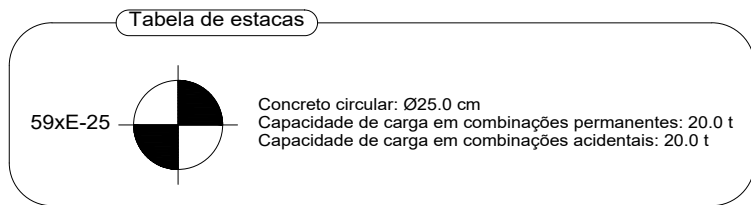


ESTACAS TIPO HÉLICE CONTÍNUA - FUNDAÇÃO



ESTACAS - ESCAVADA
HÉLICE CONTÍNUA

DETALHE DA FERRAGEM DAS ESTACAS
- ESTACA Ø 25cm 38 x C= 13,00m

4 Ø 10mm C=3,50m
Ø 5mm c/20cm

- ESTACA Ø 25cm 21 x C= 5,00m (Muros)

4 Ø 10mm C=2,50m
Ø 5mm c/20cm

QUADRO DE ELEMENTOS DE FUNDAÇÃO					
Referências	Dimensões (cm)	Altura (cm)	Estacas	Armadura inf. X	Armadura sup. X
P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P22, P24, P27, P30, P33, P34, P35, P36, P37, P38, P39, P40, P41, P44, P45, P46, P47, P48 e P49	50 x 50	40	Tipo E-25, Penetração 10 cm		
P20, P21, P25, P26, P28, P29, P31, P32, P42 e P43	125 x 50	50	Tipo E-25, Penetração 10 cm	6Ø10	4Ø10
P23	50 x 50	40	Tipo E-25, Penetração 10 cm		

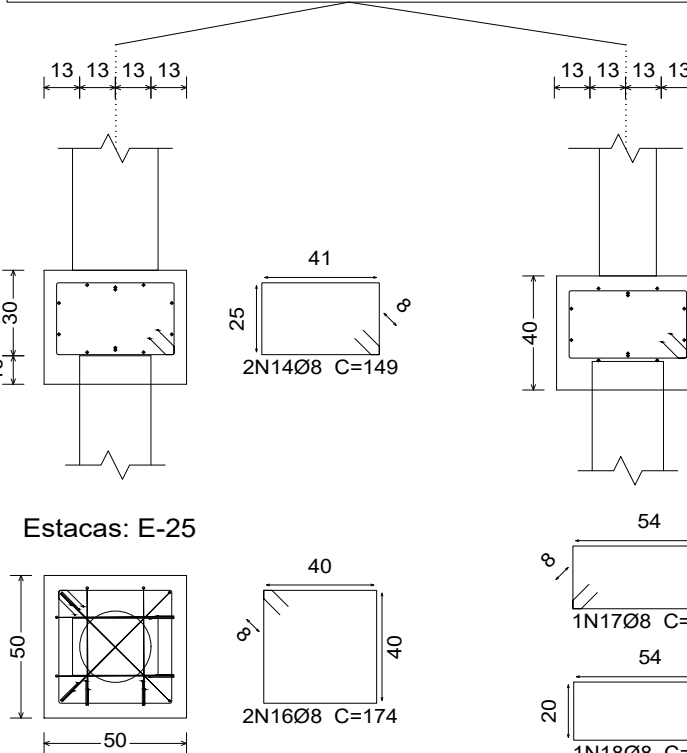
Resumo Aço Fundação		Comp. total (m)	Peso+10% (kg)	Total
Detalhamento fundação				
CA-50	Ø6.3	152.7	41	
	Ø8	557.7	242	
	Ø10	389.7	264	
	Ø12.5	60.2	64	
	Ø16	23.5	41	652
CA-60	Ø5	112.3	19	19
Total				671

Quadro de arranques			
Referências	Armaduras Cantos	Armaduras Face X	Armaduras Face Y
P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P15, P16, P24, P27, P30, P33, P34, P41, P44, P45, P46, P47, P48 e P49	4Ø10 (20+33+74)		
P6, P7, P8, P11, P12, P13, P14, P17, P19, P22, P23, P37 e P39	4Ø10 (20+33+84)		
P16 e P38	4Ø10 (20+33+84)	2Ø10 (20+33+84)	
P20	4Ø12.5 (20+44+95)		
P21, P26 e P28	4Ø12.5 (20+44+95)	2Ø10 (20+44+84)	
P25	4Ø16 (20+44+110)		
P29	4Ø12.5 (20+44+95)	4Ø12.5 (20+44+95)	
P31	4Ø12.5 (20+44+95)	2Ø12.5 (20+44+95)	
P32	4Ø10 (20+44+84)	2Ø10 (20+44+84)	
P35	4Ø12.5 (20+33+95)	2Ø10 (20+33+84)	
P36	4Ø12.5 (20+33+95)		
P40	4Ø10 (20+33+84)	2Ø10 (20+33+84)	
P42	4Ø16 (20+44+110)	2Ø16 (20+44+110)	
P43	4Ø16 (20+44+110)	2Ø12.5 (20+44+95)	

BLOCOS DE COROAMENTO DE ESTACAS

BLOCOS DE 1 ESTACA
(50X50X40) 39X

P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12 e P13
P14, P15, P16, P17, P18, P19, P22, P23, P24, P27, P30, P33 e P34
P35, P36, P37, P38, P39, P40, P41, P44, P45, P46, P47, P48 e P49

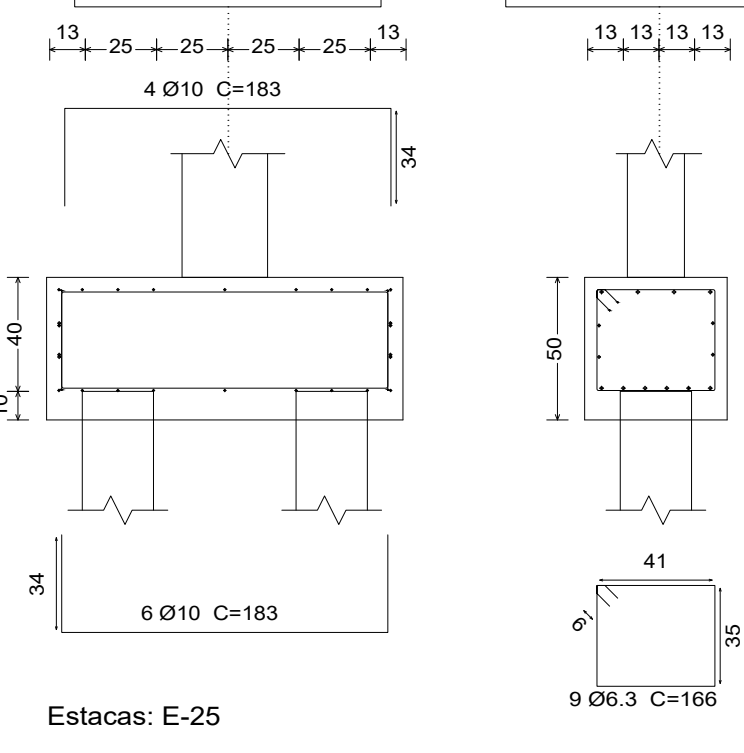


Estacas: E-25

BLOCOS DE 2 ESTACAS
(125X50 X50) 10X

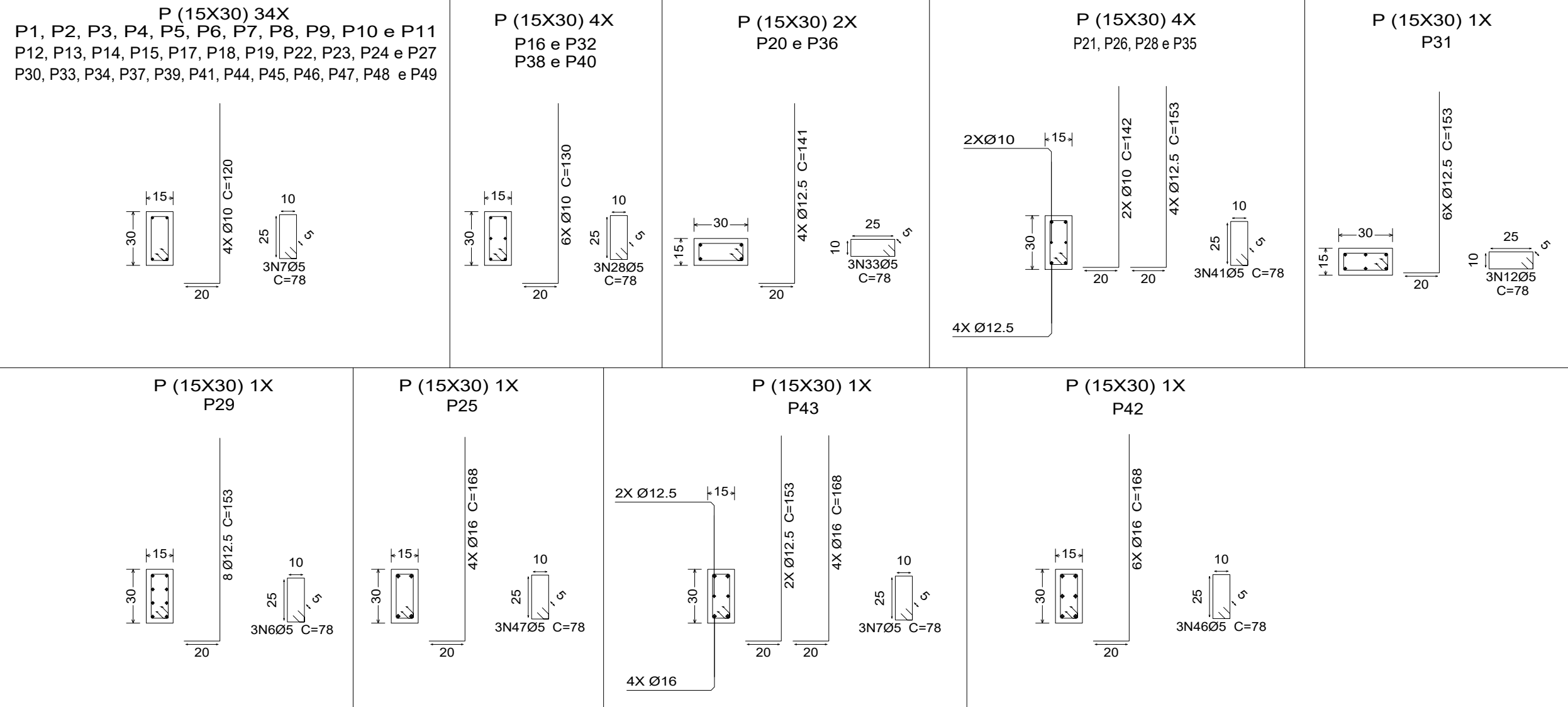
P20, P21, P25, P26 e P28
P29, P31, P32, P42 e P43

