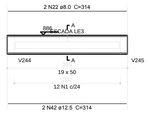
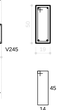
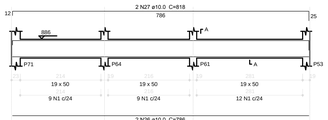
## V242
ESC 1:50



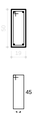

SEÇÃO A-A
ESC 1:25



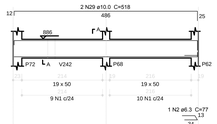

## V243
ESC 1:50



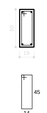

SEÇÃO A-A
ESC 1:25



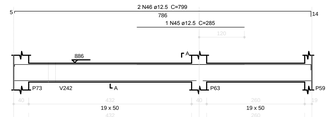

## V244
ESC 1:50




SEÇÃO A-A
ESC 1:25



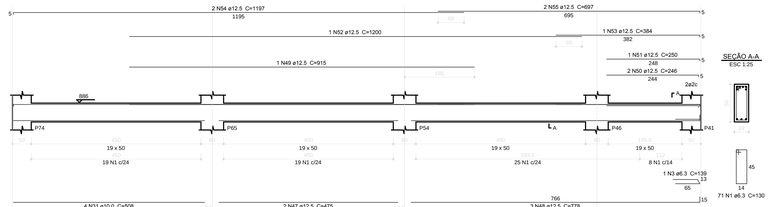

## V245
ESC 1:50




SEÇÃO A-A
ESC 1:25



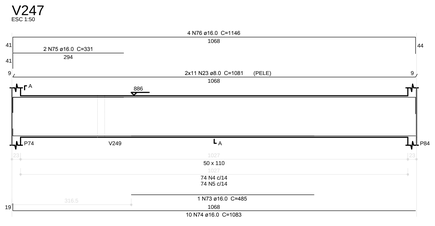

## V246
ESC 1:50



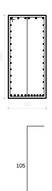

SEÇÃO A-A
ESC 1:25




## V247
ESC 1:50



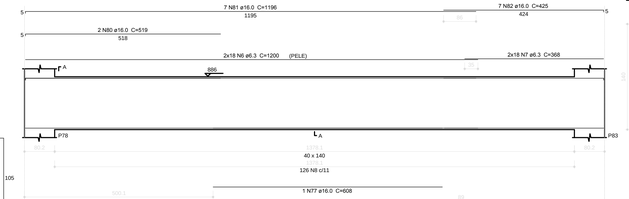

SEÇÃO A-A
ESC 1:25



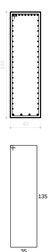




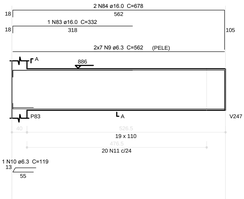
## V248
ESC 1:50




SEÇÃO A-A
ESC 1:25



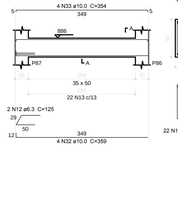

## V249
ESC 1:50




SEÇÃO A-A
ESC 1:25



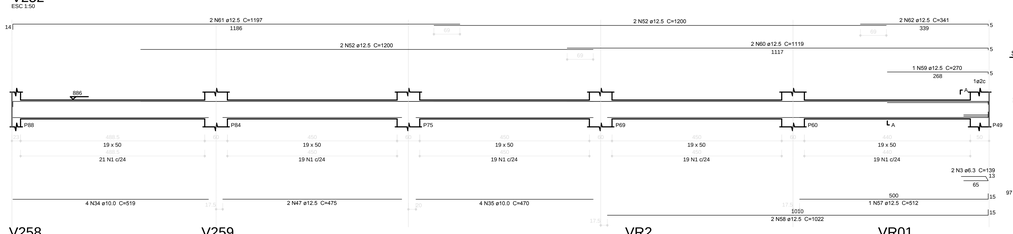

## V251
ESC 1:50



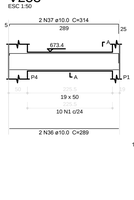

SEÇÃO A-A
ESC 1:25



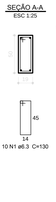

## V252
ESC 1:50



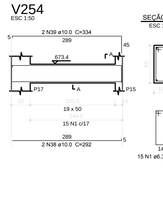

## V253
ESC 1:50



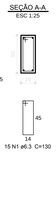

SEÇÃO A-A
ESC 1:25



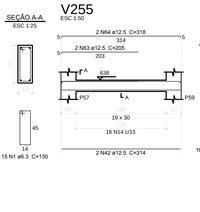

## V254
ESC 1:50




SEÇÃO A-A
ESC 1:25



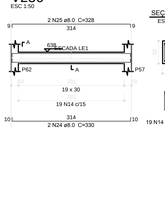

## V255
ESC 1:50




SEÇÃO A-A
ESC 1:25



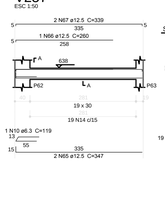

## V256
ESC 1:50



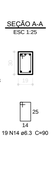

SEÇÃO A-A
ESC 1:25



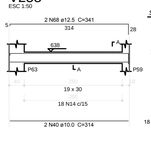

## V257
ESC 1:50




SEÇÃO A-A
ESC 1:25



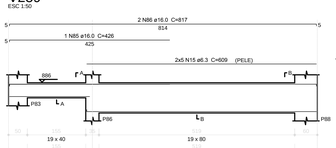

## V258
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V259
ESC 1:50



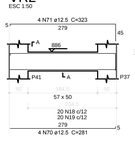

SEÇÃO A-A
ESC 1:25



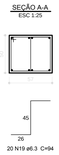

SEÇÃO B-B
ESC 1:25




## VR2
ESC 1:50



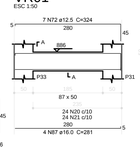

SEÇÃO A-A
ESC 1:25



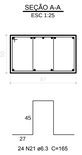




## VR01
ESC 1:50




SEÇÃO A-A
ESC 1:25







### Relação do aço

| | | | | |
|---|---|---|---|---|
| V242 | | V243 | | V244 |
| V245 | | V246 | | V247 |
| V248 | | V249 | | V251 |
| V252 | | V253 | | V254 |
| V255 | | V256 | | V257 |
| V258 | | V259 | | VR2 |
| VR01 | | | | |

