



MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

PROJETO ESTRUTURAL **PALCO MUNICIPAL**

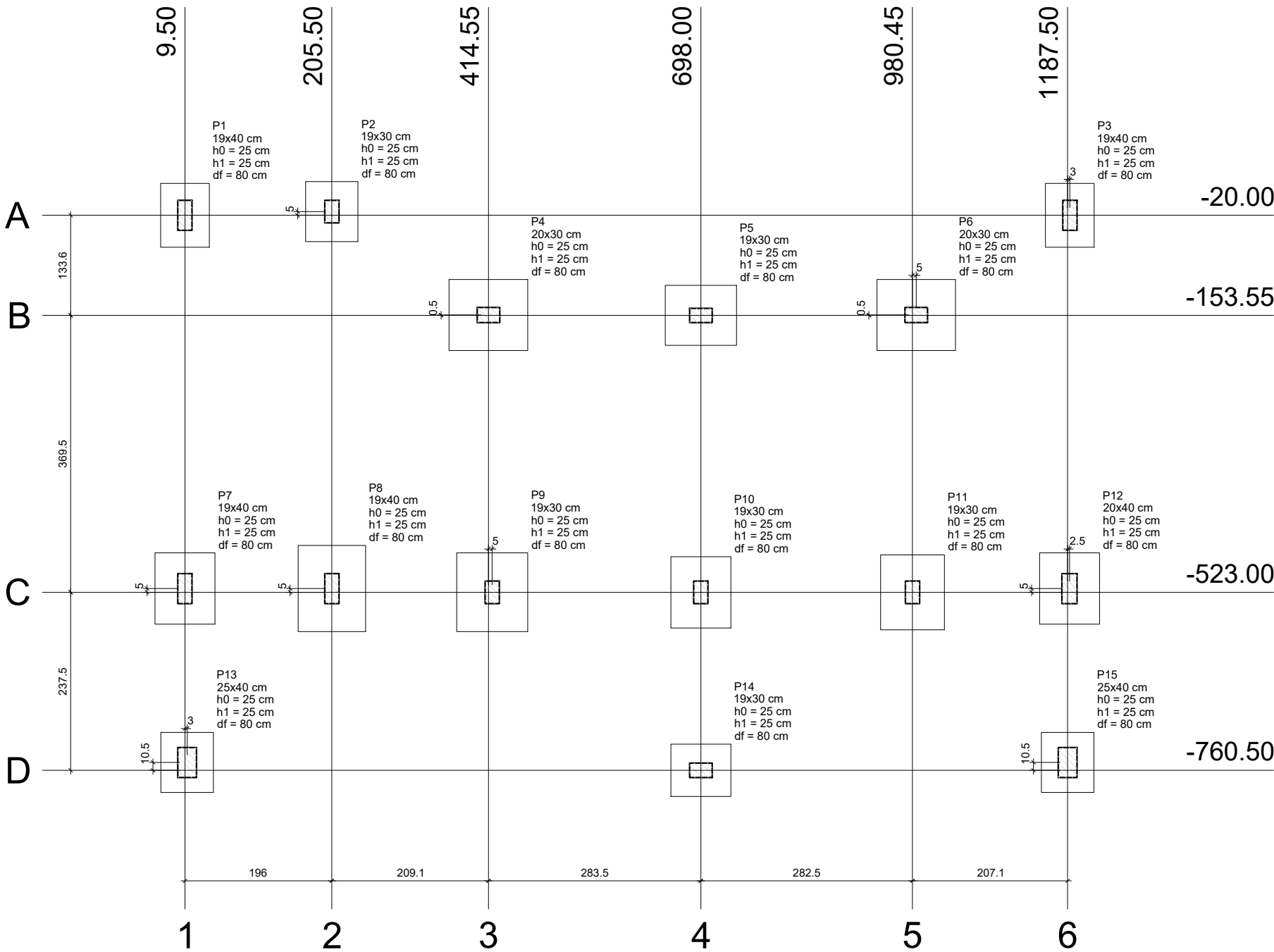
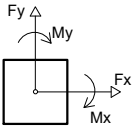
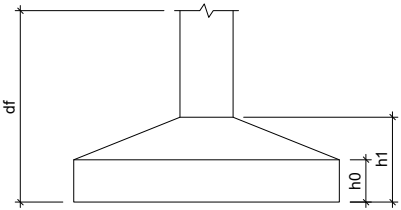
1.PLANTA DE LOCAÇÃO

“O Ouro desta Terra está no Coração de sua Gente”

Pilar										Fundação					
Nome	Seção (cm)	X (cm)	Y (cm)	Carga Máx. (tf)	Carga Mín. (tf)	Mx (kgf.m)	My (kgf.m)	Fx (tf)	Fy (tf)	Lado B (cm)	Lado H (cm)	h0 / ha (cm)	h1 / hb (cm)	df (cm)	
P1	19x40	9.50	-20.00	5.0	4.2	0	0	0.3	1.7	65	85	25	25	80	
P2	19x30	205.50	-15.00	6.8	5.8	0	0	0.1	0.5	70	80	25	25	80	
P3	19x40	1190.50	-20.00	6.7	5.7	0	0	0.3	0.6	65	85	25	25	80	
P4	20x30	414.55	-153.05	11.9	8.6	0	0	0.3	0.6	95	105	25	25	80	
P5	19x30	698.00	-153.55	9.5	6.1	0	0	0.2	0.5	80	95	25	25	80	
P6	20x30	985.45	-153.05	11.9	8.6	0	0	0.2	0.6	95	105	25	25	80	
P7	19x40	9.50	-518.00	6.7	4.9	0	0	0.3	2.1	80	95	25	25	80	
P8	19x40	205.50	-518.00	13.1	8.9	0	0	0.2	0.2	90	115	25	25	80	
P9	19x30	419.55	-523.00	11.3	6.0	0	0	0.1	0.3	95	105	25	25	80	
P10	19x30	698.00	-523.00	9.7	4.6	0	0	0.1	0.5	80	95	25	25	80	
P11	19x30	980.45	-523.00	11.0	5.9	0	0	0.1	0.6	85	100	25	25	80	
P12	20x40	1190.00	-518.00	8.9	6.3	0	0	0.1	0.5	80	95	25	25	80	
P13	25x40	12.50	-750.00	7.0	3.5	0	0	0.9	0.6	70	80	25	25	80	
P14	19x30	698.00	-760.50	7.0	4.4	0	0	0.4	0.2	70	80	25	25	80	
P15	25x40	1187.50	-750.00	5.3	2.7	0	0	0.6	0.6	70	80	25	25	80	

Locação no eixo X	
Coordenadas (cm)	Nome
9.50	P1, P7
12.50	P13
205.50	P2, P8
414.55	P4
419.55	P9
698.00	P5, P10, P14
980.45	P11
985.45	P6
1187.50	P15
1190.50	P12
1190.50	P3

Locação no eixo Y	
Coordenadas (cm)	Nome
-15.00	P2
-20.00	P1, P3
-153.05	P4, P6
-153.55	P5
-518.00	P7, P8, P12
-523.00	P9, P10, P11
-750.00	P13, P15
-760.50	P14



Planta de locação
escala 1:50

OBRA: PALCO MUNICIPAL			
LOCAL: PRAÇA ANTONIO BOS FILHO/ SÃO JOSÉ DO OURO-RS	109,25m²	PLANTA LOCAÇÃO	DESENHO: CARLA
PROPRIETÁRIO: MUNICÍPIO DE SÃO JOSÉ DO OURO/RS	DATA: ABRIL /2022	CORTE	PRANCHA: 01
RESPONSÁVEL TÉCNICO PROJETO: ENG. CIVIL CARLA RAGNINI - CREA 137639-6	ESCALA: INDICADA		



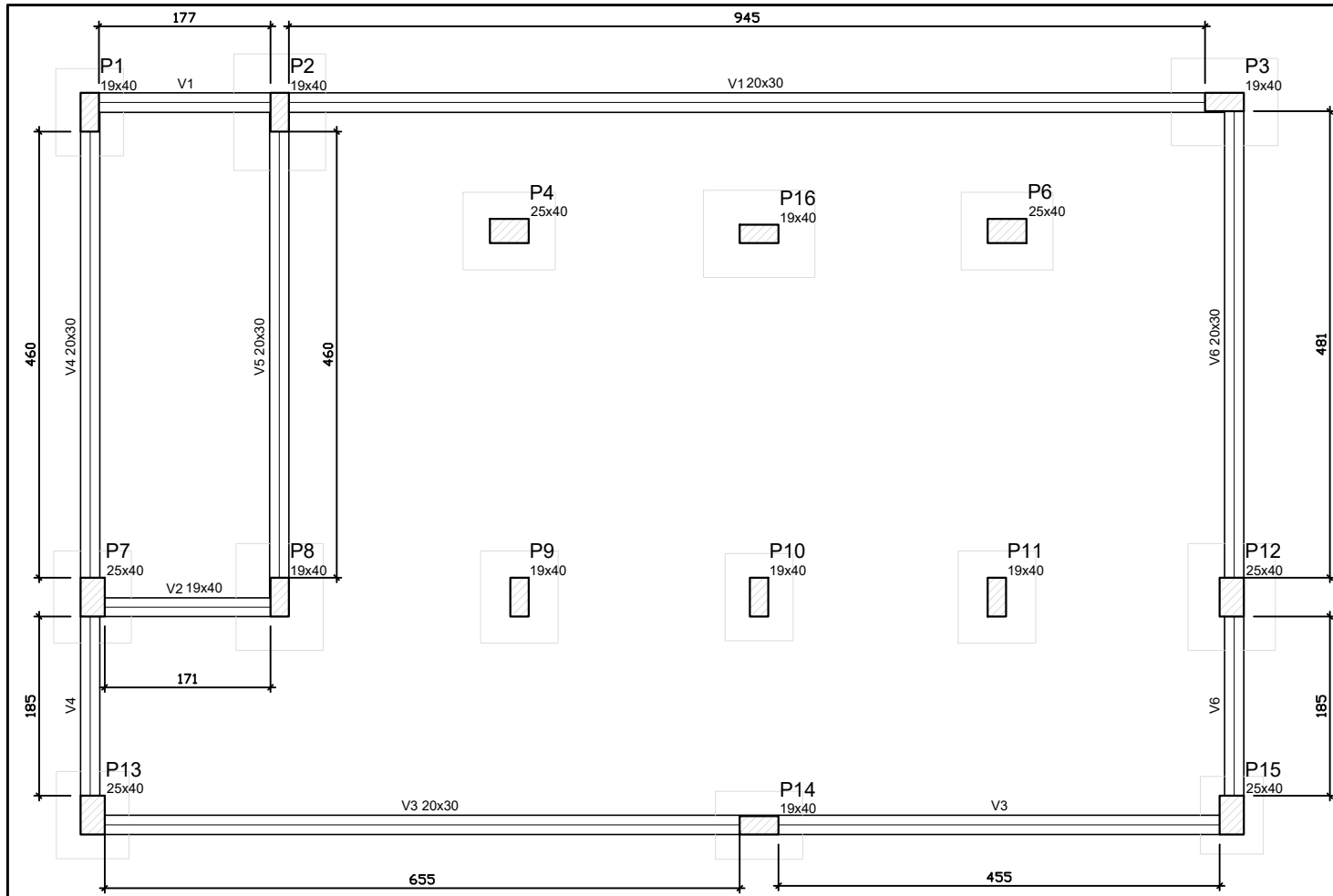
MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

PROJETO ESTRUTURAL **PALCO MUNICIPAL**

2.PLANTAS DE FORMAS E CORTE

“O Ouro desta Terra está no Coração de sua Gente”



Forma do pavimento BALDRAME

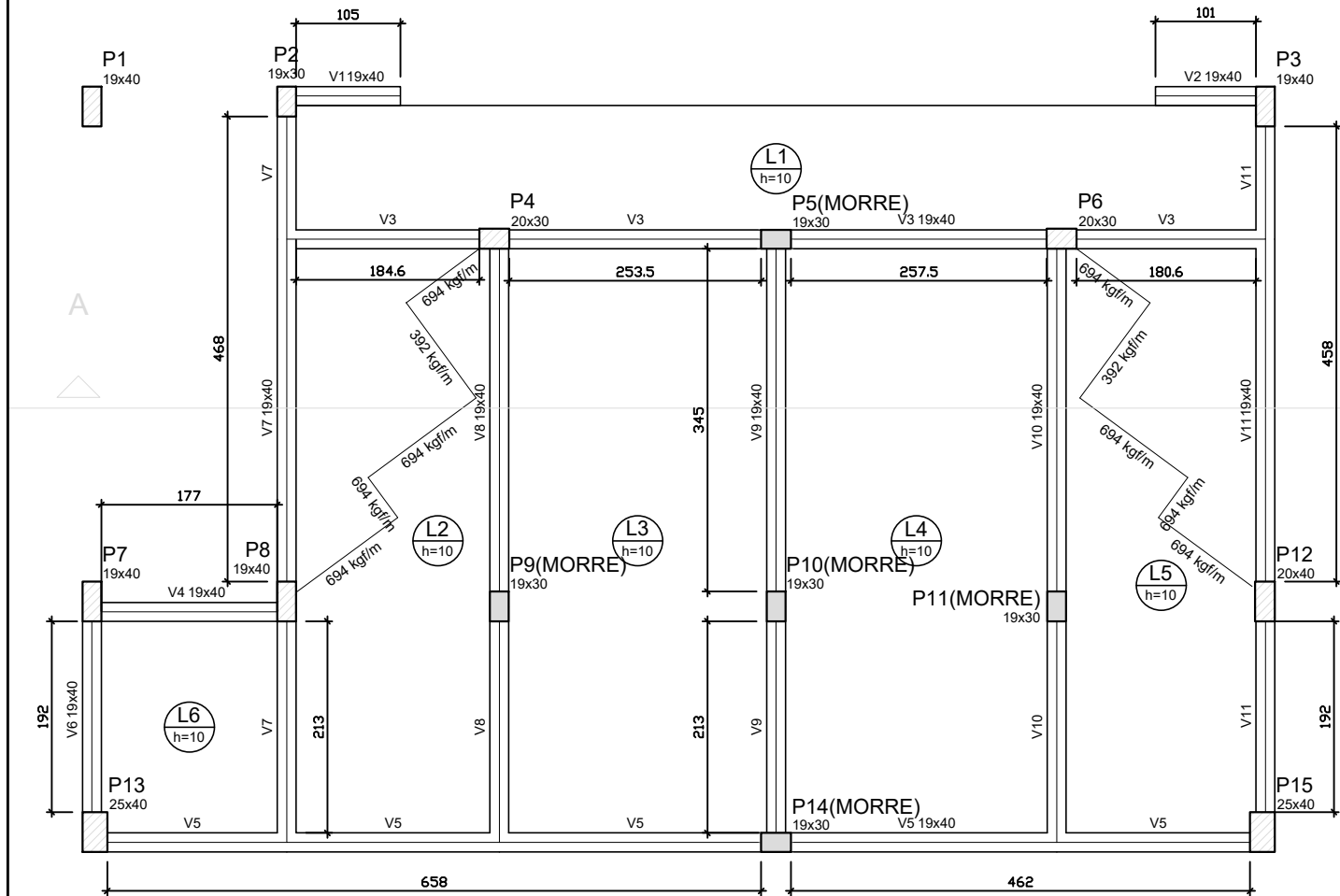
escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	20x30	0	0
V2	19x40	0	0
V3	20x30	0	0
V4	20x30	0	0
V5	20x30	0	0
V6	20x30	0	0

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
300	312859

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19 x 40	0	0
P2	19 x 40	0	0
P3	19 x 40	0	0
P4	25 x 40	0	0
P6	25 x 40	0	0
P7	25 x 40	0	0
P8	19 x 40	0	0
P9	19 x 40	0	0
P10	19 x 40	0	0
P11	19 x 40	0	0
P12	25 x 40	0	0
P13	25 x 40	0	0
P14	19 x 40	0	0
P15	25 x 40	0	0
P16	19 x 40	0	0

Legenda dos Pilares	
	Pilar que morre
	Pilar que passa
	Pilar que nasce
	Pilar com mudança de seção



Forma do pavimento PALCO

escala 1:50

Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x40	0	90
V2	19x40	0	90
V3	19x40	0	90
V4	19x40	0	90
V5	19x40	0	90
V6	19x40	0	90
V7	19x40	0	90
V8	19x40	0	90
V9	19x40	0	90
V10	19x40	0	90
V11	19x40	0	90

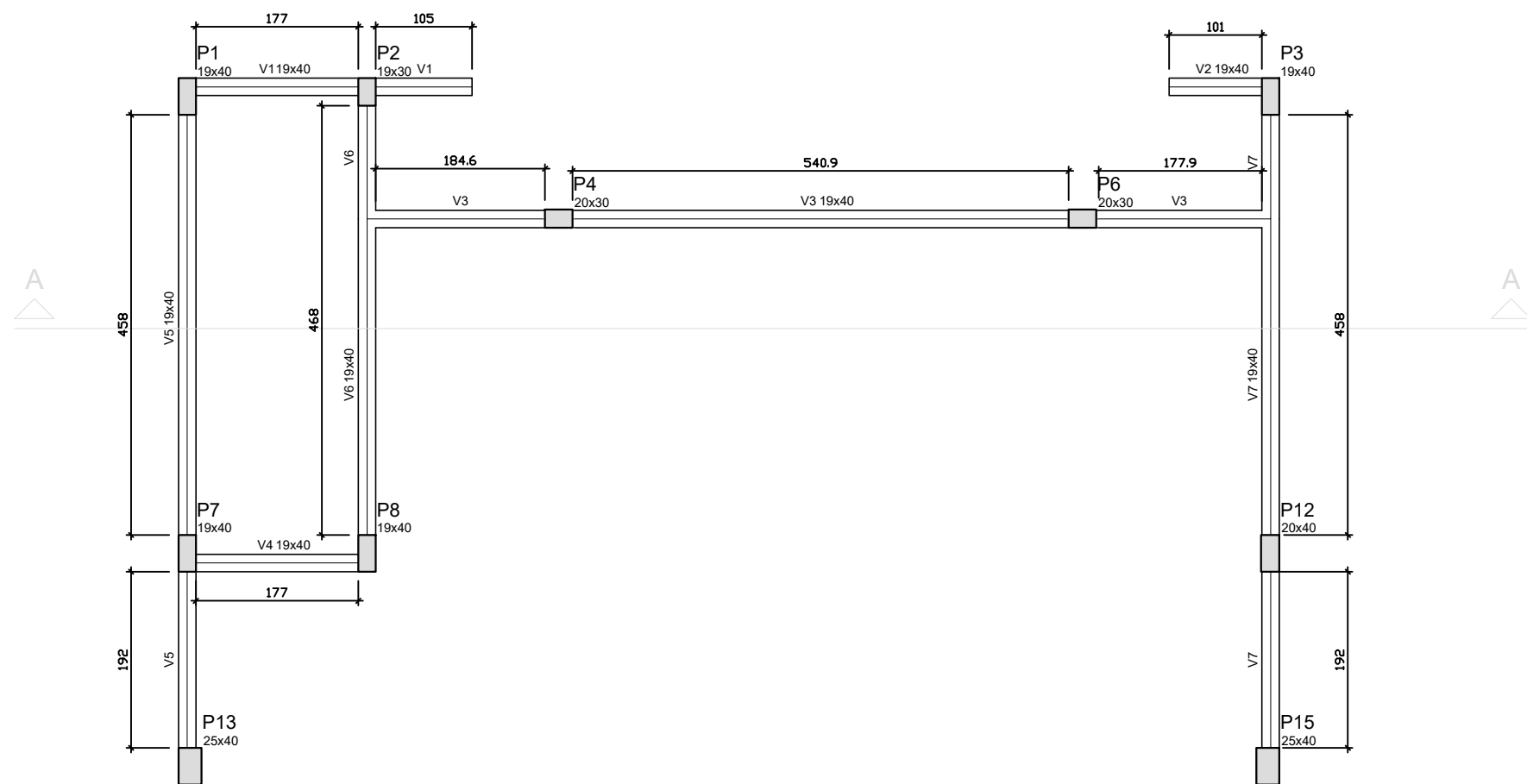
Legenda dos Pilares	
	Pilar que morre
	Pilar que passa
	Pilar que nasce
	Pilar com mudança de seção

Dados					Lajes			
Nome	Tipo	Altura (cm)	Elevação (cm)	Nível (cm)	Peso próprio (kgf/m²)	Adicional	Acidental	Localizada
L1	Maciça	10	0	90	250	150	200	-
L2	Maciça	10	0	90	250	150	500	sim
L3	Maciça	10	0	90	250	150	500	-
L4	Maciça	10	0	90	250	150	500	-
L5	Maciça	10	0	90	250	150	500	sim
L6	Maciça	10	0	90	250	150	500	-

Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
300	312859

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19 x 40	0	90
P2	19 x 30	0	90
P3	19 x 40	0	90
P4	20 x 30	0	90
P5	19 x 30	0	90
P6	20 x 30	0	90
P7	19 x 40	0	90
P8	19 x 40	0	90
P9	19 x 30	0	90
P10	19 x 30	0	90
P11	19 x 30	0	90
P12	20 x 40	0	90
P13	25 x 40	0	90
P14	19 x 30	0	90
P15	25 x 40	0	90