P20, P21, P25, P26 e P28
P29, P31, P32, P42 e P43



Estacas: E-25

DETALHES - ARRANQUES DOS PILARES

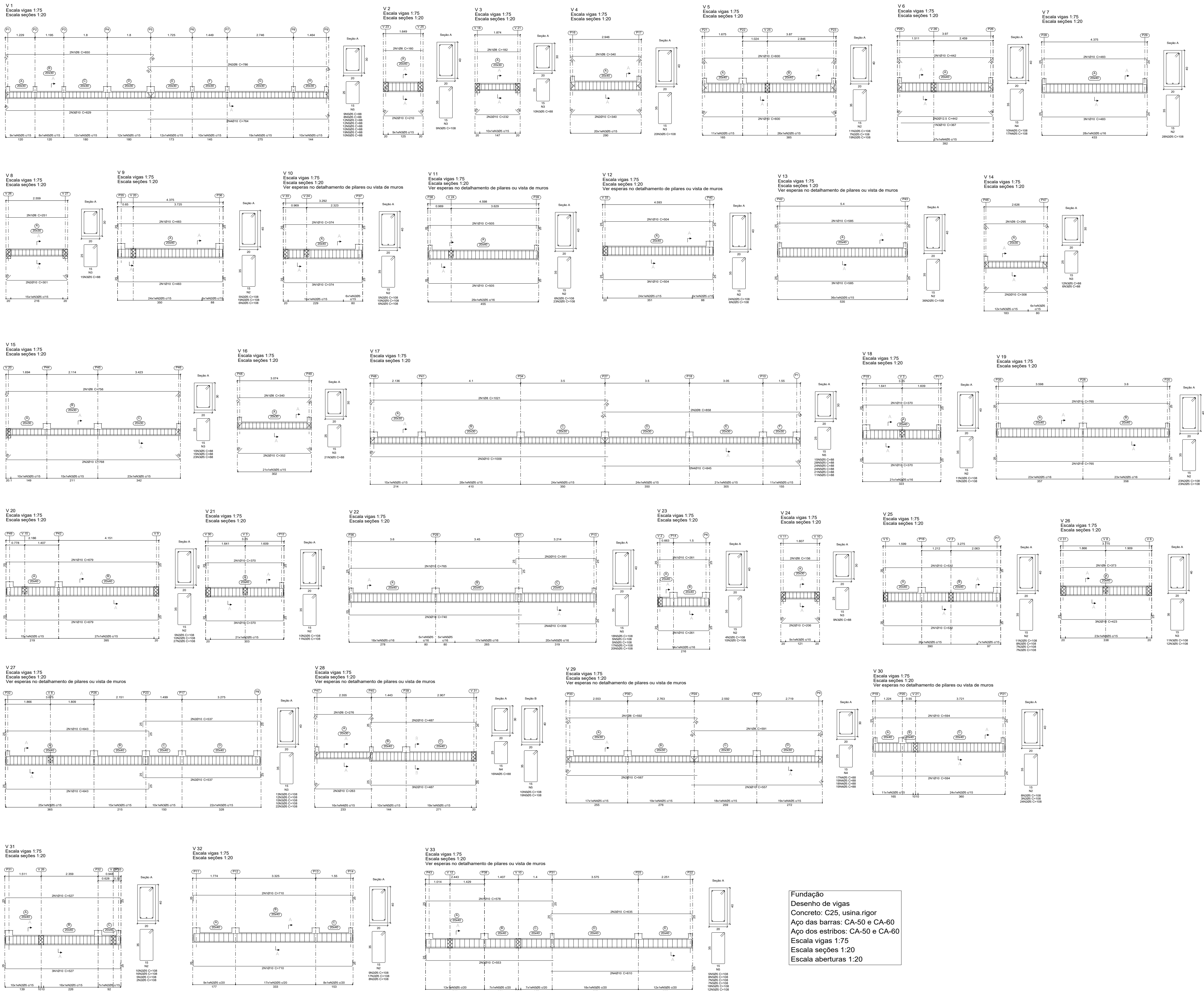


OBS: DESENHO DAS VIGAS DA FUNDAÇÃO
VER PRANCHAS - V01 E V02

Fundação
Pis0
CA-50 e CA-60
Concreto: C25, usina.rigor
Sobrecarga = 0.2 t/m2
Cargas permanentes = 0.1 t/m2
Escala: 1:50

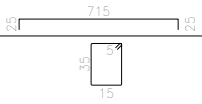
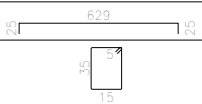
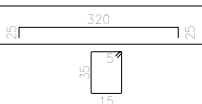
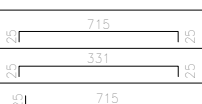
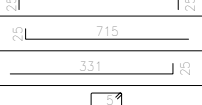
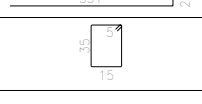
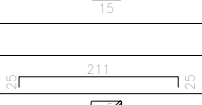
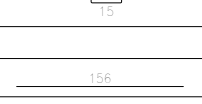
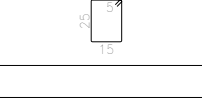
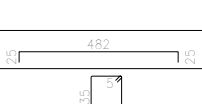
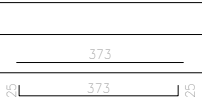
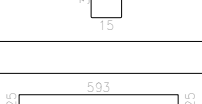
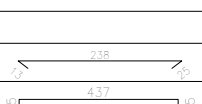
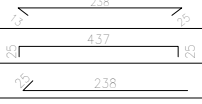
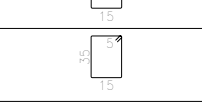
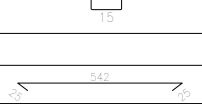
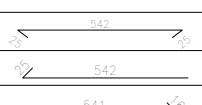
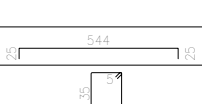
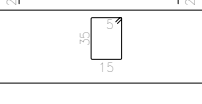
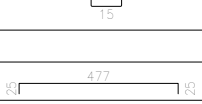
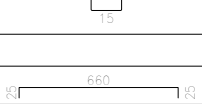
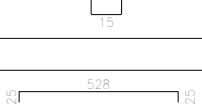
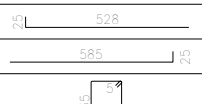
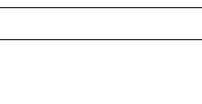
FUNDAÇÃO				
Elemento	Fôrmas (m2)	Superfície (m2)	Volume (m3)	Barras (kg)
ESTACAS	-	-	42.00	600
BLOCOS DE COROAM/ ARRANQUES	48.30	-	7.05	671
VIGAS FUNDAÇÃO	126.04	-	13.42	748
Total			62.47	2.019

PLANTA DE FORMA - FUNDAÇÃO
ESC. 1:50



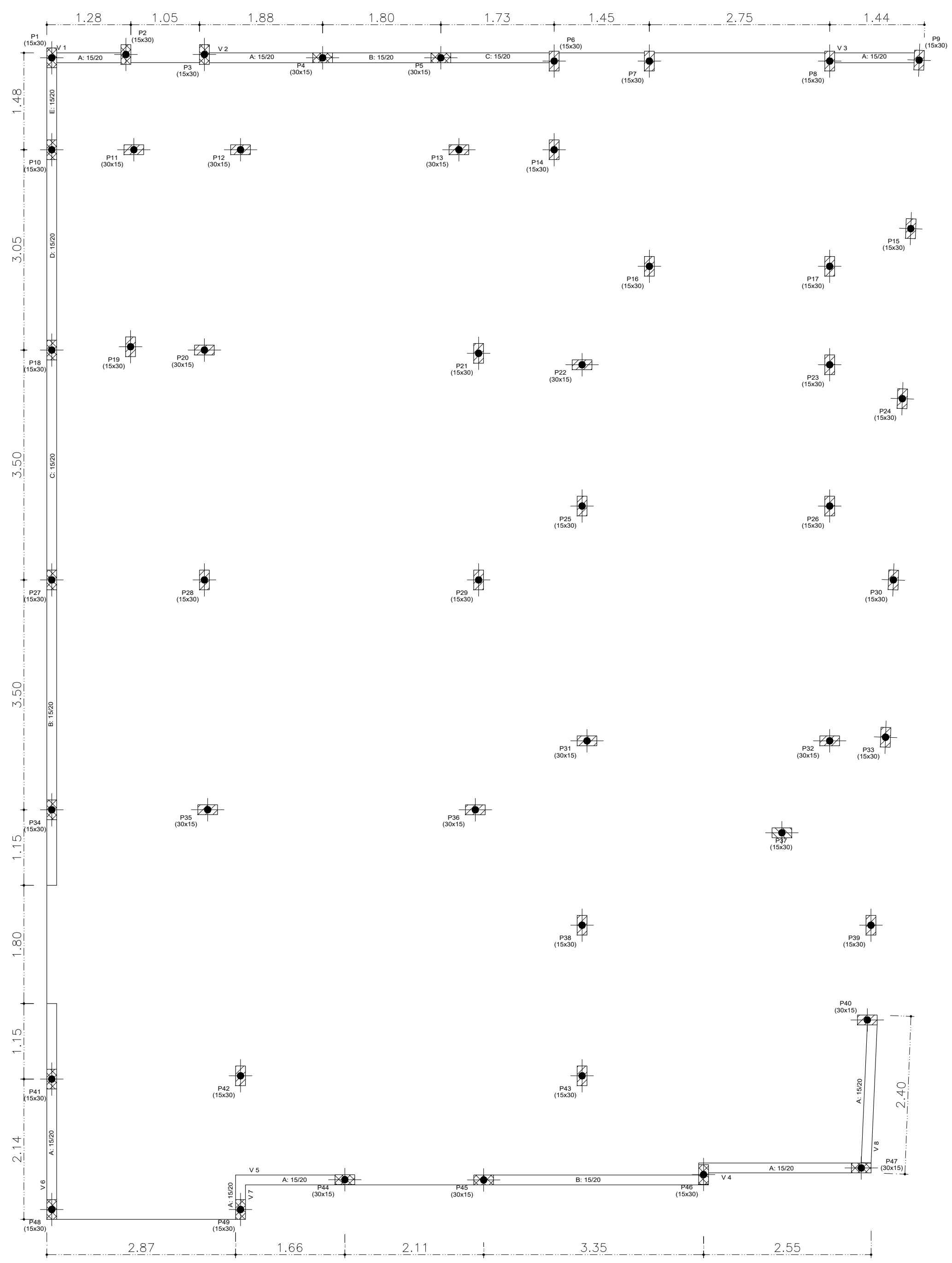
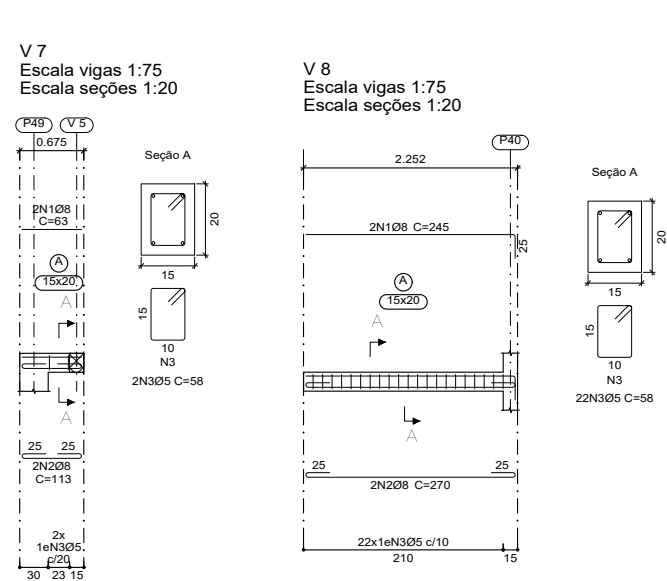
Fundação
Desenho de vigas
Concreto: C25, usina.rigor
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:75
Escala seções 1:20
Escala aberturas 1:20

