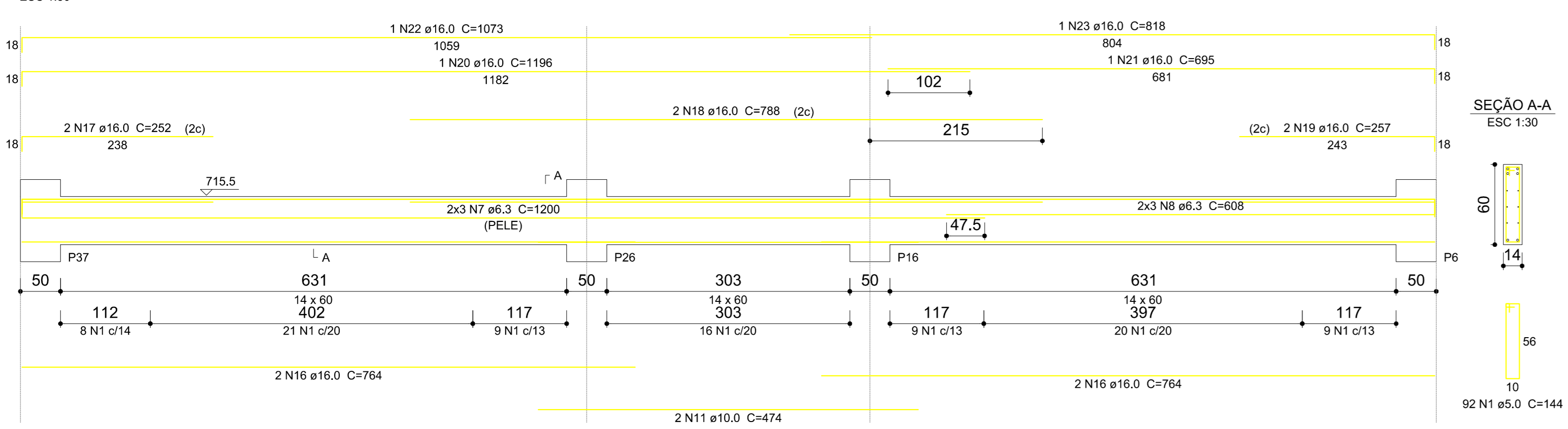
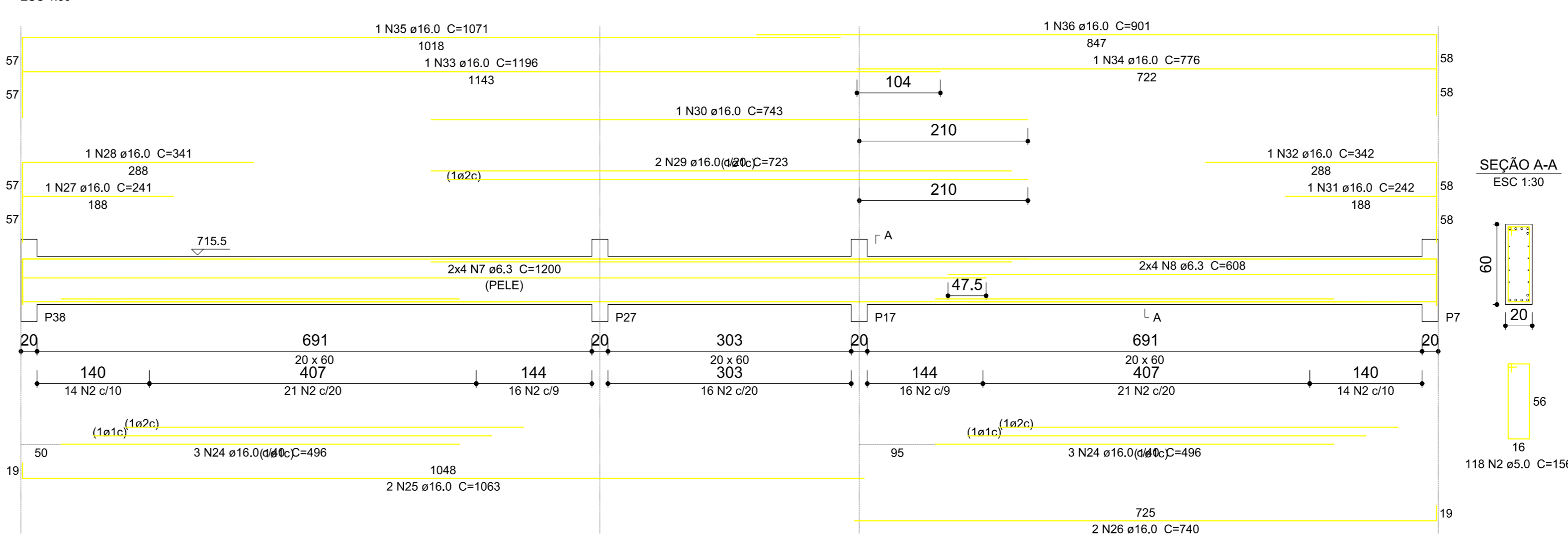


