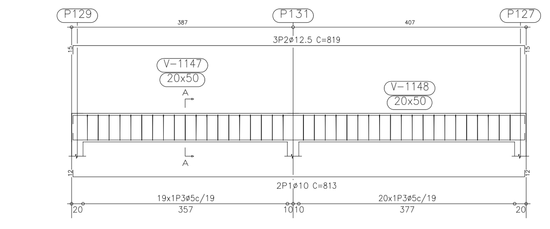
V 41
Escala 1:50

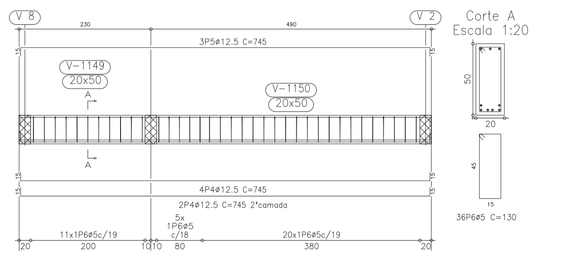


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

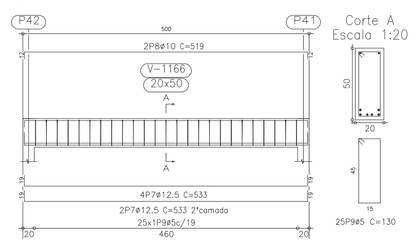
Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 41	1	ø12.5	2	860	1720	38.1	8.5
	2	ø12.5	2	860	1720	38.1	
	3	ø5	46	130	5980	23.7	
					Total=108	97.7	8.5
V 42	4	ø12.5	2	745	1490	33.0	7.4
	5	ø12.5	2	745	1490	33.0	
					Total=108	74.4	8.5
V 50	6	ø12.5	2	533	1066	23.6	5.1
	7	ø5	41	130	5330	21.1	
					Total=108	47.7	5.1
					ø5	21.1	2.4
					ø12.5	118.4	25.8
					Total	139.5	28.2

V 42
Escala 1:50



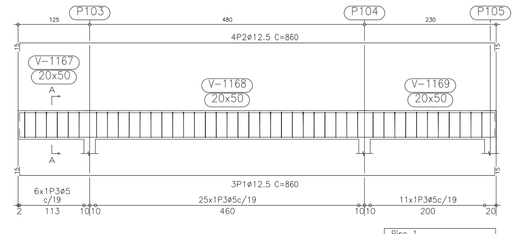
Corte A
Escala 1:20

V 50
Escala 1:50



Corte A
Escala 1:20

V 51
Escala 1:50

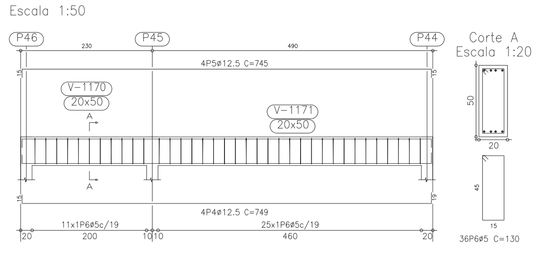


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

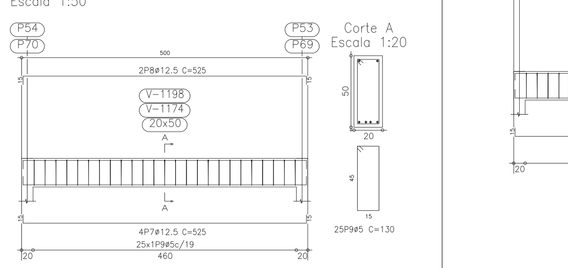
Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 51	1	ø12.5	2	860	1720	38.1	8.6
	2	ø12.5	2	860	1720	38.1	
	3	ø5	42	130	5460	21.6	
					Total=108	97.7	8.6
V 52	4	ø12.5	2	745	1490	33.0	7.4
	5	ø12.5	2	745	1490	33.0	
					Total=108	74.4	8.5
V 54 V 66	6	ø12.5	2	525	1050	23.2	5.1
	7	ø5	41	130	5330	21.1	
					Total=108	46.0	5.1
					ø5	21.1	2.4
					ø12.5	141.1	30.7
					Total	162.2	33.1

