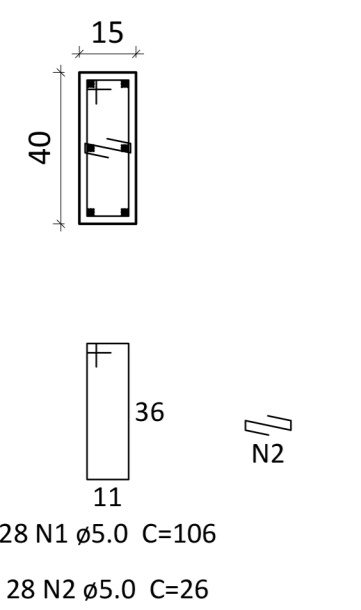
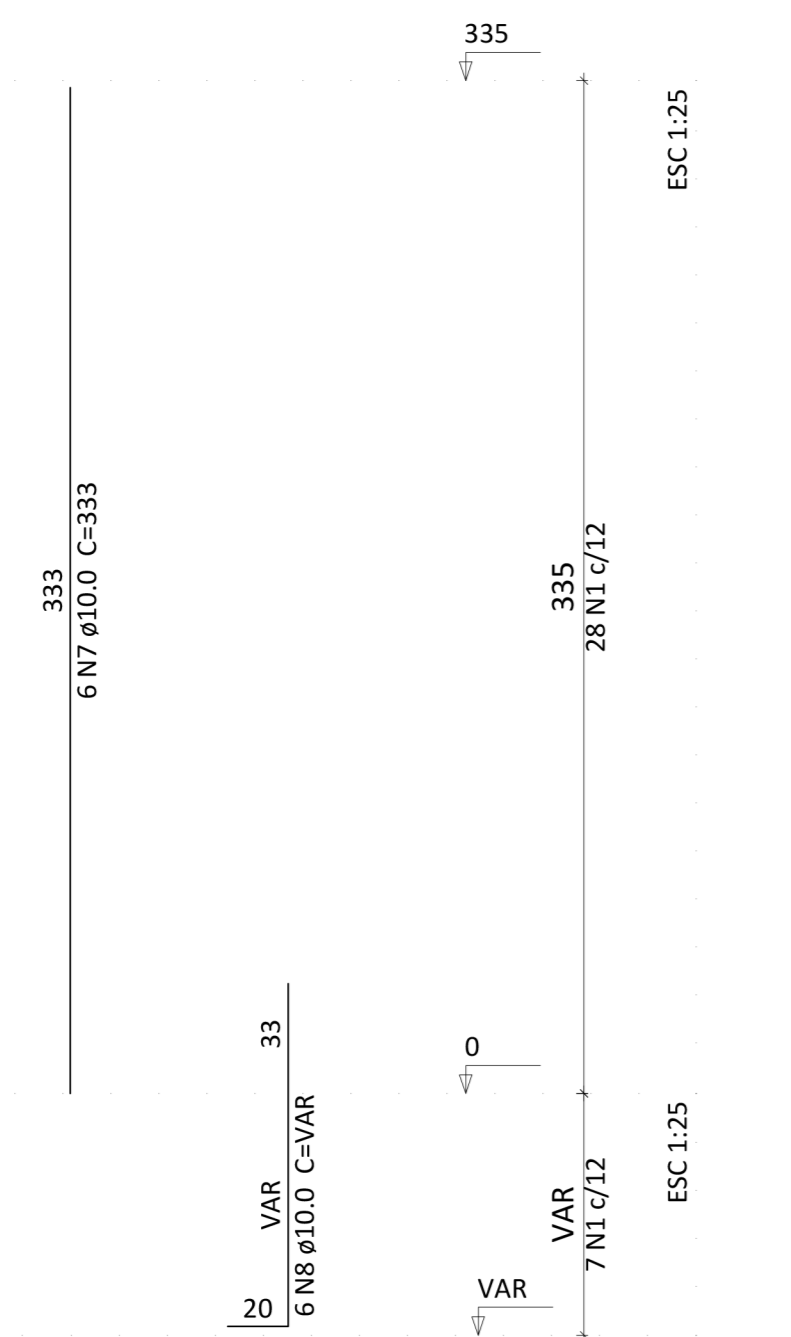
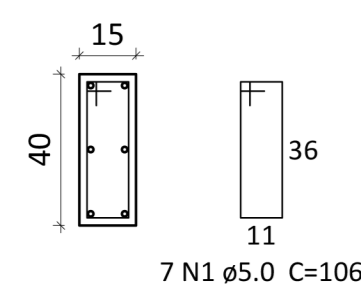


P5

laje forro - L2
ESC 1:20

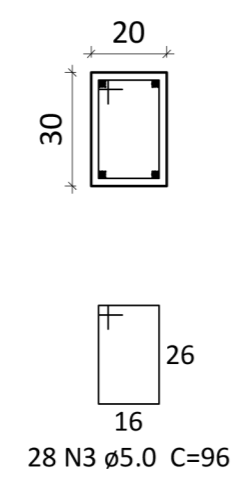


baldrame - L1
ESC 1:20

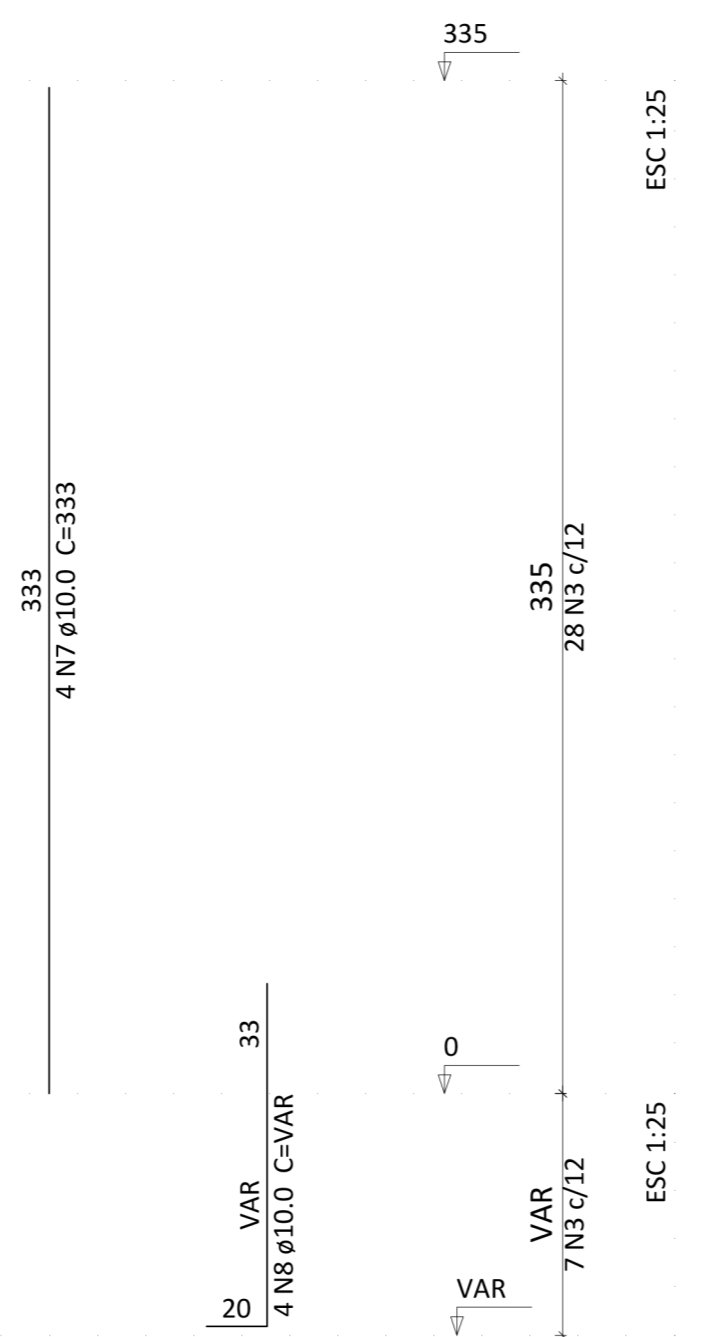
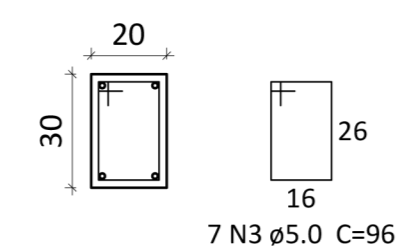


