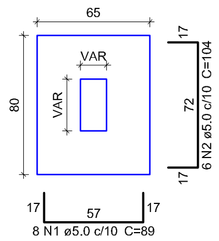
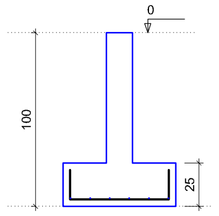
SAPATAS AMPLIAÇÃO

S1=S9=S49=S57=S58=S65=S66=S67=S71

PLANTA
ESC 1:25

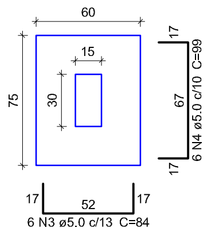


CORTE
ESC 1:25

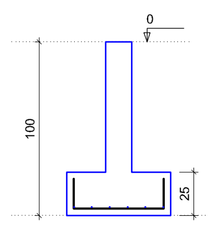


S2=S3=S10=S13=S17=S68

PLANTA
ESC 1:25

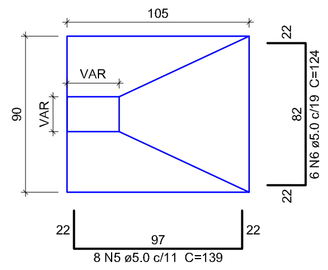


CORTE
ESC 1:25



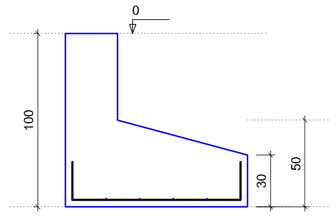
S4=S69

PLANTA
ESC 1:25



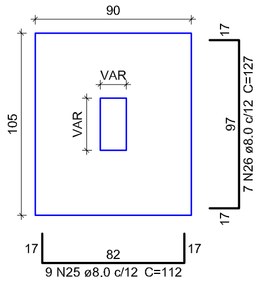
Solo com capacidade de suporte > 1,50 kgf/cm²