V 52
Escala 1:50



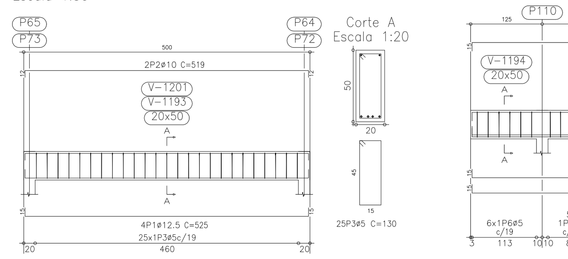
Corte A
Escala 1:20

V 54
V 66
Escala 1:50



Corte A
Escala 1:20

V 63
V 68
Escala 1:50

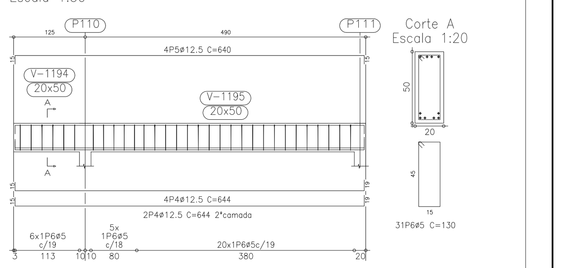


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 63 V 68	1	ø12.5	2	745	1490	33.0	7.4
	2	ø12.5	2	745	1490	33.0	
	3	ø5	46	130	5980	23.7	
					Total=108	89.7	8.6
V 64	4	ø12.5	2	440	880	19.5	4.3
	5	ø12.5	2	440	880	19.5	
	6	ø5	41	130	5330	21.1	
					Total=108	60.1	8.6
					ø5	21.1	2.4
					ø12.5	72.5	15.8
					Total	93.6	18.2

V 64
Escala 1:50

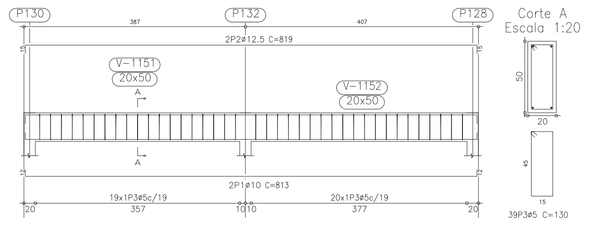


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

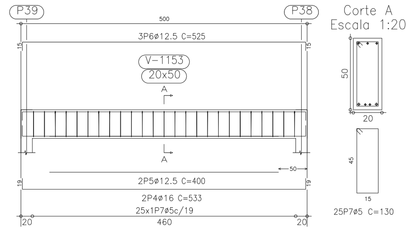
Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 64	1	ø12.5	2	640	1280	28.3	6.4
	2	ø12.5	2	640	1280	28.3	
	3	ø5	46	130	5980	23.7	
					Total=108	80.4	8.6
V 64	4	ø12.5	2	644	1288	28.5	6.4
	5	ø12.5	2	644	1288	28.5	
	6	ø5	41	130	5330	21.1	
					Total=108	78.1	8.6
					ø5	21.1	2.4
					ø12.5	113.3	25.3
					Total	134.4	27.7

V 43
Escala 1:50



Corte A
Escala 1:20

V 44
Escala 1:50

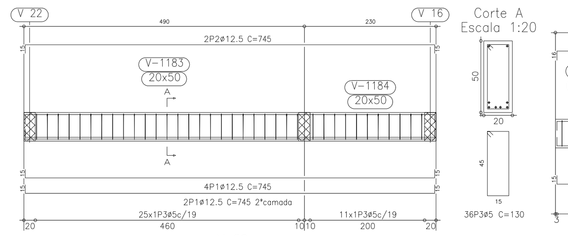


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

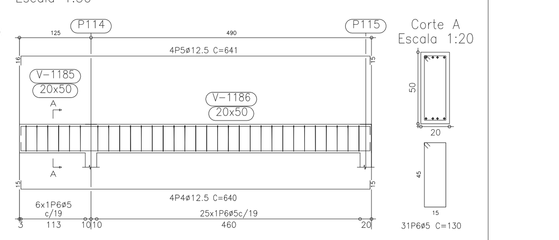
Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 43	1	ø12.5	2	860	1720	38.1	8.6
	2	ø12.5	2	860	1720	38.1	
	3	ø5	46	130	5980	23.7	
					Total=108	99.9	8.6
V 44	4	ø12.5	2	600	1200	26.6	5.6
	5	ø12.5	2	600	1200	26.6	
	6	ø5	41	130	5330	21.1	
					Total=108	74.3	8.6
					ø5	21.1	2.4
					ø12.5	106.8	23.8
					Total	127.9	26.2

