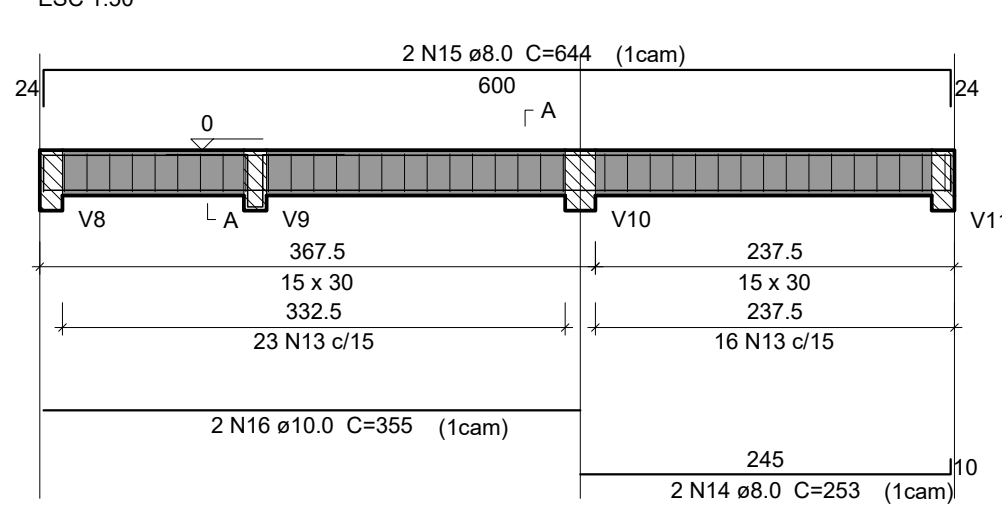
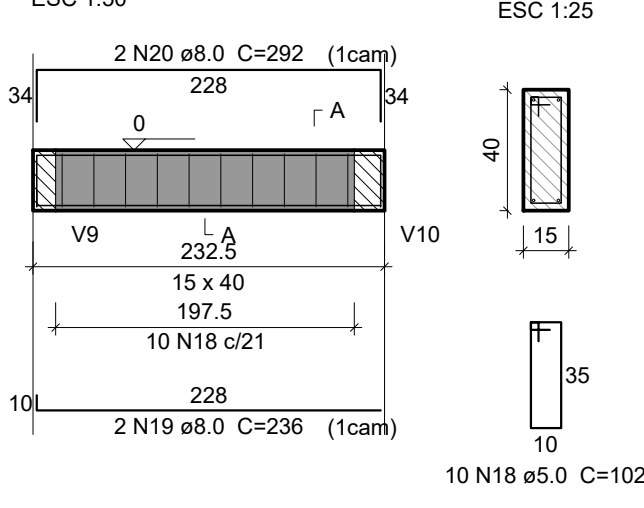


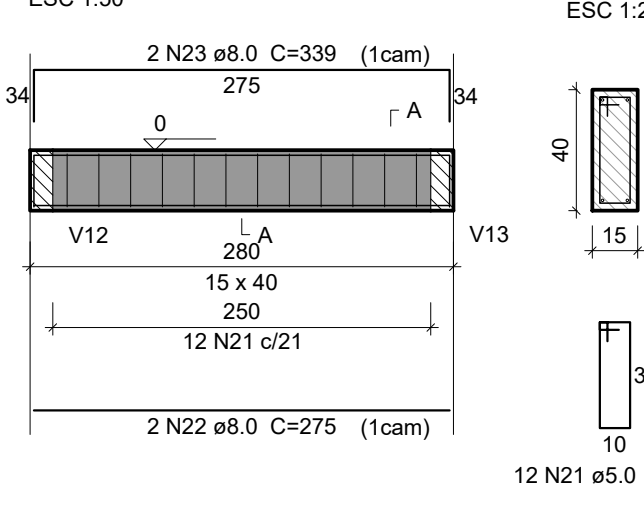
V1 (15 x 30)