OBRA:			
PALCO MUNICIPAL			
LOCAL:		109,25m²	DESENHO:
PRAÇA ANTONIO BOS FILHO/ SÃO JOSÉ DO OURO-RS			CARLA
PROPRIETÁRIO:		DATA:	PRANCHA:
MUNICÍPIO DE SÃO JOSÉ DO OURO/RS		ABRIL /2022	02
RESPONSÁVEL TÉCNICO PROJETO:		ESCALA:	
ENG. CIVIL CARLA RAGNINI - CREA 137639-6		INDICADA	



Vigas			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
V1	19x40	0	490
V2	19x40	0	490
V3	19x40	0	490
V4	19x40	0	490
V5	19x40	0	490
V6	19x40	0	490
V7	19x40	0	490

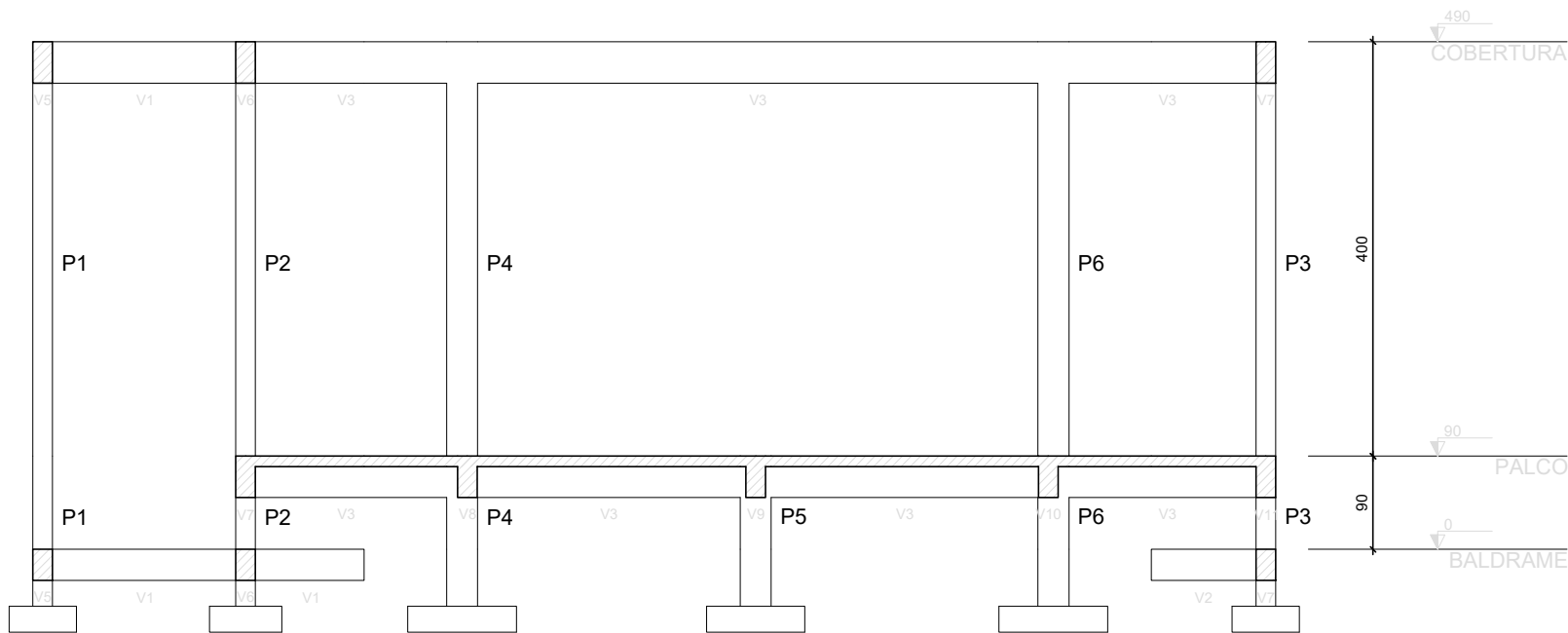
Características dos materiais	
fck (kgf/cm²)	Ecs (kgf/cm²)
300	312859

Pilares			
Nome	Seção (cm)	Elevação (cm)	Nível (cm)
P1	19 x 40	0	490
P2	19 x 30	0	490
P3	19 x 40	0	490
P4	20 x 30	0	490
P6	20 x 30	0	490
P7	19 x 40	0	490
P8	19 x 40	0	490
P12	20 x 40	0	490
P13	25 x 40	0	490
P15	25 x 40	0	490

Legenda dos Pilares	
	Pilar que morre
	Pilar que passa
	Pilar que nasce
	Pilar com mudança de seção

Forma do pavimento COBERTURA

escala 1:50



Corte A-A

escala 1:50

OBRA:			
PALCO MUNICIPAL			
LOCAL:		109,25m²	PLANTA FORMA COBERTURA
PRAÇA ANTONIO BOS FILHO/ SÃO JOSÉ DO OURO-RS			
PROPRIETÁRIO:		DATA:	
MUNICÍPIO DE SÃO JOSÉ DO OURO/RS		ABRIL /2022	
RESPONSÁVEL TÉCNICO PROJETO:		ESCALA:	
ENG. CIVIL CARLA RAGNINI - CREA 137639-6		INDICADA	
			CORTE
			DESENHO: CARLA
			PRANCHA: 03



MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

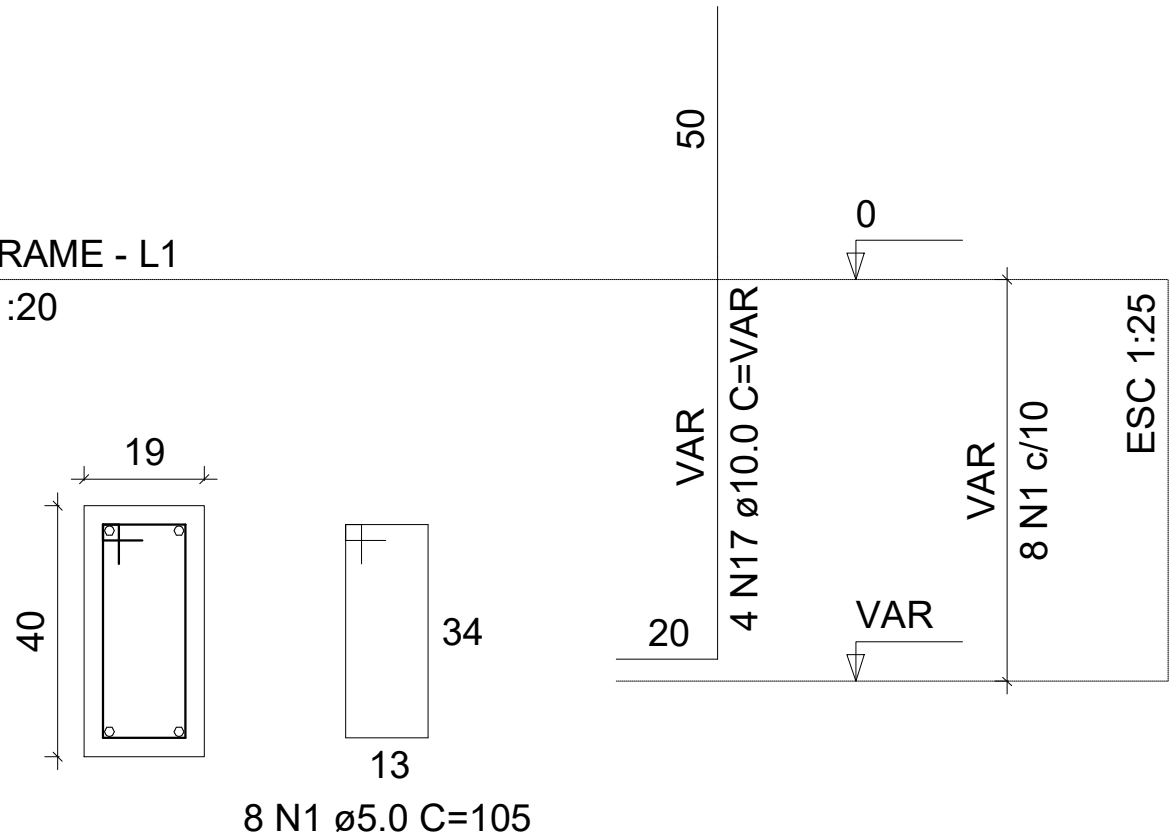
PROJETO ESTRUTURAL **PALCO MUNICIPAL**

3.SAPATAS

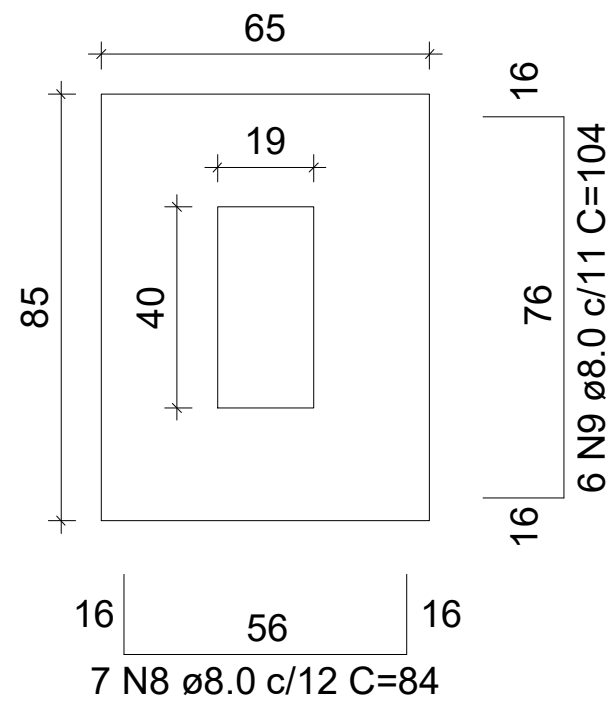
“O Ouro desta Terra está no Coração de sua Gente”

P1=P3

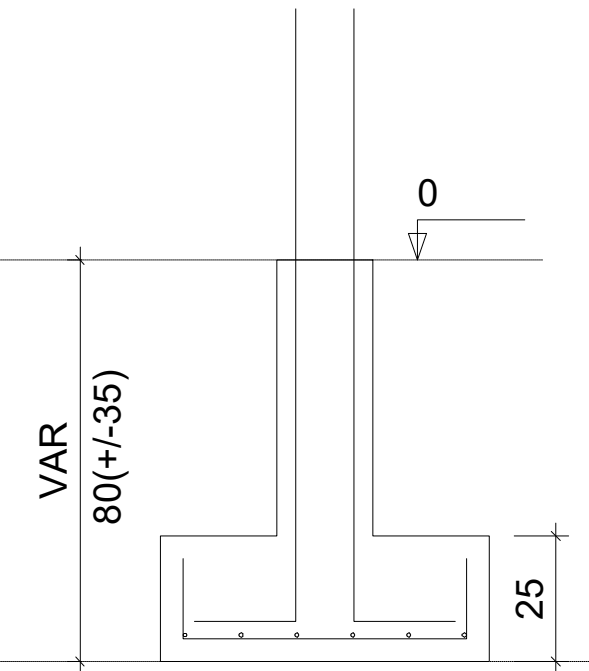
BALDRAME - L1
ESC 1:20



S1=S3
PLANTA
ESC 1:25



CORTE
ESC 1:25



Technical drawing of a balcony (BALDRAME - L1) showing plan and elevation views with dimensions and reinforcement details.

Plan View (Left):

- Overall width: 25
- Overall height: 40
- Reinforcement: 8 N6 ϕ 5.0 C=117
- Reinforcement: 8 N7 ϕ 5.0 C=34

Elevation View (Right):

- Overall height: 50
- Reinforcement: 6 N17 ϕ 10.0 C=VAR
- Reinforcement: 8 N6 c/10
- Reinforcement: N7
- Reinforcement: VAR
- Reinforcement: VAR
- Reinforcement: 0
- Scale: ESC 1:25

BALDRAME - L1

ESC 1:20

30

19

24

13

8 N2 ø5.0 C=85

50

0

VAR

4 N17 ø10.0 C=VAR

20

VAR

8 N2 c/10

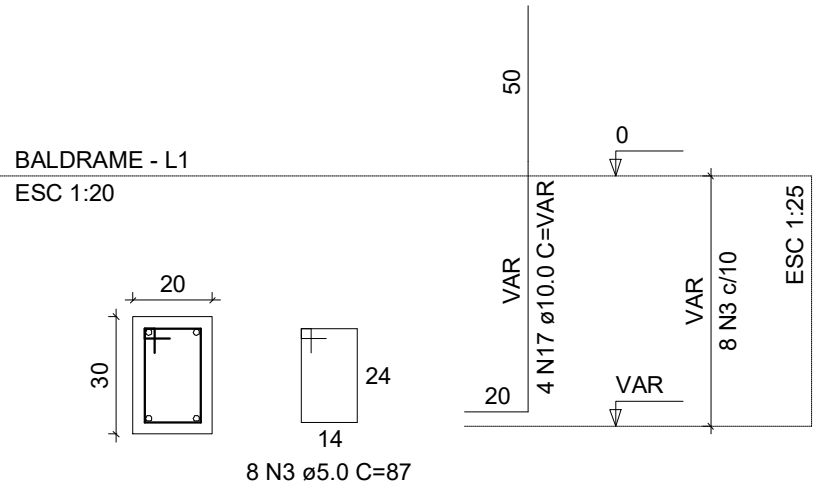
ESC 1:25

Diagram of a rectangular plate with dimensions and reinforcement details:

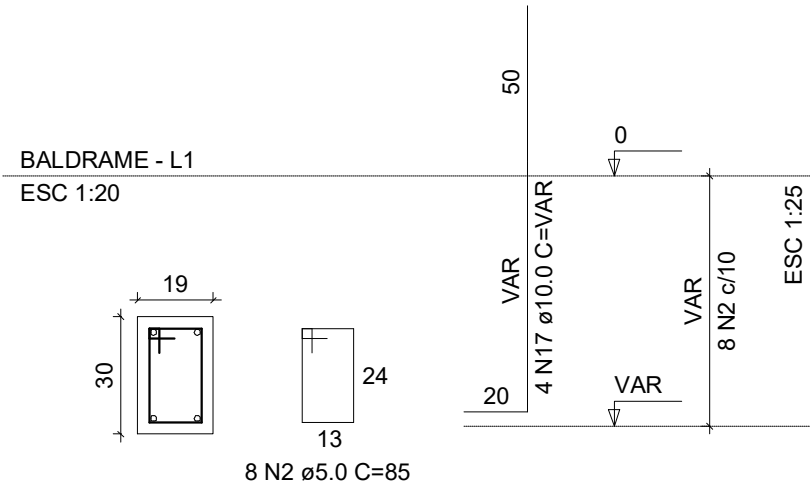
- Overall width: 70
- Overall height: 80
- Inner rectangle width: 25
- Inner rectangle height: 40
- Reinforcement details:
 - Top and bottom: 6 N16 $\varnothing$ 8.0 c/12 C=89
 - Left and right: 6 N14 $\varnothing$ 8.0 c/12 C=99
- Clearance dimensions: 16 (top and bottom edges), 16 (left and right edges)

Technical drawing showing a stepped profile. The vertical dimension is labeled VAR and $80(+/-35)$. The horizontal dimension is labeled 25 . A datum symbol (a triangle with a circle) is shown, labeled 0 .