P6

laje forro - L2
ESC 1:20

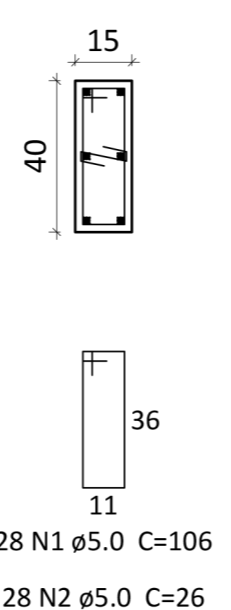


baldrame - L1
ESC 1:20

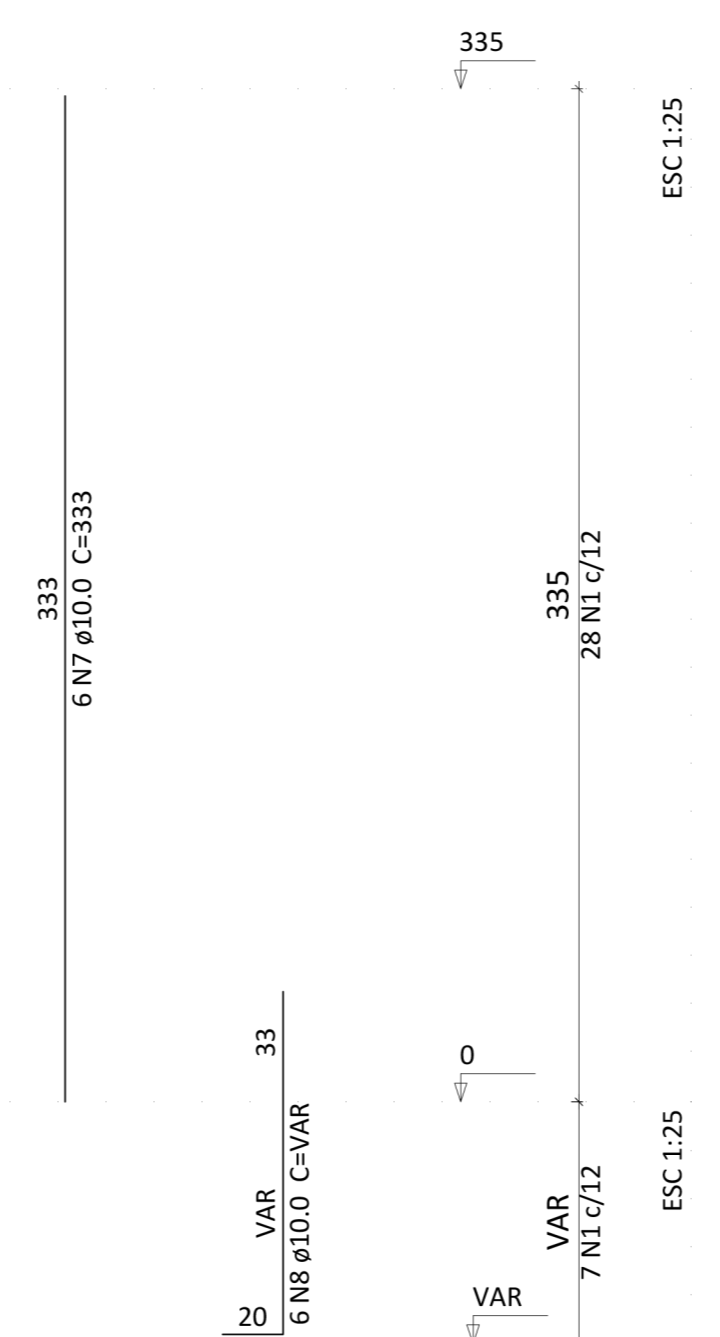
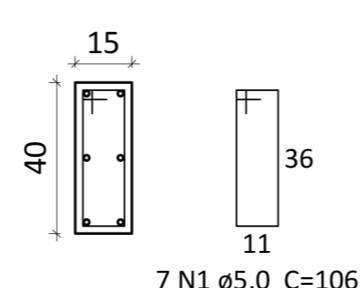


P12

laje forro - L2
ESC 1:20

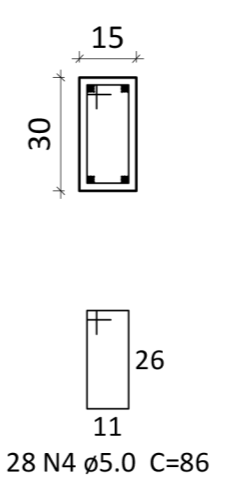


baldrame - L1
ESC 1:20

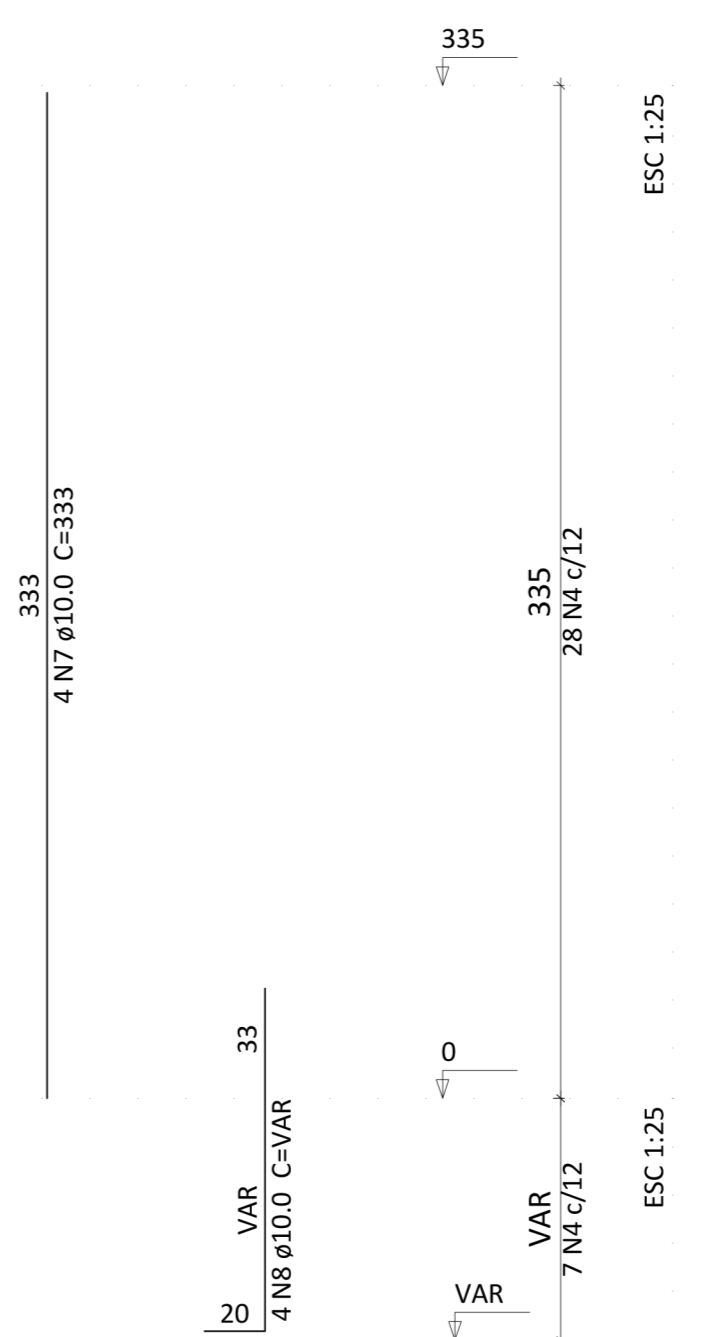
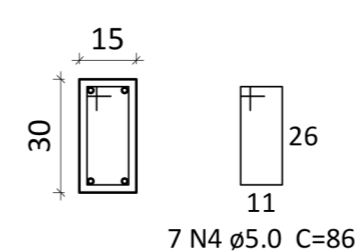