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 1	1	Ø8	2		650	1300	5.1	
	2	Ø8	2		786	1572	6.2	
	3	Ø10	2		629	1258	7.8	
	4	Ø10	2		764	1528	9.4	
	5	Ø5	92		88	8096		12.7
V 2	1	Ø8	2		160	320	1.3	
	2	Ø10	2		210	420	2.6	
	3	Ø5	9		108	972		1.5
V 3	1	Ø8	2		182	364	1.4	
	2	Ø10	2		232	464	2.9	
	3	Ø5	10		88	880		1.4
V 4	1	Ø8	2		340	680	2.7	
	2	Ø10	2		340	680	4.2	
	3	Ø5	20		108	2160		3.4
V 5	1	Ø10	4		600	2400	14.8	
	2	Ø5	37		108	3996		6.3
				Total+10%			16.3	6.9
V 6	1	Ø10	2		442	884	5.4	
	2	Ø12.5	2		442	884	8.5	
	3	Ø10	1		367	367	2.3	
	4	Ø5	27		108	2916		4.6
V 7	1	Ø10	5		483	2415	14.9	
	2	Ø5	28		108	3024		4.7
				Total+10%			16.4	5.2
V 8	1	Ø8	2		251	502	2.0	
	2	Ø10	2		301	602	3.7	
	3	Ø5	15		88	1320		2.1
V 9	1	Ø10	4		483	1932	11.9	
	2	Ø5	30		108	3240		5.1
				Total+10%			13.1	5.6
V 10	1	Ø10	5		374	1870	11.5	
	2	Ø5	21		108	2268		3.6
V 11	1	Ø10	4		505	2020	12.4	
	2	Ø5	29		108	3132		4.9
V 12	1	Ø10	5		504	2520	15.5	
	2	Ø5	30		108	3240		5.1
V 13	1	Ø10	5		585	2925	18.0	
	2	Ø5	36		108	3888		6.1
V 14	1	Ø8	2		295	590	2.3	
	2	Ø10	2		308	616	3.8	
	3	Ø5	18		88	1584		2.5
V 15	1	Ø8	2		756	1512	6.0	
	2	Ø10	2		768	1536	9.5	
	3	Ø5	48		88	4224		6.6
V 16	1	Ø8	2		340	680	2.7	
	2	Ø10	2		352	704	4.3	
	3	Ø5	21		88	1848		2.9
V 17	1	Ø8	2		1021	2042	8.1	
	2	Ø8	2		858	1716	6.8	
	3	Ø10	2		1009	2018	12.4	
	4	Ø10	2		845	1690	10.4	
	5	Ø5	123		88	10824		17.0
V 18	1	Ø10	4		370	1480	9.1	
	2	Ø5	21		108	2268		3.6
				Total+10%			10.0	4.0
				Ø5:			0.0	103.7
				Ø8:			49.0	0.0
				Ø10:			205.8	0.0
				Ø12.5:			9.3	0.0
				Total:			264.1	103.7

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 19	1	Ø10	4		765	3060	18.9	
	2	Ø5	46		108	4968		7.8
	Total+10%:						20.8	8.6
V 20	1	Ø10	4		679	2716	16.7	
	2	Ø5	42		108	4536		7.1
	Total+10%:						18.4	7.8
V 21	1	Ø10	5		370	1850	11.4	
	2	Ø5	21		108	2268		3.6
	Total+10%:						12.5	4.0
V 22	1	Ø10	2		765	1530	9.4	
	2	Ø10	2		381	762	4.7	
	3	Ø10	2		740	1480	9.1	
	4	Ø10	2		356	712	4.4	
	5	Ø5	65		108	7020		11.0
	Total+10%:						30.4	12.1
V 23	1	Ø10	4		261	1044	6.4	
	2	Ø5	14		108	1512		2.4
	Total+10%:						7.0	2.6
V 24	1	Ø8	2		156	312	1.2	
	2	Ø10	2		206	412	2.5	
	3	Ø5	9		88	792		1.2
	Total+10%:						4.1	1.3
V 25	1	Ø10	4		532	2128	13.1	
	2	Ø5	33		108	3564		5.6
	Total+10%:						14.4	6.2
V 26	1	Ø8	2		373	746	2.9	
	2	Ø10	3		423	1269	7.8	
	3	Ø5	23		108	2484		3.9
	Total+10%:						11.8	4.3
V 27	1	Ø10	4		643	2572	15.8	
	2	Ø10	4		537	2148	13.2	
	3	Ø5	72		108	7776		12.2
	Total+10%:						31.9	13.4
V 28	1	Ø8	2		276	552	2.2	
	2	Ø10	5		487	2435	15.0	
	3	Ø10	2		263	526	3.2	
	4	Ø5	16		88	1408		2.2
	5	Ø5	29		108	3132		4.9
	Total+10%:						22.4	7.8
V 29	1	Ø8	4		592	2368	9.4	
	2	Ø10	2		567	1134	7.0	
	3	Ø10	2		557	1114	6.9	
	4	Ø5	73		88	6424		10.1
	Total+10%:						25.6	11.1
V 30	1	Ø10	4		594	2376	14.6	
	2	Ø5	35		108	3780		5.9
	Total+10%:						16.1	6.5
V 31	1	Ø10	5		527	2635	16.2	
	2	Ø5	33		108	3564		5.6
	Total+10%:						17.8	6.2
V 32	1	Ø10	4		710	2840	17.5	
	2	Ø5	34		108	3672		5.8
	Total+10%:						19.3	6.4
V 33	1	Ø10	2		578	1156	7.1	
	2	Ø10	2		635	1270	7.8	
	3	Ø10	2		553	1106	6.8	
	4	Ø10	2		610	1220	7.5	
	5	Ø5	57		108	6156		9.7
	Total+10%:						32.1	10.7
						Ø5: 0.0	0.0	109.0
						Ø8: 17.2	0.0	
						Ø10: 267.4	0.0	
						Total: 284.6	109.0	

Resumo Aço		Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø8	152.6	66	
	Ø10	698.2	473	
	Ø12.5	8.8	9	548
CA-60	Ø5	1229.4	212	212
Total				760

Fundação
Desenho de vigas
Concreto: C25, usina.rigor
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:75
Escala seções 1:20
Escala aberturas 1:20



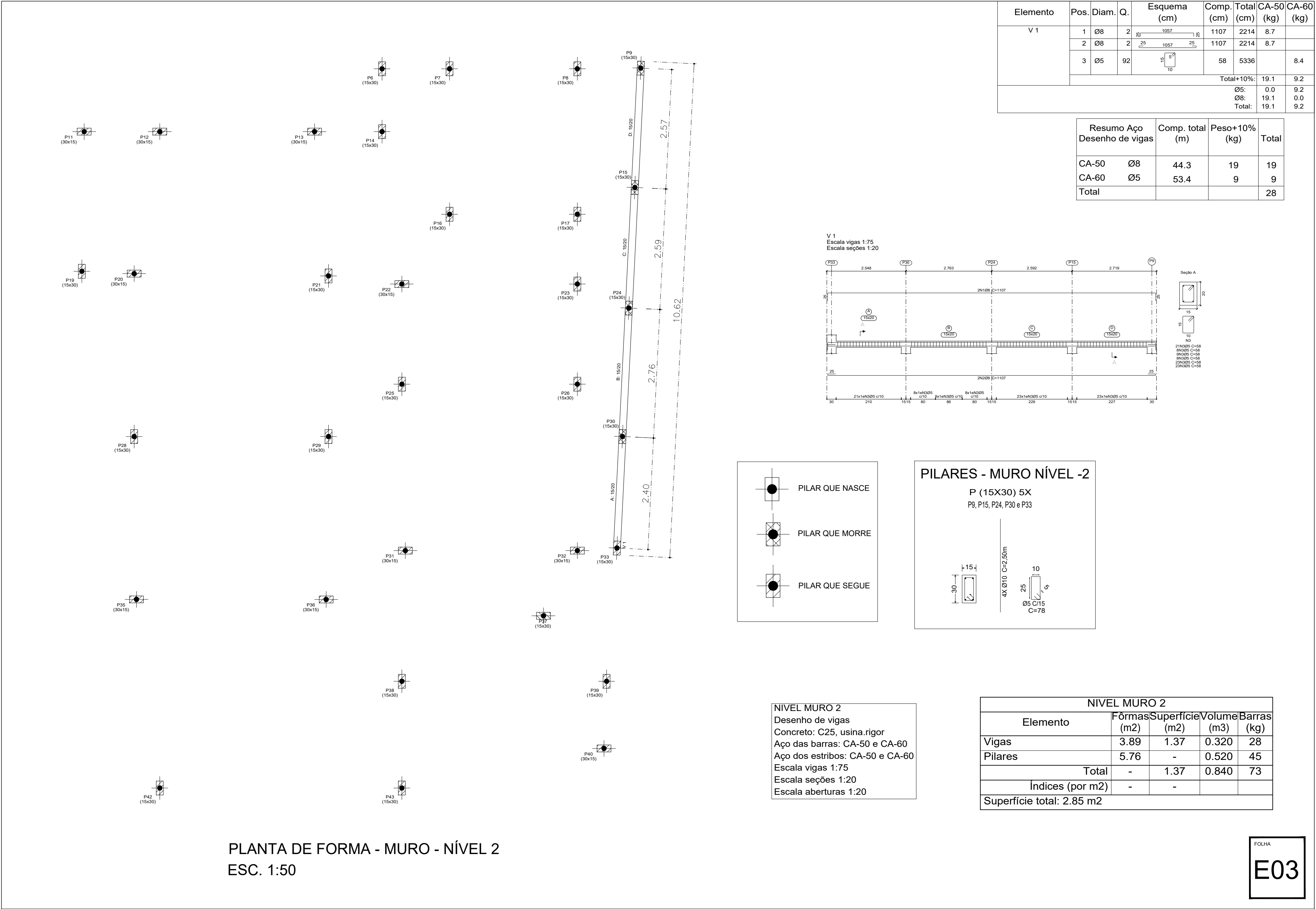
Resumo Aço Desenho de vigas	Comp. total (m)	Peso+10% (kg)	Total
CA-50 Ø8	169.4	74	74
CA-60 Ø5	185.0	32	32
Total			106

