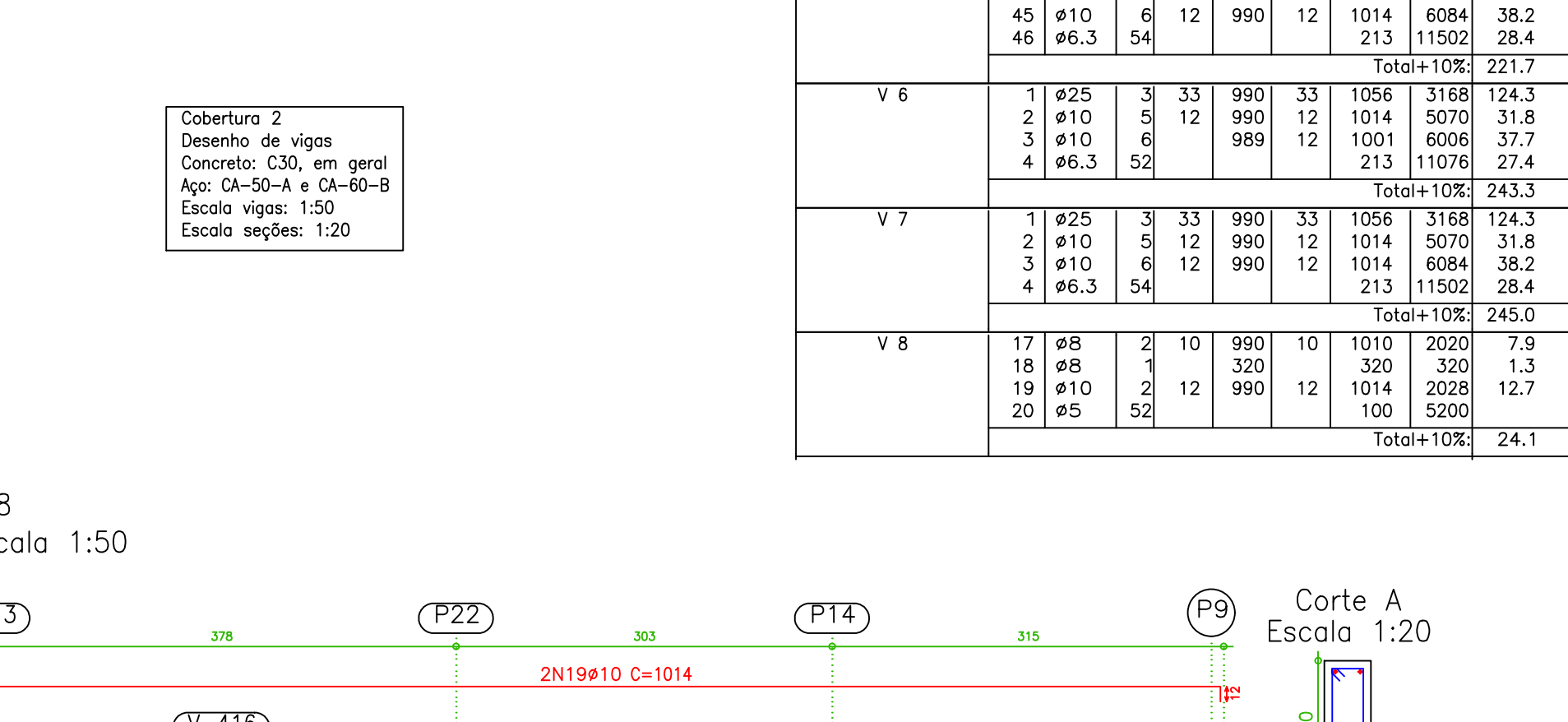
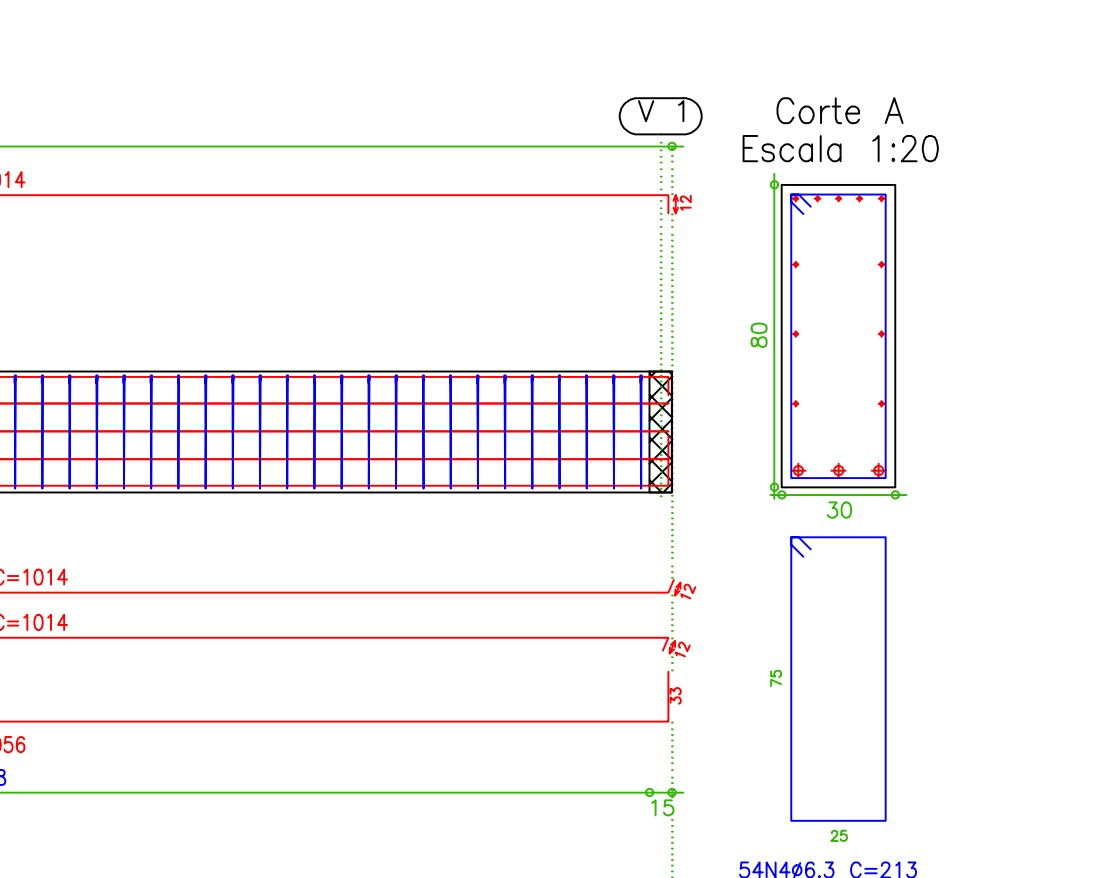
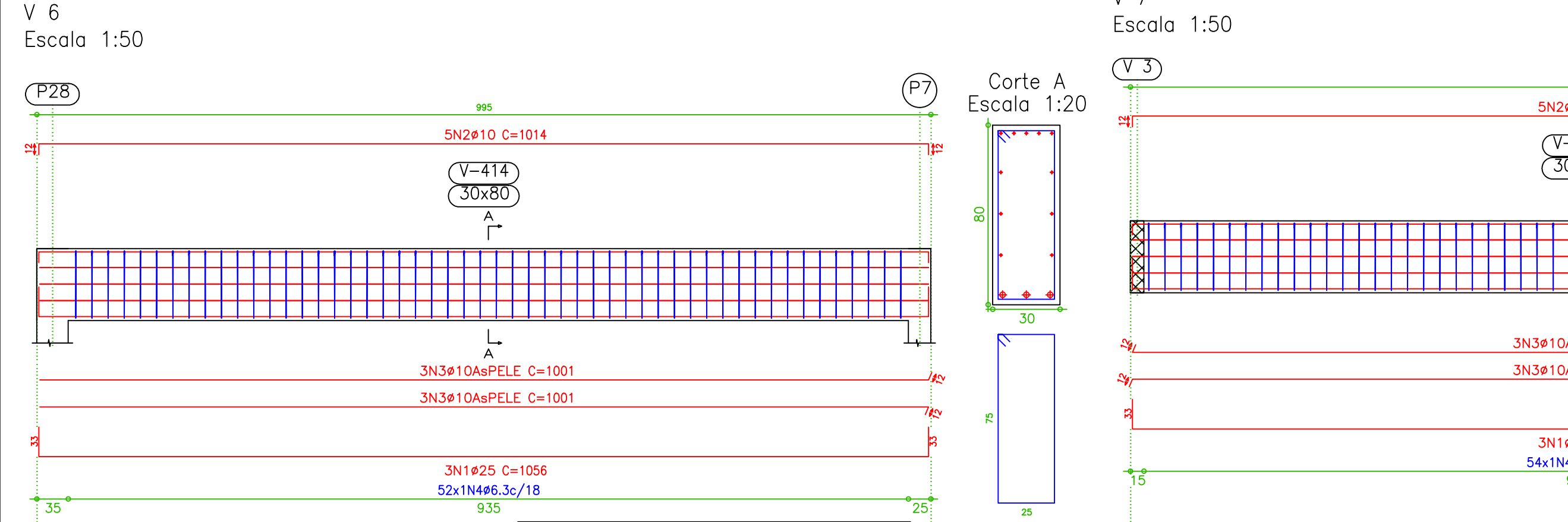
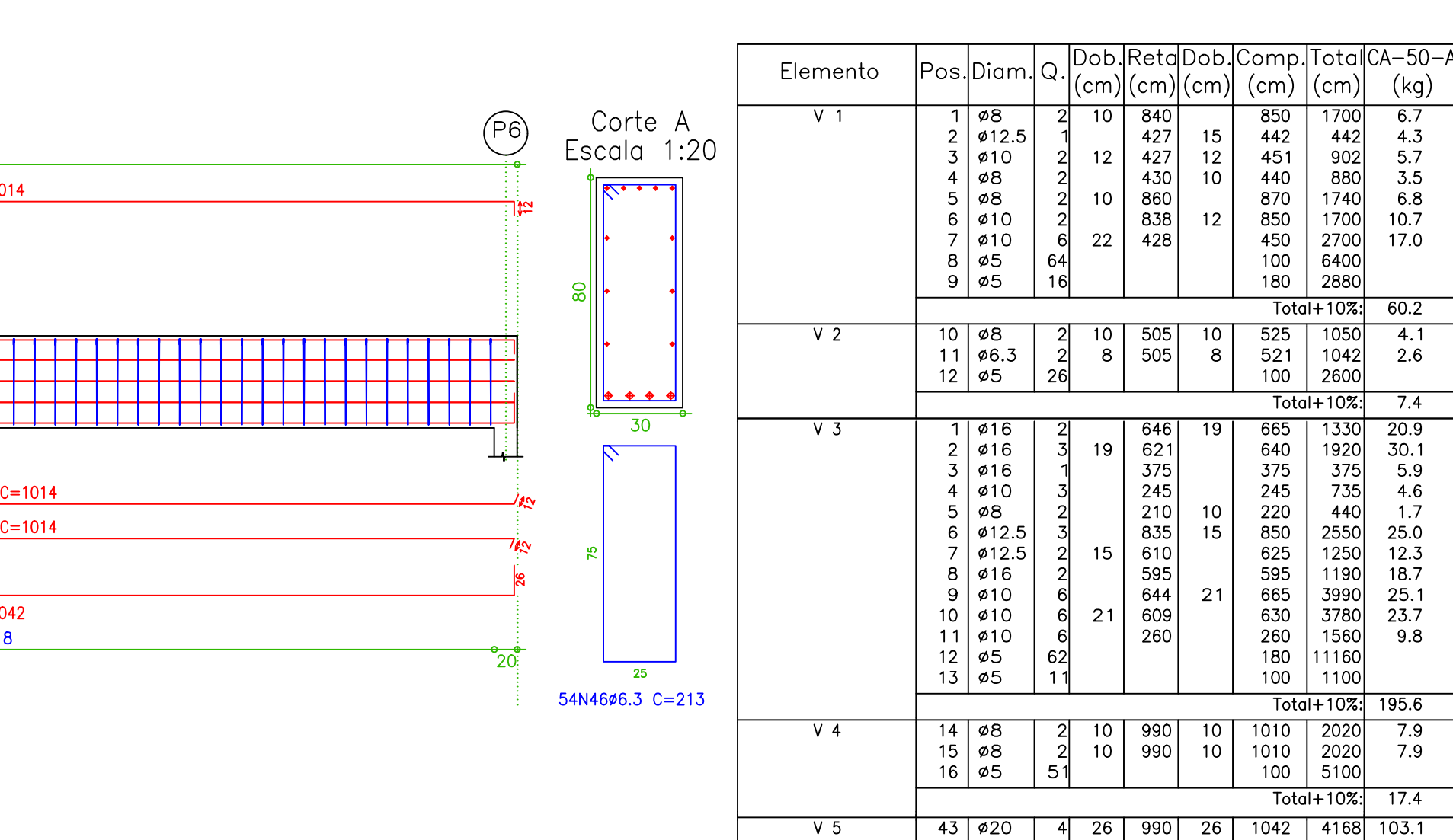
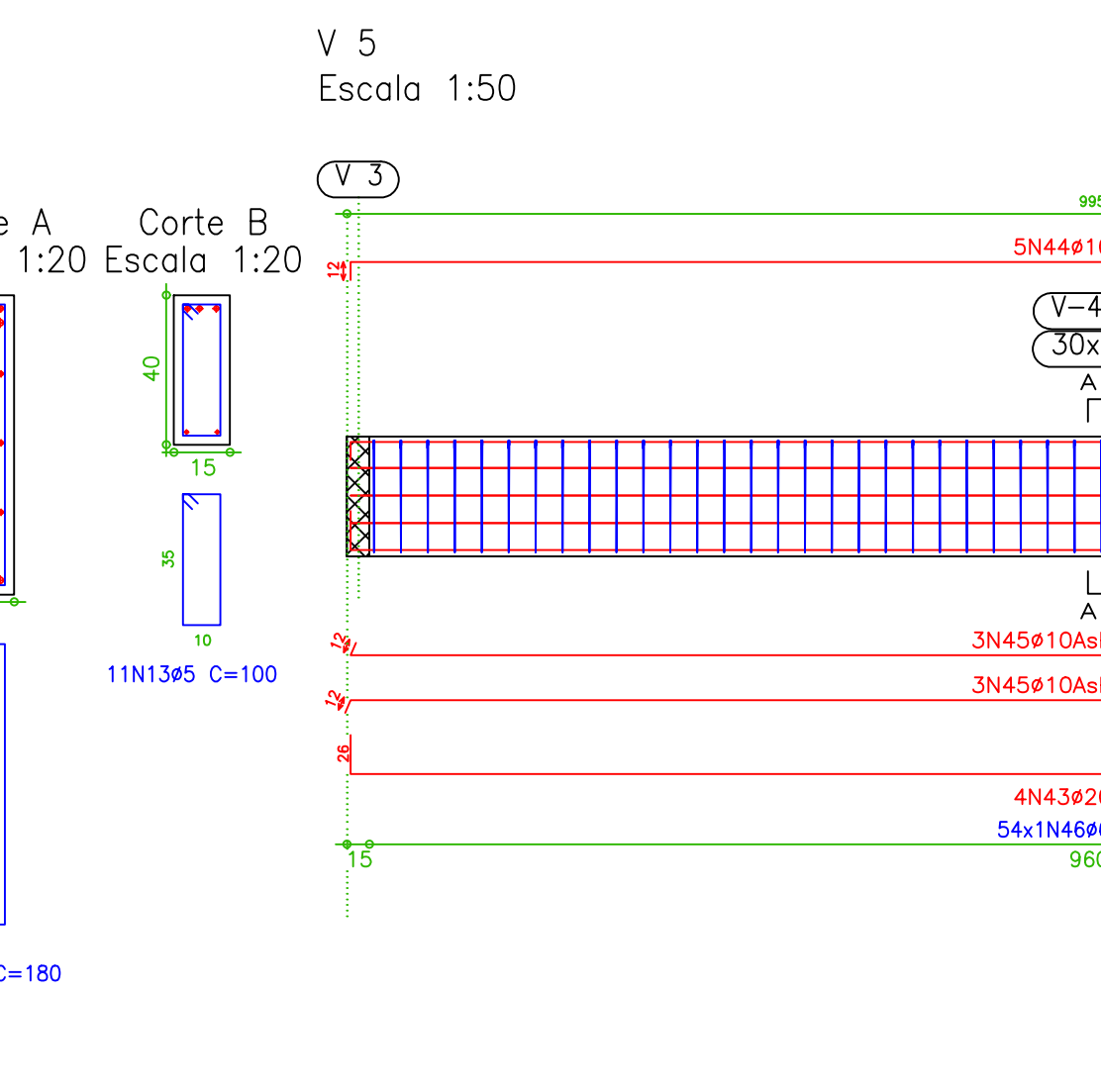
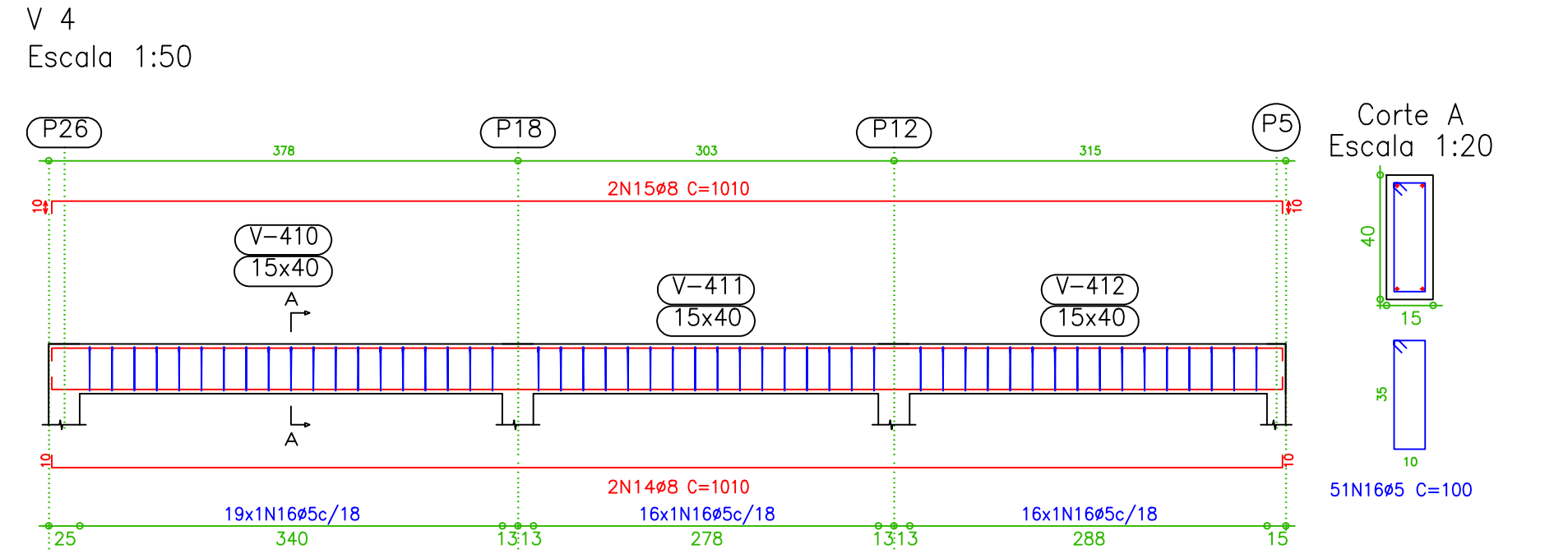
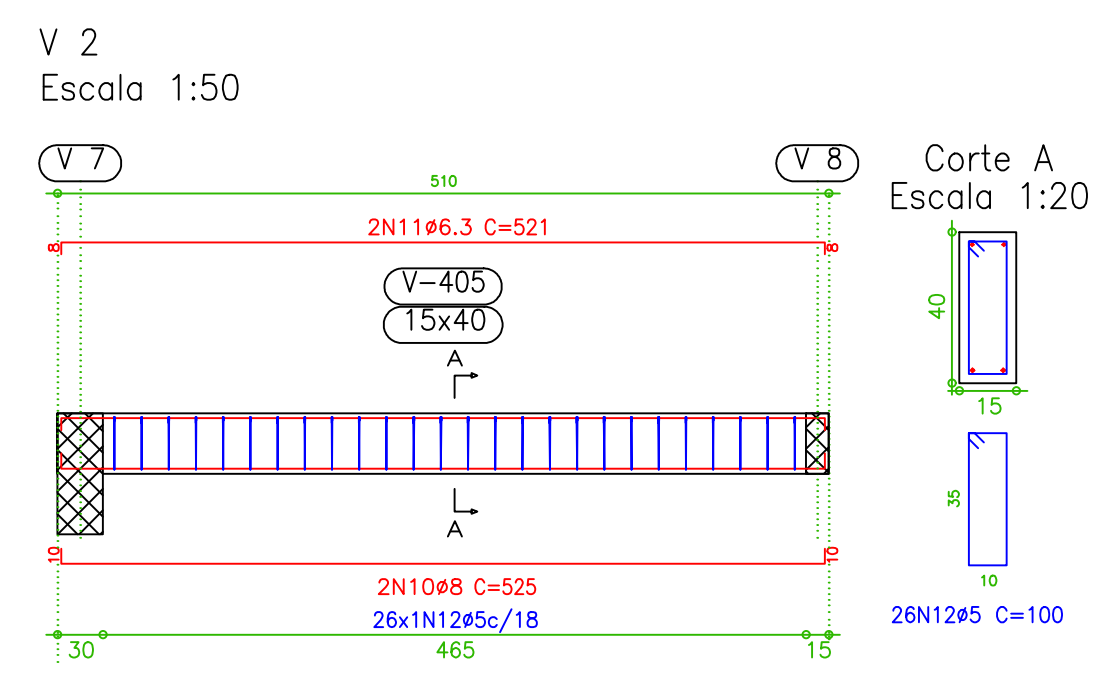
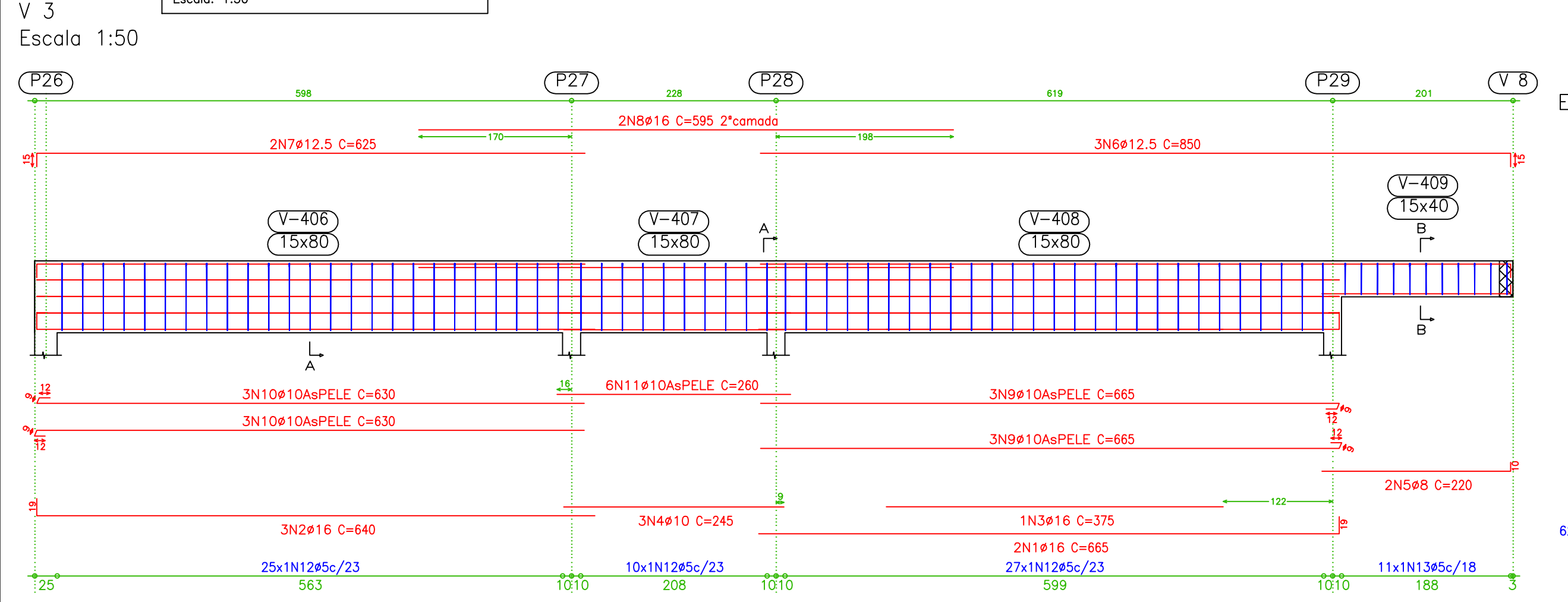


Cobertura 2
Formas
Concreto: C30, em geral
CA-50-A e CA-60-B