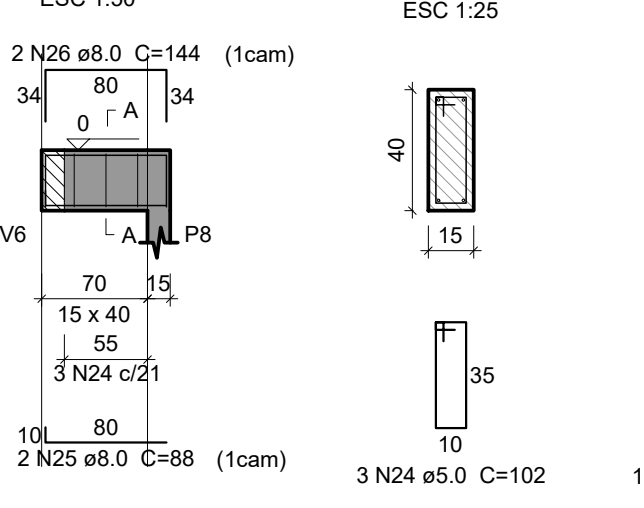
V2 (15 x 40)



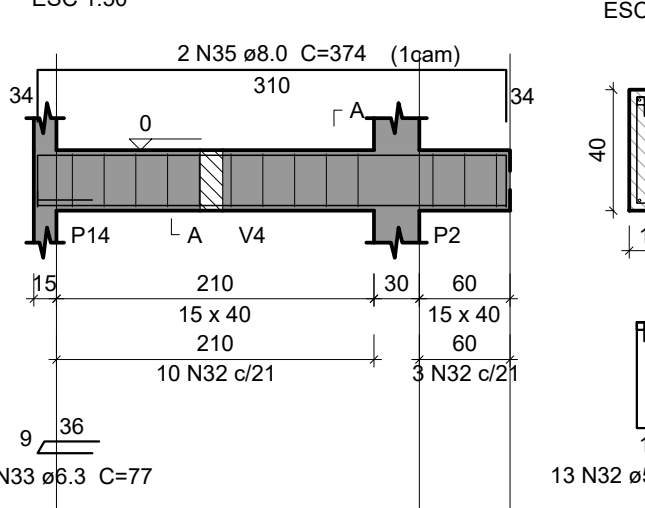
V3 (15 x 40)



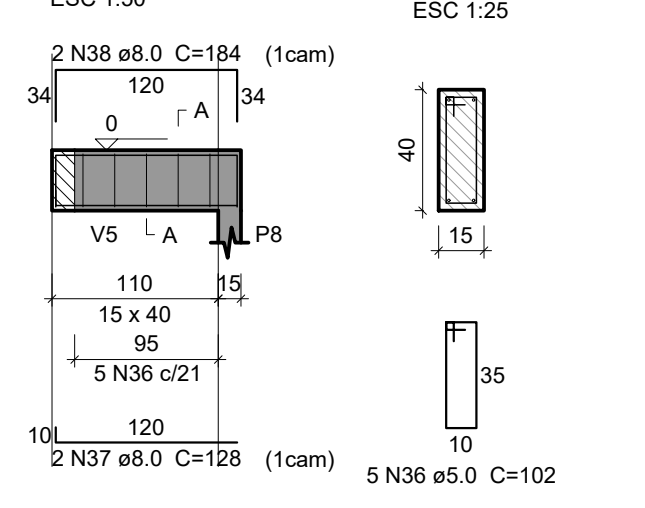
V4 (15 x 40)



