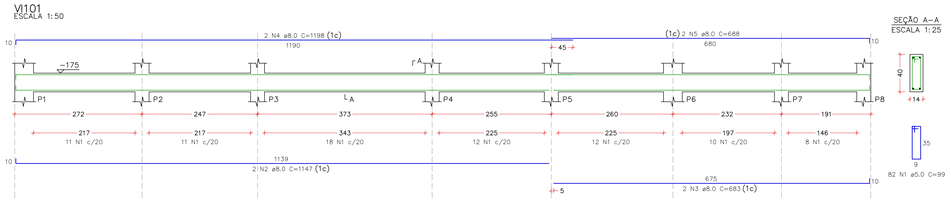
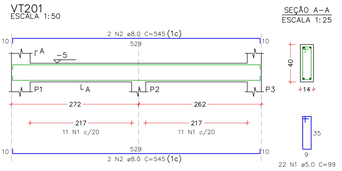
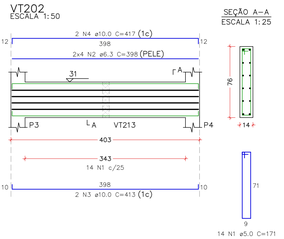
PROJETO ESTRUTURAL – AMPLIAÇÃO DO CEIM MARILISA LOPES DE OLIVEIRA
ESCALA INDICADA







RELAÇÃO DO AÇO

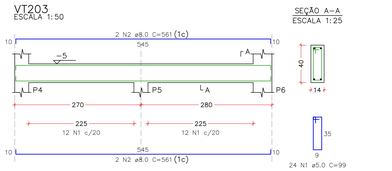
ELEMENTO	AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
VI101	CA60	1	5.0	82	99	8118
	CA50	2	8.0	2	1147	2294
	CA50	3	8.0	2	683	1366
	CA50	4	8.0	2	1198	2396
	CA50	5	8.0	2	688	1376

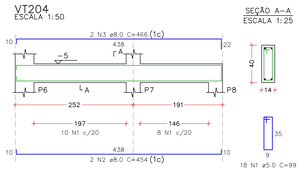
RESUMO DO AÇO

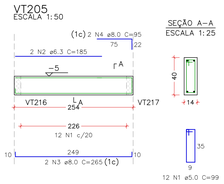
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	8.0	74.3	32.3
CA60	5.0	81.2	13.8

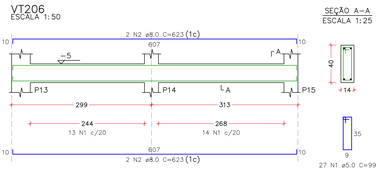
PESO TOTAL (kg)	
CA50	32.3
CA60	13.8

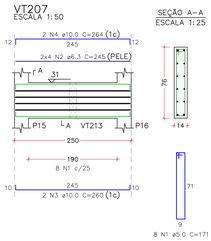
VOLUME DE CONCRETO (C–30) = 0.88 m³
ÁREA DE FORMA = 14.75 m²