P4=P6

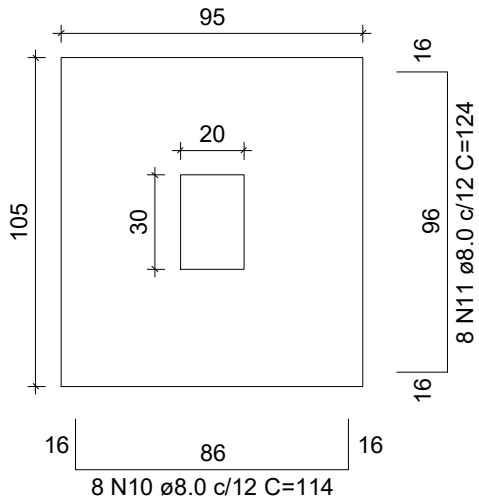


P9

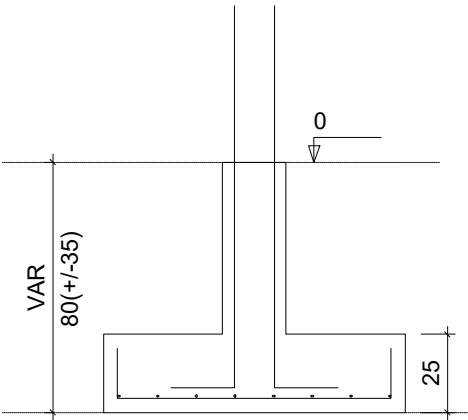


S4=S6=S9

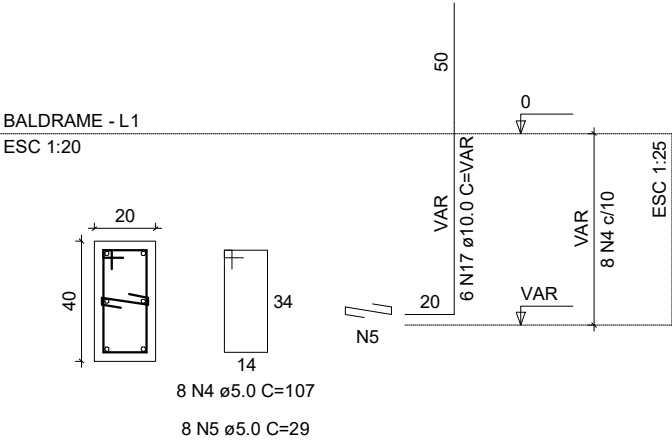
PLANTA
ESC 1:25



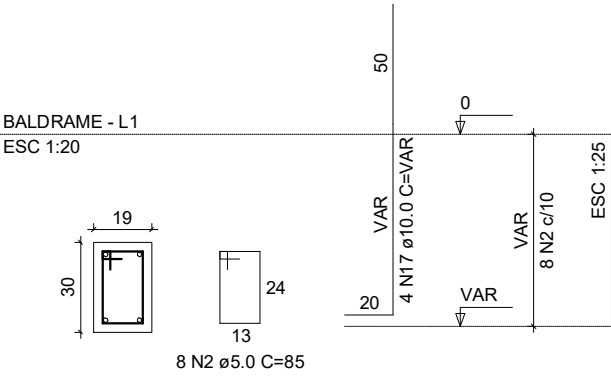
CORTE
ESC 1:25



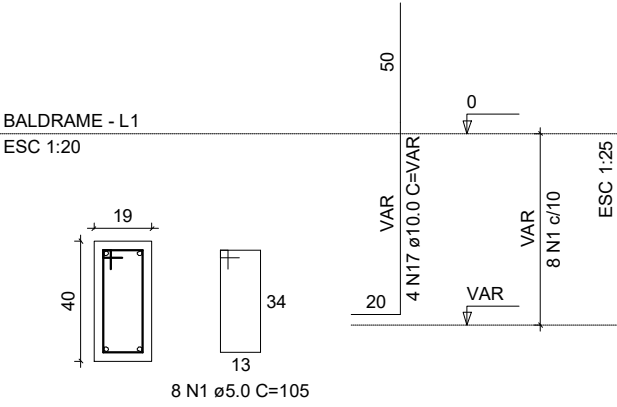
P12



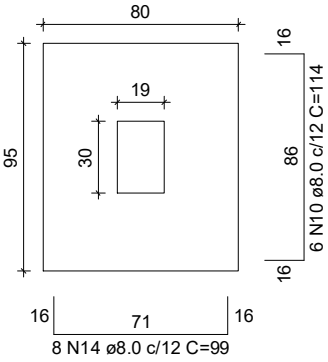
P5=P10



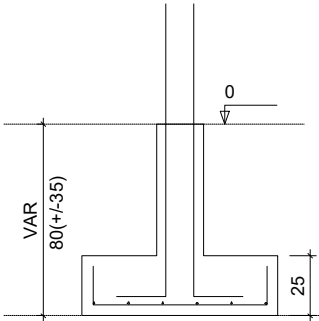
P7



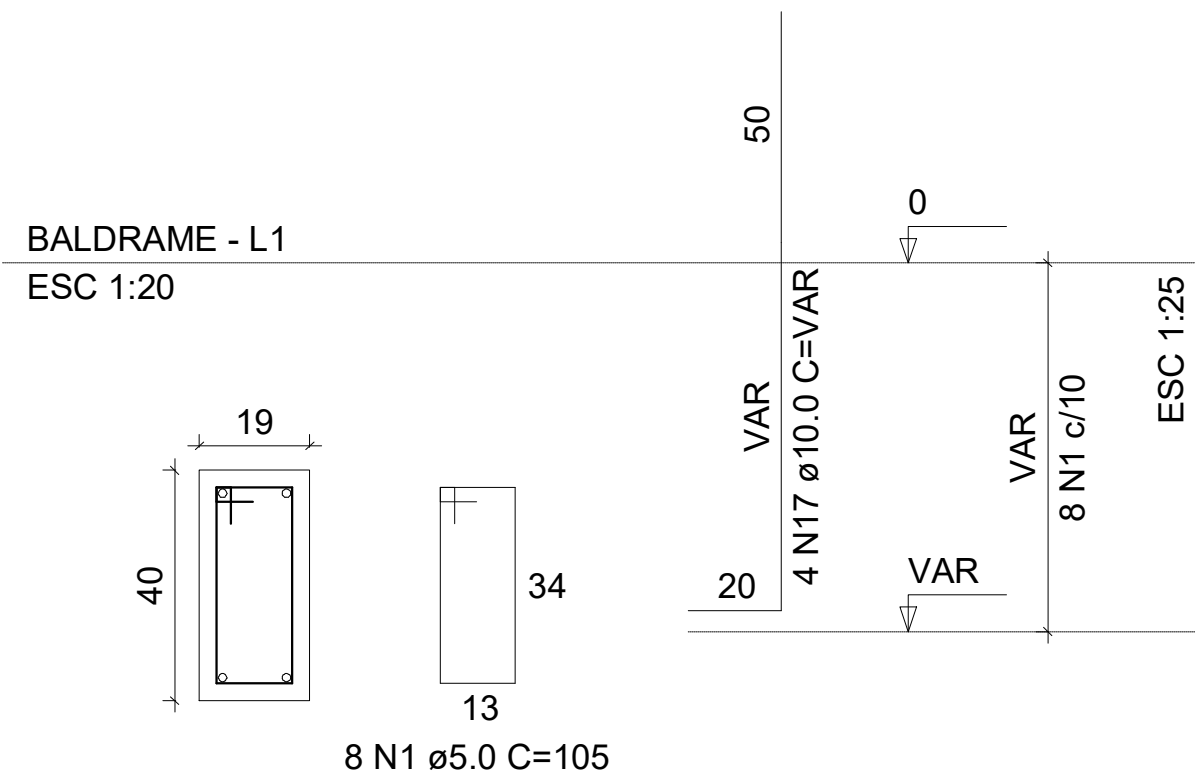
S5=S7=S10=S12
PLANTA
ESC 1:25



CORTE
ESC 1:25

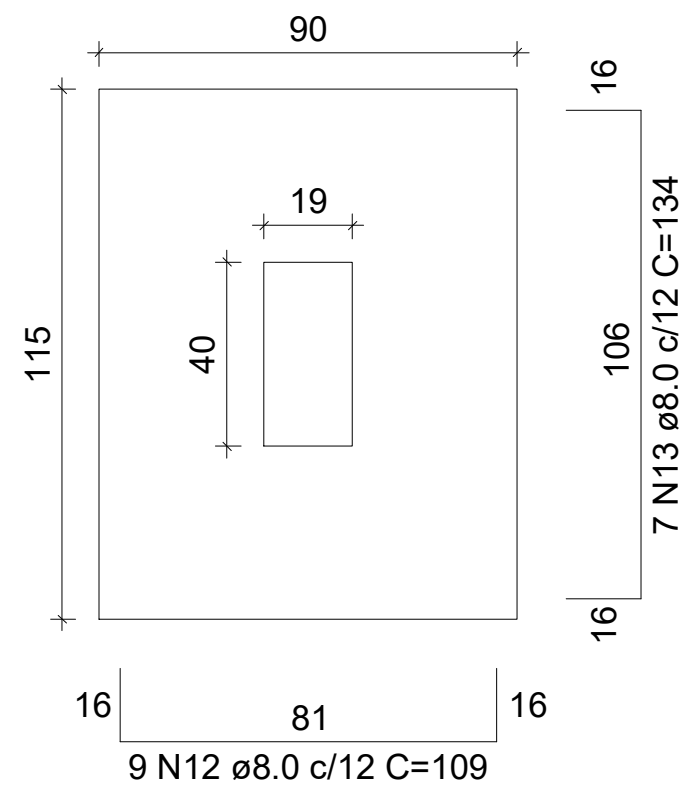


P8

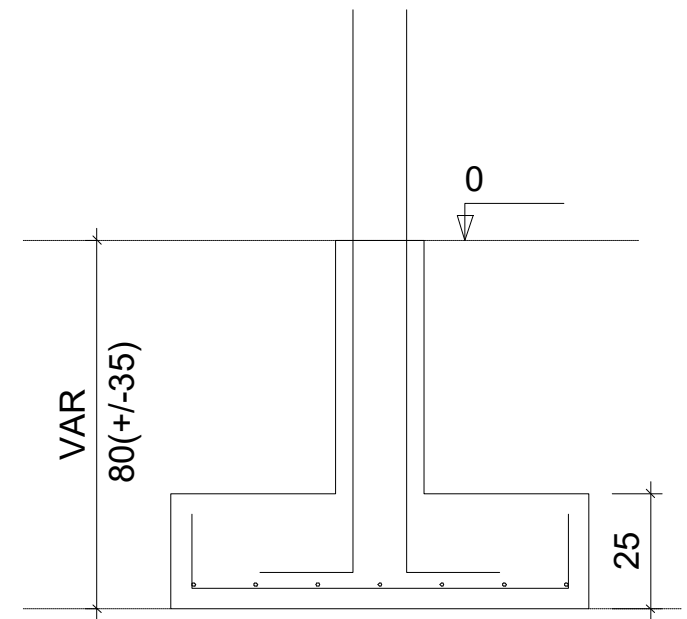


S8

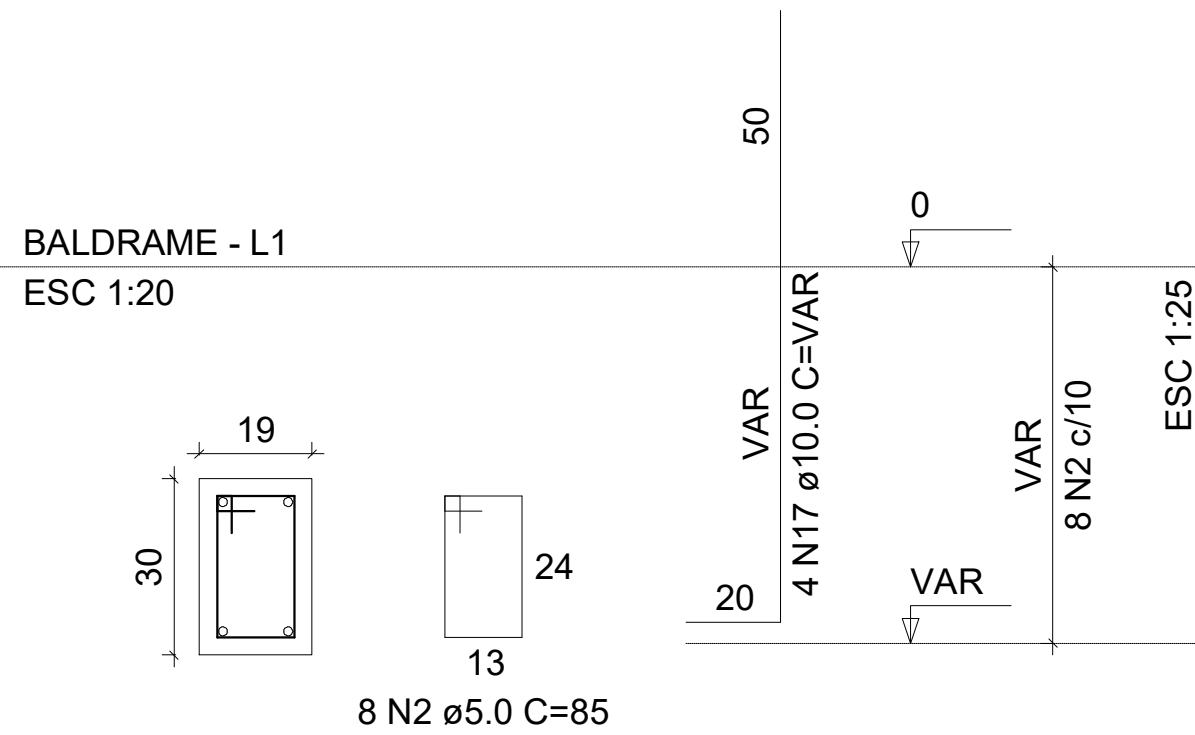
PLANTA
ESC 1:25



CORTE
ESC 1:25

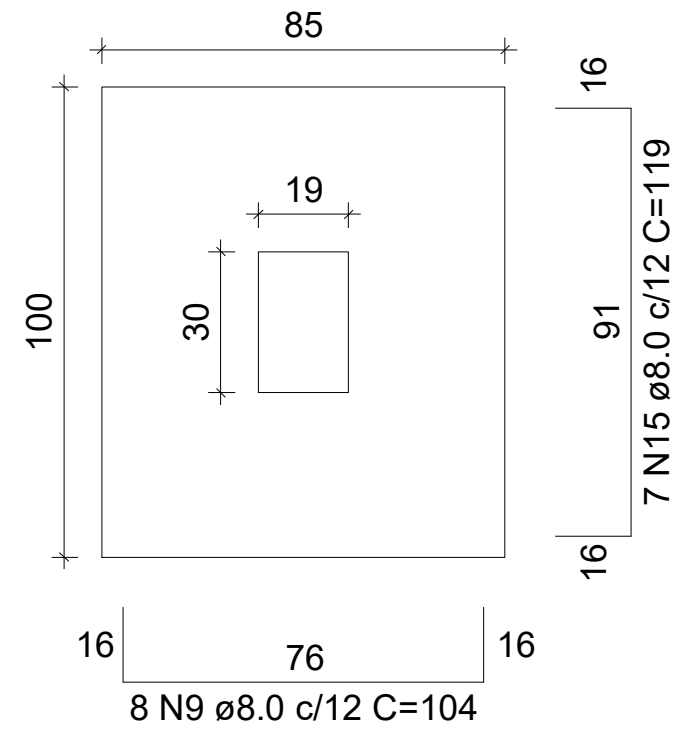


P11



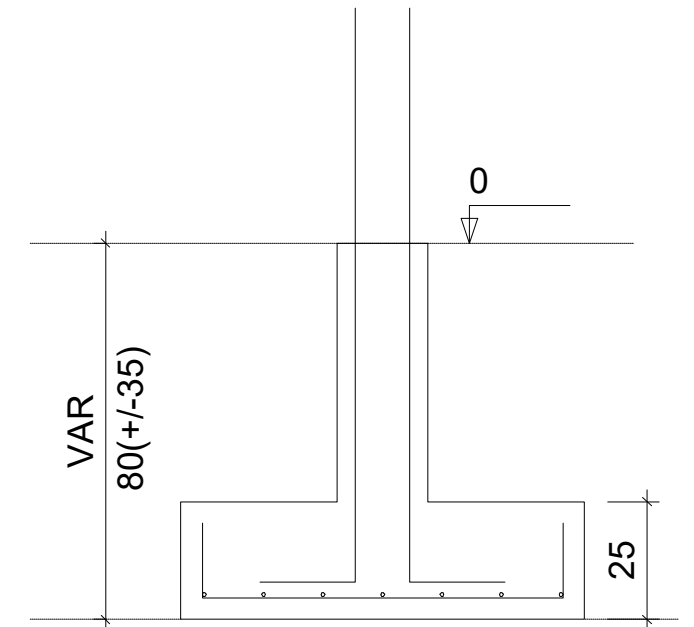
S11

PLANTA
ESC 1:25



CORTE

ESC 1:25



RELAÇÃO DO AÇO

2xP1	2xP2	2xP4
2xP5	P7	P8
P9	P11	P12
2xP13	2xS1	3xS4
S8	4xS10	S11
4xS13		

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	32	105	3360
	2	5.0	48	85	4080
	3	5.0	16	87	1392
	4	5.0	8	107	856
	5	5.0	8	29	232
	6	5.0	16	117	1872
CA50	7	5.0	16	34	544
	8	8.0	14	84	1176
	9	8.0	20	104	2080
	10	8.0	48	114	5472
	11	8.0	24	124	2976
	12	8.0	9	109	981
	13	8.0	7	134	938
	14	8.0	56	99	5544
	15	8.0	7	119	833
	16	8.0	24	89	2136
	17	10.0	66	VAR	VAR

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	8.0	221.4	96.1
	10.0	97.7	66.2
CA60	5.0	123.4	20.9
PESO TOTAL			
CA50	162.3		
CA60	20.9		

Vol. concreto (C-30) = 3.65 m³

Área de forma total = 26.07 m²



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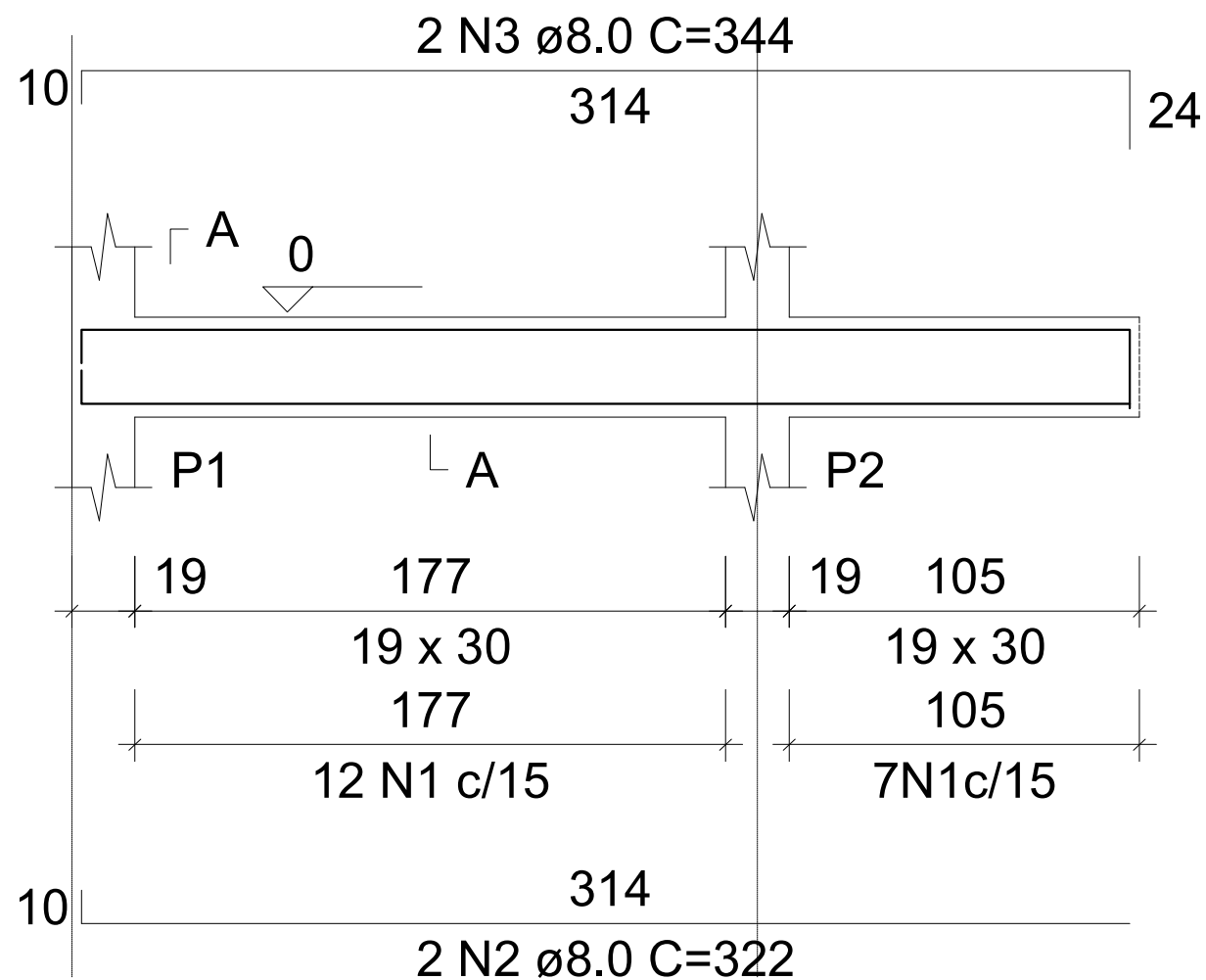
4.VIGAS BALDRAME

“O Ouro desta Terra está no Coração de sua Gente”

BALDRAME

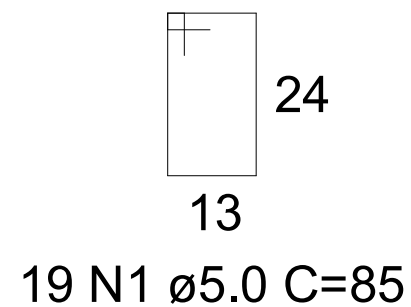
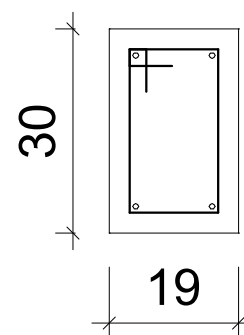
V1

ESC 1:50



SEÇÃO A-A

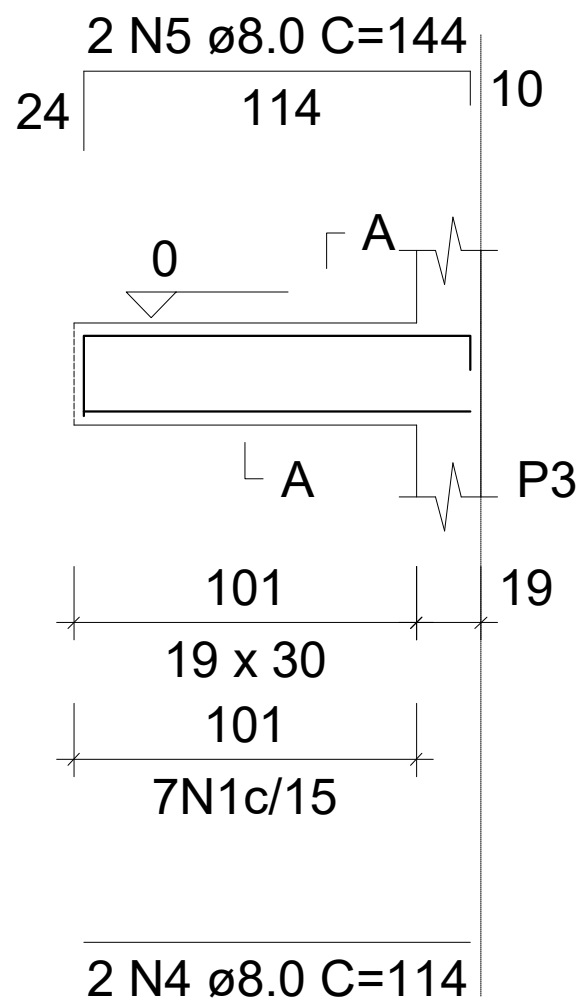
ESC 1:25



BALDRAME

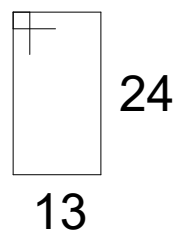
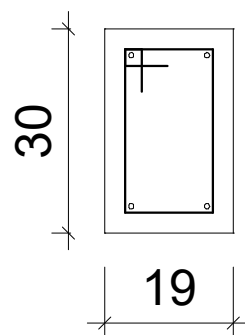
V2

ESC 1:50



SEÇÃO A-A

ESC 1:25

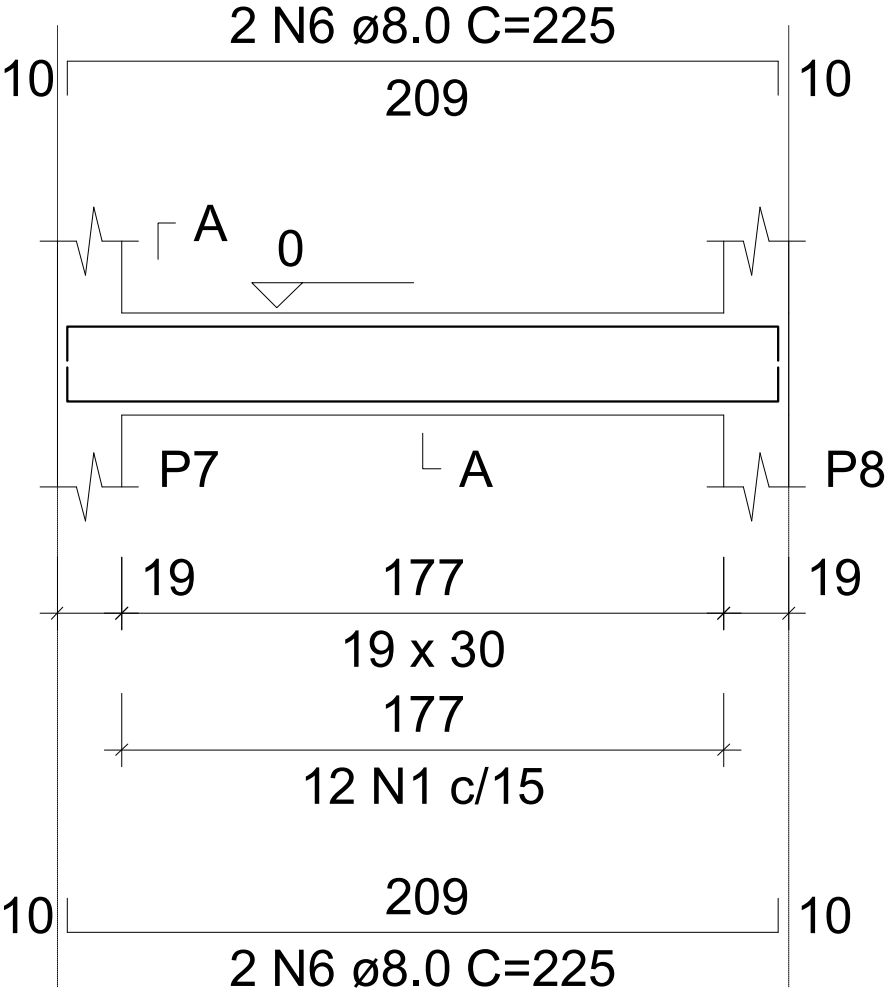


7 N1 $\varnothing 5.0$ C=85

BALDRAME

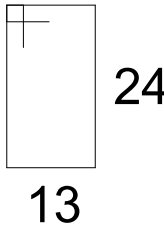
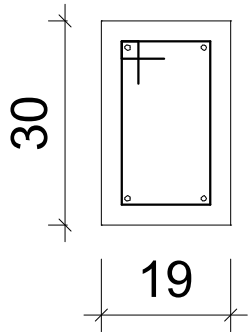
V3