P13

laje forro - L2
ESC 1:20

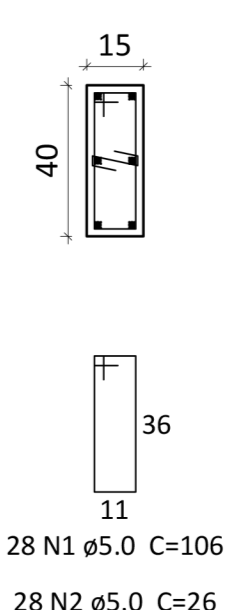


baldrame - L1
ESC 1:20

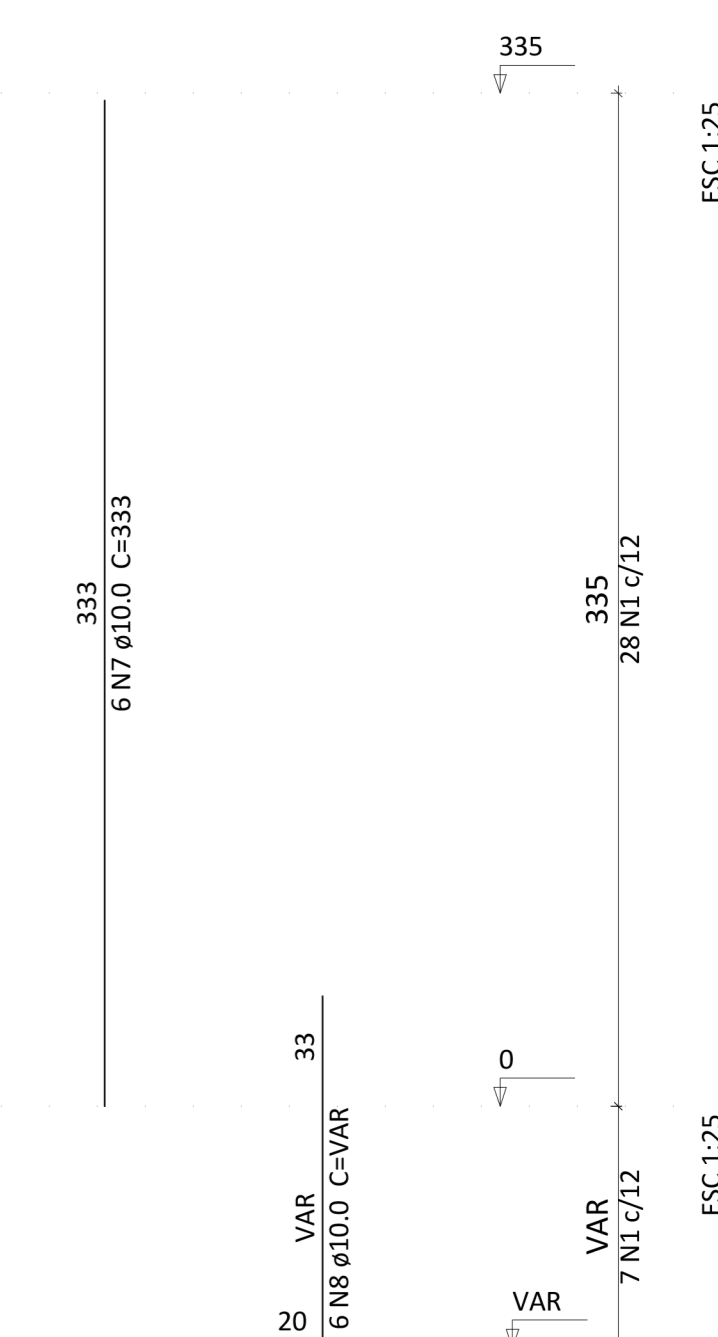
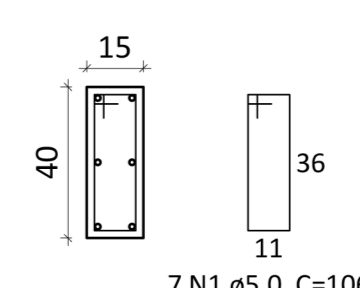


P18

laje forro - L2
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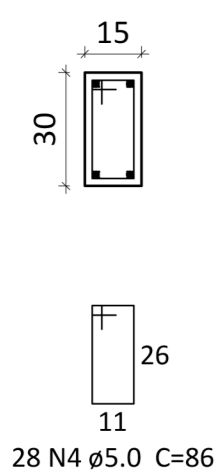


baldrame - L1
ESC 1:20

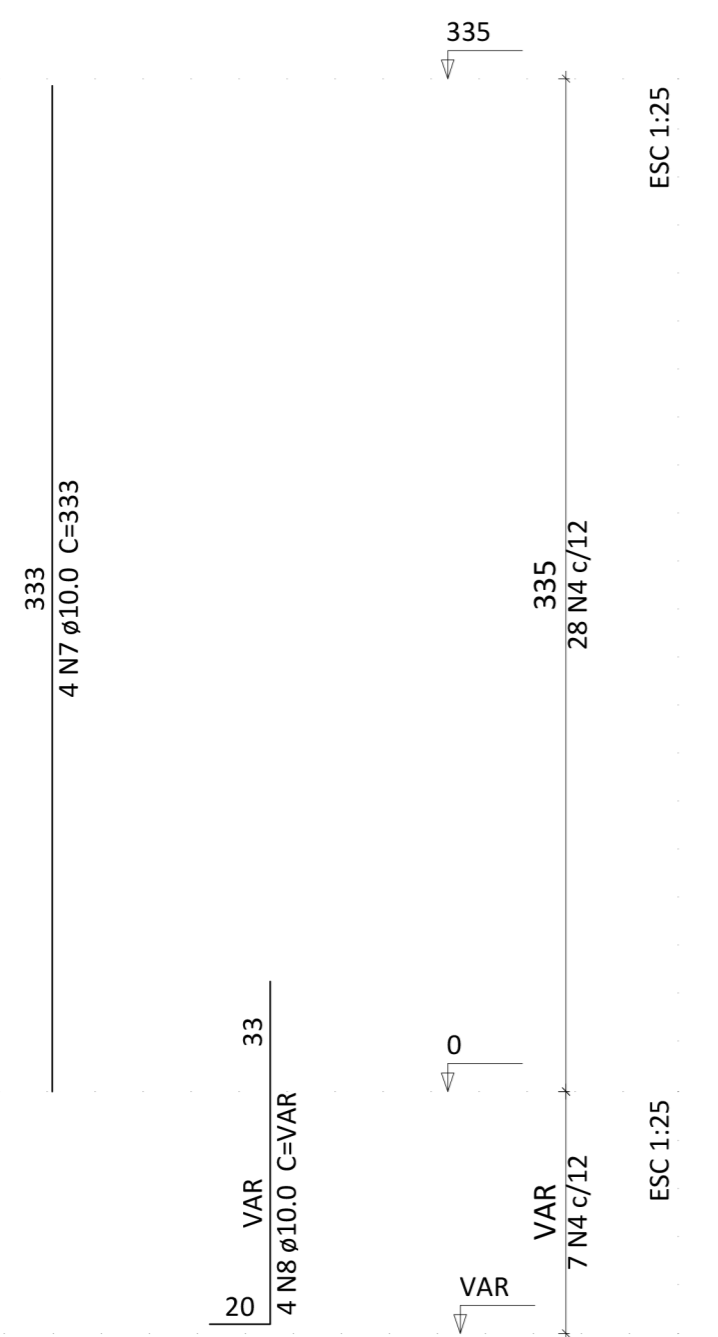
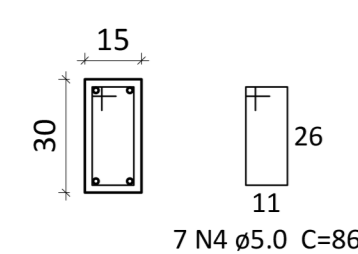