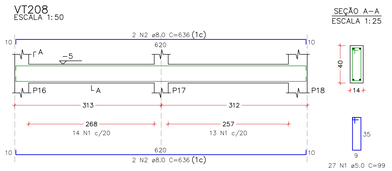


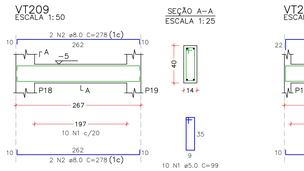


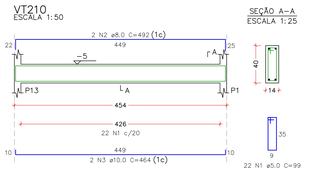


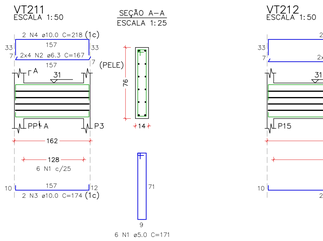


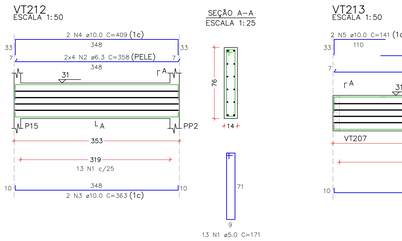


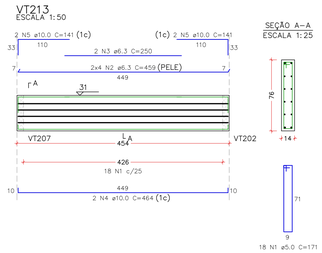












RELAÇÃO DO AÇO

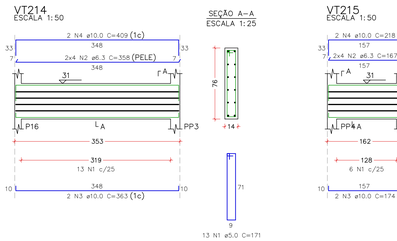
ELEMENTO	AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
VT201	CA60	1	5.0	22	99	2178
	CA50	2	8.0	4	545	2180
VT202	CA60	1	5.0	14	171	2394
	CA50	2	6.3	8	398	3184
	CA50	3	10.0	2	413	826
	CA50	4	10.0	2	417	834
VT203	CA60	1	5.0	24	99	2376
	CA50	2	8.0	4	561	2244
VT204	CA60	1	5.0	18	99	1782
	CA50	2	8.0	2	454	908
	CA50	3	8.0	2	466	932
VT205	CA60	1	5.0	12	99	1188
	CA50	2	6.3	2	185	370
	CA50	3	8.0	2	265	530
	CA50	4	8.0	2	95	190
VT206	CA60	1	5.0	27	99	2673
	CA50	2	8.0	4	623	2492
VT207	CA60	1	5.0	8	171	1368
	CA50	2	6.3	8	245	1960
	CA50	3	10.0	2	260	520
	CA50	4	10.0	2	264	528
VT208	CA60	1	5.0	27	99	2673
	CA50	2	8.0	4	636	2544
VT209	CA60	1	5.0	10	99	990
	CA50	2	8.0	4	278	1112
VT210	CA60	1	5.0	22	99	2178
	CA50	2	8.0	2	492	984
	CA50	3	10.0	2	464	928
VT211	CA60	1	5.0	6	171	1026
	CA50	2	6.3	8	167	1336
	CA50	3	10.0	2	174	348
	CA50	4	10.0	2	218	436
VT212	CA60	1	5.0	13	171	2223
	CA50	2	6.3	8	358	2864
	CA50	3	10.0	2	363	726
	CA50	4	10.0	2	409	818
VT213	CA60	1	5.0	18	171	3078
	CA50	2	6.3	8	459	3672
	CA50	3	6.3	2	250	500
	CA50	4	10.0	2	464	928
	CA50	5	10.0	4	141	564
VT214	CA60	1	5.0	13	171	2223
	CA50	2	6.3	8	358	2864
	CA50	3	10.0	2	363	726
	CA50	4	10.0	2	409	818
VT215	CA60	1	5.0	6	171	1026
	CA50	2	6.3	8	167	1336
	CA50	3	10.0	2	174	348
	CA50	4	10.0	2	218	436
VT216	CA60	1	5.0	22	99	2178
	CA50	2	8.0	2	250	500
	CA50	3	10.0	2	138	276
	CA50	4	10.0	2	153	306
	CA50	5	12.5	2	473	946
VT217	CA60	1	5.0	22	99	2178
	CA50	2	8.0	2	495	990
	CA50	3	10.0	3	466	1398
VT218	CA60	1	5.0	50	79	3950
	CA50	2	8.0	2	804	1608
	CA50	3	8.0	2	818	1636
VT219	CA60	1	5.0	51	79	4029
	CA50	2	8.0	2	804	1608
	CA50	3	8.0	2	826	1652

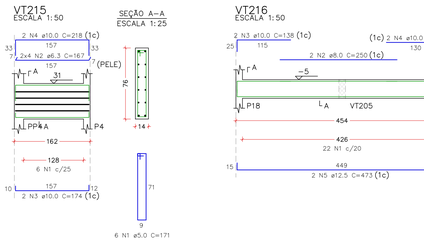
RESUMO DO AÇO

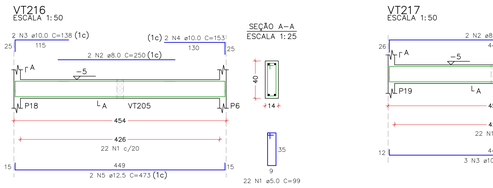
AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10% (kg)
CA50	6.3	180.9	48.7
	8.0	221.1	96
	10.0	117.6	79.8
	12.5	9.5	10
CA60	5.0	417.1	70.7