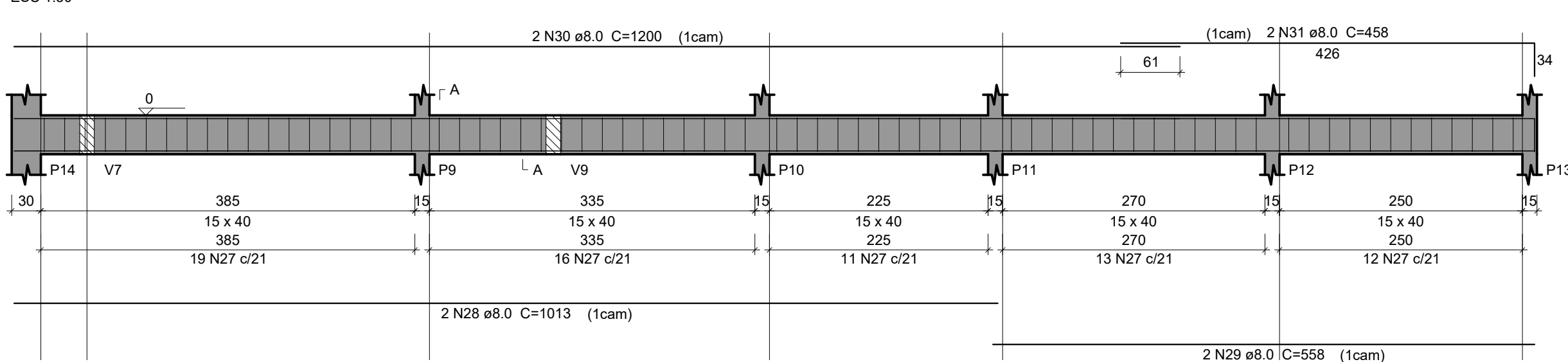
V6 (15 x 40)



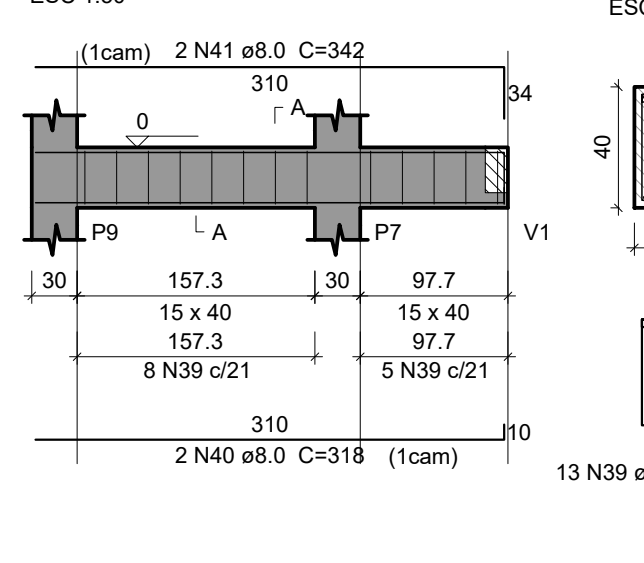
V7 (15 x 40)



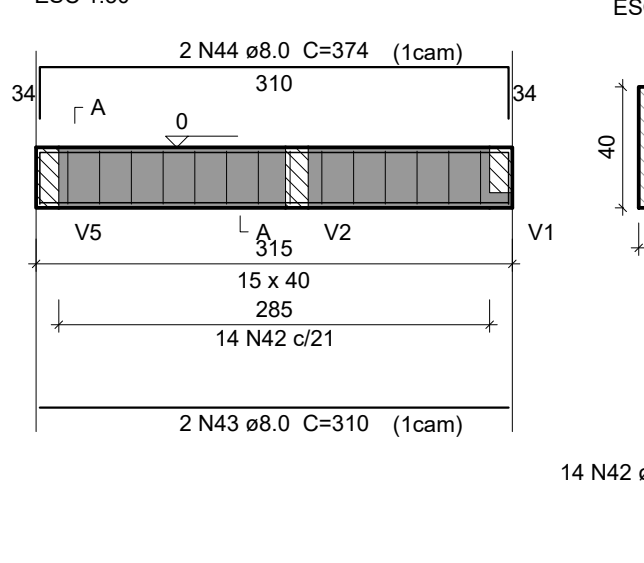
V5 (15 x 40)



