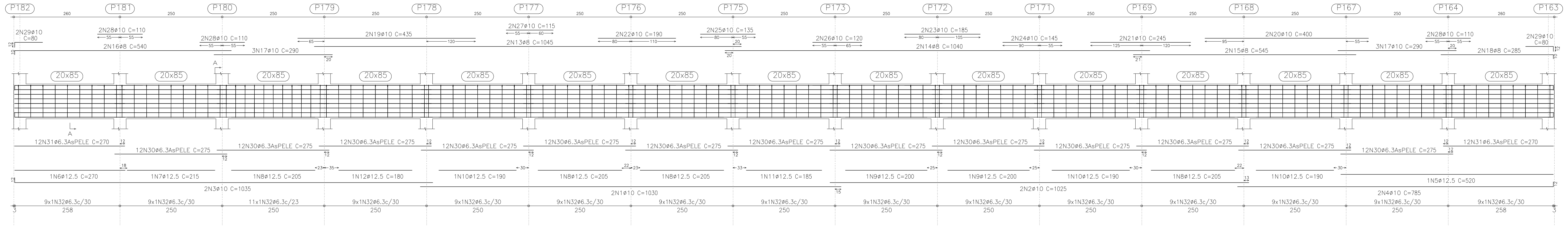
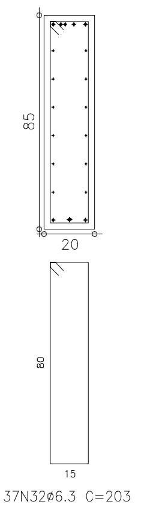
Primeiro piso
Desenho de vigas
Concreto: C25, con.desfav.
Aço: CA-50-A e CA-60-B
Escala vigas: 1:50
Escala seções: 1:20