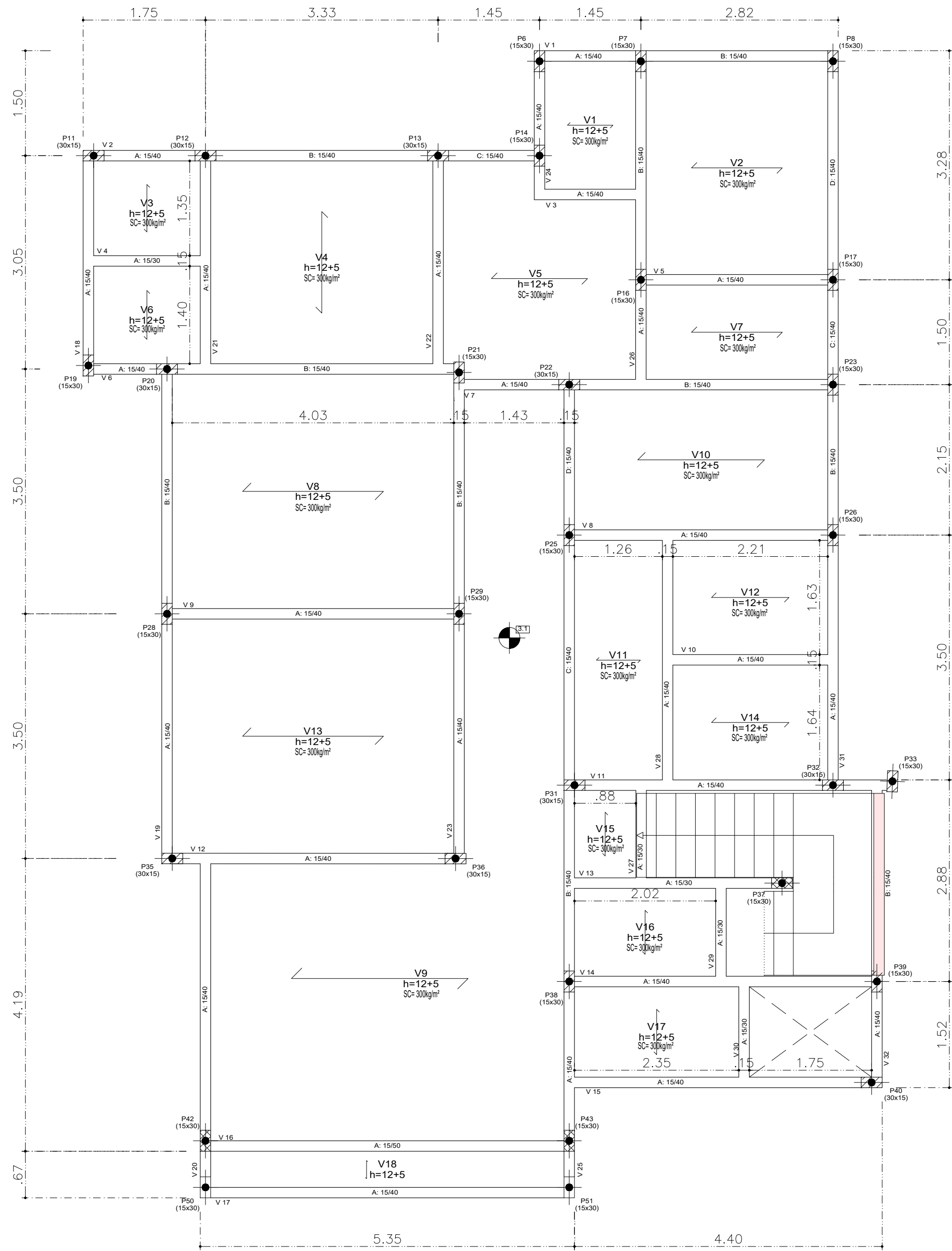
NIVEL MURO -1 Desenho de vigas Concreto: C25, usina.rigor Aço das barras: CA-50 e CA-60 Aço dos estribos: CA-50 e CA-60 Escala vigas 1:75 Escala seções 1:20 Escala aberturas 1:20

FOLHA

E02

PLANTA DE FORMA - MURO - NÍVEL 1
ESC. 1:50





PLANTA DE FORMA - PAV. TÉRREO
ESC. 1:50

DETALHES DOS PILARES PAV. TÉRREO

P (15X30) 14X P6, P7, P8, P11 e P12 P13, P14, P17, P19 e P22 P23, P33, P37, P39	P (15X30) 4X P16 e P32 P38 e P40	P (15X30) 2X P20 e P36	P (15X30) 4X P21, P26, P28 e P35	P (15X30) 1X P29
P (15X30) 1X P31	P (15X30) 1X P25	P (15X30) 1X P43	P (15X30) 1X P42	

PILARES QUE NASCEM - COTA +3,10m

P (15X30) 1X P50	P (15X30) 1X P51

Tabela de características de lajes de vigotas (Grupo 3)
LAJE DE VIGOTAS DE CONCRETO
Altura do bloco/molde: 12 cm
Espessura camada de compressão: 5 cm
Entre-eixos: 42 cm
Bloco/Molde: De poliestireno
Largura da nervura: 12 cm
Volume de concreto: 0.096 m3/m2
Peso próprio: 0.24 t/m2 (Simples), 0.30 t/m2 (Dupla)
Nota: Consulte os detalhes referentes a uniões com lajes da estrutura principal e das zonas maciçadas.

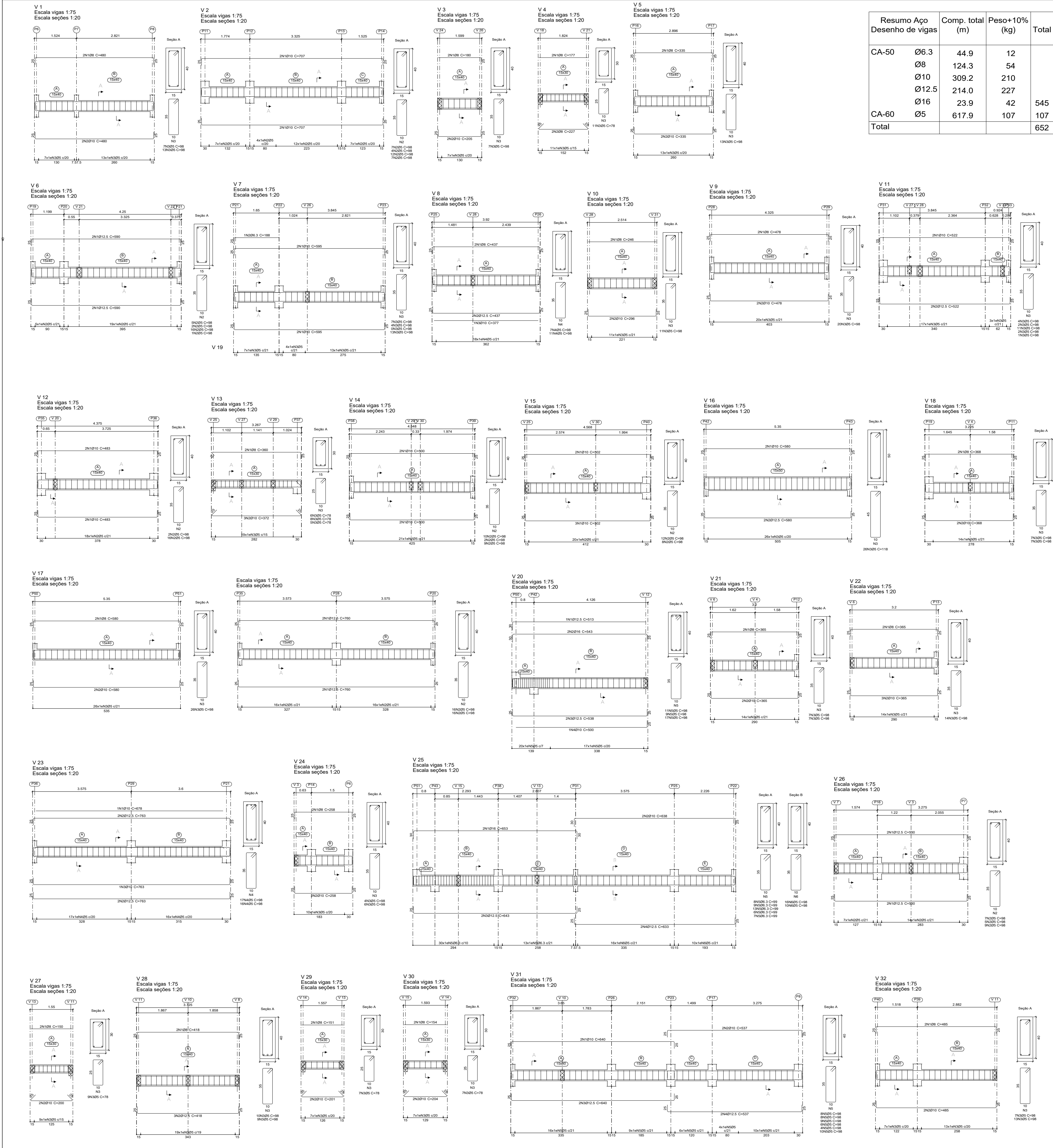
OBS: SENTIDO DE COLOCAÇÃO DAS LAJES
LAJE TRELIÇADA LT 17(12+5)_{sc}=300KGF/m2
ESPECIFICAÇÕES E MONTAGEM DA LAJE
DETALHAMENTO DE FERRAGENS
(NEGATIVOS, NERVURAS E TELAS SOLDADAS
CONFORME PROJETO
ELABORADO PELO FORNECEDOR. COM ART.

OBS: DESENHO DAS VIGAS DO TÉRREO
VER PRANCHAS - V03

Resumo Aço	Comp. total	Peso	Total
Desenho de pilares	(m)	(kg)	
CA-50 Ø10	331,6		
Ø12,5	154		
Ø16	51,8		434,7
CA-60 Ø5	576,4		88,8
Total			523,5

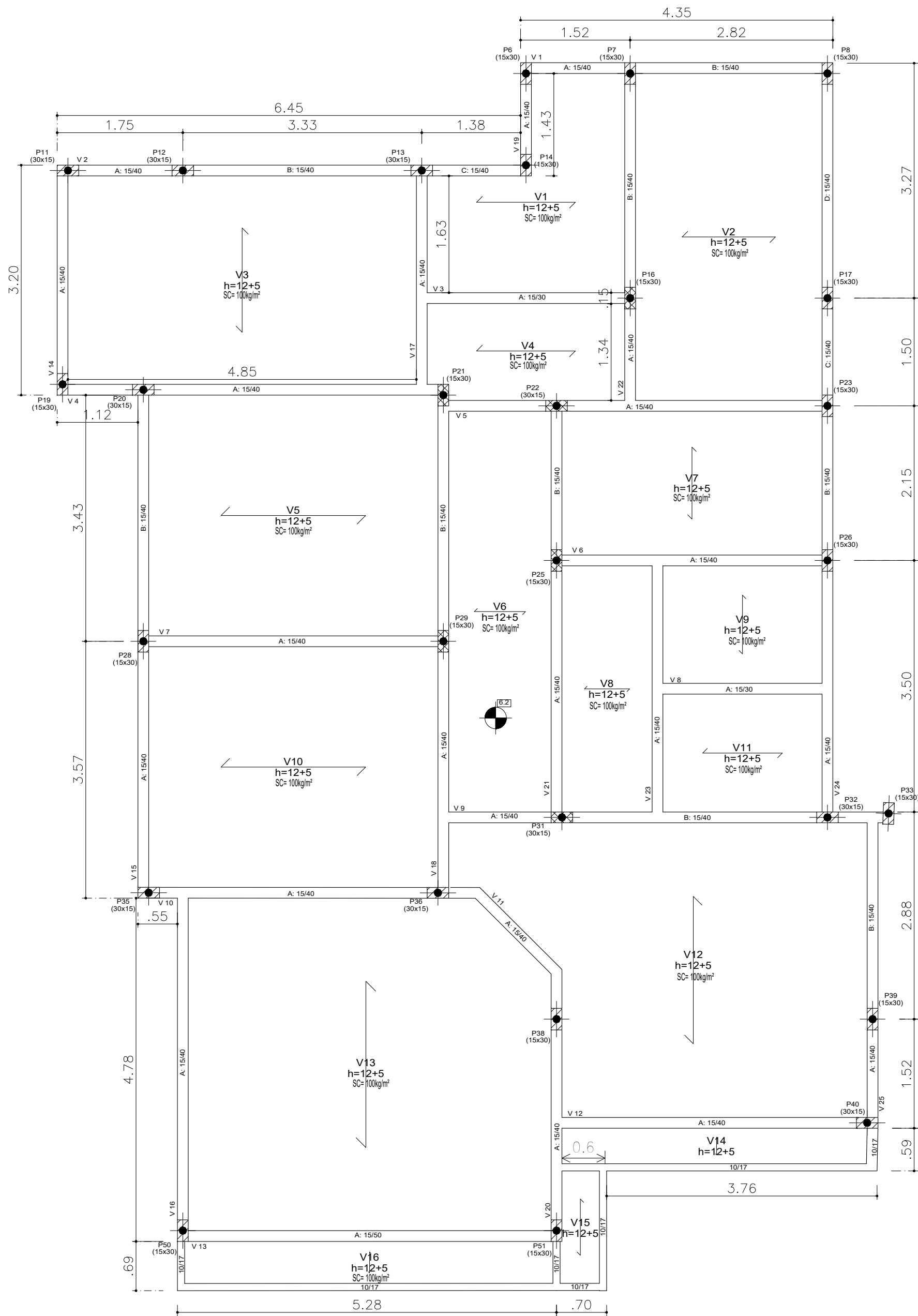
TÉRREO			
Elemento	Formas (m2)	Superfície (m2)	Volume (m3)
Lajes de vigotas	-	119.59	11.45
Vigas	68.00	18.80	8.29
Pilares	47.00	-	3.65
Escadas	-	11.79	1.93
Total	115.00	150.18	25.32
Índices (por m2)	-	-	1642
Superfície total:	139.79	m2	