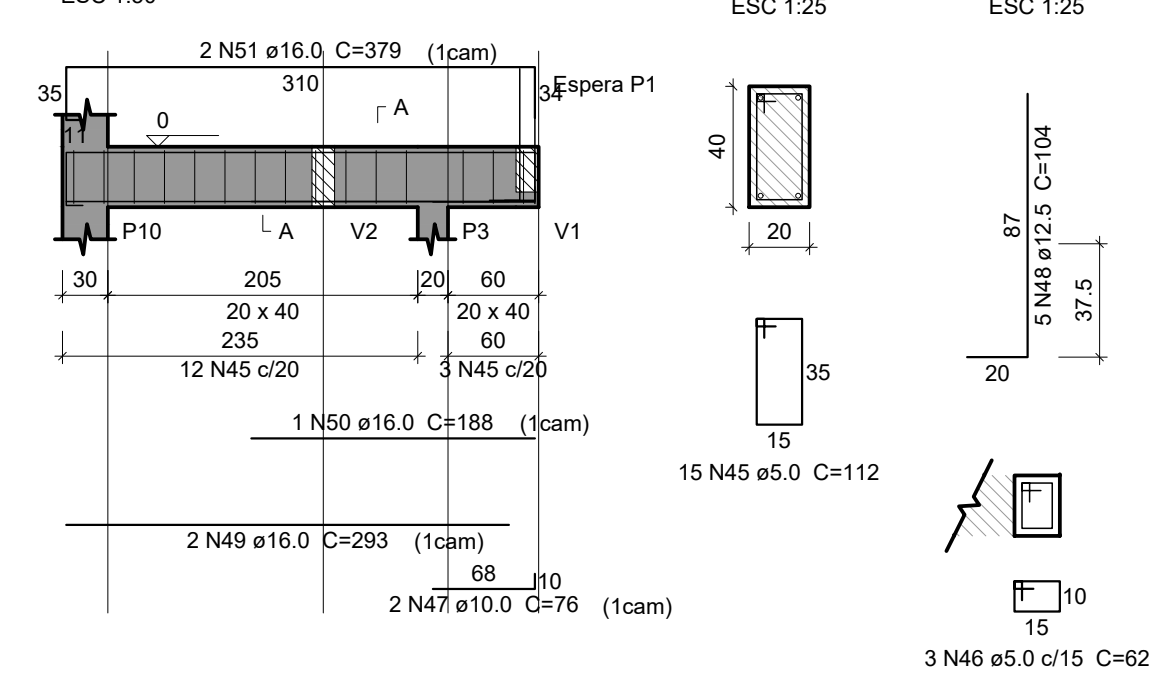
V8 (15 x 40)



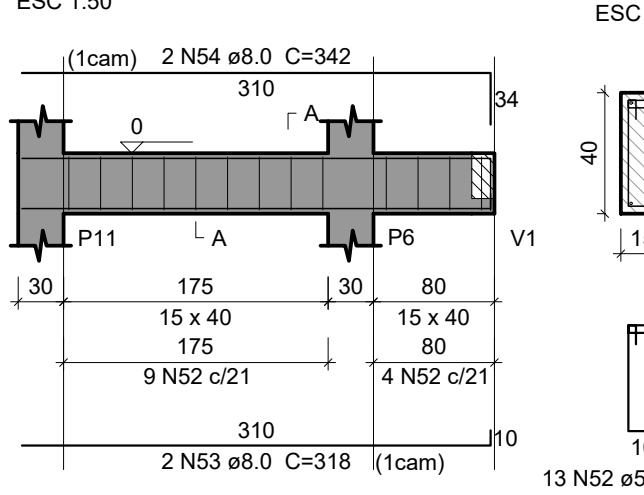
V9 (15 x 40)



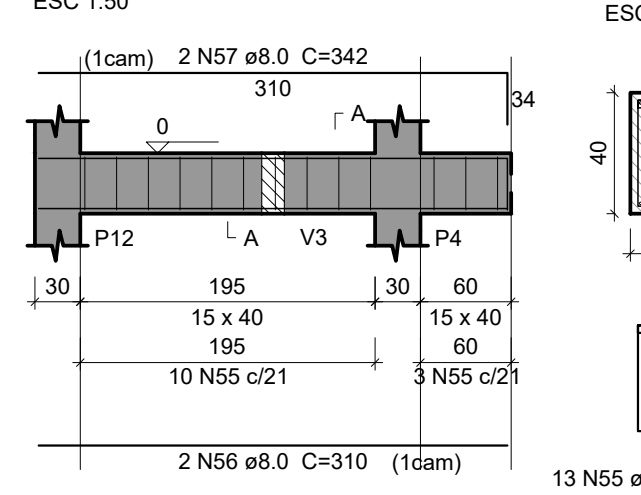
V10 (20 x 40)