| AÇO | N | DIAM (mm) | QUANT (Barras) | UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 6.3 | 284 | 130 | 36920 |
| | 2 | 6.3 | 1 | 77 | 77 |
| | 3 | 6.3 | 3 | 139 | 417 |
| | 4 | 6.3 | 74 | 312 | 23088 |
| | 5 | 6.3 | 74 | 148 | 10952 |
| | 6 | 6.3 | 36 | 1200 | 43200 |
| | 7 | 6.3 | 36 | 368 | 13248 |
| | 8 | 6.3 | 126 | 352 | 44352 |
| | 9 | 6.3 | 14 | 562 | 7868 |
| | 10 | 6.3 | 2 | 119 | 238 |
| | 11 | 6.3 | 20 | 250 | 5000 |
| | 12 | 6.3 | 2 | 125 | 250 |
| | 13 | 6.3 | 22 | 162 | 3564 |
| | 14 | 6.3 | 72 | 90 | 6480 |
| | 15 | 6.3 | 10 | 609 | 6090 |
| | 16 | 6.3 | 8 | 110 | 880 |
| | 17 | 6.3 | 22 | 190 | 4180 |
| | 18 | 6.3 | 20 | 206 | 4120 |
| | 19 | 6.3 | 20 | 94 | 1880 |
| | 20 | 6.3 | 24 | 266 | 6384 |
| | 21 | 6.3 | 24 | 165 | 3960 |
| | 22 | 8.0 | 2 | 314 | 628 |
| | 23 | 8.0 | 22 | 1081 | 23782 |
| | 24 | 8.0 | 2 | 330 | 660 |
| | 25 | 8.0 | 2 | 328 | 656 |
| | 26 | 10.0 | 2 | 786 | 1572 |
| | 27 | 10.0 | 2 | 818 | 1636 |
| | 28 | 10.0 | 2 | 253 | 506 |
| | 29 | 10.0 | 2 | 518 | 1036 |
| | 30 | 10.0 | 2 | 287 | 574 |
| | 31 | 10.0 | 4 | 508 | 2032 |
| | 32 | 10.0 | 4 | 359 | 1436 |
| | 33 | 10.0 | 4 | 354 | 1416 |
| | 34 | 10.0 | 4 | 519 | 2076 |
| | 35 | 10.0 | 4 | 470 | 1880 |
| | 36 | 10.0 | 2 | 289 | 578 |
| | 37 | 10.0 | 2 | 314 | 628 |
| | 38 | 10.0 | 2 | 292 | 584 |
| | 39 | 10.0 | 2 | 334 | 668 |
| | 40 | 10.0 | 2 | 314 | 628 |
| | 41 | 10.0 | 2 | 213 | 426 |
| | 42 | 12.5 | 4 | 314 | 1256 |
| | 43 | 12.5 | 2 | 247 | 494 |
| | 44 | 12.5 | 2 | 482 | 964 |
| | 45 | 12.5 | 1 | 285 | 285 |
| | 46 | 12.5 | 2 | 799 | 1598 |
| | 47 | 12.5 | 4 | 475 | 1900 |
| | 48 | 12.5 | 3 | 778 | 2334 |
| | 49 | 12.5 | 1 | 915 | 915 |
| | 50 | 12.5 | 2 | 246 | 492 |
| | 51 | 12.5 | 1 | 250 | 250 |
| | 52 | 12.5 | 5 | 1200 | 6000 |
| | 53 | 12.5 | 1 | 384 | 384 |
| | 54 | 12.5 | 2 | 1197 | 2394 |
