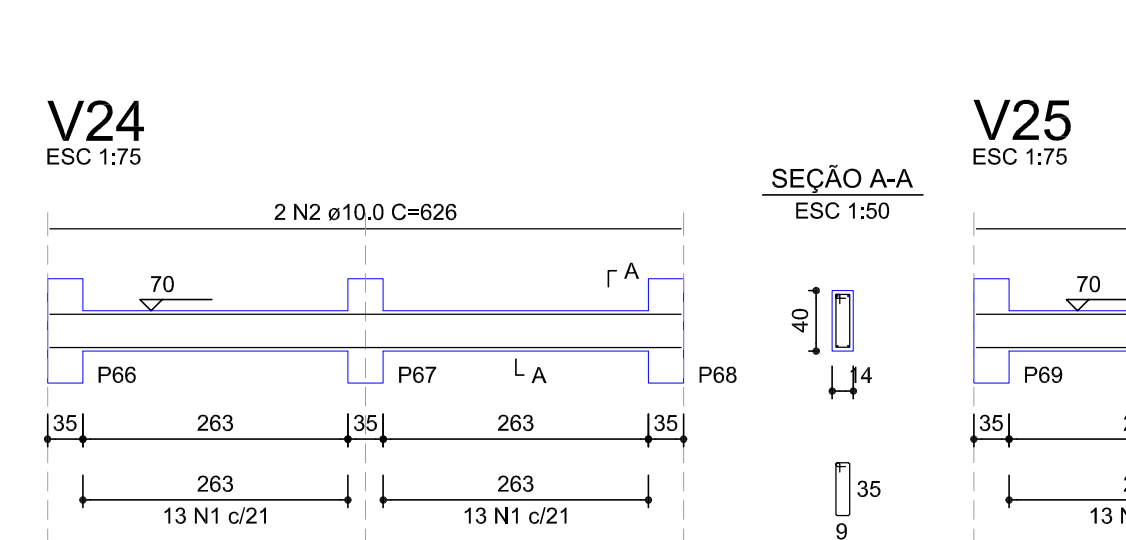
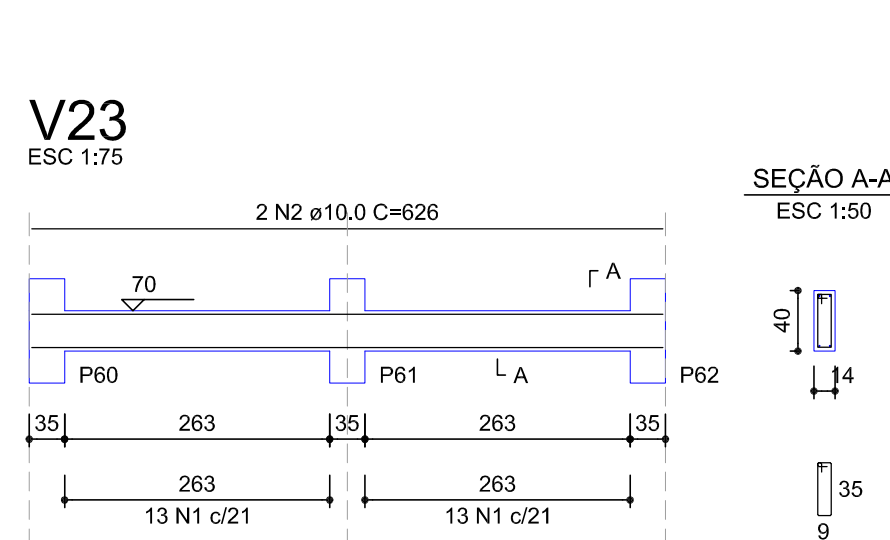
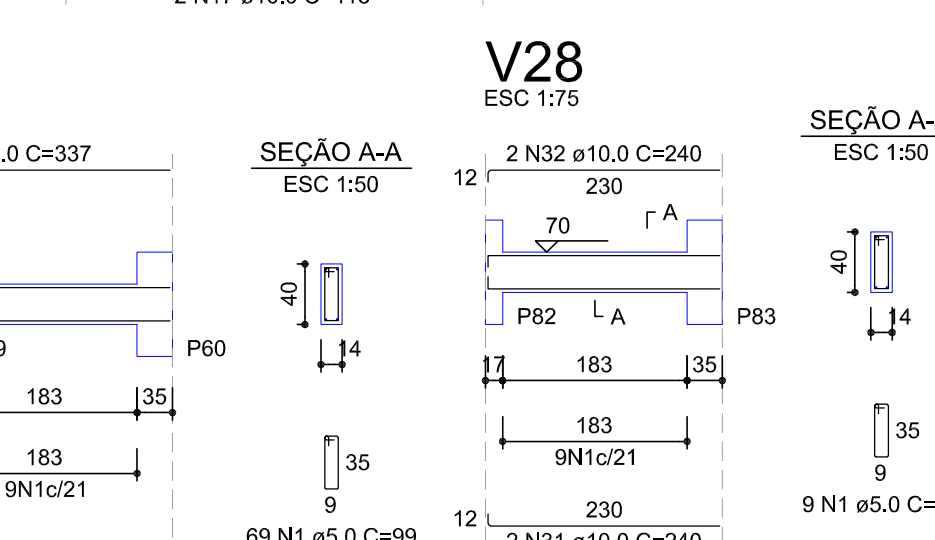
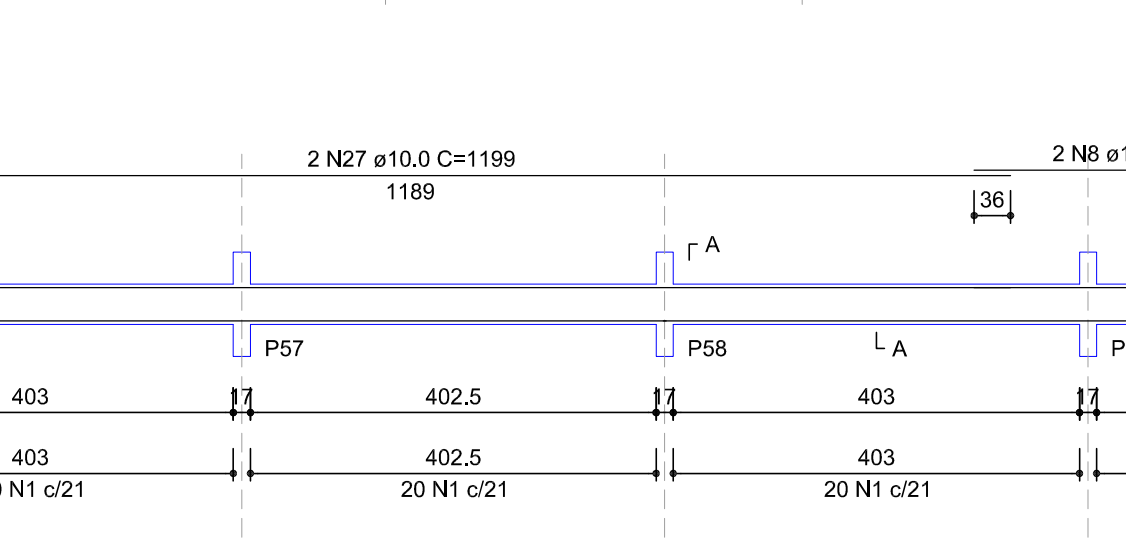
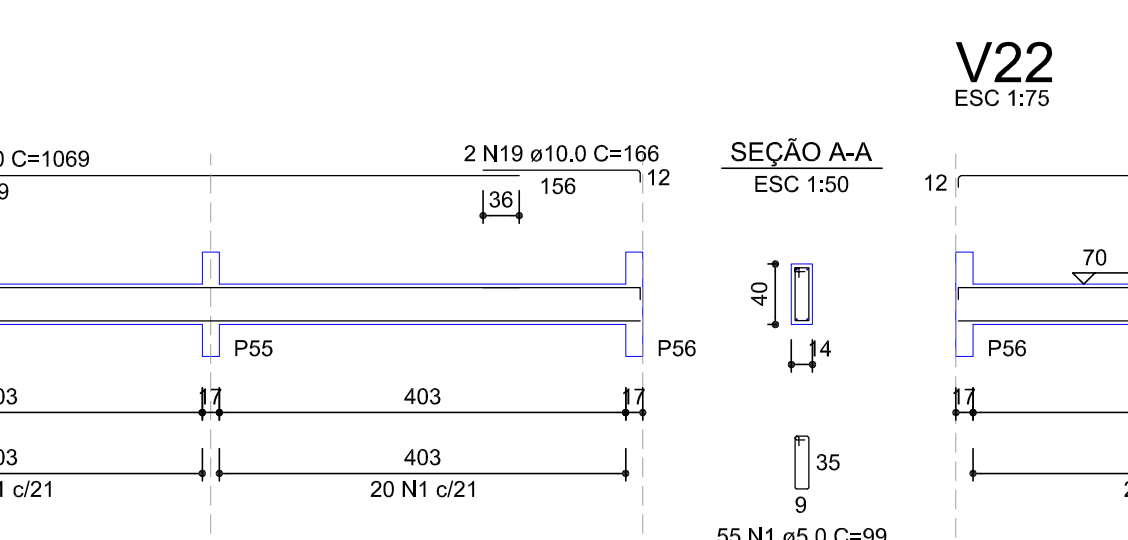
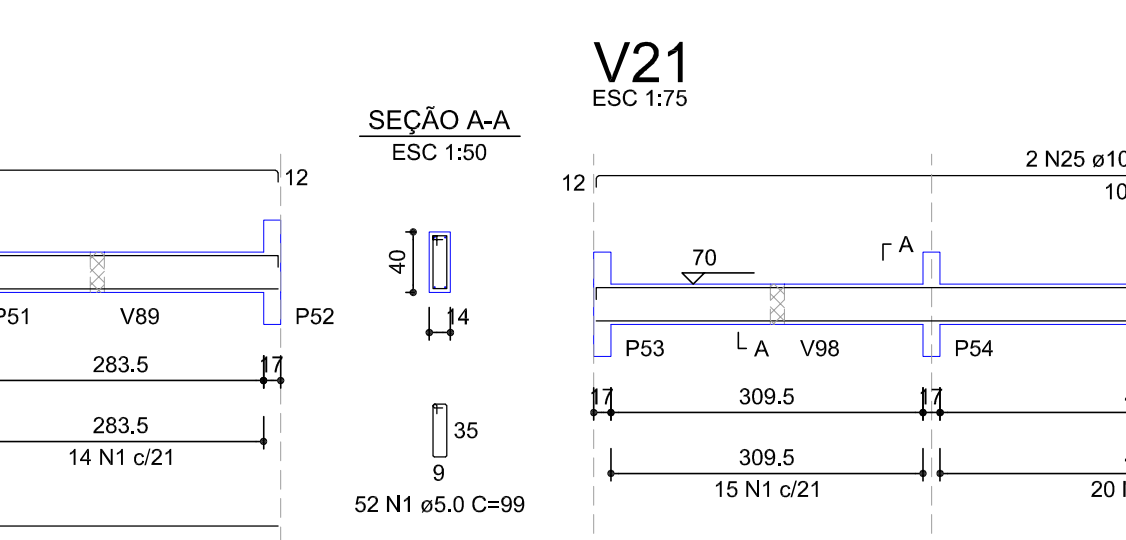
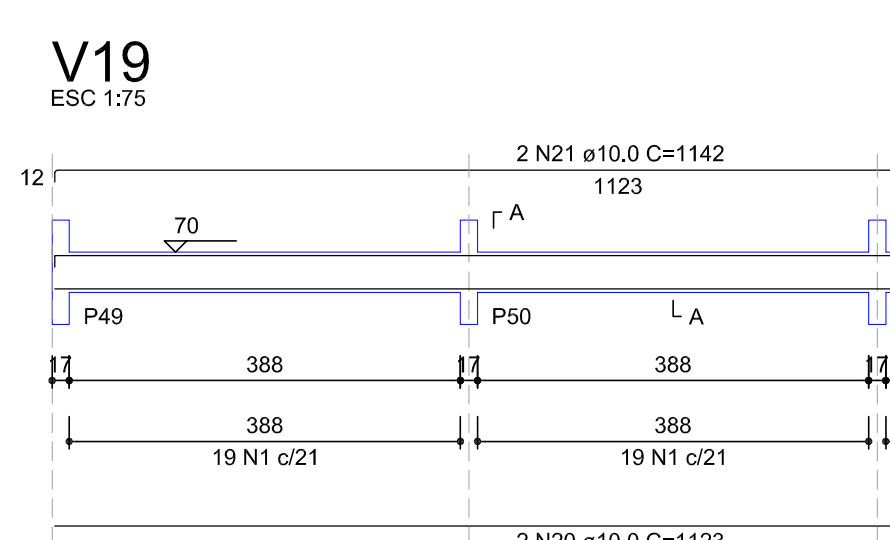
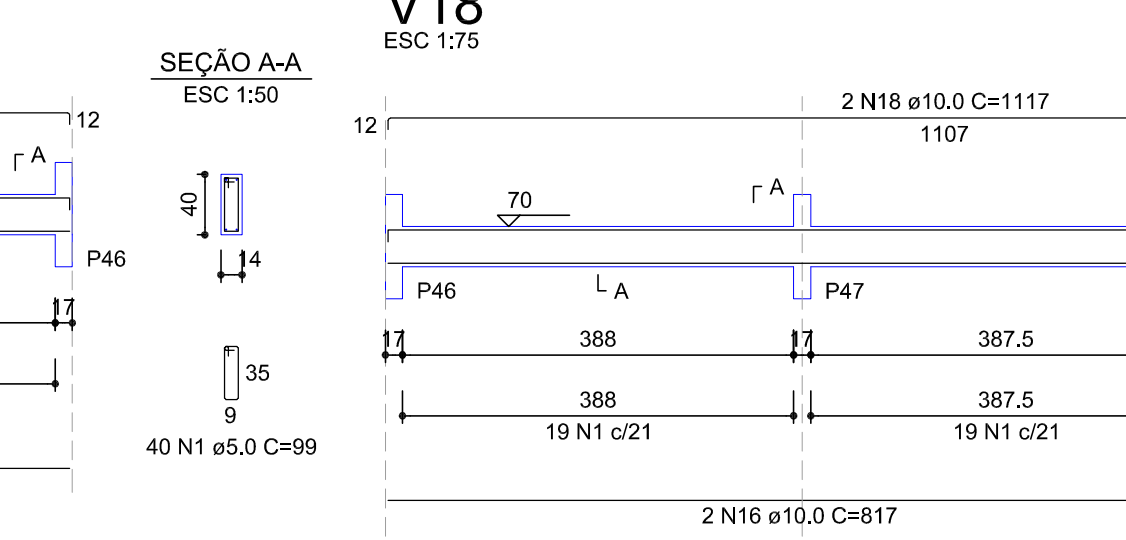
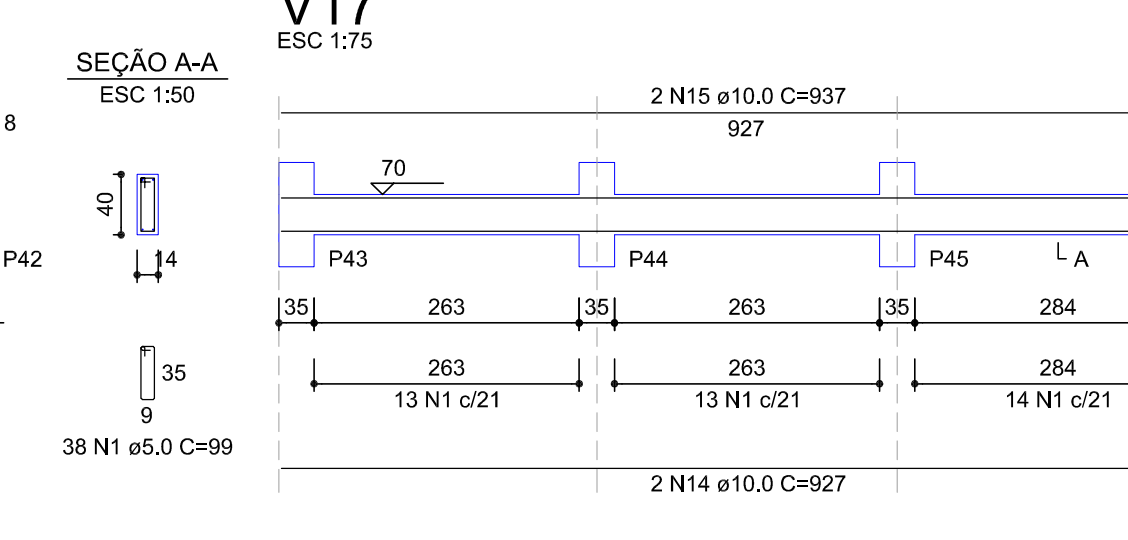
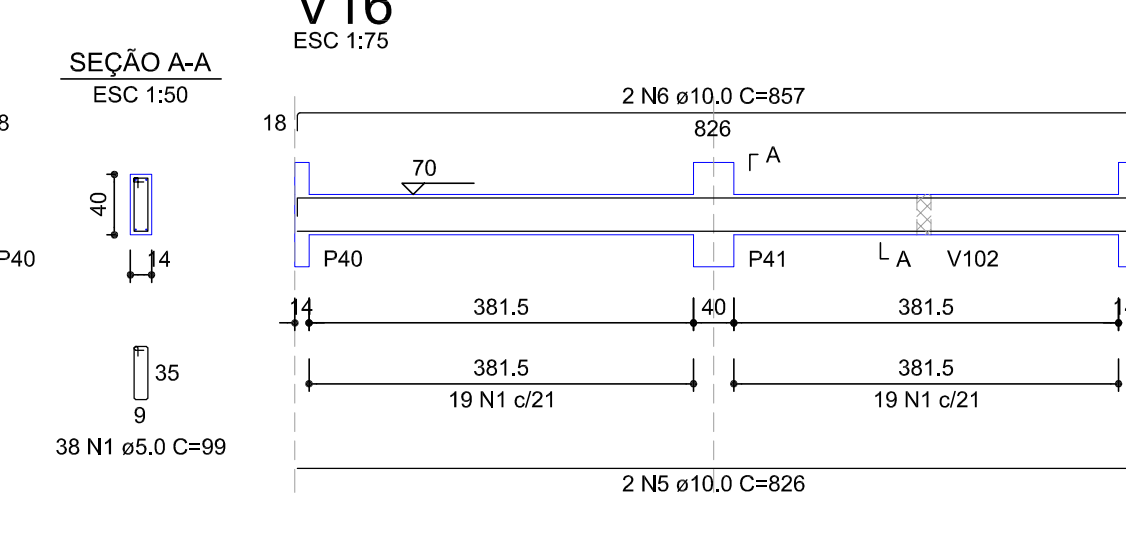
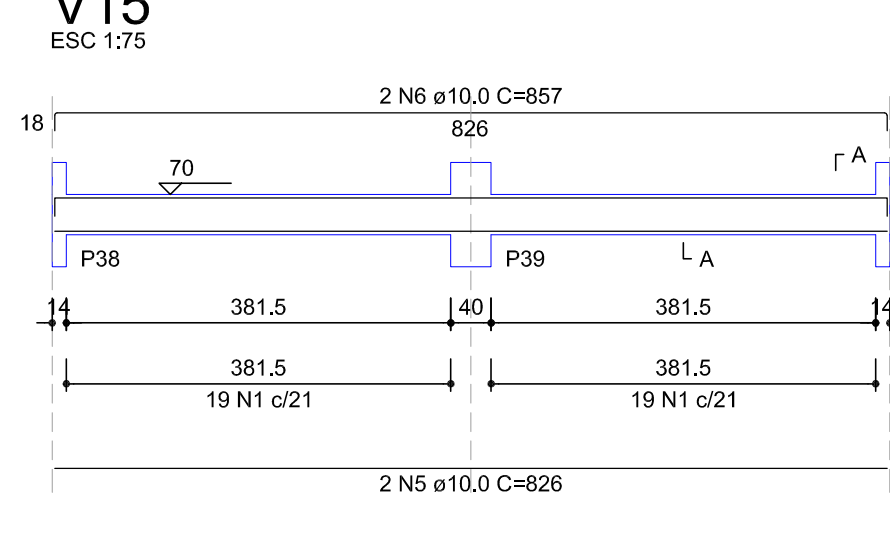
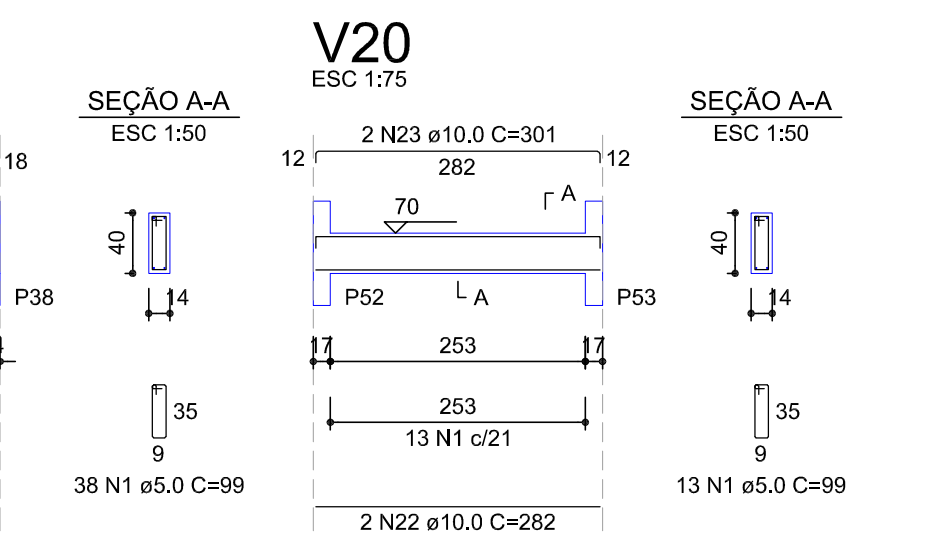
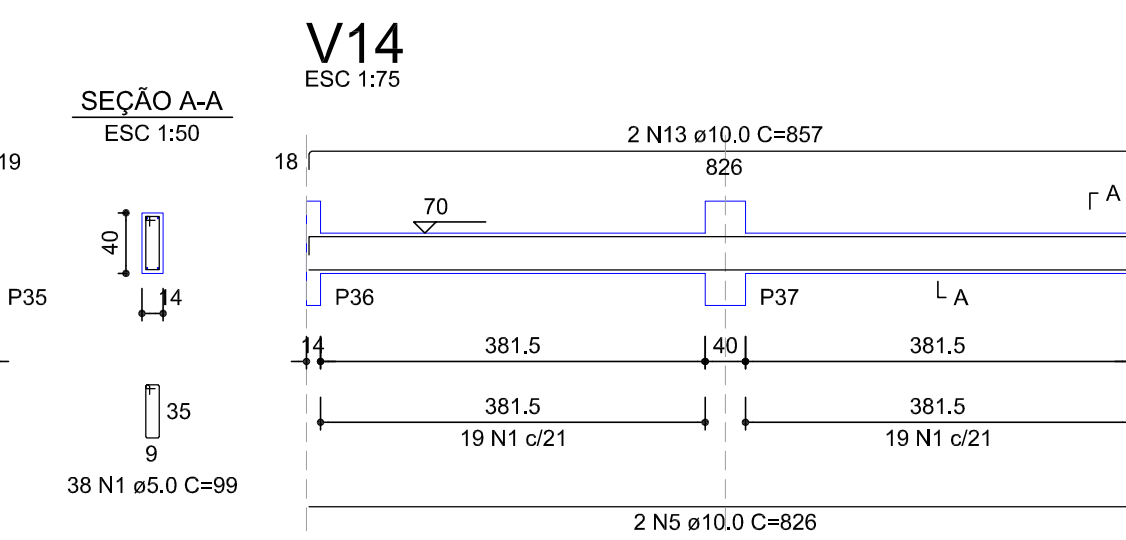
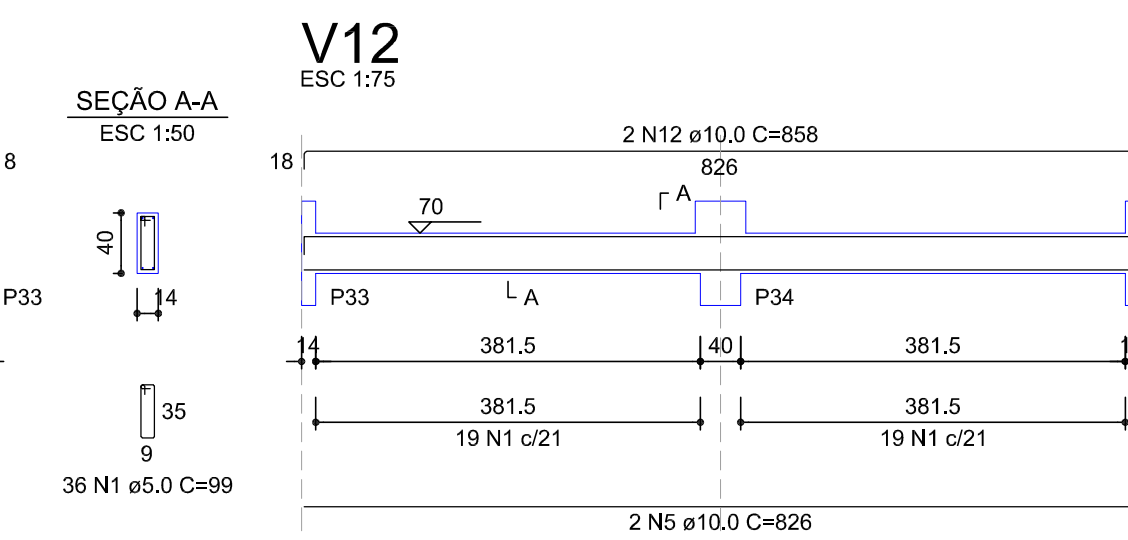
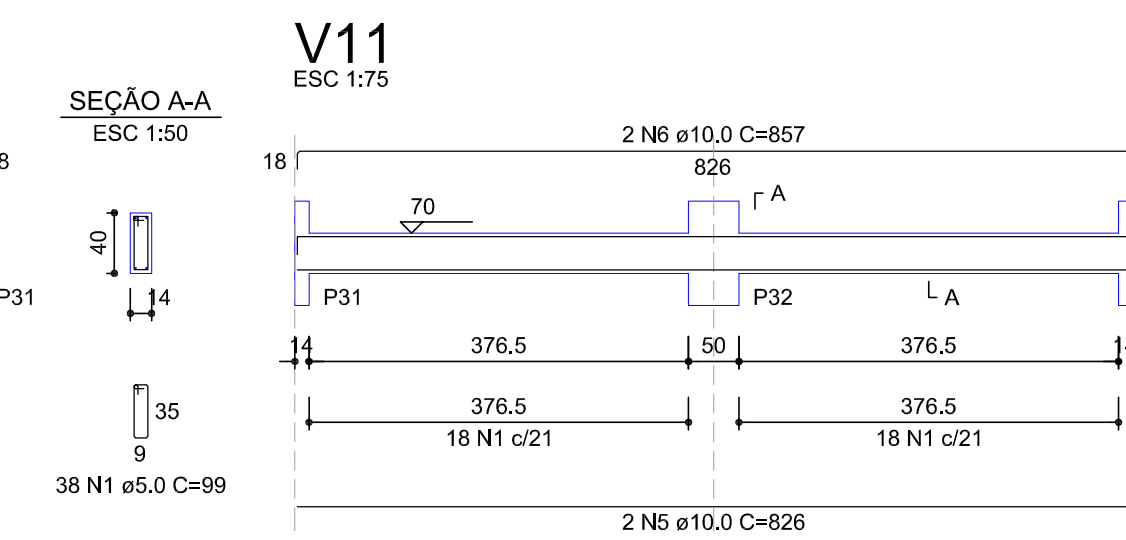
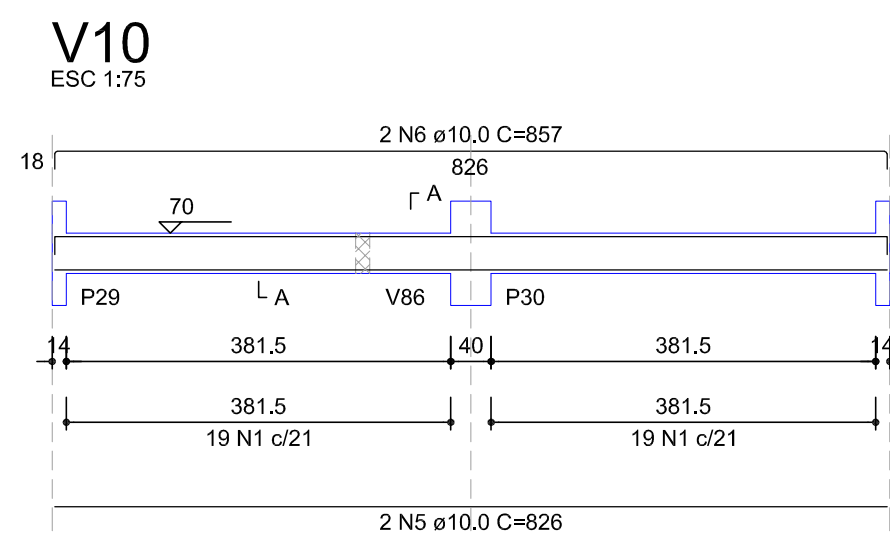
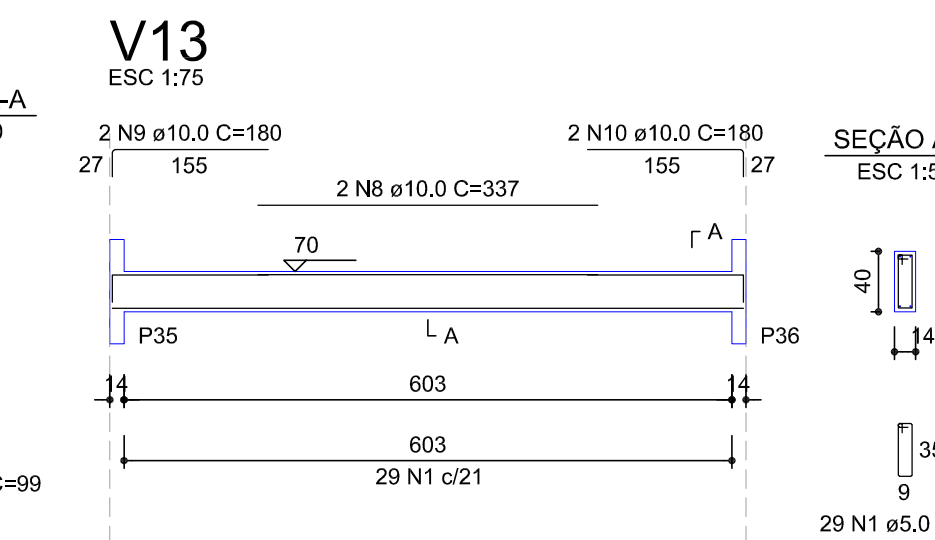
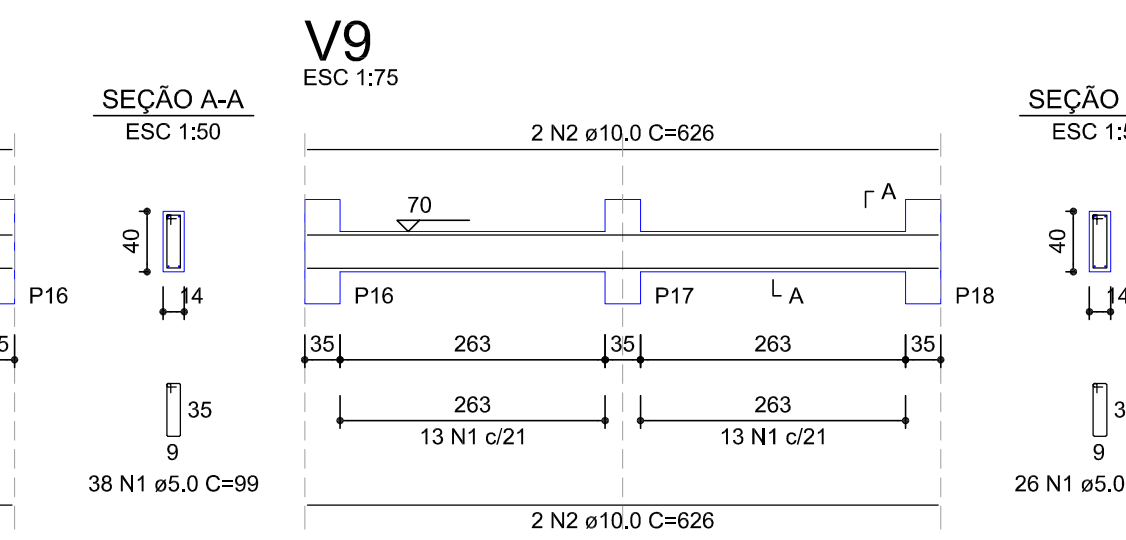
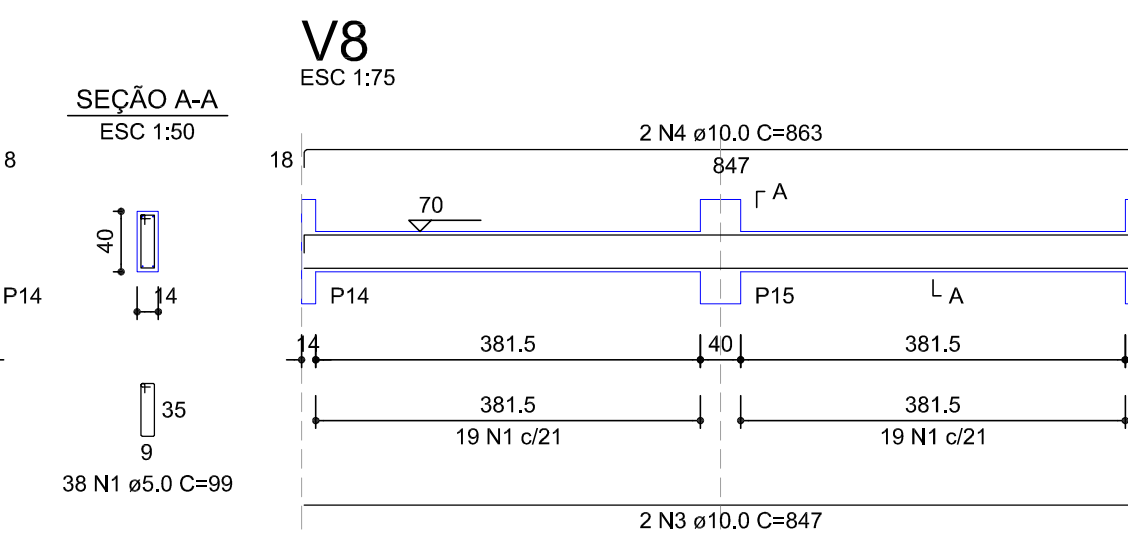
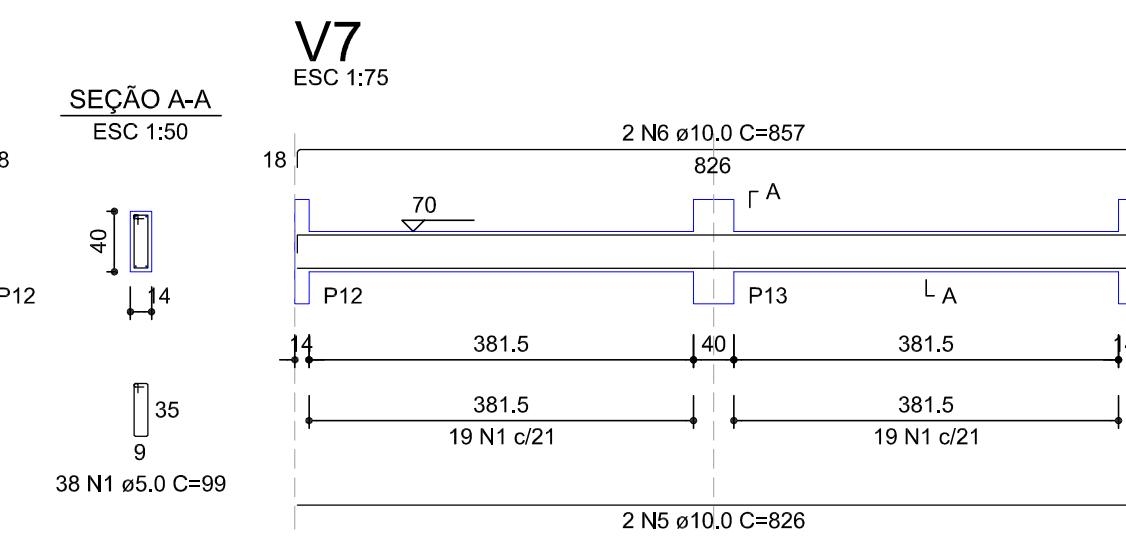
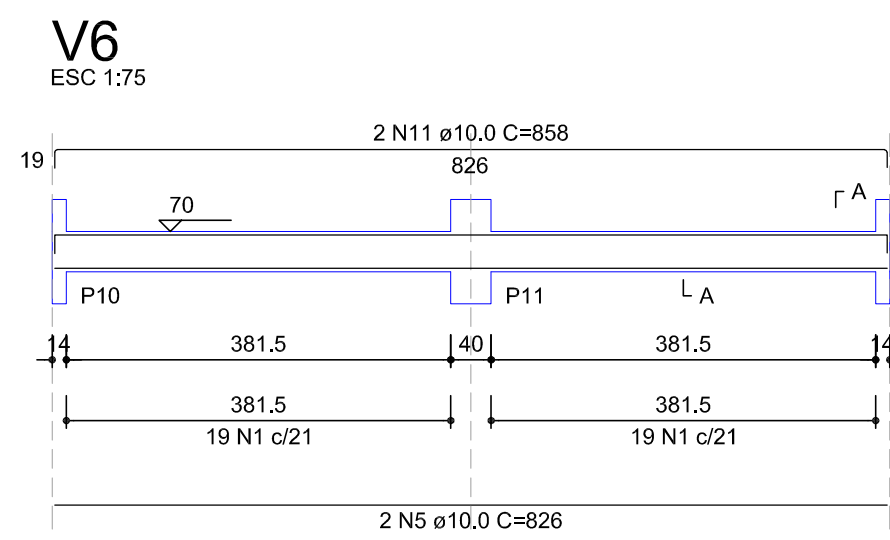
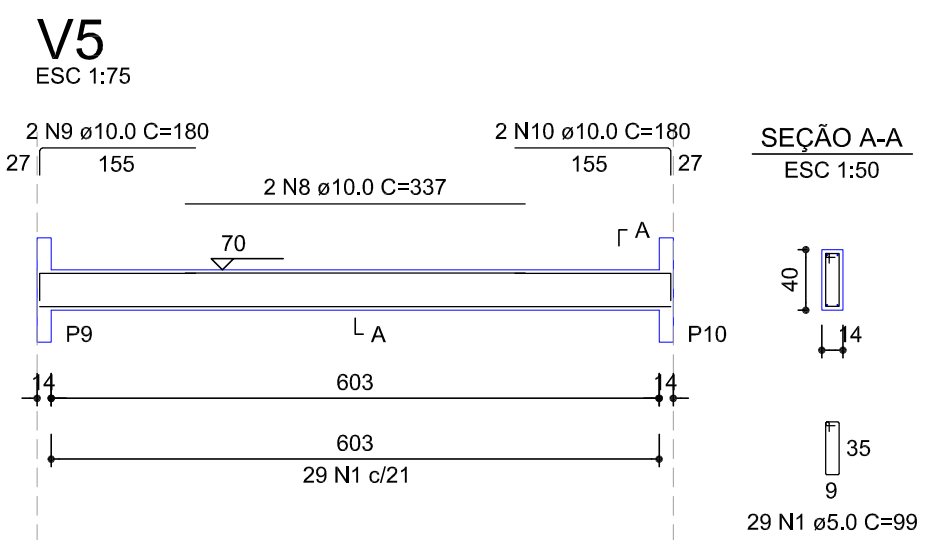
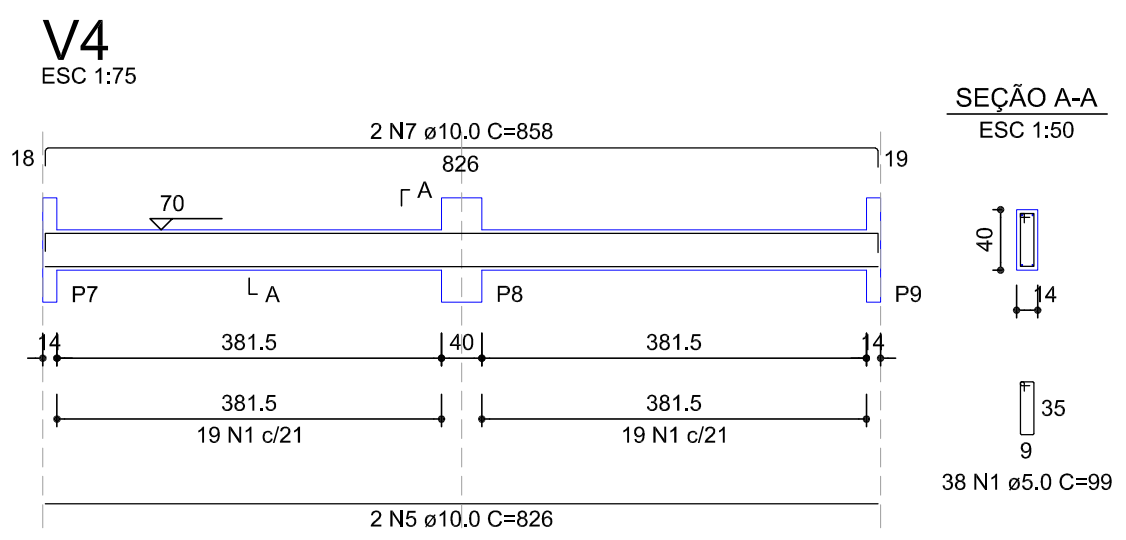
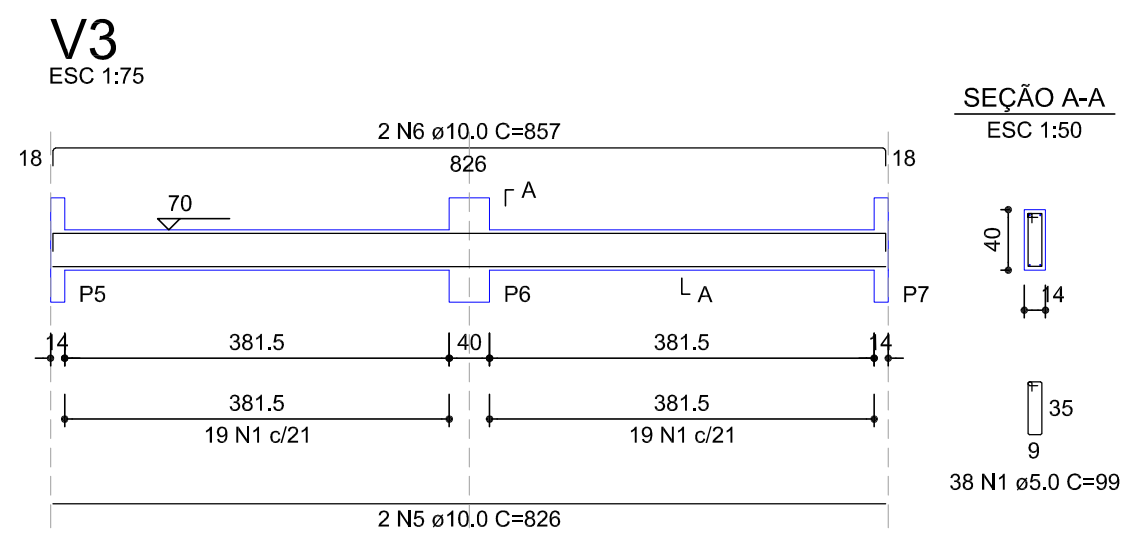
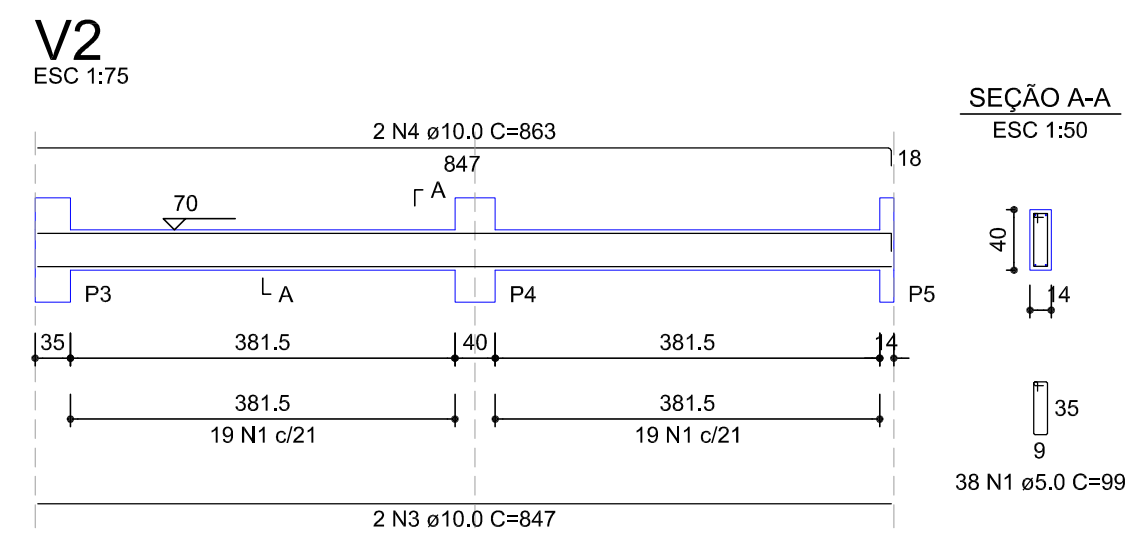
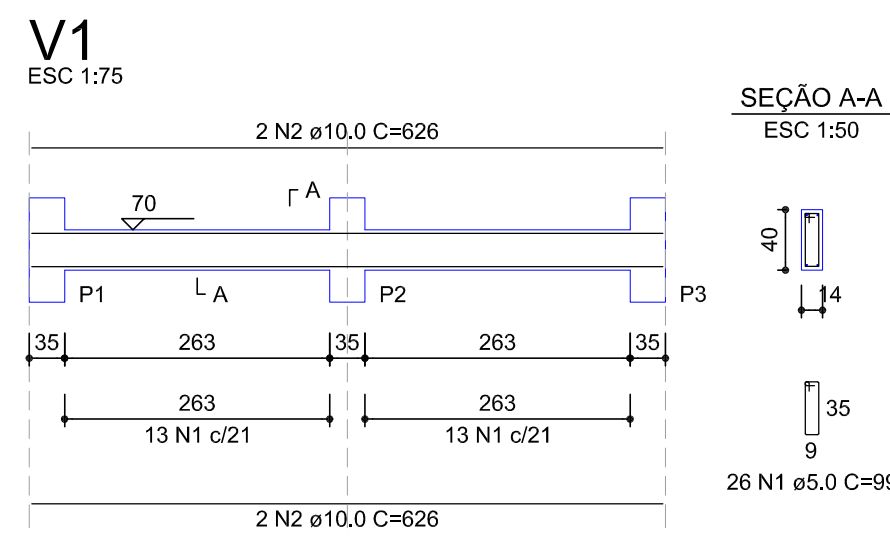
LOCAL: RUA ALBERTO KOGLIN, Bairro Centro - Dona Emma/SC