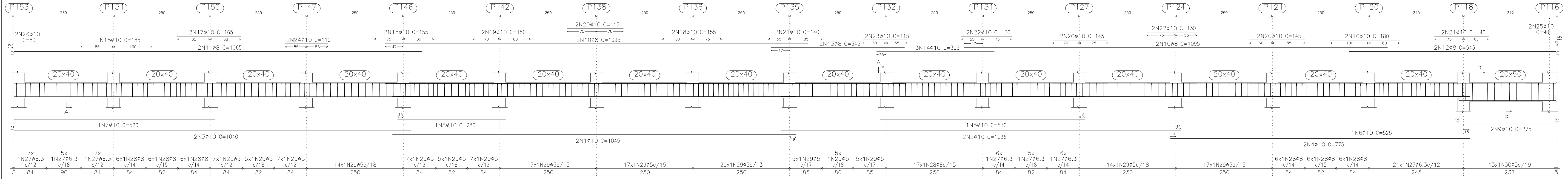
V 24
Escala 1:50



Corte A
Escala 1:20

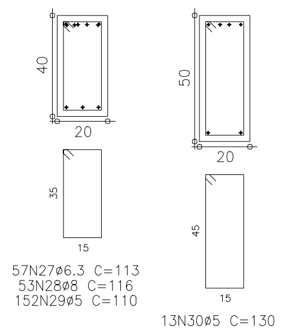


V 19
Escala 1:50

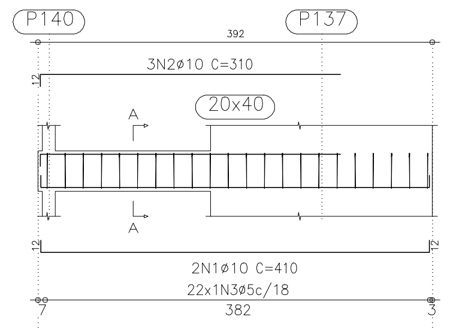


Corte A
Escala 1:20

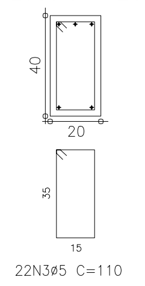
Corte B
Escala 1:20



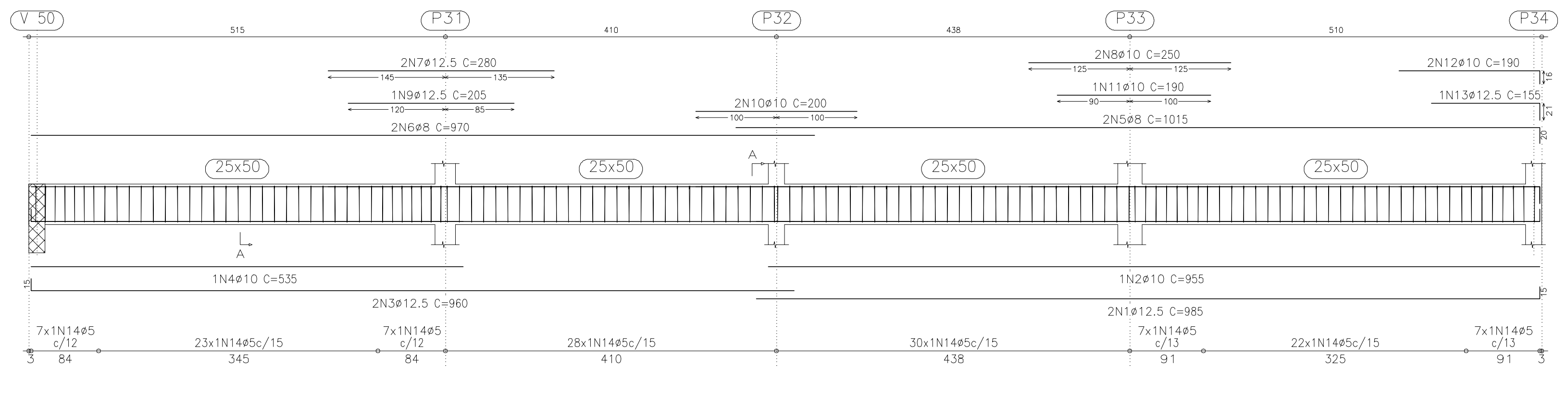
V 20
Escala 1:50



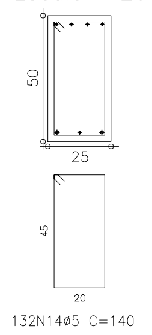
Corte A
Escala 1:20



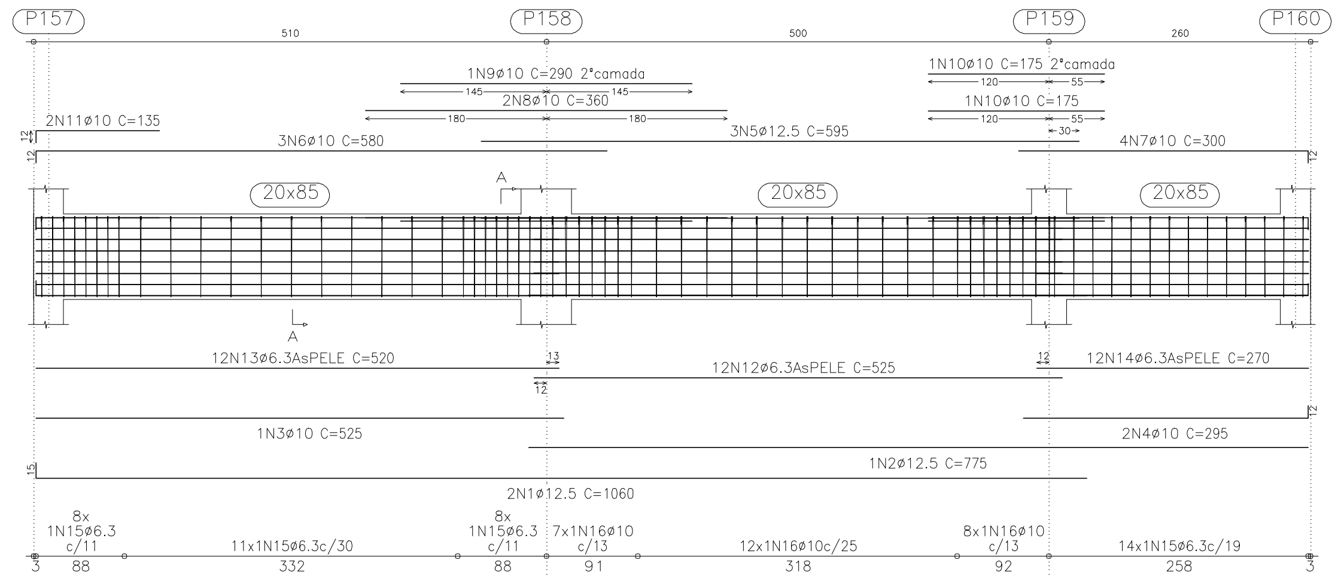
V4
Escala 1:50



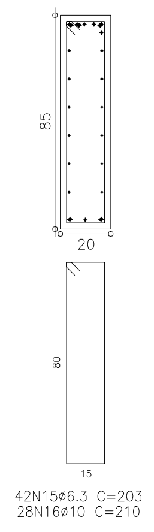
Corte A
Escala 1:20



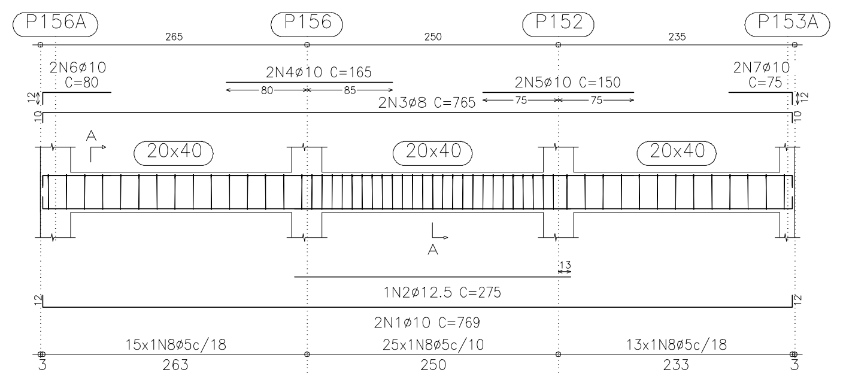
V 22
Escala 1:50



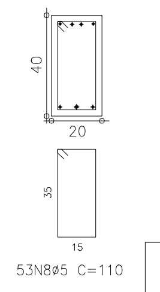
Corte A
Escala 1:20



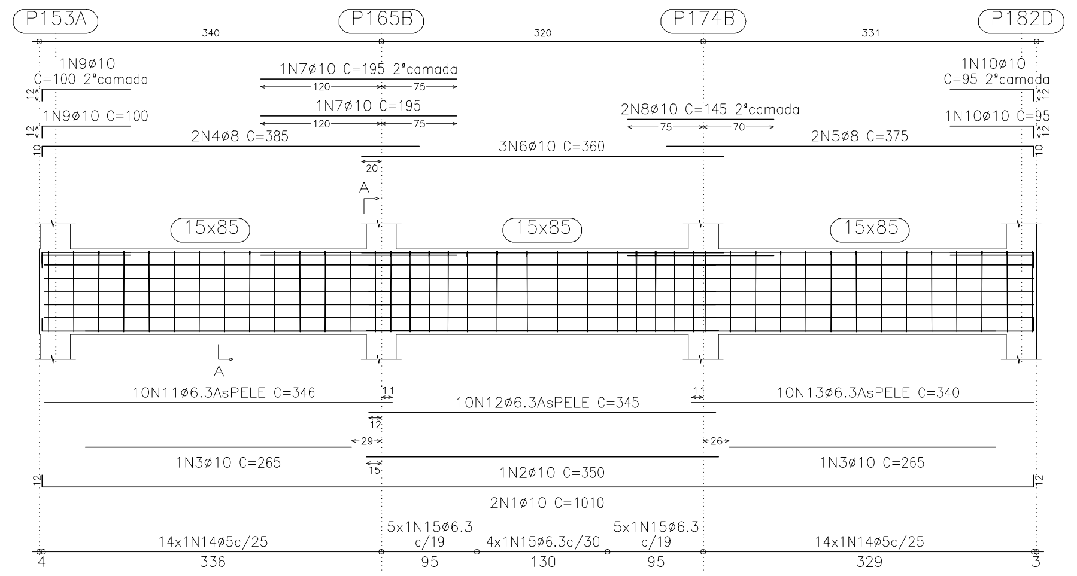
V 23
Escala 1:50



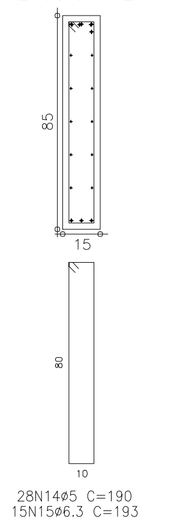
