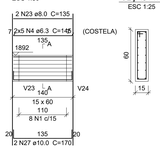
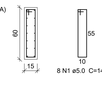
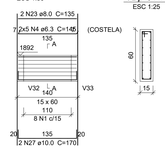
V1 (15 x 60)
ESC 1:50



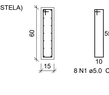
SEÇÃO A-A
ESC 1:25



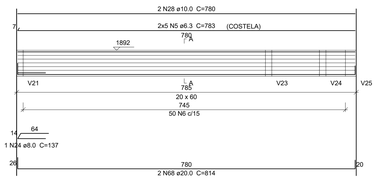
V2 (15 x 60)
ESC 1:50



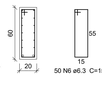
SEÇÃO A-A
ESC 1:25



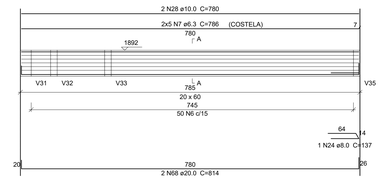
V3 (20 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

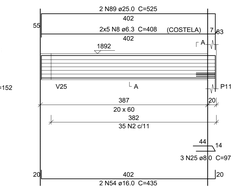


V4 (20 x 60)
ESC 1:50

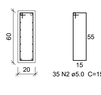


SEÇÃO A-A
ESC 1:25

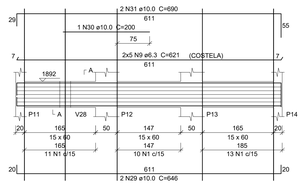
V7 (20 x 60)
ESC 1:50



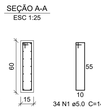
SEÇÃO A-A
ESC 1:25



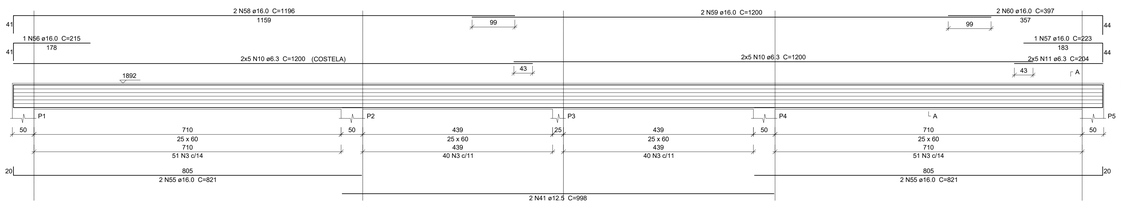
V8 (15 x 60)
ESC 1:50



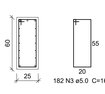
SEÇÃO A-A
ESC 1:25



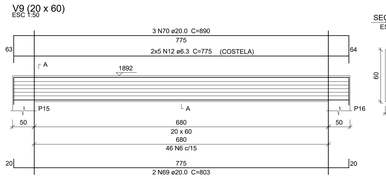
V5 (25 x 60)
ESC 1:50



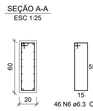
SEÇÃO A-A
ESC 1:25



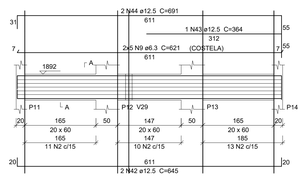
V9 (20 x 60)
ESC 1:50



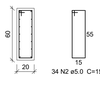
SEÇÃO A-A
ESC 1:25



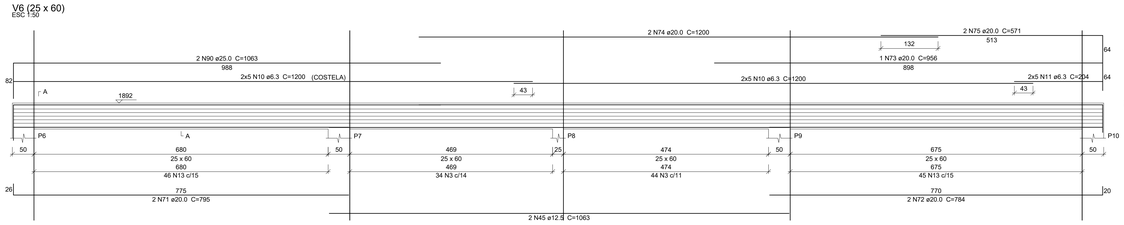
V10 (20 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