PROJETO: JULIANA LANGE DOS SANTOS

ENGENHEIRO RESPONSÁVEL: ROSINEI MELO GOETTEN DE LIMA

DATA: 15/02/2022

EST. 06



RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	5.0	1118	99	110682
CA50	2	10.0	28	626	17528
CA50	3	10.0	6	847	5082
CA50	4	10.0	4	863	3452
CA50	5	10.0	20	826	16520
CA50	6	10.0	12	857	10284
CA50	7	10.0	2	858	1716
CA50	8	10.0	6	337	2022
CA50	9	10.0	4	180	720
CA50	10	10.0	4	180	720
CA50	11	10.0	2	1117	1716
CA50	12	10.0	2	857	1714
CA50	13	10.0	6	927	5562
CA50	14	10.0	2	857	1714
CA50	15	10.0	2	857	1714
CA50	16	10.0	2	817	1634
CA50	17	10.0	2	413	826
CA50	18	10.0	2	1142	2284
CA50	19	10.0	4	166	664
CA50	20	10.0	2	1123	2246
CA50	21	10.0	2	1069	2138
CA50	22	10.0	2	282	564
CA50	23	10.0	2	301	602
CA50	24	10.0	2	1179	2358
CA50	25	10.0	2	1069	2138
CA50	26	10.0	2	646	1292
CA50	27	10.0	2	1199	2398
CA50	28	10.0	2	822	1644
CA50	29	10.0	2	841	1682
CA50	30	10.0	4	531	2124
CA50	31	10.0	2	240	480
CA50	32	10.0	2	240	480
CA50	33	10.0	2	347	694
CA50	34	10.0	2	378	756
CA50	35	10.0	2	255	510
CA50	36	10.0	2	264	528
CA50	37	10.0	1	61	61
CA50	38	10.0	4	207	828
CA50	39	10.0	1	252	252
CA50	40	10.0	2	258	516
CA50	41	10.0	1	94	94
CA50	42	10.0	2	294	588
CA50	43	10.0	2	243	486
CA50	44	12.5	2	266	532

RESUMO DO AÇO

ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	1014.5	688
CA60	12.5	6.3	5.6
CA60	5.0	1106.8	187.7
PESO TOTAL (kg)			
CA50		693.7	
CA60		187.7	

Volume de concreto (C-30) = 14.04 m³
Área de forma = 235.75 m²

**JR ARQUITETURA
E ENGENHARIA**

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR

REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA

LOCAL: RUA ALBERTO KOGLIN

PROPRIETÁRIO: RUA ALBERTO KOGLIN
Bairro Centro - Dona Emma/SC

MUNICÍPIO DE DONA EMMA

ENGENHEIRA RESPONSÁVEL:

RESUMO:

ESCALA: 1/75

DATA: 15/02/2022

TIPO: **EST.**

PROJETADELA:

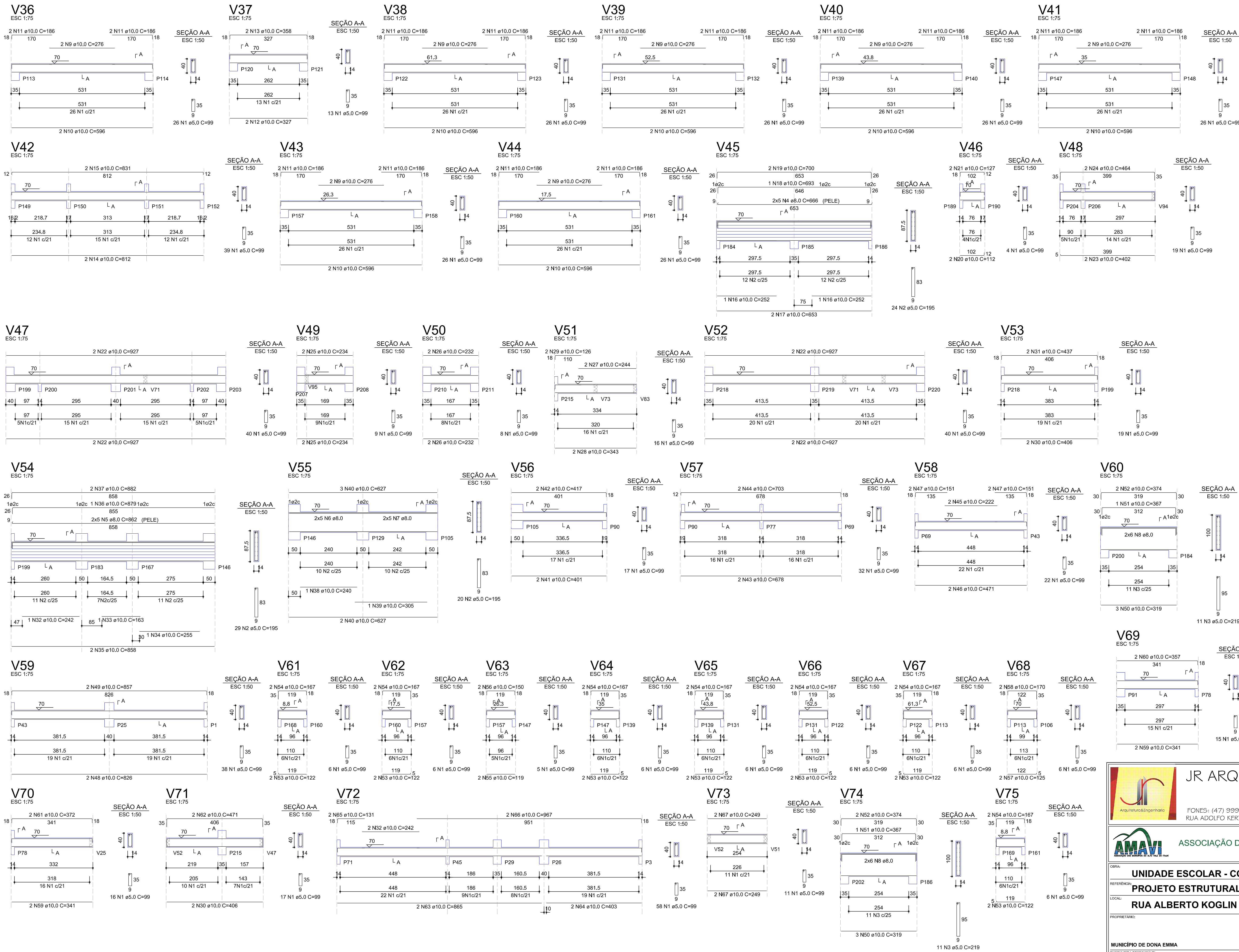
PROJETADELA:

JULIANA LANGE DOS SANTOS
ARQUITETA E ENGENHEIRA
CREA/SC 450192-2

ROSINEI MELO G. DE LIMA
ENGENHEIRO CIVIL
CREA/SC 92985-6

07

20



RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
V36	1	5.0	668	99	66132
V36	2	5.0	73	195	14235
V36	3	5.0	22	219	4818
V36	4	8.0	10	686	6860
V36	5	8.0	10	862	8620
V36	6	8.0	10	corr	3350
V36	7	8.0	10	corr	3370
V36	8	8.0	24	corr	7656
V36	9	10.0	14	276	3864
V36	10	10.0	14	596	8344
V36	11	10.0	28	186	5208
V36	12	10.0	2	447	894
V36	13	10.0	2	358	716
V36	14	10.0	2	612	1624
V36	15	10.0	2	242	1662
V36	16	10.0	2	252	504
V36	17	10.0	2	653	1306
V36	18	10.0	2	693	1386
V36	19	10.0	2	700	1400
V36	20	10.0	2	112	224
V36	21	10.0	2	127	254
V36	22	10.0	2	242	716
V36	23	10.0	2	402	804
V36	24	10.0	2	464	928
V36	25	10.0	4	936	3744
V36	26	10.0	4	232	928
V36	27	10.0	2	244	488
V36	28	10.0	2	343	686
V36	29	10.0	2	126	252
V36	30	10.0	4	406	1624
V36	31	10.0	2	437	874
V36	32	10.0	3	242	726
V36	33	10.0	1	163	163
V36	34	10.0	1	255	255
V36	35	10.0	2	558	1116
V36	36	10.0	1	679	679
V36	37	10.0	2	882	1764
V36	38	10.0	1	240	240
V36	39	10.0	1	305	305
V36	40	10.0	5	627	3135
V36	41	10.0	2	401	802
V36	42	10.0	2	417	834
V36	43	10.0	2	678	1356
V36	44	10.0	2	703	1406
V36	45	10.0	2	222	444
V36	46	10.0	2	471	942
V36	47	10.0	4	151	604
V36	48	10.0	2	626	1252
V36	49	10.0	2	557	1114
V36	50	10.0	6	319	1914
V36	51	10.0	2	367	734
V36	52	10.0	4	374	1496
V36	53	10.0	14	122	1708
V36	54	10.0	14	167	2338
V36	55	10.0	2	119	238
V36	56	10.0	2	150	300
V36	57	10.0	2	125	250
V36	58	10.0	2	170	340
V36	59	10.0	4	341	1364
V36	60	10.0	2	357	714
V36	61	10.0	2	372	744
V36	62	10.0	2	473	942
V36	63	10.0	2	865	1730
V36	64	10.0	2	403	806
V36	65	10.0	2	131	262
V36	66	10.0	2	967	1934
V36	67	10.0	4	249	996

RESUMO DO AÇO

ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	296.6	128.7
CA50	10.0	791.4	536.7
CA60	5.0	851.9	144.4
PESO TOTAL (kg)			769.8
CA50	665.4		
CA60	144.4		

Volume de concreto (C-30) = 12.02 m³
Área de forma = 196.79 m²



**JR ARQUITETURA
E ENGENHARIA**

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC



ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

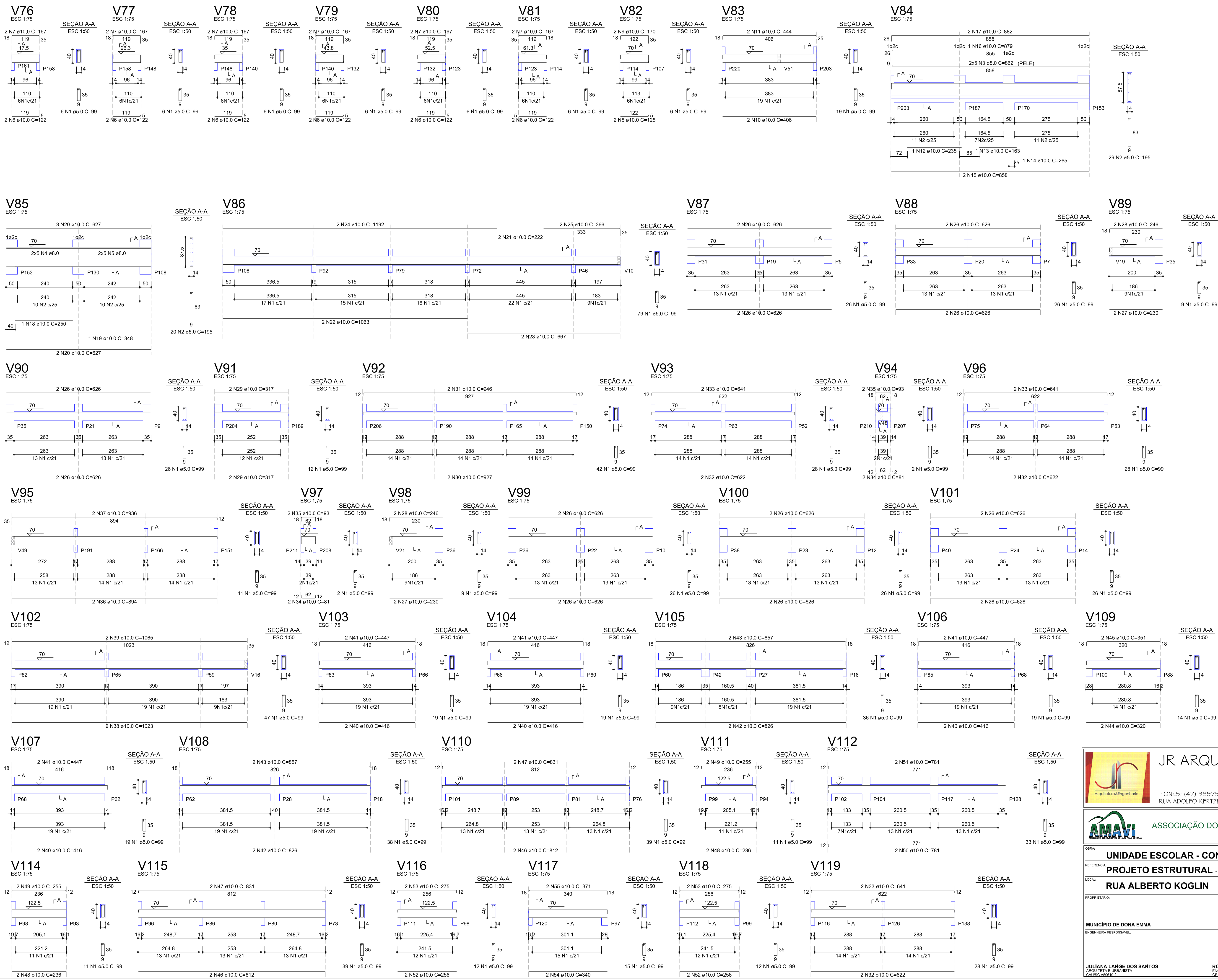
REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM VIGA**

LOCAL: **RUA ALBERTO KOGLIN** | ENDEREÇO DA OBRA: **Rua Alberto Koglin**
Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

ENGENHEIRO RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** (ARQUITETA E ENGENHEIRA) | **ROSINEI MELO GOETTEN DE LIMA** (ENGENHEIRO CIVIL) | CREA/SC 092862-6

REVISÃO: ROSINEI MELO G. DE LIMA | ESCALA: 1/75 | DATA: 15/02/2022 | TIPO: **EST.** | PLANCHA: **08** / 20



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	894	99	88506
CA50	3	8.0	10	862	8620
	4	8.0	10	corr	3370
	5	8.0	10	corr	122
	6	10.0	12	122	1464
	7	10.0	12	167	2004
	8	10.0	2	125	250
	9	10.0	2	170	340
	10	10.0	2	406	812
	11	10.0	2	444	888
	12	10.0	1	235	235
	13	10.0	1	163	163
	14	10.0	1	265	265
	15	10.0	2	858	1716
	16	10.0	1	879	879
	17	10.0	2	882	1764
	18	10.0	1	250	250
	19	10.0	1	348	348
	20	10.0	5	622	3135
	21	10.0	2	227	444
	22	10.0	2	1063	2126
	23	10.0	2	667	1334
	24	10.0	2	1192	2384
	25	10.0	2	366	732
	26	10.0	24	626	15024
	27	10.0	4	230	920
	28	10.0	4	246	984
	29	10.0	4	317	1268
	30	10.0	6	622	3732
	31	10.0	6	641	3846
	32	10.0	4	81	324
	33	10.0	4	93	372
	34	10.0	4	894	3576
	35	10.0	2	936	1872
	36	10.0	2	1023	2046
	37	10.0	2	1065	2130
	38	10.0	8	416	3328
	39	10.0	8	447	3576
	40	10.0	4	826	3304
	41	10.0	4	857	3428
	42	10.0	4	320	1280
	43	10.0	4	351	1404
	44	10.0	4	372	1488
	45	10.0	4	236	944
	46	10.0	4	256	1024
	47	10.0	4	275	1100
	48	10.0	2	340	680
	49	10.0	2	371	742

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	153.4	66.6
CA60	10.0	911.1	617.9
CA60	5.0	980.6	166.3
PESO TOTAL (kg)			
CA50		684.5	
CA60		166.3	

Volume de concreto (C-30) = 13.16 m³
 Área de forma = 218.33 m²

JR ARQUITETURA E ENGENHARIA

FONES: (47) 99979-8737 ; (47) 99112-6928
 RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR

REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA

LOCAL: RUA ALBERTO KOGLIN

PROPRIETÁRIO: MUNICÍPIO DE DONA EMMA

ENGENHEIRO RESPONSÁVEL: JULIANA LANGE DOS SANTOS

ROSENEI MELO G. DE LIMA

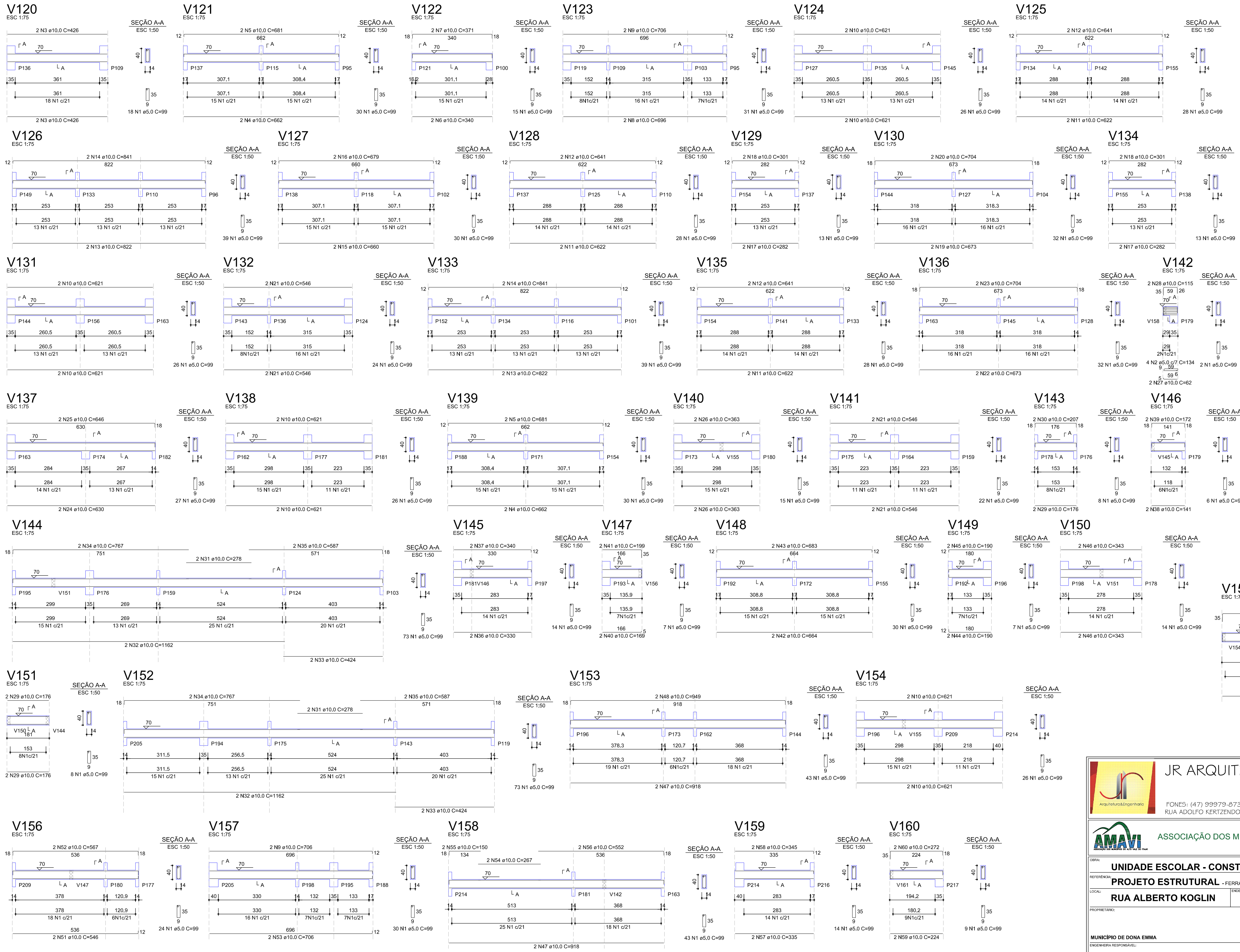
ESCALA: 1/75

DATA: 15/02/2022

TIPO: EST.

PLANCHAS: 09

20



RELAÇÃO DO AÇO

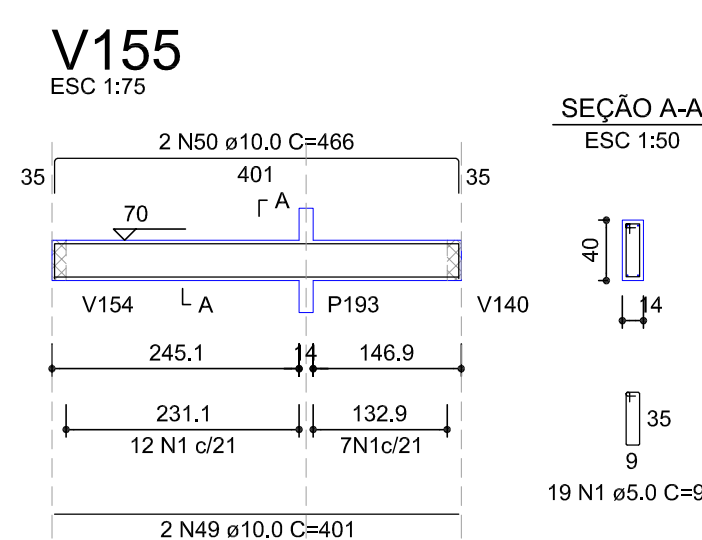
AÇO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
V120	1	5.0	1022	99	101178
V121	2	5.0	4	134	536
V122	3	10.0	4	426	1704
V123	4	10.0	4	268	2648
V124	5	10.0	4	681	2724
V125	6	10.0	2	340	680
V126	7	10.0	2	371	742
V127	8	10.0	2	696	1392
V128	9	10.0	4	706	2824
V129	10	10.0	16	621	9936
V130	11	10.0	6	622	3732
V131	12	10.0	6	641	3846
V132	13	10.0	4	822	3288
V133	14	10.0	4	282	1128
V134	15	10.0	2	301	1204
V135	16	10.0	2	679	1358
V136	17	10.0	2	282	1128
V137	18	10.0	4	301	1204
V138	19	10.0	2	673	1346
V139	20	10.0	2	704	1408
V140	21	10.0	2	546	1092
V141	22	10.0	2	673	1346
V142	23	10.0	2	704	1408
V143	24	10.0	2	630	1260
V144	25	10.0	2	646	1292
V145	26	10.0	4	363	1452
V146	27	10.0	2	62	124
V147	28	10.0	2	115	230
V148	29	10.0	6	176	1056
V149	30	10.0	2	207	414
V150	31	10.0	2	278	556
V151	32	10.0	4	1162	4648
V152	33	10.0	4	424	1696
V153	34	10.0	4	767	3068
V154	35	10.0	4	587	2348
V155	36	10.0	2	330	660
V156	37	10.0	2	680	1360
V157	38	10.0	2	141	282
V158	39	10.0	2	172	344
V159	40	10.0	2	169	338
V160	41	10.0	2	199	398
	42	10.0	2	664	1328
	43	10.0	2	683	1366
	44	10.0	2	190	380
	45	10.0	2	190	380
	46	10.0	4	343	1372
	47	10.0	4	918	3672
	48	10.0	4	949	3796
	49	10.0	2	401	802
	50	10.0	2	466	932
	51	10.0	2	546	1092
	52	10.0	2	567	1134
	53	10.0	2	706	1412
	54	10.0	2	267	534
	55	10.0	2	150	300
	56	10.0	2	522	1044
	57	10.0	2	335	670
	58	10.0	2	345	690
	59	10.0	2	224	448
	60	10.0	2	272	544

AÇO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CA60	1	5.0	1022	99	101178
CA50	2	5.0	4	134	536
	3	10.0	4	426	1704
	4	10.0	4	268	2648
	5	10.0	4	681	2724
	6	10.0	2	340	680
	7	10.0	2	371	742
	8	10.0	2	696	1392
	9	10.0	4	706	2824
	10	10.0	16	621	9936
	11	10.0	6	622	3732
	12	10.0	6	641	3846
	13	10.0	4	822	3288
	14	10.0	4	282	1128
	15	10.0	2	301	1204
	16	10.0	2	679	1358
	17	10.0	2	282	1128
	18	10.0	4	301	1204
	19	10.0	2	673	1346
	20	10.0	2	704	1408
	21	10.0	2	546	1092
	22	10.0	2	673	1346
	23	10.0	2	704	1408
	24	10.0	2	630	1260
	25	10.0	2	646	1292
	26	10.0	4	363	1452
	27	10.0	2	62	124
	28	10.0	2	115	230
	29	10.0	6	176	1056
	30	10.0	2	207	414
	31	10.0	2	278	556
	32	10.0	4	1162	4648
	33	10.0	4	424	1696
	34	10.0	4	767	3068
	35	10.0	4	587	2348
	36	10.0	2	330	660
	37	10.0	2	680	1360
	38	10.0	2	141	282
	39	10.0	2	172	344
	40	10.0	2	169	338
	41	10.0	2	199	398
	42	10.0	2	664	1328
	43	10.0	2	683	1366
	44	10.0	2	190	380
	45	10.0	2	190	380
	46	10.0	4	343	1372
	47	10.0	4	918	3672
	48	10.0	4	949	3796
	49	10.0	2	401	802
	50	10.0	2	466	932
	51	10.0	2	546	1092
	52	10.0	2	567	1134
	53	10.0	2	706	1412
	54	10.0	2	267	534
	55	10.0	2	150	300
	56	10.0	2	522	1044
	57	10.0	2	335	670
	58	10.0	2	345	690
	59	10.0	2	224	448
	60	10.0	2	272	544

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	932.3	632.3
CA60	5.0	1017.1	172.5
PESO TOTAL (kg)			
CA50			632.3
CA60			172.5

Volume de concreto (C-30) = 12.92 m³
Área de forma = 216.80 m²



JR ARQUITETURA E ENGENHARIA

FONES: (47) 99979-8737 ; (47) 99 112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR

REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA

LOCAL: RUA ALBERTO KOGLIN

PROPRIETÁRIO: MUNICÍPIO DE DONA EMMA

ENGENHEIRO RESPONSÁVEL: JULIANA LANGE DOS SANTOS

REVISOR: ROSINEI MELO GOETTEN DE LIMA

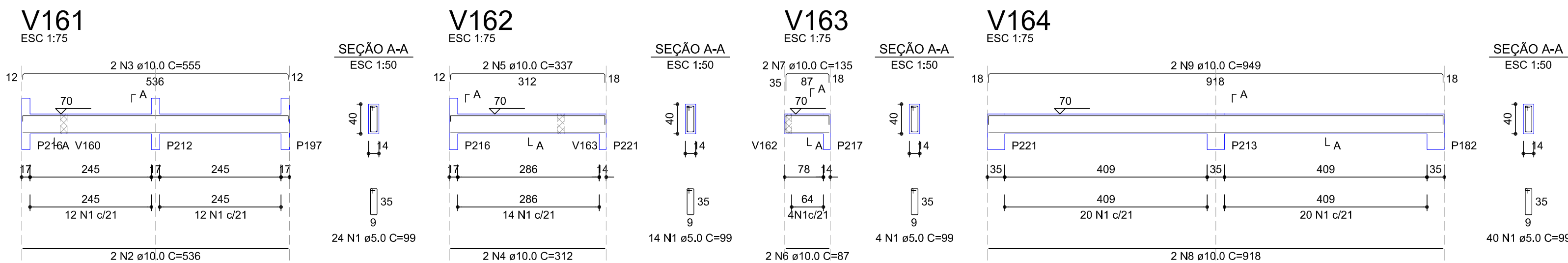
ESCALA: 1/75

DATA: 15/02/2022

TIPO: EST.