ESC 1:50



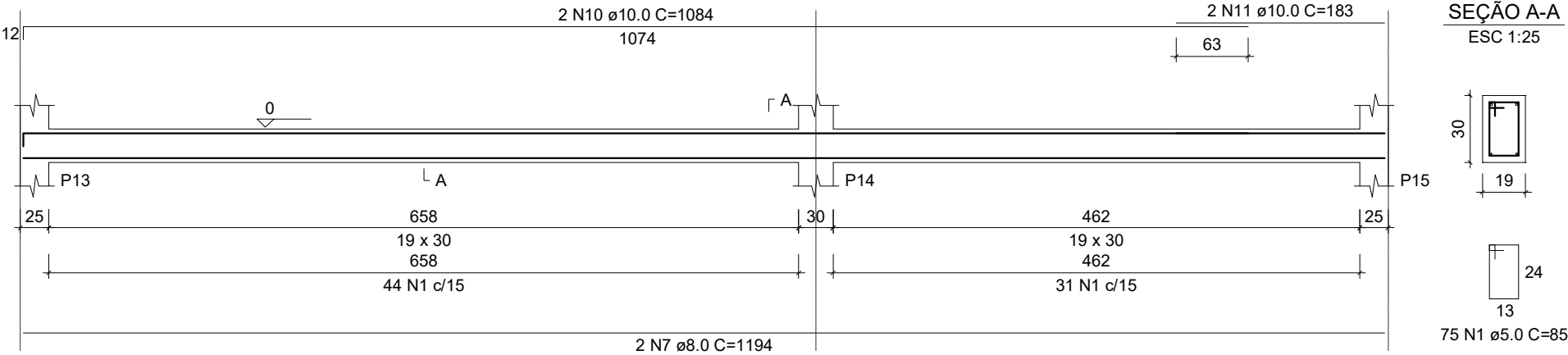
SEÇÃO A-A

ESC 1:25

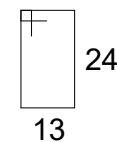


12 N1 $\varnothing$ 5.0 C=85

BALDRAME
V4
ESC 1:50



V5

[illegible]

44 N1 ø5.0 C=85

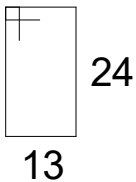
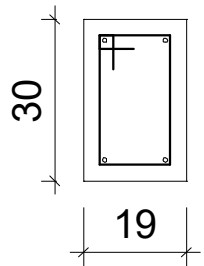
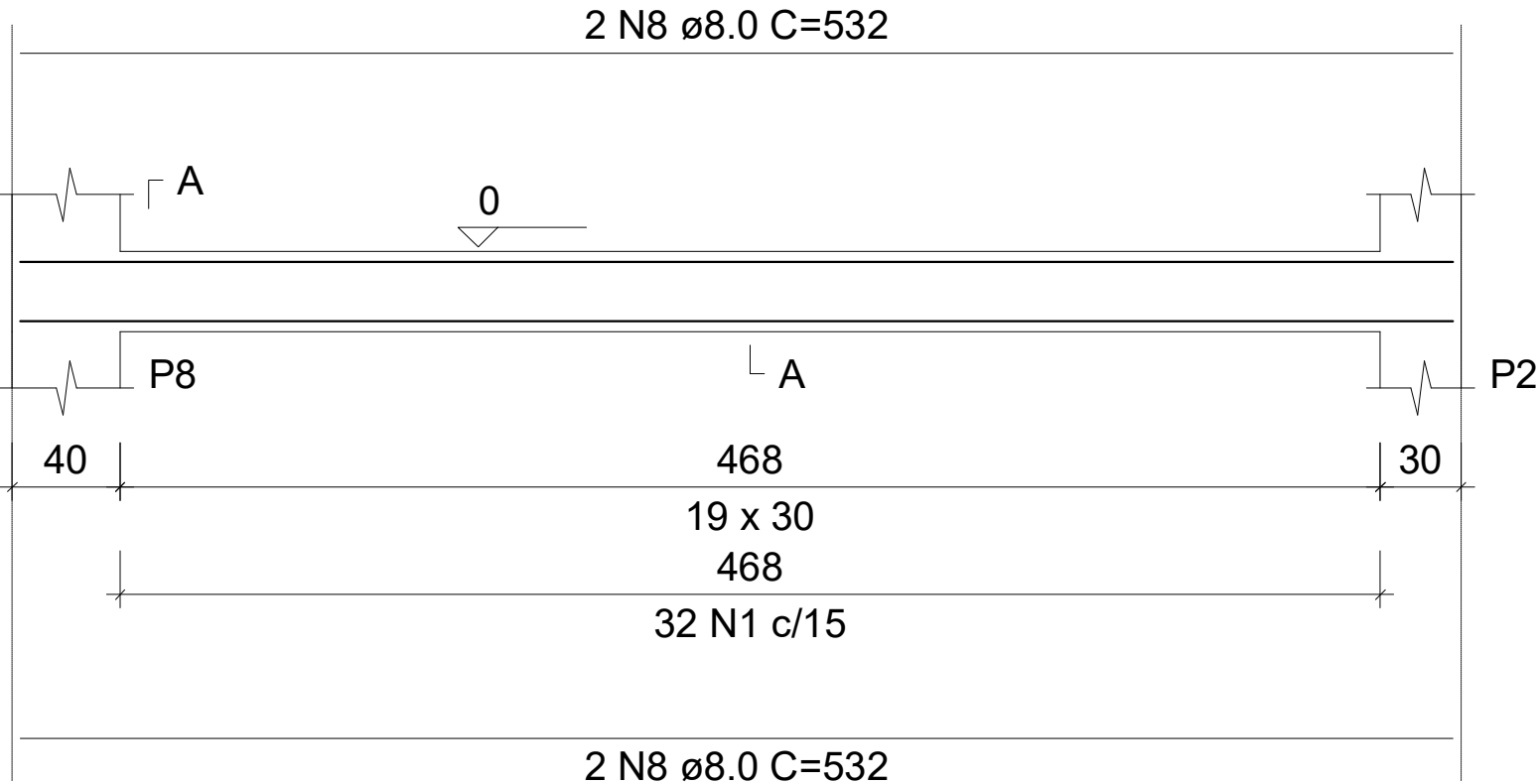
BALDRAME

V6

ESC 1:50

SEÇÃO A-A

ESC 1:25

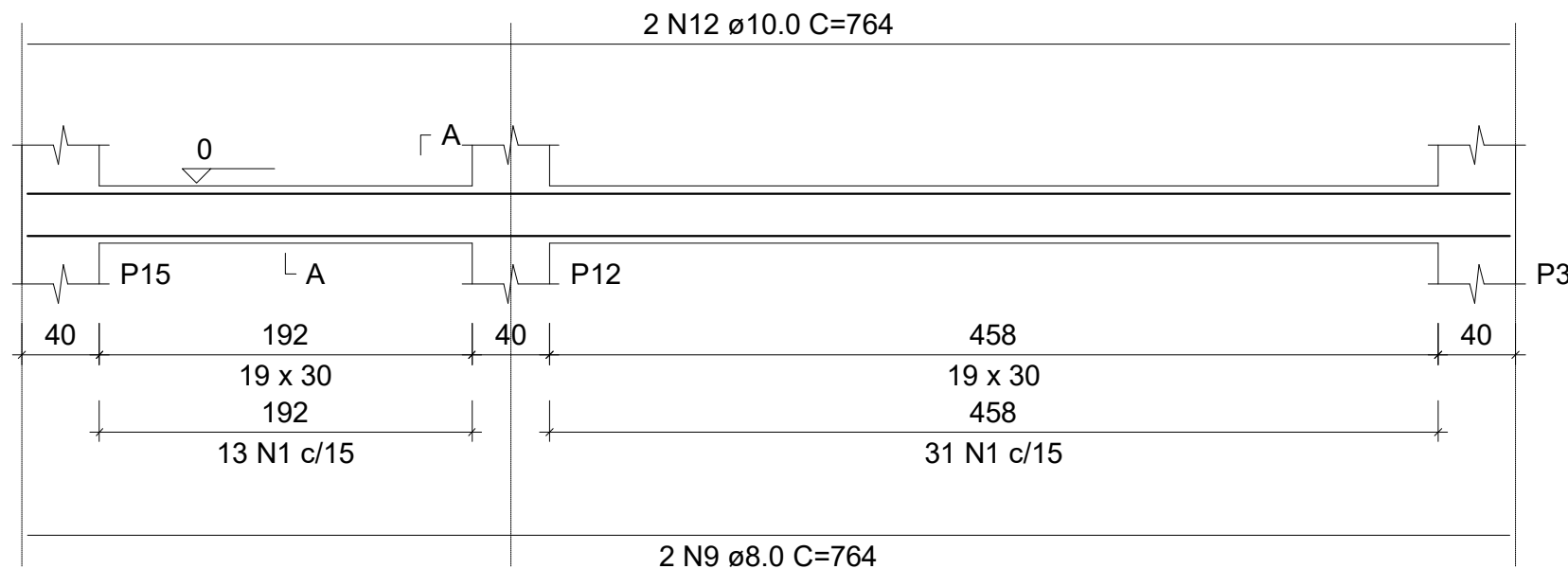


32 N1 $\varnothing$ 5.0 C=85

BALDRAME

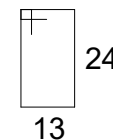
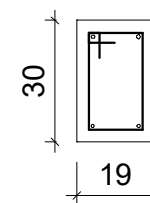
V7

ESC 1:50



SEÇÃO A-A

ESC 1:25



44 N1 ϕ 5.0 C=85

RELAÇÃO DO AÇO

V1
V4
V7

V2
V5

V3
V6

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	233	85	19805
CA50	2	8.0	2	322	644
	3	8.0	2	344	688
	4	8.0	2	114	228
	5	8.0	2	144	288
	6	8.0	4	225	900
	7	8.0	2	1194	2388
	8	8.0	4	532	2128
	9	8.0	2	764	1528
	10	10.0	2	1084	2168
	11	10.0	2	183	366
	12	10.0	6	764	4584
	13	10.0	1	305	305
	14	10.0	1	655	655

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	8.0	87.9	38.2
	10.0	80.8	54.8
CA60	5.0	198.1	33.6
PESO TOTAL			
CA50	92.9		
CA60	33.6		

Vol. concreto (C-30) = 2.24 m³

Área de forma total = 31.07 m²



MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

PROJETO ESTRUTURAL **PALCO MUNICIPAL**

5.PILARES PALCO

“O Ouro desta Terra está no Coração de sua Gente”

Technical drawing of a staircase section, labeled "PALCO - L2" and "ESC 1:20".

The drawing shows a plan view of a rectangular area with dimensions 40 and 25. The section view shows a rectangular area with dimensions 34 and 19. The section view is labeled "N7" and shows a staircase with 9 N6 ø5.0 C=117 and 9 N7 ø5.0 C=34.

Dimensions and labels:

- Plan view dimensions: 40, 25
- Section view dimensions: 34, 19
- Section view label: N7
- Staircase details: 9 N6 ø5.0 C=117, 9 N7 ø5.0 C=34
- Overall dimensions: 50, 90, 90
- Labels: PALCO - L2, ESC 1:20, ESC 1:12.5

Technical drawing of a rectangular reinforced concrete slab (L2) with dimensions and reinforcement details.

Dimensions:

- Overall width: 50
- Overall height: 90
- Internal width: 19
- Internal height: 30
- Reinforcement spacing: 9 N2 c/10

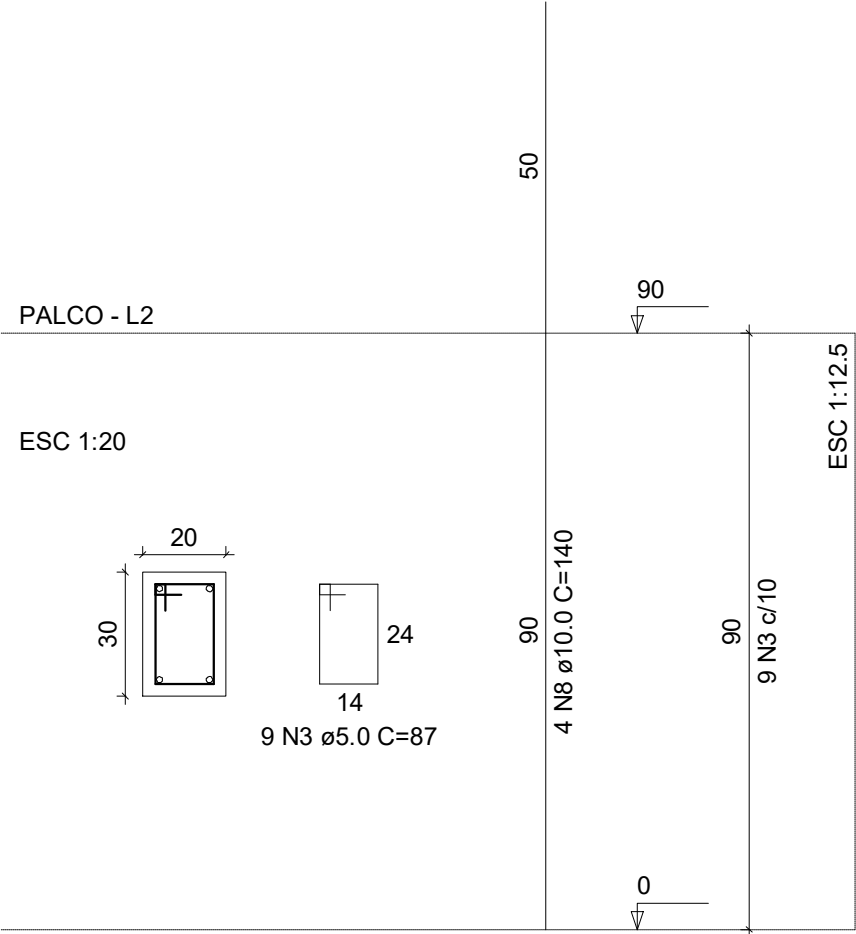
Reinforcement Details:

- Top reinforcement: 4 N8 ϕ 10.0 C=140
- Bottom reinforcement: 9 N2 ϕ 5.0 C=85

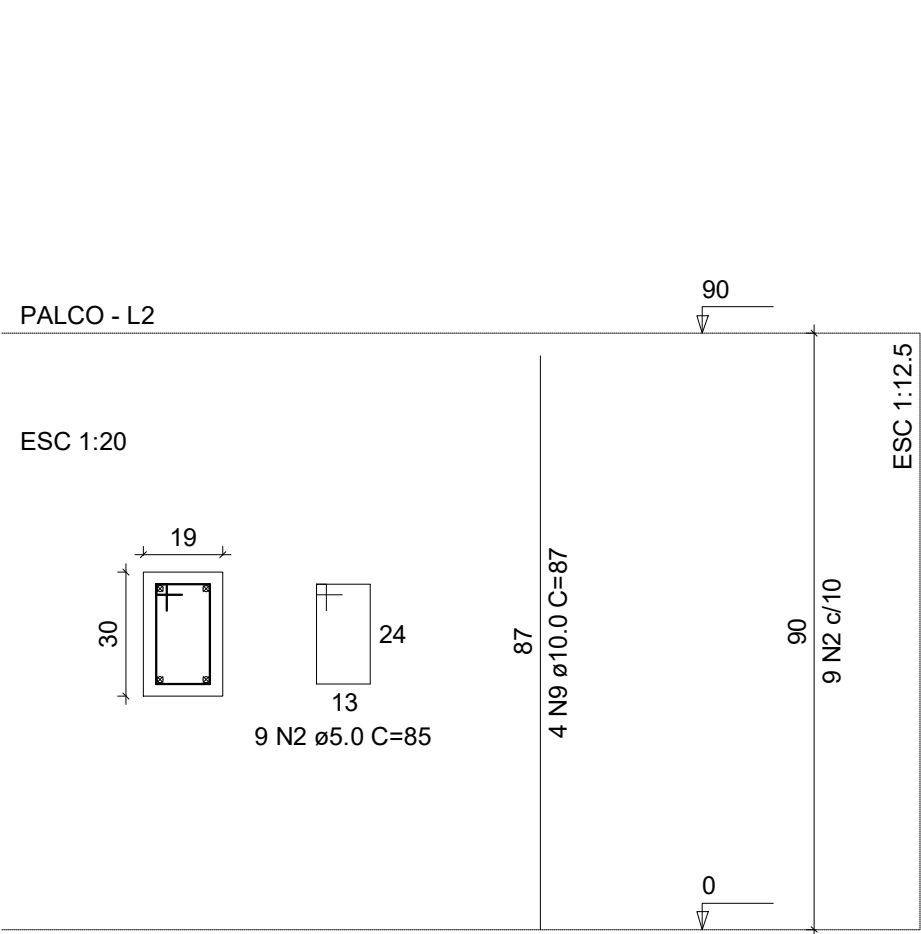
Labels:

- PALCO - L2
- ESC 1:20
- ESC 1:12.5

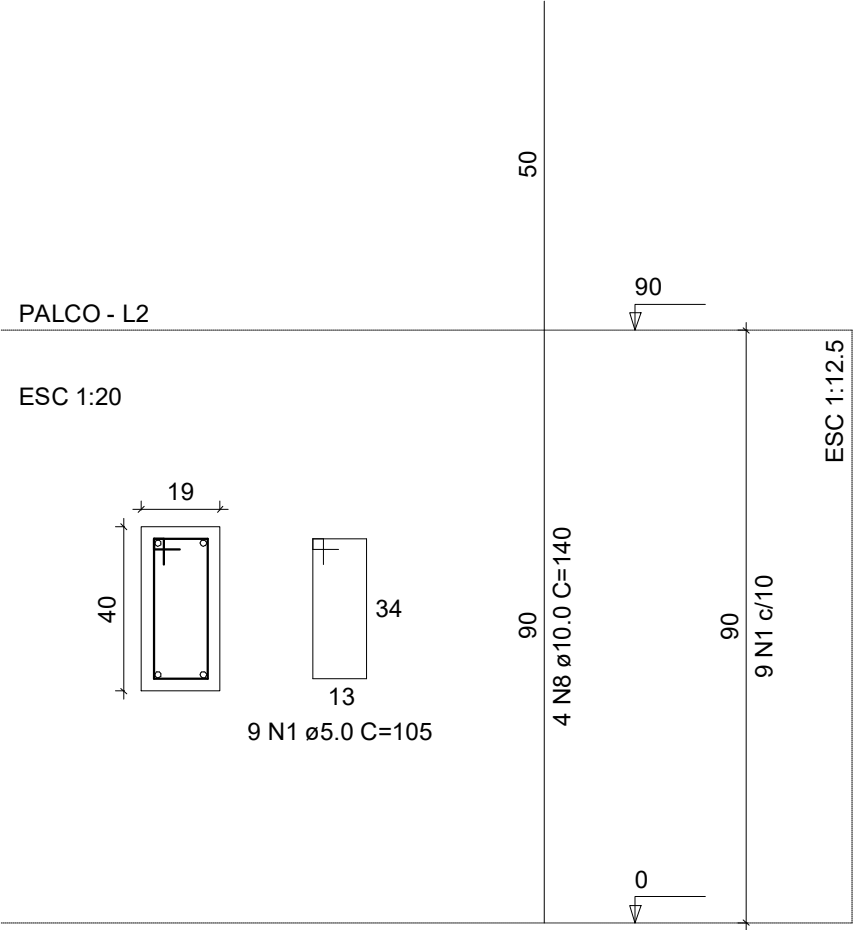
P4=P6



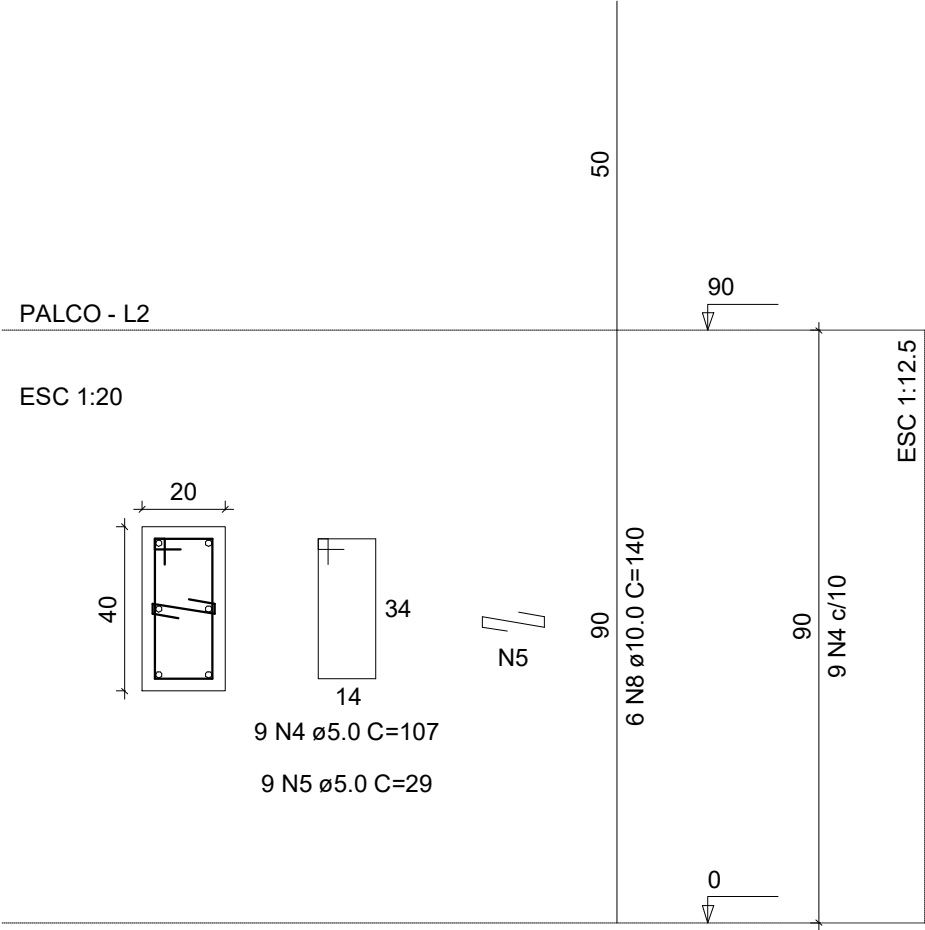
P5=P9=P10=P11=P14



P1=P3=P7=P8



P12



RELAÇÃO DO AÇO

4xP1
5xP5

P2
P12

2xP4
2xP13

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	36	105	3780
	2	5.0	54	85	4590
	3	5.0	18	87	1566
	4	5.0	9	107	963
	5	5.0	9	29	261
	6	5.0	18	117	2106
	7	5.0	18	34	612
CA50	8	10.0	46	140	6440
	9	10.0	20	87	1740

