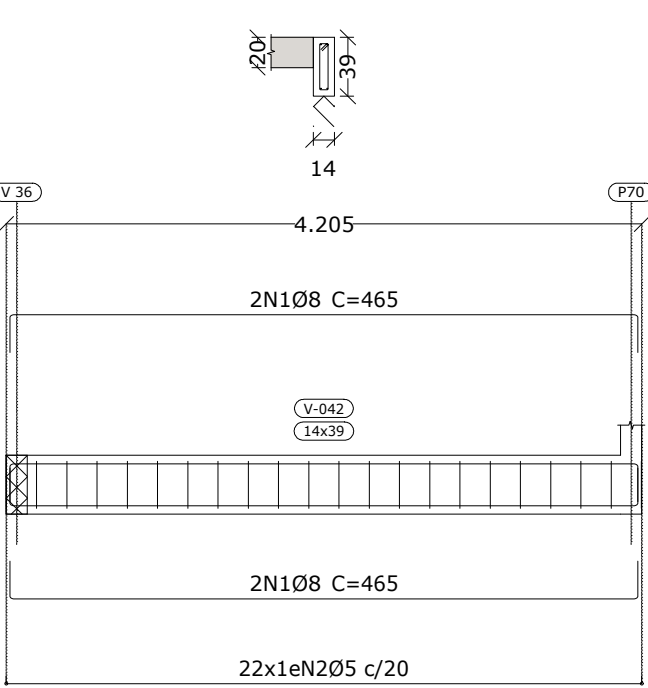
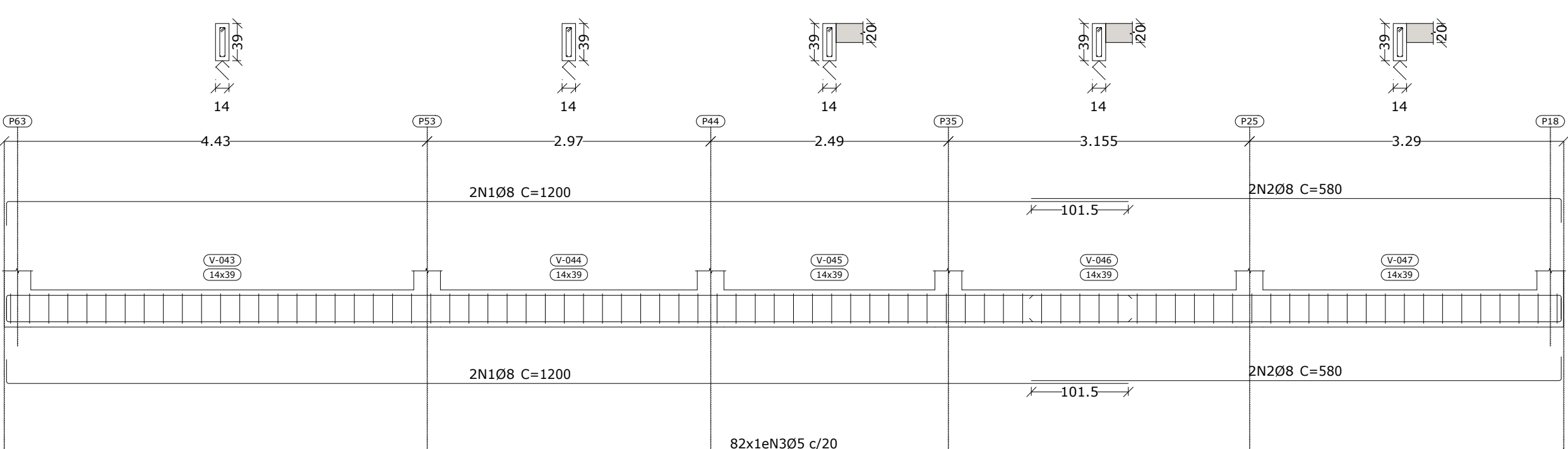