PRIMEIRO ANO: 10

SEGUNDO ANO: 20



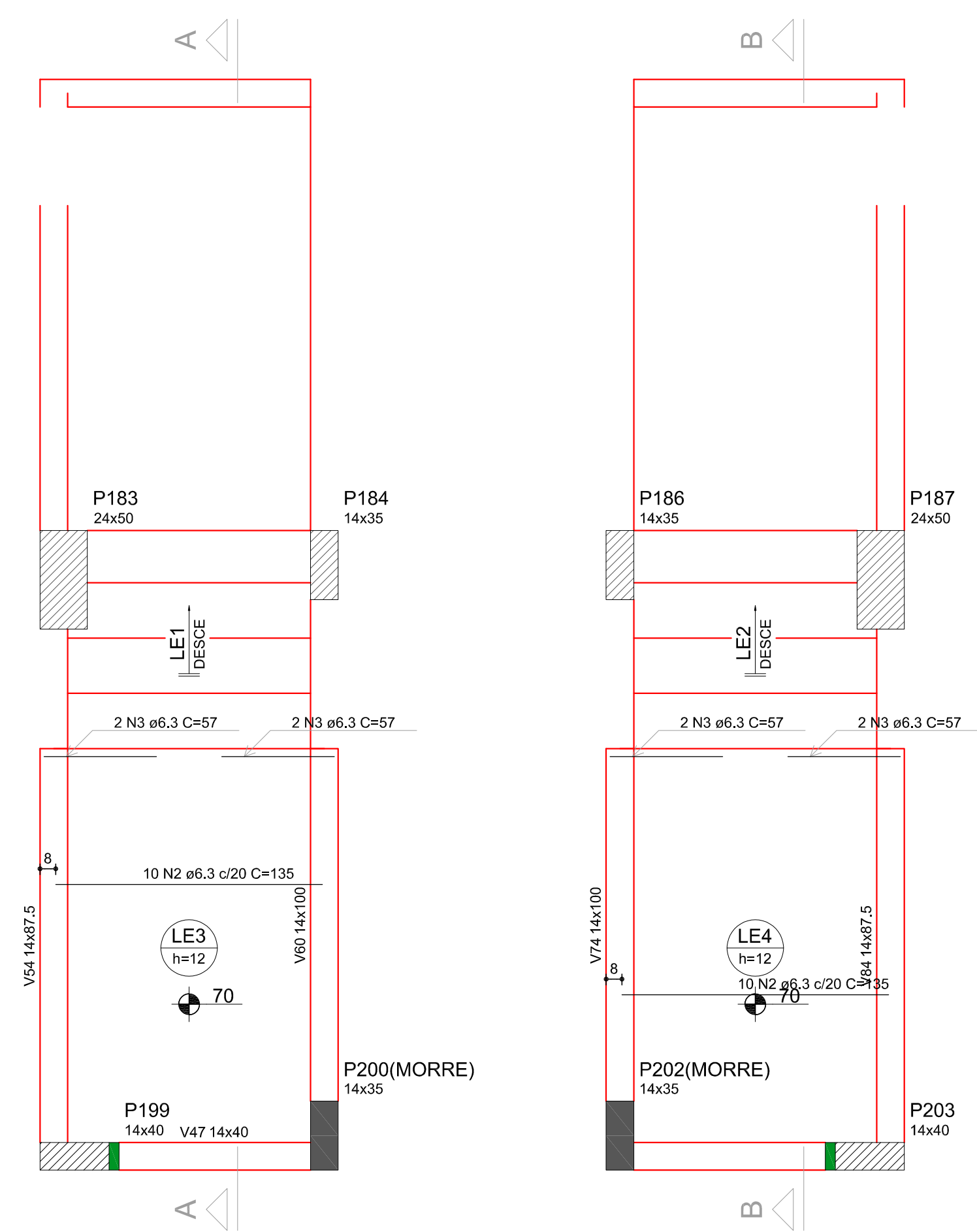
RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5,0	82	99	8118
CA50	2	10,0	2	536	1072
	3	10,0	2	555	1110
	4	10,0	2	312	624
	5	10,0	2	337	674
	6	10,0	2	87	174
	7	10,0	2	135	270
	8	10,0	2	918	1836
	9	10,0	2	949	1898

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10,0	76,6	51,9
CA60	5,0	81,2	13,8
PESO TOTAL (kg)			
CA50			51,9
CA60			13,8

Volume de concreto (C-30) = 1,05 m³



Armação positiva da escada E1
ESC 1:25

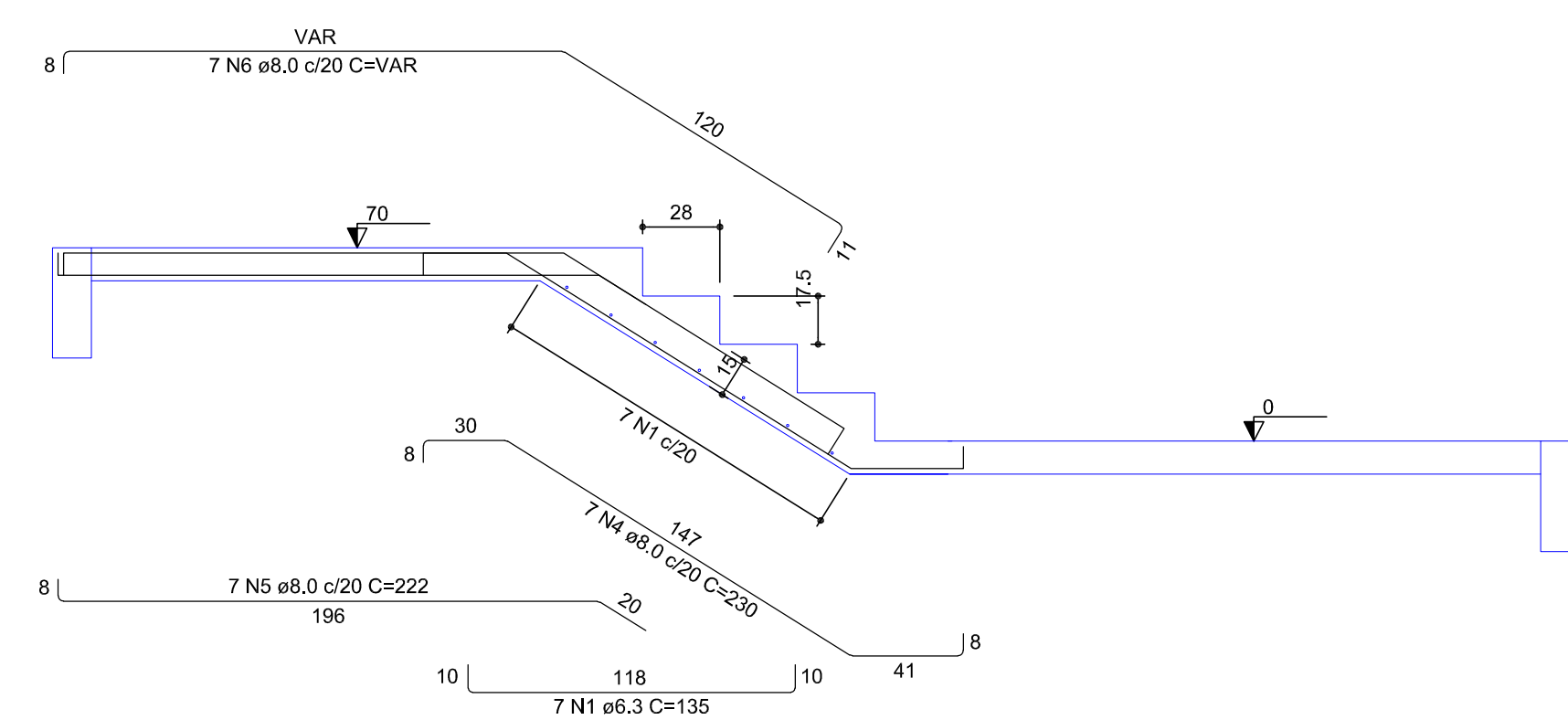
RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA50	1	6,3	14	135	1890
	2	6,3	20	135	2700
	3	6,3	8	57	456
	4	8,0	14	230	3220
	5	8,0	14	222	3108
	6	8,0	14	VAR	VAR

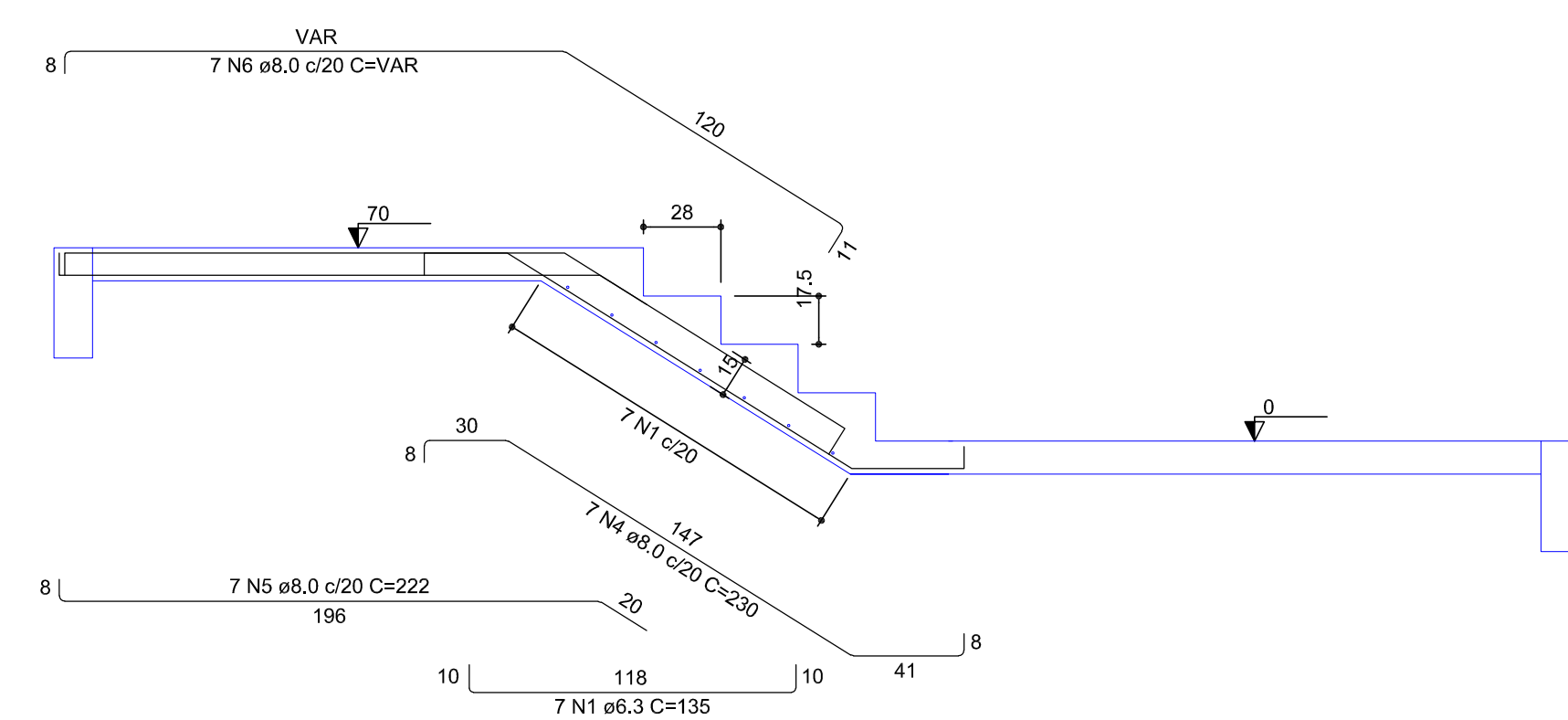
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6,3	50,5	13,6
CA50	8,0	107,5	46,7
PESO TOTAL (kg)			
CA50			60,3

Volume de concreto (C-30) = 1,31 m³
Área de forma = 12,22 m²



Corte A-A (LE1)
ESC 1:25



Corte B-B (LE2)
ESC 1:25

**JR ARQUITETURA
E ENGENHARIA**

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM VIGA E FERRAGEM ESCADA**

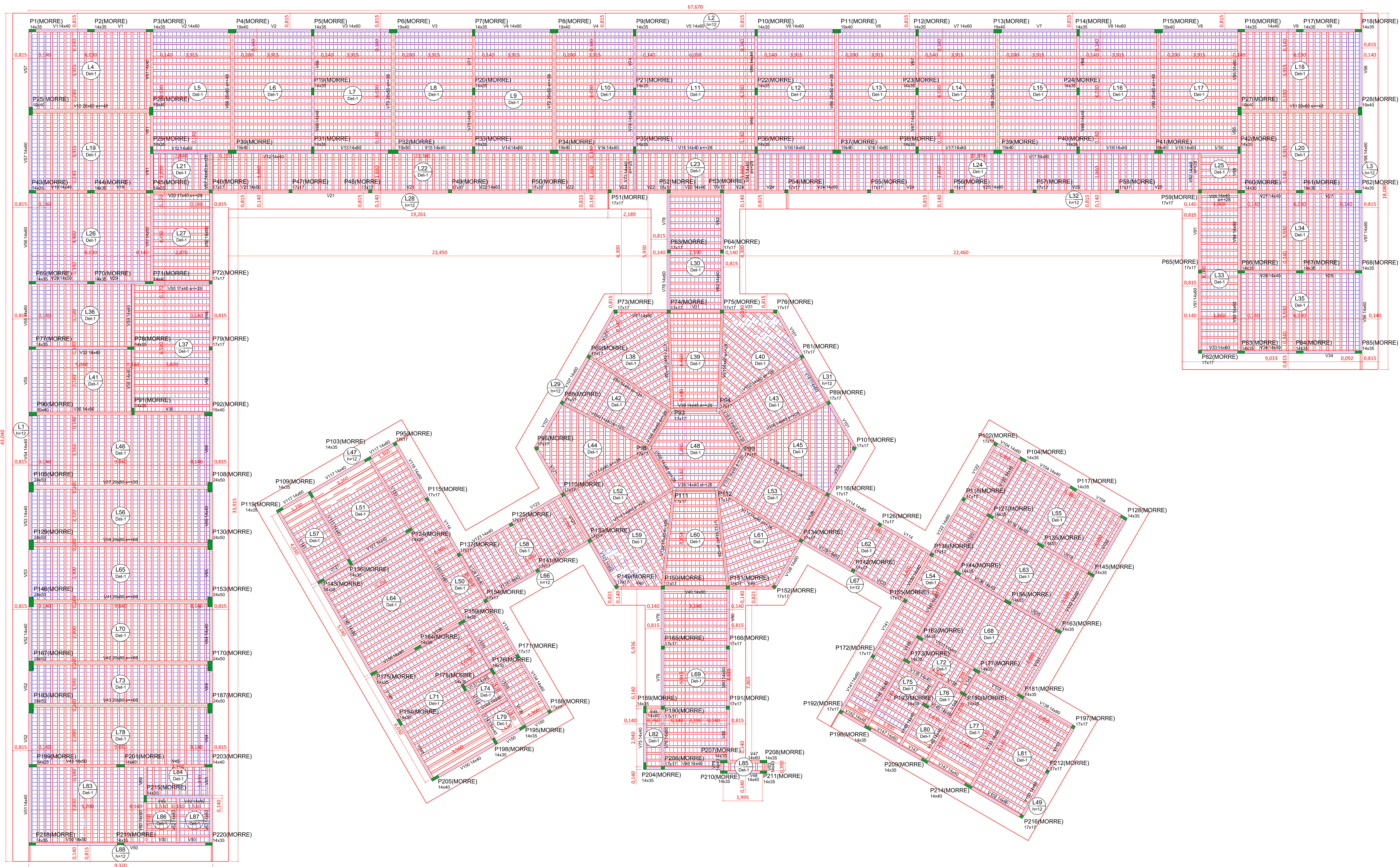
LOCAL: **RUA ALBERTO KOGLIN** ENFEREÇÃO DA OBRA: **Rua Alberto Koglin**
Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

ENGENHEIRA RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** (ARQUITETA E URBANISTA, CREA/SC 450619-2)

ENGENHEIRO RESPONSÁVEL: **ROSINEI MELO GOETTEN DE LIMA** (ENGENHEIRO CIVIL, CREA/SC 99286-6)

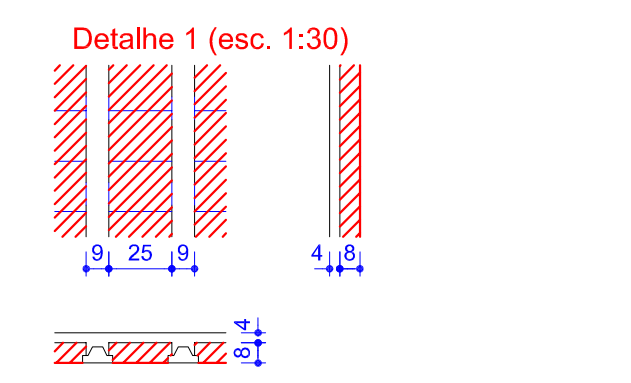
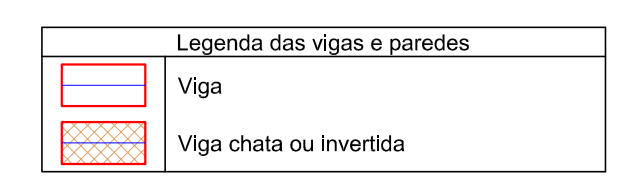
DATA: 15/02/2022
TÍTULO: **EST.**
PRANCHAS: **11** / 20



Forma do pavimento Cobertura (Nível 385)
escala 1:75

Nome		Seção	Alargação	Nível	Tabela		Bloco de encaixe	
Decorar	Tipo	Altura	Elevação	Nome	Nome	Dimensões (cm)	Quantidade	
				[85x250]		B	25	16724
V1	14640	0	385	L1	Pré-moldada	12	0	385
V2	14640	0	385	L2	Pré-moldada	12	0	385
V3	14640	0	385	L3	Pré-moldada	12	0	385
V4	14640	0	385	L4	Pré-moldada	12	0	385
V5	14640	0	385	L5	Pré-moldada	12	0	385
V6	14640	0	385	L6	Pré-moldada	12	0	385
V7	14640	0	385	L7	Pré-moldada	12	0	385
V8	14640	0	385	L8	Pré-moldada	12	0	385
V9	14640	0	385	L9	Pré-moldada	12	0	385
V10	20600	48	433	L10	Pré-moldada	12	0	385
V11	20600	48	433	L11	Pré-moldada	12	0	385
V12	14640	0	385	L12	Pré-moldada	12	0	385
V13	14640	0	385	L13	Pré-moldada	12	0	385
V14	14640	0	385	L14	Pré-moldada	12	0	385
V15	14640	0	385	L15	Pré-moldada	12	0	385
V16	14640	0	385	L16	Pré-moldada	12	0	385
V17	14640	0	385	L17	Pré-moldada	12	0	385
V18	14640	0	385	L18	Pré-moldada	12	0	385
V19	14640	0	385	L19	Pré-moldada	12	0	385
V20	17400	28	413	L20	Pré-moldada	12	0	385
V21	14640	0	385	L21	Pré-moldada	12	0	385
V22	14640	0	385	L22	Pré-moldada	12	0	385
V23	14640	0	385	L23	Pré-moldada	12	0	385
V24	14640	0	385	L24	Pré-moldada	12	0	385
V25	14640	0	385	L25	Pré-moldada	12	0	385
V26	14640	0	385	L26	Pré-moldada	12	0	385
V27	14640	0	385	L27	Pré-moldada	12	0	385
V28	14640	0	385	L28	Pré-moldada	12	0	385
V29	14640	0	385	L29	Pré-moldada	12	0	385
V30	17400	28	413	L30	Pré-moldada	12	0	385
V31	14640	0	385	L31	Pré-moldada	12	0	385
V32	14640	0	385	L32	Pré-moldada	12	0	385
V33	14640	0	385	L33	Pré-moldada	12	0	385
V34	14640	0	385	L34	Pré-moldada	12	0	385
V35	14640	0	385	L35	Pré-moldada	12	0	385
V36	14640	28	413	L36	Pré-moldada	12	0	385
V37	20600	28	413	L37	Pré-moldada	12	0	385
V38	20600	68	433	L38	Pré-moldada	12	0	385
V39	14640	0	385	L39	Pré-moldada	12	0	385
V40	14640	0	385	L40	Pré-moldada	12	0	385
V41	20600	68	433	L41	Pré-moldada	12	0	385
V42	20600	68	433	L42	Pré-moldada	12	0	385
V43	20600	68	433	L43	Pré-moldada	12	0	385
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V64	14640	0	385	L64	Pré-moldada	12	0	385
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V66	20600	48	433	L66	Pré-moldada	12	0	385
V67	14640	0	385	L67	Pré-moldada	12	0	385
V68	14640	0	385	L68	Pré-moldada	12	0	385
V69	17400	28	413	L69	Pré-moldada	12	0	385
V70	20600	48	433	L70	Pré-moldada	12	0	385
V71	14640	0	385	L71	Pré-moldada	12	0	385
V72	20600	36	423	L72	Pré-moldada	12	0	385
V73	14640	0	385	L73	Pré-moldada	12	0	385
V74	14640	0	385	L74	Pré-moldada	12	0	385
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V77	14640	28	413	L77	Pré-moldada	12	0	385
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V79	14640	0	385	L79	Pré-moldada	12	0	385
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V84	14640	0	385	L84	Pré-moldada	12	0	385
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V86	20600	36	423	L86	Pré-moldada	12	0	385
V87	14640	0	385	L87	Pré-moldada	12	0	385
V88	20600	36	423	L88	Pré-moldada	12	0	385
V89	14640	0	385	L89	Pré-moldada	12	0	385
V90	20600	48	433	L90	Pré-moldada	12	0	385
V91	14640	0	385	L91	Pré-moldada	12	0	385
V92	14640	0	385	L92	Pré-moldada	12	0	385
V93	14640	0	385	L93	Pré-moldada	12	0	385
V94	14640	0	385	L94	Pré-moldada	12	0	385
V95	14640	0	385	L95	Pré-moldada	12	0	385
V96	14640	0	385	L96	Pré-moldada	12	0	385
V97	14640	0	385	L97	Pré-moldada	12	0	385
V98	14640	0	385	L98	Pré-moldada	12	0	385
V99	14640	0	385	L99	Pré-moldada	12	0	385
V100	14640	28	413	L100	Pré-moldada	12	0	385
V101	14640	0	385	L101	Pré-moldada	12	0	385
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V128	14640	0	385	L128	Pré-moldada	12	0	385
V129	14640	28	413	L129	Pré-moldada	12	0	385
V130	14640	0	385	L130	Pré-moldada	12	0	385
V131	14640	0	385	L131	Pré-moldada	12	0	385
V132	14640	0	385	L132	Pré-moldada	12	0	385
V133	14640	0	385	L133	Pré-moldada	12	0	385
V134	14640	0	385	L134	Pré-moldada	12	0	385
V135	14640	0	385	L135	Pré-moldada	12	0	385

Características dos materiais	
kg/m ³	300
kg/cm ²	26854



JR ARQUITETURA E ENGENHARIA
 FONES: (47) 99979-8737 ; (47) 99112-6926
 RUA AD

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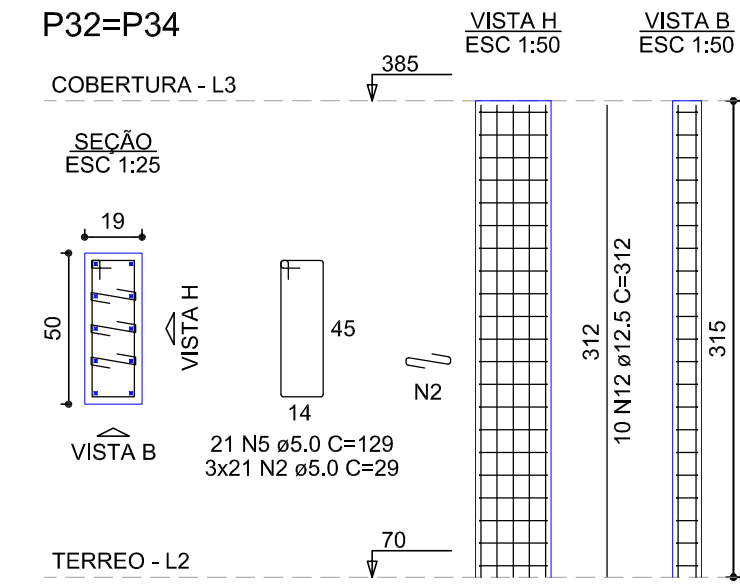
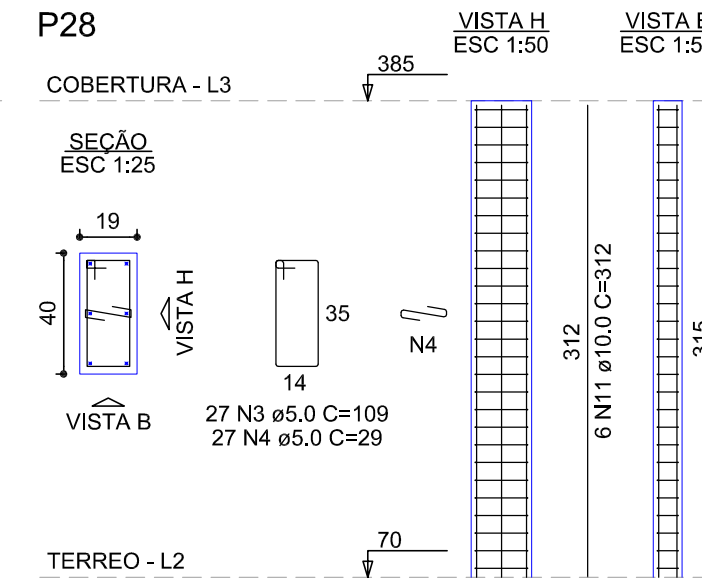
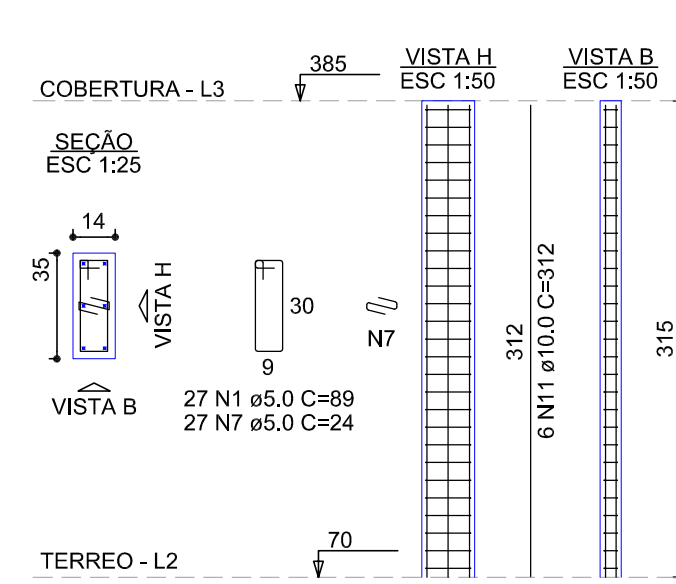
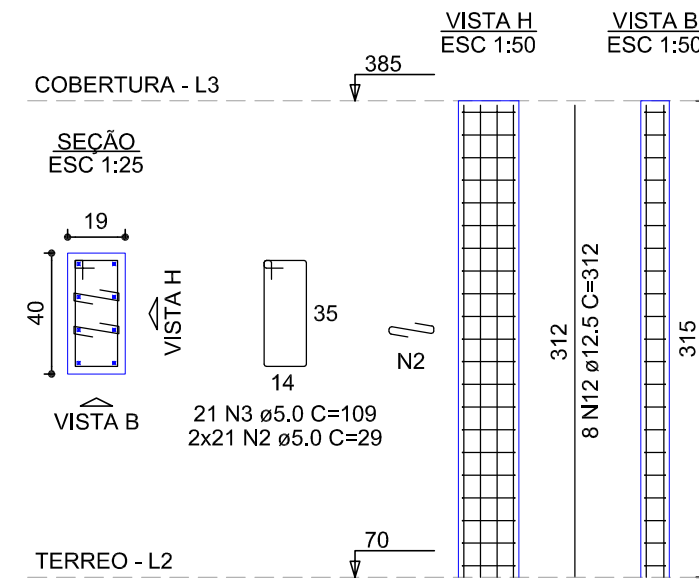
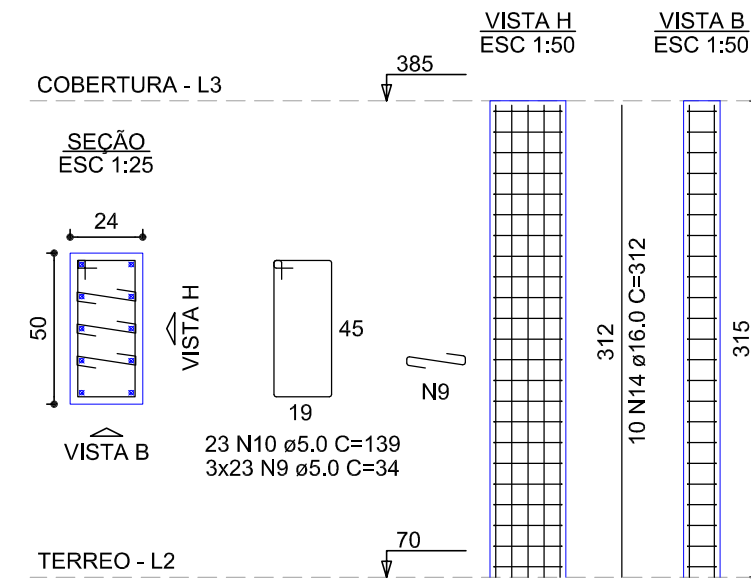
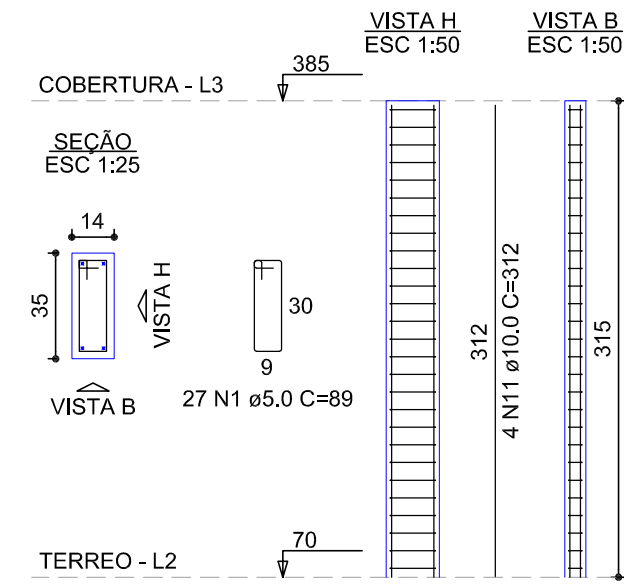
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P28

P32=P34



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	2422	89	215558
	2	5.0	441	29	12789
	3	5.0	306	109	33354
	4	5.0	54	29	1566
	5	5.0	42	129	5418
	6	5.0	1800	59	106200
	7	5.0	135	24	3240
	8	5.0	54	99	5346
	9	5.0	690	34	23460
	10	5.0	230	139	31970
	11	10.0	634	312	197808
	12	12.5	106	312	33072
	13	12.5	24	337	8088
	14	16.0	100	312	31200