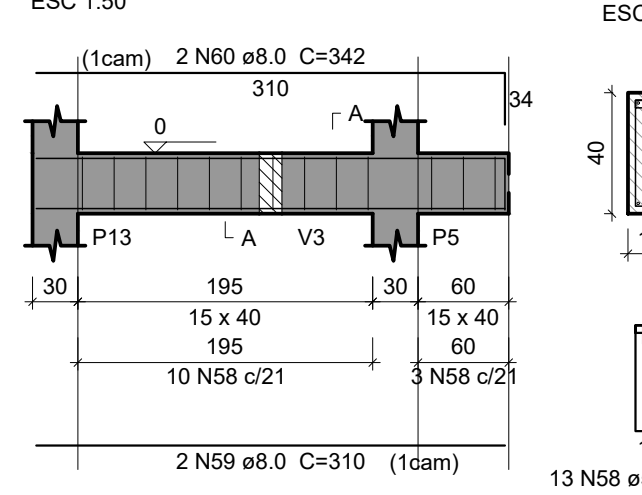
V11 (15 x 40)



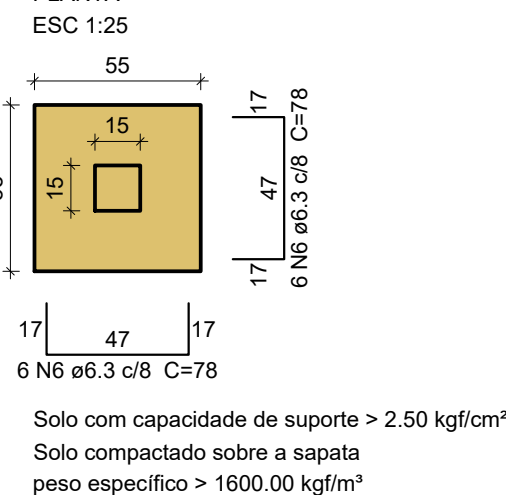
V12 (15 x 40)



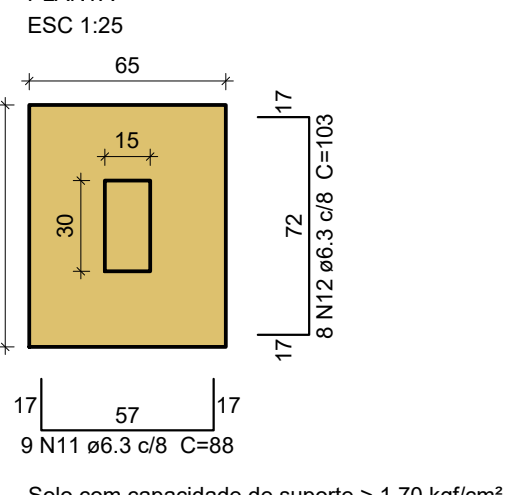
V13 (15 x 40)