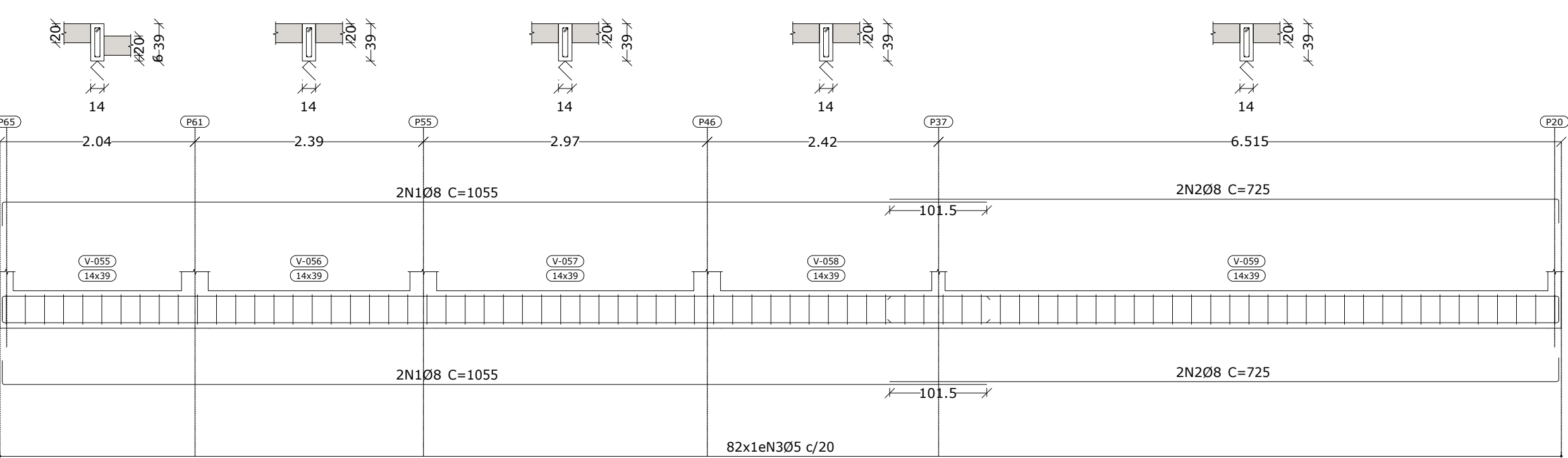
V 24



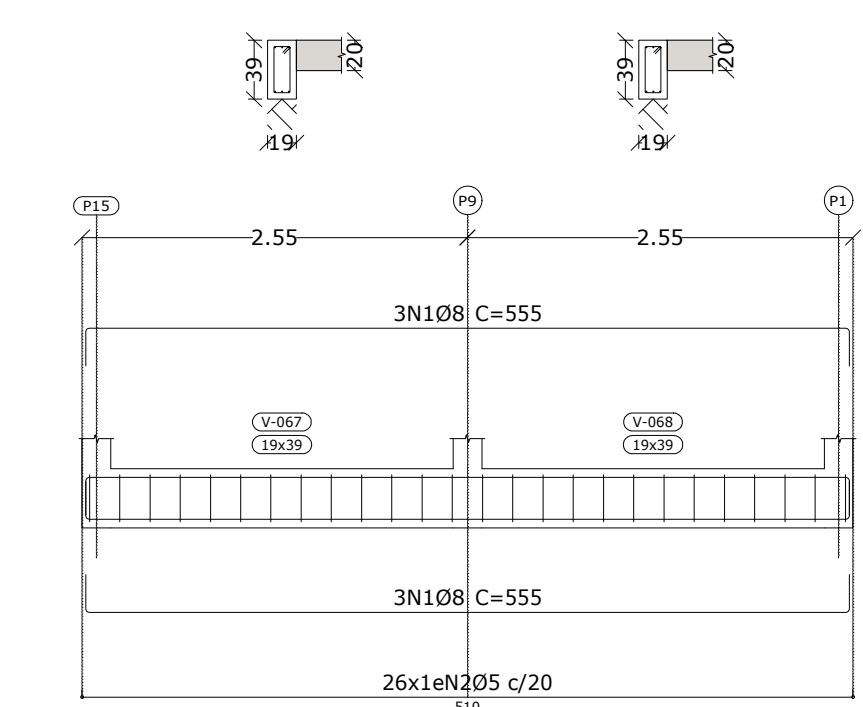
V 25



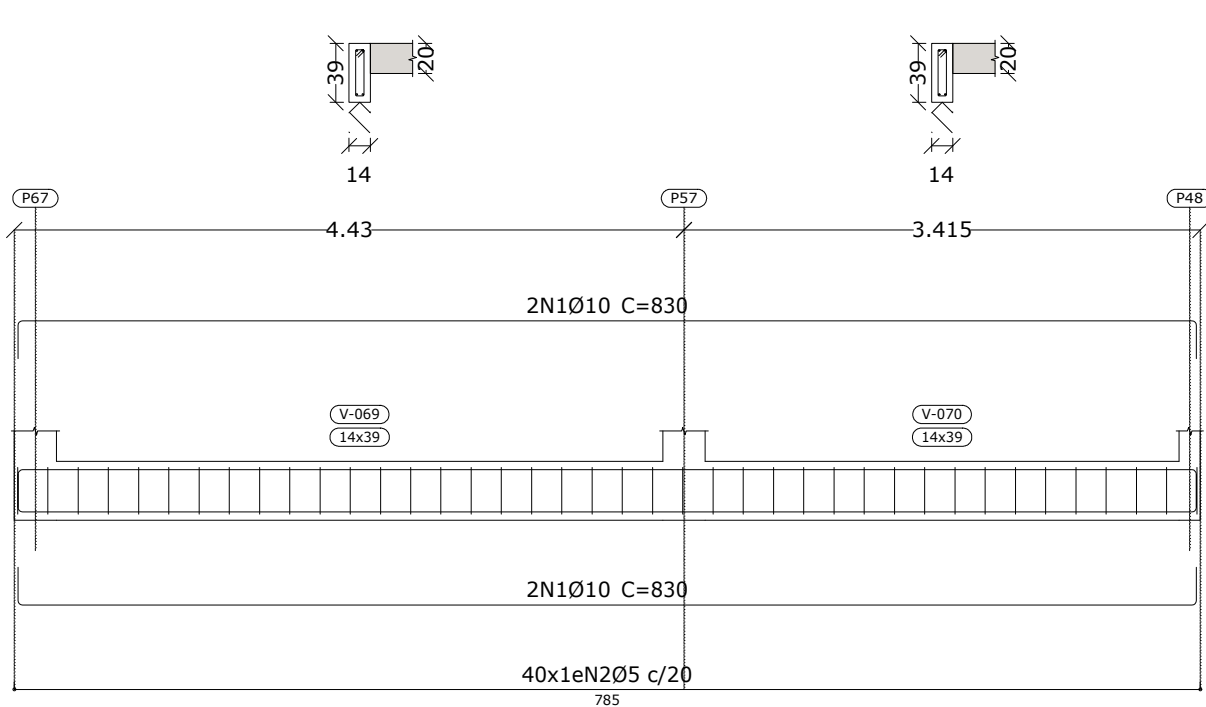
V 29



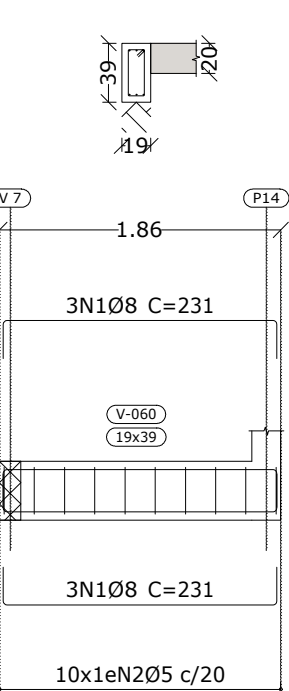
V 32



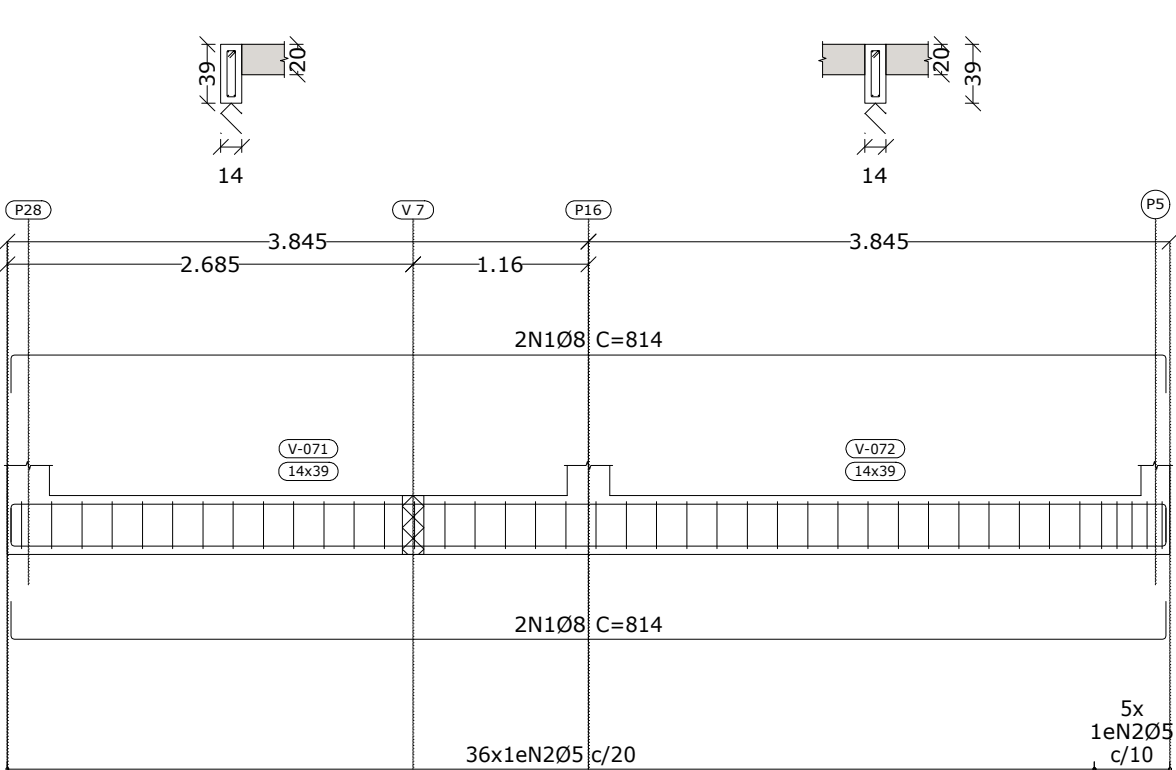
V 33



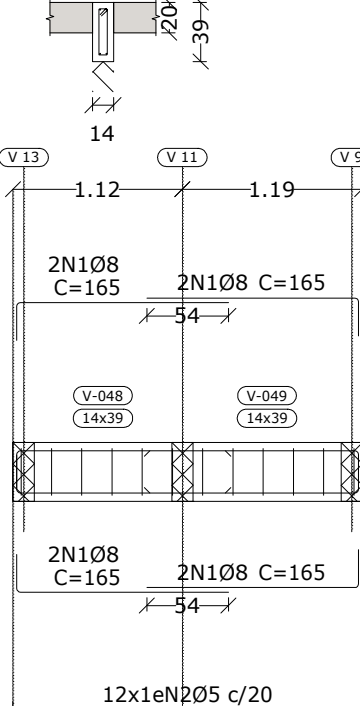
V 30



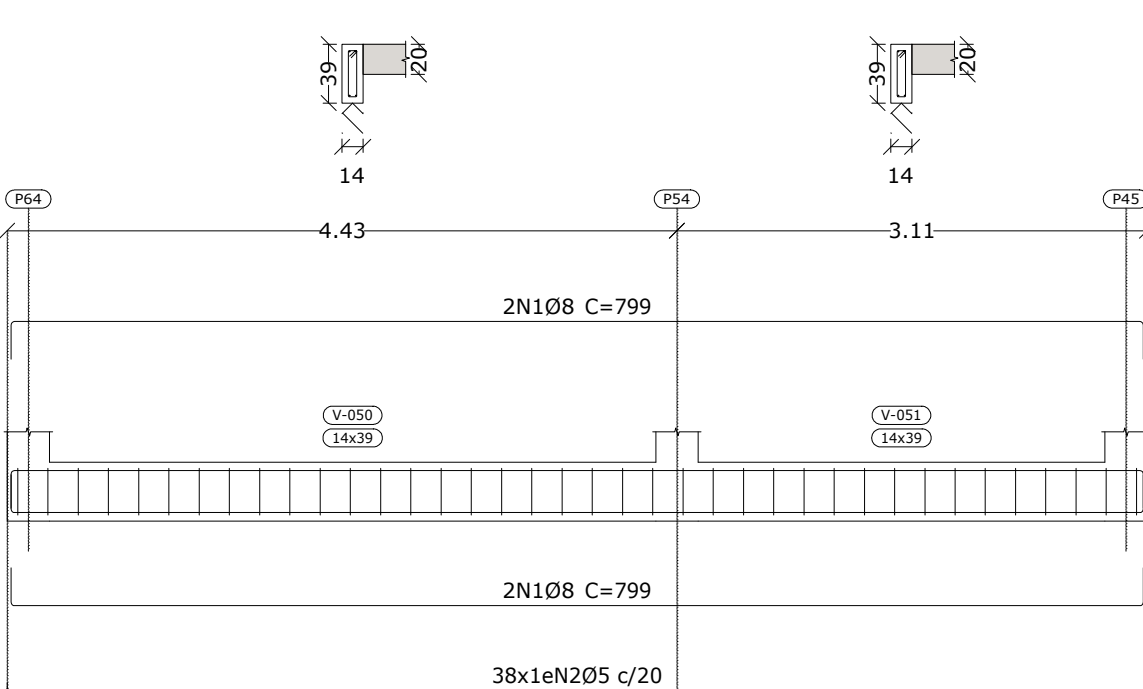