P14

laje forro - L2
ESC 1:20

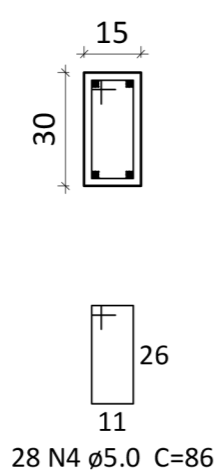


baldrame - L1
ESC 1:20

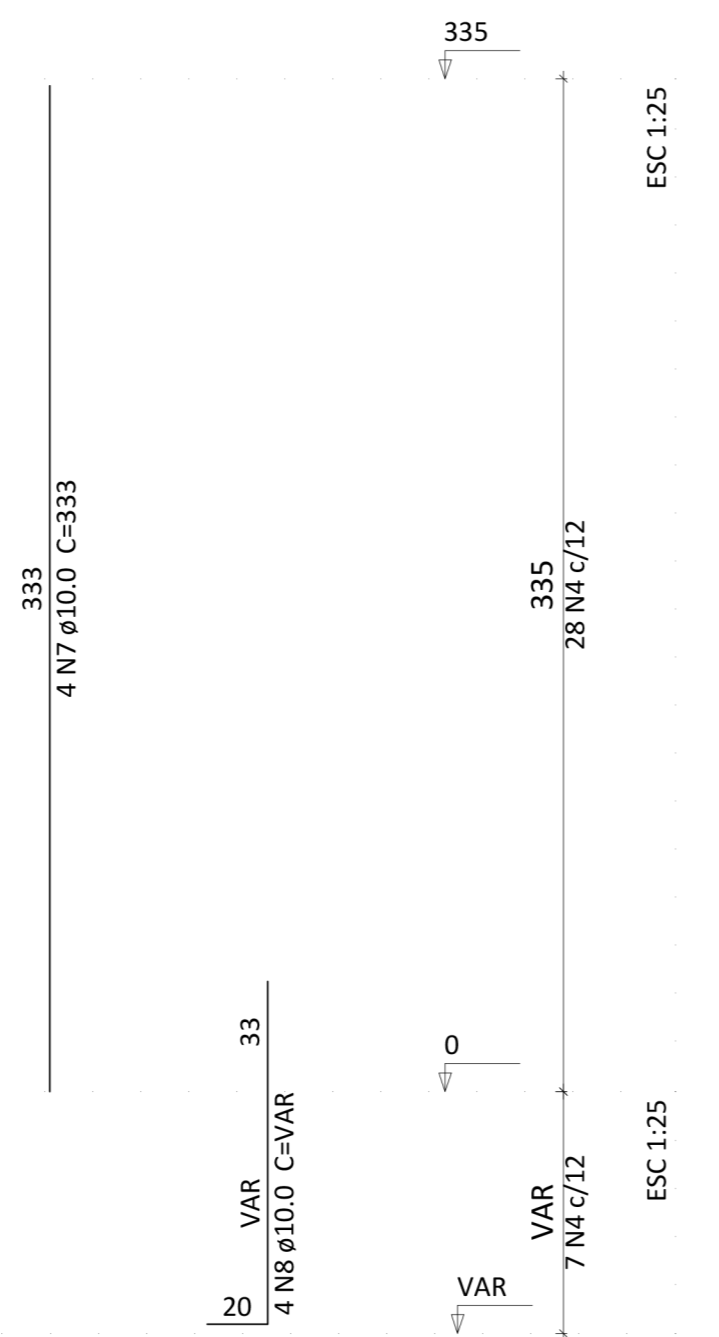
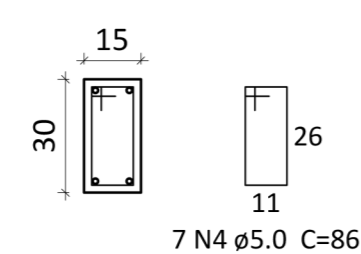


P15

laje forro - L2
ESC 1:20

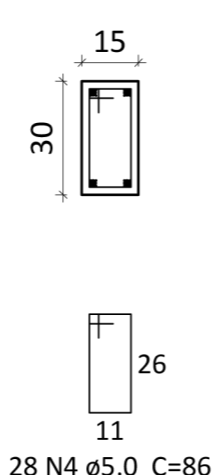


baldrame - L1
ESC 1:20

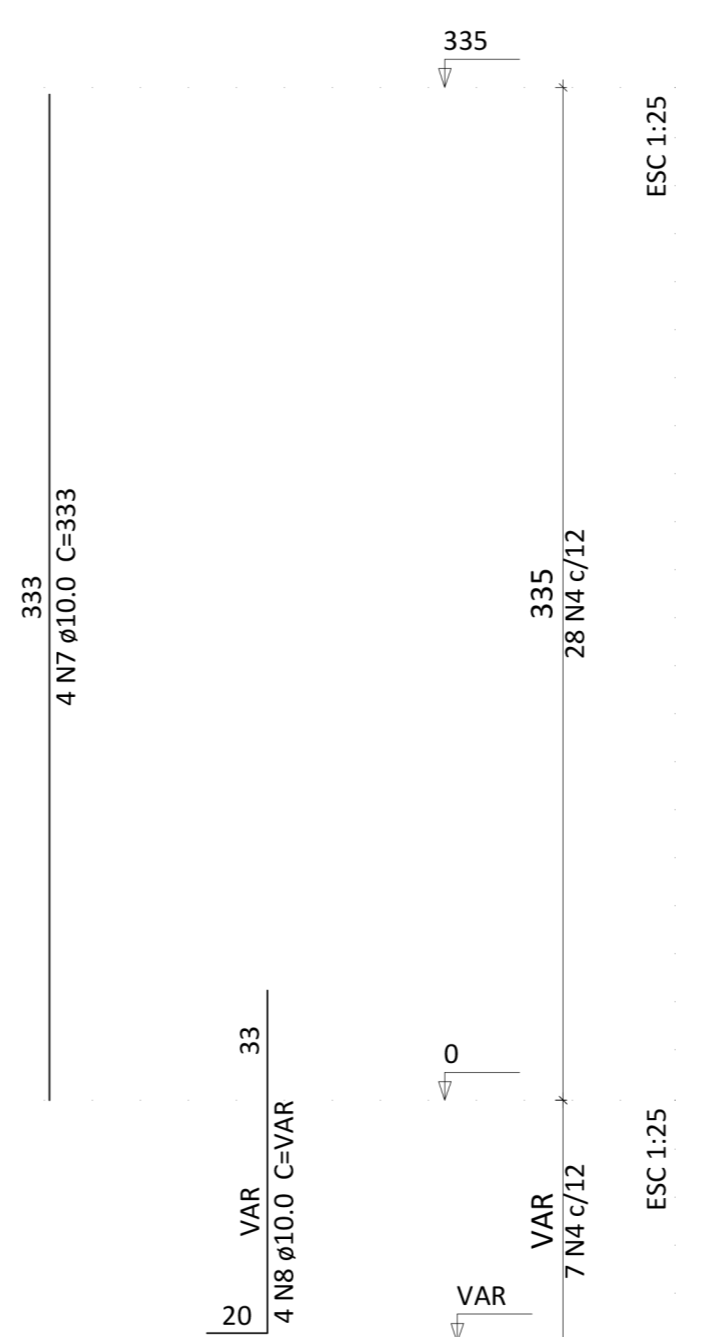
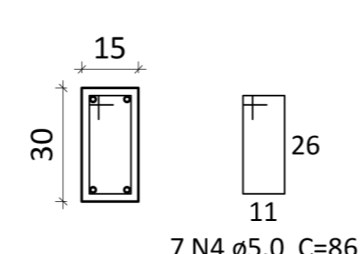


P16

laje forro - L2
ESC 1:20

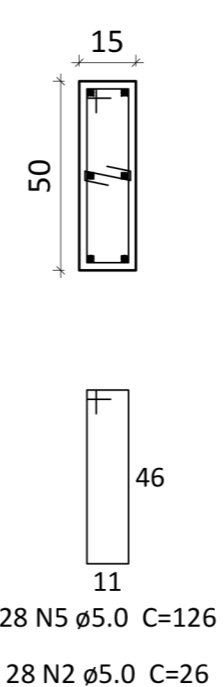


baldrame - L1
ESC 1:20

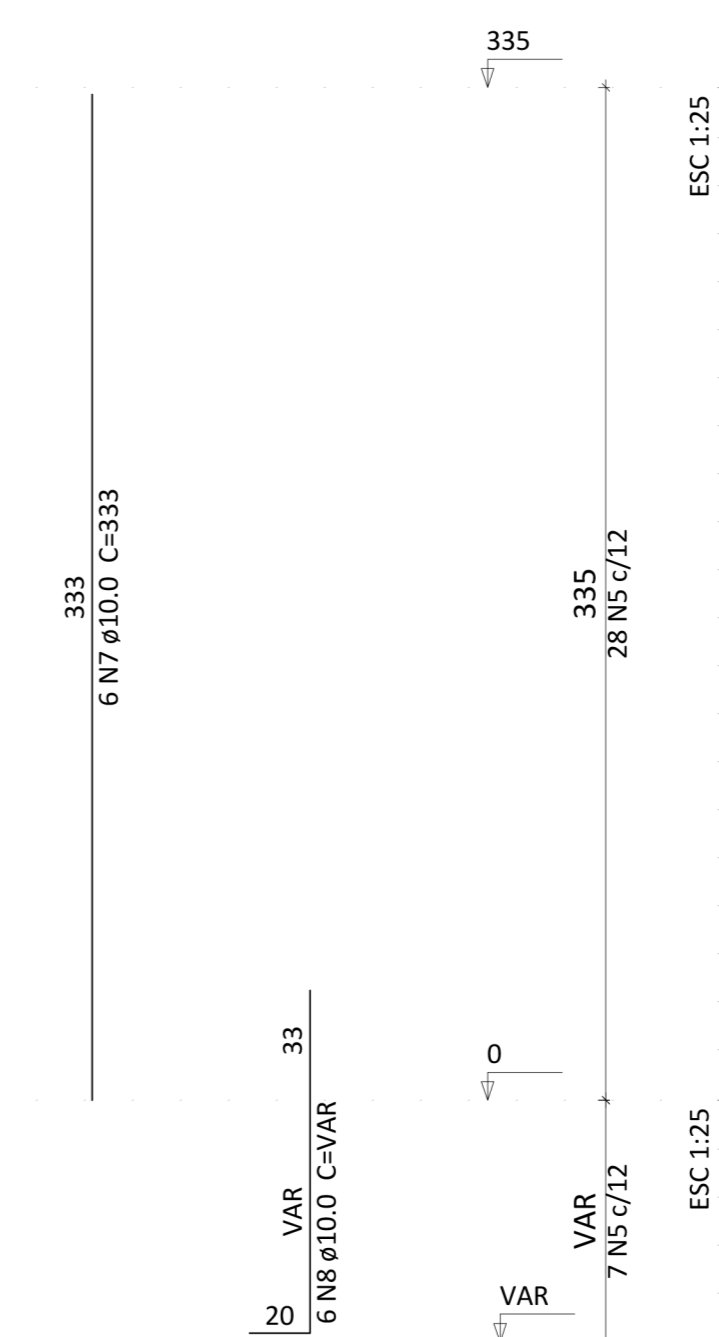
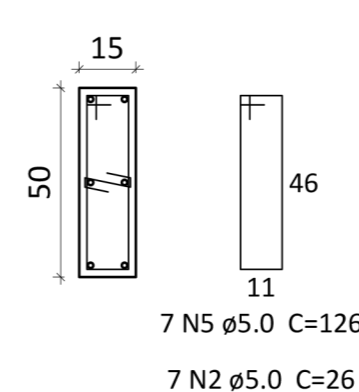