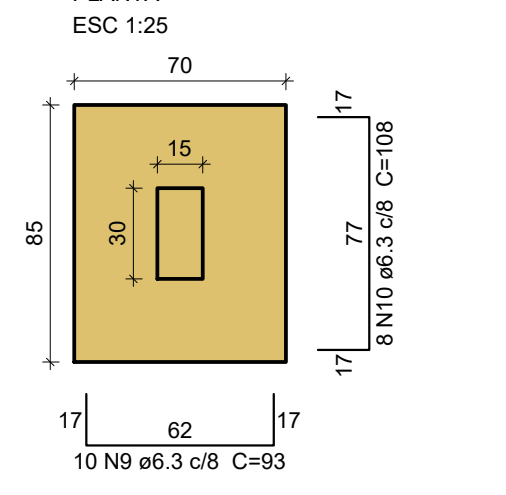
S8



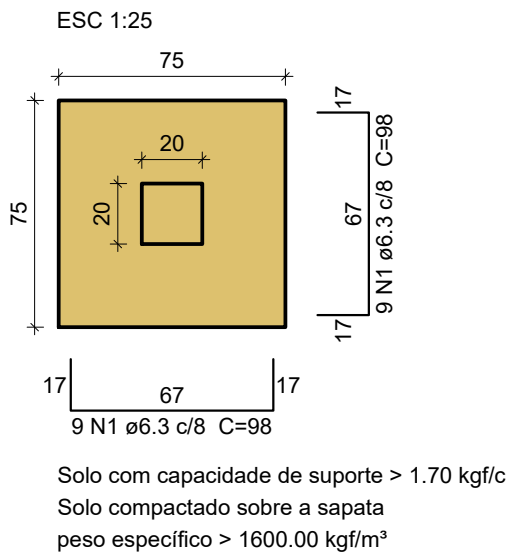
S11=S13=S14



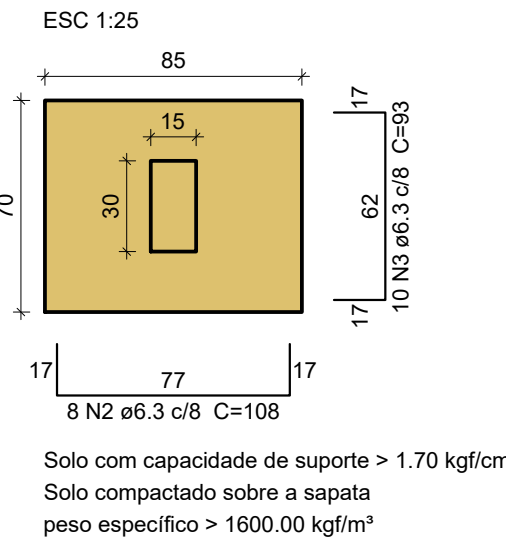
S2=S4=S5=S12



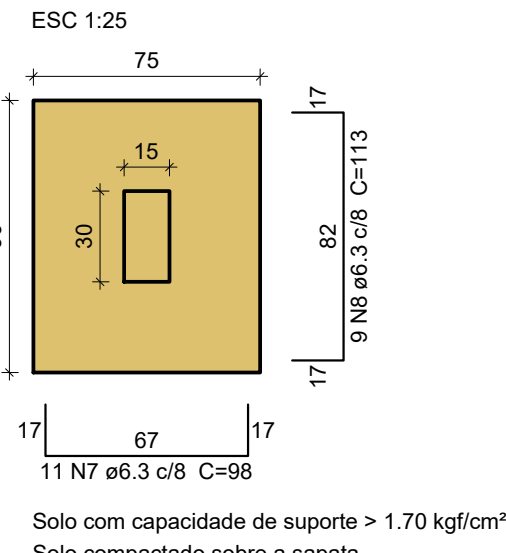
S3



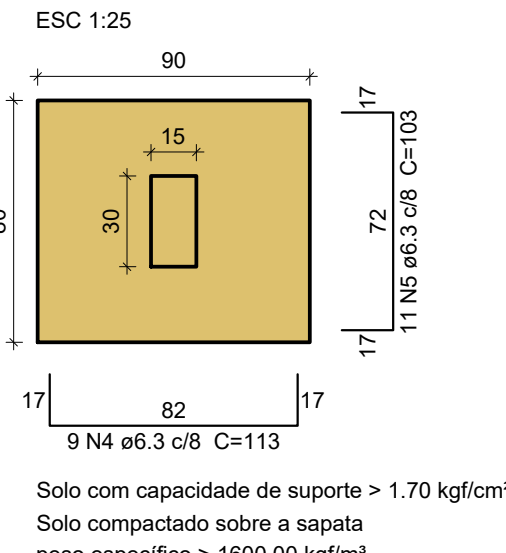
S6



S9=S10



S7



Relação do aço

ELEMENTO	AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
S3	CA50	1	6.3	18	98	1764
S6	CA50	2	6.3	8	108	864
	CA50	3	6.3	10	93	930
S7	CA50	4	6.3	9	113	1017
	CA50	5	6.3	11	103	1133
S8	CA50	6	6.3	12	78	936
2xS10	CA50	7	6.3	22	98	2156
	CA50	8	6.3	18	113	2034
4xS12	CA50	9	6.3	40	93	3720
	CA50	10	6.3	32	108	3456
3xS14	CA50	11	6.3	27	88	2376
	CA50	12	6.3	24	103	2472
V1	CA60	13	5.0	39	82	3198
	CA50	14	8.0	2	253	506
	CA50	15	8.0	2	644	1288
	CA50	16	10.0	2	355	710
	CA50	17	10.0	1	179	179
V2	CA60	18	5.0	10	102	1020
	CA50	19	8.0	2	236	472
	CA50	20	8.0	2	292	584
V3	CA60	21	5.0	12	102	1224
	CA50	22	8.0	2	275	550
	CA50	23	8.0	2	339	678
V4	CA60	24	5.0	3	102	306
	CA50	25	8.0	2	98	176
	CA50	26	8.0	2	144	288
V5	CA60	27	5.0	71	102	7242
	CA50	28	8.0	2	1013	2026
	CA50	29	8.0	2	558	1116
	CA50	30	8.0	2	1200	2400
V6	CA50	31	8.0	2	458	916
	CA60	32	5.0	13	102	1326
	CA50	33	6.3	1	77	77
	CA50	34	8.0	2	318	636
	CA50	35	8.0	2	374	748
V7	CA60	36	5.0	5	102	510
	CA50	37	8.0	2	128	256
	CA50	38	8.0	2	184	368
V8	CA60	39	5.0	13	102	1326
	CA50	40	8.0	2	318	636
	CA50	41	8.0	2	342	684
V9	CA60	42	5.0	14	102	1428
	CA50	43	8.0	2	310	620
	CA50	44	8.0	2	374	748
V10	CA60	45	5.0	15	112	1680
	CA60	46	5.0	3	62	186
	CA50	47	10.0	2	76	152