Mf: Momento fletor de cálculo por metro de largura (kN x m/m)
V: Esforço cortante de cálculo por metro de largura (kN/m)
Escala: 1:50



Elemento	Pos.	Diam.	Q.	Dob.	Retd.	Dob.	Comp.	Total	CA-50-A	CA-60-B
				(cm)	(cm)	(cm)	(cm)	(cm)	(kg)	(kg)
V 1	1	Ø8	2	10	840		850	1700	6.7	
	2	Ø12.5	1	15	427		442	442	4.3	
	3	Ø10	2	12	427	12	451	902	5.7	
	4	Ø8	2	10	430	10	440	880	3.5	
	5	Ø8	2	10	860		870	1740	6.8	
	6	Ø10	2	12	838	12	850	1700	10.7	
	7	Ø10	6	22	428		450	2700	17.0	
	8	Ø5	64				100	6400		10.0
	9	Ø5	16				180	2880		4.5
Total+10%									60.2	16.0
V 2	10	Ø8	2	10	505	10	525	1050	4.1	
	11	Ø6.3	2	8	505	8	521	1042	2.6	
	12	Ø5	26				100	2600		4.1
Total+10%									7.4	4.5
V 3	1	Ø16	2	19	646	19	665	1330	20.9	
	2	Ø16	3	19	621		640	1920	30.1	
	3	Ø16	3	375			375	375	5.9	
	4	Ø10	3	245		10	245	735	4.6	
	5	Ø8	2	210		10	220	440	1.7	