CORTE
ESC 1:25

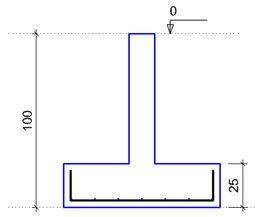


S5=S6=S8=S20=S38=S45=S61=S70

PLANTA
ESC 1:25

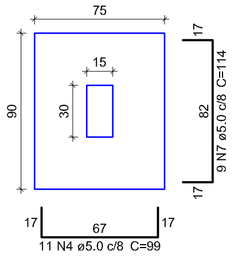


CORTE
ESC 1:25

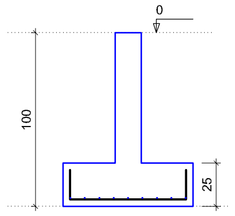


S7=S16=S34

PLANTA
ESC 1:25

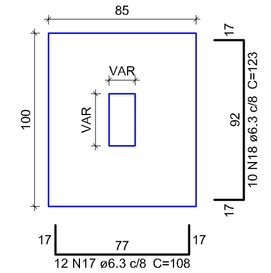


CORTE
ESC 1:25

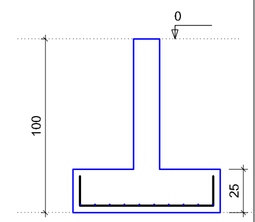


S11=S14=S15=S19=S51=S52=S53=S55

PLANTA
ESC 1:25

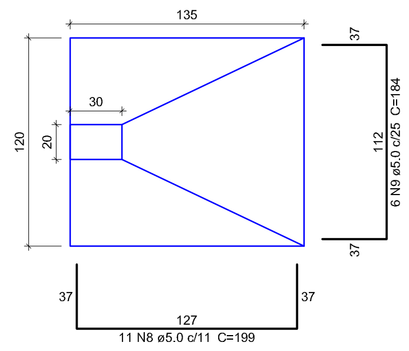


CORTE
ESC 1:25

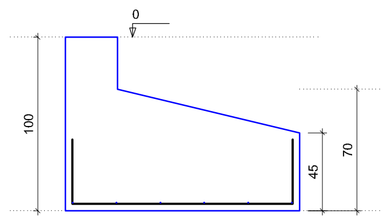


S18=S50

PLANTA
ESC 1:25

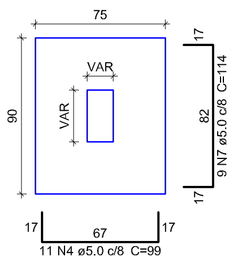


CORTE
ESC 1:25

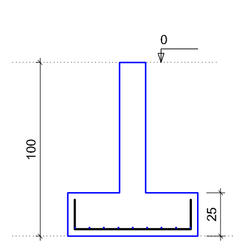


S22=S24=S35=S54=S59

PLANTA
ESC 1:25

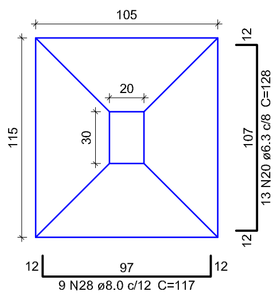


CORTE
ESC 1:25

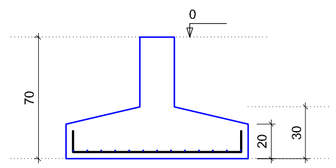


S23

PLANTA
ESC 1:25

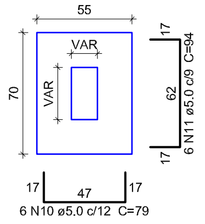


CORTE
ESC 1:25

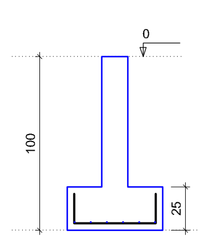


S25=S30=S32=S33=S37=S40=S41=S42=S47=S56 =S62=S64

PLANTA
ESC 1:25

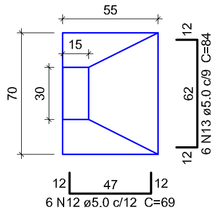


CORTE
ESC 1:25

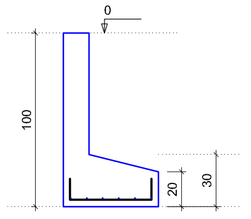


S26=S31=S43

PLANTA
ESC 1:25

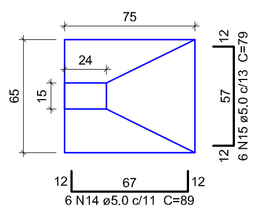


CORTE
ESC 1:25



S27=S44

PLANTA
ESC 1:25



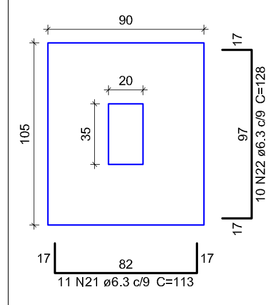
Relação do aço - SAPATAS AMPLIAÇÃO

4xS12	6xS13	3xS16
2xS18	8xS19	8xS20
S23	3xS26	2xS27
S28	12xS30	S36
S48	5xS54	9xS58
3xS60	2xS69	

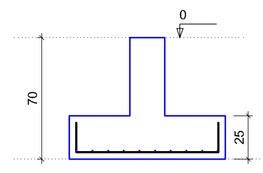
AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	80	89	7120
	2	5.0	60	104	6240
	3	5.0	36	84	3024
	4	5.0	132	99	13068
	5	5.0	16	139	2224
	6	5.0	12	124	1488
	7	5.0	72	114	8208
	8	5.0	22	199	4378
	9	5.0	12	184	2208
	10	5.0	72	79	5688
	11	5.0	72	94	6768
	12	5.0	18	69	1242
	13	5.0	18	84	1512
	14	5.0	12	89	1068
	15	5.0	12	79	948
	16	5.0	6	119	714
CA50	17	6.3	96	108	10368
	18	6.3	80	123	9840
	19	6.3	48	123	5904
	20	6.3	13	128	1664
	21	6.3	11	113	1243
	22	6.3	10	128	1280
	23	6.3	24	103	2472
	24	6.3	24	118	2832
	25	8.0	72	112	8064
	26	8.0	56	127	7112
	27	8.0	36	112	4032
	28	8.0	9	117	1053