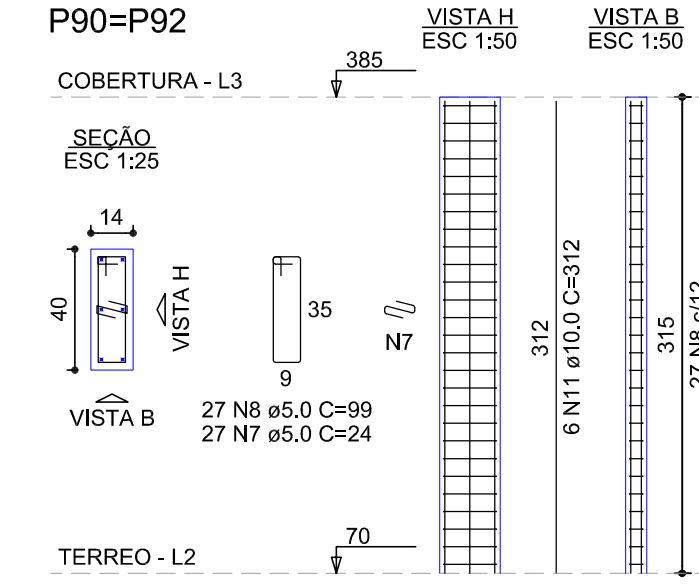
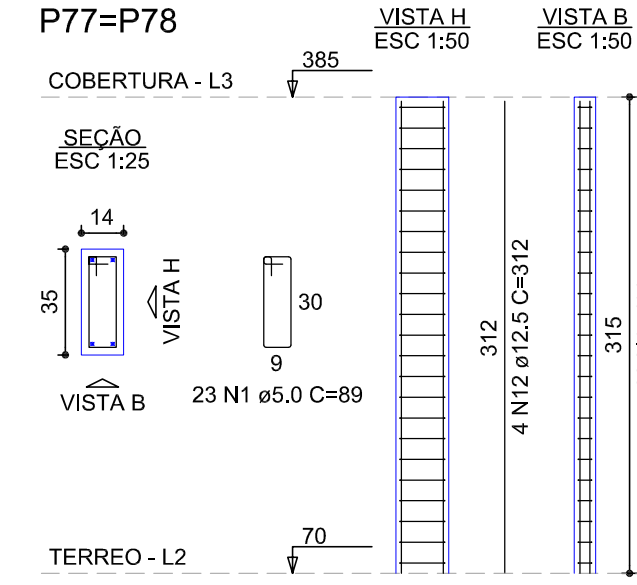
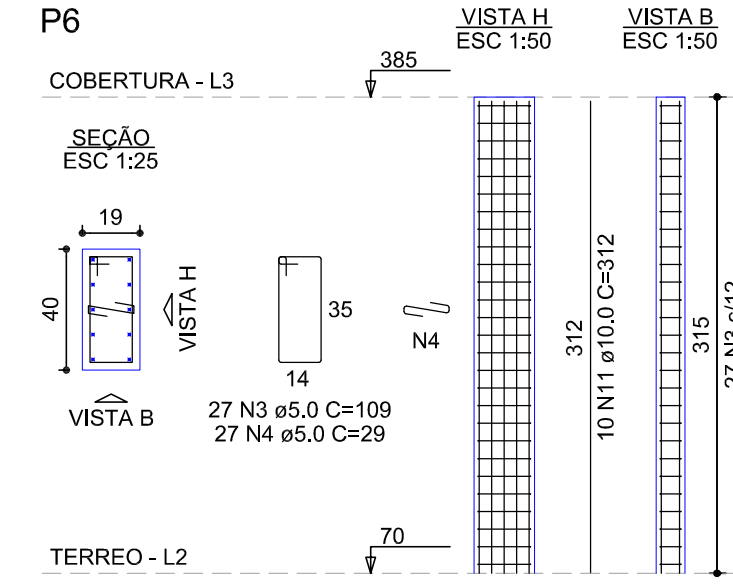
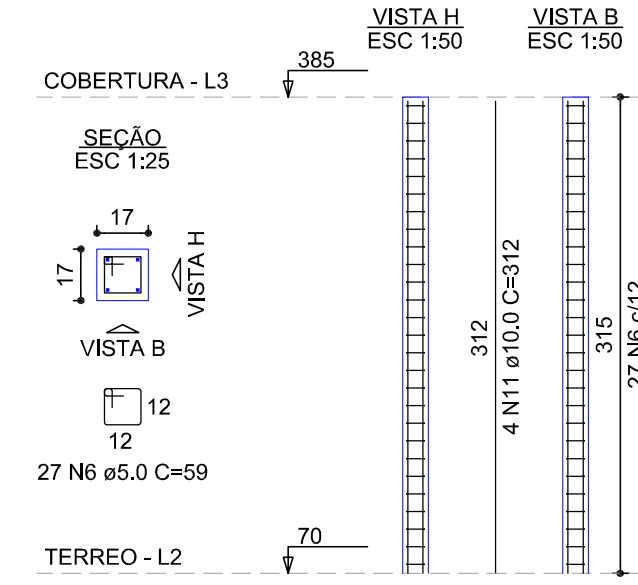
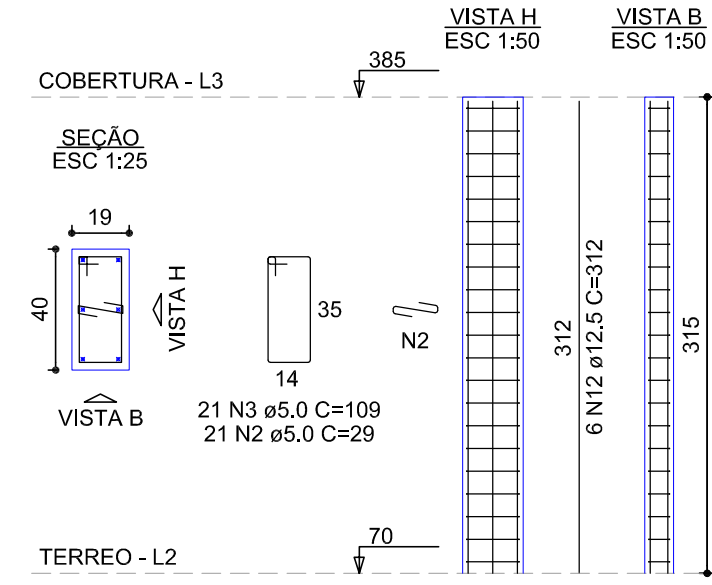
RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	1978.1	1341.5
	12.5	416.4	441.2
	16.0	312	541.7
CA60	5.0	4389	744.1
PESO TOTAL (kg)			
CA50		2324.4	
CA60		744.1	

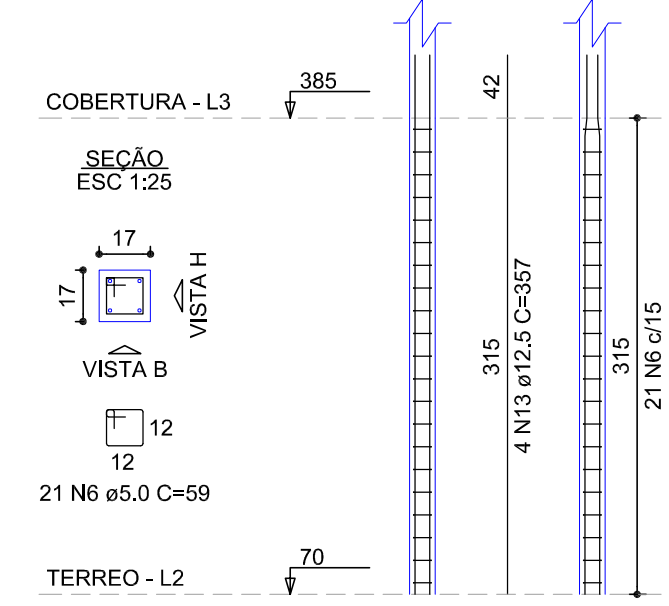
Volume de concreto (C-30) = 28.16 m³
 Área de forma = 537.64 m²

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P93=P94=P98=P99=P111=
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**JR ARQUITETURA
E ENGENHARIA**

FONES: (47) 99979-8737 ; (47) 99112-6928
 RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC

ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

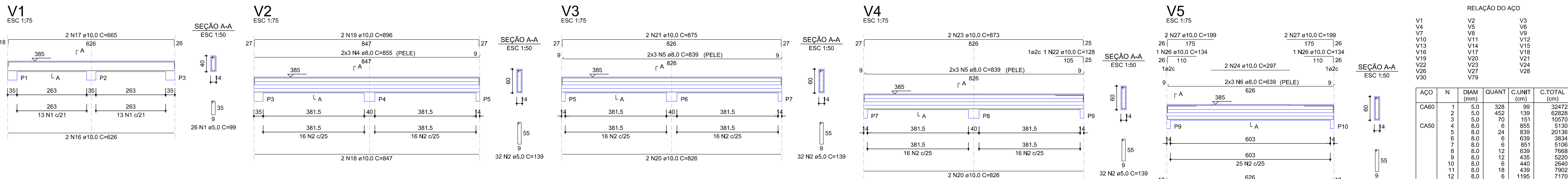
REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM PILAR**

LOCAL: **RUA ALBERTO KOGLIN** | ENDEREÇO DA OBRA: **Rua Alberto Koglin**
 Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

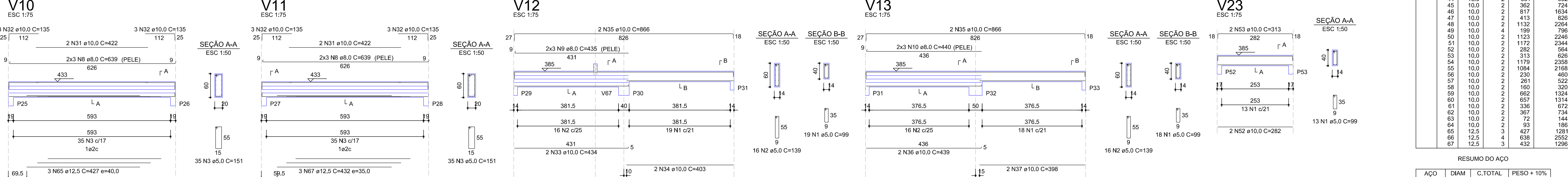
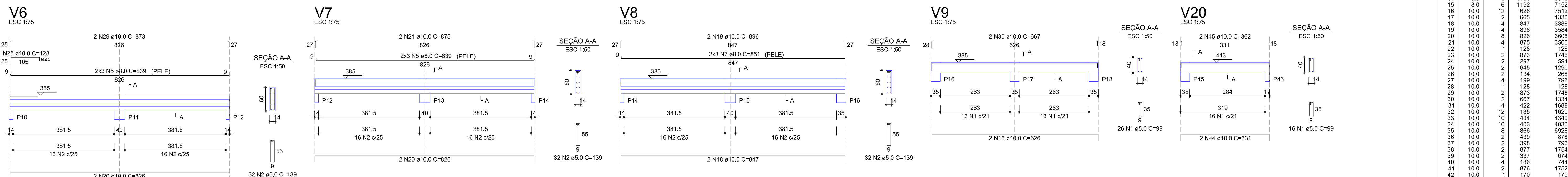
ENGENHEIRA RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** (ARQUITETA E URBANISTA, CREA/SC 450619-2) | **ROSINEI MELO GOETTEN DE LIMA** (ENGENHEIRO CIVIL, CREA/SC 99286-6)

RESENDA: **ROSINEI MELO G. DE LIMA**
 ESCALA: 1/75
 DATA: 15/02/2022
 TIPO: **EST.**
 PLANCHA: **13** / 20



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	328	99	32472
V4	2	5.0	453	139	62828
V7	3	5.0	70	151	10570
V10	4	8.0	6	855	5130
V13	5	8.0	24	839	20136
V16	6	8.0	6	839	3834
V19	7	8.0	6	851	5106
V22	8	8.0	12	639	7668
V25	9	8.0	12	435	5220
V28	10	8.0	6	440	2640
V31	11	8.0	18	439	7902
V34	12	8.0	6	1195	7170
V37	13	8.0	6	98	588
V40	14	8.0	6	1136	6816
V43	15	8.0	6	1192	7152
V46	16	10.0	4	896	3584
V49	17	10.0	2	665	1330
V52	18	10.0	4	847	3388
V55	19	10.0	4	896	3584
V58	20	10.0	8	826	6608
V61	21	10.0	4	875	3500
V64	22	10.0	1	128	128
V67	23	10.0	2	873	1746
V70	24	10.0	2	297	594
V73	25	10.0	2	645	1290
V76	26	10.0	2	261	522
V79	27	10.0	4	199	796
V82	28	10.0	1	128	128
V85	29	10.0	2	873	1746
V88	30	10.0	2	867	1734
V91	31	10.0	4	422	1688
V94	32	10.0	12	135	1620
V97	33	10.0	10	434	4340
V100	34	10.0	10	403	4030
V103	35	10.0	8	866	6928
V106	36	10.0	2	439	878
V109	37	10.0	2	389	778
V112	38	10.0	2	877	1754
V115	39	10.0	2	337	674
V118	40	10.0	4	186	744
V121	41	10.0	2	876	1752
V124	42	10.0	1	170	170
V127	43	10.0	4	671	2684
V130	44	10.0	2	331	662
V133	45	10.0	2	362	724
V136	46	10.0	2	817	1634
V139	47	10.0	2	413	826
V142	48	10.0	2	1132	2264
V145	49	10.0	4	199	796
V148	50	10.0	2	1123	2246
V151	51	10.0	2	1172	2344
V154	52	10.0	2	282	564
V157	53	10.0	2	313	626
V160	54	10.0	2	1179	2358
V163	55	10.0	2	1084	2168
V166	56	10.0	2	230	460
V169	57	10.0	2	261	522
V172	58	10.0	2	160	320
V175	59	10.0	2	662	1324
V178	60	10.0	2	657	1314
V181	61	10.0	2	336	672
V184	62	10.0	2	367	734
V187	63	10.0	2	72	144
V190	64	10.0	2	93	186
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V199	67	12.5	3	432	1296

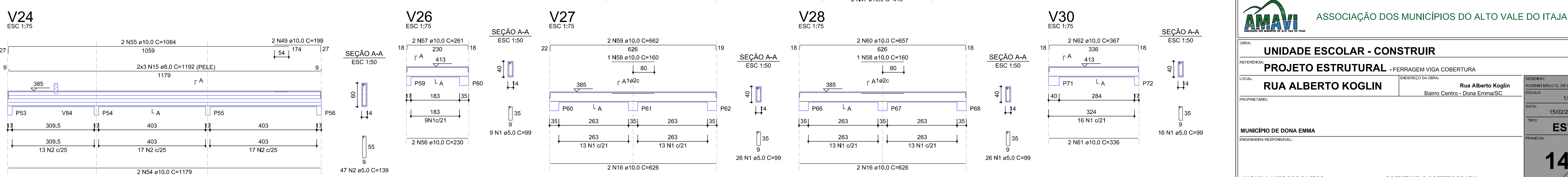
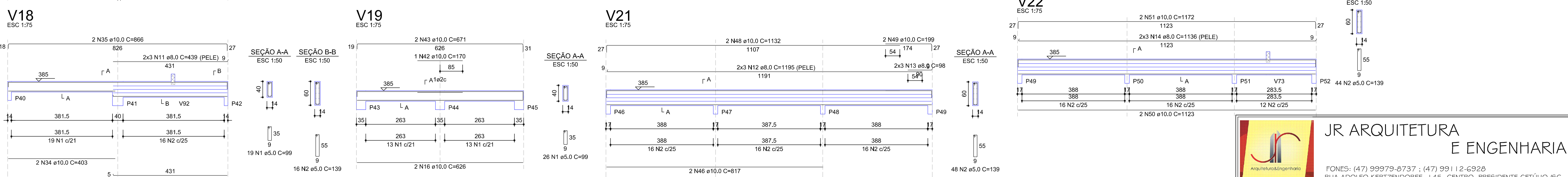
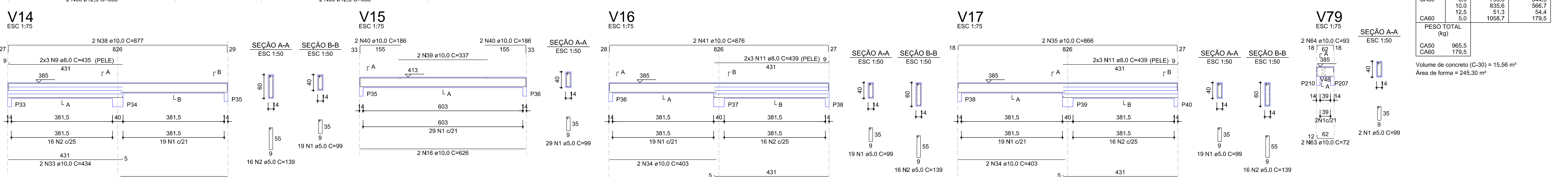


RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	793.6	344.5
CA60	10.0	835.6	566.7
CA60	12.5	51.3	54.4
CA60	5.0	1058.7	179.5

PESO TOTAL (kg)
CA50 965.5
CA60 179.5

Volume de concreto (C-30) = 15.56 m³
Área de forma = 245.30 m²



JR ARQUITETURA E ENGENHARIA
FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