TÉRREO
Piso
Mf: Momento fletor de cálculo por metro de largura (kgf x m/m)
V: Esforço cortante de cálculo por metro de largura (kgf/m)
Sobrecarga = 0.3 t/m2
Cargas permanentes = 0.1 t/m2
Escala: 1:50

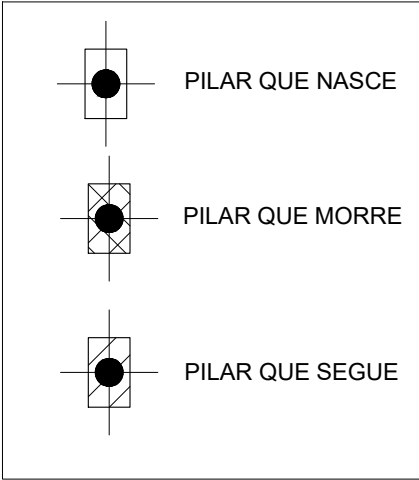


Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 1	1	Ø8	2		480	960	3.8	
	2	Ø10	2		480	960	5.9	
	3	Ø5	20		98	1960		3.1
	Total+10%:						10.7	3.4
V 2	1	Ø10	4		707	2828	17.4	
	2	Ø5	30		98	2940		4.6
	Total+10%:						19.1	5.1
	V 3	1	Ø8	2		180	360	1.4
2		Ø10	2		205	410	2.5	
3		Ø5	7		98	686		1.1
Total+10%:						4.3	1.2	
V 4	1	Ø8	2		177	354	1.4	
	2	Ø8	2		227	454	1.8	
	3	Ø5	11		78	858		1.3
	Total+10%:						3.5	1.4
V 5	1	Ø8	2		335	670	2.6	
	2	Ø10	2		335	670	4.1	
	3	Ø5	13		98	1274		2.0
	Total+10%:						7.4	2.2
V 6	1	Ø12.5	4		590	2360	22.7	
	2	Ø5	24		98	2352		3.7
	Total+10%:						25.0	4.1
	V 7	1	Ø10	4		595	2380	14.7
2		Ø6.3	1		188	188	0.5	
3		Ø5	24		98	2352		3.7
Total+10%:						16.7	4.1	
V 8	1	Ø8	2		437	874	3.5	
	2	Ø12.5	2		437	874	8.4	
	3	Ø10	1		377	377	2.3	
	4	Ø5	18		98	1764		2.8
Total+10%:						15.6	3.1	
V 9	1	Ø8	2		478	956	3.8	
	2	Ø10	2		478	956	5.9	
	3	Ø5	20		98	1960		3.1
	Total+10%:						10.7	3.4
V 10	1	Ø8	2		246	492	1.9	
	2	Ø10	2		296	592	3.6	
	3	Ø5	11		98	1078		1.7
	Total+10%:						6.1	1.9
V 11	1	Ø10	2		522	1044	6.4	
	2	Ø12.5	2		522	1044	10.1	
	3	Ø5	20		98	1960		3.1
	Total+10%:						18.2	3.4
V 12	1	Ø10	4		483	1932	11.9	
	2	Ø5	18		98	1764		2.8
	Total+10%:						13.1	3.1
	V 13	1	Ø8	2		360	720	2.8
2		Ø10	3		372	1116	6.9	
3		Ø5	19		78	1482		2.3
Total+10%:						10.7	2.5	
V 14	1	Ø10	4		500	2000	12.3	
	2	Ø5	21		98	2058		3.2
	Total+10%:						13.5	3.5
	V 15	1	Ø10	5		502	2510	15.5
2		Ø5	20		98	1960		3.1
Total+10%:						17.1	3.4	
V 16		1	Ø10	2		580	1160	7.1
	2	Ø12.5	2		580	1160	11.2	
	3	Ø5	26		118	3068		4.8
	Total+10%:						20.1	5.3
V 17	1	Ø8	2		580	1160	4.6	
	2	Ø10	2		580	1160	7.1	
	3	Ø5	26		98	2548		4.0
	Total+10%:						12.9	4.4
V 18	1	Ø8	2		368	736	2.9	
	2	Ø10	2		368	736	4.5	
	3	Ø5	14		98	1372		2.2
	Total+10%:						8.1	2.4
						Ø5:	0.0	57.9
						Ø6.3:	0.5	0.0
						Ø8:	33.7	0.0
						Ø10:	140.9	0.0
						Ø12.5:	57.7	0.0
						Ø16:	41.5	0.0
						Total:	232.8	57.9

TÉRREO
Desenho de vigas
Concreto: C25, usina.rigor
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:75
Escala seções 1:20
Escala aberturas 1:20



PLANTA DE FORMA - PAV. SUPERIOR
ESC. 1:50



DETALHES DOS PILARES PAV. SUPERIOR

P (15X30) 25X P6, P7, P8, P11 e P12 P13, P14, P16, P17 e P19 P20, P21, P22, P23 e P25 P26, P28, P29, P31 e P32 P33, P35, P36, P38 e P39	P (15X30) 1X P40	P (15X30) 1X P50	P (15X30) 1X P51

Tabela de características de lajes de vigotas (Grupo 4)

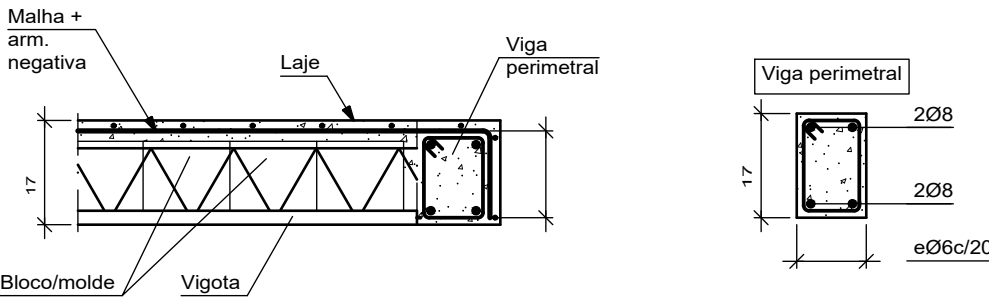
LAJE DE VIGOTAS DE CONCRETO
Altura do bloco/molde: 12 cm
Espessura camada de compressão: 5 cm
Entre-eixos: 42 cm
Bloco/Molde: De poliestireno
Largura da nervura: 12 cm
Volume de concreto: 0.096 m³/m²
Peso próprio: 0.24 t/m² (Simples), 0.30 t/m² (Dupla)
Nota: Consulte os detalhes referentes a uniões com lajes da estrutura principal e das zonas maciças.

OBS: SENTIDO DE COLOCAÇÃO DAS LAJES
LAJE TRELIÇADA LT 17(12+5)_{sc}=100KGf/m²

ESPECIFICAÇÕES E MONTAGEM DA LAJE
DETALHAMENTO DE FERRAGENS
(NEGATIVOS, NERVURAS E TELAS SOLDADAS
CONFORME PROJETO
ELABORADO PELO FORNECEDOR. COM ART.

OBS: DESENHO DAS VIGAS -PAV. SUPERIOR
VER PRANCHAS - V04

Viga mínima de travamento em borda de balanço.
Laje de vigotas.
Vigotas treliçadas.



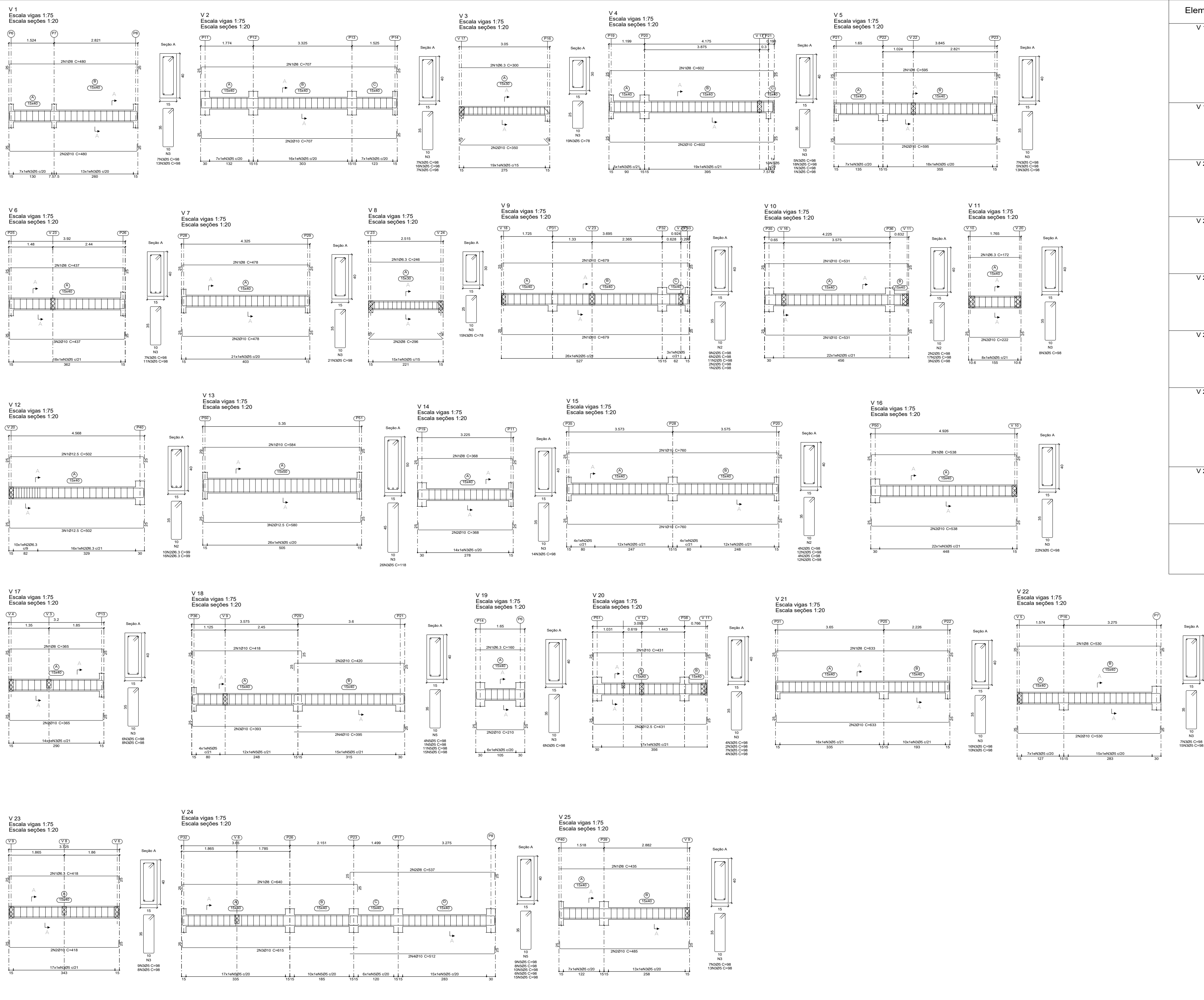
Resumo Aço	Comp. total	Peso	Total
Desenho de pilares	(m)	(kg)	
CA-50 Ø10	403,2		
Ø12.5	21,6		269,6
CA-60 Ø5	524,2		80,8
Total			350,4