Corte A
Escala 1:20



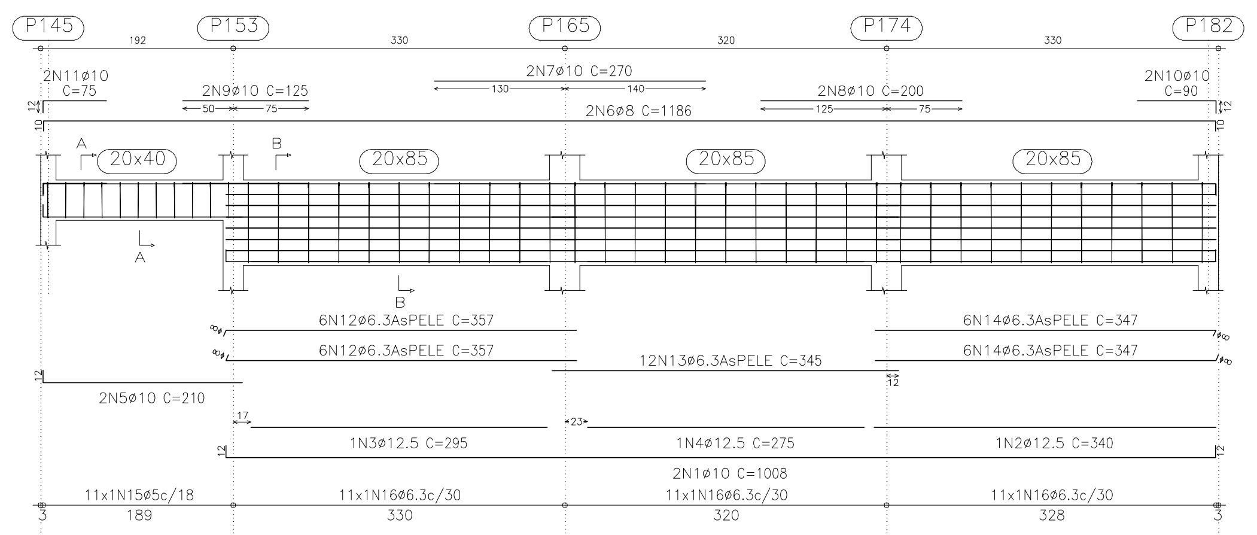
V 32
Escala 1:50



Corte A
Escala 1:20

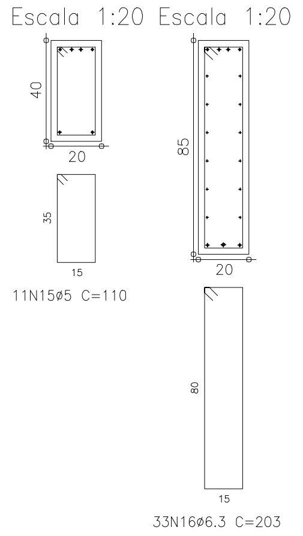


V 33
Escala 1:50

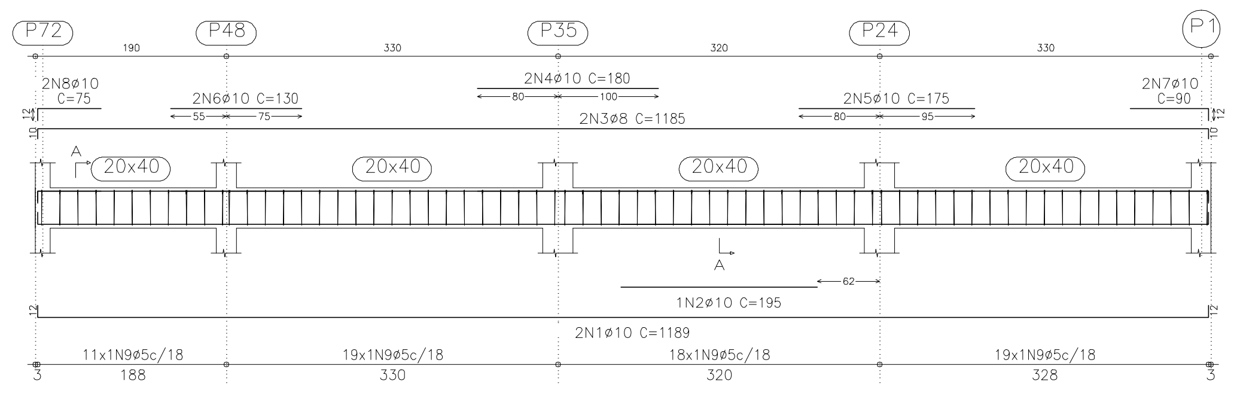


Corte A
Escala 1:20

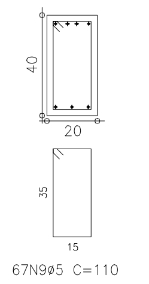
Corte B
Escala 1:20



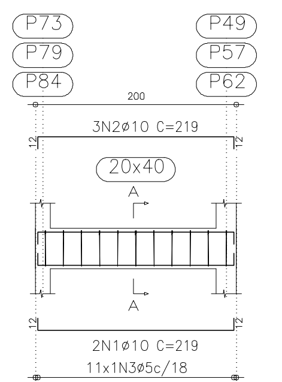
V 34
Escala 1:50



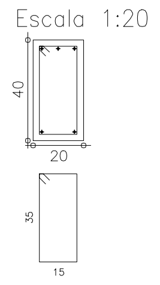
Corte A
Escala 1:20



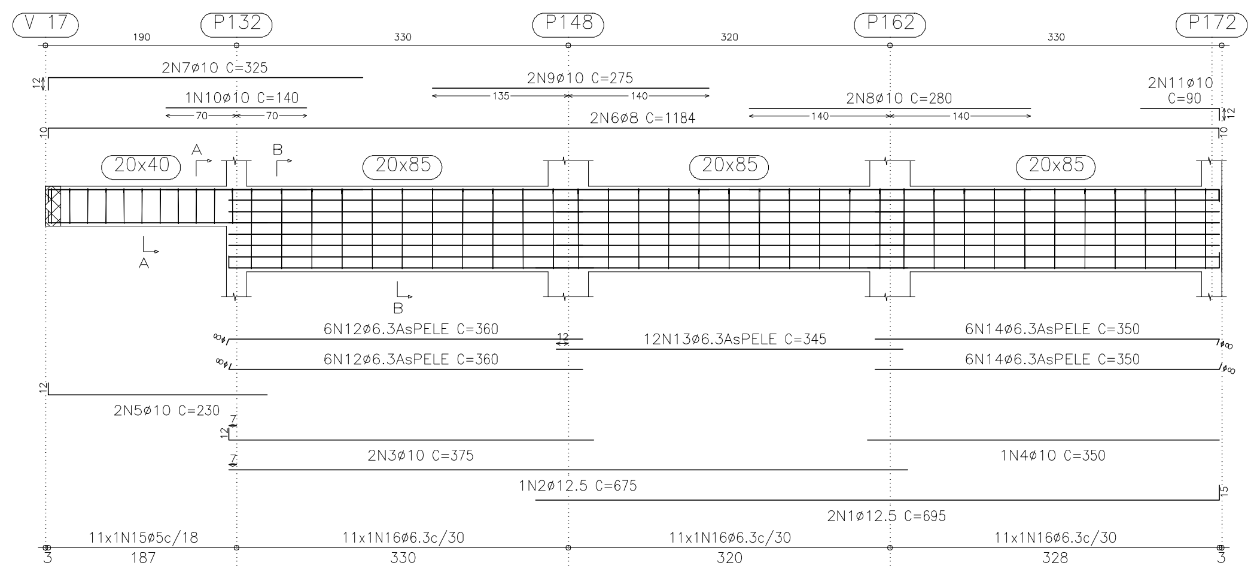
V 35
V 42
V 46
Escala 1:50



Corte A
Escala 1:20

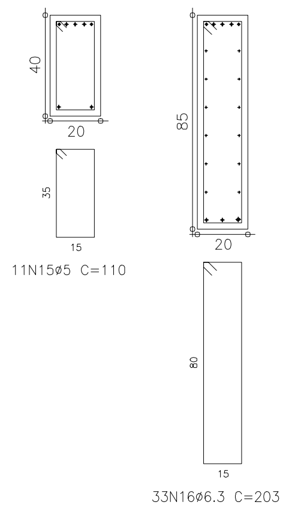


V 41
Escala 1:50

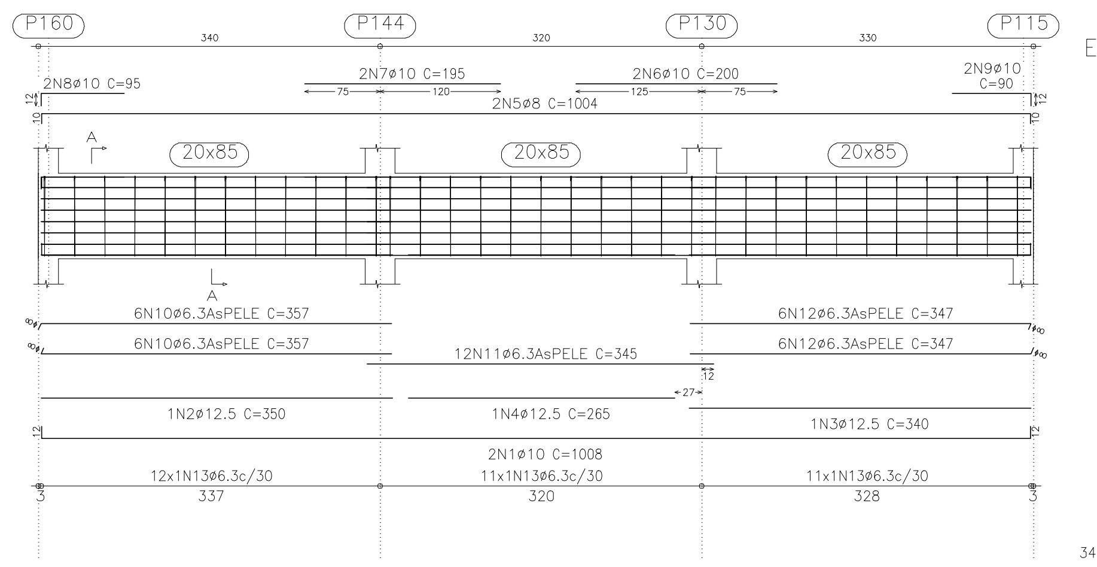


Corte A
Escala 1:20

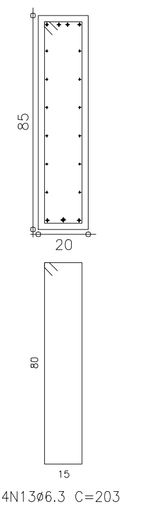
Corte B
Escala 1:20



V 60