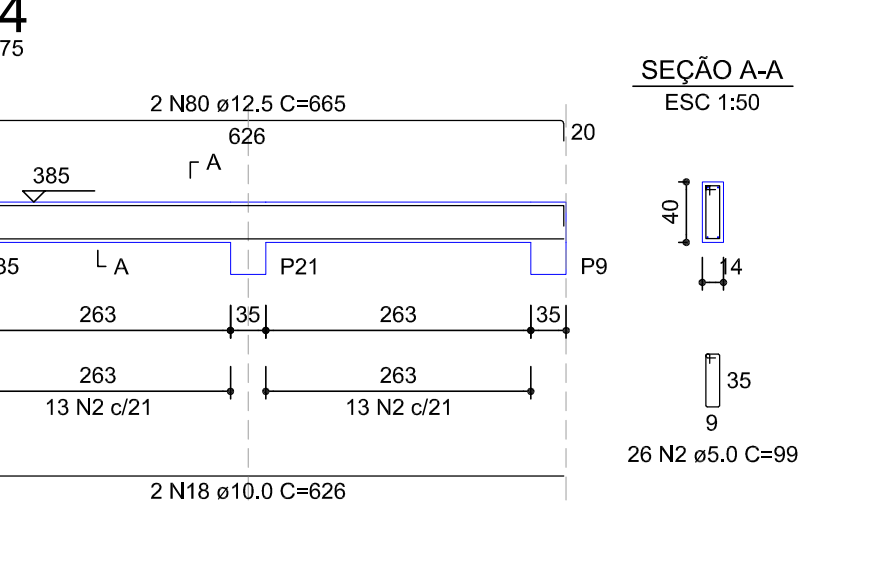
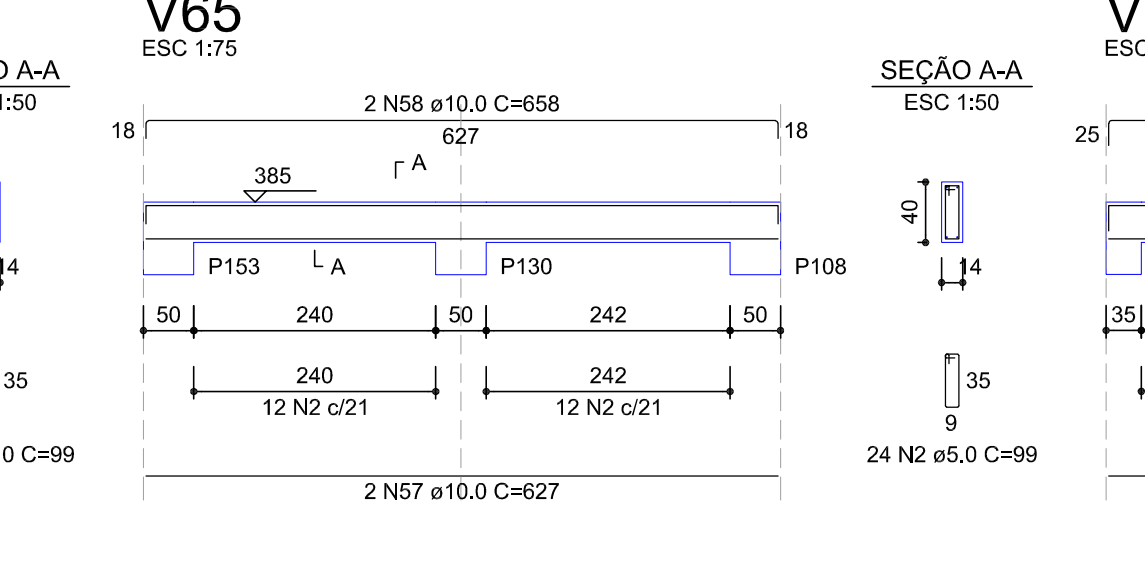
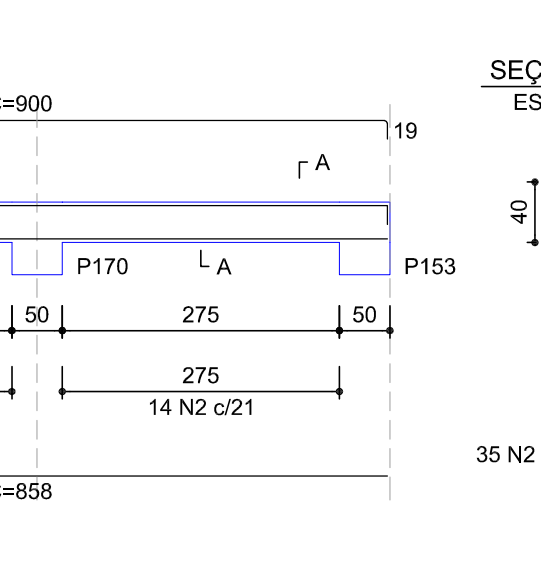
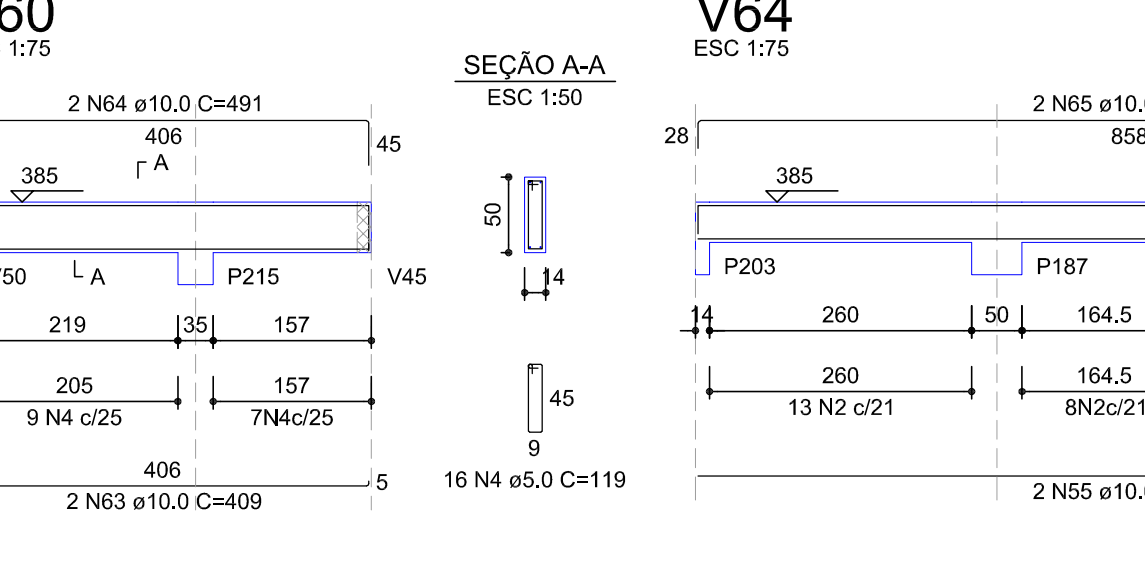
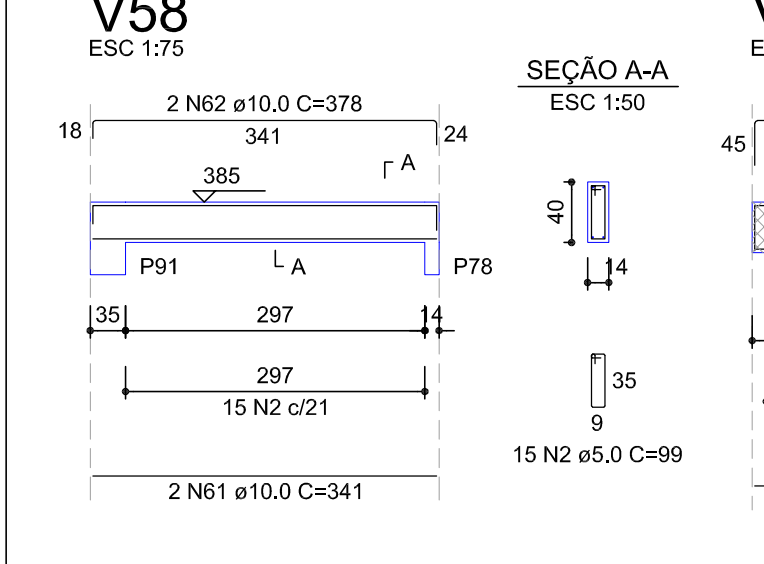
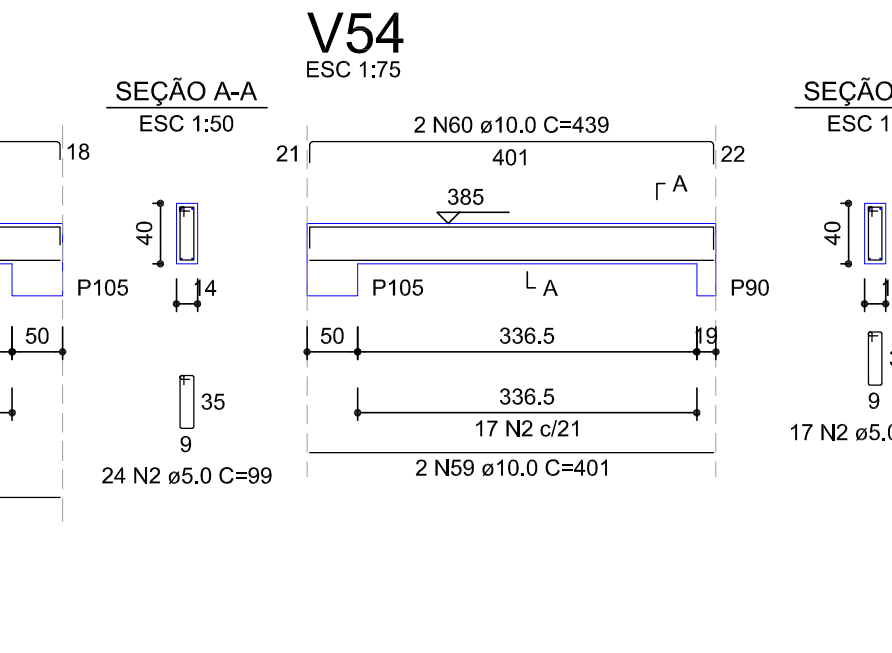
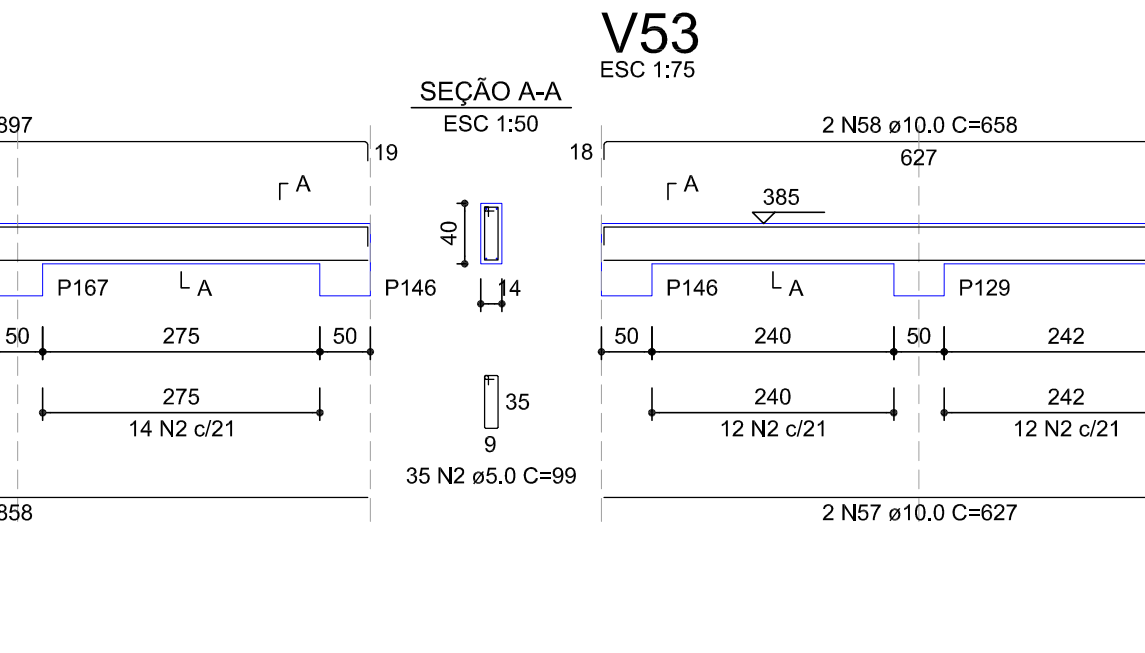
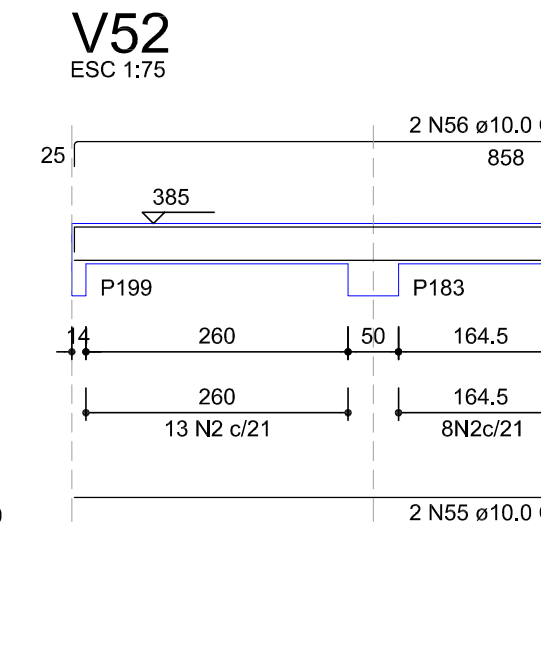
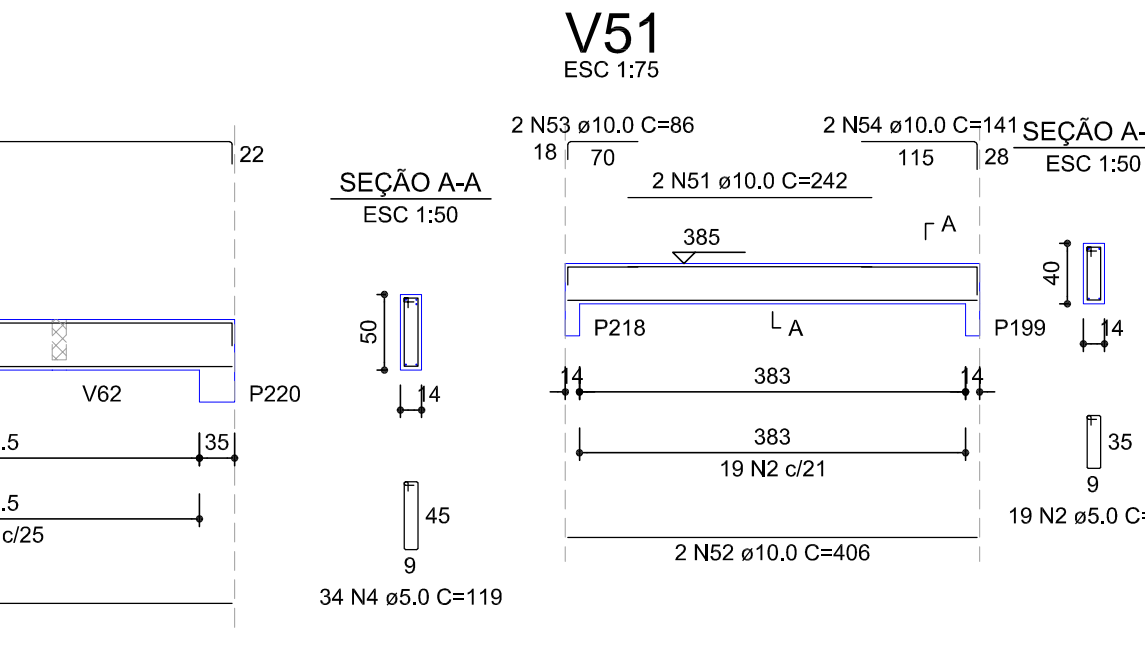
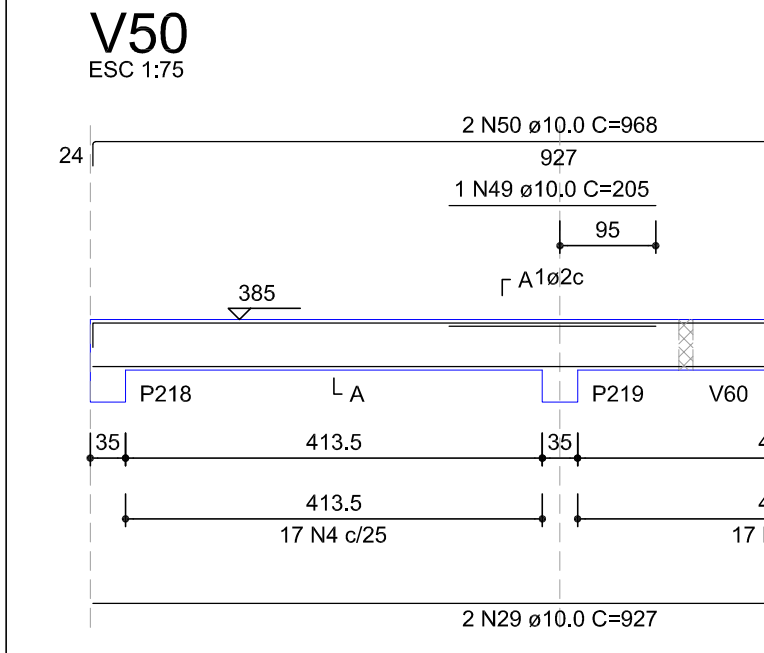
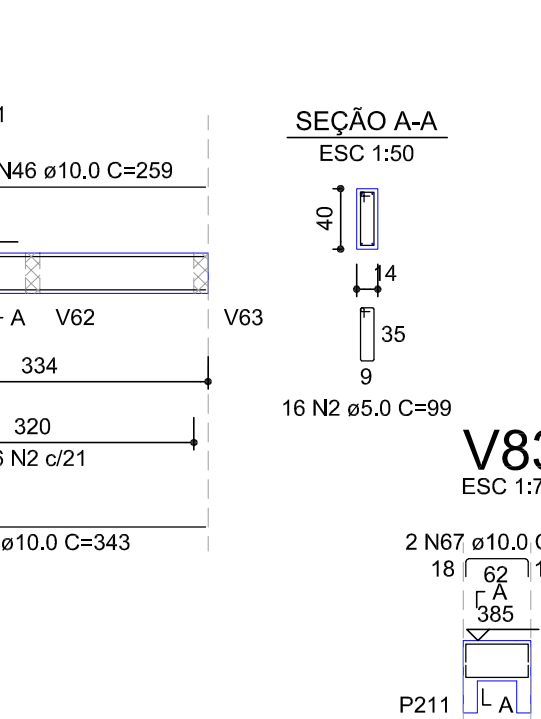
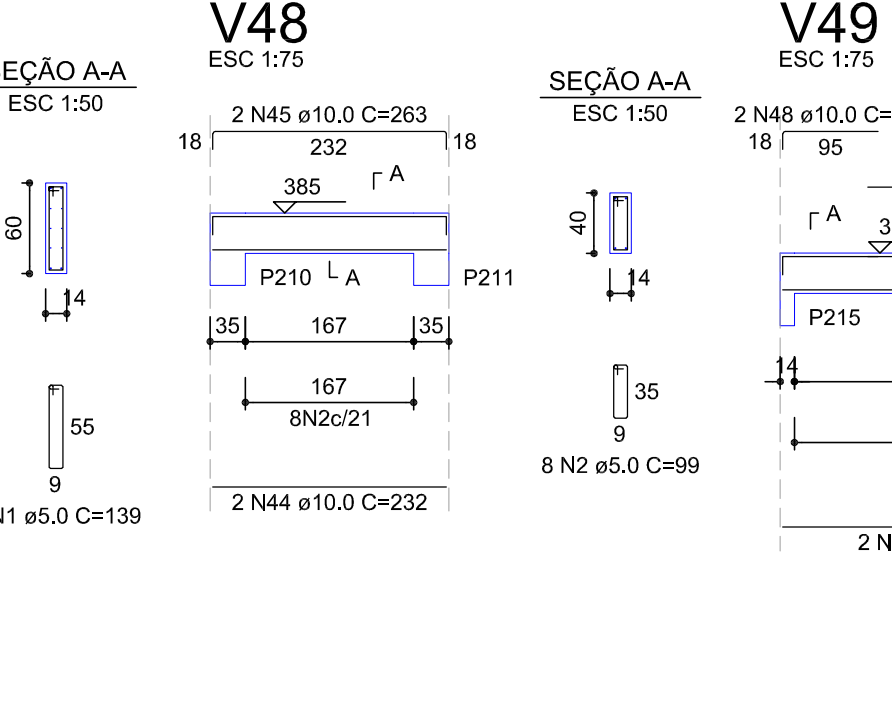
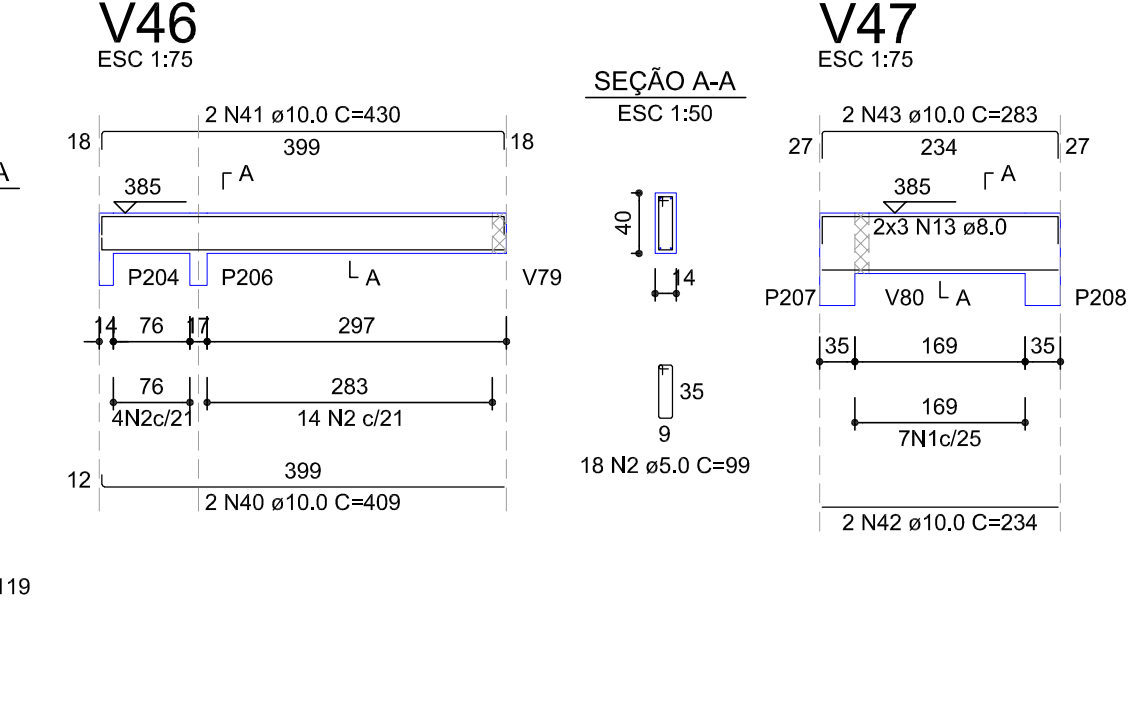
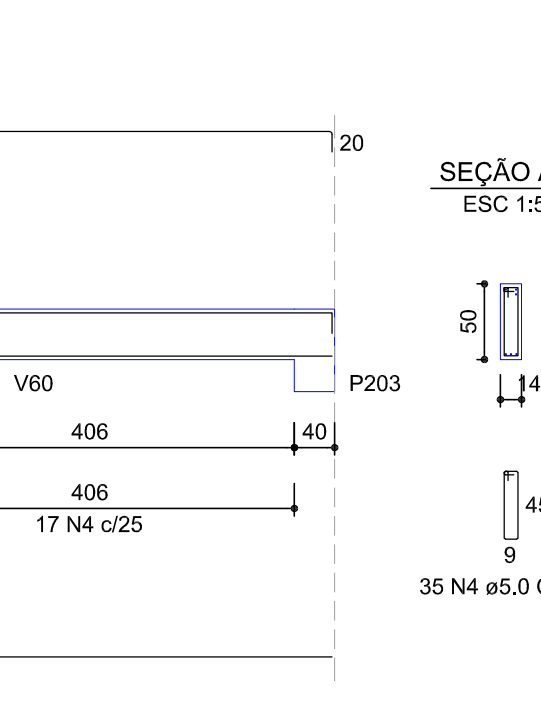
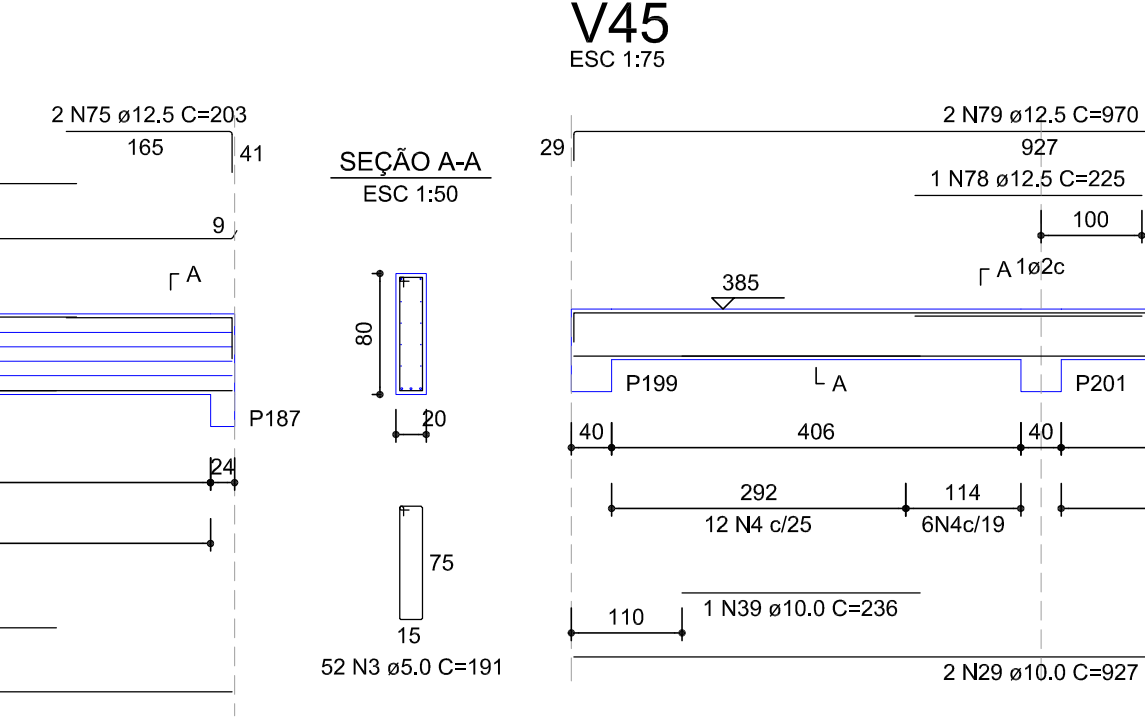
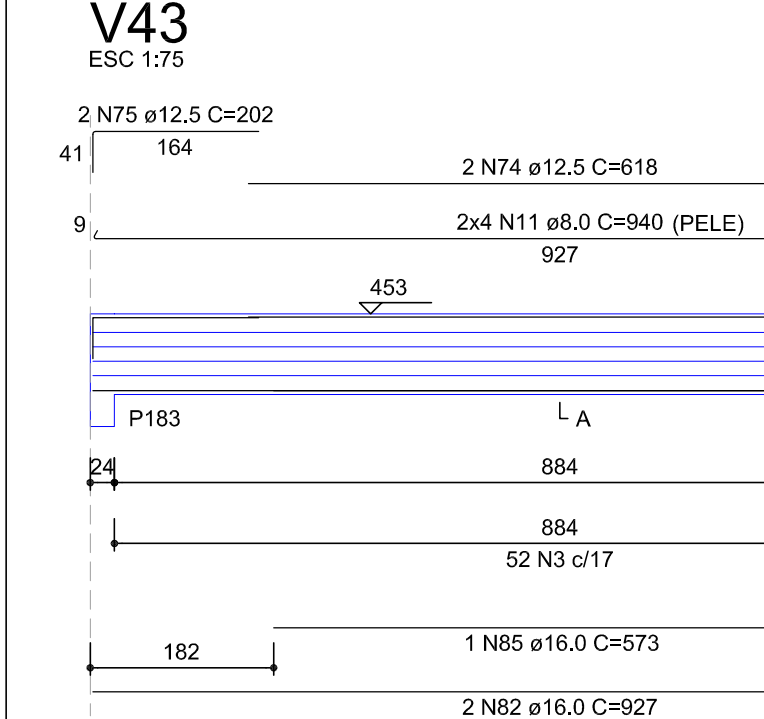
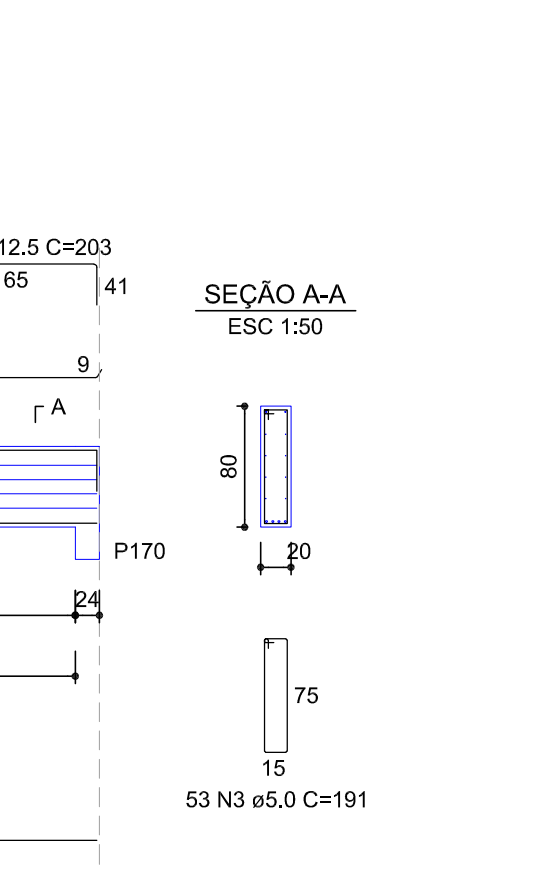
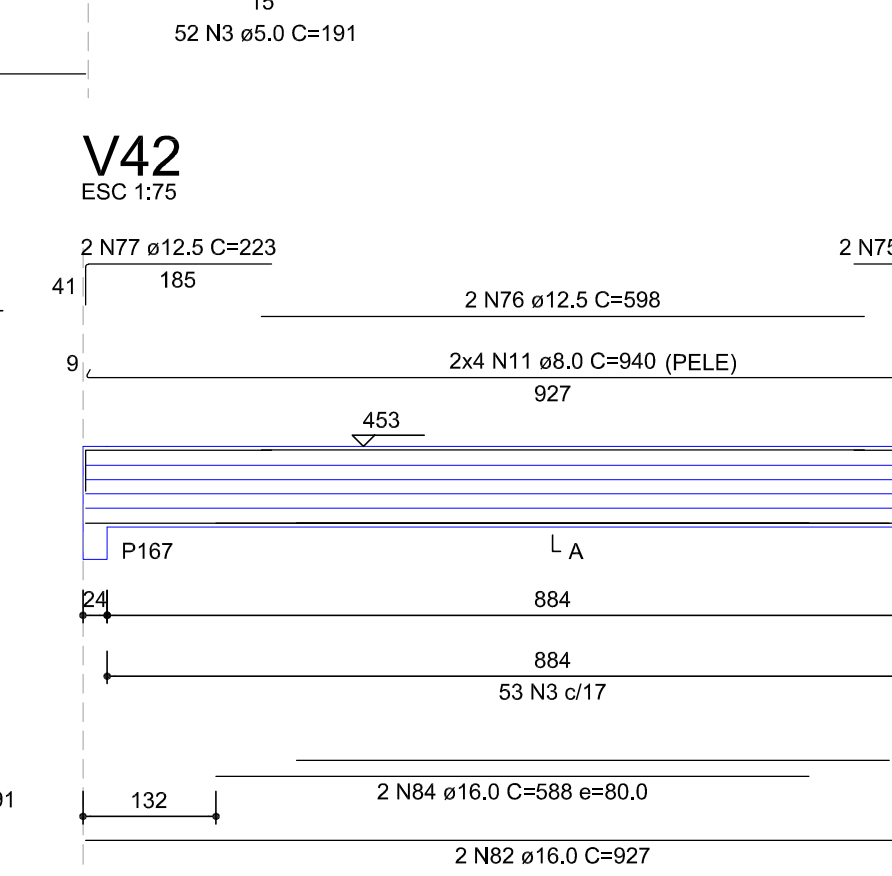
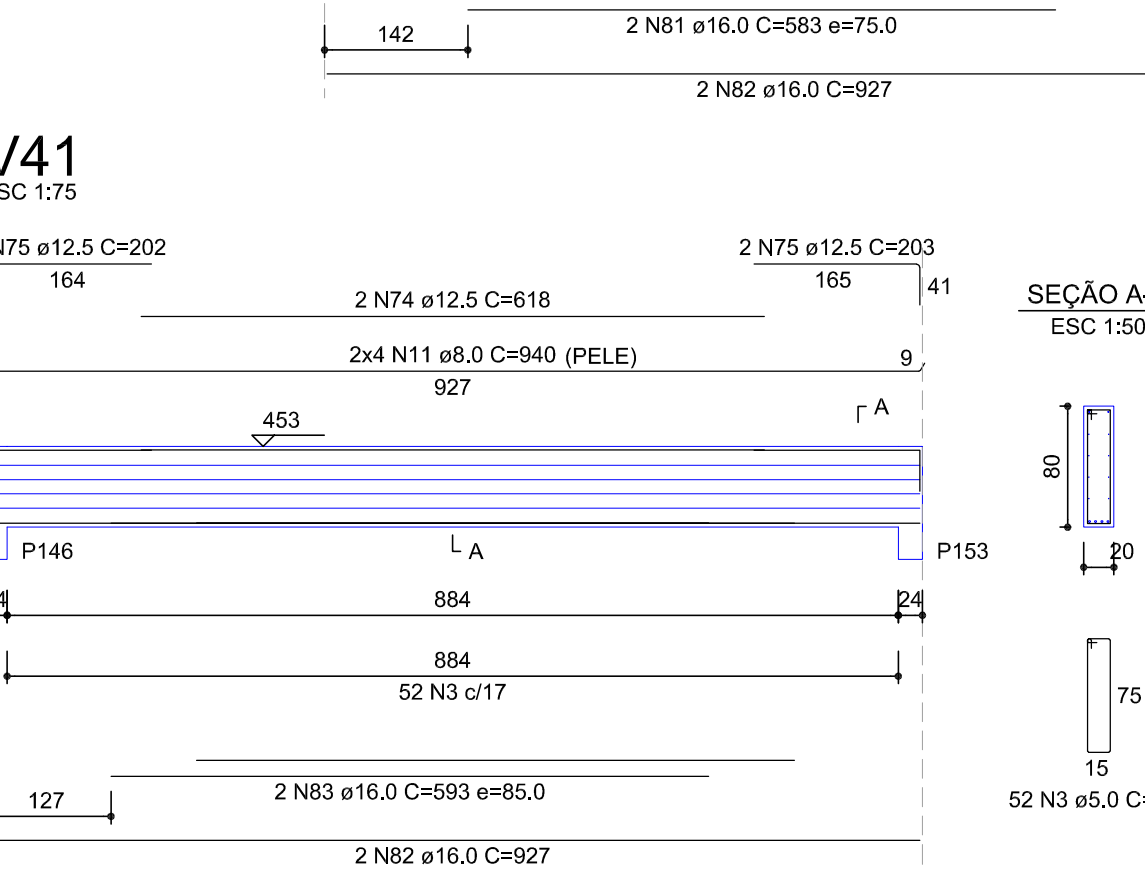
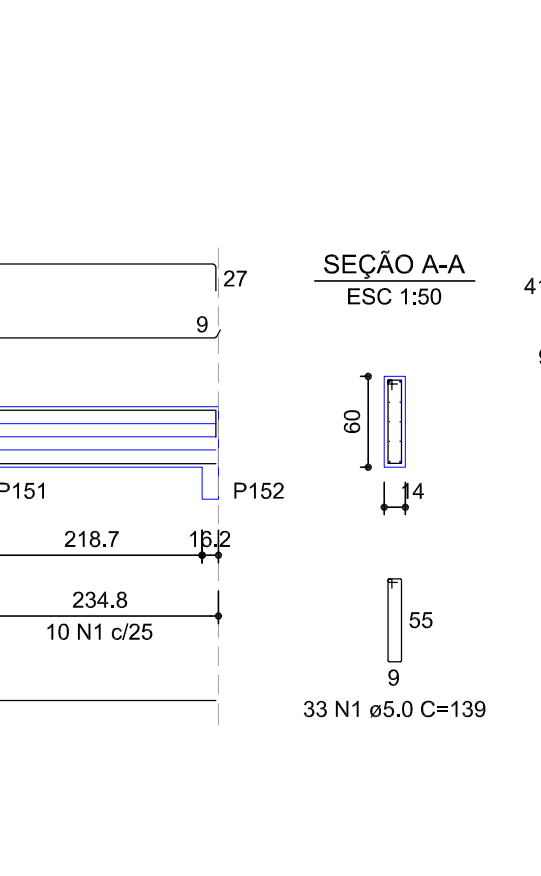
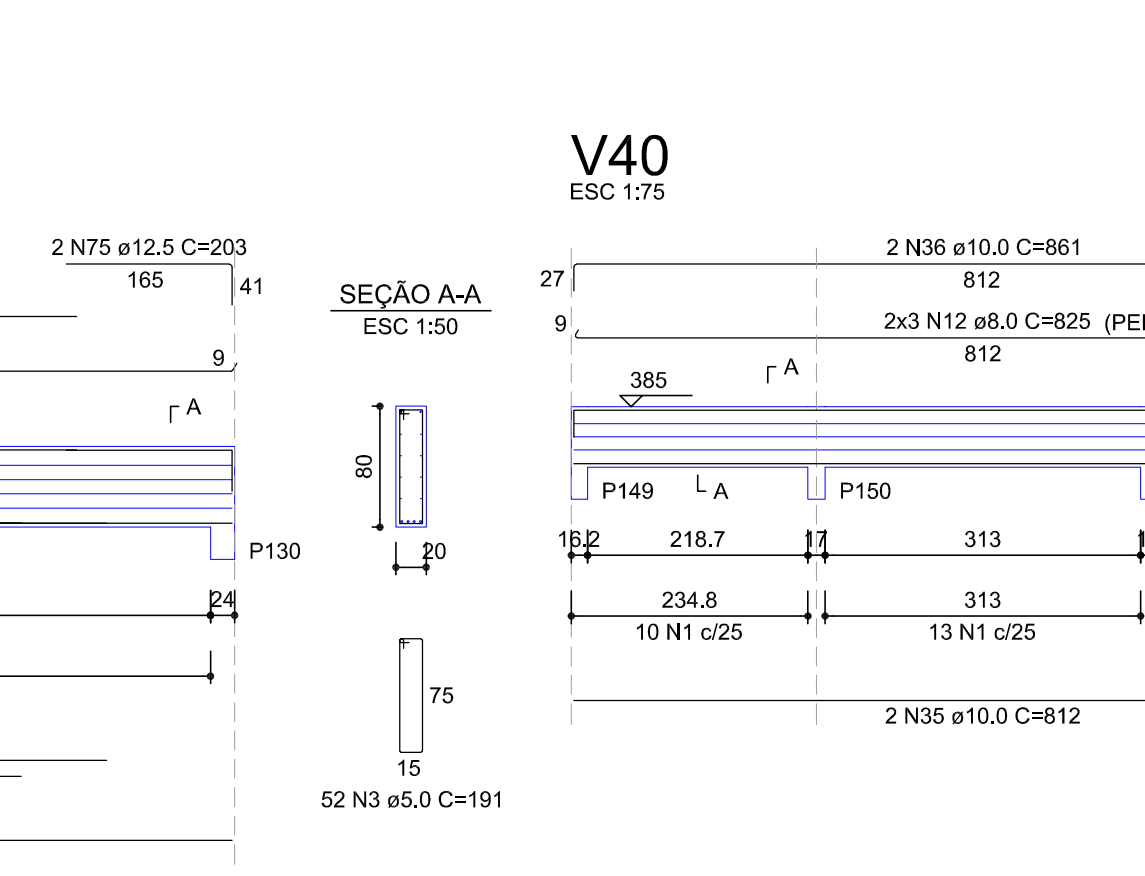
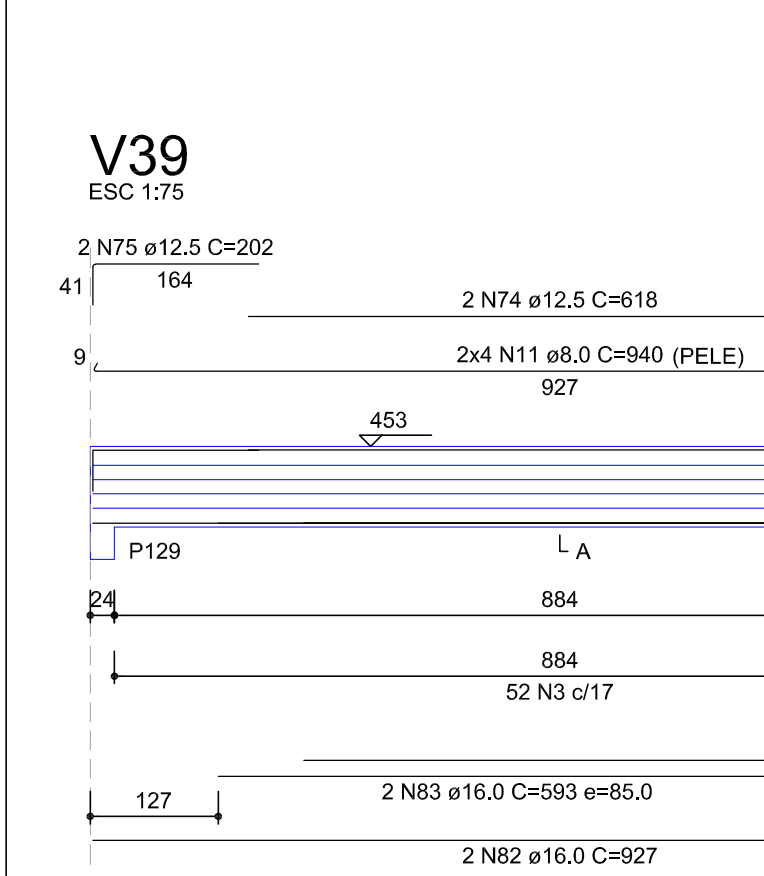
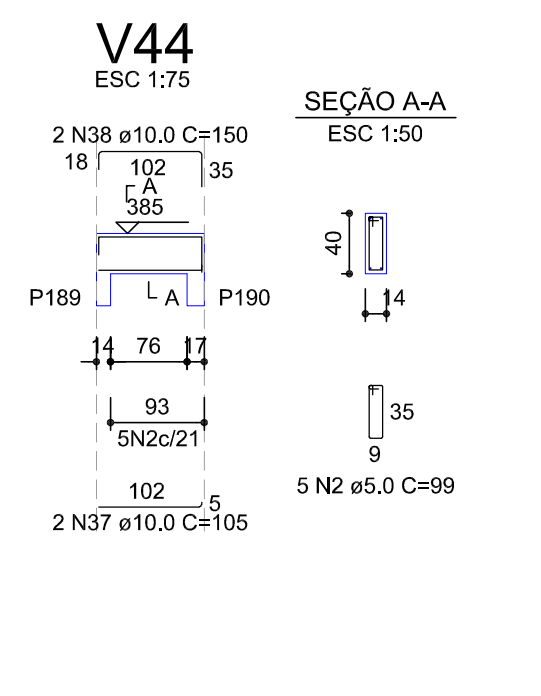
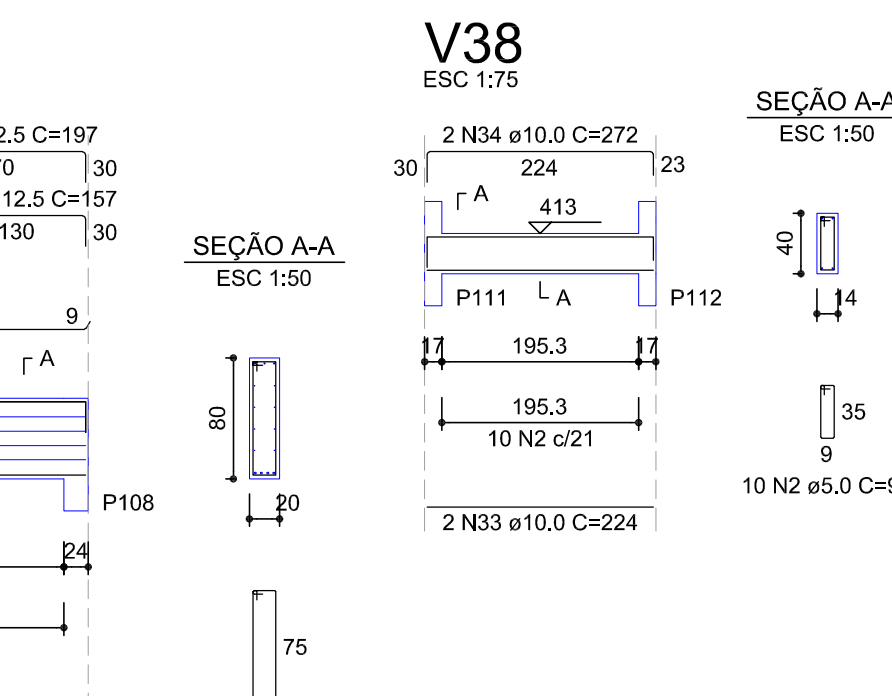
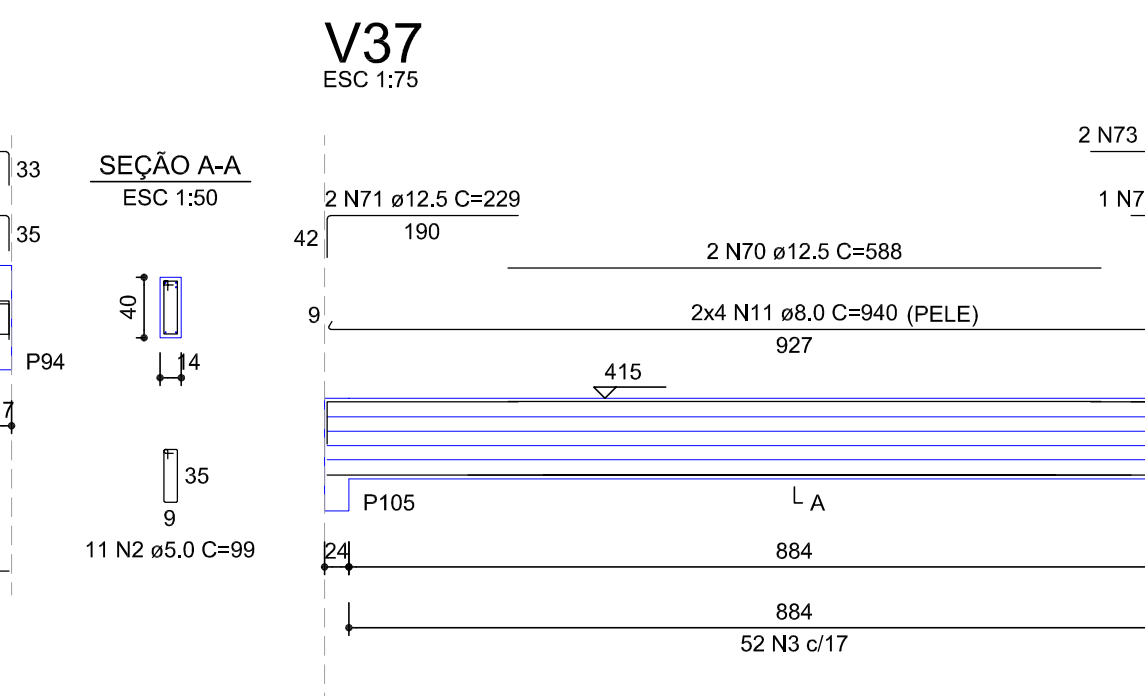
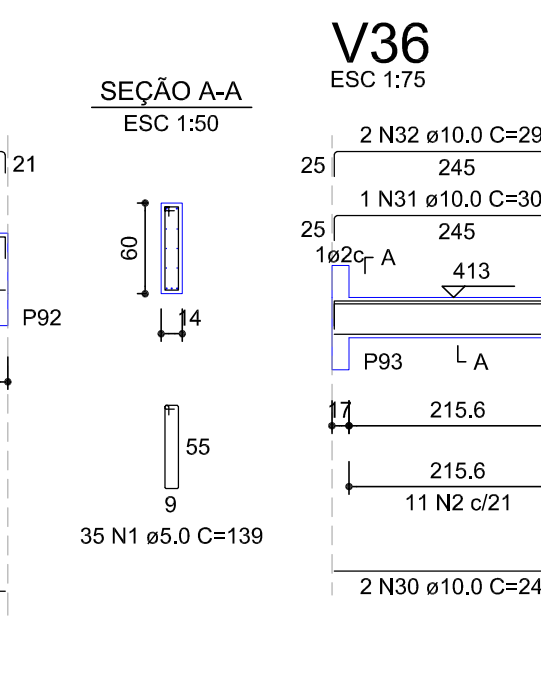
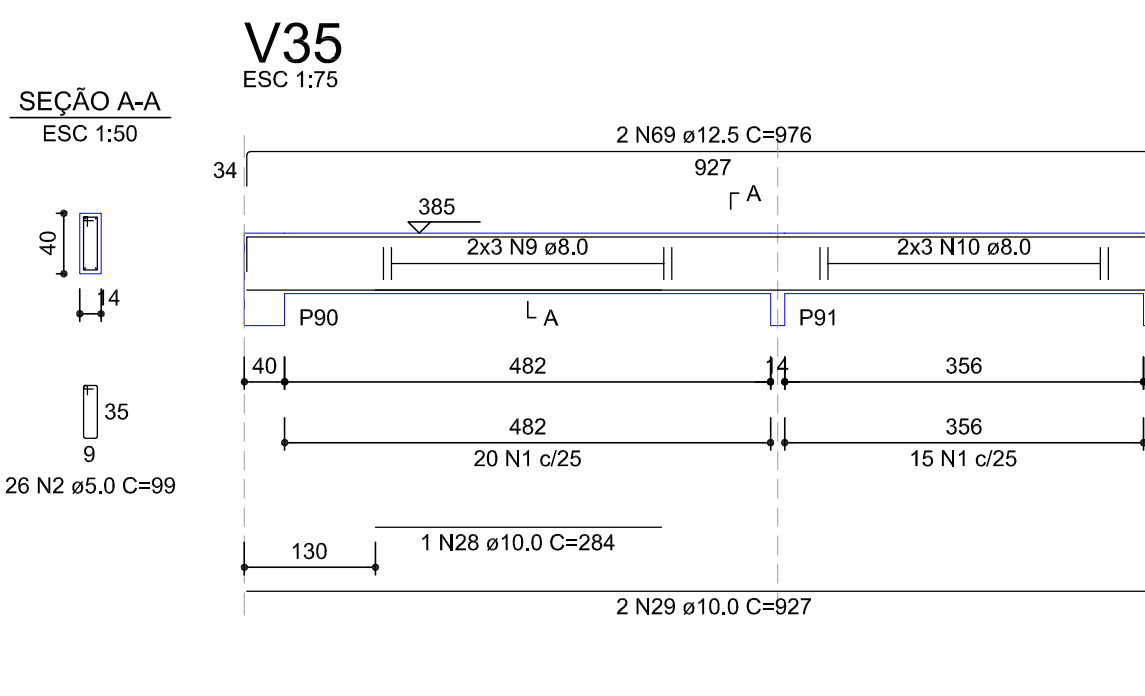
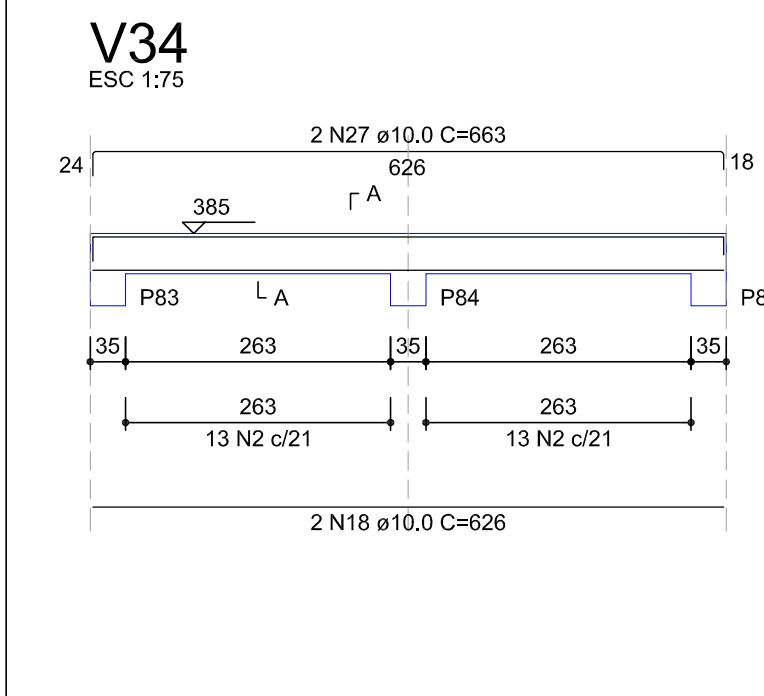
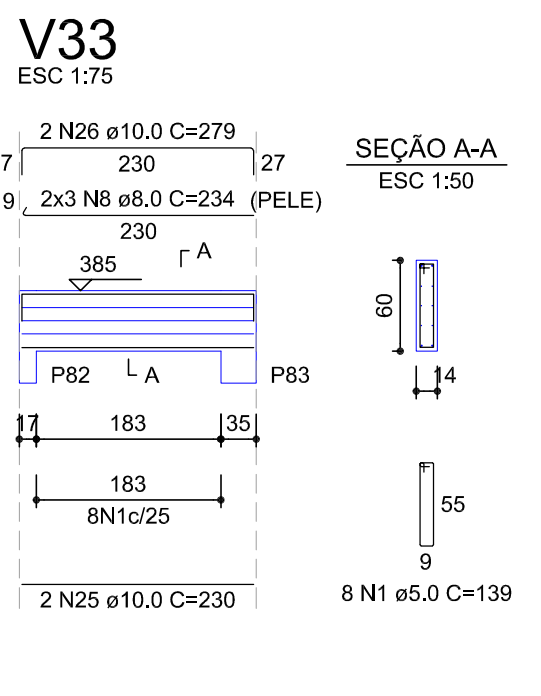
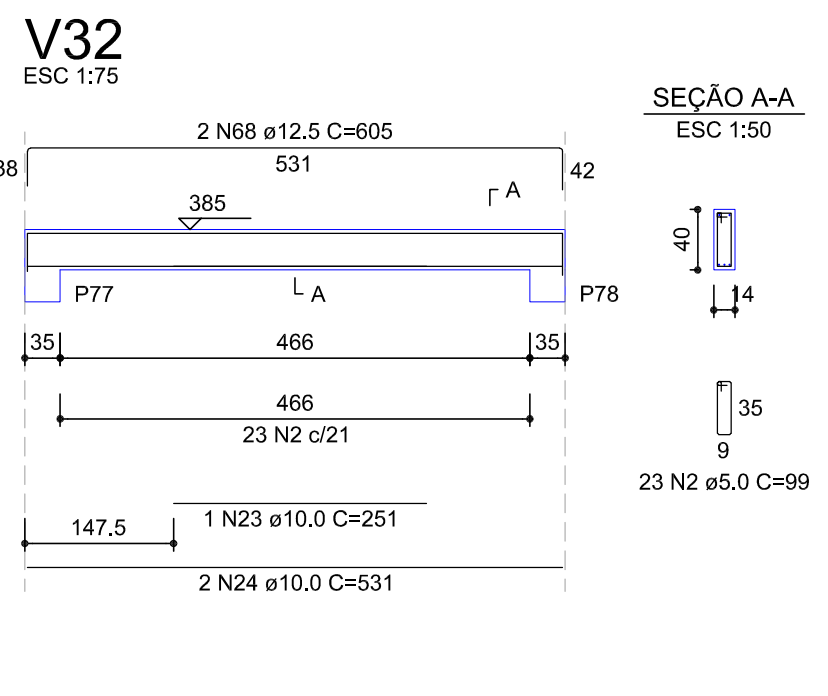
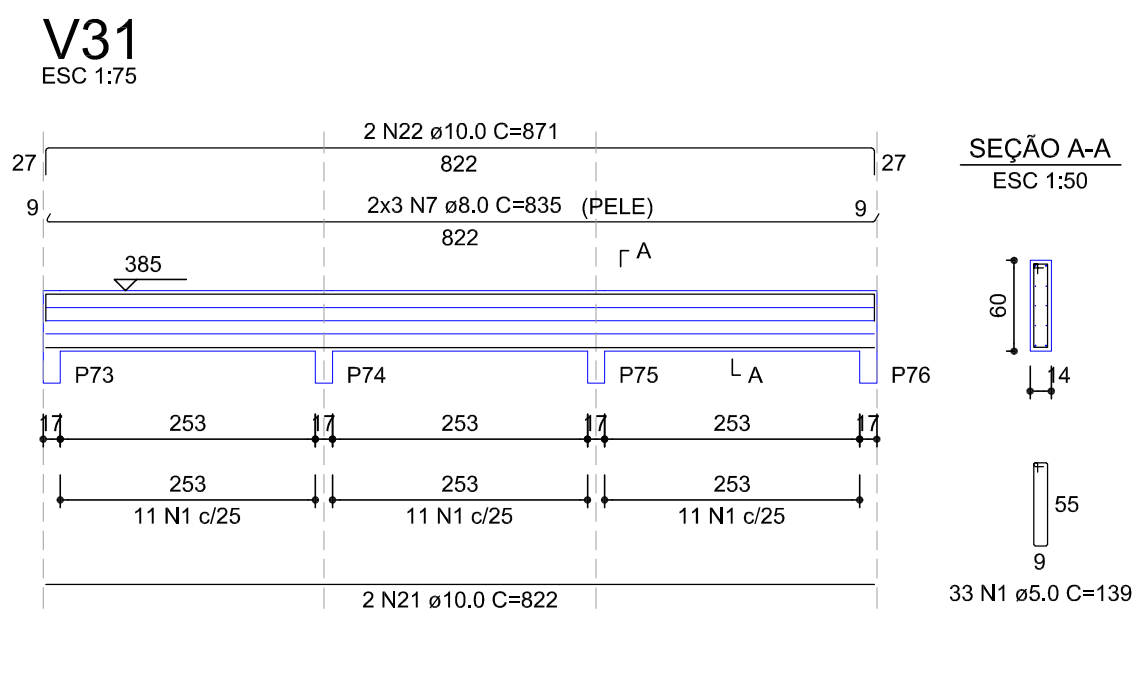
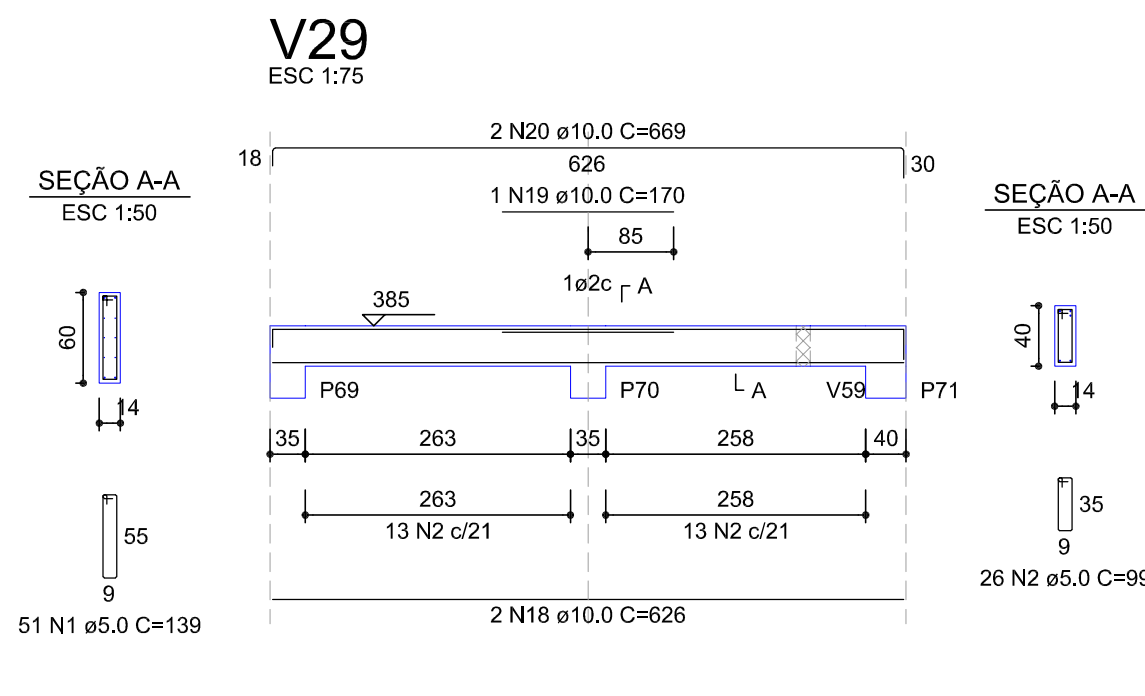
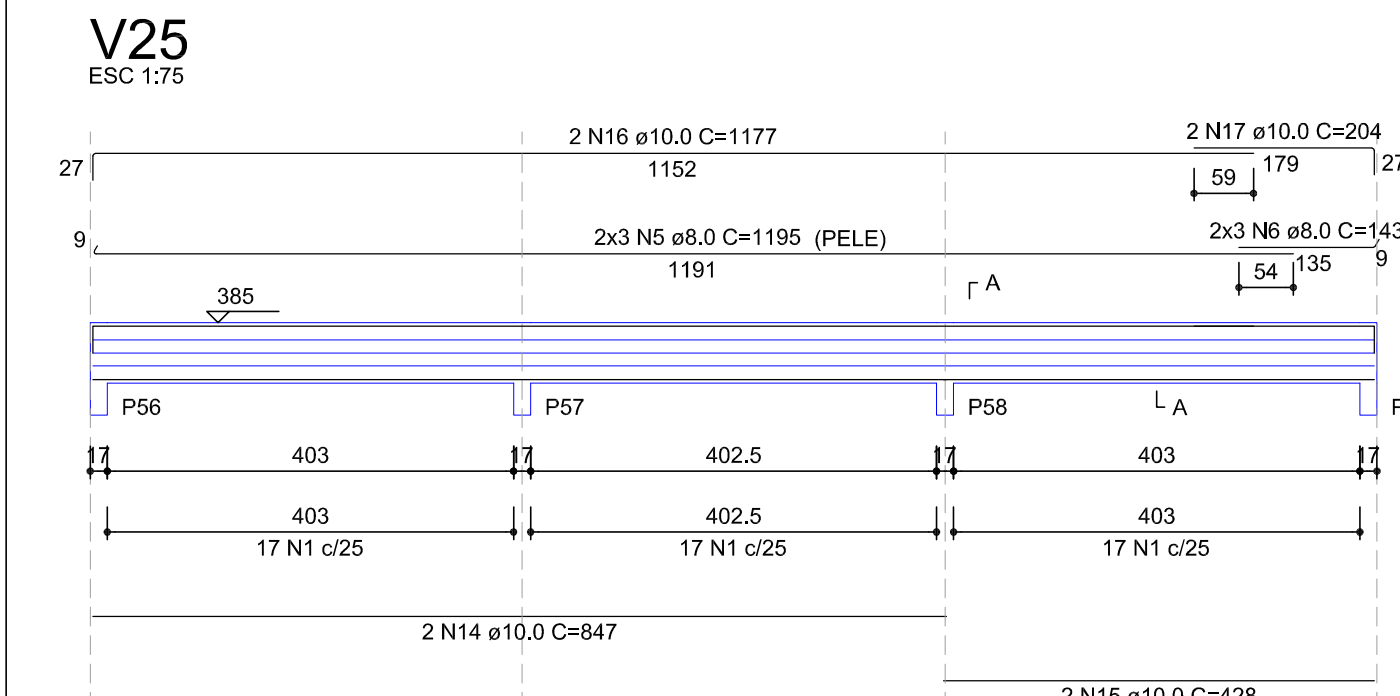
AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR
REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA
LOCAL: RUA ALBERTO KOGLIN, Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: MUNICÍPIO DE DONA EMMA
ENGENHEIRA RESPONSÁVEL: JULIANA LANGE DOS SANTOS
INSCRETA E REGISTADA: 15/02/2022