| | 55 | 12.5 | 2 | 697 | 1394 |
| | 56 | 12.5 | 3 | 574 | 1722 |
| | 57 | 12.5 | 1 | 512 | 512 |
| | 58 | 12.5 | 2 | 1022 | 2044 |
| | 59 | 12.5 | 1 | 270 | 270 |
| | 60 | 12.5 | 2 | 1119 | 2238 |
| | 61 | 12.5 | 2 | 1197 | 2394 |
| | 62 | 12.5 | 2 | 341 | 682 |
| | 63 | 12.5 | 2 | 205 | 410 |
| | 64 | 12.5 | 2 | 318 | 636 |
| | 65 | 12.5 | 2 | 347 | 694 |
| | 66 | 12.5 | 1 | 260 | 260 |
| | 67 | 12.5 | 2 | 339 | 678 |
| | 68 | 12.5 | 2 | 341 | 682 |
| | 69 | 12.5 | 3 | 611 | 1833 |
| | 70 | 12.5 | 4 | 281 | 1124 |
| | 71 | 12.5 | 4 | 323 | 1292 |
| | 72 | 12.5 | 7 | 324 | 2268 |
| | 73 | 16.0 | 1 | 485 | 485 |
| | 74 | 16.0 | 10 | 1083 | 10830 |
| | 75 | 16.0 | 2 | 331 | 662 |
| | 76 | 16.0 | 4 | 1146 | 4584 |
| | 77 | 16.0 | 1 | 608 | 608 |
| | 78 | 16.0 | 3 | 1200 | 3600 |
| | 79 | 16.0 | 3 | 422 | 1266 |
| | 80 | 16.0 | 2 | 519 | 1038 |
| | 81 | 16.0 | 7 | 1196 | 8372 |
| | 82 | 16.0 | 7 | 425 | 2975 |
| | 83 | 16.0 | 1 | 332 | 332 |
| | 84 | 16.0 | 2 | 678 | 1356 |
| | 85 | 16.0 | 1 | 426 | 426 |
| | 86 | 16.0 | 2 | 817 | 1634 |
| | 87 | 16.0 | 4 | 281 | 1124 |

### Resumo do aço

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10 % (kg) |
|---|---|---|---|
| CA50 | 6.3 | 2233.5 | 600.7 |
| | 8.0 | 257.3 | 111.7 |
| | 10.0 | 176.8 | 119.9 |
| | 12.5 | 404 | 428.1 |
| | 16.0 | 393 | 682.2 |
| PESO TOTAL (kg) | | | |
| CA50 | 1942.5 | | |

Volume de concreto (C-40) = 27.21 m³
Área de forma = 217.48 m²

MINISTÉRIO DA EDUCAÇÃO
UNIVERSIDADE FEDERAL DE LAVRAS

PROJETO

TITULO:
PROJETO EXECUTIVO - ENGENHARIAS

CONTEUDO:
PROJETO DE ESTRUTURA
VIGAS: V240 À V258

AUTOR DO PROJETO:
MARIUS OLIVEIRA COSTA CREA 90786/D

EXECUÇÃO DE OBRA:

APROVAÇÃO DO LAYOUT (PROF. RESPONSÁVEL):

| DATA: | REVISÃO DATA: | PROJETO: |
|---|---|---|
| 03/09/2018 | | ESTRUTURA |
| ESCALA: INDICADA | ÁREA: (m²) 4772,00 m² | FOLHA: 26/40 |