P17

laje forro - L2
ESC 1:20



baldrame - L1
ESC 1:20



Relação do aço
Colarinho e Pilares

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	384	21	8064
	2	5.0	419	7	2933
	3	5.0	35	7	245
	4	5.0	140	28	3920
	5	5.0	35	7	245
CA50	7	10.0	44	333	14652

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	147	100
CA60	5.0	154	26

Vol. de concreto total (C-30) = 1.73 m³
Área de forma total = 38.00 m²

GOVERNO DO ESTADO DE SANTA CATARINA



RENATO MEDEIROS SPERB
ENGENHEIRO CIVIL CREA 042680-9

RUA PASTOR BLUMEL Nº 30 - SALA 01
CENTRO - TIMBÓ - SC

(47) 99981 4941

engenheirorenato2019@gmail.com

Rua Itapema, Bairro Quintino - Timbó - SC

Data: DEZ/2019 Escala: Indicada

Responsável Técnico: ART nº:

Área: 122,76 m² Desenho: Renato

CORPO DE BOMBEIROS MILITAR-SC
2ª Companhia de Bombeiros Militar - TIMBÓ

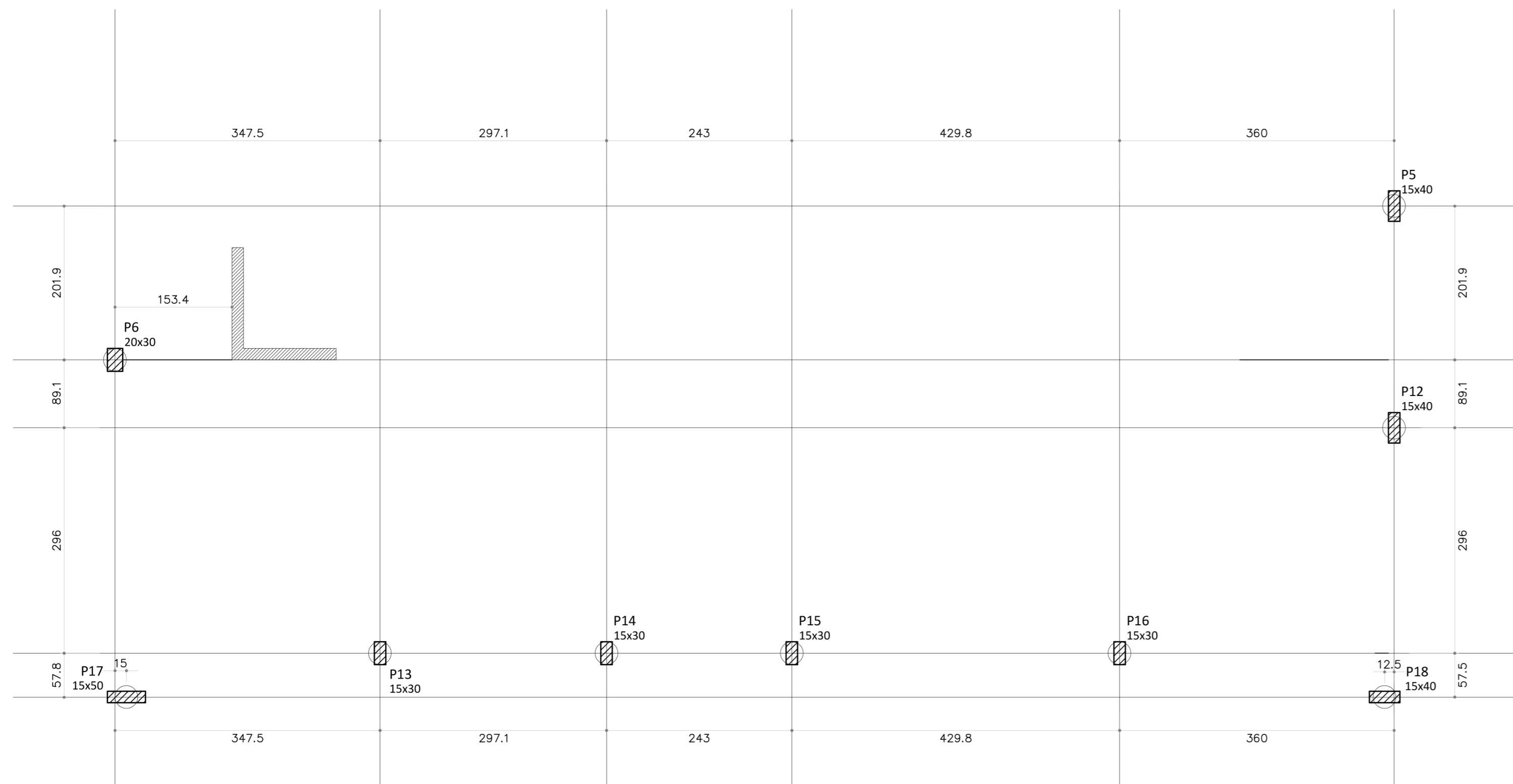
ESPECIFICAÇÃO:

COLARINHOS E PILARES

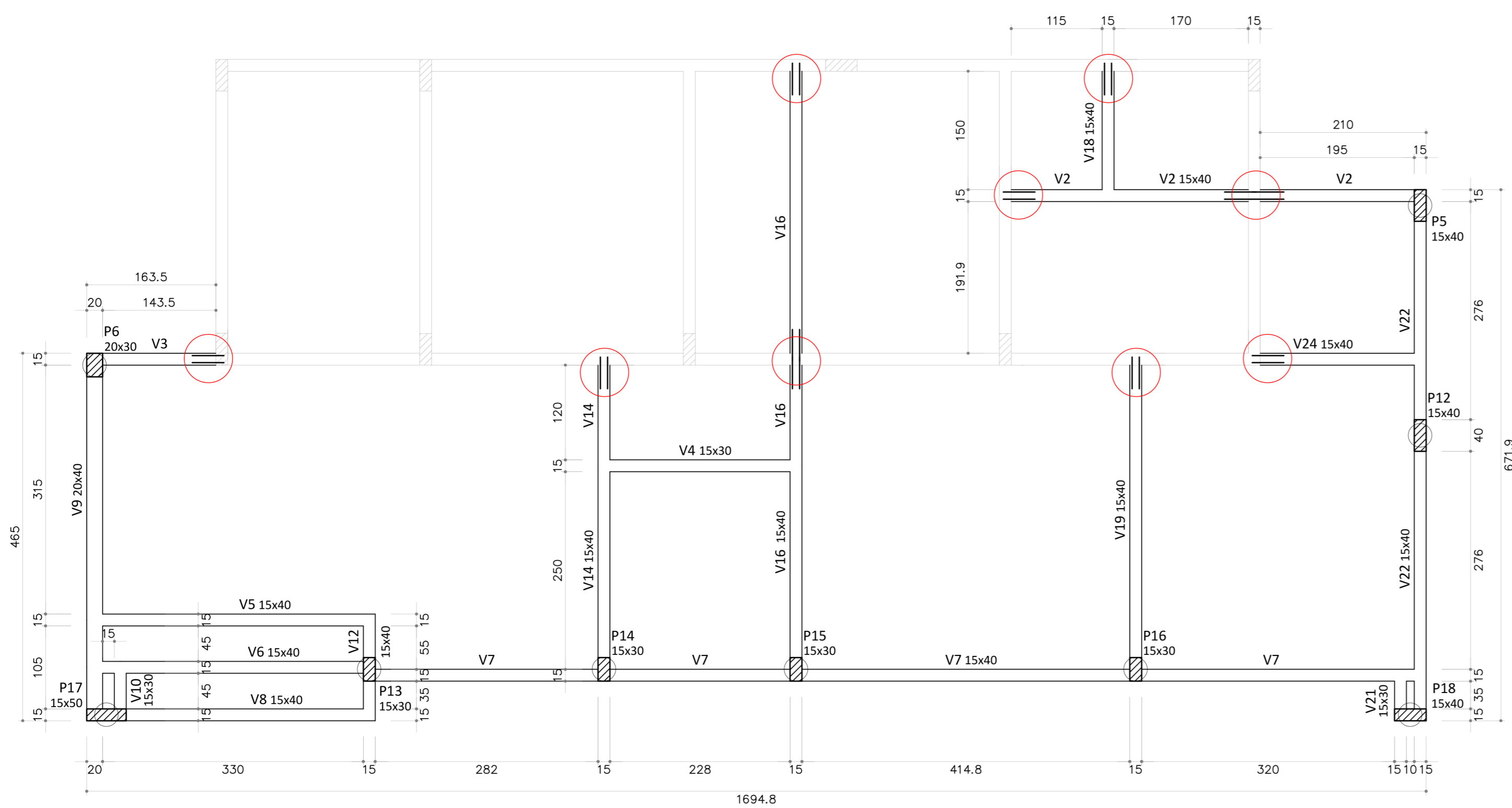
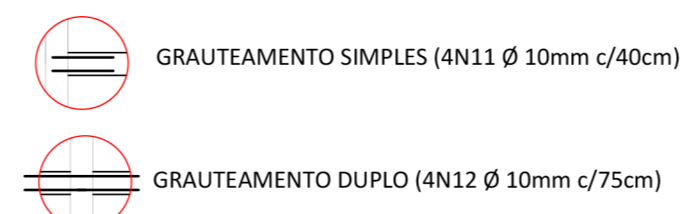
PRANCHA