Escala 1:50



Corte A
Escala 1:20



Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 32	1	ø10	2	12	986	12	1010	2020	12.7	
	2	ø10	1		350		350	350	2.2	
	3	ø10	2		265		265	530	3.3	
	4	ø8	2	10	375		385	770	3.0	
	5	ø8	2		365	10	375	750	2.9	
	6	ø10	3		360		360	1080	6.8	
	7	ø10	2		195		195	390	2.4	
	8	ø10	2		145		145	290	1.8	
	9	ø10	2	12	88		100	200	1.3	
	10	ø10	2		83	12	95	190	1.2	
	11	ø6.3	10		346		346	3460	8.6	
	12	ø6.3	10		345		345	3450	8.5	
	13	ø6.3	10		340		340	3400	8.4	
	14	ø5	28				190	5320		8.4
	15	ø6.3	14				193	2702	6.7	
								Total+10%:	76.8	9.2
V 33	1	ø10	2	12	984	12	1008	2016	12.7	
	2	ø12.5	1		340		340	340	3.3	
	3	ø12.5	1		295		295	295	2.9	
	4	ø12.5	1		275		275	275	2.7	
	5	ø10	2	12	198		210	420	2.6	
	6	ø8	2	10	1166	10	1186	2372	9.3	
	7	ø10	2		270		270	540	3.4	
	8	ø10	2		200		200	400	2.5	
	9	ø10	2		125		125	250	1.6	
	10	ø10	2		78	12	90	180	1.1	
	11	ø10	2	12	63		75	150	0.9	
	12	ø6.3	12	8	349		357	4284	10.6	
	13	ø6.3	12		345		345	4140	10.2	
	14	ø6.3	12		339	8	347	4164	10.3	
	15	ø5	11				110	1210		1.9
	16	ø6.3	33				203	6699	16.6	
								Total+10%:	99.8	2.1
V 35=V 42=V 46	1	ø10	2	12	195	12	219	438	2.8	
	2	ø10	3	12	195	12	219	657	4.1	
	3	ø5	11				110	1210		1.9
								Total+10%:	7.6	2.1
								(x3):	22.8	6.3
V 41	1	ø12.5	2		680	15	695	1390	13.6	
	2	ø12.5	1		675		675	675	6.6	
	3	ø10	2	12	363		375	750	4.7	
	4	ø10	1		350		350	350	2.2	
	5	ø10	2	12	218		230	460	2.9	
	6	ø8	2	10	1164	10	1184	2368	9.3	
	7	ø10	2	12	313		325	650	4.1	