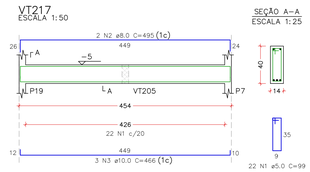
PESO TOTAL (kg)	
CA50	234.5
CA60	70.7

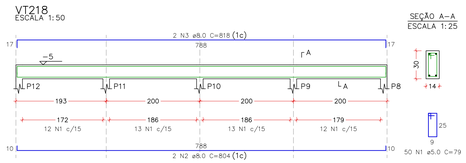
VOLUME DE CONCRETO (C–30) = 4.82 m³
ÁREA DE FORMA = 76.83 m²

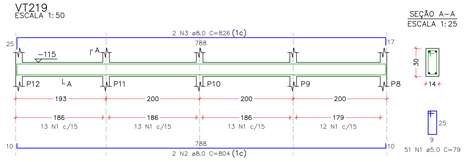












DETALHE DE DOBRAS
SEM ESCALA

DIÂMETRO MÍNIMO DOS PINOS DE DOBRAMENTO DAS BARRAS:

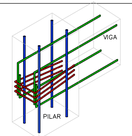
ESTRIBOS ø (mm)	D (mm)
5,0	15,0
6,3	18,9
8,0	24,0
10,0	30,0
12,5	62,5
16,0	80,0
>= 20,0	8xø

BARRAS DE TRAÇÃO ø (mm)	D (mm)
5,0	30,0
6,3	31,5
8,0	40,0
10,0	50,0
12,5	62,5
16,0	80,0
>= 20,0	8xø

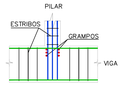
GANCHO DOS ESTRIBOS:

NOTA: gancho em ângulo de 45°

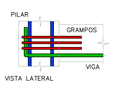
GRAMPOS DE ANCORAGEM – VIGAS
SEM ESCALA



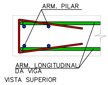
VISTA EM PERSPECTIVA



VISTA EM CORTE



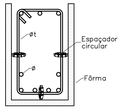
VISTA LATERAL



VISTA SUPERIOR

ATENÇÃO: Os grampos devem envolver as armaduras longitudinais das vigas e dos pilares na região do apoio. A posição do grampo (superior ou inferior) deve ser verificada no detalhamento da viga.

ESPAÇADORES NAS VIGAS
SEM ESCALA



VIGAS

REV.	DATA	DESCRIÇÃO	DAC
00	17/07/24	EMISSÃO INICIAL	

REVISÃO	DATA :	DESCRIÇÃO:	RESP.:

CLIENTE

Prefeitura Municipal de **Pouso Alegre**

PROJETO

DAC engenharia
Rua Cel. Joaquim Francisco, 341, Bairro Varginha
CEP: 37501–052 – Itajubá / MG
Tel: (35) 2143 – 9087
www.dacengenharia.com.br

COORDENAÇÃO
Rafael Barbosa Carreira — Assinado de forma digital por Rafael Barbosa Carreira Dados: 2024.09.30 09:05:03 -03'00'
RAFAEL BARBOSA CARREIRA — CAU: 00A155411-5

RESPONSÁVEL TÉCNICO E AUTOR
Aloísio Caetano Ferreira — Assinado de forma digital por Aloísio Caetano Ferreira Dados: 2024.09.30 09:05:29 -03'00'
ALOÍSIO CAETANO FERREIRA — CREA: MG–97.132/D

EMPREENDIMENTO
AMPLIAÇÃO DO CEIM MARILISA LOPES DE OLIVEIRA

ENDEREÇO
RUA LUÍS BARBATO, 336 – B. JARDIM AURELIANO
POUSO ALEGRE – MINAS GERAIS

DISCIPLINA
ESTRUTURAL

FASE DO PROJETO
EXECUTIVO

ASSUNTO
PROJETO ESTRUTURAL EM CONCRETO ARMADO
BANHEIROS
DETALHAMENTO DAS VIGAS DOS PAV. INFERIOR E TÉRREO

FOLHA Nº
21/25

DATA INICIAL	ESCALA	REVISÃO	ARQUIVO
17/07/2024	INDICADA	R00	DAC–PMPA–MLO–PE–EST.DWG