03/04

ESTRUTURAL



LOCAÇÃO DAS ESTACAS
ESC 1:50

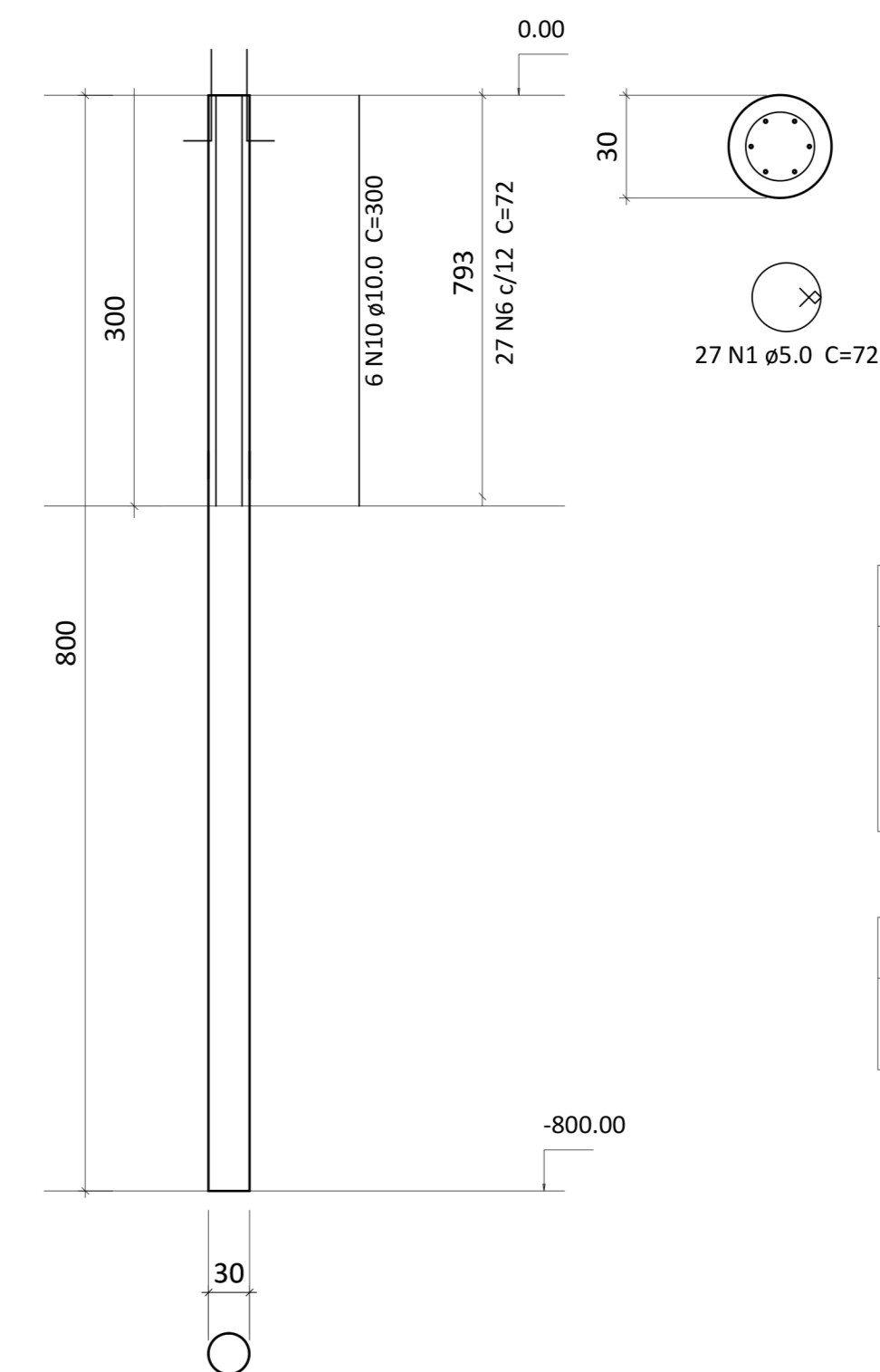


FORMA DO PAVIMENTO BALDRAME
ESC 1:50

ESTACA PADRÃO (9x)

Corte
ESC 1:50

Seção
ESC 1:20



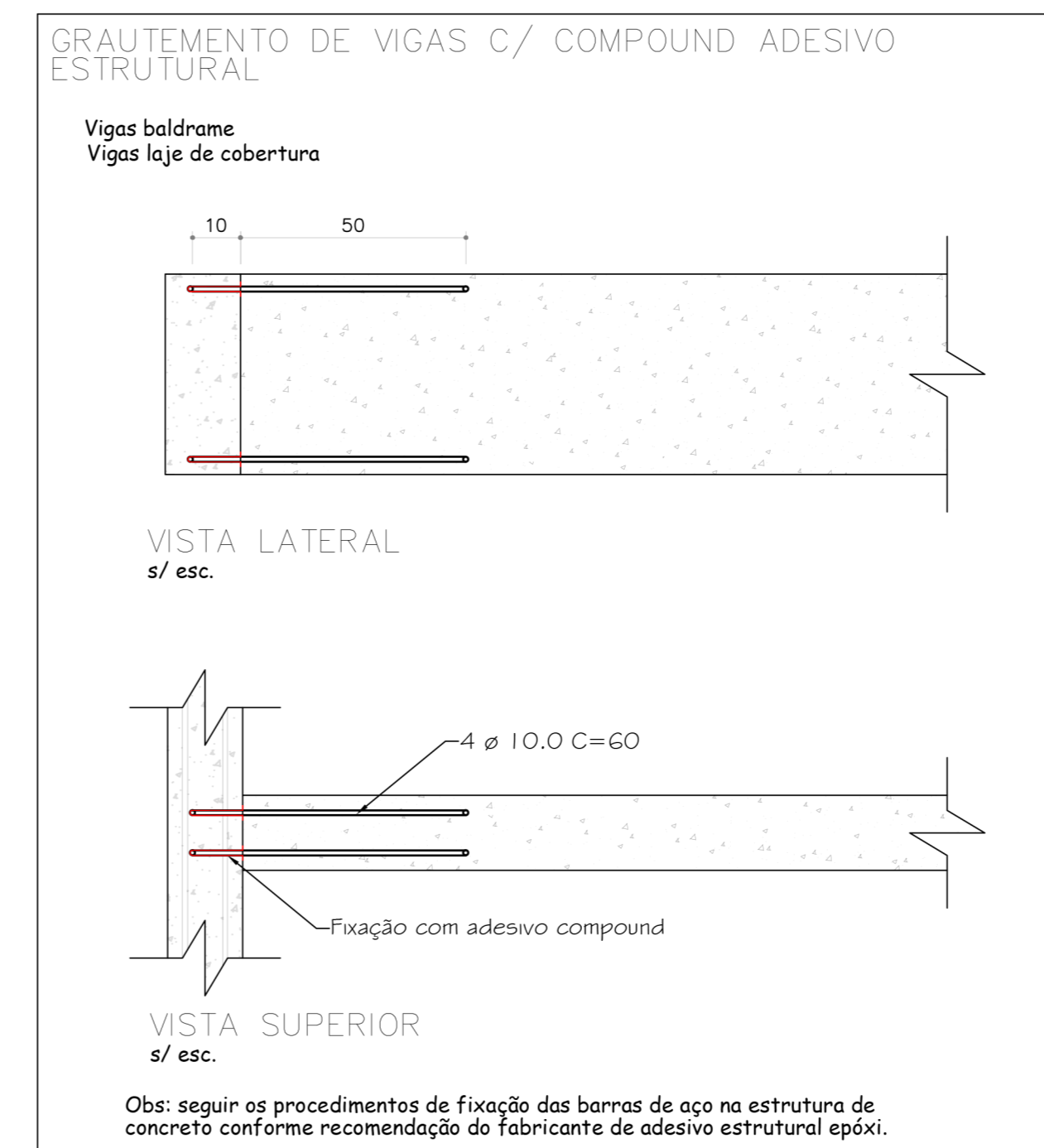
Relação do aço
TUBULÕES

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	243	72	17496
CA50	10	10.0	54	300	16200
	11	10.0	28	40	1120
	12	10.0	8	75	600