V 34



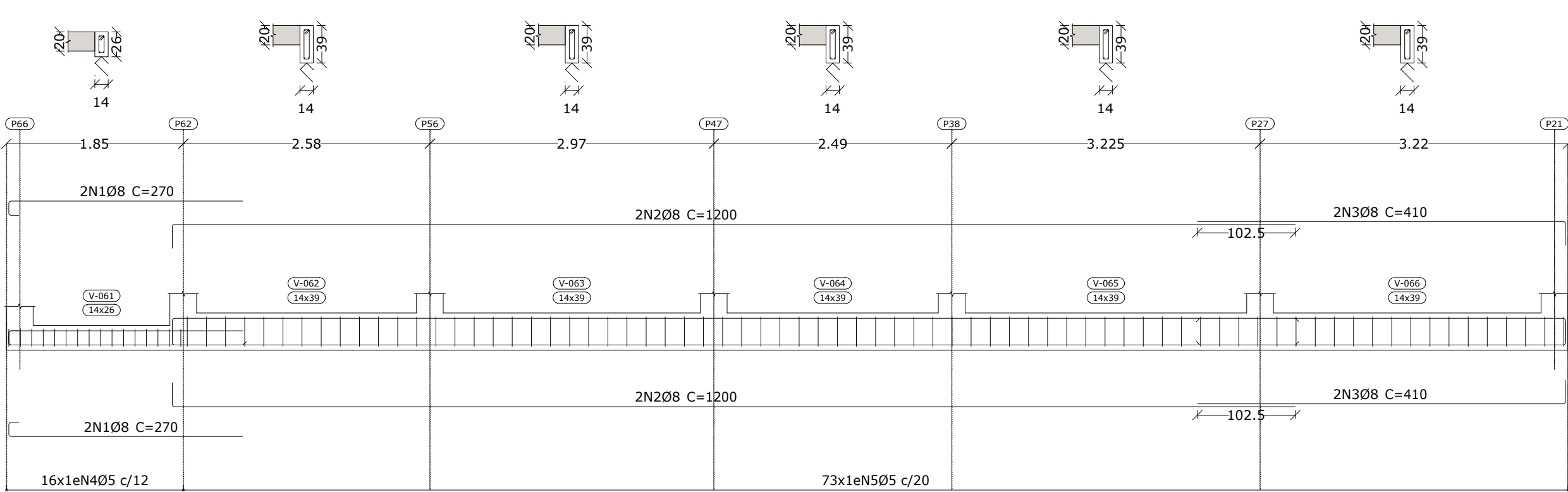
V 26



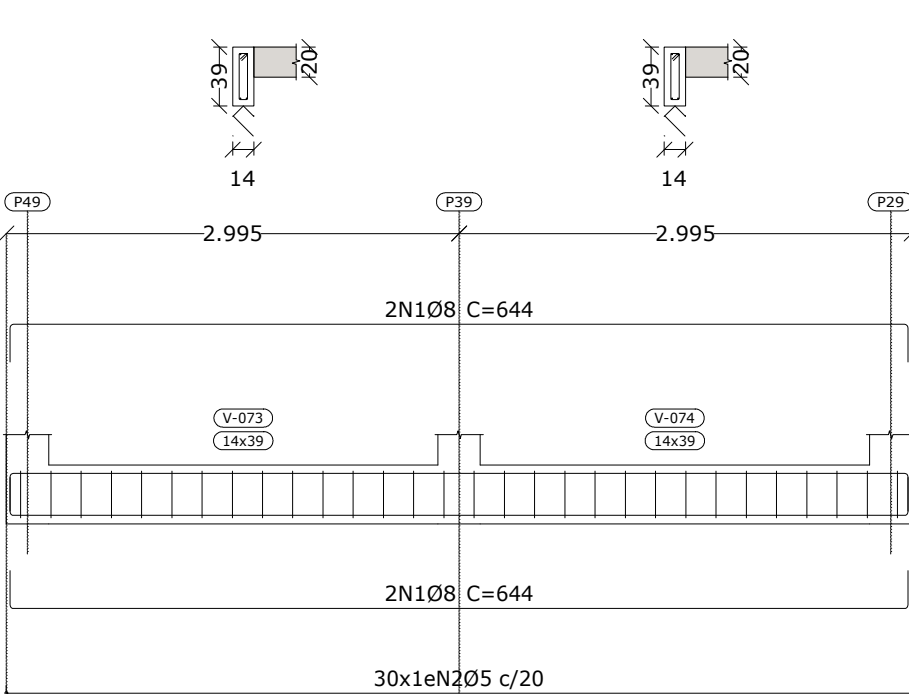
V 27



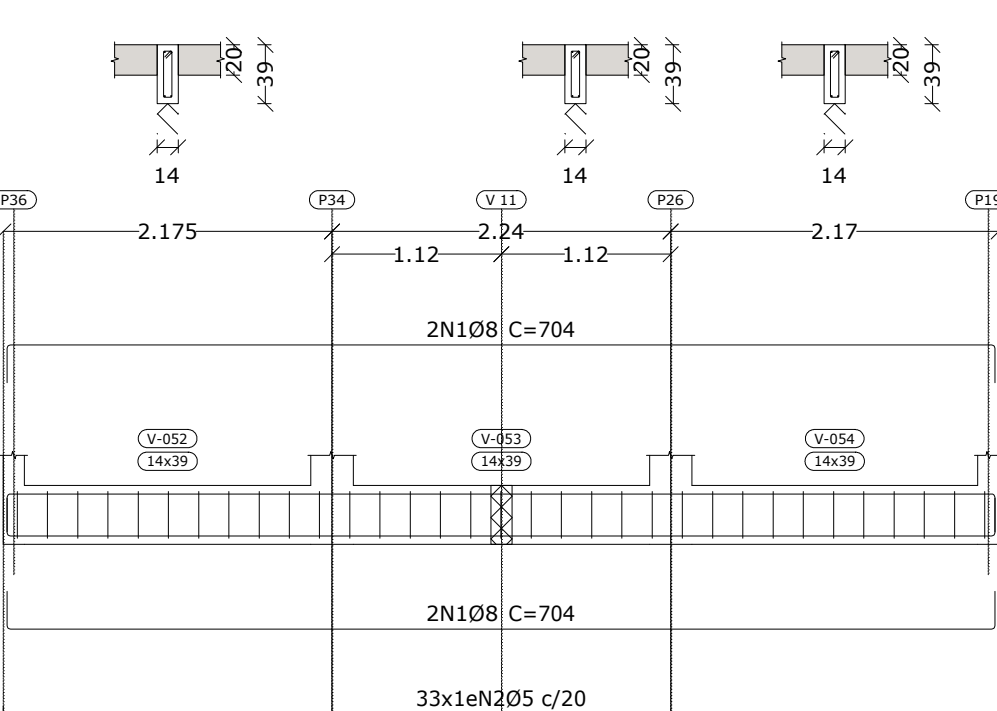
V 31



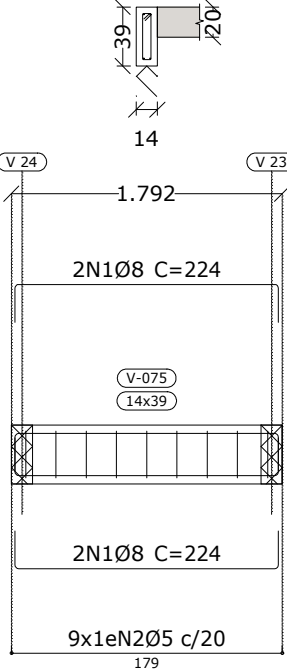
V 35



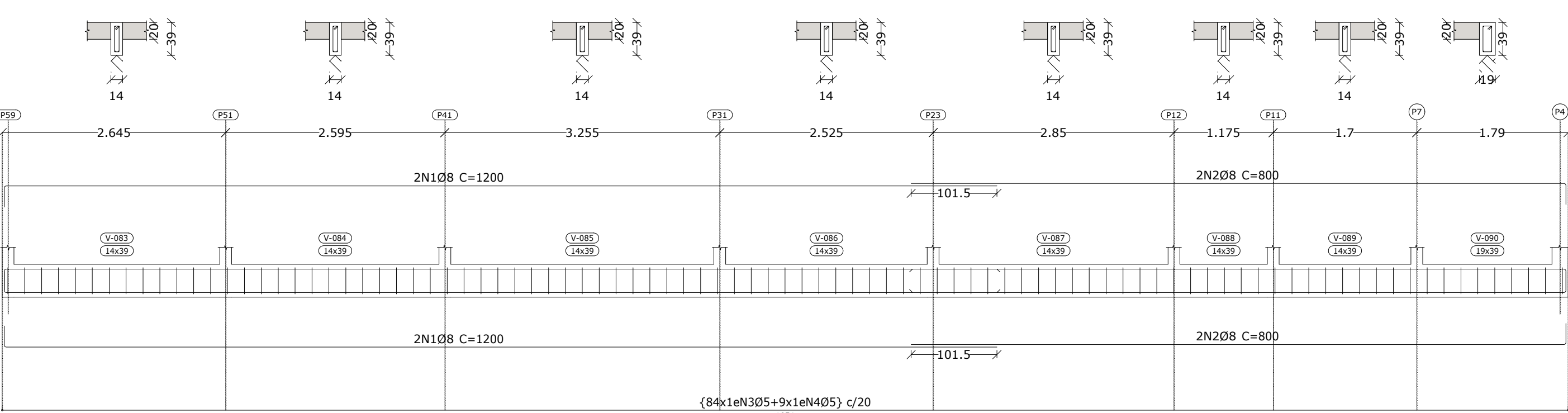
V 28



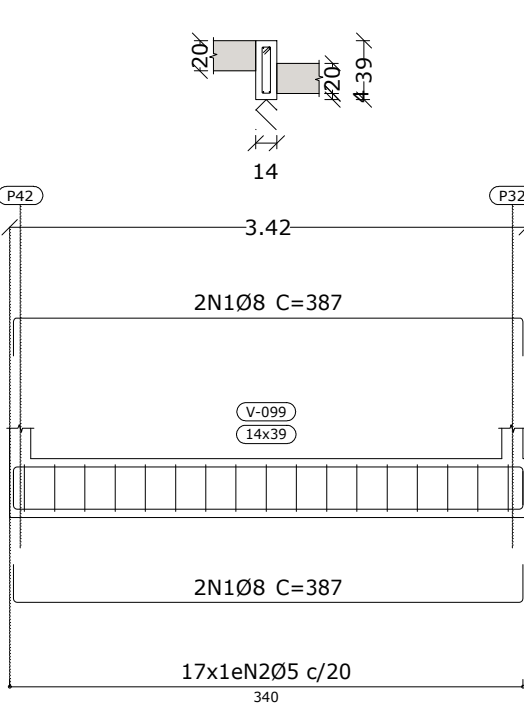
V 36



V 38



V 40



01 TERREO