	8	ø10	2		280		280	560	3.5	
	9	ø10	2		275		275	550	3.5	
	10	ø10	1		140		140	140	0.9	
	11	ø10	2		78	12	90	180	1.1	
	12	ø6.3	12	8	352		360	4320	10.7	
	13	ø6.3	12		345		345	4140	10.2	
	14	ø6.3	12		342	8	350	4200	10.4	
	15	ø5	11				110	1210		1.9
	16	ø6.3	33				203	6699	16.6	
								Total+10%:	110.3	2.1
V 60	1	ø10	2	12	984	12	1008	2016	12.7	
	2	ø12.5	1		350		350	350	3.4	
	3	ø12.5	1		340		340	340	3.3	
	4	ø12.5	1		265		265	265	2.6	
	5	ø8	2	10	984	10	1004	2008	7.9	
	6	ø10	2		200		200	400	2.5	
	7	ø10	2		195		195	390	2.4	
	8	ø10	2	12	83		95	190	1.2	
	9	ø10	2		78	12	90	180	1.1	
	10	ø6.3	12	8	349		357	4284	10.6	
	11	ø6.3	12		345		345	4140	10.2	
	12	ø6.3	12		339	8	347	4164	10.3	
	13	ø6.3	34				203	6902	17.1	
								Total+10%:	93.8	