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO + 10% (kg)
CA50	10.0	17326	118
CA60	5.0	17496	30

Vol. de concreto total (C-30) = 5,34 m³



ESTRUTURAL

GOVERNO DO ESTADO DE SANTA CATARINA



RENATO MEDEIROS SPERB
ENGENHEIRO CIVIL CREA 042680-9
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Rua Itapema, Bairro Quintino - Timbó - SC

Data: DEZ/2019

Escala Indicada

Responsável Técnico:

ART n°:

Área 122,76 m²

Desenho: Renato

CORPO DE BOMBEIROS MILITAR-SC

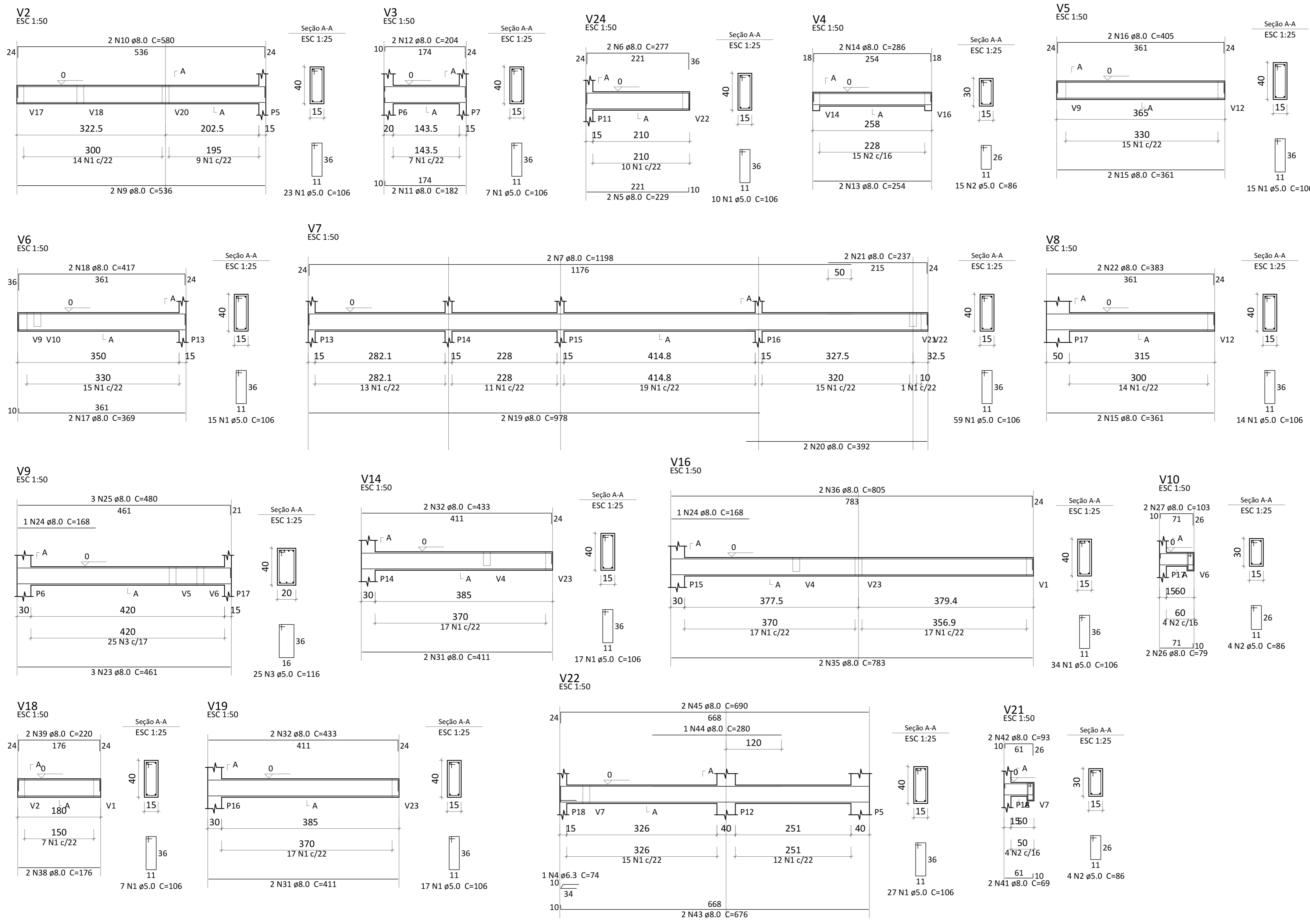
2ª Companhia de Bombeiros Militar - TIMBÓ

ESPECIFICAÇÃO:

PRANCHA

PLANTA DE LOCAÇÃO, FORMAS DO BALDRAME E TUBULÕES

01/04



Relação do aço das Vigas Baldrame

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	245	106	25970
	2	5.0	23	86	1978
	3	5.0	25	116	2900
CA50	5	8.0	2	229	458
	6	8.0	2	277	554
	7	8.0	6	1198	7188
	9	8.0	2	536	1072
	10	8.0	2	580	1160
	11	8.0	2	182	364
	12	8.0	2	204	408
	13	8.0	2	254	508
	14	8.0	2	286	572
	15	8.0	4	361	1444
	16	8.0	2	405	810
	17	8.0	2	369	738
	18	8.0	2	417	834
	19	8.0	2	978	1956
	20	8.0	2	392	784
21	8.0	2	237	474	
22	8.0	2	383	766	
23	8.0	3	461	1383	
25	8.0	3	480	1440	
26	8.0	2	79	158	
27	8.0	2	103	206	
31	8.0	4	411	1644	
32	8.0	4	433	1732	
35	8.0	2	783	1566	
36	8.0	2	805	1610	
37	8.0	2	405	810	
38	8.0	2	176	352	
39	8.0	2	220	440	
41	8.0	2	69	138	
42	8.0	2	93	186	
43	8.0	2	676	1352	
44	8.0	1	280	280	
45	8.0	2	690	1380	

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO + 10 % (kg)
CA50	8.0	348	151
CA60	5.0	309	48

Vol. de concreto total (C-30) = 4.27 m³
 Área de forma total = 81,00 m²

ESTRUTURAL

GOVERNO DO ESTADO DE SANTA CATARINA

RMS

RENATO MEDEIROS SPERB
ENGENHEIRO CIVIL CREA 042680-9

RUA PASTOR BLUMEL Nº 30 - SALA 01
CENTRO - TIMBÓ - SC

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 engenheirorenato2019@gmail.com

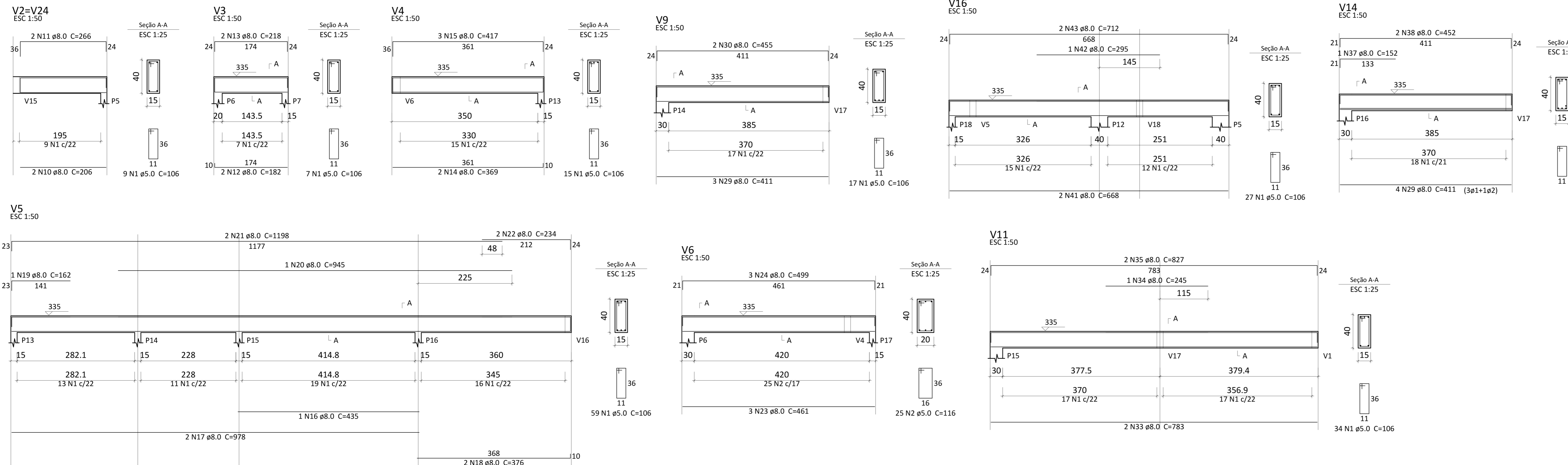
Rua Itapema, Bairro Quintino – Timbó – SC