SUPERIOR				
Elemento	Formas (m²)	Superfície (m²)	Volume (m³)	Barras (kg)
Lajes de vigotas	-	137.73	13.180	246
Vigas	57.21	17.17	7.280	431
Pilares	67.86	-	3.360	350.4
Total	-	154.90	23.820	1033
Índices (por m²)	-	-	0.153	6.67
Superfície total: 156.16 m²				

SUPERIOR
Piso
Mf: Momento fletor de cálculo por metro de largura (kgf x m/m)
V: Esforço cortante de cálculo por metro de largura (kgf/m)
Sobrecarga = 0.1 t/m²
Cargas permanentes = 0.1 t/m²
Escala: 1:50

FOLHA

E04

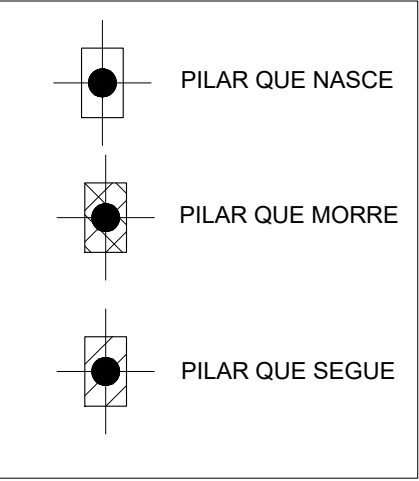


Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 18	1	Ø10	2		388	418	836	5.2
	2	Ø10	2		370	420	840	5.2
	3	Ø10	2		368	393	786	4.8
	4	Ø10	2		370	395	790	4.9
	5	Ø5	31		98	98	3038	4.8
					Total+10%:		22.1	5.3
V 19	1	Ø6.3	2		160	160	320	0.8
	2	Ø10	2		160	210	420	2.6
	3	Ø5	6		98	98	588	0.9
					Total+10%:		3.7	1.0
V 20	1	Ø10	2		381	431	862	5.3
	2	Ø12.5	2		381	431	862	8.3
	3	Ø5	17		98	98	1666	2.6
					Total+10%:		15.0	2.9
V 21	1	Ø8	2		583	633	1266	5.0
	2	Ø10	2		583	633	1266	7.8
	3	Ø5	26		98	98	2548	4.0
					Total+10%:		14.1	4.4
V 22	1	Ø8	2		480	530	1060	4.2
	2	Ø10	2		480	530	1060	6.5
	3	Ø5	22		98	98	2156	3.4
					Total+10%:		11.8	3.7
V 23	1	Ø6.3	2		388	418	836	2.0
	2	Ø10	2		388	418	836	5.2
	3	Ø5	17		98	98	1666	2.6
					Total+10%:		7.9	2.9
V 24	1	Ø8	2		590	640	1280	5.1
	2	Ø8	2		487	537	1074	4.2
	3	Ø10	2		590	615	1230	7.6
	4	Ø10	2		487	512	1024	6.3
	5	Ø5	48		98	98	4704	7.4
					Total+10%:		25.5	8.1
V 25	1	Ø8	2		435	435	870	3.4
	2	Ø10	2		435	485	970	6.0
	3	Ø5	20		98	98	1960	3.1
					Total+10%:		10.3	3.4
					Ø5:	0.0	31.7	
					Ø6.3:	3.1	0.0	
					Ø8:	24.0	0.0	
					Ø10:	74.1	0.0	
					Ø12.5:	9.2	0.0	
					Total:	110.4	31.7	

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 1	1	Ø8	2		430	480	960	3.8
	2	Ø10	2		430	480	960	5.9
	3	Ø5	20		98	98	1960	3.1
					Total+10%:		10.7	3.4
V 2	1	Ø8	2		687	707	1414	5.6
	2	Ø10	2		687	707	1414	8.7
	3	Ø5	30		98	98	2940	4.6
					Total+10%:		15.7	5.1
V 3	1	Ø6.3	2		300	300	600	1.5
	2	Ø10	2		300	350	700	4.3
	3	Ø5	19		78	78	1482	2.3
					Total+10%:		6.4	2.5
V 4	1	Ø8	2		602	602	1204	4.8
	2	Ø10	2		602	602	1204	7.4
	3	Ø5	25		98	98	2450	3.8
					Total+10%:		13.4	4.2
V 5	1	Ø8	2		545	595	1190	4.7
	2	Ø10	3		545	595	1190	7.3
	3	Ø5	25		98	98	2450	3.8
					Total+10%:		13.2	4.2
V 6	1	Ø8	2		387	437	874	3.5
	2	Ø10	3		387	437	1311	8.1
	3	Ø5	18		98	98	1764	2.8
					Total+10%:		12.8	3.1
V 7	1	Ø8	2		428	478	956	3.8
	2	Ø10	2		428	478	956	5.9
	3	Ø5	21		98	98	2058	3.2
					Total+10%:		10.7	3.5
V 8	1	Ø6.3	2		246	246	492	1.2
	2	Ø8	2		246	296	592	2.3
	3	Ø5	15		78	78	1170	1.8
					Total+10%:		3.9	2.0
V 9	1	Ø10	4		628	679	2716	16.7
	2	Ø5	29		98	98	2842	4.5
					Total+10%:		18.4	5.0
V 10	1	Ø10	4		481	531	2124	13.1
	2	Ø5	22		98	98	2156	3.4
					Total+10%:		14.4	3.7
V 11	1	Ø6.3	2		172	172	344	0.8
	2	Ø10	2		172	222	444	2.7
	3	Ø5	8		98	98	784	1.2
					Total+10%:		3.9	1.3
V 12	1	Ø12.5	5		452	502	2510	24.2
	2	Ø6.3	26		100	100	2600	6.4
					Total+10%:		33.7	
V 13	1	Ø10	2		530	584	1168	7.2
	2	Ø12.5	3		530	580	1740	16.8
	3	Ø5	26		118	118	3068	4.8
					Total+10%:		26.4	5.3
V 14	1	Ø8	2		318	368	736	2.9
	2	Ø10	2		318	368	736	4.5
	3	Ø5	14		98	98	1372	2.2
					Total+10%:		8.1	2.4
V 15	1	Ø10	4		710	760	3040	18.7
	2	Ø5	32		98	98	3136	4.9
					Total+10%:		20.6	5.4
V 16	1	Ø8	2		488	538	1078	4.2
	2	Ø10	2		488	538	1078	6.6
	3	Ø5	22		98	98	2156	3.4
					Total+10%:		11.9	3.7
V 17	1	Ø8	2		315	365	730	2.9
	2	Ø10	2		315	365	730	4.5
	3	Ø5	14		98	98	1372	2.2
					Total+10%:		8.1	2.4
					Ø5:	0.0	57.2	
					Ø6.3:	11.0	0.0	
					Ø8:	42.6	0.0	
					Ø10:	133.6	0.0	
					Ø12.5:	45.1	0.0	
					Total:	232.3	57.2	

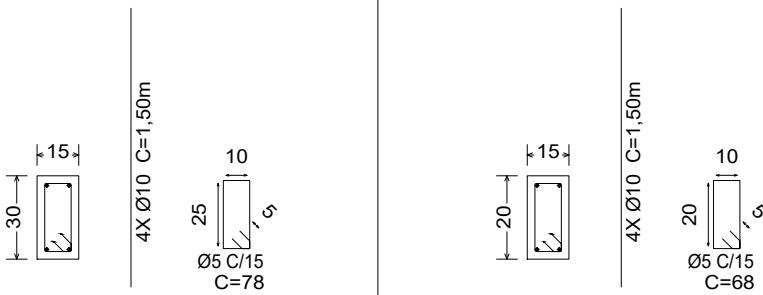
Resumo Aço		Comp. total (m)	Peso+10% (kg)	Total
Desenho de vigas				
CA-50	Ø6.3	51.9	14	342
	Ø8	152.8	66	
	Ø10	306.9	208	
	Ø12.5	51.1	54	
CA-60	Ø5	514.9	89	89
	Total			431

SUPERIOR
Desenho de vigas
Concreto: C25, usina.rigor
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:75
Escala seções 1:20
Escala aberturas 1:20



P (15X30) 22X
P6, P7, P8, P11 e P12
P13, P14, P17, P19 e P20
P23, P26, P28, P32 e P33
P35, P36, P38, P39 e P40
P50, P51

P (15X20) 3X
P52, P53, P54

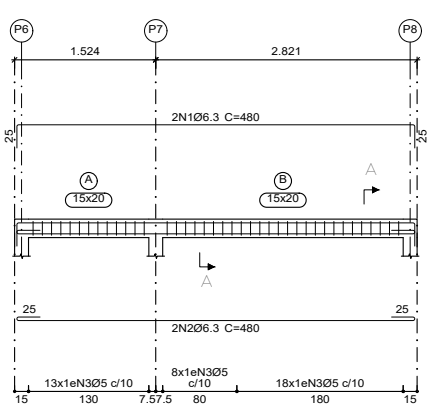


Resumo Aço		Comp. total	Peso	
Desenho de pilares		(m)	(kg)	Total
CA-50	Ø10	150,0		92,6
CA-60	Ø5	195,0		30,1
Total				122,7