PROFESSOR RESPONSÁVEL: ROSINEI MELO GOETTEN DE LIMA
INSCRETA E REGISTADA: 15/02/2022

EST. 14



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	167	139	23213
	2	5.0	340	99	33660
	3	5.0	261	191	49851
	4	5.0	85	119	10115
	5	8.0	6	1195	7170
	6	8.0	6	143	858
	7	8.0	6	835	5010
	8	8.0	6	234	1404
	9	8.0	6	corr	3186
	10	8.0	6	corr	2430
	11	8.0	40	940	37600
	12	8.0	6	corr	4950
	13	8.0	6	corr	1404
	14	10.0	2	847	1694
	15	10.0	2	426	856
	16	10.0	2	1177	2354
	17	10.0	2	204	408
	18	10.0	6	626	3796
	19	10.0	1	170	170
	20	10.0	2	669	1338
	21	10.0	2	822	1644
	22	10.0	2	871	1742
	23	10.0	1	251	251
	24	10.0	2	531	1062
	25	10.0	2	230	460
	26	10.0	2	278	556
	27	10.0	2	663	1326
	28	10.0	1	284	284
	29	10.0	2	296	596
	30	10.0	2	224	448
	31	10.0	1	300	300
	32	10.0	2	272	544
	33	10.0	2	272	544
	34	10.0	2	812	1624
	35	10.0	2	812	1624
	36	10.0	1	236	236
	37	10.0	2	105	210
	38	10.0	2	150	300
	39	10.0	1	236	236
	40	10.0	2	409	818
	41	10.0	2	430	860
	42	10.0	2	234	468
	43	10.0	2	283	566
	44	10.0	2	232	464
	45	10.0	2	263	526
	46	10.0	2	259	518
	47	10.0	2	343	686
	48	10.0	2	111	222
	49	10.0	1	205	205
	50	10.0	2	988	1976
	51	10.0	2	242	484
	52	10.0	2	406	812
	53	10.0	2	86	172
	54	10.0	2	141	282
	55	10.0	4	858	3432
	56	10.0	1	897	1794
	57	10.0	4	627	2508
	58	10.0	4	658	2632
	59	10.0	2	401	802
	60	10.0	2	439	878
	61	10.0	2	341	682
	62	10.0	2	378	756
	63	10.0	2	409	818
	64	10.0	2	491	982
	65	10.0	2	900	1800
	66	10.0	2	81	162
	67	10.0	2	81	162
	68	12.5	2	605	1210
	69	12.5	2	976	1952
	70	12.5	2	588	1176
	71	12.5	2	229	458
	72	12.5	1	157	157
	73	12.5	2	197	394
	74	12.5	6	618	3708
	75	12.5	14	202	2828
	76	12.5	2	598	1196
	77	12.5	2	223	446
	78	12.5	1	225	225
	79	12.5	2	970	1940
	80	12.5	2	665	1330
	81	16.0	2	583	1166
	82	16.0	10	927	9270
	83	16.0	4	583	2332
	84	16.0	2	588	1176
	85	16.0	1	573	573

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	640.1	277.8
	10.0	563.9	382.4
	12.5	170.3	180.4
	16.0	145.6	252.7
	5.0	1168.4	198.1
PESO TOTAL (kg)			
CA50		1093.4	
CA60		198.1	

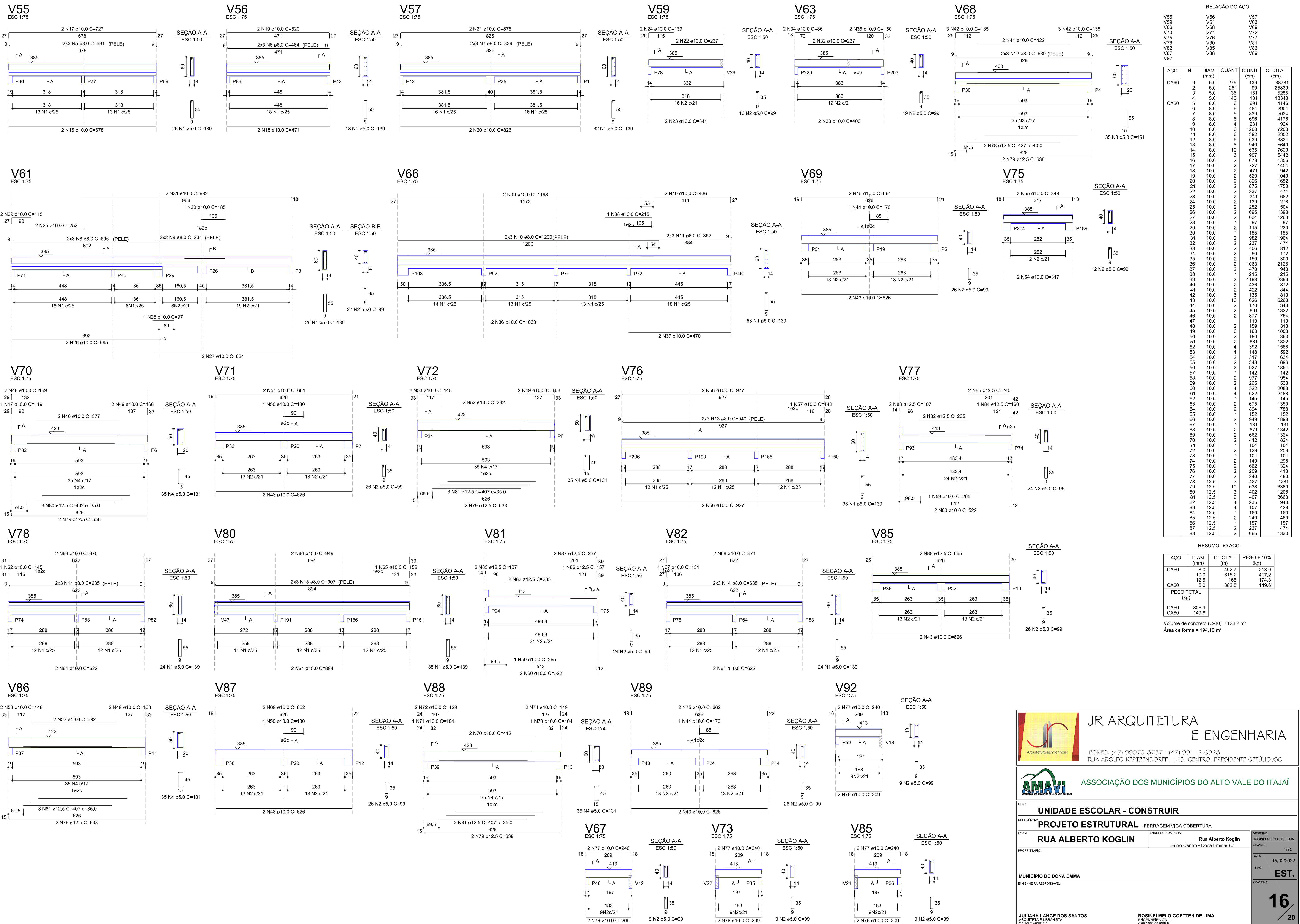
Volume de concreto (C-30) = 17.29 m³
Área de forma = 245.10 m²



JR ARQUITETURA E ENGENHARIA
FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**
REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA**
LOCAL: **RUA ALBERTO KOGLIN** ENDEREÇO DA OBRA: **Rua Alberto Koglin**
PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**
ENGENHEIRO RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** INSCRIÇÃO Nº: **1775**
EST. DATA: **15/02/2022**
TIPO: **15**
PROFESSOR: **ROSINEI MELO G. DE LIMA** INSCRIÇÃO Nº: **92982-6**



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CA60	1	5.0	279	139	38781
V56	2	5.0	261	99	25839
V61	3	5.0	35	151	5285
V70	4	5.0	140	131	18340
V75	5	8.0	6	691	4146
V78	6	8.0	6	484	2904
V85	7	8.0	6	839	5034
V87	8	8.0	6	696	4176
V92	9	8.0	4	231	924
	10	8.0	6	1200	7200
	11	8.0	6	862	2392
	12	8.0	6	639	3834
	13	8.0	6	940	5640
	14	8.0	12	635	7620
	15	8.0	6	907	5442
	16	10.0	2	678	1356
	17	10.0	2	727	1454
	18	10.0	2	471	942
	19	10.0	2	520	1040
	20	10.0	2	826	1652
	21	10.0	2	875	1750
	22	10.0	2	237	474
	23	10.0	2	341	682
	24	10.0	2	139	278
	25	10.0	2	252	504
	26	10.0	2	695	1390
	27	10.0	2	634	1268
	28	10.0	1	97	97
	29	10.0	2	115	230
	30	10.0	1	185	185
	31	10.0	2	348	696
	32	10.0	2	237	474
	33	10.0	2	406	812
	34	10.0	2	86	172
	35	10.0	2	150	300
	36	10.0	2	1063	2126
	37	10.0	2	470	940
	38	10.0	2	348	696
	39	10.0	2	1198	2396
	40	10.0	2	436	872
	41	10.0	2	422	844
	42	10.0	6	135	810
	43	10.0	10	626	6260
	44	10.0	2	170	340
	45	10.0	2	661	1322
	46	10.0	2	377	754
	47	10.0	1	119	119
	48	10.0	2	159	318
	49	10.0	6	168	1008
	50	10.0	2	180	360
	51	10.0	2	661	1322
	52	10.0	4	392	1568
	53	10.0	4	148	592
	54	10.0	2	317	634
	55	10.0	2	348	696
	56	10.0	2	927	1854
	57	10.0	1	142	142
	58	10.0	2	977	1954
	59	10.0	2	265	530
	60	10.0	4	522	2088
	61	10.0	4	622	2488
	62	10.0	1	145	145
	63	10.0	2	675	1350
	64	10.0	2	894	1788
	65	10.0	1	152	152
	66	10.0	2	949	1898
	67	10.0	1	131	131
	68	10.0	2	671	1342
	69	10.0	2	662	1324
	70	10.0	2	412	824
	71	10.0	1	104	104
	72	10.0	2	129	258
	73	10.0	1	104	104
	74	10.0	2	149	298
	75	10.0	2	662	1324
	76	10.0	2	209	418
	77	10.0	2	240	480
	78	12.5	3	427	1281
	79	12.5	10	838	8380
	80	12.5	3	402	1206
	81	12.5	9	407	3663
	82	12.5	4	235	940
	83	12.5	4	107	428
	84	12.5	1	160	160
	85	12.5	2	240	480
	86	12.5	1	157	157
	87	12.5	2	237	474
	88	12.5	2	665	1330

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	482.7	213.9
	10.0	615.2	417.2
	12.5	165	174.8
CA60	5.0	882.5	149.6

PESO TOTAL (kg)
 CA50 805.9
 CA60 149.6

Volume de concreto (C-30) = 12.82 m³
 Área de forma = 194.10 m²

JR ARQUITETURA E ENGENHARIA
 FONES: (47) 99979-8737 ; (47) 99112-6928
 RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

UNIDADE ESCOLAR - CONSTRUIR

REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA

LOCAL: RUA ALBERTO KOGLIN

PROPRIETÁRIO: MUNICÍPIO DE DONA EMMA

ENGENHEIRA RESPONSÁVEL: JULIANA LANGE DOS SANTOS

ENGENHEIRO RESPONSÁVEL: ROSINEI MELO GOETTEN DE LIMA

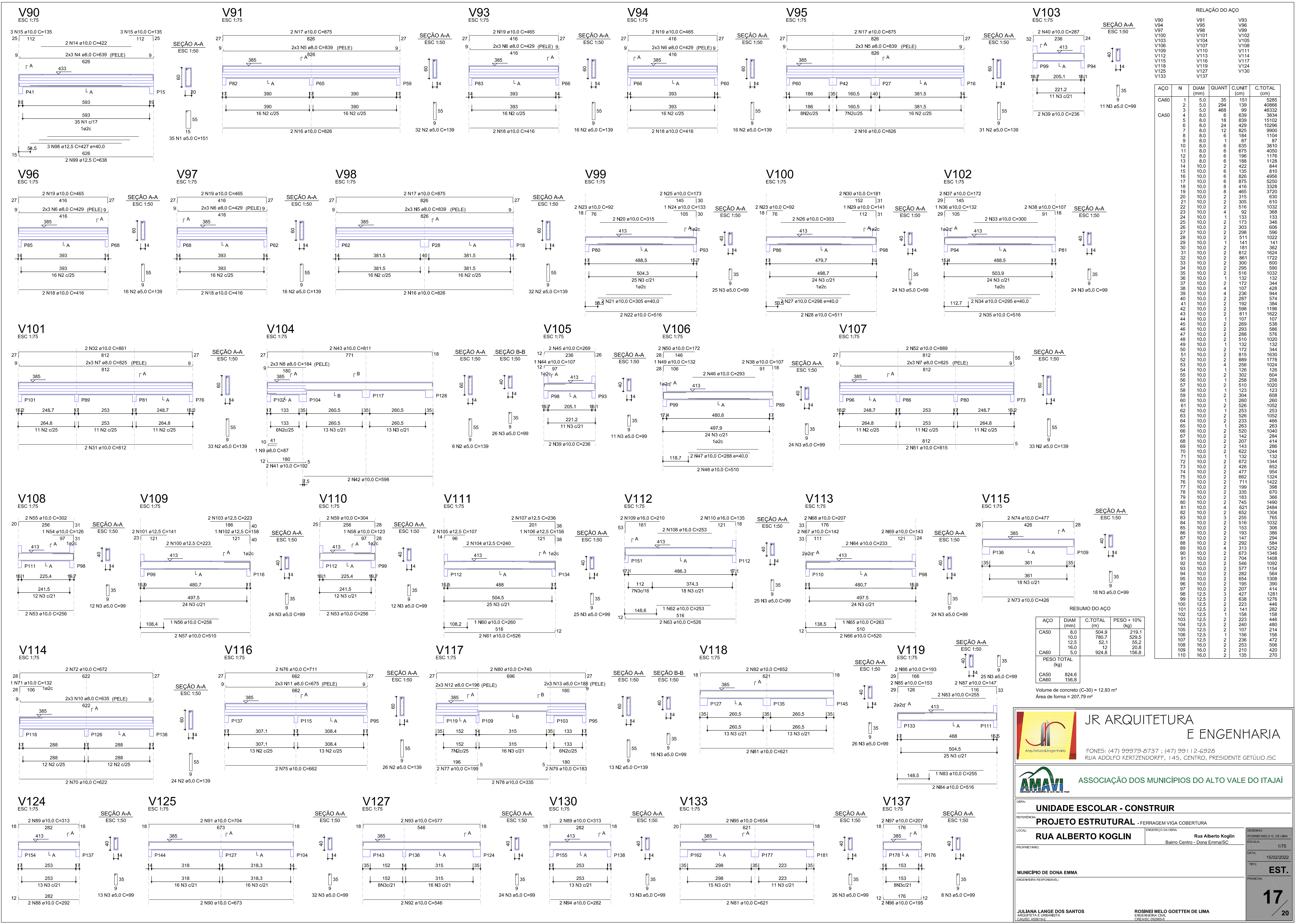
ESCALA: 1/75

DATA: 15/02/2022

TIPO: EST.

PRANCHAS: 16

20



RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	CJUNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	35	151	5285
CA60	2	5.0	294	139	40866
CA60	3	5.0	99	99	46332
CA60	4	8.0	639	839	38334
CA60	5	8.0	18	839	15102
CA60	6	8.0	24	429	10296
CA60	7	8.0	12	835	9900
CA60	8	8.0	6	184	1104
CA60	9	8.0	1	87	87
CA60	10	8.0	6	635	3810
CA60	11	8.0	6	617	4050
CA60	12	8.0	6	196	1176
CA60	13	8.0	6	188	1128
CA60	14	10.0	2	422	844
CA60	15	10.0	6	135	810
CA60	16	10.0	6	826	4956
CA60	17	10.0	6	875	5250
CA60	18	10.0	8	416	3328
CA60	19	10.0	8	465	3720
CA60	20	10.0	2	315	630
CA60	21	10.0	2	519	1038
CA60	22	10.0	2	516	1032
CA60	23	10.0	4	92	368
CA60	24	10.0	1	107	214
CA60	25	10.0	2	173	346
CA60	26	10.0	2	303	606
CA60	27	10.0	2	298	596
CA60	28	10.0	2	289	578
CA60	29	10.0	1	141	141
CA60	30	10.0	2	181	362
CA60	31	10.0	2	235	470
CA60	32	10.0	2	861	1722
CA60	33	10.0	2	300	600
CA60	34	10.0	2	285	570
CA60	35	10.0	2	516	1032
CA60	36	10.0	1	132	132
CA60	37	10.0	2	172	344
CA60	38	10.0	2	137	274
CA60	39	10.0	4	236	944
CA60	40	10.0	2	287	574
CA60	41	10.0	2	384	768
CA60	42	10.0	2	598	1196
CA60	43	10.0	2	811	1622
CA60	44	10.0	1	107	107
CA60	45	10.0	2	289	578
CA60	46	10.0	2	293	586
CA60	47	10.0	2	288	576
CA60	48	10.0	2	510	1020
CA60	49	10.0	1	132	132
CA60	50	10.0	2	172	344
CA60	51	10.0	2	163	326
CA60	52	10.0	2	889	1778
CA60	53	10.0	4	256	1024
CA60	54	10.0	1	126	126
CA60	55	10.0	2	302	604
CA60	56	10.0	1	258	258
CA60	57	10.0	2	510	1020
CA60	58	10.0	1	123	123
CA60	59	10.0	2	304	608
CA60	60	10.0	1	260	260
CA60	61	10.0	2	526	1052
CA60	62	10.0	1	253	253
CA60	64	10.0	2	520	1040
CA60	65	10.0	2	142	284
CA60	66	10.0	2	207	414
CA60	67	10.0	2	143	286
CA60	68	10.0	2	622	1244
CA60	69	10.0	1	132	132
CA60	70	10.0	2	672	1344
CA60	71	10.0	2	426	852
CA60	72	10.0	2	477	954
CA60	73	10.0	2	662	1324
CA60	74	10.0	2	426	852
CA60	75	10.0	2	662	1324
CA60	76	10.0	2	711	1422
CA60	77	10.0	2	199	398
CA60	78	10.0	2	335	670
CA60	79	10.0	2	183	366
CA60	80	10.0	2	745	1490
CA60	81	10.0	4	621	2484
CA60	82	10.0	2	652	1304
CA60	83	10.0	3	255	765
CA60	84	10.0	2	516	1032
CA60	85	10.0	2	153	306
CA60	86	10.0	2	193	386
CA60	87	10.0	2	147	294
CA60	88	10.0	2	292	584
CA60	89	10.0	4	313	1252
CA60	90	10.0	2	673	1346
CA60	91	10.0	2	704	1408
CA60	92	10.0	2	546	1092
CA60	93	10.0	2	577	1154
CA60	94	10.0	2	282	564
CA60	95	10.0	2	654	1308
CA60	96	10.0	2	195	390
CA60	97	10.0	2	207	414
CA60	98	12.5	3	427	1281
CA60	99	12.5	2	638	1276
CA60	100	12.5	2	223	446
CA60	101	12.5	2	141	282
CA60	102	12.5	1	158	158
CA60	103	12.5	2	223	446
CA60	104	12.5	2	240	480
CA60	105	12.5	2	107	214
CA60	106	12.5	1	156	156
CA60	107	12.5	2	236	472
CA60	108	16.0	2	253	506
CA60	109	16.0	2	210	420
CA60	110	16.0	2	135	270

RESUMO DO AÇO

ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	504.9	219.1
CA50	10.0	780.7	529.5
CA50	12.5	52.1	55.2
CA60	5.0	924.8	156.8

PESO TOTAL (kg)
CA50 824.6
CA60 156.8

Volume de concreto (C-30) = 12.93 m³
Área de forma = 207.79 m²

JR ARQUITETURA E ENGENHARIA

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**

REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA**

LOCAL: **RUA ALBERTO KOGLIN** ENDEREÇO DA OBRA: **Rua Alberto Koglin**
Bairro Centro - Dona Emma/SC

PROPRIETÁRIO: **MUNICÍPIO DE DONA EMMA**

ENGENHEIRO RESPONSÁVEL: **JULIANA LANGE DOS SANTOS** ENGENHEIRA CIVIL
CREASC 450619-2

RESUMEIRO: **ROSINEI MELO G. DE LIMA** ENGENHEIRO CIVIL
CREASC 99286-6

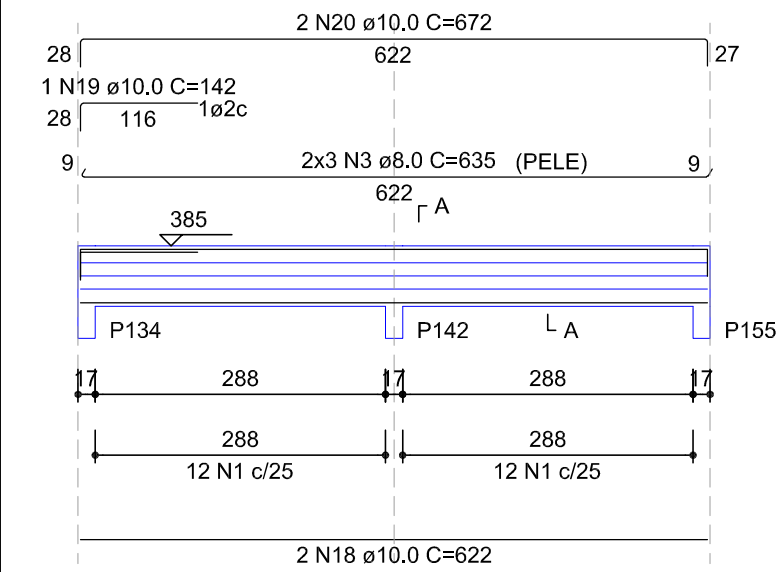
DATA: 15/02/2022

TIPO: **EST.**

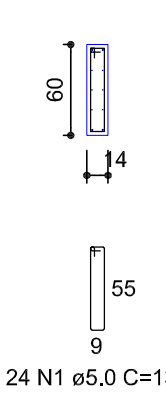
PRANCHAS: **17**

20

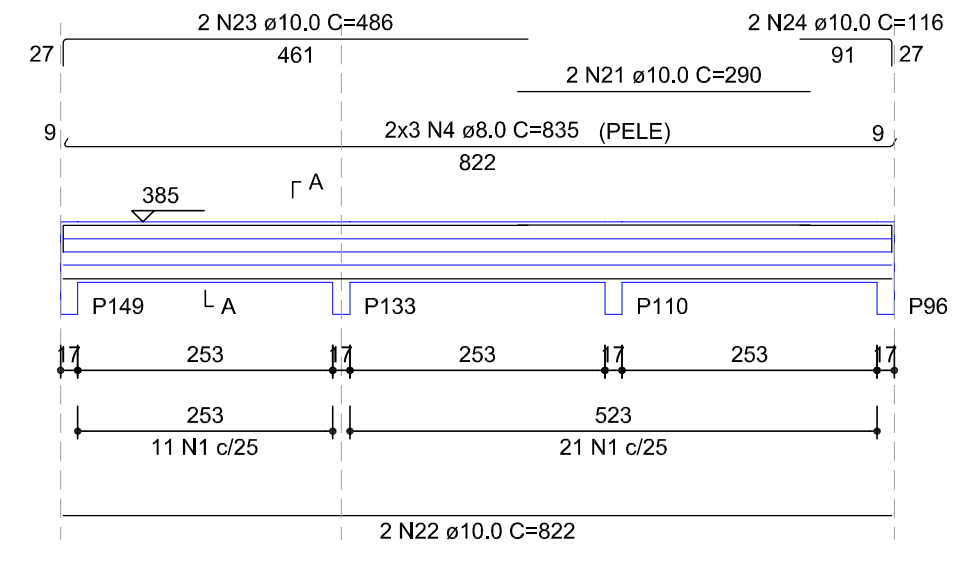
V120
ESC 1:75



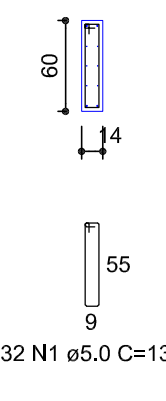
SEÇÃO A-A
ESC 1:50



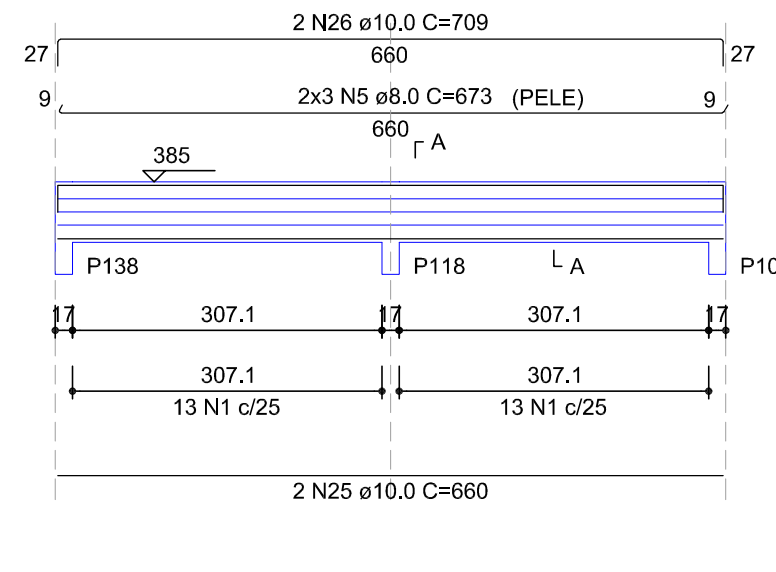
V121
ESC 1:75



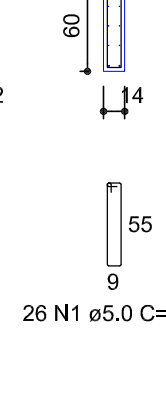
SEÇÃO A-A
ESC 1:50



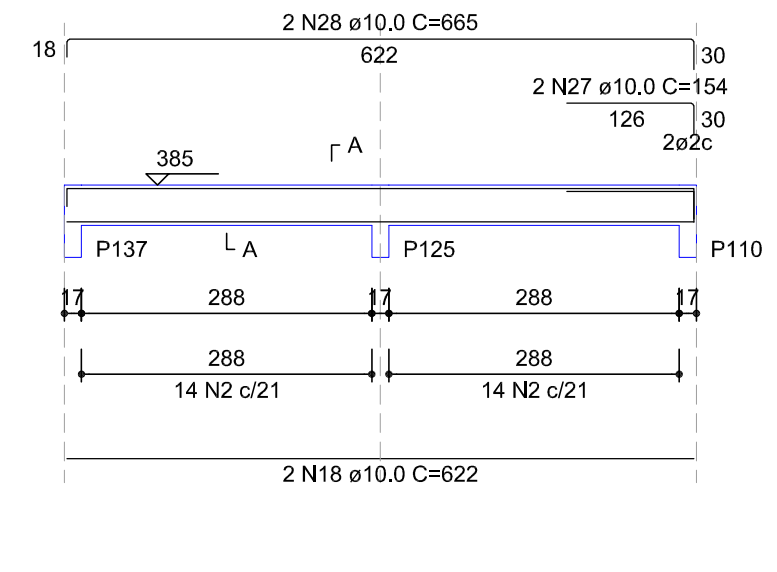
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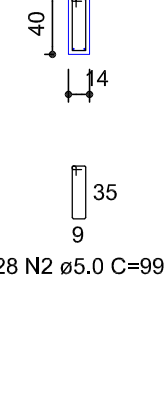
SEÇÃO A-A
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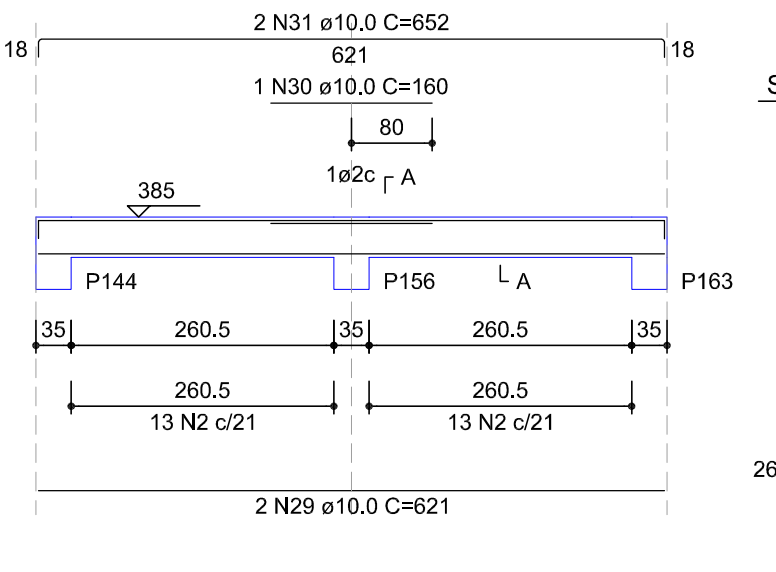
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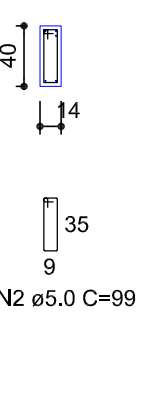
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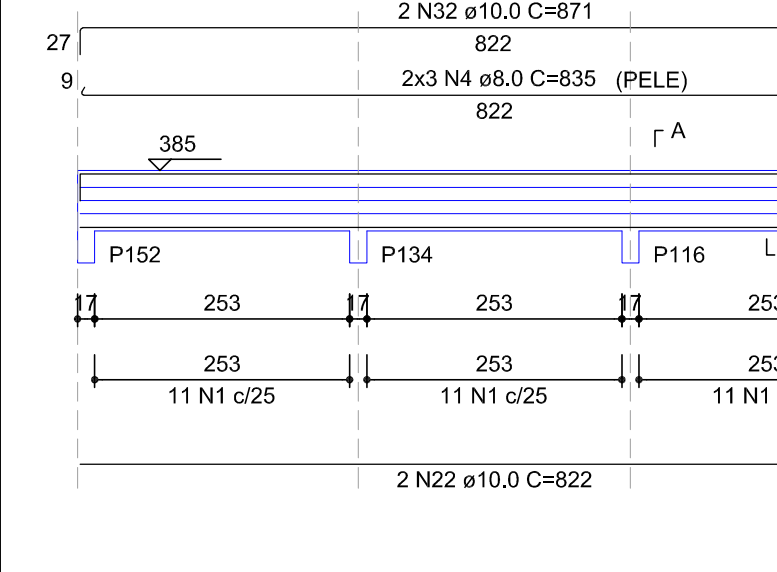
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ESC 1:75