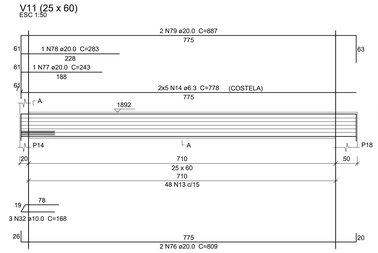


V6 (25 x 60)
ESC 1:50

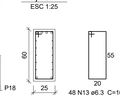


SEÇÃO A-A
ESC 1:25

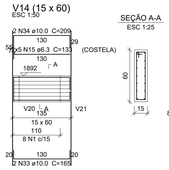
V11 (25 x 60)
ESC 1:50



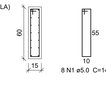
SEÇÃO A-A
ESC 1:25



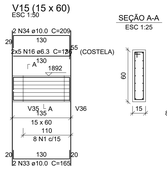
V14 (15 x 60)
ESC 1:50



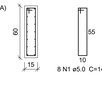
SEÇÃO A-A
ESC 1:25



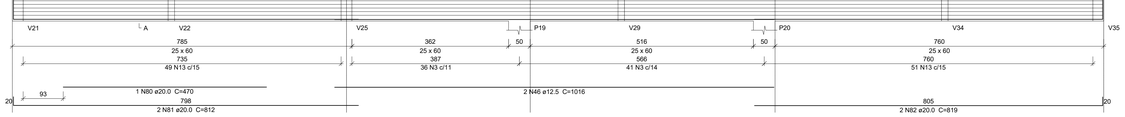
V15 (15 x 60)
ESC 1:50



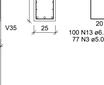
SEÇÃO A-A
ESC 1:25



V12 (25 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25



V13 (25 x 60)
ESC 1:50

SEÇÃO A-A
ESC 1:25

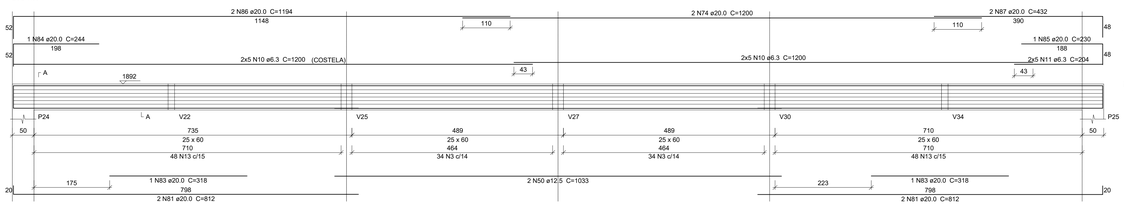
V16 (15 x 60)
ESC 1:50

SEÇÃO A-A
ESC 1:25

V18 (15 x 60)
ESC 1:50

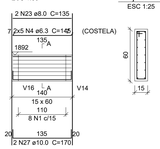
SEÇÃO A-A
ESC 1:25

V17 (25 x 60)
ESC 1:50

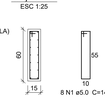


SEÇÃO A-A
ESC 1:25

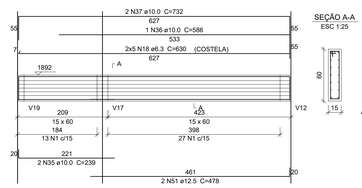
V20 (15 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

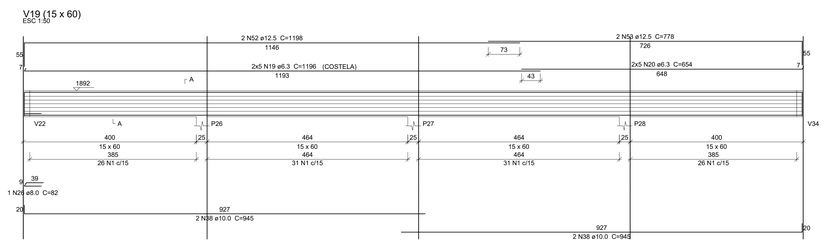


V22 (15 x 60)
ESC 1:50



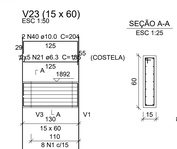
SEÇÃO A-A
ESC 1:25

V19 (15 x 60)
ESC 1:50

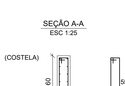


SEÇÃO A-A
ESC 1:25

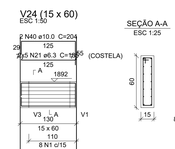
V23 (15 x 60)
ESC 1:50



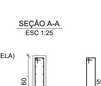
SEÇÃO A-A
ESC 1:25



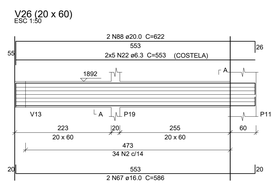
V24 (15 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