Desenho de vigas
Concreto: C20, em geral
Aço das barras: CA-50 e CA-60
Aço dos estribos: CA-50 e CA-60
Escala vigas 1:50
Escala aberturas 1:50

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 39	1	Ø8	4		745	2980	11.8	
	2	Ø8	4		640	2560	10.1	
	3	Ø8	4		385	1540	6.1	
	4	Ø8	4		884	3536	14.0	
	5	Ø5	121		82	9922		15.6
					Total+10%:	46.2	17.2	
V 25	1	Ø8	4		1200	4800	19.0	
	2	Ø8	4		580	2320	9.2	
	3	Ø5	82		82	6724		10.6
					Total+10%:	31.0	11.7	
V 37	1	Ø8	4		1200	4800	19.0	
	2	Ø8	4		1070	4280	16.9	
	3	Ø8	4		300	1200	4.7	
	4	Ø5	117		82	9594		15.1
					Total+10%:	44.7	16.6	
V 34	1	Ø8	4		814	3256	12.9	
	2	Ø5	41		82	3362		5.3
					Total+10%:	14.2	5.8	
V 24	1	Ø8	4		465	1860	7.3	
	2	Ø5	22		82	1804		2.8
					Total+10%:	8.0	3.1	
V 35	1	Ø8	4		644	2576	10.2	
	2	Ø5	30		82	2460		3.9
					Total+10%:	11.2	4.3	
V 40	1	Ø8	4		387	1548	6.1	
	2	Ø5	17		82	1394		2.2
					Total+10%:	6.7	2.4	

Resumo Aço	Comp. total (m)	Peso+10% (kg)	Total
CA-50	Ø6.3	11.8	3
Ø8	1152.9	501	
Ø10	193.9	131	635
CA-60	Ø5	1224.9	212
Total			847