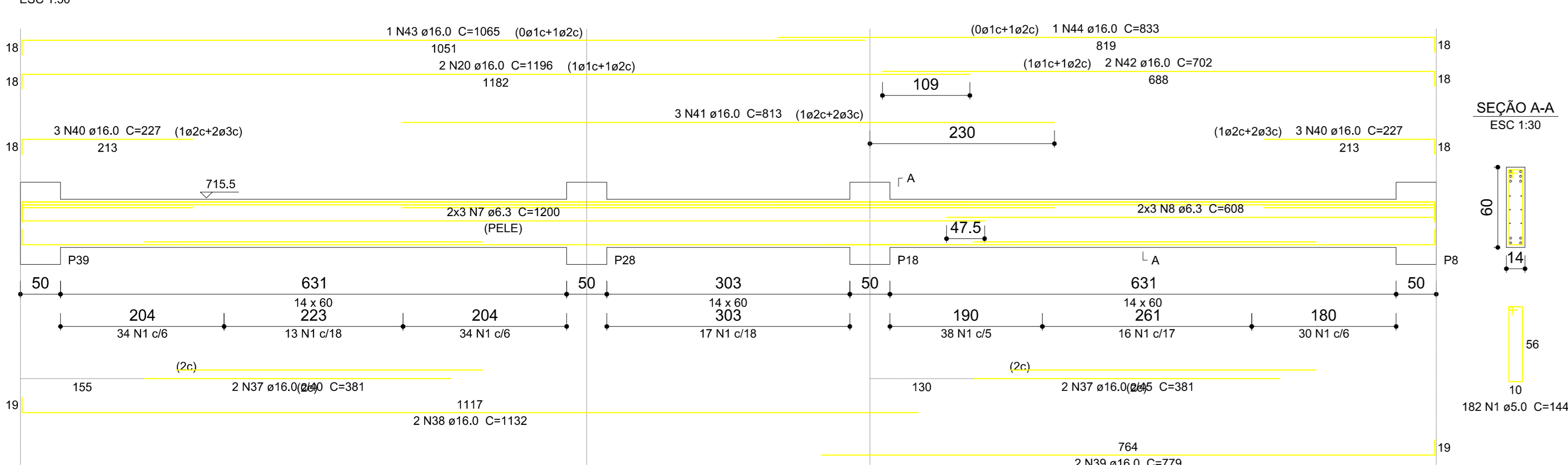
**VC20 (14 x 60)**  
ESC 1:50



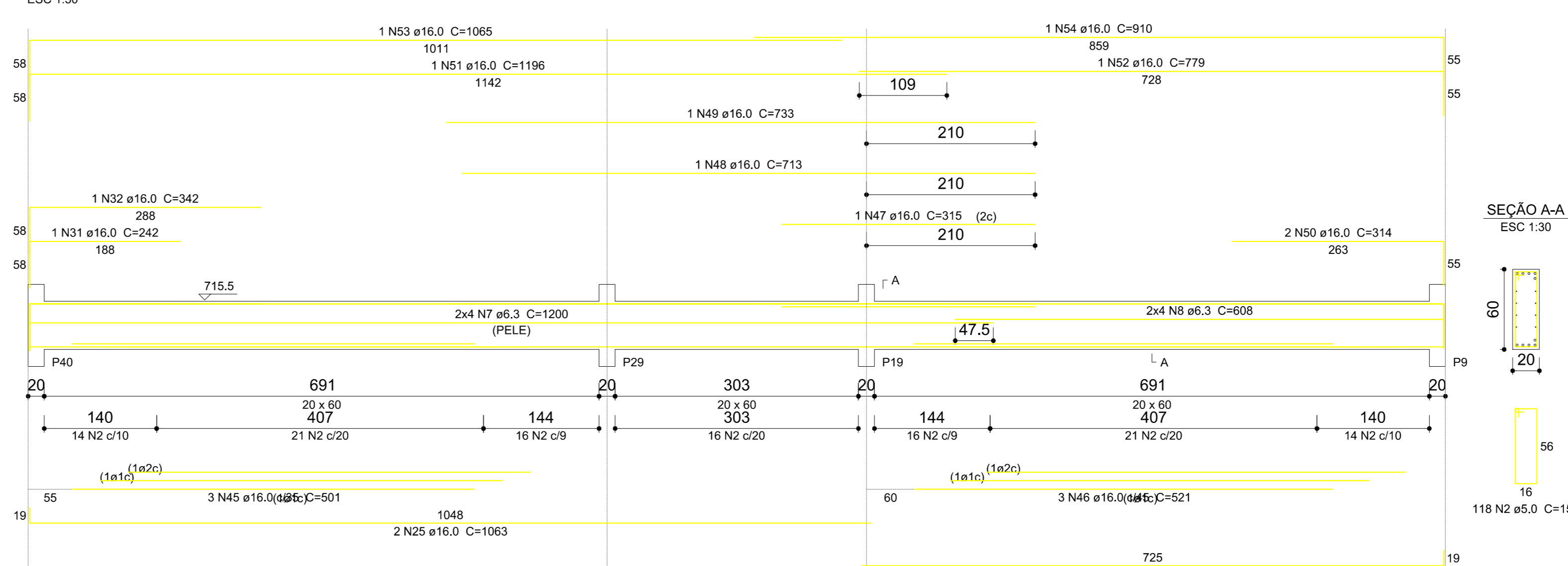
**VC21 (20 x 60)**  
ESC 1:50



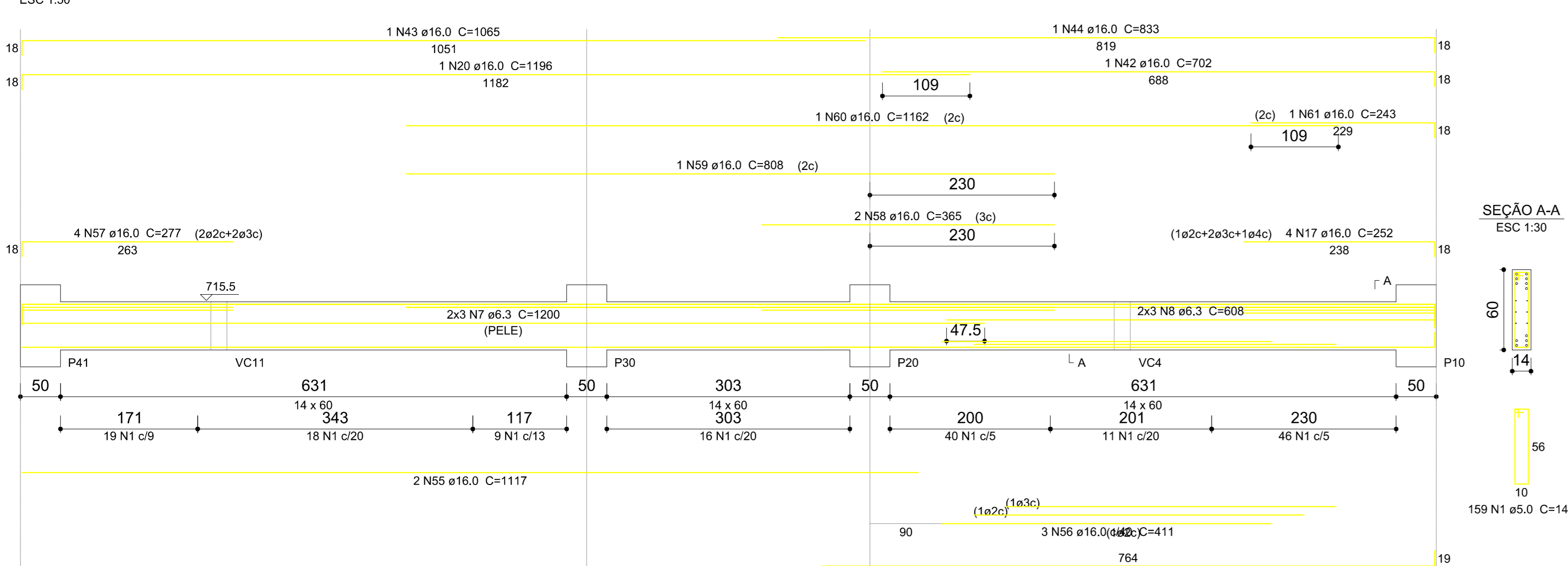
**VC22 (14 x 60)**  
ESC 1:50



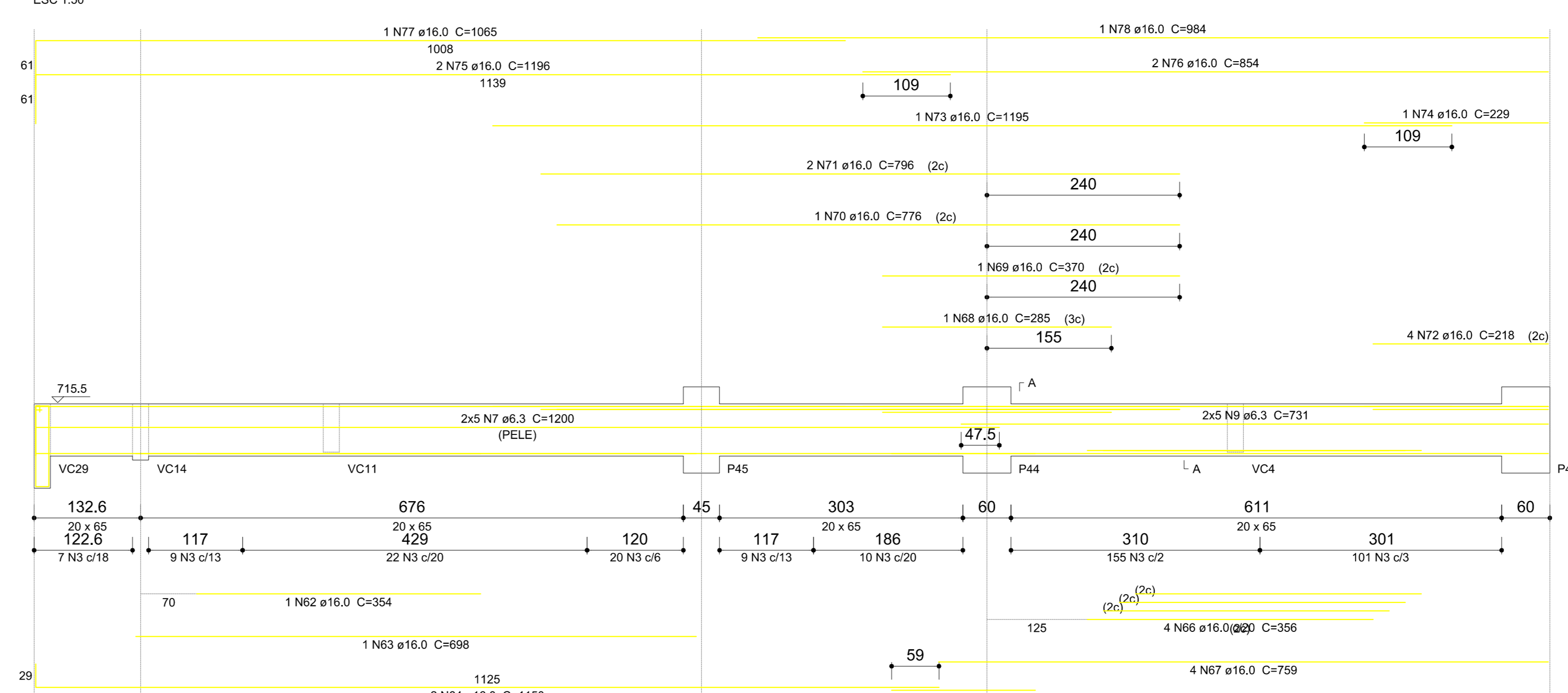
**VC23 (20 x 60)**  
ESC 1:50



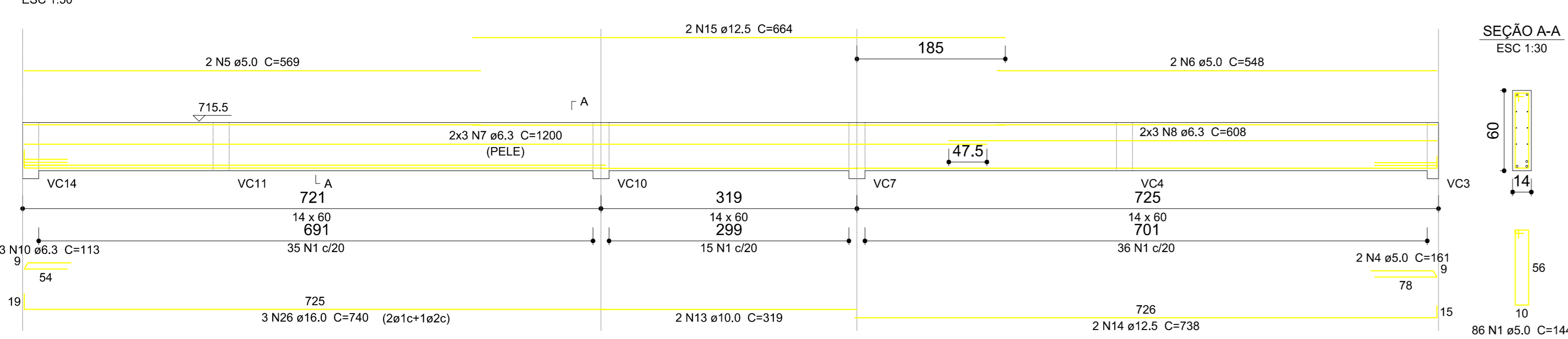
**VC24 (14 x 60)**  
ESC 1:50



**VC27 (20 x 65)**  
ESC 1:50



**VC28 (14 x 60)**  
ESC 1:50



**Relação do aço**

VC20	VC21	VC22	VC23	VC24	VC27	VC28
CA60	1	5.0	519	144	747.36	
	2	5.0	236	156	369.16	
	3	5.0	333	166	552.78	
	4	5.0	2	161	322	