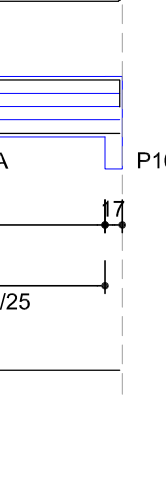
SEÇÃO A-A
ESC 1:50



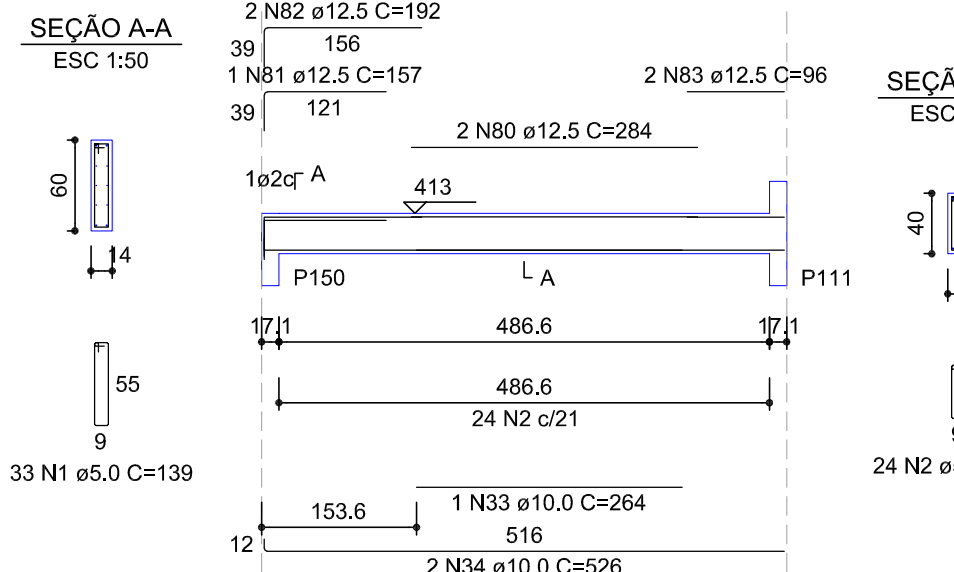
V128
ESC 1:75



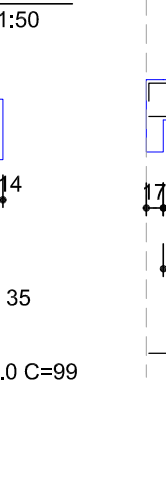
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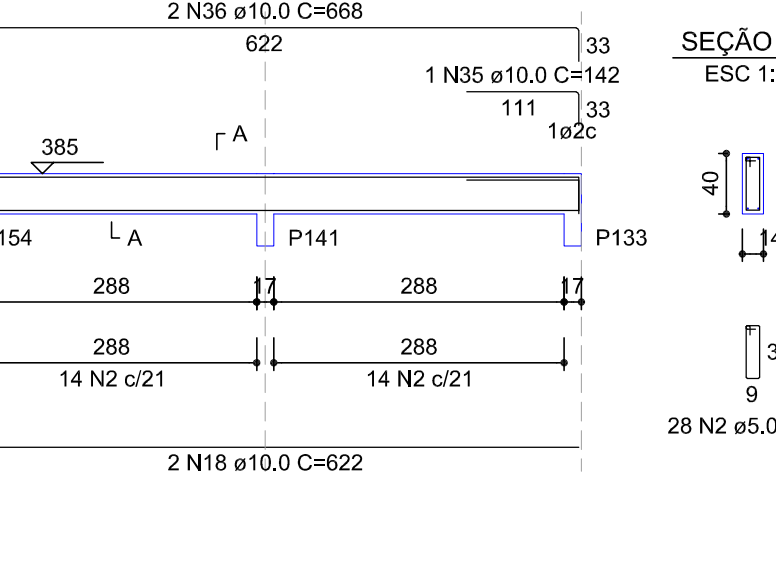
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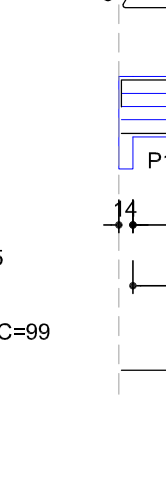
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ESC 1:50



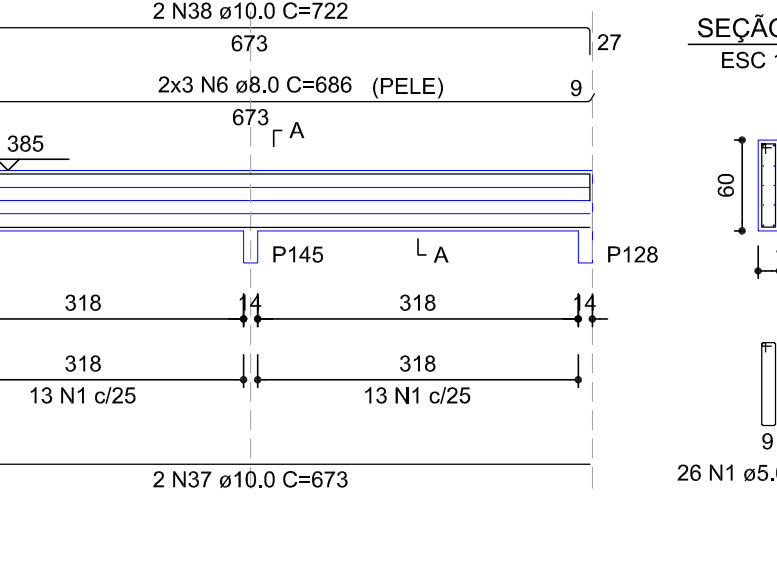
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ESC 1:75



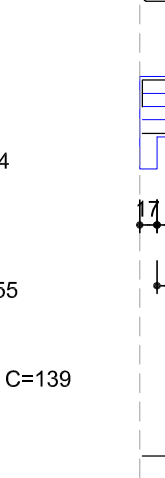
SEÇÃO A-A
ESC 1:50



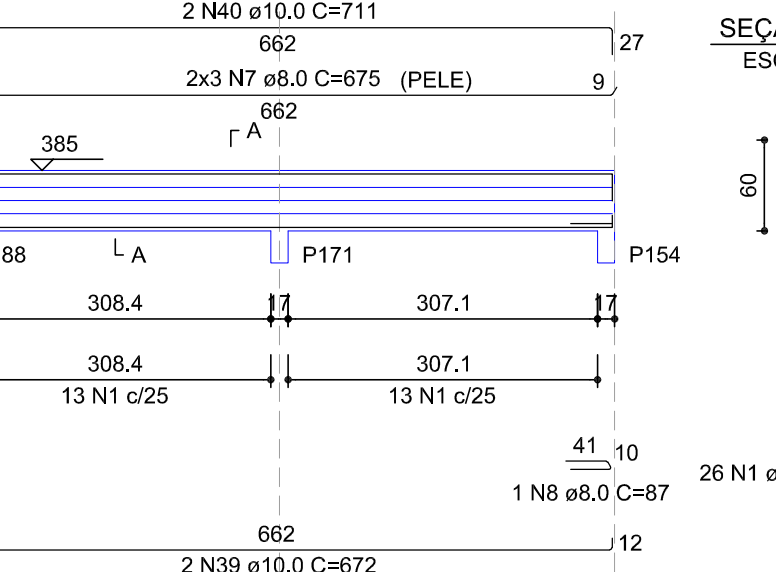
V132
ESC 1:75



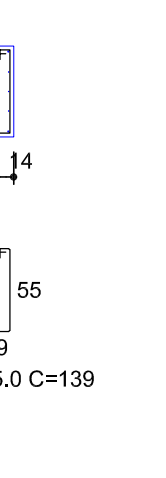
SEÇÃO A-A
ESC 1:50



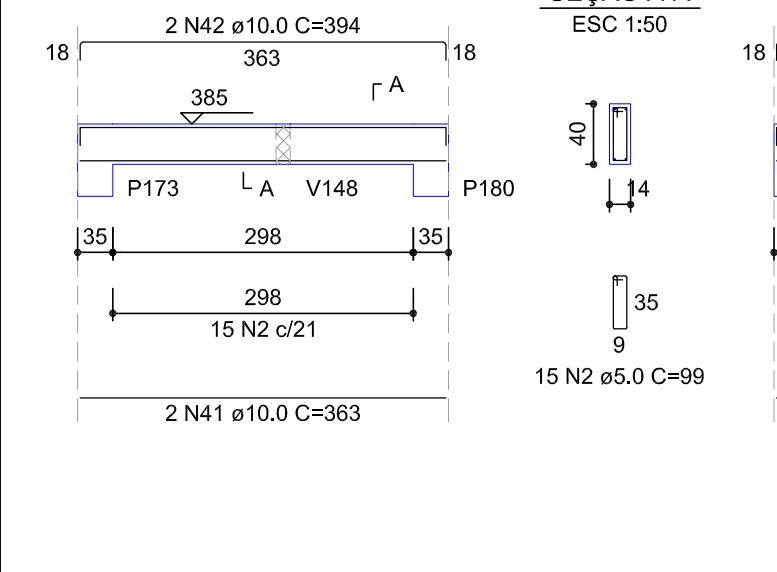
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ESC 1:75



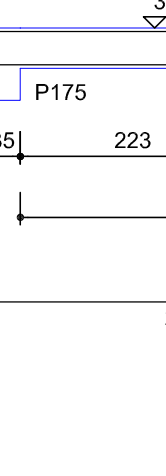
SEÇÃO A-A
ESC 1:50



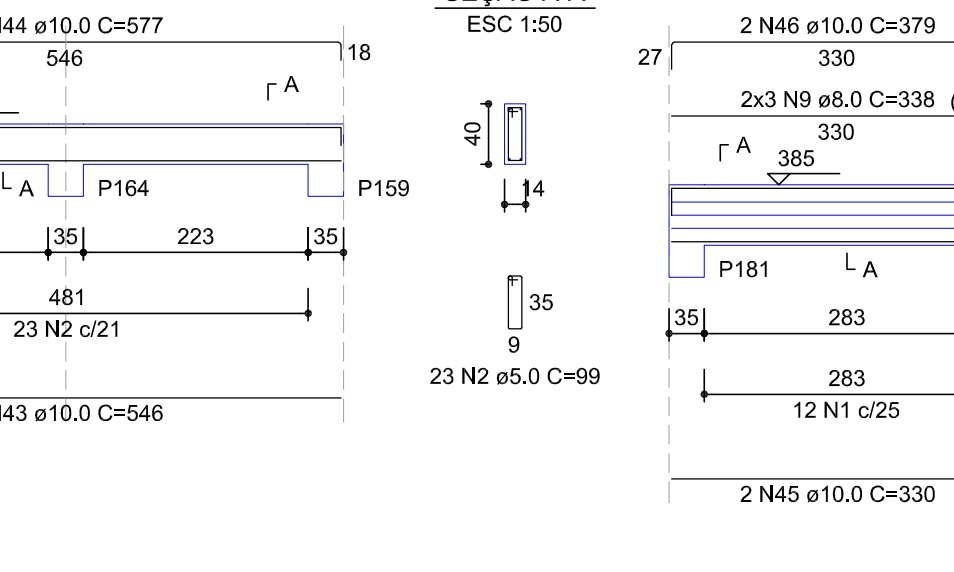
V135
ESC 1:75



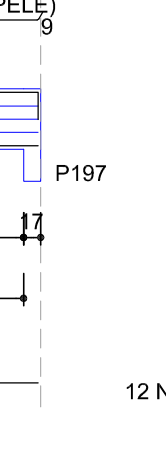
SEÇÃO A-A
ESC 1:50



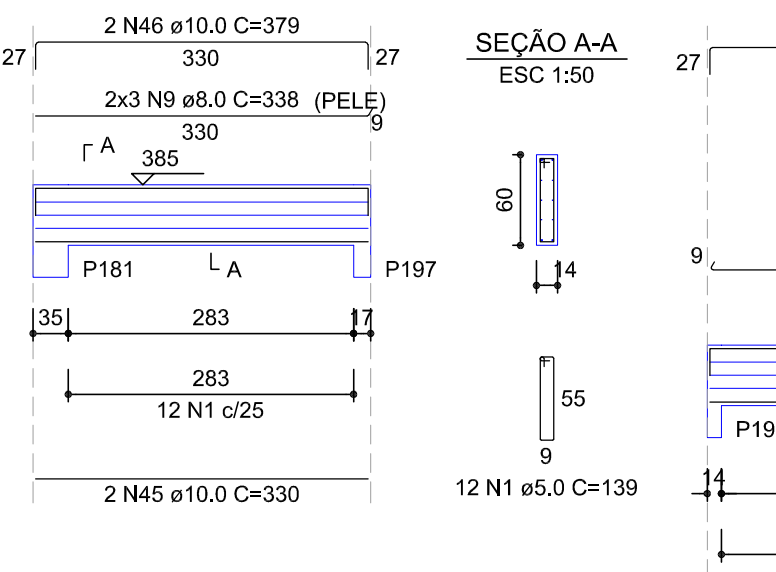
V136
ESC 1:75



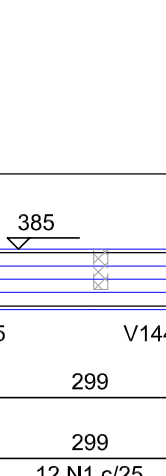
SEÇÃO A-A
ESC 1:50



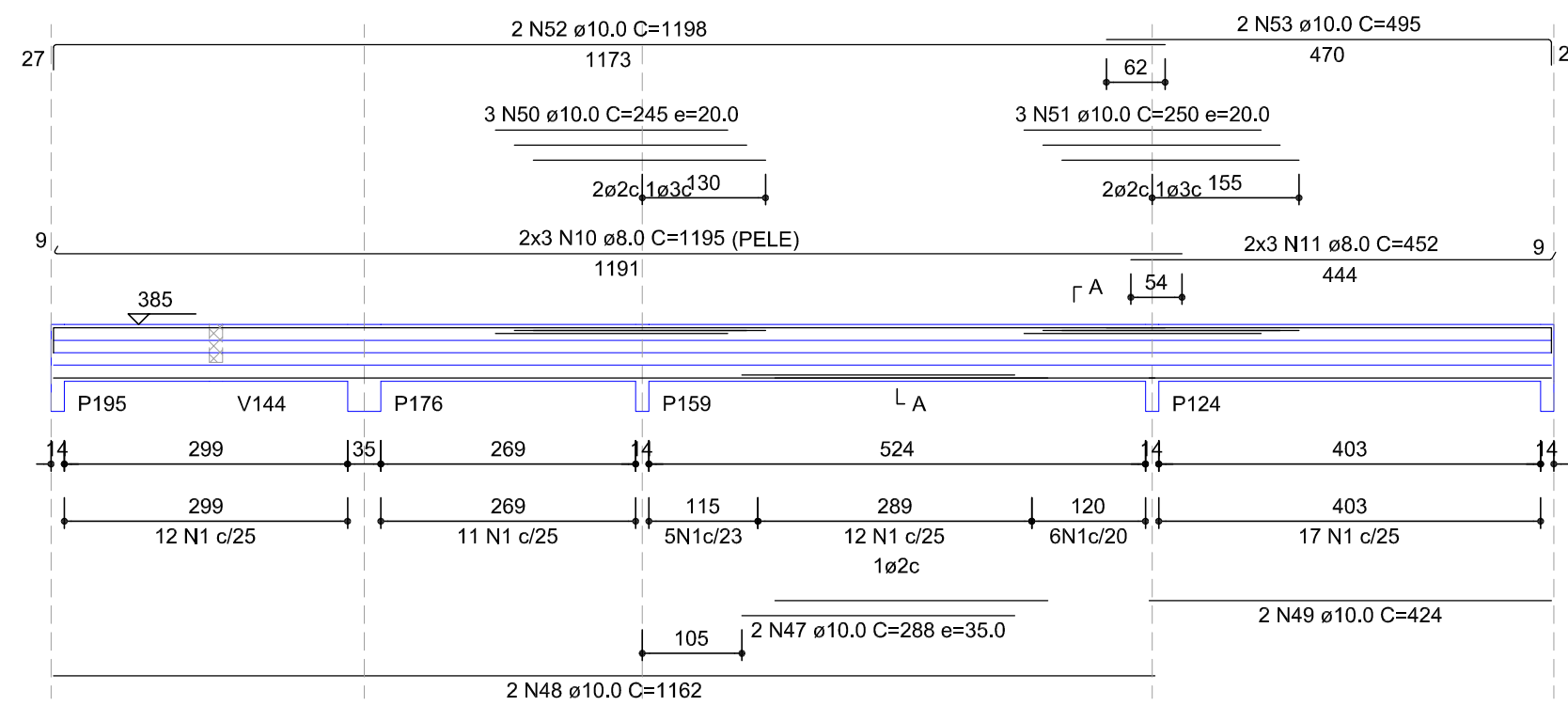
V138
ESC 1:75



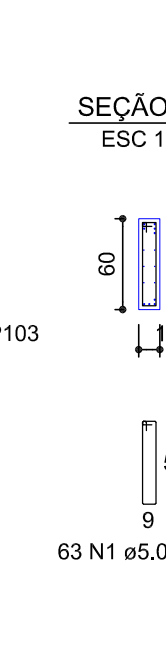
SEÇÃO A-A
ESC 1:50



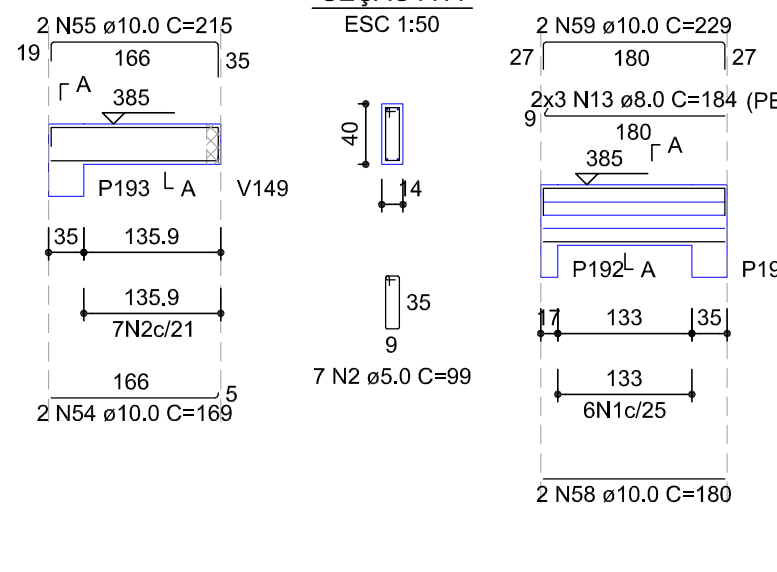
V139
ESC 1:75



SEÇÃO A-A
ESC 1:50



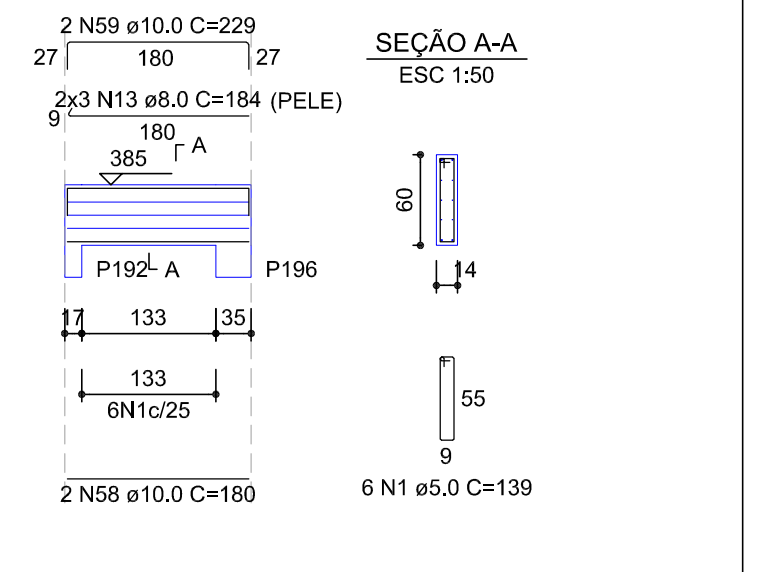
V140
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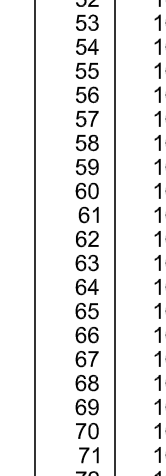
SEÇÃO A-A
ESC 1:50



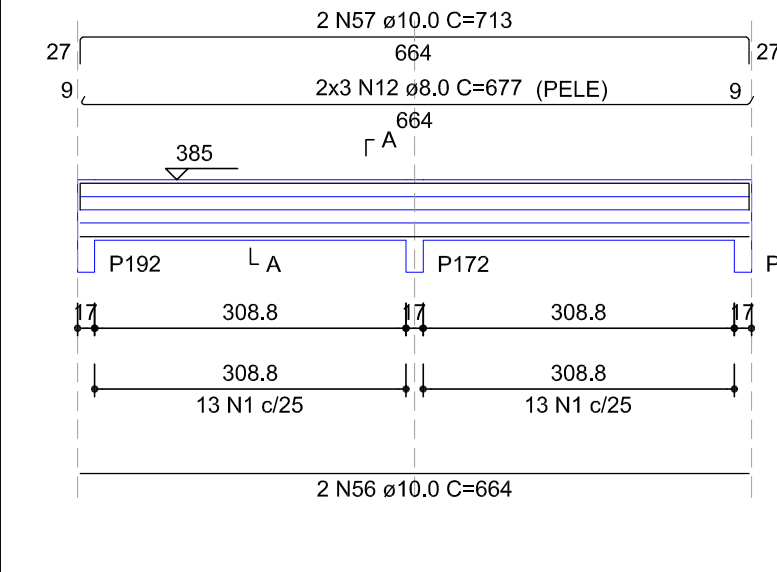
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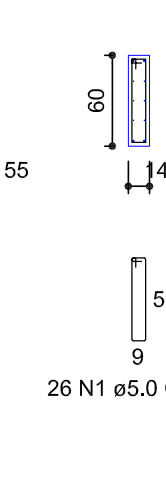
SEÇÃO A-A
ESC 1:50



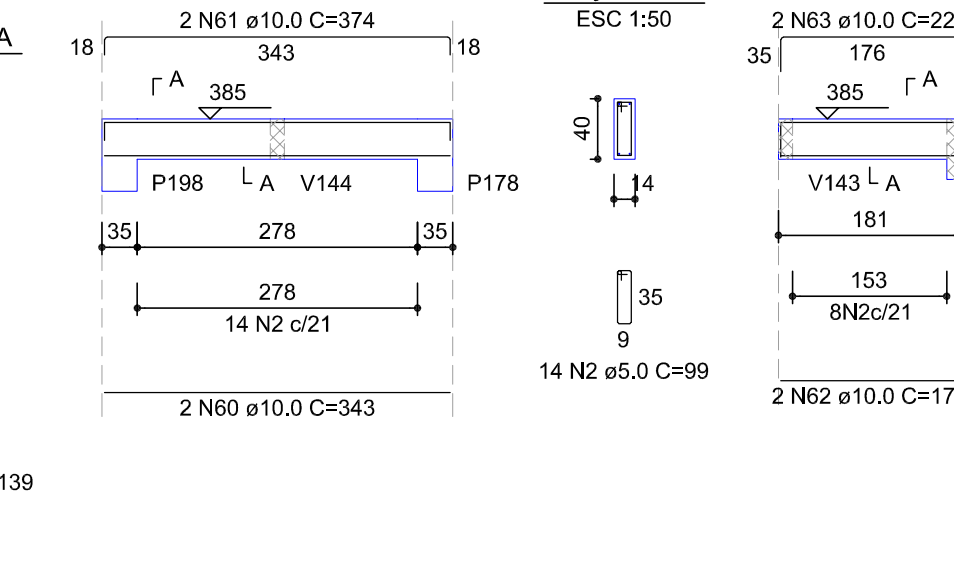
V141
ESC 1:75



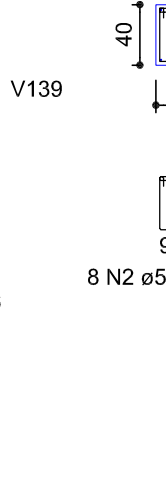
SEÇÃO A-A
ESC 1:50



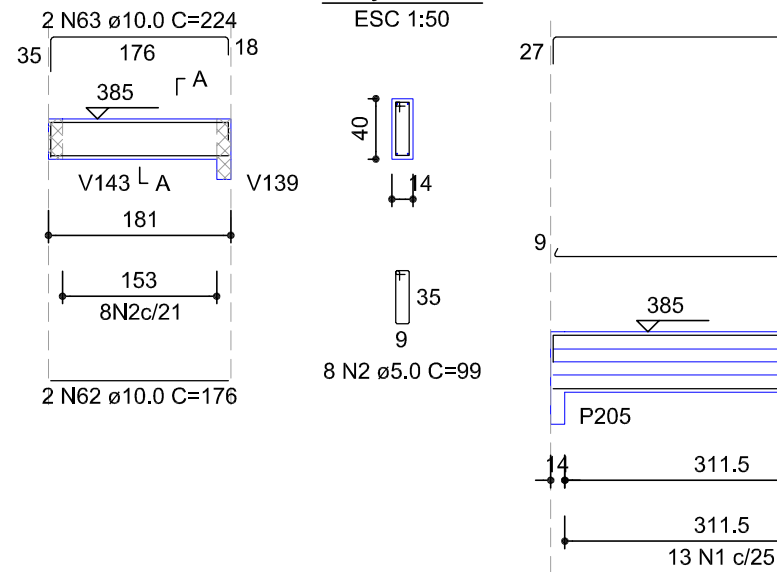
V143
ESC 1:75



SEÇÃO A-A
ESC 1:50



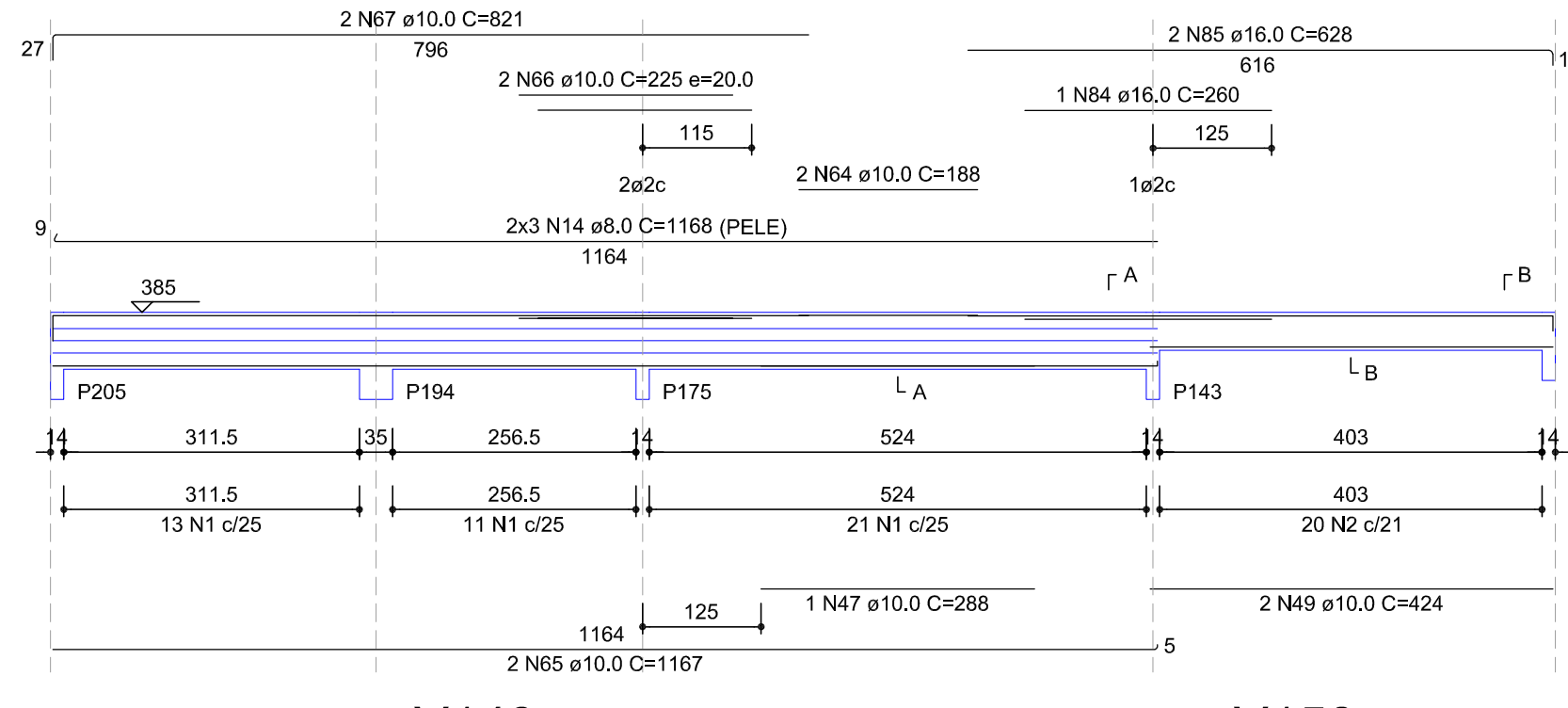
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ESC 1:75



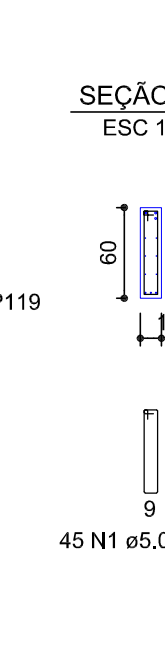
SEÇÃO A-A
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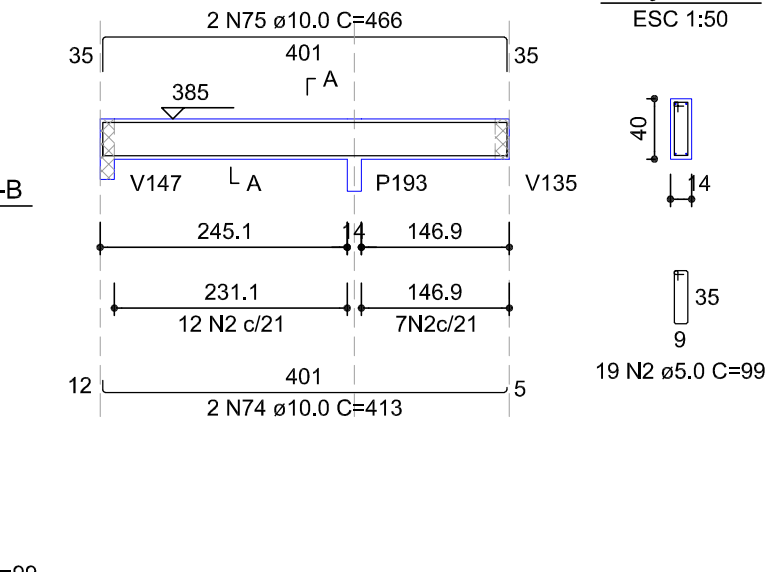
V145
ESC 1:75