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	10.0	81.8	55.5
CA60	5.0	138.8	23.5
PESO TOTAL			
CA50	55.5		
CA60	23.5		

Vol. concreto (C-30) = 0.94 m³

Área de forma total = 14.76 m²



MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

PROJETO ESTRUTURAL **PALCO MUNICIPAL**

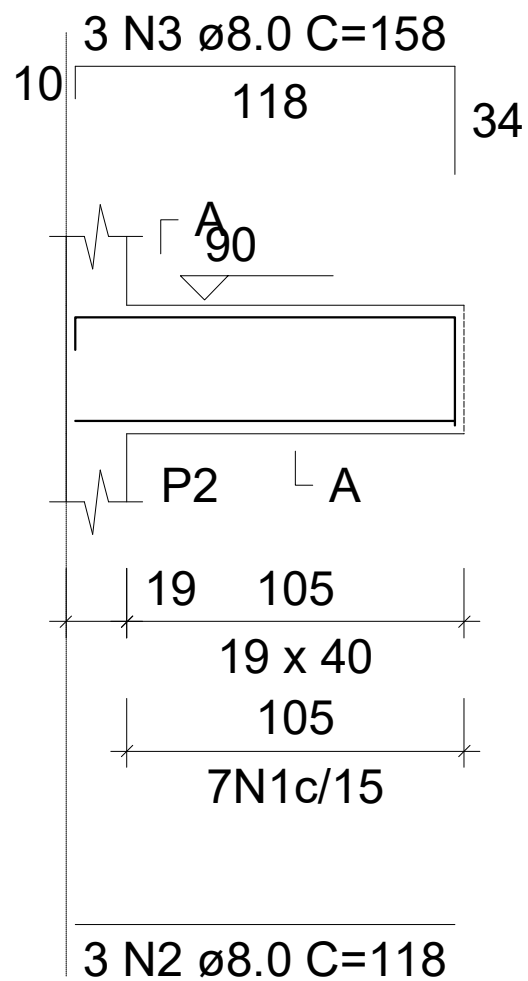
6.VIGAS PALCO

“O Ouro desta Terra está no Coração de sua Gente”

PALCO

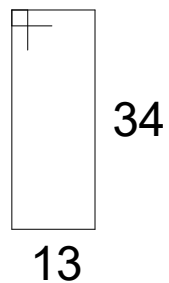
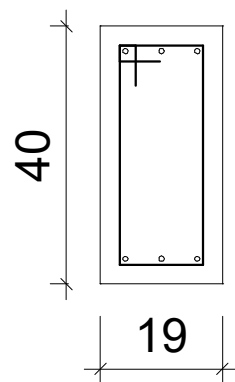
V1

ESC 1:50



SEÇÃO A-A

ESC 1:25

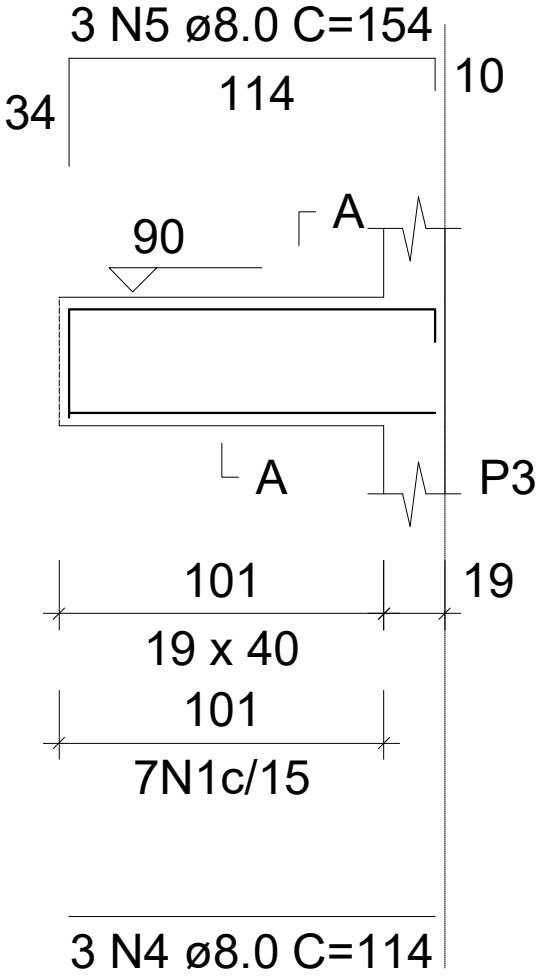


7 N1 ø5.0 C=105

PALCO

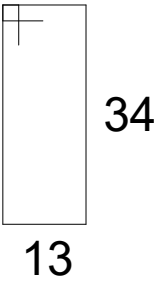
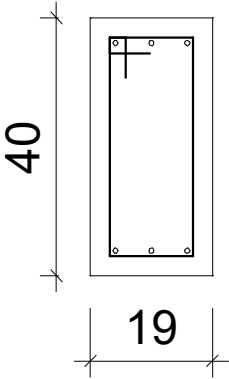
V2

ESC 1:50



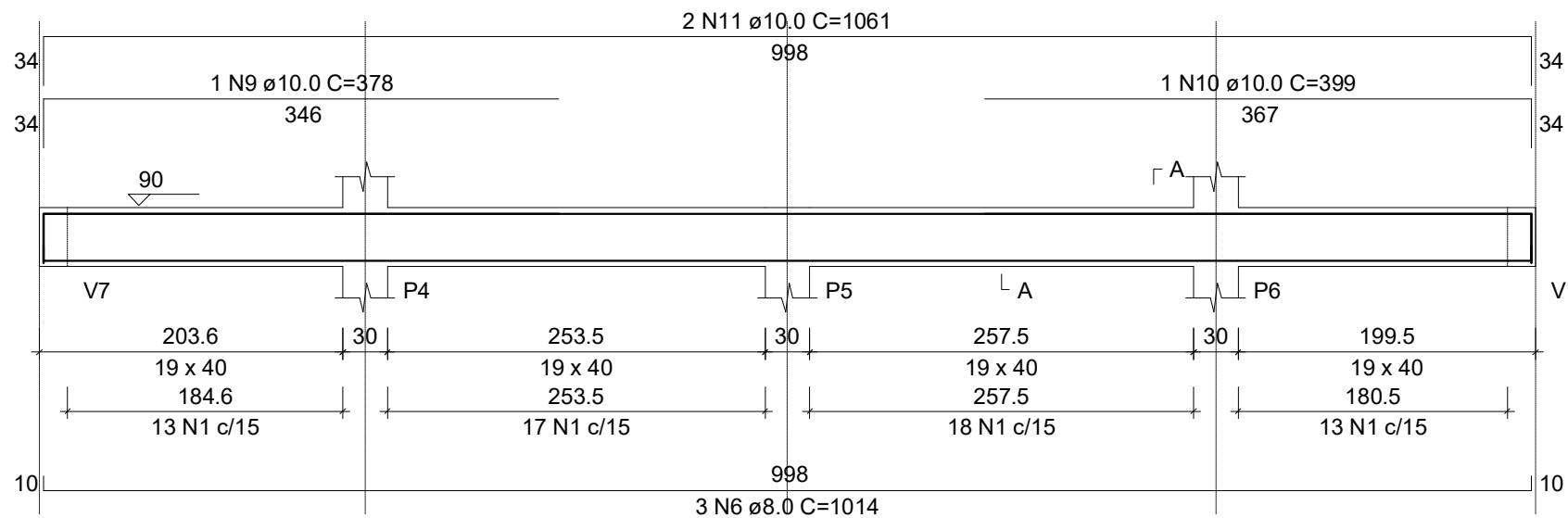
SEÇÃO A-A

ESC 1:25

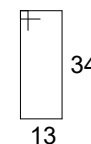
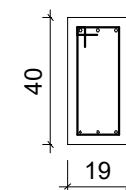


7 N1 ø5.0 C=105

PALCO
V3
ESC 1:50



SEÇÃO A-A
ESC 1:25

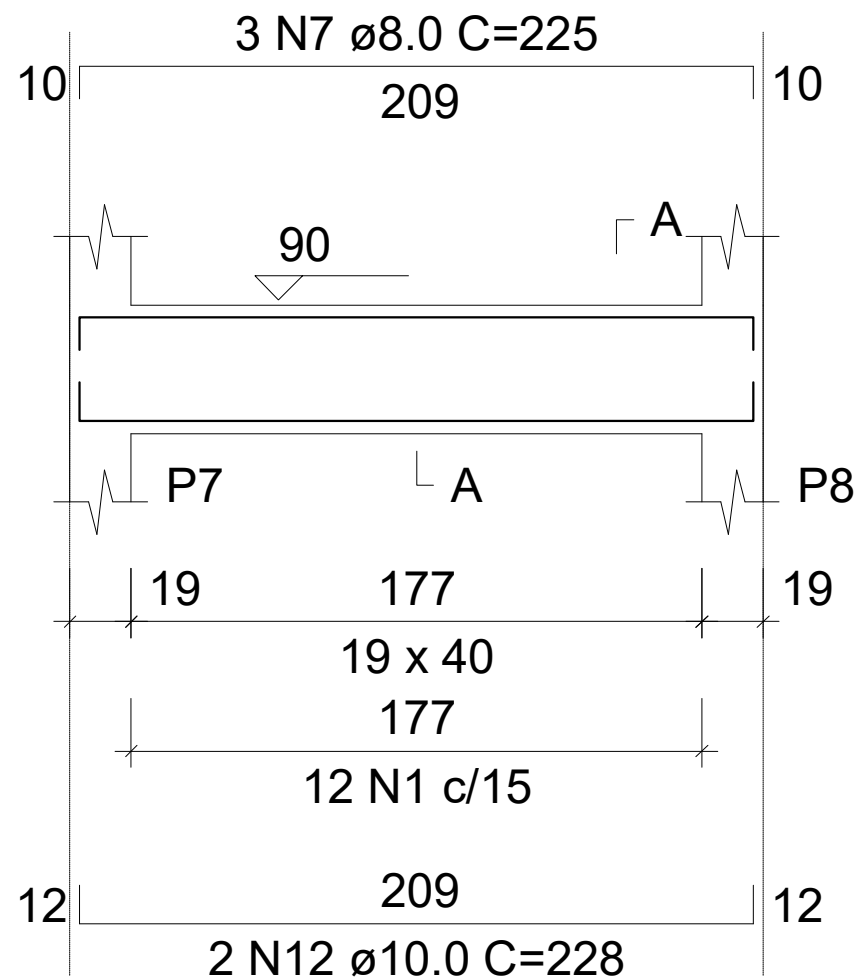


61 N1 ø5.0 C=105

PALCO

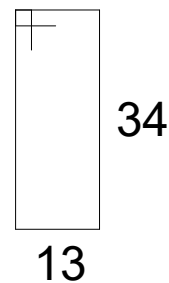
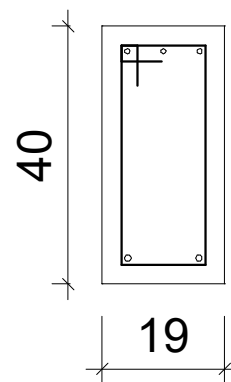
V4

ESC 1:50



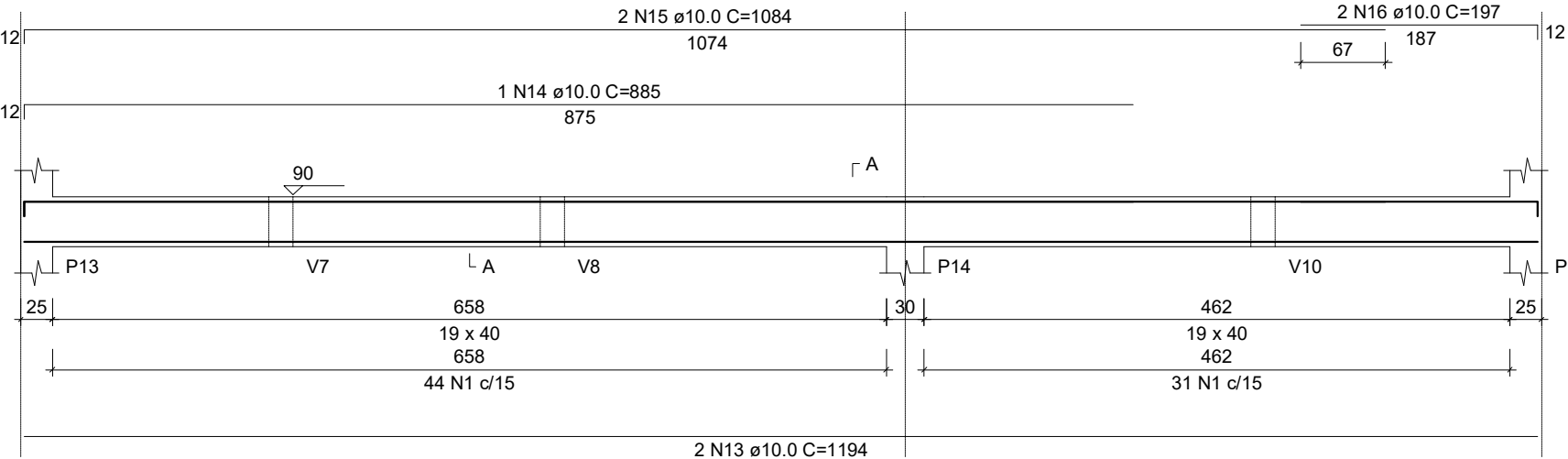
SEÇÃO A-A

ESC 1:25

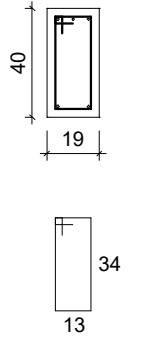


12 N1 ø5.0 C=105

PALCO
V5
ESC 1:50



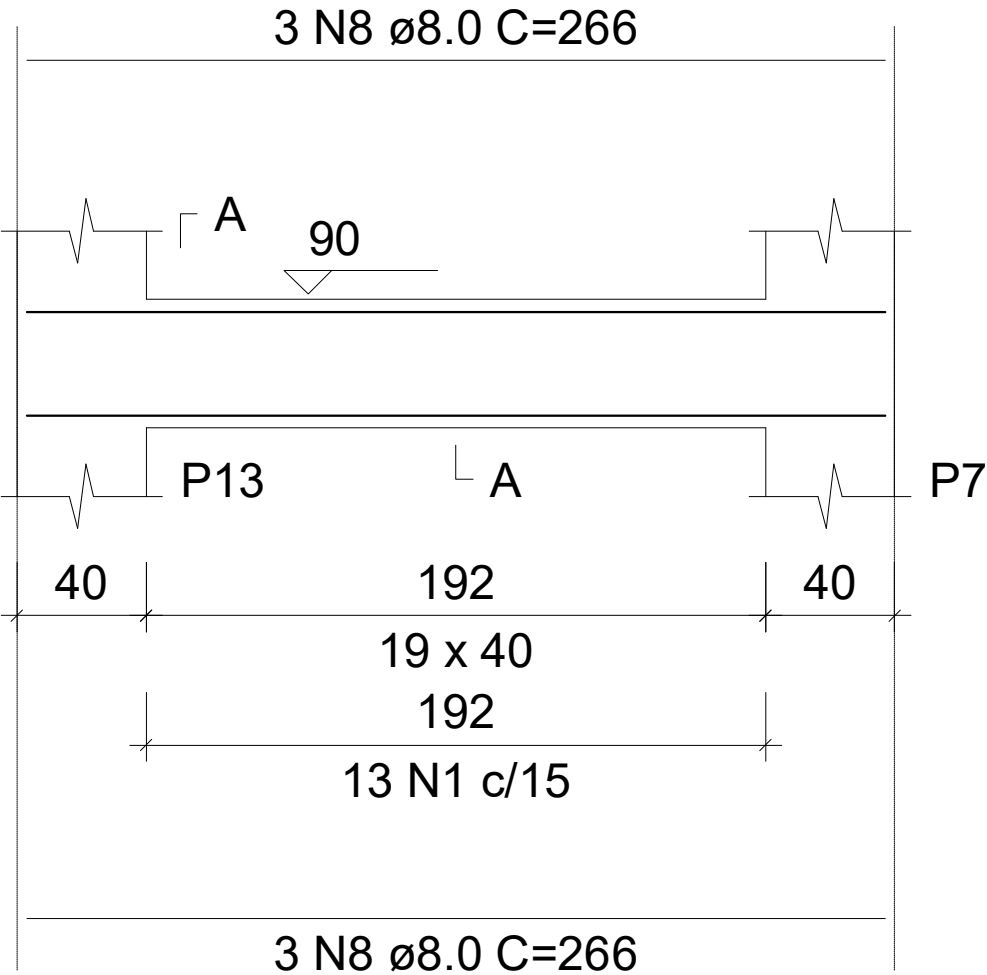
SEÇÃO A-A
ESC 1:25



PALCO

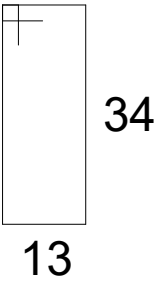
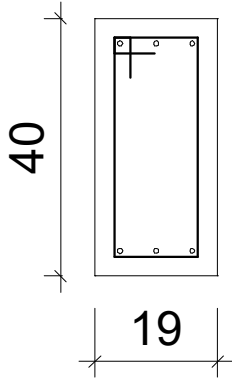
V6