	5	5.0	2	569	1138	
	6	5.0	2	548	1096	
CA50	7	6.3	50	1200	6000.00	
	8	6.3	40	608	2432.00	
	9	6.3	10	731	731.00	
	10	6.3	3	113	339	
	11	10.0	2	474	948	
	12	10.0	1	247	247	
	13	10.0	2	319	638	
	14	12.5	2	738	1476	
	15	12.5	2	664	1328	
	16	16.0	4	764	3056	
	17	16.0	6	252	1512	
	18	16.0	2	788	1576	
	19	16.0	2	257	514	
	20	16.0	4	1196	4784	
	21	16.0	1	695	695	
	22	16.0	1	1073	1073	
	23	16.0	1	818	818	
	24	16.0	6	496	2976	
	25	16.0	4	1963	4252	
	26	16.0	7	740	5180	
	27	16.0	1	241	241	
	28	16.0	1	341	341	
	29	16.0	2	723	1446	
	30	16.0	1	743	743	
	31	16.0	2	242	484	
	32	16.0	2	342	684	
	33	16.0	1	1196	1196	
	34	16.0	1	776	776	
	35	16.0	1	1071	1071	
	36	16.0	1	901	901	
	37	16.0	4	381	1524	
	38	16.0	2	1132	2264	
	39	16.0	4	779	3116	
	40	16.0	6	227	1362	
	41	16.0	3	813	2439	
	42	16.0	3	702	2106	
	43	16.0	2	1065	2130	
	44	16.0	2	833	1666	
	45	16.0	3	501	1503	
	46	16.0	3	521	1563	
	47	16.0	1	315	315	
	48	16.0	1	713	713	
	49	16.0	1	733	733	
	50	16.0	2	314	628	
	51	16.0	1	1196	1196	
	52	16.0	1	779	779	
	53	16.0	1	1065	1065	
	54	16.0	1	910	910	
	55	16.0	2	1117	2234	
	56	16.0	3	411	1233	
	57	16.0	4	277	1108	
	58	16.0	2	365	730	
	59	16.0	1	808	808	
	60	16.0	1	1162	1162	
	61	16.0	1	243	243	