Elemento	Pos.	Diam.	Q.	Dob. (cm)	Reta (cm)	Dob. (cm)	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 19	1	ø10	2		1045		1045	2090	13.1	
	2	ø10	2		1035		1035	2070	13.0	
	3	ø10	2	12	1028		1040	2080	13.1	
	4	ø10	2		775		775	1550	9.7	
	5	ø10	1		530		530	530	3.3	
	6	ø10	1		525		525	525	3.3	
	7	ø10	1		520		520	520	3.3	
	8	ø10	1		280		280	280	1.8	
	9	ø10	2	12	251	12	275	550	3.5	
	10	ø8	4		1095		1095	4380	17.2	
	11	ø8	2	10	1055		1065	2130	8.4	
	12	ø8	2		535	10	545	1090	4.3	
	13	ø8	2		345		345	690	2.7	
	14	ø10	3		305		305	915	5.7	
	15	ø10	2		185		185	370	2.3	
	16	ø10	2		180		180	360	2.3	
	17	ø10	2		165		165	330	2.1	
	18	ø10	4		155		155	620	3.9	
	19	ø10	2		150		150	300	1.9	
	20	ø10	6		145		145	870	5.5	
	21	ø10	4		140		140	560	3.5	
	22	ø10	4		130		130	520	3.3	
	23	ø10	2		115		115	230	1.4	
	24	ø10	2		110		110	220	1.4	
	25	ø10	2		78	12	90	180	1.1	
	26	ø10	2	12	68		80	160	1.0	
	27	ø6.3	57				113	6441	15.9	
	28	ø8	53				116	6148	24.1	
	29	ø5	152				110	16720		26.3
	30	ø5	13				130	1690		2.7
								Total+10%:	189.3	31.9
V 20	1	ø10	2	12	386	12	410	820	5.1	
	2	ø10	3	12	298		310	930	5.8	
	3	ø5	22				110	2420		3.8
								Total+10%:	12.0	4.2
V4	1	ø12.5	2		970	15	985	1970	19.3	
	2	ø10	1		955		955	955	6.0	
	3	ø12.5	2	15	945		960	1920	18.8	
	4	ø10	1		535		535	535	3.4	
	5	ø8	2		995	20	1015	2030	8.0	
	6	ø8	2		970		970	1940	7.6	
	7	ø12.5	2		280		280	560	5.5	
	8	ø10	2		250		250	500	3.1	
	9	ø12.5	1		205		205	205	2.0	
	10	ø10	2		200		200	400	2.5	
	11	ø10	1		190		190	190	1.2	
	12	ø10	2		174	16	190	380	2.4	
	13	ø12.5	1		134	21	155	155	1.5	
	14	ø5	131				140	18340		28.8
								Total+10%:	89.4	31.7
V 22	1	ø12.5	2	15	1045		1060	2120	20.8	
	2	ø12.5	1		775		775	775	7.6	
	3	ø10	1		525		525	525	3.3	
	4	ø10	2		283	12	295	590	3.7	
	5	ø12.5	3		595		595	1785	17.5	
	6	ø10	3	12	568		580	1740	10.9	
	7	ø10	4		288	12	300	1200	7.5	
	8	ø10	2		360		360	720	4.5	
	9	ø10	1		290		290	290	1.8	
	10	ø10	2		175		175	350	2.2	
	11	ø10	2	12	123		135	270	1.7	
	12	ø6.3	12		525		525	6300	15.6	
	13	ø6.3	12		520		520	6240	15.4	
	14	ø6.3	12		270		270	3240	8.0	
	15	ø6.3	41				203	8323	20.6	
	16	ø10	27				210	5670	35.6	
								Total+10%:	194.4	
V 23	1	ø10	2	12	745	12	769	1538	9.7	
	2	ø12.5	1		275		275	275	2.7	
	3	ø8	2	10	745	10	765	1530	6.0	
	4	ø10	2		165		165	330	2.1	
	5	ø10	2		150		150	300	1.9	
	6	ø10	2	12	68		80	160	1.0	
	7	ø10	2		63	12	75	150	0.9	
	8	ø5	53				110	5830		9.2
								Total+10%:	26.7	10.1
V 24	1	ø10	2		1030		1030	2060	12.9	
	2	ø10	2		1025		1025	2050	12.9	
	3	ø10	2	12	1023		1035	2070	13.0	
	4	ø10	2		773	12	785	1570	9.9	
	5	ø12.5	1		520		520	520	5.1	
	6	ø12.5	1		270		270	270	2.6	
	7	ø12.5	1		215		215	215	2.1	
	8	ø12.5	4		205		205	820	8.0	
	9	ø12.5	2		200		200	400	3.9	
	10	ø12.5	3		190		190	570	5.6	
	11	ø12.5	1		185		185	185	1.8	
	12	ø12.5	1		180		180	180	1.8	
	13	ø8	2		1045		1045	2090	8.2	
	14	ø8	2		1040		1040	2080	8.2	
	15	ø8	2		545		545	1090	4.3	
	16	ø8	2	10	530		540	1080	4.2	
	17	ø10	6		290		290	1740	10.9	
	18	ø8	2		275	10	285	570	2.2	
	19	ø10	2		435		435	870	5.5	
	20	ø10	2		400		400	800	5.0	
	21	ø10	2		245		245	490	3.1	
	22	ø10	2		190		190	380	2.4	
	23	ø10	2		185		185	370	2.3	
	24	ø10	2		145		145	290	1.8	
	25	ø10	2		135		135	270	1.7	
	26	ø10	2		120		120	240	1.5	
	27	ø10	2		115		115	230	1.4	
	28	ø10	6		110		110	660	4.1	
	29	ø10	4	12	68		80	320	2.0	
	30	ø6.3	156		275		275	42900	106.1	
	31	ø6.3	24		270		270	6480	16.0	
	32	ø6.3	137				203	27811	68.8	
								Total+10%:	373.2	
V 34	1	ø10	2	12	1165	12	1189	2378	14.9	
	2	ø10	1		195		195	195	1.2	
	3	ø8	2	10	1165	10	1185	2370	9.3	
	4	ø10	2		180		180	360	2.3	
	5	ø10	2		175		175	350	2.2	
	6	ø10	2		130		130	260	1.6	
	7	ø10	2		78	12	90	180	1.1	
	8	ø10	2	12	63		75	150	0.9	
	9	ø5	67				110	7370		11.6
								Total+10%:	36.9	12.8
								ø5:	0.0	110.4
								ø6.3:	486.7	0.0
								ø8:	161.7	0.0
								ø10:	495.6	0.0
								ø12.5:	181.4	0.0
								Total:	1325.4	110.4