ESC 1:50



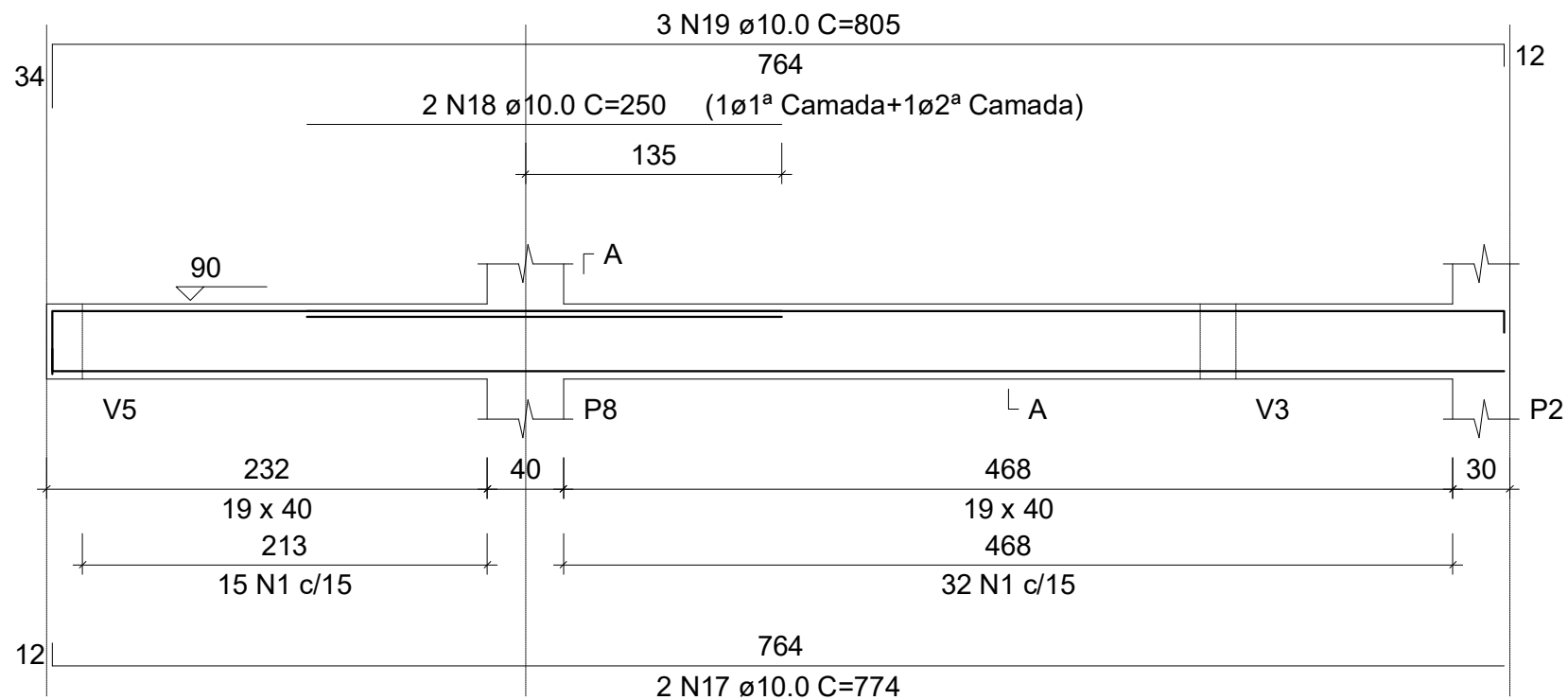
SEÇÃO A-A

ESC 1:25

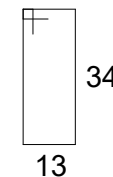
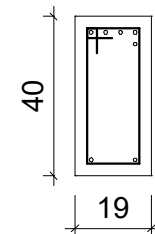


13 N1 ø5.0 C=105

PALCO
V7
ESC 1:50

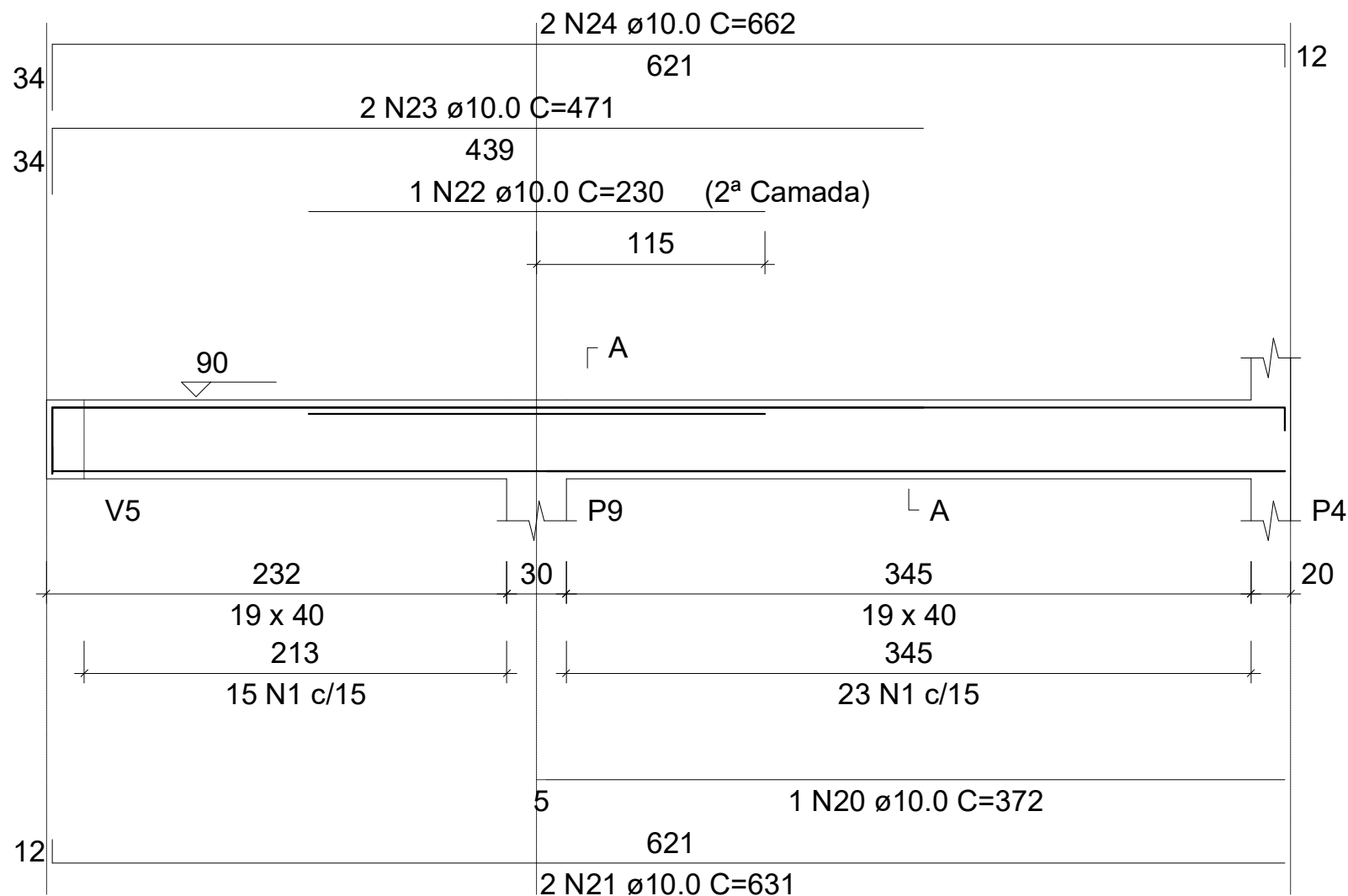


SEÇÃO A-A
ESC 1:25

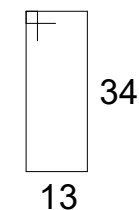
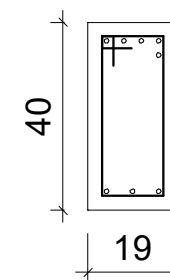


47 N1 $\varnothing$ 5.0 C=105

PALCO
V8
ESC 1:50

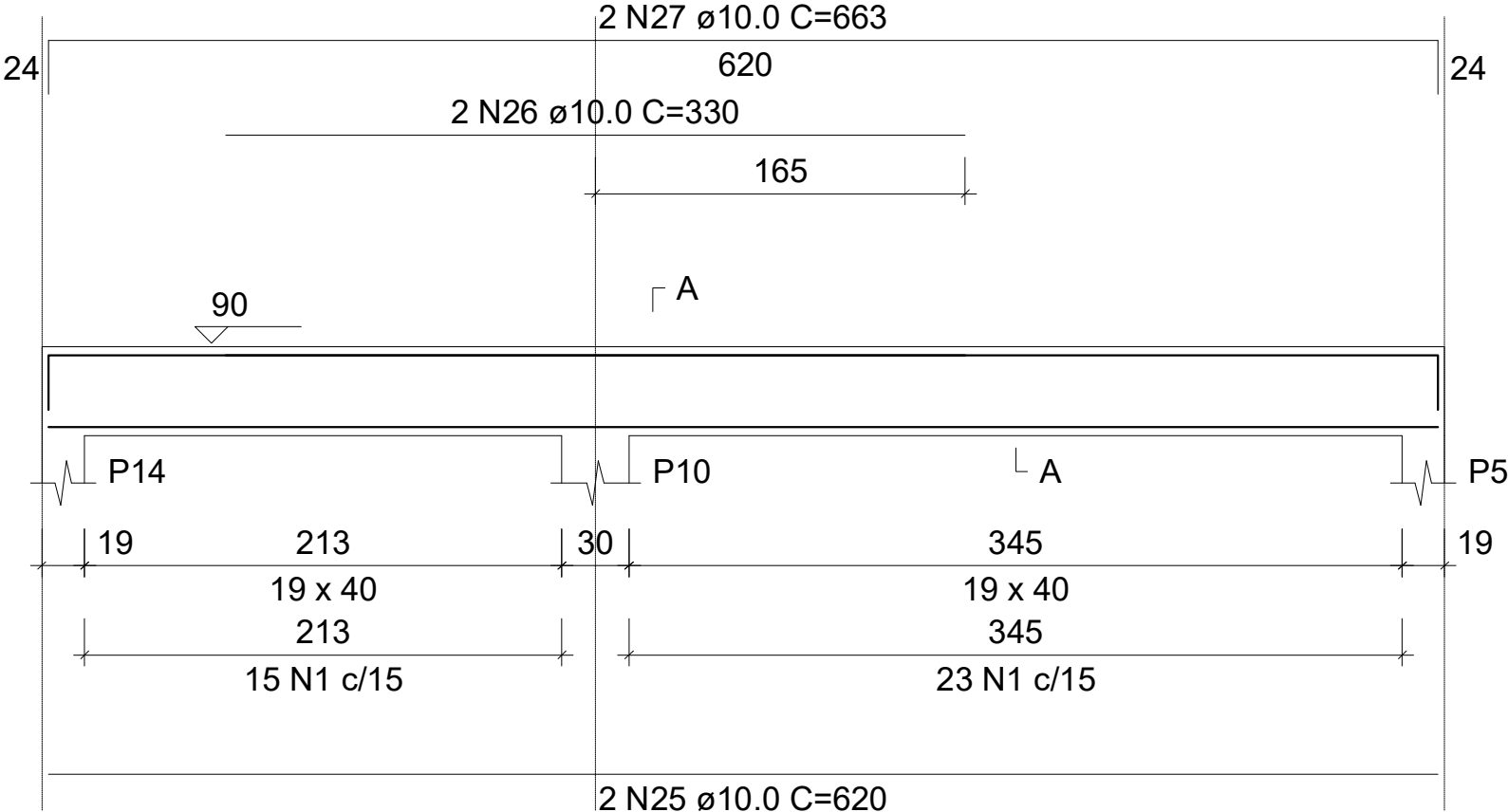


SEÇÃO A-A
ESC 1:25

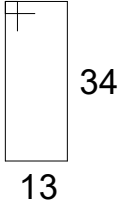
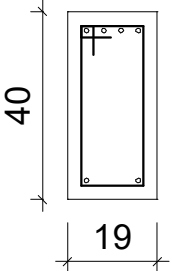


38 N1 $\varnothing 5.0$ C=105

PALCO
V9
ESC 1:50

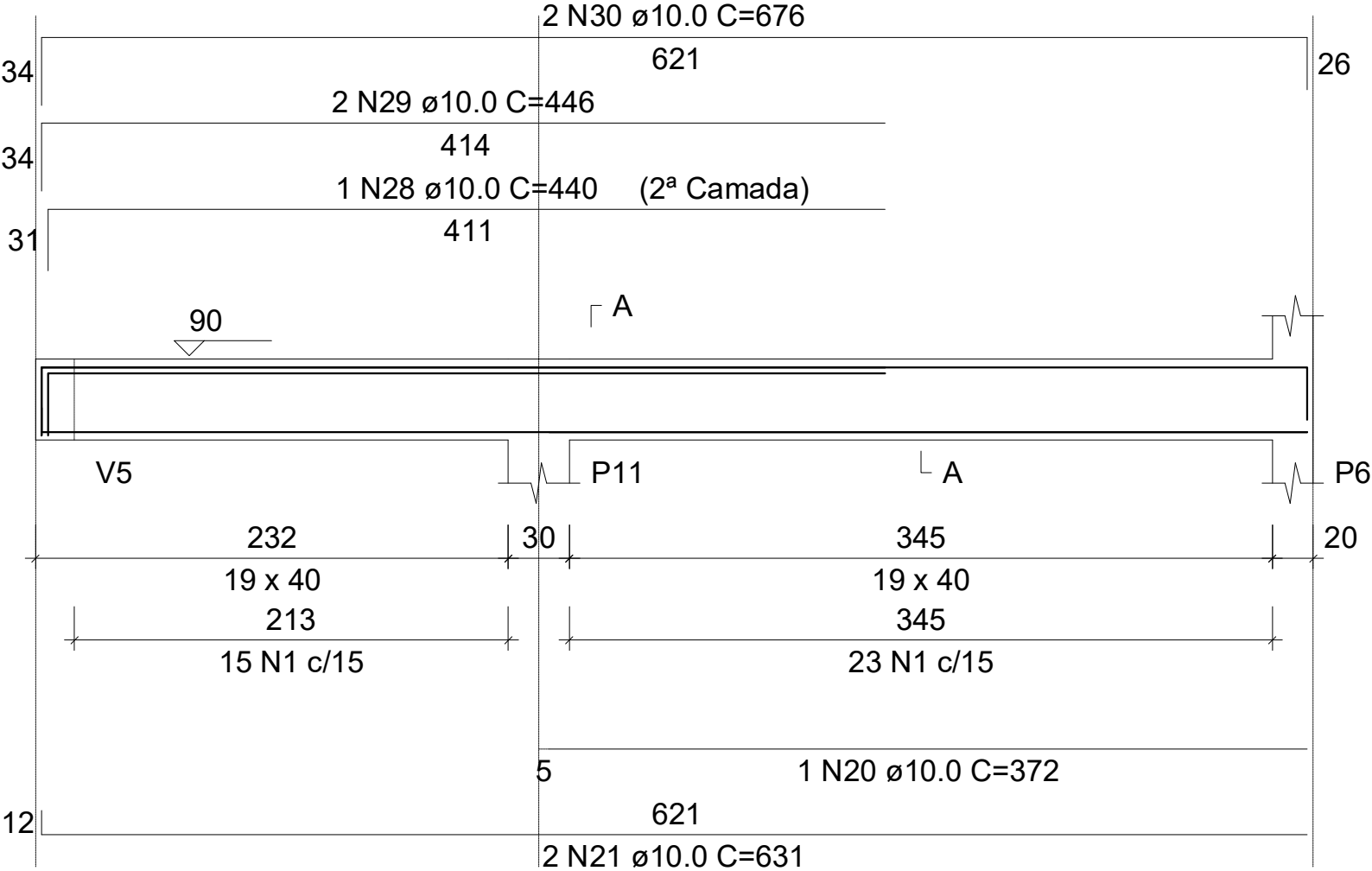


SEÇÃO A-A
ESC 1:25

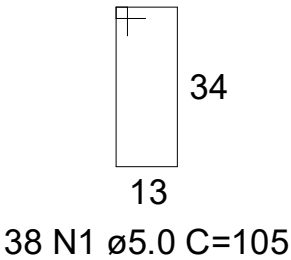
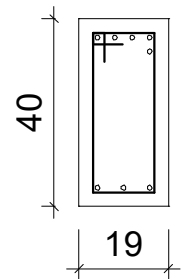


38 N1 $\varnothing$ 5.0 C=105

PALCO
V10
ESC 1:50



SEÇÃO A-A
ESC 1:25



V11

Technical drawing of a roof plan showing structural layout, dimensions, and annotations.

Structural Elements:

- 2 N31 $\varnothing 10.0$ C=764 (Top and Bottom horizontal reinforcement)
- 1 N33 $\varnothing 10.0$ C=590 (Top horizontal reinforcement)
- 1 N32 $\varnothing 10.0$ C=210 (Top horizontal reinforcement)

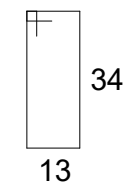
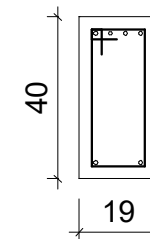
Dimensions and Spacing:

- 135 (Horizontal distance between vertical lines)
- 40 (Horizontal distance from left edge to first vertical line)
- 192 (Horizontal distance between vertical lines)
- 458 (Horizontal distance between vertical lines)
- 40 (Horizontal distance from last vertical line to right edge)
- 13 N1 c/15 (Bottom reinforcement spacing)
- 31 N1 c/15 (Bottom reinforcement spacing)

Annotations and Symbols:

- 90 (Angle symbol)
- P15, P12 (Point markers)
- A (Section line symbol)
- V3 (Section line symbol)
- 19 x 40 (Reinforcement spacing)
- 458 (Reinforcement spacing)

ESC 1:25



44 N1 ø5.0 C=105

RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8 V9
V10 V11

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60 CA50	1	5.0	380	105	39900
	2	8.0	3	118	354
	3	8.0	3	158	474
	4	8.0	3	114	342
	5	8.0	3	154	462
	6	8.0	3	1014	3042
	7	8.0	3	225	675
	8	8.0	6	266	1596
	9	10.0	1	378	378
	10	10.0	1	399	399
	11	10.0	2	1061	2122
	12	10.0	2	228	456
	13	10.0	2	1194	2388
	14	10.0	1	885	885
	15	10.0	2	1084	2168
	16	10.0	2	197	394
	17	10.0	2	774	1548
	18	10.0	2	250	500
	19	10.0	3	805	2415
	20	10.0	2	372	744
	21	10.0	4	631	2524
	22	10.0	1	230	230
	23	10.0	2	471	942
	24	10.0	2	662	1324
	25	10.0	2	620	1240
	26	10.0	2	330	660
	27	10.0	2	663	1326
	28	10.0	1	440	440
	29	10.0	2	446	892
	30	10.0	2	676	1352
	31	10.0	4	764	3056
	32	10.0	1	210	210
	33	10.0	1	590	590

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	8.0	69.5	30.1
	10.0	291.8	197.9
CA60	5.0	399.0	67.6
PESO TOTAL			
CA50	228.1		
CA60	67.6		

Vol. concreto (C-30) = 4.83 m³

Área de forma total = 62.91 m²



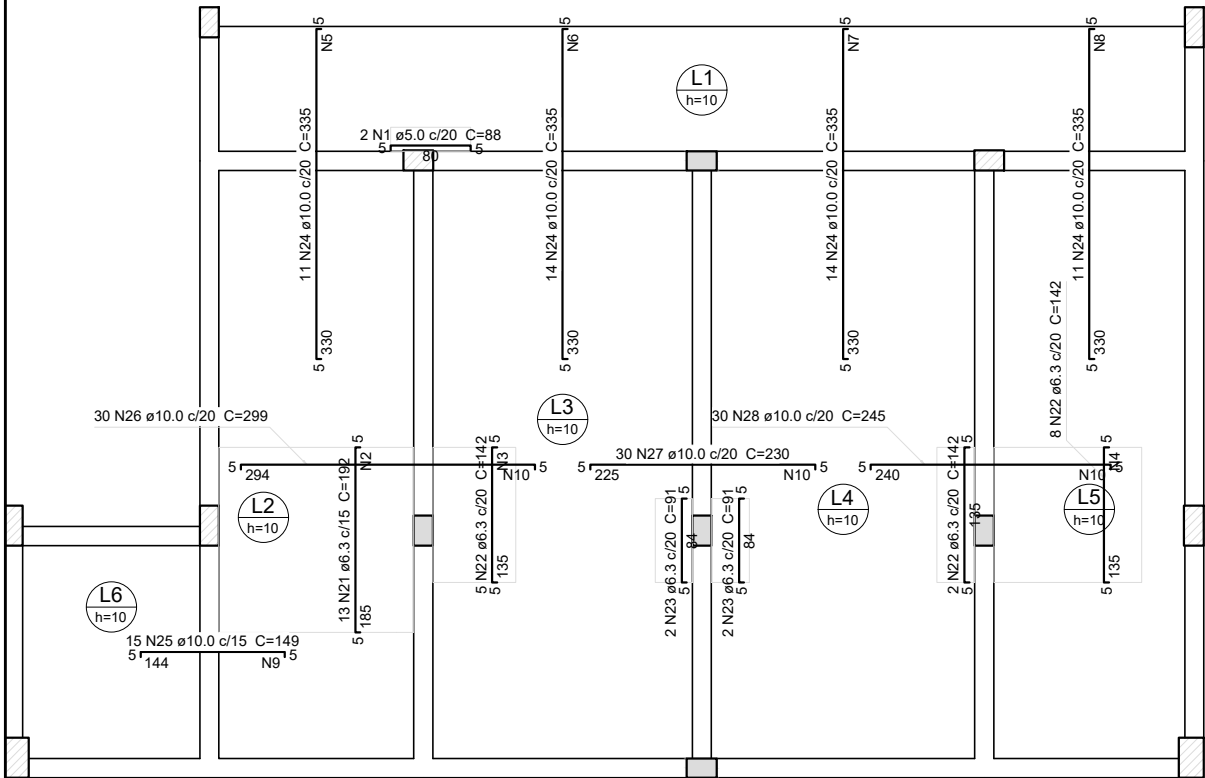
MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