	CA50	48	12.5	5	104	520
	CA50	49	16.0	2	293	586
	CA50	50	16.0	1	188	188
	CA50	51	16.0	2	379	758
V11	CA60	52	5.0	13	102	1326
	CA50	53	8.0	2	318	636
	CA50	54	8.0	2	342	684
V12	CA60	55	5.0	13	102	1326
	CA50	56	8.0	2	310	620
	CA50	57	8.0	2	342	684
V13	CA60	58	5.0	13	102	1326
	CA50	59	8.0	2	310	620
	CA50	60	8.0	2	342	684

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	QUANT + 10% (Barras)	PESO + 10% (kg)
CA50	6.3	229.4	22	61.7
	8.0	196.3	18	85.2
	10.0	10.5	1	7.1
	12.5	5.2	1	5.5
	16.0	15.4	2	26.6
CA60	5.0	234.3	-	39.7

PESO TOTAL (kg)
 CA50 186.1
 CA60 39.7

Volume de concreto (C-25) = 4.9 m³
 Área de forma = 57.27 m²

CREA	APROVO
PROPRIETÁRIO	
PROJETO	
CÁLCULO	
CONSTRUÇÃO	

OBSERVAÇÃO :
 1 - OS DIREITOS AUTORAIS DESTES PROJETOS SÃO RESERVADOS POR LEI. SEU USO INDEVIDO É DESAUTORIZADO E ESTÁ SUJEITO À PENALIZAÇÃO.
 2 - É VETADA A REPRODUÇÃO DESTES PROJETOS, PARA OUTRO FIM, QUE NÃO O DE EXECUÇÃO DO MESMO, PELO CLIENTE, NESTE ENDETERMINADO AO CONTRATO FIRMADO ENTRE AMBAS AS PARTES.
 3 - QUALQUER MODIFICAÇÃO NESTE PROJETO DEVE SER COMUNICADA COM ANTECEDÊNCIA E AUTORIZADA PELO ENGENHEIRO.

CÁLCULO ESTRUTURAL



KENNEDY VASCONCELOS
 ENGENHEIRO CIVIL

CÁLCULO ESTRUTURAL
 INSTALAÇÕES PREDIAIS
 (88) 9.9862.3700

PROPRIETÁRIO: PREFEITURA MUNICIPAL DE SOBRAL	REVISÕES:	CONTEÚDO:	FRANCHA Nº:
OBRA: ESTRUTURAÇÃO UBS CID. JOSÉ EUCLIDES	·	· SAPATAS	03/04
LOCAL: RUA AIRTON SENA, TERRENOS NOVOS-SOBRAL-CE	·	· VIGAS BALDRAME	
PROJETO: KENNEDY VASCONCELOS Eng. Civil CREA 13268D	·	·	DATA: JUN/2018