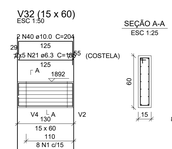


V26 (20 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

V32 (15 x 60)
ESC 1:50



SEÇÃO A-A
ESC 1:25

Relação do aço

V1	V2	V3
V4	V5	V6
V7	V8	V9
V10	V11	V12
V13	V14	V15
V16	V17	V18
V19	V20	V22
V23	V24	V26
V32		

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	268	142	38056
	2	5.0	103	152	15656
	3	5.0	482	162	78084
CA50	4	6.3	30	145	4350
	5	6.3	10	783	7830
	6	6.3	146	152	22192
	7	6.3	10	786	7860
	8	6.3	10	408	4080
	9	6.3	20	621	12420
	10	6.3	80	1200	96000
	11	6.3	40	204	8160
	12	6.3	10	775	7750
	13	6.3	335	162	54270
	14	6.3	10	778	7780
	15	6.3	20	133	2660
	16	6.3	20	136	2720
	17	6.3	10	998	9980
	18	6.3	10	630	6300
	19	6.3	10	1196	11960
	20	6.3	10	654	6540
	21	6.3	30	135	4050
	22	6.3	10	553	5530
	23	8.0	6	135	810
	24	8.0	2	137	274
	25	8.0	3	97	291
	26	8.0	1	62	62
	27	10.0	6	170	1020
	28	10.0	4	780	3120
	29	10.0	2	646	1292
	30	10.0	1	200	200
	31	10.0	2	690	1380
	32	10.0	3	168	504
	33	10.0	8	165	1320
	34	10.0	8	209	1672
	35	10.0	2	239	478
	36	10.0	1	586	586
	37	10.0	2	732	1464
	38	10.0	4	945	3780
	39	10.0	6	160	960
	40	10.0	6	204	1224
	41	12.5	2	998	1996
	42	12.5	2	645	1290
	43	12.5	1	364	364
	44	12.5	2	691	1382
	45	12.5	2	1063	2126
	46	12.5	2	1016	2032
	47	12.5	2	1032	2064
	48	12.5	2	260	520
	49	12.5	2	1072	2144
	50	12.5	2	1033	2066
	51	12.5	2	478	956
	52	12.5	2	1198	2396
	53	12.5	2	778	1556
	54	16.0	2	435	870
	55	16.0	4	821	3284
	56	16.0	1	215	215
	57	16.0	1	223	223
	58	16.0	2	1196	2392
	59	16.0	4	1200	4800
	60	16.0	2	397	794
	61	16.0	1	275	275
	62	16.0	1	315	315
	63	16.0	1	946	946
	64	16.0	1	1026	1026
	65	16.0	2	1196	2392
	66	16.0	2	389	778
	67	16.0	2	586	1172
	68	20.0	4	814	3256
	69	20.0	2	803	1606
	70	20.0	3	890	2670
	71	20.0	2	795	1590
	72	20.0	2	784	1568
	73	20.0	1	956	956
	74	20.0	4	1200	4800
	75	20.0	2	571	1142
	76	20.0	2	809	1618
	77	20.0	1	243	243
	78	20.0	1	283	283
	79	20.0	2	887	1774
	80	20.0	1	470	470
	81	20.0	6	812	4872
	82	20.0	2	819	1638
	83	20.0	2	318	636
	84	20.0	1	244	244
	85	20.0	1	230	230
	86	20.0	2	1194	2388
	87	20.0	2	432	864
	88	20.0	2	622	1244
	89	25.0	2	525	1050
	90	25.0	2	1063	2126

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10 % (kg)
CA50	6.3	2824.4	760.2
	8.0	14.6	6.3
	10.0	190	128.9
	12.5	209	221.4
	16.0	194.9	338.2
	20.0	341	924.8
	25.0	31.8	134.6
CA60	5.0	1318	223.5

PESO TOTAL (kg)	
CA50	2514.5
CA60	223.5

Volume de concreto (C-30) = 26.49 m³
Área de forma = 286.64 m²

ITEM	REVISÃO (CONTEÚDO)	RESPONS.	DATA

PROPRIETÁRIO: SERVIÇO SOCIAL DO COMÉRCIO - SESC

AUTOR DO PROJETO: ENGº CIVIL E ARQ ALEXANDRE DE MORAES FERREIRA - CREA/PA 4393D

DESENV. DO PROJETO: ENGº CIVIL ALMIR MAGALHÃES JR. - CREA/PA 151086898-4D

PREFEITURA

BOMBEIROS

DEMAIS ÓRGÃOS

PROPRIETÁRIO
SERVIÇO SOCIAL DO COMÉRCIO - SESC

ABL-CBK engenharia, arquitetura & paisagismo ltda.
FONE:(91) 3244-5726/e-mail: ablcbk@nautilus.com.br

PROJETO: CONSTRUÇÃO ED. 06 PAVIMENTOS DA UNIDADE DOCA
DISCIPLINA: ESTRUTURA
FASE: PROJETO EXECUTIVO

CONTEÚDO: ARMAÇÃO DAS VIGAS DA COBERTURA - PARTE 1
DISCIPLINA | PRANCHA | TOTAL
EST 42/64

ENDEREÇO: RUA SENADOR MANOEL BARATA Nº 1873 - REDUTO - BELÉM/PA
AUTORES: ENGº CIVIL E ARQ ALEXANDRE DE MORAES FERREIRA - CREA/PA 4393D; ENGº CIVIL ALMIR MAGALHÃES JR. - CREA/PA 151086898-4D
RESPONSÁVEL TÉCNICO: ENGº CIVIL E ARQ ALEXANDRE DE MORAES FERREIRA - CREA/PA 4393D
VISTO:

ESCALA: INDICADA | DATA: JUNHO-2018 | REVISÃO: 000 | DESENV. GRÁFICO: ENGº CIVIL ALMIR MAGALHÃES JR.

FORMATO ISO A0 - 1189 x 841 mm