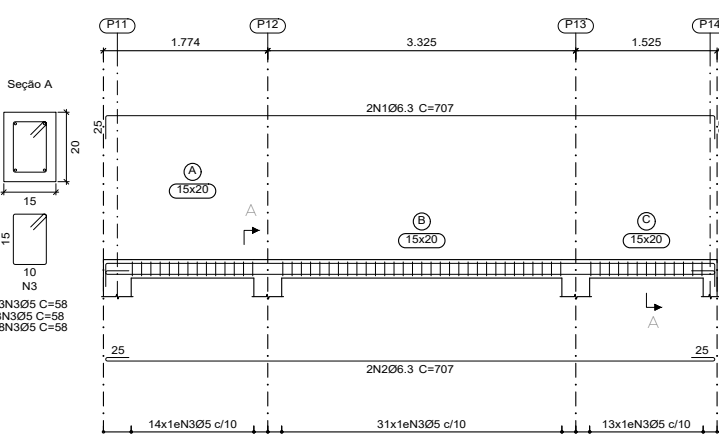
COBERTURA				
Elemento	Formas (m2)	Superfície (m2)	Volume (m3)	Barras (kg)
Vigas (BLOCO CANALETA)	21.75	8.17	1.870	129
Pilares	25.74	-	1.320	122,7
Total	-	8.17	3.190	288
Índices (por m2)	-	-	0.348	31.44
Superfície total: 9.16 m2				

COBERTURA
Piso
Sobrecarga = 0.05 t/m²
Cargas permanentes = 0.05 t/m²
Escala: 1:50

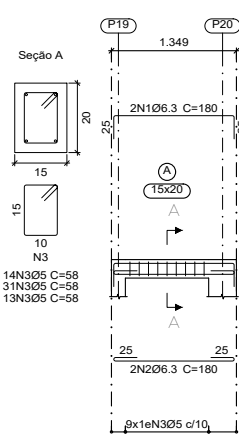
V 1
Escala vigas 1:75
Escala seções 1:20



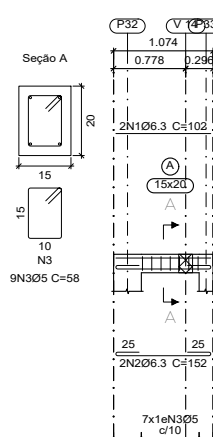
V 2
Escala vigas 1:75
Escala seções 1:20



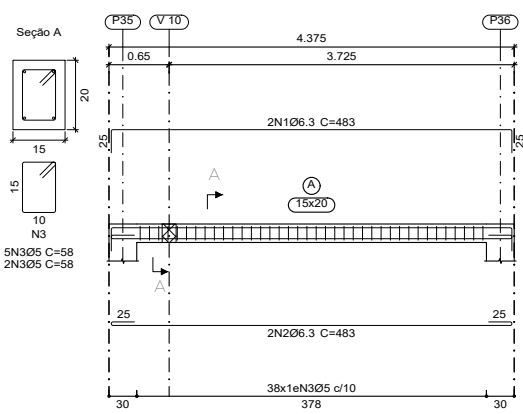
V 3
Escala vigas 1:75
Escala seções 1:20



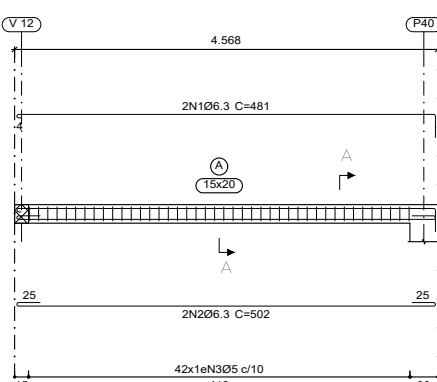
V 4
Escala vigas 1:75
Escala seções 1:20



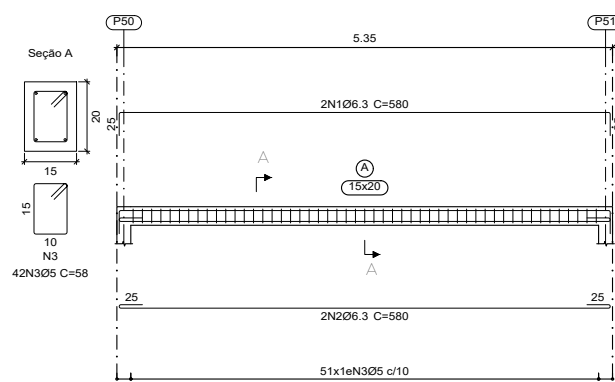
V 5
Escala vigas 1:75
Escala seções 1:20



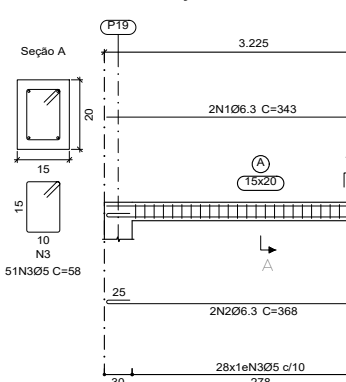
V 6
Escala vigas 1:75
Escala seções 1:20



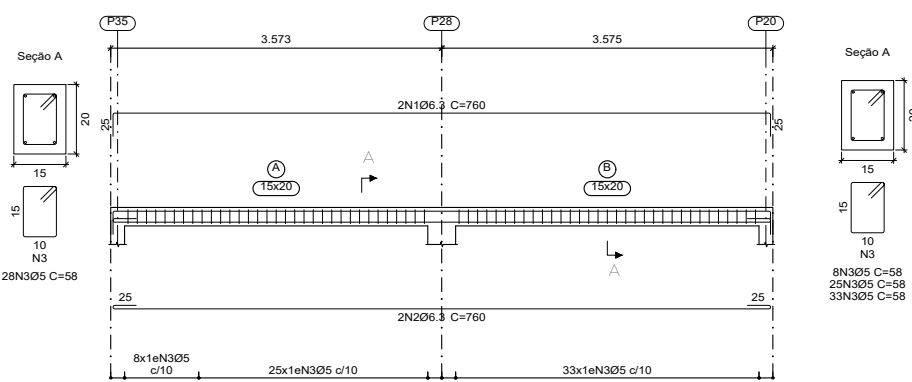
V 7
Escala vigas 1:75
Escala seções 1:20



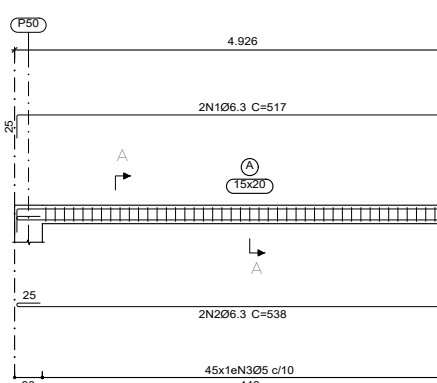
V 8
Escala vigas 1:75
Escala seções 1:20



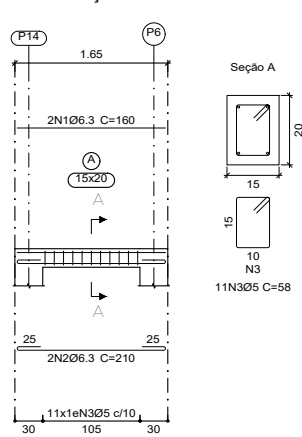
V 9
Escala vigas 1:75
Escala seções 1:20



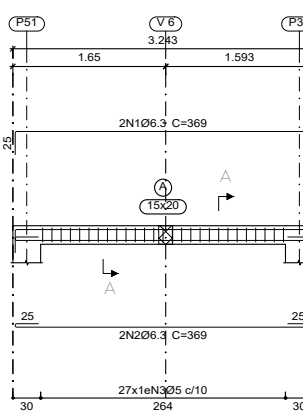
V 10
Escala vigas 1:75
Escala seções 1:20



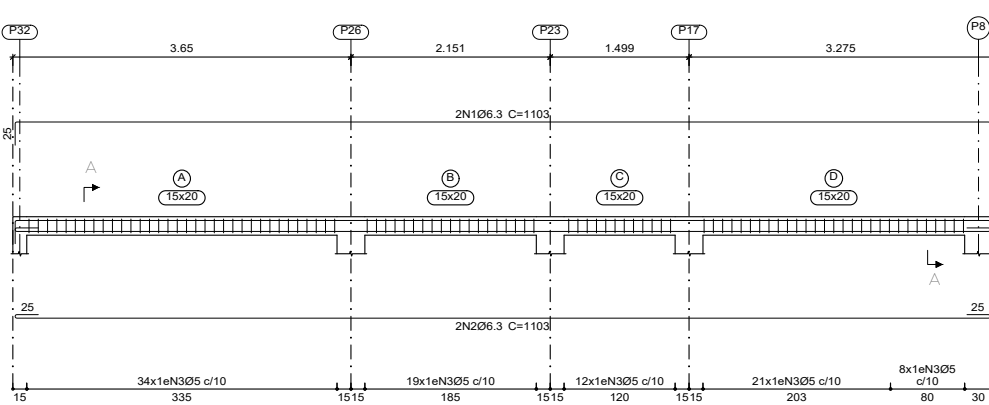
V 11
Escala vigas 1:75
Escala seções 1:20



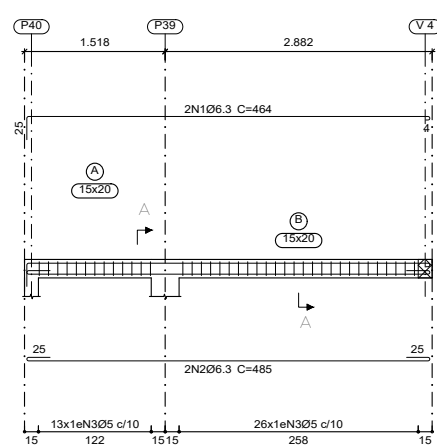
V 12
Escala vigas 1:75
Escala seções 1:20



V 13
Escala vigas 1:75
Escala seções 1:20



V 14
Escala vigas 1:75
Escala seções 1:20



Resumo Aço	Comp. total	Peso+10%	Total
Desenho de vigas	(m)	(kg)	
CA-50 Ø6.3	272.9	74	74
CA-60 Ø5	321.3	55	55
Total			129

COBERTURA
Desenho de vigas
Concreto: C25, usina.rigor
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:75
Escala seções 1:20
Escala aberturas 1:20