Elemento	Pos.	Diam.	Q.	Esquema (cm)	Comp. (cm)	Total (cm)	CA-50 (kg)	CA-60 (kg)
V 26	1	Ø8	8		165	1320	5.2	
	2	Ø5	12		82	984		1.5
					Total+10%:	5.7	1.7	
V 27	1	Ø8	4		799	3196	12.6	
	2	Ø5	38		82	3116		4.9
					Total+10%:	13.9	5.4	
V 28	1	Ø8	4		704	2816	11.1	
	2	Ø5	33		82	2706		4.2
					Total+10%:	12.2	4.6	
V 29	1	Ø8	4		1055	4220	16.7	
	2	Ø8	4		725	2900	11.5	
	3	Ø5	82		82	6724		10.6
					Total+10%:	31.0	11.7	
V 30	1	Ø8	6		231	1386	5.5	
	2	Ø5	10		92	920		1.4
					Total+10%:	6.1	1.5	
V 31	1	Ø8	4		270	1080	4.3	
	2	Ø8	4		1200	4800	19.0	
	3	Ø8	4		410	1640	6.5	
	4	Ø5	16		56	896		1.4
					Total+10%:	32.8	11.9	
V 32	1	Ø8	6		555	3330	13.1	
	2	Ø5	26		92	2392		3.8
					Total+10%:	14.4	4.2	
V 33	1	Ø10	4		830	3320	20.5	
	2	Ø5	40		82	3280		5.1
					Total+10%:	22.6	5.6	
V 36	1	Ø8	4		224	896	3.5	
	2	Ø5	9		82	738		1.2
					Total+10%:	3.9	1.3	
V 38	1	Ø8	4		1200	4800	19.0	
	2	Ø8	4		800	3200	12.6	
	3	Ø5	84		82	6888		10.8
	4	Ø5	9		92	828		1.3
					Total+10%:	34.8	13.3	
					Ø5:	0.0	122.3	
					Ø8:	316.8	0.0	
					Ø10:	22.6	0.0	
					Total:	339.4	122.3	

ELEMENTO	fck	TRAÇO	COBRIMENTO
FUNDAÇÕES	30MPa	1:2:3	4,0cm
PILARES	30MPa	1:2:3	2,5cm
VIGAS	30MPa	1:2:3	2,5cm
LAJES	30MPa	1:2:3	CAPA DE 4,0cm