	6	Ø12.5	3	835	15	850	2550	25.0		
	7	Ø12.5	2	610		625	1250	12.3		
	8	Ø16	2	695		595	1190	18.7		
	9	Ø10	6	644	21	665	3990	25.1		
	10	Ø10	6	609		630	3780	23.7		
	11	Ø10	6	260		260	1560	9.8		
	12	Ø5	62			180	1160		17.5	
	13	Ø5	1			100	1100		1.7	
Total+10%									195.6	21.1
V 4	14	Ø8	2	10	990	10	1010	2020	7.9	
	15	Ø8	2	10	990	10	1010	2020	7.9	
	16	Ø5	51				100	5100		8.0
Total+10%									17.4	8.8
V 5	43	Ø20	4	26	990	26	1042	4168	103.1	
	44	Ø10	5	12	990	12	1014	5070	31.8	
	45	Ø10	6	12	990	12	1014	6084	38.2	
	46	Ø6.3	54				213	11502	28.4	
Total+10%									221.7	
V 6	1	Ø25	3	33	990	33	1056	3168	124.3	
	2	Ø10	5	12	990	12	1014	5070	31.8	
	3	Ø10	6	12	989	12	1001	6006	37.7	
	4	Ø6.3	52				213	11076	27.4	
Total+10%									243.3	
V 7	1	Ø25	3	33	990	33	1056	3168	124.3	
	2	Ø10	5	12	990	12	1014	5070	31.8	