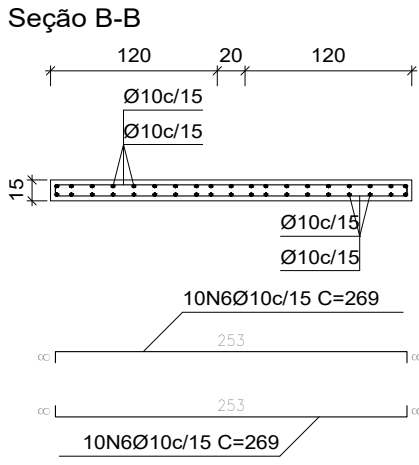
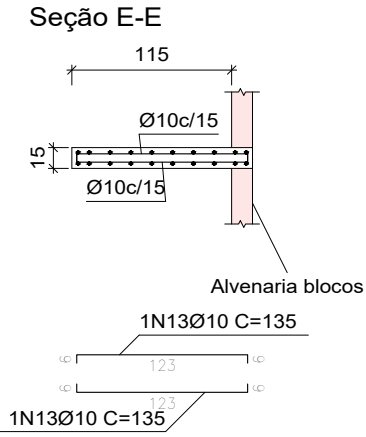
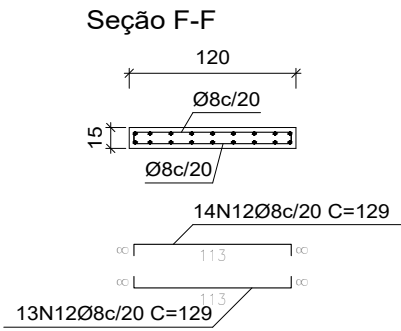
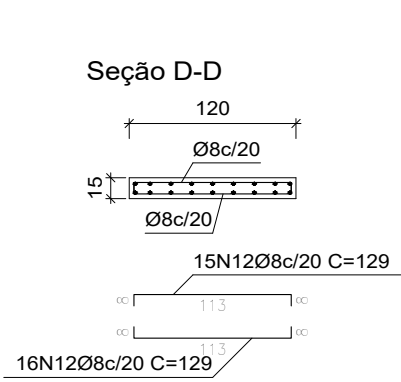
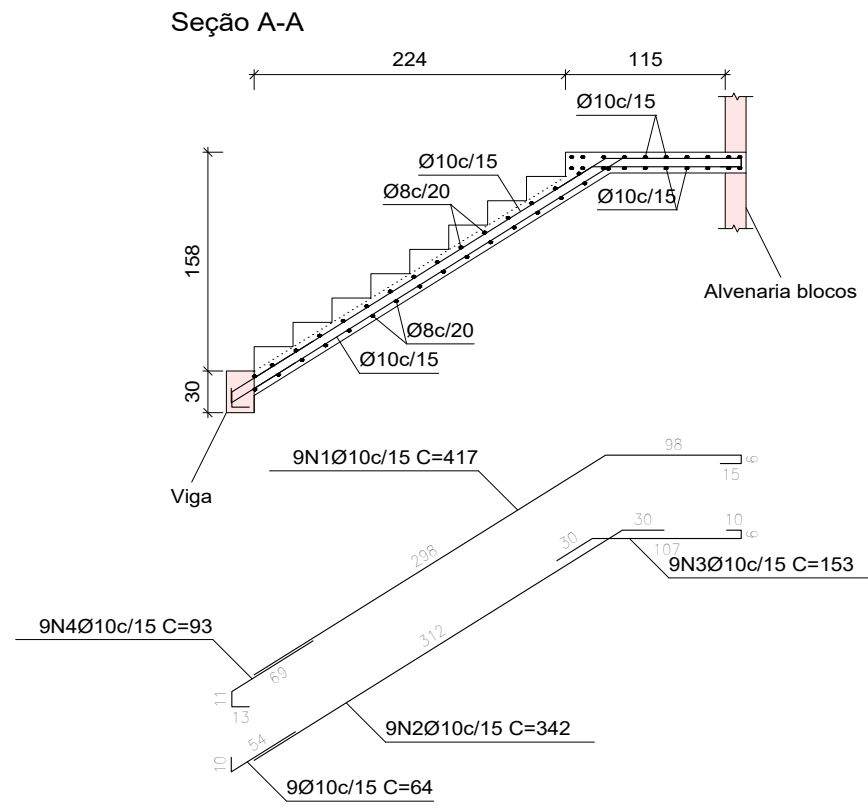
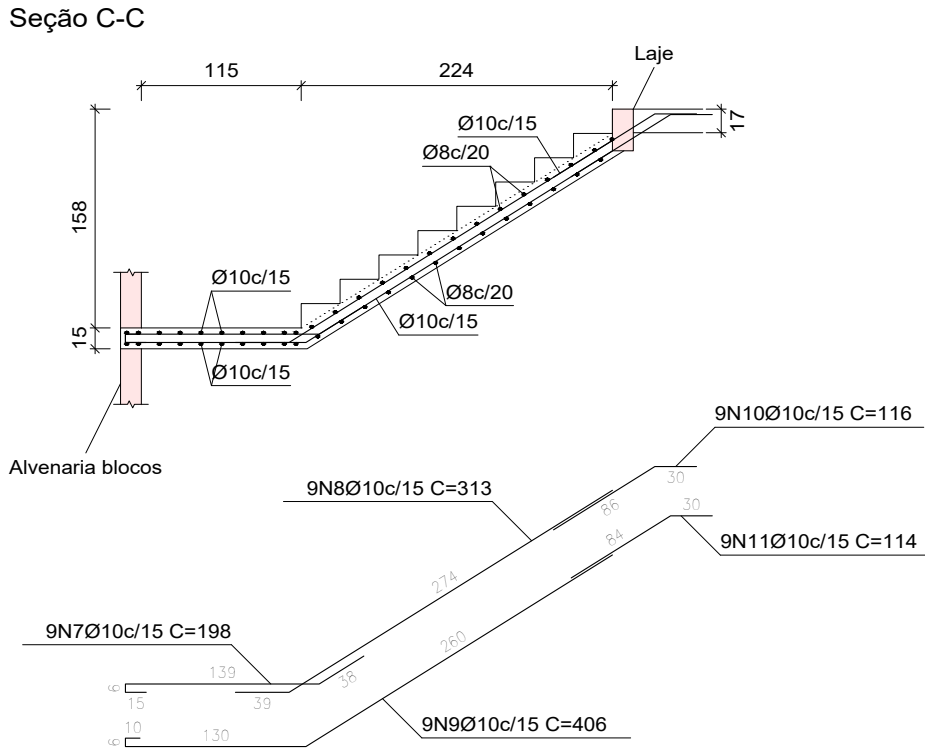
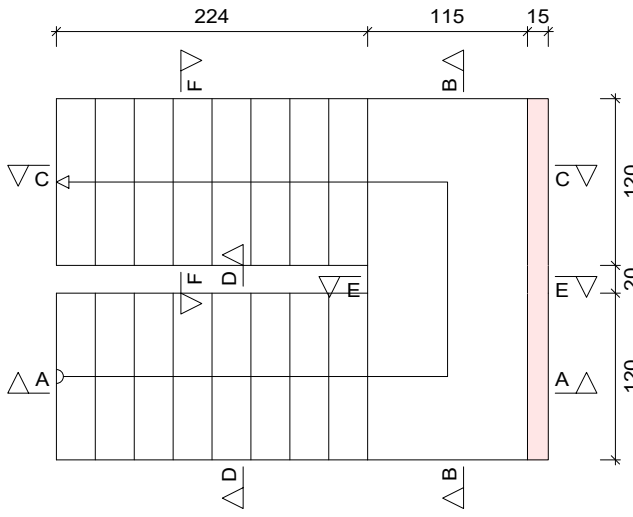
FOLHA

V05

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 1	1	Ø6.3	2		480	960	2.4	
	2	Ø6.3	2		480	960	2.4	
	3	Ø5	39		58	2262		3.6
	Total+10%:						5.3	4.0
V 2	1	Ø6.3	2		707	1414	3.5	
	2	Ø6.3	2		707	1414	3.5	
	3	Ø5	58		58	3364		5.3
	Total+10%:						7.7	5.8
V 3	1	Ø6.3	2		180	360	0.9	
	2	Ø6.3	2		180	360	0.9	
	3	Ø5	9		58	522		0.8
	Total+10%:						2.0	0.9
V 4	1	Ø6.3	2		102	204	0.5	
	2	Ø6.3	2		152	304	0.7	
	3	Ø5	7		58	406		0.6
	Total+10%:						1.3	0.7
V 5	1	Ø6.3	2		483	966	2.4	
	2	Ø6.3	2		483	966	2.4	
	3	Ø5	38		58	2204		3.5
	Total+10%:						5.3	3.9
V 6	1	Ø6.3	2		481	962	2.4	
	2	Ø6.3	2		502	1004	2.5	
	3	Ø5	42		58	2436		3.8
	Total+10%:						5.4	4.2
V 7	1	Ø6.3	2		580	1160	2.8	
	2	Ø6.3	2		580	1160	2.8	
	3	Ø5	51		58	2958		4.6
	Total+10%:						6.2	5.1
V 8	1	Ø6.3	2		343	686	1.7	
	2	Ø6.3	2		368	736	1.8	
	3	Ø5	28		58	1624		2.5
	Total+10%:						3.9	2.8
V 9	1	Ø6.3	2		760	1520	3.7	
	2	Ø6.3	2		760	1520	3.7	
	3	Ø5	66		58	3828		6.0
	Total+10%:						8.1	6.6
V 10	1	Ø6.3	2		517	1034	2.5	
	2	Ø6.3	2		538	1076	2.6	
	3	Ø5	45		58	2610		4.1
	Total+10%:						5.6	4.5
V 11	1	Ø6.3	2		160	320	0.8	
	2	Ø6.3	2		210	420	1.0	
	3	Ø5	11		58	638		1.0
	Total+10%:						2.0	1.1
V 12	1	Ø6.3	2		369	738	1.8	
	2	Ø6.3	2		369	738	1.8	
	3	Ø5	27		58	1566		2.5
	Total+10%:						4.0	2.8
V 13	1	Ø6.3	2		1103	2206	5.4	
	2	Ø6.3	2		1103	2206	5.4	
	3	Ø5	94		58	5452		8.6
	Total+10%:						11.9	9.5
V 14	1	Ø6.3	2		464	928	2.3	
	2	Ø6.3	2		485	970	2.4	
	3	Ø5	39		58	2262		3.6
	Total+10%:						5.2	4.0
						Ø5:	0.0	55.9
						Ø6.3:	73.9	0.0
						Total:	73.9	55.9

Escada 1

Tramo 1		
Geometria	Largura	1.200 m
	Espessura	0.15 m
	Piso	0.280 m
	Espelho	0.175 m
	Desnível que vence	3.15 m
	Nº de degraus	18
Cargas	Piso final	TÉRREO
	Piso inicial	Fundação
	Peso próprio	0.375 t/m2
	Degraus (Concretado com a laje)	0.185 t/m2
	Revestimento	0.100 t/m2
	Guarda-corpos	0.300 t/m
Materiais	Sobrecarga	0.300 t/m2
	Concreto	C25, usina.rigor
	Aço	CA-50 e CA-60
	Cob. geométrico	3.0 cm



Escala 1:50

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)	
Escada 1-Tramo 1	1	Ø10	9		417		417	3753	23.1		
	2	Ø10	9		342		342	3078	19.0		
	3	Ø10	9		153		153	1377	8.5		
	4	Ø10	9		93		93	837	5.2		
	5	Ø10	9		64		64	576	3.5		
	6	Ø10	20		269		269	5380	33.2		
	7	Ø10	9		198		198	1782	11.0		
	8	Ø10	9		313		313	2817	17.4		
	9	Ø10	9		408		408	3654	22.5		
	10	Ø10	9		116		116	1044	6.4		
	11	Ø8	9		114		114	1026	6.3		
	12	Ø8	58		129		129	7482	29.5		
	13	Ø10	2		135		135	270	1.7		
Total+10%:									206.0		
									Ø8:	32.4	0.0
									Ø10:	173.6	0.0
									Total:	206.0	0.0

Resumo Aço Escada 1	Comp. total (m)	Peso+10% (kg)	Total
CA-50 Ø8	74.8	32	
Ø10	255.9	173	205