	62	16.0	1	354	354	
	63	16.0	1	698	698	
	64	16.0	2	1150	2300	
	65	16.0	2	179	358	
	66	16.0	4	356	1424	
	67	16.0	4	759	3036	
	68	16.0	1	285	285	
	69	16.0	1	370	370	
	70	16.0	1	776	776	
	71	16.0	2	796	1592	
	72	16.0	4	218	872	
	73	16.0	1	1195	1195	
	74	16.0	1	229	229	
	75	16.0	2	1196	2392	
	76	16.0	2	854	1708	
	77	16.0	1	1065	1065	
	78	16.0	1	884	884	

**Resumo do aço**

AÇO	DIAM	C.TOTAL	PESO + 10%
CA50	6.3	919.7	247.6
	10.0	18.4	12.4
	12.5	26.1	29.7
CA60	16.0	874.9	1518.9
	5.0	1693.9	287.2
<b>PESO TOTAL</b>			
CA50	1808.6		
CA60	287.2		

Vol. de concreto total (C=25) = 12.62 m³  
Área de forma total = 172.34 m²

**FB ENGENHARIA LTDA**  
Felisberto & Jíava Associados

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Fone: (48) 3566.5862

**INSTITUTO FEDERAL CATARINENSE** Projeto: **425**  
Cobra: EDIFICAÇÃO PARA SALAS DE AULA E OFICINAS  
Local: RODOVIA SC 303 - VIDEIRA - SC  
Prontidão: **29/32**  
Resp. Técnico: \_\_\_\_\_ Assinatura Proprietário: \_\_\_\_\_  
Eng. Civil FABIANO BIAVA  
CREA SC - 67891-9  
Descrição: \_\_\_\_\_

**VIGAS COBERTURA (03/03)**  
Dimensões: FB ENGENHARIA Unidades: CENTÍMETROS Data: FEVEREIRO 2013 Escala: INDICADA Área: 2,546,18m²