V 58
Escala 1:50



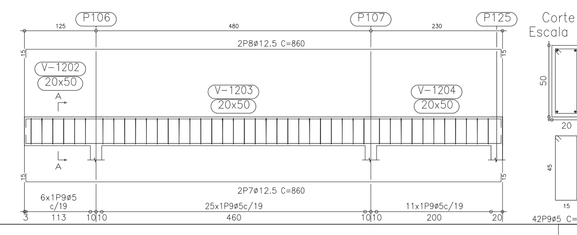
Corte A
Escala 1:20

V 59
Escala 1:50



Corte A
Escala 1:20

V 69
Escala 1:50

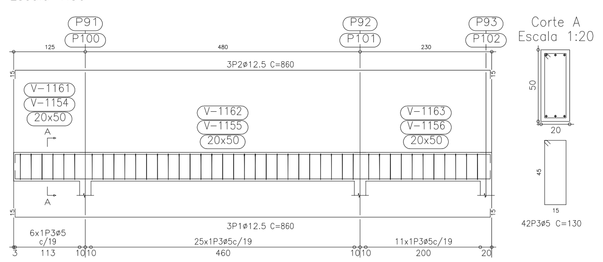


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 58	1	ø12.5	2	745	1490	33.0	7.4
	2	ø12.5	2	745	1490	33.0	
	3	ø5	46	130	5980	23.7	
					Total=108	89.7	8.6
V 59	4	ø12.5	2	640	1280	28.3	6.4
	5	ø12.5	2	640	1280	28.3	
	6	ø5	41	130	5330	21.1	
					Total=108	77.8	8.6
					ø5	21.1	2.4
					ø12.5	113.3	25.3
					Total	134.4	27.7

V 45
V 48
Escala 1:50

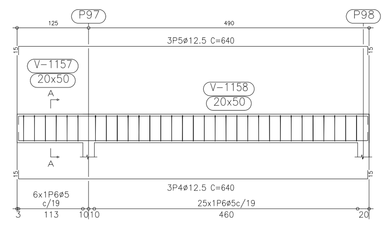


Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

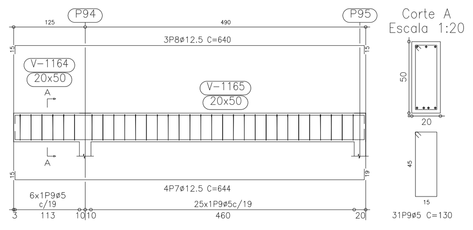
Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 45 V 48	1	ø12.5	2	860	1720	38.1	8.6
	2	ø12.5	2	860	1720	38.1	
	3	ø5	42	130	5460	21.6	
					Total=108	97.7	8.6
V 46	4	ø12.5	2	640	1280	28.3	6.3
	5	ø12.5	2	640	1280	28.3	
	6	ø5	41	130	5330	21.1	
					Total=108	77.8	8.6
V 49	7	ø12.5	2	644	1288	28.5	6.3
	8	ø12.5	2	644	1288	28.5	
	9	ø5	41	130	5330	21.1	
					Total=108	78.1	8.6
					ø5	21.1	2.4
					ø12.5	113.3	25.1
					Total	134.4	27.5

V 46
Escala 1:50



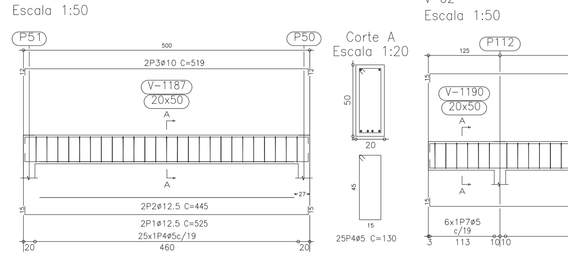
Corte A
Escala 1:20

V 49
Escala 1:50



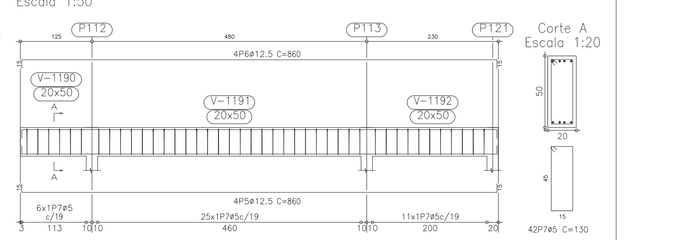
Corte A
Escala 1:20

V 60
Escala 1:50



Corte A
Escala 1:20

V 62
Escala 1:50



Corte A
Escala 1:20

Pilar 1
Desenho de vigas
Bet&ão: C25, usina.rgor
Aço: CA-50-A e CA-60-B
Escala pórticos: 1:50
Escala seções: 1:20

Elemento	Pos.	Ø	Q	Comp. (cm)	Total (cm)	CA-50=A / CA-60=B (kg)	
V 60	1	ø12.5	2	525	1050	23.2	5.1
	2	ø12.5	2	525	1050	23.2	
	3	ø5	41	130	5330	21.1	
					Total=108	67.5	8.6
V 62	4	ø12.5	2	860	1720	38.1	8.6
	5	ø12.5	2	860	1720	38.1	
	6	ø5	42	130	5460	21.6	
					Total=108	74.4	8.6
					ø5	21.1	2.4
					ø12.5	99.3	22.1
					Total	120.5	24.5

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Endereço: Rua Minas Gerais
Número:
Cidade: Rio Grande/RS
Área: Indicada na Planta
Bairro: Miguel de Castro Moreira
DATA: Agosto/2015

NOME DO PROJETO: Projeto de Ampliação da EMEF França Pinto

TITULO: Armação das Vigas

PROJETO: Estrutural

ESCALA: INDICADA

PRANCHA: P6

PROJETO, ENGº. CIVIL Felipe Candido Volkmo Costa
CREA/RS 159649