	3	Ø10	6	12	990	12	1014	6084	38.2	
	4	Ø6.3	54				213	11502	28.4	
Total+10%									245.0	
V 8	17	Ø8	2	10	990	10	1010	2020	7.9	
	18	Ø8	2	10	320		320	320	1.3	
	19	Ø10	2	12	990	12	1014	2028	12.7	
	20	Ø5	52				100	5200		8.2
Total+10%									24.1	9.0

Resumo Aço Cobertura 2 Vigas	Comp. total (m)	Peso+10% (kg)	Total
CA-50-A	351.2	96	
Ø8	121.9	53	
Ø10	507.8	351	
Ø12.5	42.4	46	
Ø16	48.2	83	
Ø20	41.7	113	
Ø25	63.4	274	1016
CA-60-B	344.4	59	
Total			1075

Cobertura 2 - Superfície total: 163.69 m²			
Elemento	Formas (m²)	Volume (m³)	Barros (kg)
LALJES	146.33	12.14	185
Vigas: fundo	16.60	11.60	1074
Forma lateral	84.93		
Pilares (Sup. Formas)	37.20	2.23	275
Total	285.06	25.97	1534
Índices (por m²)	1.741	0.159	9.37

Cobertura 2
Desenho de vigas
Concreto: C30, em geral
Aço: CA-50-A e CA-60-B
Escala vigas: 1:50
Escala seções: 1:20