VALOR NOMINAL P/ CÁLCULO	ÁREA DE AÇO COM ESPALHAMENTO - A _s (cm²)
DIÂMETRO Ø / PESSADA LINEAR	ESPAÇAMENTO
Ø10 / 3.14	Ø10 / 78.5
Ø12 / 3.6	Ø12 / 113.1
Ø14 / 4.2	Ø14 / 153.9
Ø16 / 4.8	Ø16 / 201.1
Ø18 / 5.4	Ø18 / 254.5
Ø20 / 6.0	Ø20 / 314.2
Ø22 / 6.6	Ø22 / 380.1
Ø24 / 7.2	Ø24 / 452.4
Ø26 / 7.8	Ø26 / 530.9
Ø28 / 8.4	Ø28 / 615.8
Ø30 / 9.0	Ø30 / 706.9
Ø32 / 9.6	Ø32 / 804.2
Ø34 / 10.2	Ø34 / 907.9
Ø36 / 10.8	Ø36 / 1018.1
Ø38 / 11.4	Ø38 / 1134.9
Ø40 / 12.0	Ø40 / 1258.3
Ø42 / 12.6	Ø42 / 1388.4
Ø44 / 13.2	Ø44 / 1524.3
Ø46 / 13.8	Ø46 / 1666.1
Ø48 / 14.4	Ø48 / 1813.9
Ø50 / 15.0	Ø50 / 1967.8
Ø52 / 15.6	Ø52 / 2127.8
Ø54 / 16.2	Ø54 / 2293.9
Ø56 / 16.8	Ø56 / 2466.2
Ø58 / 17.4	Ø58 / 2644.7
Ø60 / 18.0	Ø60 / 2829.4
Ø62 / 18.6	Ø62 / 3020.4
Ø64 / 19.2	Ø64 / 3217.7
Ø66 / 19.8	Ø66 / 3421.3
Ø68 / 20.4	Ø68 / 3631.3
Ø70 / 21.0	Ø70 / 3847.7
Ø72 / 21.6	Ø72 / 4070.6
Ø74 / 22.2	Ø74 / 4299.9
Ø76 / 22.8	Ø76 / 4535.7
Ø78 / 23.4	Ø78 / 4778.0
Ø80 / 24.0	Ø80 / 5026.0
Ø82 / 24.6	Ø82 / 5280.7
Ø84 / 25.2	Ø84 / 5542.2
Ø86 / 25.8	Ø86 / 5810.5
Ø88 / 26.4	Ø88 / 6085.7
Ø90 / 27.0	Ø90 / 6367.8
Ø92 / 27.6	Ø92 / 6656.0
Ø94 / 28.2	Ø94 / 6951.3
Ø96 / 28.8	Ø96 / 7253.8
Ø98 / 29.4	Ø98 / 7563.5
Ø100 / 30.0	Ø100 / 7880.5
Ø102 / 30.6	Ø102 / 8204.9
Ø104 / 31.2	Ø104 / 8536.8
Ø106 / 31.8	Ø106 / 8875.3
Ø108 / 32.4	Ø108 / 9221.4
Ø110 / 33.0	Ø110 / 9575.2
Ø112 / 33.6	Ø112 / 9936.7
Ø114 / 34.2	Ø114 / 10305.9
Ø116 / 34.8	Ø116 / 10682.9
Ø118 / 35.4	Ø118 / 11067.7
Ø120 / 36.0	Ø120 / 11460.3
Ø122 / 36.6	Ø122 / 11860.7
Ø124 / 37.2	Ø124 / 12269.0
Ø126 / 37.8	Ø126 / 12685.2
Ø128 / 38.4	Ø128 / 13109.4
Ø130 / 39.0	Ø130 / 13551.7
Ø132 / 39.6	Ø132 / 14002.2
Ø134 / 40.2	Ø134 / 14460.9
Ø136 / 40.8	Ø136 / 14927.9
Ø138 / 41.4	Ø138 / 15403.3
Ø140 / 42.0	Ø140 / 15887.2
Ø142 / 42.6	Ø142 / 16378.7
Ø144 / 43.2	Ø144 / 16877.9
Ø146 / 43.8	Ø146 / 17384.9
Ø148 / 44.4	Ø148 / 17898.8
Ø150 / 45.0	Ø150 / 18419.8
Ø152 / 45.6	Ø152 / 18947.9
Ø154 / 46.2	Ø154 / 19483.2
Ø156 / 46.8	Ø156 / 20025.8
Ø158 / 47.4	Ø158 / 20575.7
Ø160 / 48.0	Ø160 / 21132.9
Ø162 / 48.6	Ø162 / 21697.5
Ø164 / 49.2	Ø164 / 22269.6
Ø166 / 49.8	Ø166 / 22849.2
Ø168 / 50.4	Ø168 / 23436.4
Ø170 / 51.0	Ø170 / 24031.3
Ø172 / 51.6	Ø172 / 24634.0
Ø174 / 52.2	Ø174 / 25244.5
Ø176 / 52.8	Ø176 / 25862.8
Ø178 / 53.4	Ø178 / 26489.0
Ø180 / 54.0	Ø180 / 27123.2
Ø182 / 54.6	Ø182 / 27765.5
Ø184 / 55.2	Ø184 / 28415.9
Ø186 / 55.8	Ø186 / 29074.5
Ø188 / 56.4	Ø188 / 29741.3
Ø190 / 57.0	Ø190 / 30416.3
Ø192 / 57.6	Ø192 / 31100.6
Ø194 / 58.2	Ø194 / 31793.2
Ø196 / 58.8	Ø196 / 32494.2
Ø198 / 59.4	Ø198 / 33203.7
Ø200 / 60.0	Ø200 / 33921.7
Ø202 / 60.6	Ø202 / 34648.3
Ø204 / 61.2	Ø204 / 35383.5
Ø206 / 61.8	Ø206 / 36127.4
Ø208 / 62.4	Ø208 / 36879.2
Ø210 / 63.0	Ø210 / 37639.0
Ø212 / 63.6	Ø212 / 38406.9
Ø214 / 64.2	Ø214 / 39182.9
Ø216 / 64.8	Ø216 / 39967.1
Ø218 / 65.4	Ø218 / 40759.5
Ø220 / 66.0	Ø220 / 41560.2
Ø222 / 66.6	Ø222 / 42369.2
Ø224 / 67.2	Ø224 / 43186.6
Ø226 / 67.8	Ø226 / 44012.4
Ø228 / 68.4	Ø228 / 44846.7
Ø230 / 69.0	Ø230 / 45689.5
Ø232 / 69.6	Ø232 / 46540.8
Ø234 / 70.2	Ø234 / 47400.7
Ø236 / 70.8	Ø236 / 48269.3
Ø238 / 71.4	Ø238 / 49146.6
Ø240 / 72.0	Ø240 / 50032.7
Ø242 / 72.6	Ø242 / 50927.5
Ø244 / 73.2	Ø244 / 51831.0
Ø246 / 73.8	Ø246 / 52743.3
Ø248 / 74.4	Ø248 / 53664.5
Ø250 / 75.0	Ø250 / 54594.6
Ø252 / 75.6	Ø252 / 55533.7
Ø254 / 76.2	Ø254 / 56481.8
Ø256 / 76.8	Ø256 / 57438.9
Ø258 / 77.4	Ø258 / 58405.1
Ø260 / 78.0	Ø260 / 59380.4
Ø262 / 78.6	Ø262 / 60364.8
Ø264 / 79.2	Ø264 / 6

Assinantes



William Mateus Muller

Assinou em 26/08/2026 às 16:24:28 com o certificado avançado da Betha Sistemas e possui a identidade verificada com o CPF *****.589.330-****.

Eu, William Mateus Muller, estou ciente das normas descritas na Lei nº 14.063/2020, no que se refere aos tipos de assinaturas consideradas como válidas para a prática de atos e interações pelos Entes Públicos.

Veracidade do documento



Documento assinado digitalmente.

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