Data: DEZ/2019 Escala Indicada

Responsável Técnico: ART nº:

Área **122,76 m²** Desenho: Renato

CORPO DE BOMBEIROS MILITAR-SC
 2ª Companhia de Bombeiros Militar - TIMBÓ



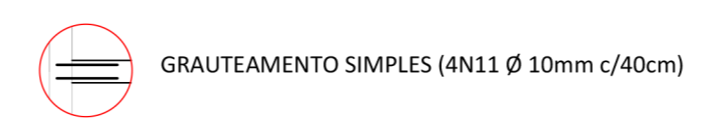
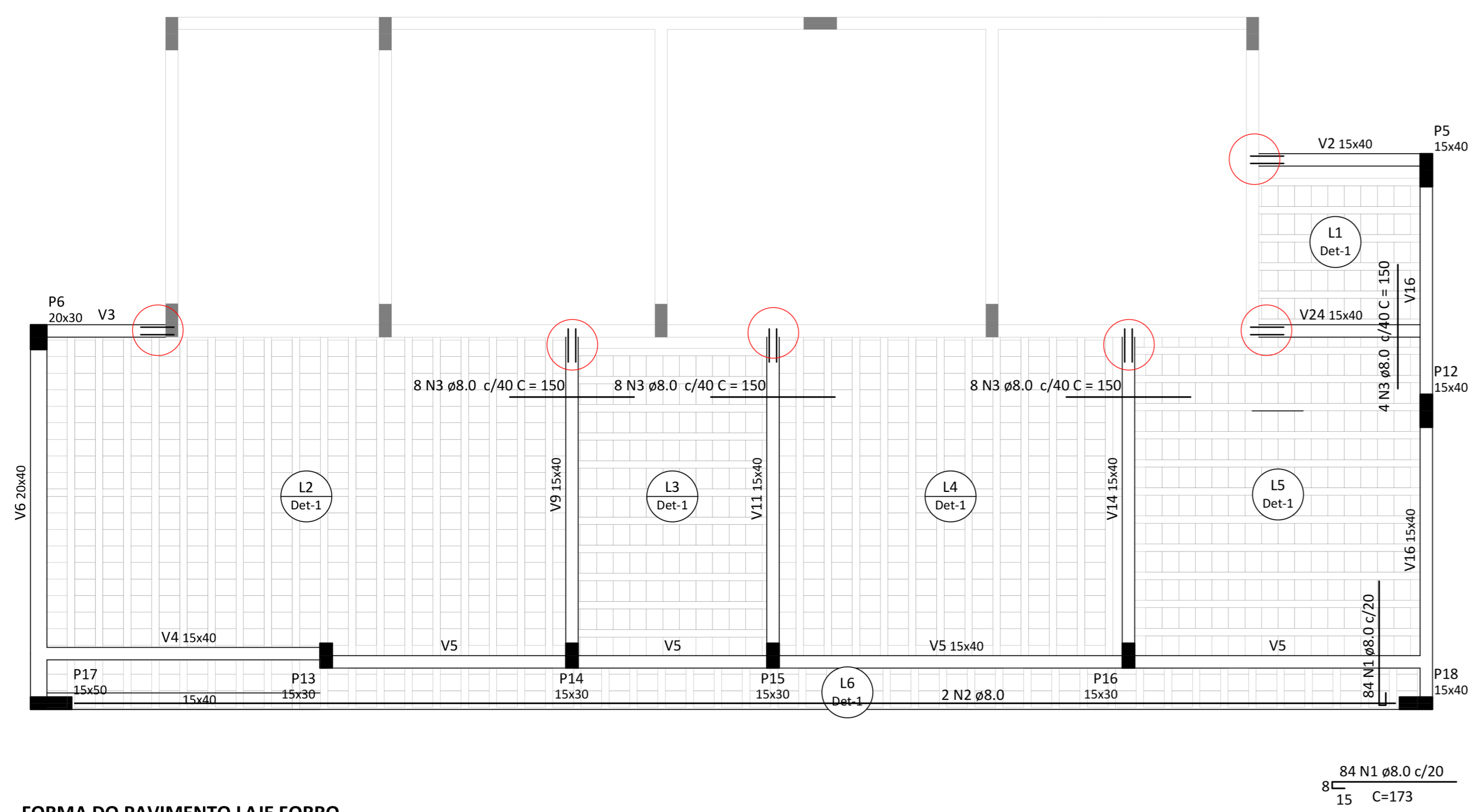
Relação do aço Vigas da Laje de Forro

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	181	106	19716
	2	5.0	25	116	2900
CA50	10	8.0	2	206	412
	11	8.0	2	266	532
	12	8.0	2	182	364
	13	8.0	2	218	436
	14	8.0	2	369	738
	15	8.0	3	417	1251
	16	8.0	1	435	435
	17	8.0	2	978	1956
	18	8.0	2	376	752
	19	8.0	1	162	162
	20	8.0	1	945	945
	21	8.0	2	1198	2396
	22	8.0	2	234	468
	23	8.0	3	461	1383
	24	8.0	3	499	1497
	29	8.0	7	411	2877
	30	8.0	2	455	910
	33	8.0	2	783	1566
	34	8.0	1	245	245
	35	8.0	2	827	1654
	38	8.0	2	452	904
	41	8.0	2	668	1336
	42	8.0	1	295	295
	43	8.0	2	712	1424

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO + 10 % (kg)
CA50	8.0	519	225
CA60	5.0	469.3	38

Vol. de concreto total (C-30) = 3.06 m³
 Área de forma total = 52.90 m²



Blocos de enchimento

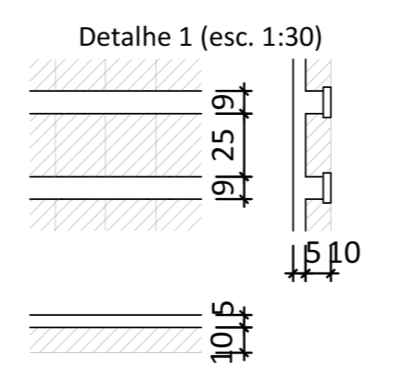
Detalhe	Tipo	Nome	Dimensões(cm)			Quantidade
			hb	bx	by	
1	Lajota cerâmica	B8/25/20	8	25	20	1483

Lajes

Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Sobrecarga (kgf/m²)		
						Adicional	Acidental	Localizada
L1	Trelçada 1D	15	0	335	324	50	100	-
L2	Trelçada 1D	15	0	335	324	50	100	-
L3	Trelçada 1D	15	0	335	324	50	100	-
L4	Trelçada 1D	15	0	335	324	50	100	-
L5	Trelçada 1D	15	0	335	324	50	100	-
L6	Trelçada 1D	15	0	335	324	50	100	-

Características dos materiais

Elemento	fck (kgf/cm²)	Ecs (kgf/cm²)
Vigas	300	260716
Pilares	300	260716
Lajes	250	238000



Relação do aço Negativos da Laje

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA50	1	8.0	84	173	14532
	2	8.0	2	1600	3200
	3	8.0	28	150	4200

Resumo do aço

AÇO	DIAM	C.TOTAL (m)	PESO + 10 % (kg)
CA50	8.0	241	95

Vol. de concreto das laje (C-30) = 6.96 m³
 FERRAGEM DE DISTRIBUIÇÃO COM MALHA POP GERDAU

FORMA DO PAVIMENTO LAJE FORRO
 ESC 1:50

GOVERNO DO ESTADO DE SANTA CATARINA



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Rua Itapema, Bairro Quintino - Timbó - SC
 Data: DEZ/2019 Escala Indicação
 Responsável Técnico: ART nº:
 Área: 122,76 m² Desenho: Renato

CORPO DE BOMBEIROS MILITAR-SC
 2ª Companhia de Bombeiros Militar - TIMBÓ