SEÇÃO A-A
ESC 1:50



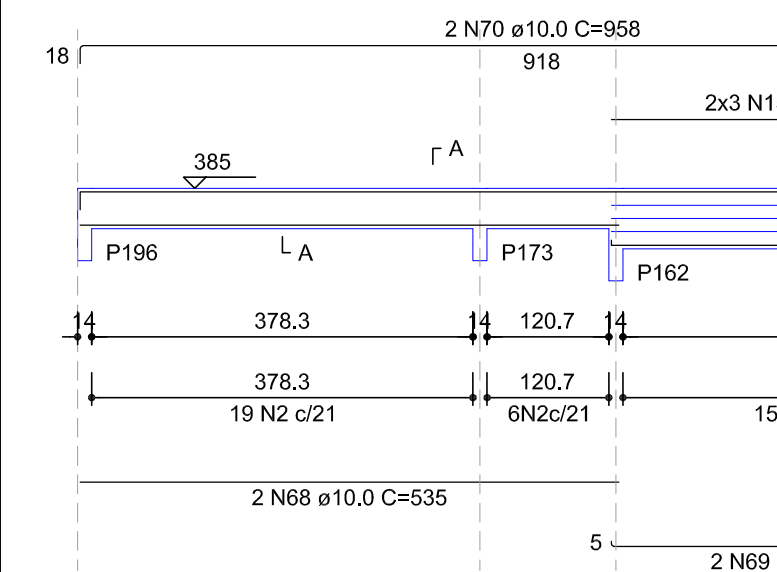
V148
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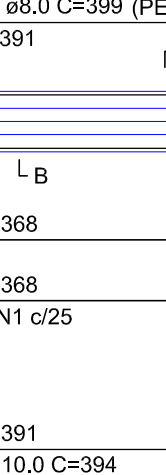
SEÇÃO A-A
ESC 1:50



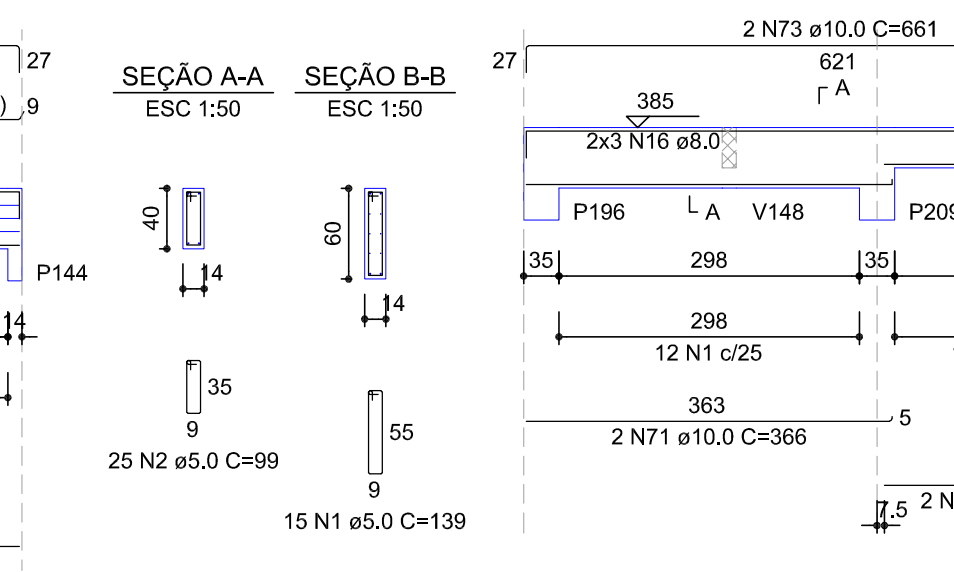
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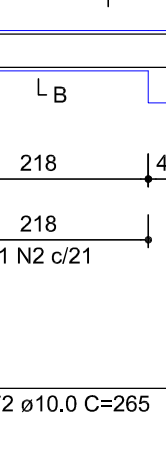
SEÇÃO A-A
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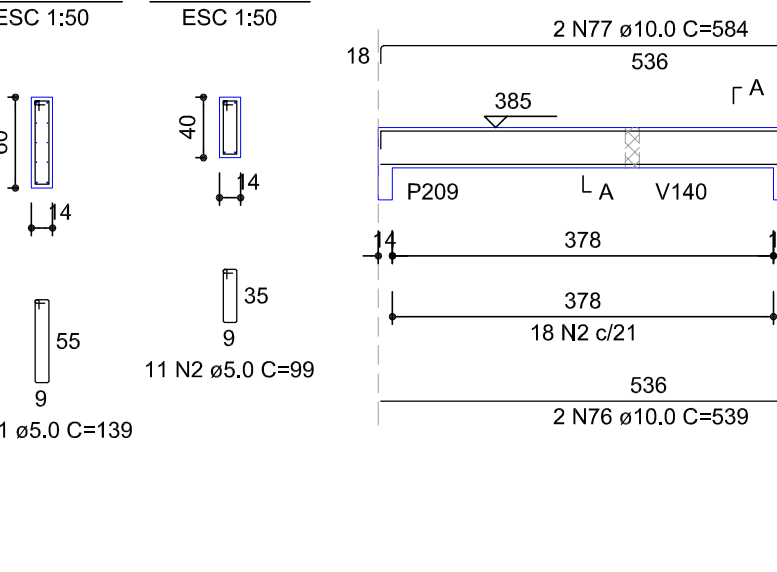
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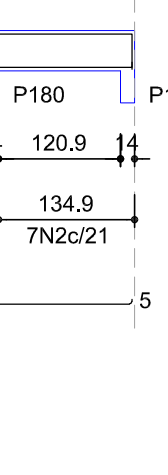
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ESC 1:50



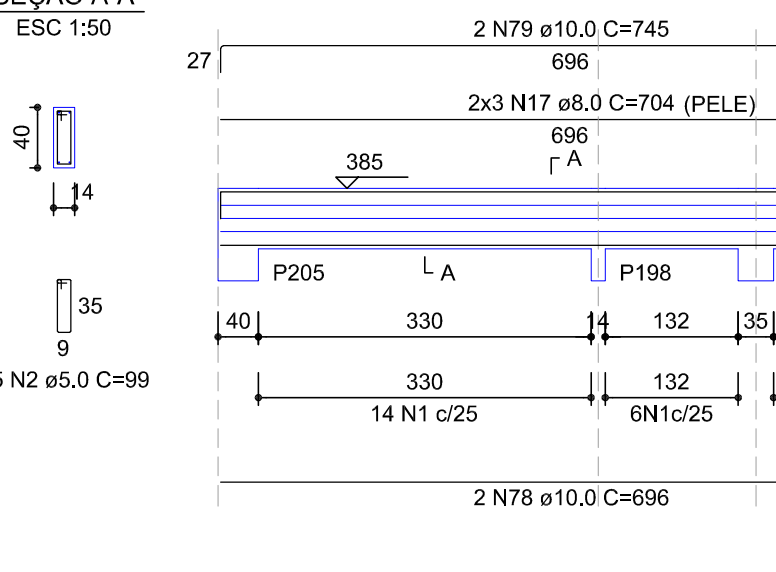
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ESC 1:75



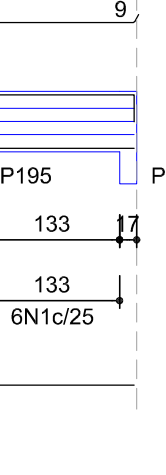
SEÇÃO A-A
ESC 1:50



V150
ESC 1:75



SEÇÃO A-A
ESC 1:50



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA80	1	5.0	372	138	51708
V120	2	5.0	273	89	27027
V121	3	8.0	6	635	3810
V122	4	8.0	12	835	10020
V123	5	8.0	6	673	4038
V124	6	8.0	6	686	4116
V125	7	8.0	6	675	4050
V126	8	8.0	1	87	87
V127	9	8.0	6	338	2028
V128	10	8.0	6	1195	7170
V129	11	8.0	6	452	2712
V130	12	8.0	6	677	4062
V131	13	8.0	6	184	1104
V132	14	8.0	6	1168	7008
V133	15	8.0	6	399	2394
V134	16	8.0	6	corr	2178
V135	17	8.0	6	704	4224
V136	18	10.0	6	622	3732
V137	19	10.0	2	142	852
V138	20	10.0	2	672	4032
V139	21	10.0	2	290	580
V140	22	10.0	4	822	3288
V141	23	10.0	2	486	972
V142	24	10.0	2	116	232
V143	25	10.0	2	650	1300
V144	26	10.0	2	709	1418
V145	27	10.0	2	154	308
V146	28	10.0	2	665	1330
V147	29	10.0	2	668	1336
V148	30	10.0	1	160	160
V149	31	10.0	2	652	1304
V150	32	10.0	2	671	1342
	33	10.0	1	264	264
	34	10.0	2	526	1052
	35	10.0	1	142	142
	36	10.0	2	668	1336
	37	10.0	2	673	1346
	38	10.0	2	722	1444
	39	10.0	2	672	1344
	40	10.0	2	711	1422
	41	10.0	2	363	726
	42	10.0	2	394	788
	43	10.0	2	546	1092
	44	10.0	2	577	1154
	45	10.0	2	330	660
	46	10.0	2	379	758
	47	10.0	3	288	864
	48	10.0	2	1162	2324
	49	10.0	2	424	848
	50	10.0	3	245	735
	51	10.0	3	250	750
	52	10.0	2	1198	2396
	53	10.0	2	495	990
	54	10.0	2	169	338
	55	10.0	2	215	430
	56	10.0	2	329	658
	57	10.0	2	713	1426
	58	10.0	2	180	360
	59	10.0	2	399	798
	60	10.0	2	343	686
	61	10.0	2	374	748
	62	10.0	2	176	352
	63	10.0	2	225	450
	64	10.0	2	188	376
	65	10.0	2	1167	2334
	66	10.0	2	225	450
	67	10.0	2	821	1642
	68	10.0	2	535	1070
	69	10.0	2	384	768
	70	10.0	2	958	1916
	71	10.0	2	366	732
	72	10.0	2	265	530
	73	10.0	2	661	1322
	74	10.0	2	413	826
	75	10.0	2	466	932
	76	10.0	2	539	1078
	77	10.0	2	594	1188
	78	10.0	2	696	1392
	79	10.0	2	745	1490
	80	12.5	2	284	568
	81	12.5	1	157	157
	82	12.5	2	192	384
	83	12.5	2	96	192
	84	16.0	1	260	260
	85	16.0	2	628	1256

RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	590	256.1
	10.0	670.2	454.5
	12.5	13	13.8
	16.0	15.2	26.3
	5.0	787.4	133.5
PESO TOTAL (kg)			
CA50		750.7	
CA60		133.5	

Volume de concreto (C-30) = 11.59 m³
Área de forma = 187.83 m²

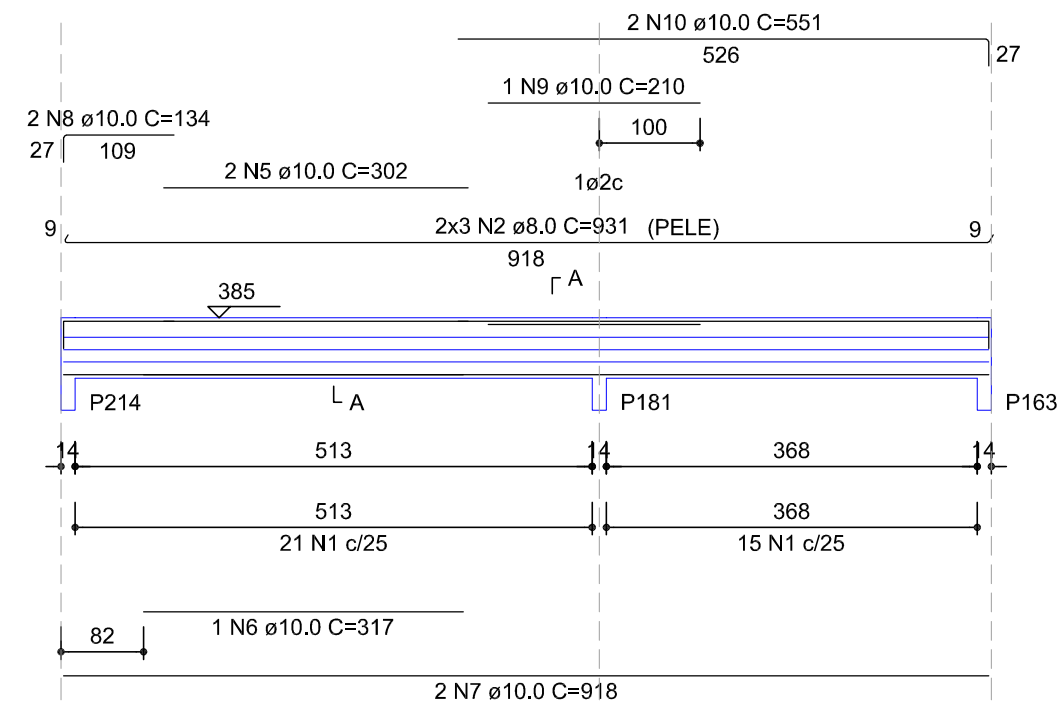
JR ARQUITETURA E ENGENHARIA
FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO/SC

AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: **UNIDADE ESCOLAR - CONSTRUIR**
REFERÊNCIA: **PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA**
LOCAL: **RUA ALBERTO KOGLIN** ENGENHEIRO DA OBRA: **Rua Alberto Koglin**
PROPRIETÁRIO: **Bairro Centro - Dona Emma/SC**
ESCALA: **1/75**
DATA: **15/02/2022**
TIPO: **EST.**
MUNICÍPIO DE DONA EMMA
ENGENHEIRA RESPONSÁVEL: **JULIANA LANGE DOS SANTOS**
ENGENHEIRO RESPONSÁVEL: **ROSINEI MELO GÖTTEN DE LIMA**
CREA/SC 092985-6

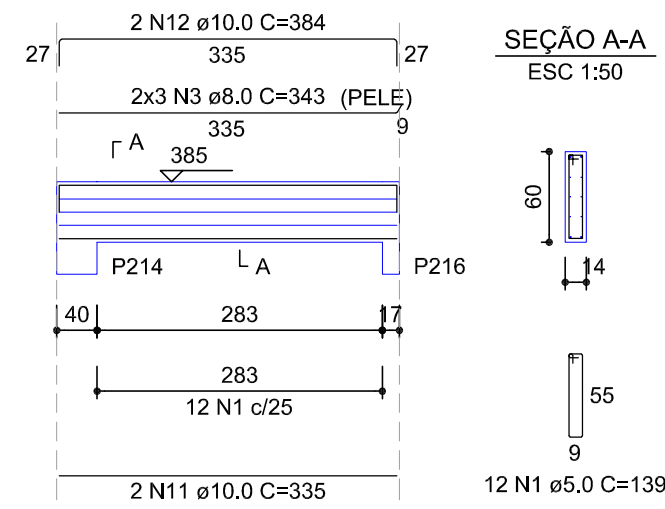
V151

ESC 1:75



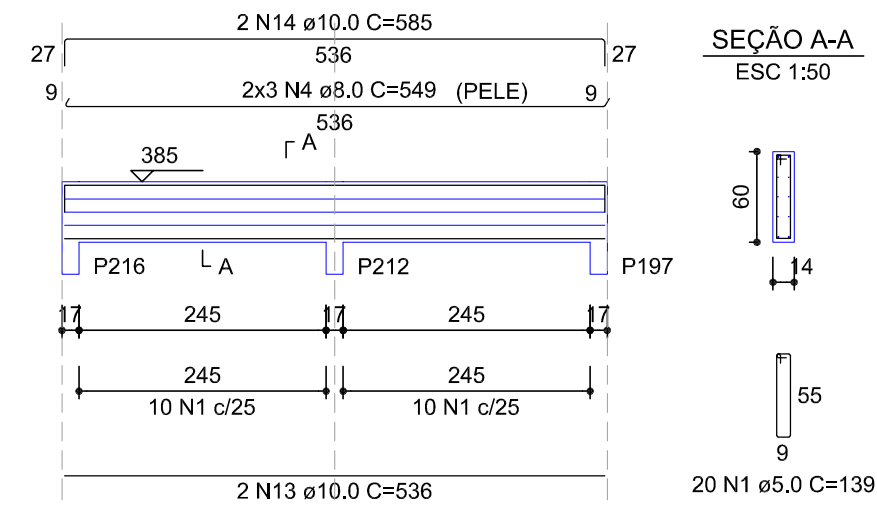
V152

ESC 1:75



V153

ESC 1:75



RELAÇÃO DO AÇO

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	68	139	9452
CA50	2	8.0	6	931	5586
	3	8.0	6	343	2058
	4	8.0	6	549	3294
	5	10.0	2	302	604
	6	10.0	1	317	317
	7	10.0	2	918	1836
	8	10.0	2	134	268
	9	10.0	1	210	210
	10	10.0	2	551	1102
	11	10.0	2	335	670
	12	10.0	2	384	768
	13	10.0	2	536	1072
	14	10.0	2	585	1170


RESUMO DO AÇO

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	109.4	47.5
	10.0	80.2	54.4
CA60	5.0	94.5	16

PESO TOTAL (kg)


CA50	101.8
CA60	16

Volume de concreto (C-30) = 1.52 m³
Área de forma = 24.17 m²



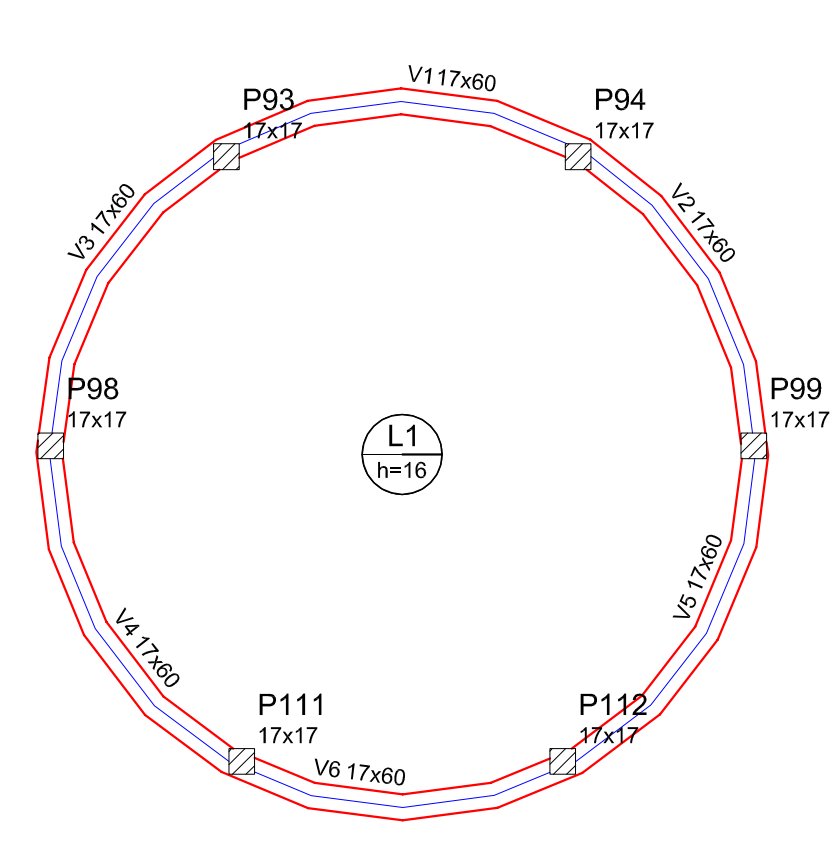
JR ARQUITETURA E ENGENHARIA

FONES: (47) 99979-8737 ; (47) 99112-6928
RUA ADOLFO KERTZENDORFF, 145, CENTRO, PRESIDENTE GETÚLIO /SC



ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAÍ

OBRA: UNIDADE ESCOLAR - CONSTRUIR	
REFERÊNCIA: PROJETO ESTRUTURAL - FERRAGEM VIGA COBERTURA	
LOCAL: RUA ALBERTO KOGLIN	ENDEREÇO DA OBRA: Rua Alberto Koglin Bairro Centro - Dona Emma/SC
PROPRIETÁRIO: MUNICÍPIO DE DONA EMMA	ENGENHEIRA RESPONSÁVEL: JULIANA LANGE DOS SANTOS ARQUITETA E URBANISTA CAU/SC A50819-Z
DESENHO: ROSINEI MELO G. DE LIMA	ESCALA: 1/75
DATA: 15/02/2022	TIPO: EST.
FRANCHA: 19	20



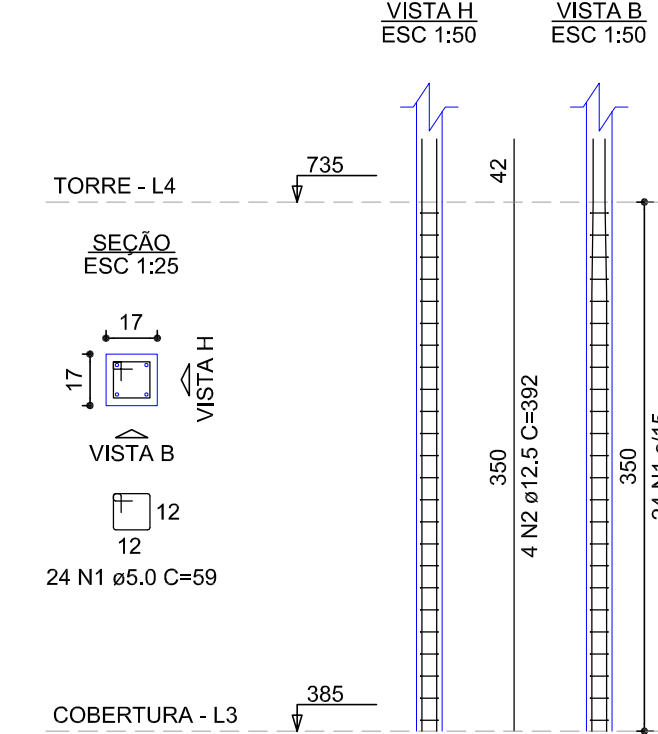
Vigas			
Nome	Seção	Elevação (cm)	Nível (cm)
V1	17x60	0	735
V2	17x60	0	735
V3	17x60	0	735
V4	17x60	0	735
V5	17x60	0	735
V6	17x60	0	735

Lajes				
Nome	Tipo	Altura (cm)	Nível (cm)	Sobrecarga (kgf/cm²)
L1	Miscp	16	0	2500

Características dos materiais	
f _{ck} (kgf/cm²)	E _c (kgf/cm²)
300	268384

Legenda das vigas e paredes	
	Viga

P93=P94=P98=P99=P111=P112

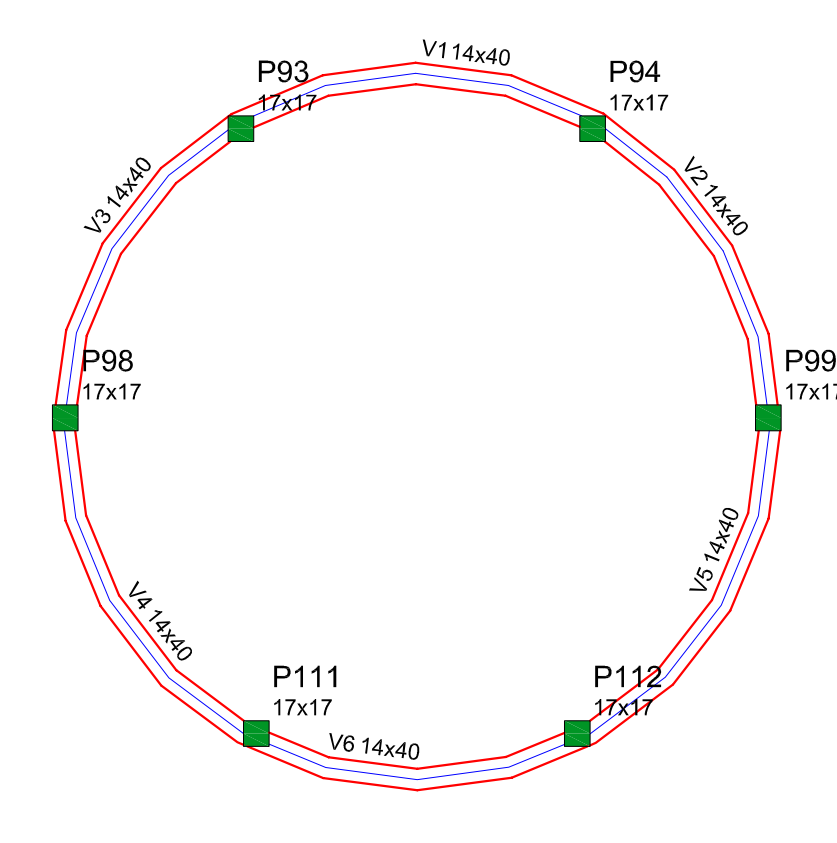


RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CASO	1	5.0	144	59	8496
CASO	2	12.5	24	392	8496

RESUMO DO AÇO			
ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CASO	12.5	94.1	99.7
CASO	5.0	63	14.4
PESO TOTAL			99.7
CASO			14.4

Volume de concreto (C-30) = 0.61 m³
Área de forma = 14.28 m²

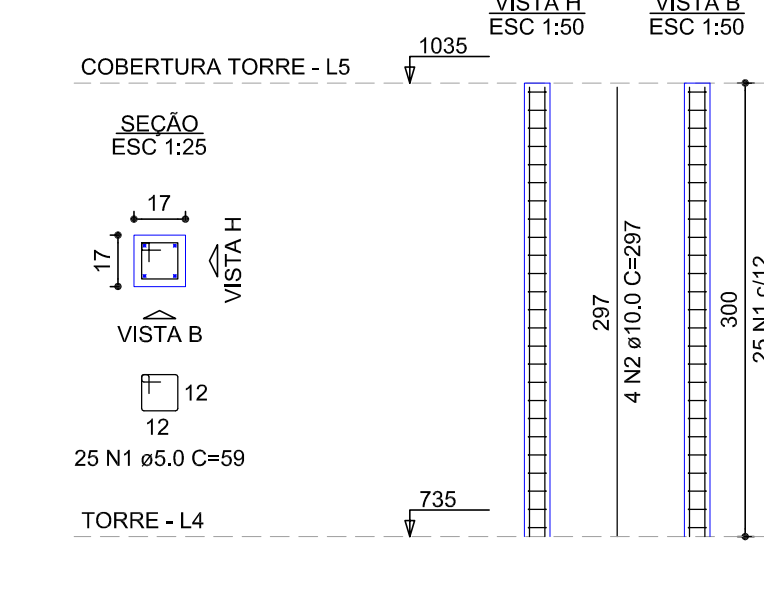


Vigas			
Nome	Seção	Elevação (cm)	Nível (cm)
V1	14x40	0	1035
V2	14x40	0	1035
V3	14x40	0	1035
V4	14x40	0	1035
V5	14x40	0	1035
V6	14x40	0	1035

Características dos materiais	
f _{ck} (kgf/cm²)	E _c (kgf/cm²)
300	268384

Legenda das vigas e paredes	
	Viga

P93=P94=P98=P99=P111=P112



RELAÇÃO DO AÇO

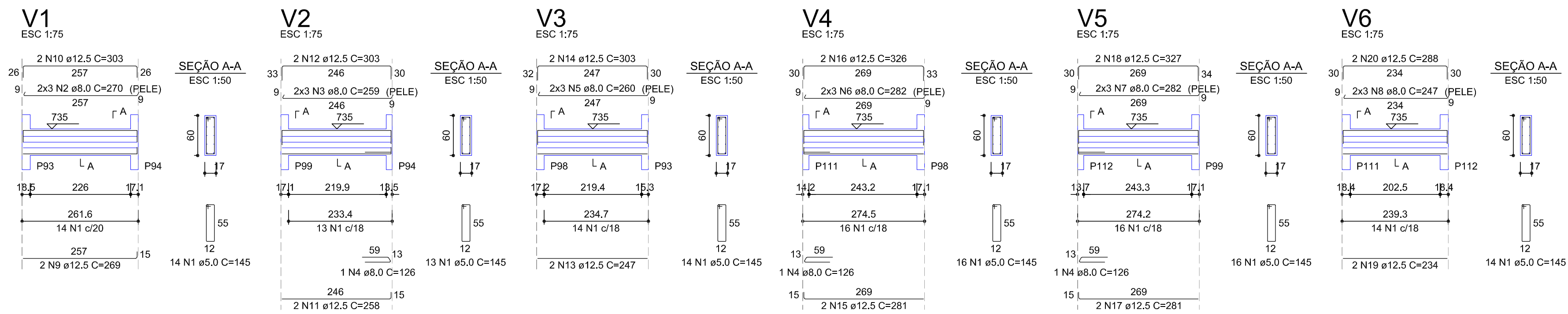
ACO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CASO	1	5.0	150	59	8959
CASO	2	10.0	24	297	7128

RESUMO DO AÇO			
ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CASO	10.0	71.3	48.3
CASO	5.0	88.5	15
PESO TOTAL			48.3
CASO			15

Volume de concreto (C-30) = 0.62 m³
Área de forma = 12.24 m²

Forma do pavimento Torre (Nível 735) escala 1:50

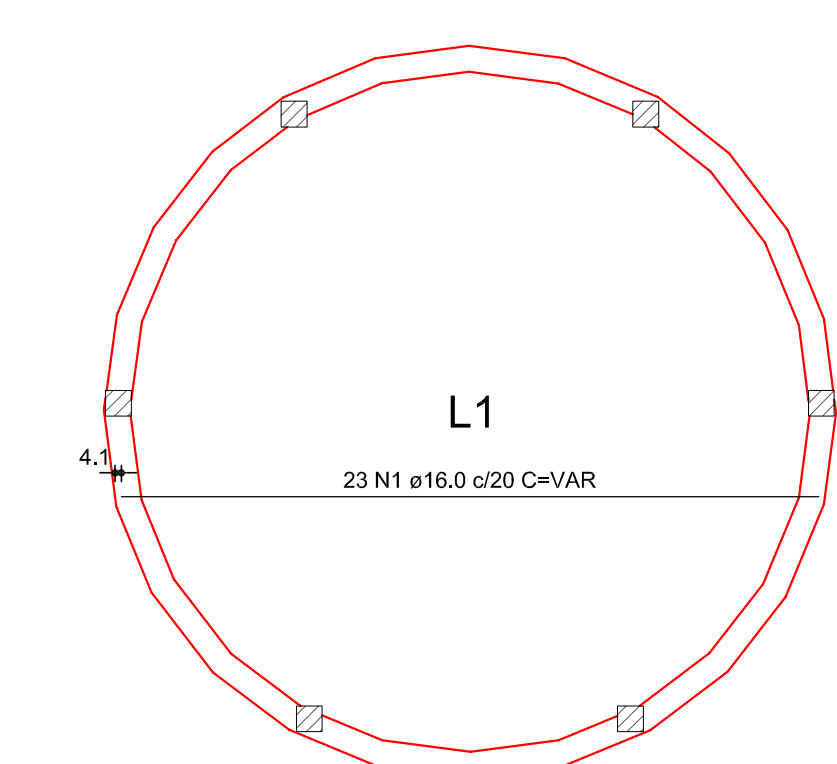
Forma do pavimento Cobertura Torre (Nível 1035) escala 1:50



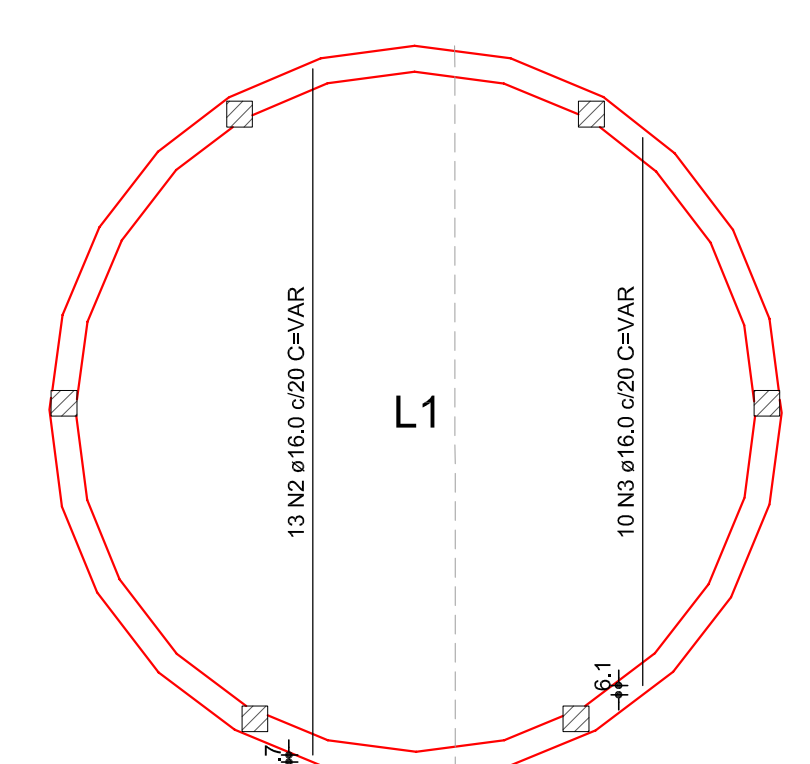
RELAÇÃO DO AÇO					
ACO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CASO	1	5.0	87	145	12615
CASO	2	8.0	6	270	1620
CASO	3	8.0	5	259	1504
CASO	4	8.0	5	126	378
CASO	5	8.0	6	260	1950
CASO	6	8.0	6	282	1992
CASO	7	8.0	6	262	1892
CASO	8	8.0	6	247	1482
CASO	9	12.5	2	268	536
CASO	10	12.5	2	303	606
CASO	11	12.5	2	268	536
CASO	12	12.5	2	303	606
CASO	13	12.5	2	247	494
CASO	14	12.5	2	303	606
CASO	15	12.5	2	261	562
CASO	16	12.5	2	326	652
CASO	17	12.5	2	261	562
CASO	18	12.5	2	327	654
CASO	19	12.5	2	244	488
CASO	20	12.5	2	288	576

RESUMO DO AÇO			
ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CASO	8.0	96.8	43.3
CASO	12.5	68.4	72.5
CASO	5.0	126.2	21.4
PESO TOTAL			115.8
CASO			21.4

Volume de concreto (C-30) = 1.58 m³
Área de forma = 21.26 m²



Armação positiva das lajes do pavimento Torre (Eixo X) escala 1:50



Armação positiva das lajes do pavimento Torre (Eixo Y) escala 1:50

RELAÇÃO DO AÇO

ACO	N	DIAM (mm)	QUANT	C.LIMIT (cm)	C.TOTAL (cm)
CASO	1	16.0	23	VAR	VAR
CASO	3	16.0	10	VAR	VAR

RESUMO DO AÇO			
ACO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CASO	16.0	201.3	349.4
PESO TOTAL			349.4

Volume de concreto (C-30) = 2.54 m³
Área de forma = 15.87 m²

JR ARQUITETURA E ENGENHARIA
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AMAVI ASSOCIAÇÃO DOS MUNICÍPIOS DO ALTO VALE DO ITAJAI

UNIDADE ESCOLAR - CONSTRUIR
PROJETO ESTRUTURAL - ARMAZURA POSITIVA DAS LAJES PAVIMENTO COBERTURA (EIXO X)

LOCAL: Rua Alberto Koglin, Bairro Centro - Dona Emma/SC
PROFESSOR: Rosinei Meilo Goetten de Lima
DATA: 15/02/2022

MUNICÍPIO DE DONA EMMA
ENGENHEIRO RESPONSÁVEL: JULIANA LANGE DOS SANTOS
C.O.S.: 200132

PROFESSOR: Rosinei Meilo Goetten de Lima
C.O.S.: 200132

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