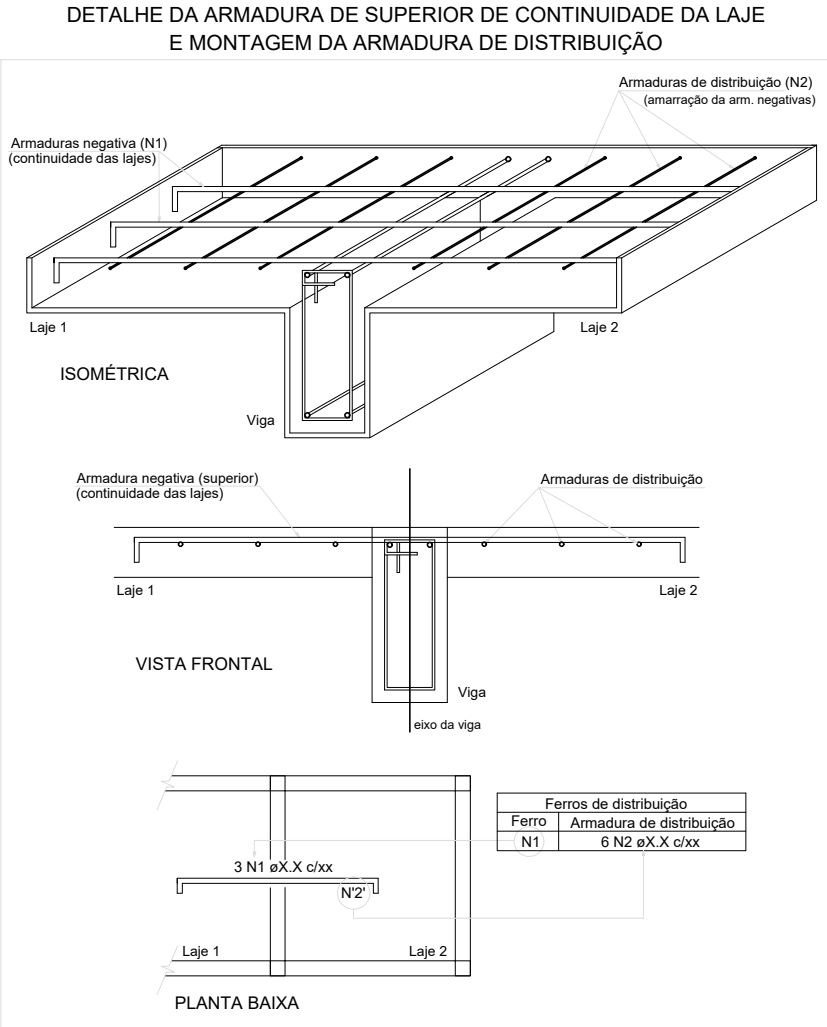
PROJETO ESTRUTURAL **PALCO MUNICIPAL**

7.LAJE PALCO

“O Ouro desta Terra está no Coração de sua Gente”



Ferro de distribuição		
Ferro	Armadura de distribuição	
N21	10 N2 ø5.0 c/20	C=195
N22	7 N3 ø5.0 c/20	C=83
N22	7 N4 ø5.0 c/20	C=148
N24	17 N5 ø5.0 c/20	C=214
N24	17 N6 ø5.0 c/20	C=278
N24	17 N7 ø5.0 c/20	C=282
N24	17 N8 ø5.0 c/20	C=210
N25	10 N9 ø5.0 c/15	C=232
N26	15 N10 ø5.0 c/20	C=607
N27	12 N10 ø5.0 c/20	C=607
N28	12 N10 ø5.0 c/20	C=607



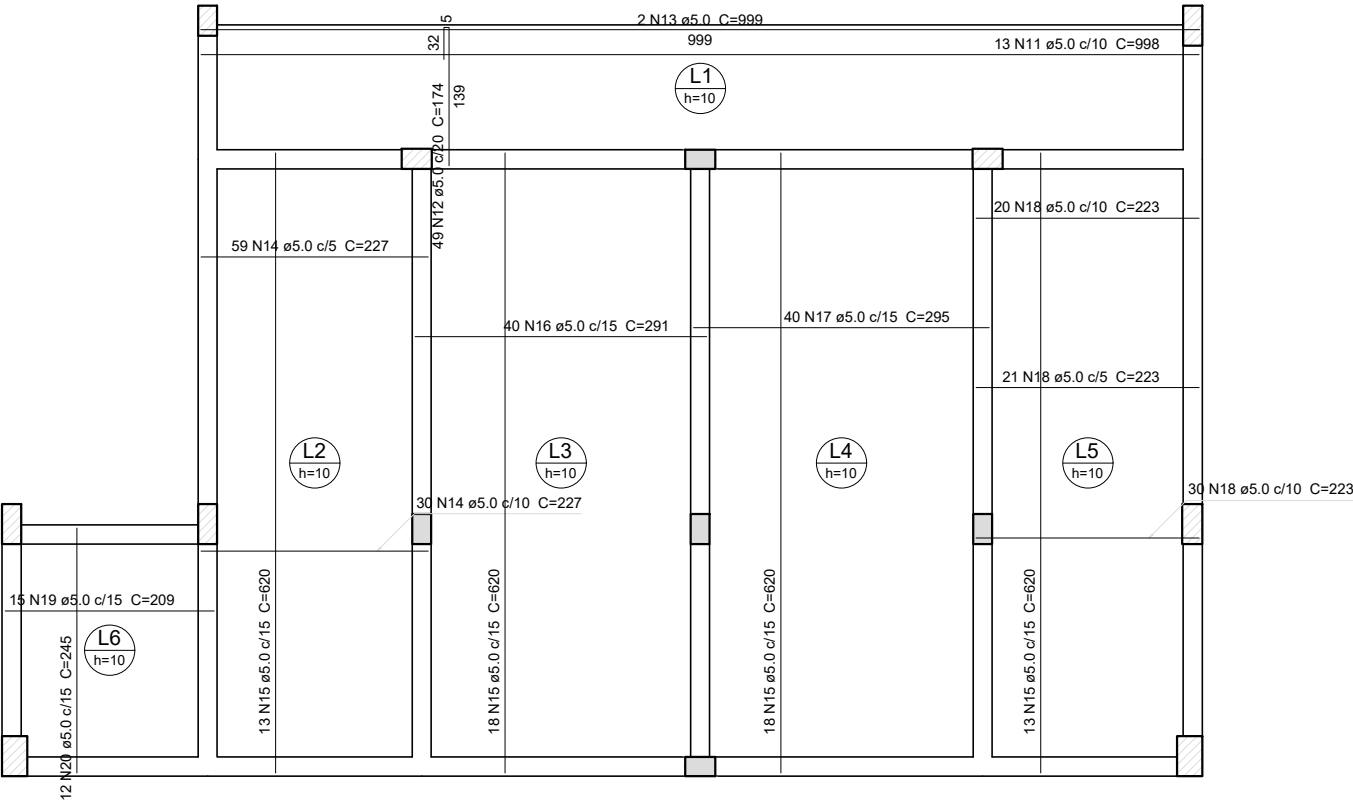
Relação do aço					
Negativos			Positivos		
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	2	88	176
	2	5.0	10	195	1950
	3	5.0	7	83	581
	4	5.0	7	148	1036
	5	5.0	17	214	3638
	6	5.0	17	278	4726
	7	5.0	17	282	4794
	8	5.0	17	210	3570
	9	5.0	10	232	2320
	10	5.0	39	607	23673
	11	5.0	13	998	12974
	12	5.0	49	178	8526
	13	5.0	2	999	1998
	14	5.0	89	227	20203
	15	5.0	62	620	38440
	16	5.0	40	291	11640
	17	5.0	40	295	11800
	18	5.0	71	223	15833
CA50	19	5.0	15	209	3135
	20	5.0	12	245	2940
	21	6.3	13	192	2496
	22	6.3	15	142	2130
	23	6.3	4	91	364
	24	10.0	50	335	16750
	25	10.0	15	149	2235
	26	10.0	30	299	8970
	27	10.0	30	230	6900
	28	10.0	30	245	7350

Resumo do aço			
AÇO	DIAM	C.TOTAL (m)	PESO + 10 % (kg)
CA50	6.3	49.9	13.4
CA60	10.0	422.1	286.2
CA60	5.0	1739.6	294.9
PESO TOTAL			
CA50	299.7		
CA60	294.9		

Vol. de concreto total (C-30) = 6.95 m³
Área de forma total = 70.53 m²

Armação negativa das lajes do pavimento PALCO

escala 1:50



Armação positiva das lajes do pavimento PALCO

escala 1:50

OBRA: PALCO MUNICIPAL			
LOCAL: PRAÇA ANTONIO BOS FILHO/ SÃO JOSÉ DO OURO-RS	109,25m²	ARMAÇÃO LAJE	DESENHO: CARLA
PROPRIETÁRIO: MUNICÍPIO DE SÃO JOSÉ DO OURO/RS	DATA: ABRIL /2022	CORTE	PRANCHA: 04
RESPONSÁVEL TÉCNICO PROJETO: ENG. CIVIL CARLA RAGNINI - CREA 137639-6	ESCALA: INDICADA		



MUNICÍPIO DE SÃO JOSÉ DO OURO

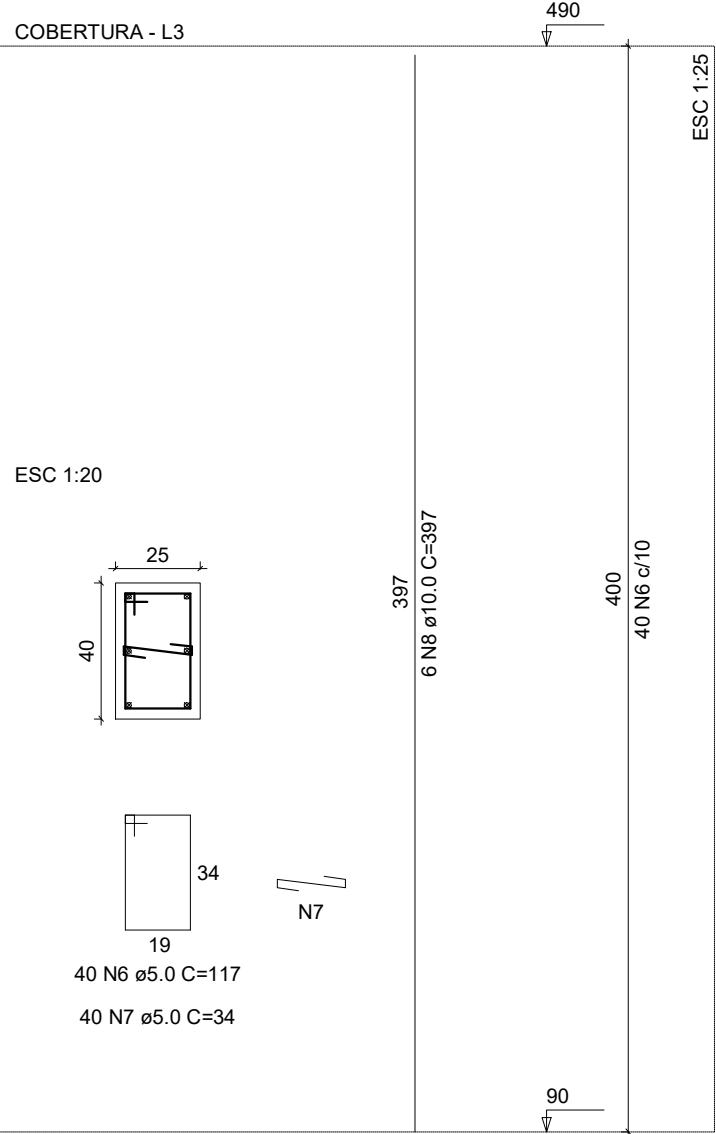
Estado do Rio Grande do Sul

PROJETO ESTRUTURAL **PALCO MUNICIPAL**

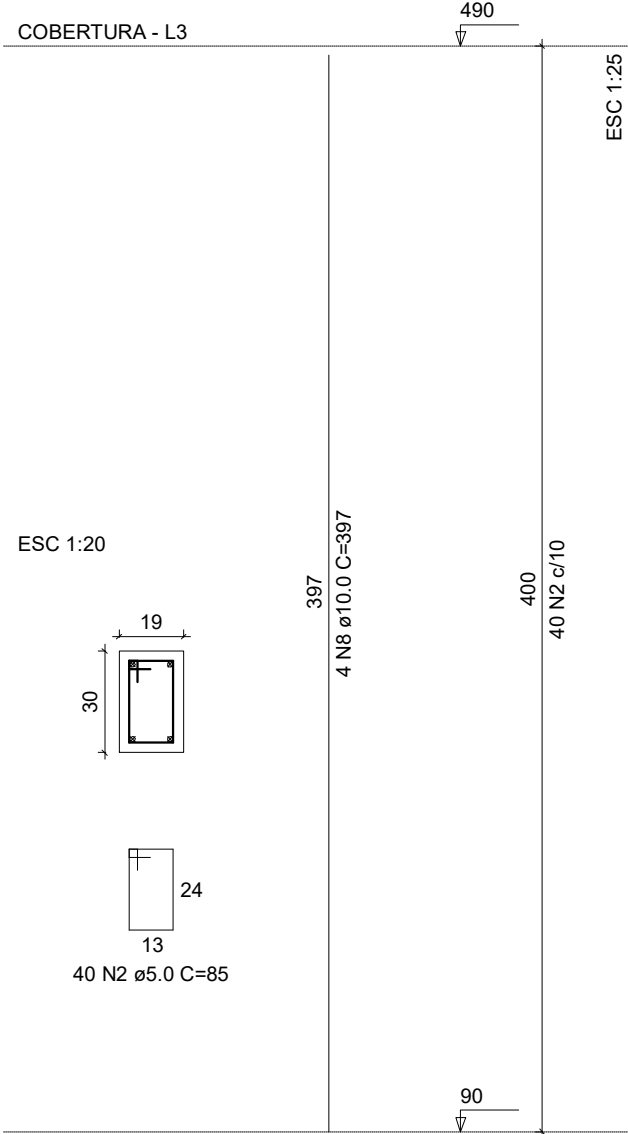
8.PILARES COBERTURA

“O Ouro desta Terra está no Coração de sua Gente”

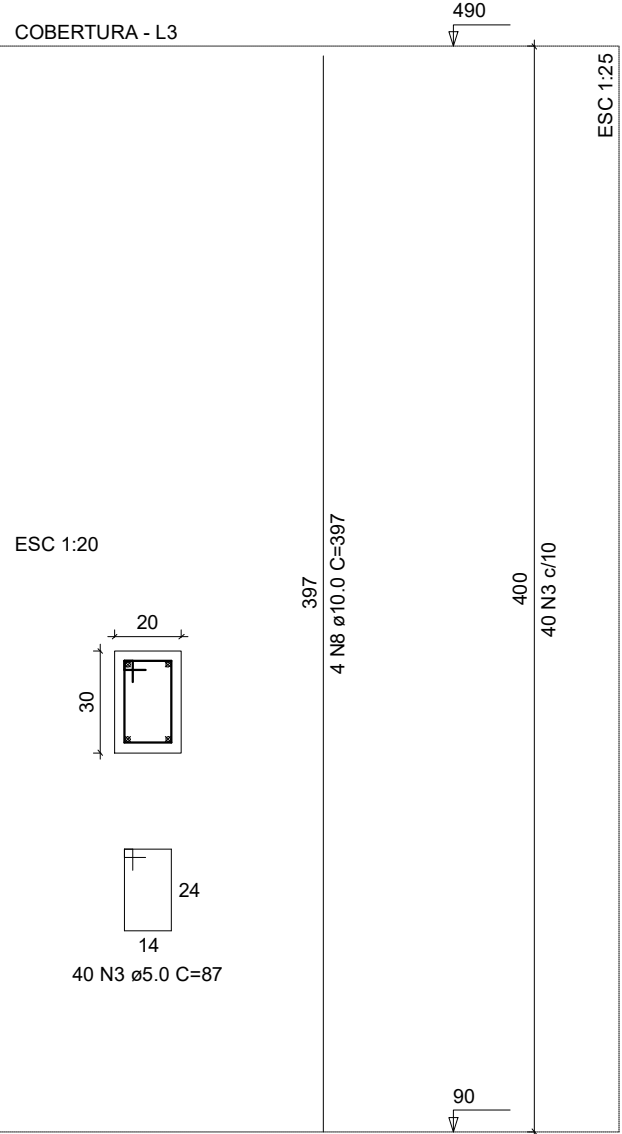
P13=P15



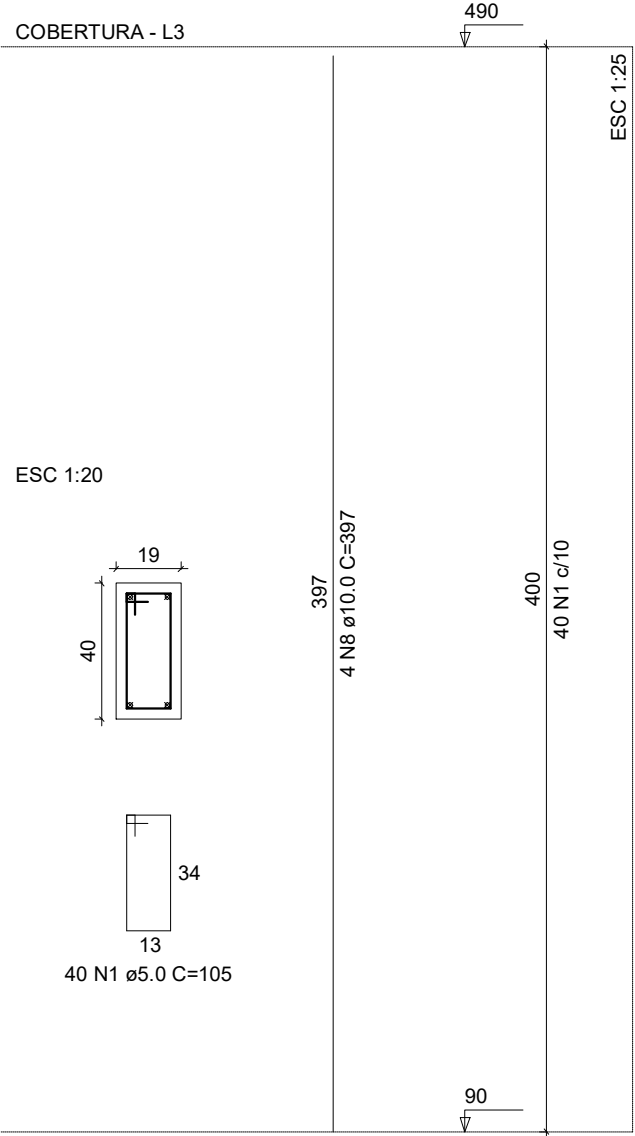
P2



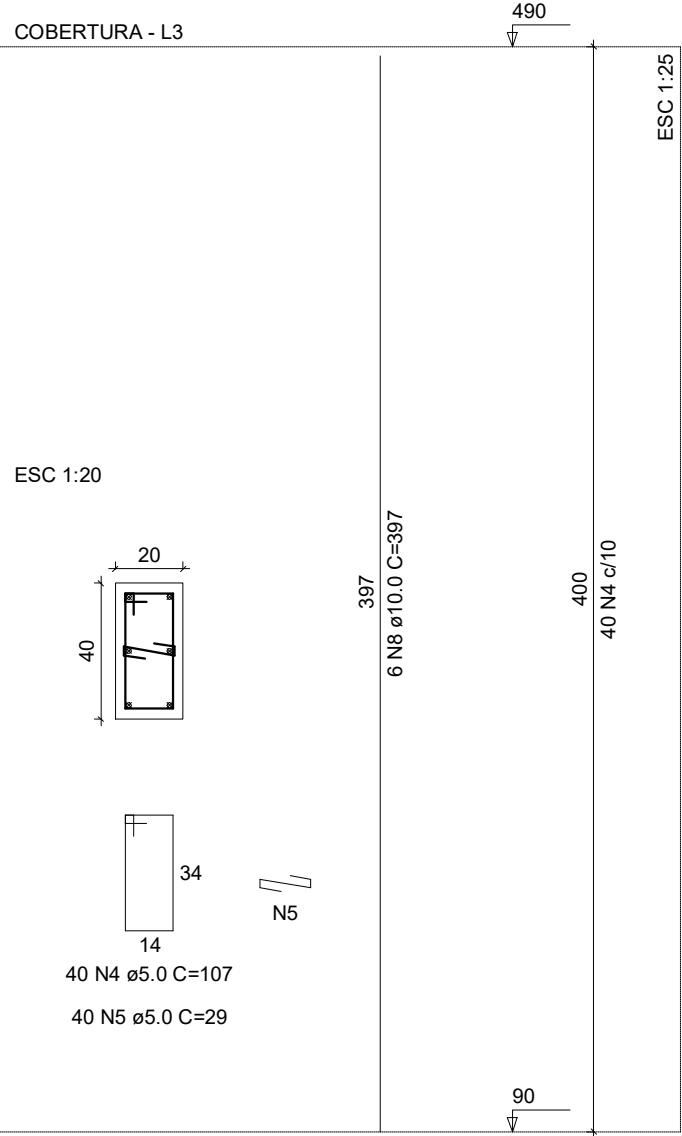
P4=P6



P1=P3=P7=P8



P12



RELAÇÃO DO AÇO

4xP1
P12

P2
2xP13

2xP4

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	160	105	16800
	2	5.0	40	85	3400
	3	5.0	80	87	6960
	4	5.0	40	107	4280
	5	5.0	40	29	1160
	6	5.0	80	117	9360
	7	5.0	80	34	2720
CA50	8	10.0	46	397	18262