S28

PLANTA
ESC 1:25

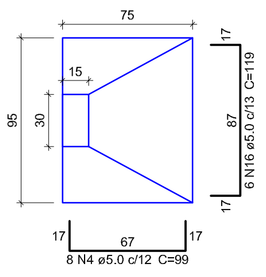


CORTE
ESC 1:25

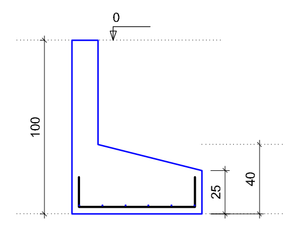


S36

PLANTA
ESC 1:25

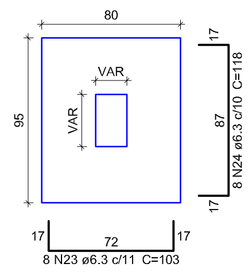


CORTE
ESC 1:25

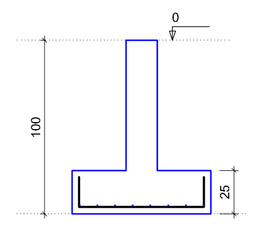


S39=S60=S63

PLANTA
ESC 1:25

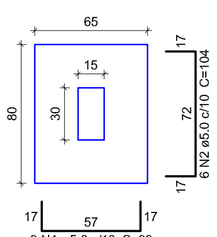


CORTE
ESC 1:25

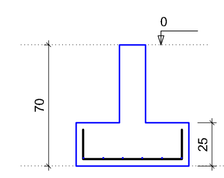


S48

PLANTA
ESC 1:25



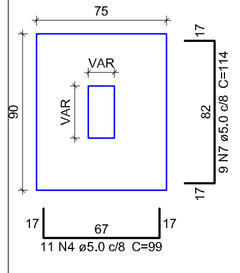
CORTE
ESC 1:25



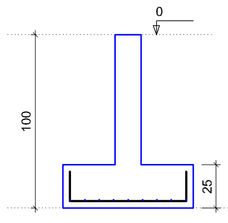
SAPATAS REFORMA INTERNA

S22=S24=S35=S54=S59

PLANTA
ESC 1:25

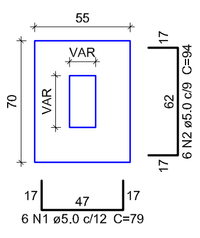


CORTE
ESC 1:25

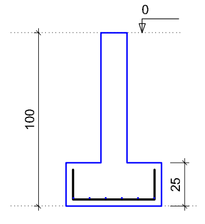


S78=S79=S80=S81=S82=S83=S87=S92=S94 =S98

PLANTA
ESC 1:25



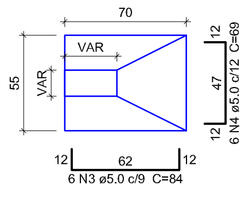
CORTE
ESC 1:25



Solo com capacidade de suporte > 1.80 kgf/cm²

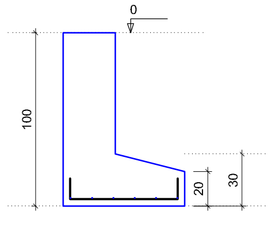
S84=S90=S93=S95=S96=S99

PLANTA
ESC 1:25



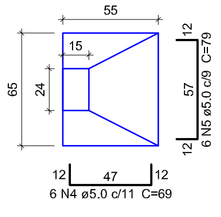
Solo com capacidade de suporte > 1.80 kgf/cm²

CORTE
ESC 1:25



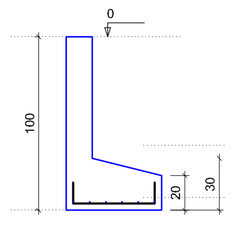
S85=S86=S88=S89=S91=S97

PLANTA
ESC 1:25



Solo com capacidade de suporte > 1.80 kgf/cm²

CORTE
ESC 1:25



Relação do aço - SAPATAS REFORMA

10xS78 6xS84 6xS85

AÇO	N	DIAM	Q	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	60	79	4740
	2	5.0	60	94	5640
	3	5.0	36	84	3024
	4	5.0	72	69	4968
	5	5.0	36	79	2844

RESUMO MATERIAIS - TOTAL SAPATAS

AÇO	DIAM	C.TOTAL (m)	PESO + 10 % (kg)
CA50	6.3	356.1	95.8
	8.0	202.7	87.9
CA60	5.0	871.16	147.90
PESO TOTAL			
CA50	183,8		
CA60	111,7		

Vol. de concreto total (C-30) = 14,53 m³
Área de forma total = 70,35 m²

NOTAS

A. Confrontar medidas do projeto estrutural com projeto arquitetônico

B. Executar passagem de tubulação de água, esgoto e eletricidade

C. Molhar as formas antes da concretagem

D. Conservar úmida as peças concretadas durante o tempo de cura

E. Executar limpeza de formas ou partes da estrutura em contato com a concretagem

F. Usar apoio do tipo carangueijo para manter armaduras negativas em posição durante a concretagem

COBRIMENTO DAS ARMADURAS

ELEMENTOS ESTRUTURAIS	COBRIMENTO NOMINAL
Pilares	4,0 cm
Vigas	4,0 cm
Lajes	3,5 cm
Sapatas	4,0 cm
CLASSE DE AGRESSIVIDADE	III (FORTE) - CONTROLE RIGOROSO DAS DIMENSÕES

CARACTERÍSTICAS DO CONCRETO

Classe de Resistênica	C-30
Módulo de Elasticidade	280 tf/cm²
Fator a/c	< 0,55

ENGEON ENGENHARIA
(45) engeonengenharia@gmail.com
3306-6801

CMEI
NOSSA SENHORA DOS NAVEGANTES

PROJETO ESTRUTURAL

PROJETO
ENGENHEIRO CIVIL
JEFFERSON MACIEL VALCANOVER CREA/PR 19.637/D

EXECUÇÃO

PROPRIETÁRIO
PREFEITURA MUNICIPAL DE PARANAGUÁ
CNPJ: 76.017.458/0001-15

ESCALA: INDICADA
CONTEÚDO: DETALHES SAPATAS
CATEGORIA: INSTITUCIONAL
DATA: OUTUBRO/2018
PRANCHA: 02/19
DESENHO: MATHEUS I. SANTOS
LOCAL: ILHA DOS VALADARES - VILA BELA PARANAGUÁ - PR