OBSERVAÇÕES

. Medidas das cotas em cm (exceto onde indicado)

. Verificar medidas na obra

. Molhar as formas antes da concretagem

. Usar espaçadores para garantir recobrimento do aço

. Nas armações negativas das lajes – usar "carangueijos"

. Cura minima = 7 dias

. Descimbramento(formas) = mínimo de 28 dias

. Todas as peças de concreto em contato com o solo devem ser executadas sobre lastro de concreto magro c/ e=5cm

. Em caso de dúvidas, contactar o Calculista

Classe de Agresiv.:	C II	Ec(5600 fck):	√	Agreg. Graudo:	Brita 01
CONCRETO(Fck):	25 MPa	AÇO:	CA 50	SLUMP (mm):	100+-10
Fator A/C (max.):	< 0.60	FORMAS:	C. Res.	ADITIVO:	

N°	DATA	DESCRIÇÃO	VISTO

QUADRO DE REVISÕES

FASE:
PROJETO EXECUTIVO DE ESTRUTURAL

PAVILHÃO DE SALAS DE AULA II
CAMPUS UNAI – JANAUBA
RODOVIA MG 367, KM 583, N° 5000 – ALTO DA JACUBA – DIAMANTINA/MG

PROPRIETÁRIO: UNIVERSIDADE FEDERAL DOS VALES DO JEQUITINHONHA E MUCURI
CNPJ 16.888.315/0001-57

TÍTULO
ARMAÇÃO DE VIGAS – PRIMEIRO PISO – 03

AUTOR PROJETO ARQUITETÔNICO / RT:
ALESSANDRO DE OLIVEIRA ALVES
RT: ENG. CIVIL: ALESSANDRO DE OLIVEIRA ALVES – CREA: 107.372-D/MG
RUA H N°15, VILA ARRAIOLOS , DIAMANTINA/MG
FONES: (38) 3532-1257 / 8823-8034

VERSÃO: VERSÃO 1
DATA: 17.10.2012
AUTOCAD:
FOLHA: 22