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	10.0	182.6	123.9
CA60	5.0	446.8	75.8
PESO TOTAL			
CA50	123.9		
CA60	75.8		

Vol. concreto (C-30) = 3.04 m³

Área de forma total = 46.00 m²



MUNICÍPIO DE SÃO JOSÉ DO OURO

Estado do Rio Grande do Sul

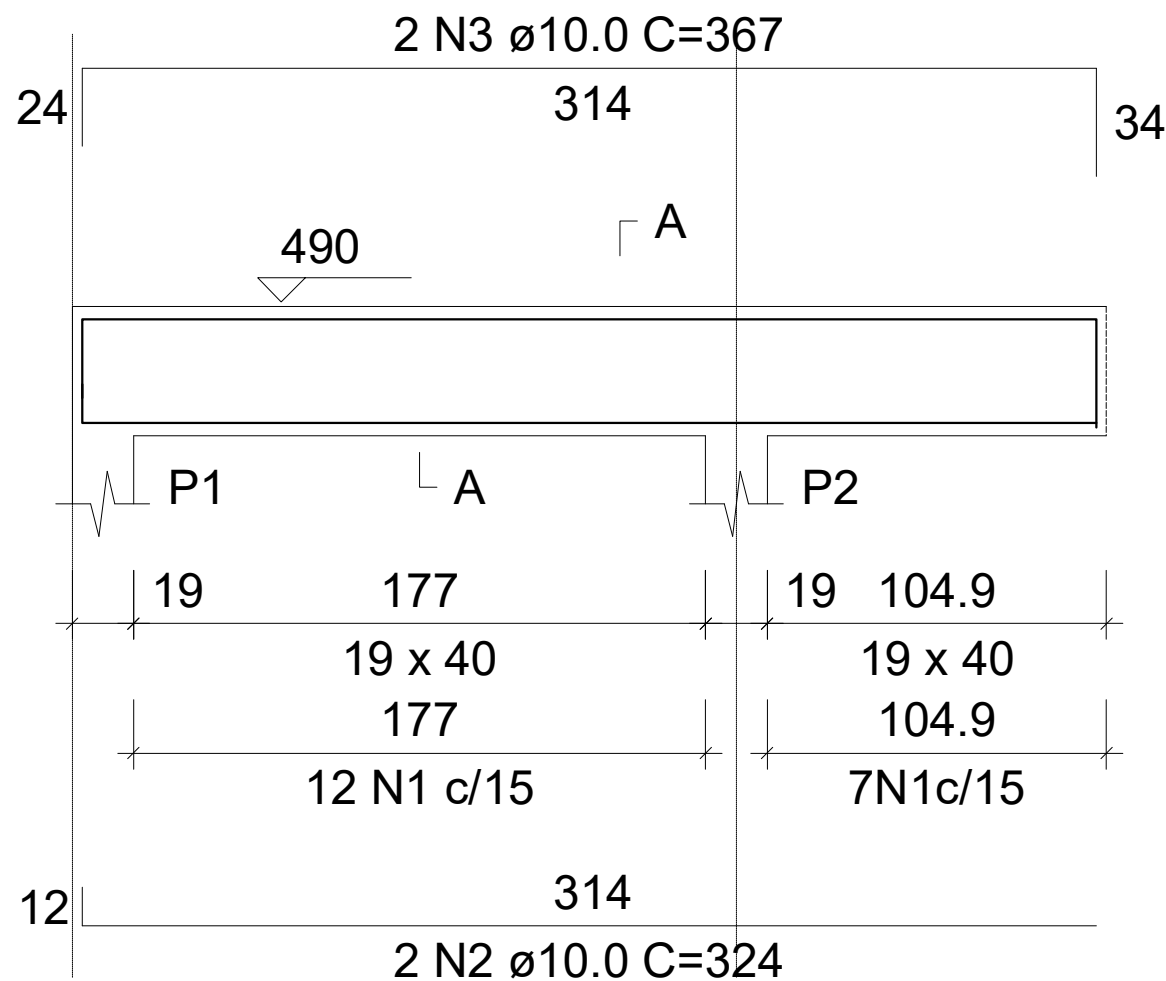
PROJETO ESTRUTURAL **PALCO MUNICIPAL**

9.VIGAS COBERTURA

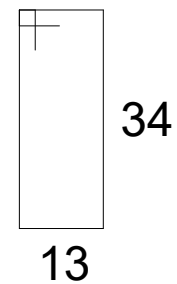
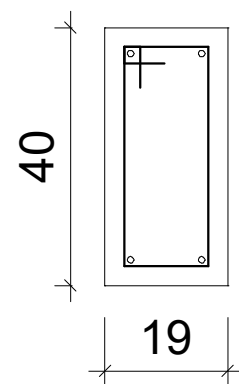
“O Ouro desta Terra está no Coração de sua Gente”

V1

ESC 1:50



ESC 1:25

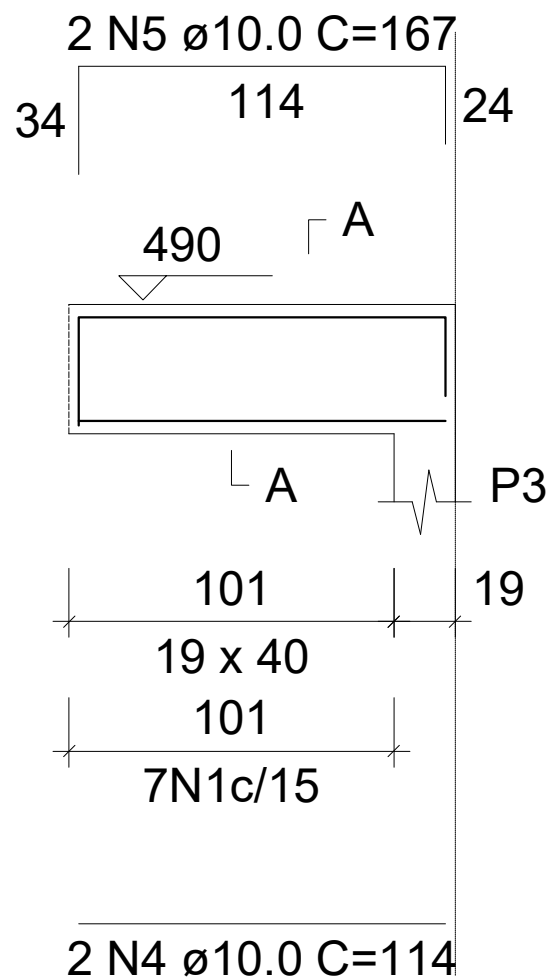


19 N1 ø5.0 C=105

COBERTURA

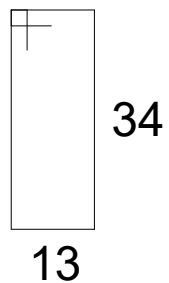
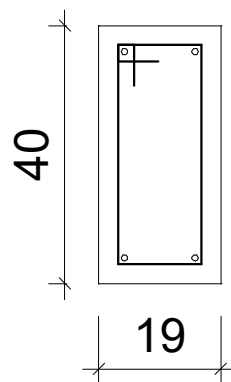
V2

ESC 1:50



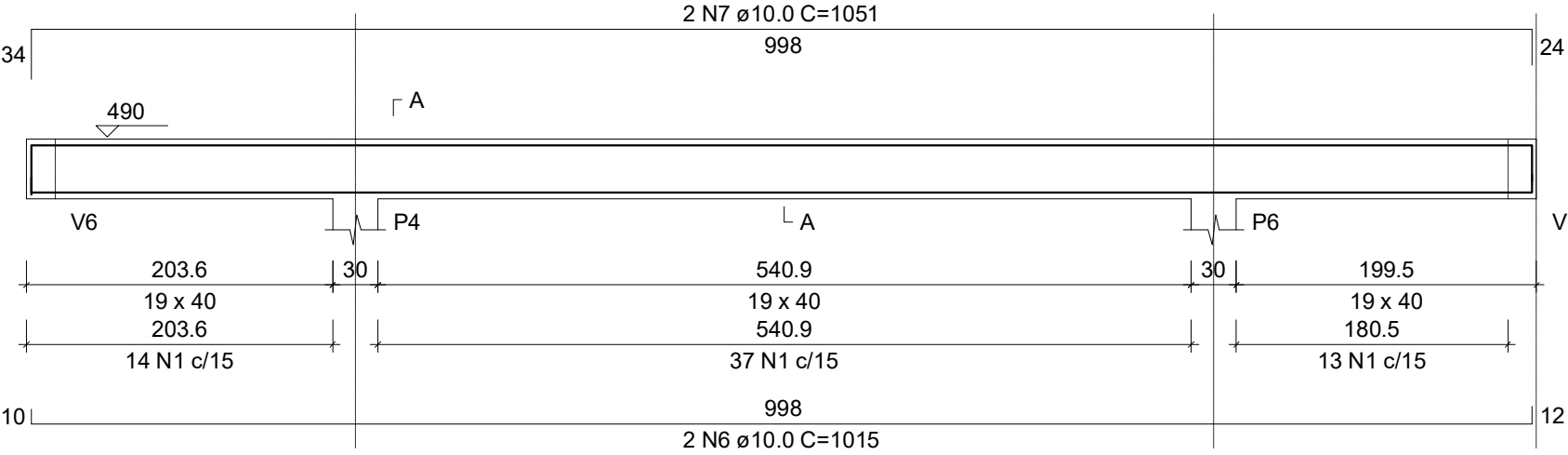
SEÇÃO A-A

ESC 1:25

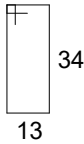
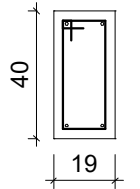


7 N1 ø5.0 C=105

COBERTURA
V3
ESC 1:50



SEÇÃO A-A
ESC 1:25

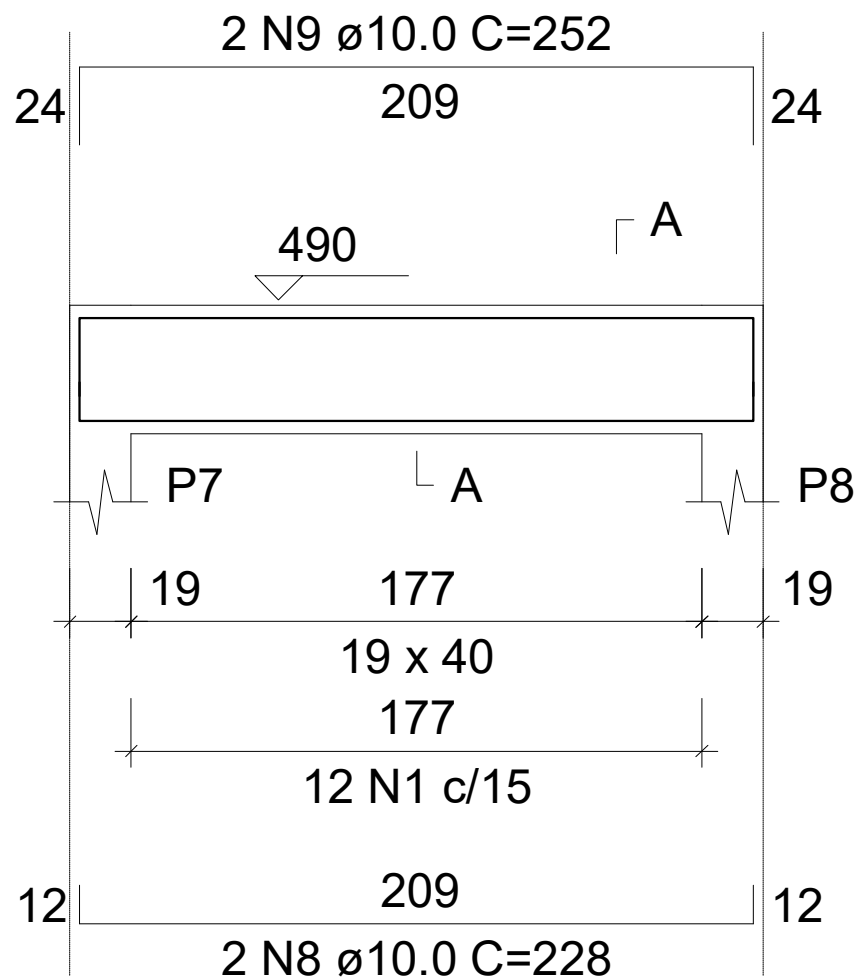


64 N1 $\varnothing$ 5.0 C=105

COBERTURA

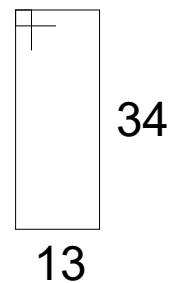
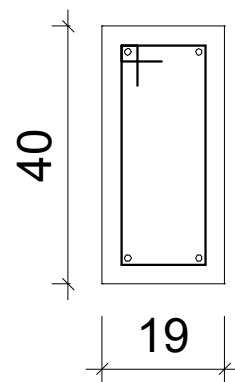
V4

ESC 1:50



SEÇÃO A-A

ESC 1:25

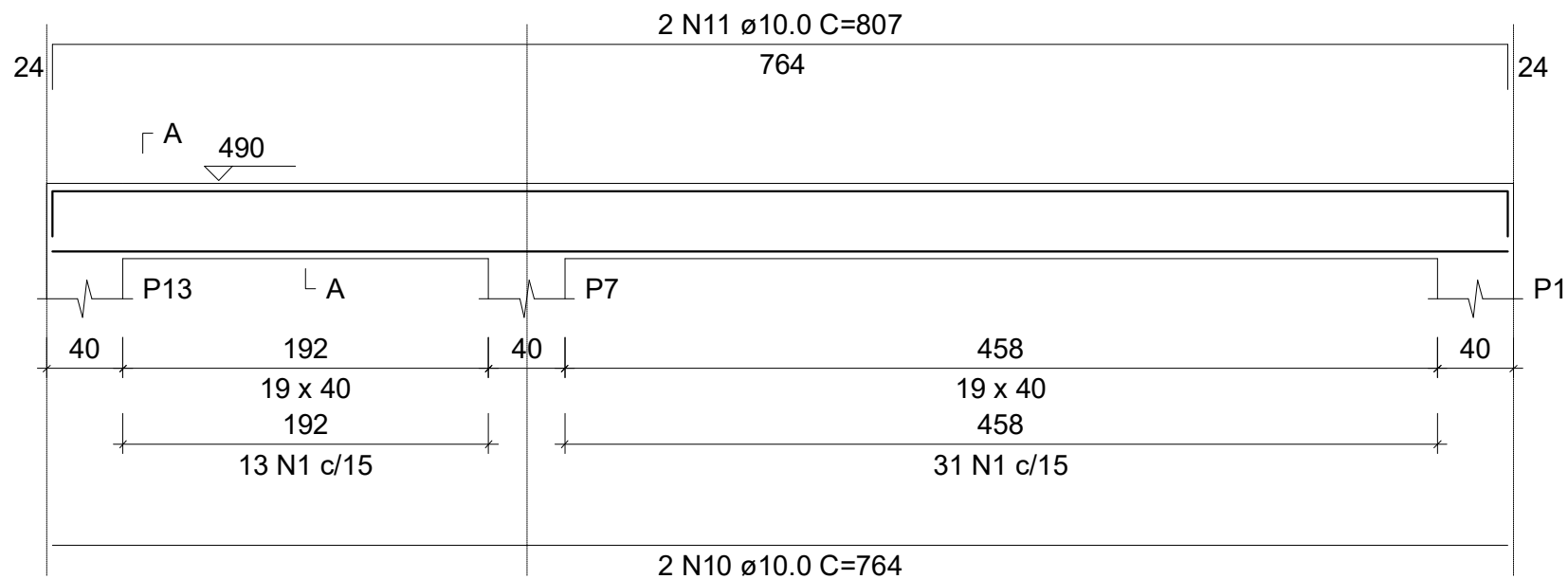


12 N1 ϕ 5.0 C=105

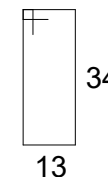
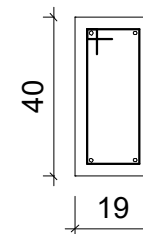
COBERTURA

V5

ESC 1:50



SEÇÃO A-A
ESC 1:25



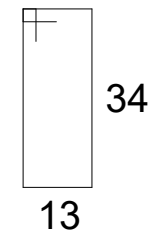
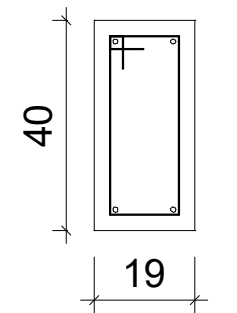
44 N1 $\varnothing$ 5.0 C=105

V6

SEÇÃO A-A

The diagram shows a cross-section of a reinforced concrete slab. The total width is 532 units. The top reinforcement consists of two N13 bars with a diameter of 10.0 mm and a center-to-center distance of 575 mm. The bottom reinforcement consists of 32 N1 bars with a diameter of 10.0 mm and a center-to-center distance of 15 mm. The slab thickness is 240 units. The effective depth is 490 units. The clear height is 468 units. The bottom reinforcement is bent up at an angle of 45 degrees. The top reinforcement is bent down at an angle of 45 degrees. The dimensions are given in millimeters.

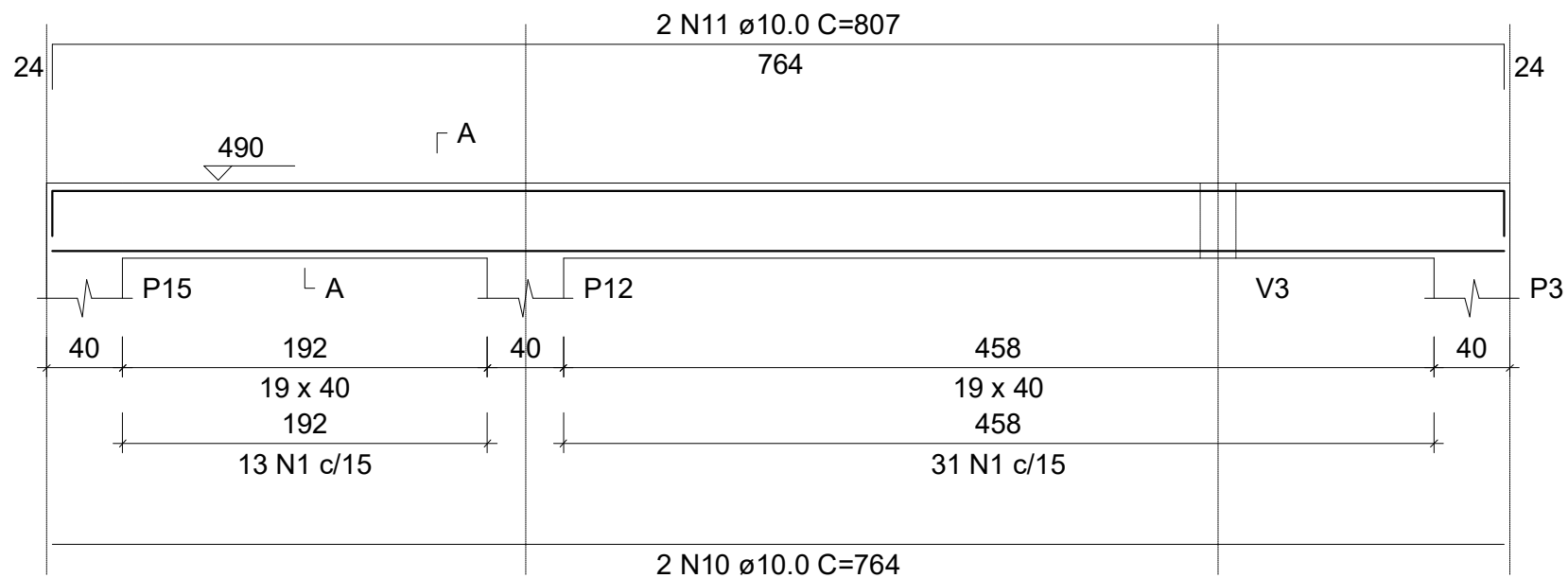
32 N1 ø5.0 C=105



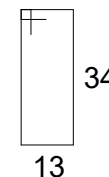
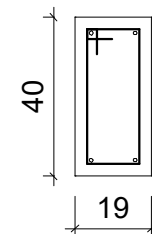
COBERTURA

V7

ESC 1:50



SEÇÃO A-A
ESC 1:25



44 N1 $\varnothing$ 5.0 C=105

RELAÇÃO DO AÇO

V1
V4
V7

V2
V5

V3
V6

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	222	105	23310
CA50	2	10.0	2	324	648
	3	10.0	2	367	734
	4	10.0	2	114	228
	5	10.0	2	167	334
	6	10.0	2	1015	2030
	7	10.0	2	1051	2102
	8	10.0	2	228	456
	9	10.0	2	252	504
	10	10.0	4	764	3056
	11	10.0	4	807	3228
	12	10.0	2	532	1064
	13	10.0	2	575	1150

RESUMO DO AÇO

AÇO	DIAM	C.TOTAL (m)	PESO+10% (kg)
CA50	10.0	155.3	105.4
CA60	5.0	233.1	39.5
PESO TOTAL			
CA50	105.4		
CA60	39.5		

Vol. concreto (C-30) = 2.84 m³

Área de forma total = 37.00 m²