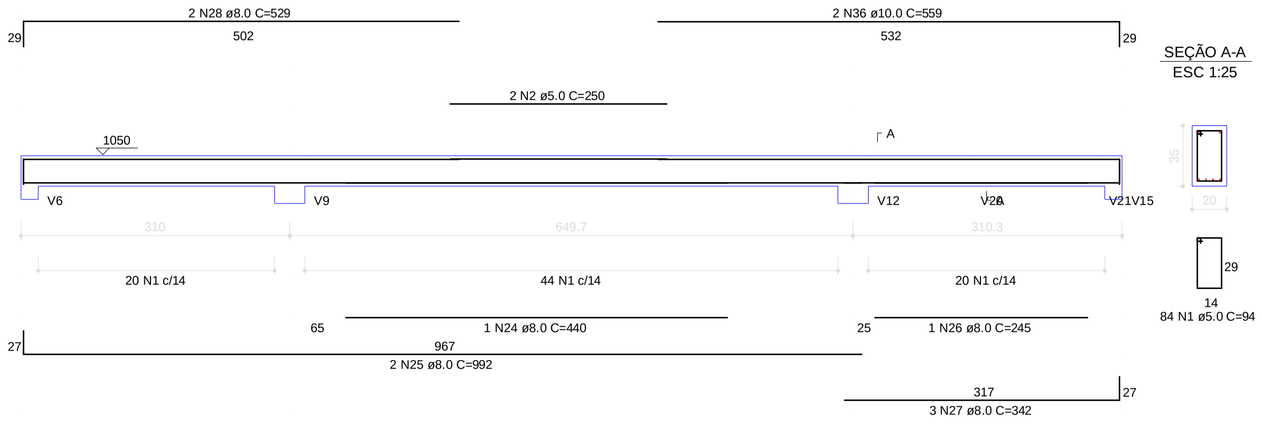
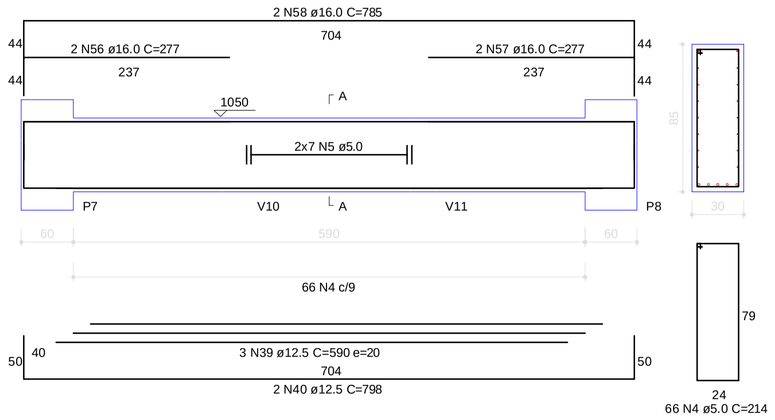
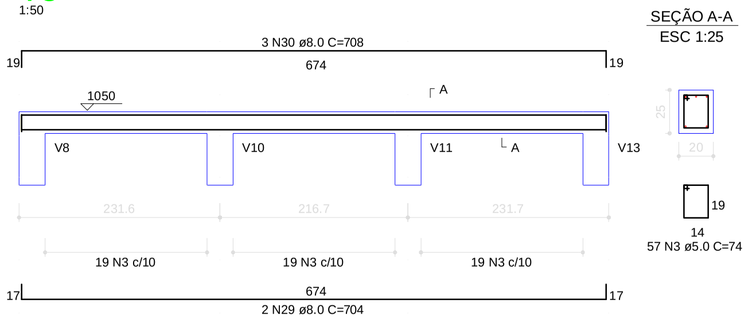
## V1
1:50



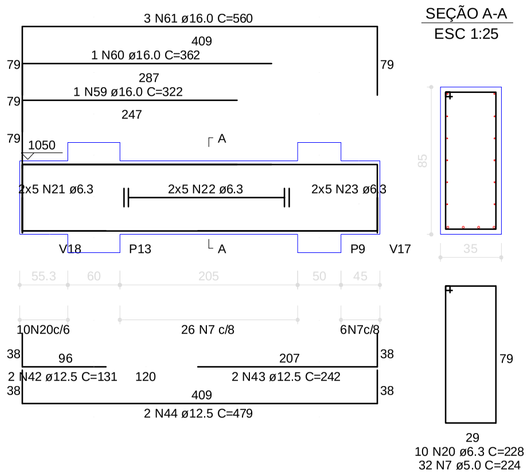

## V4
1:50



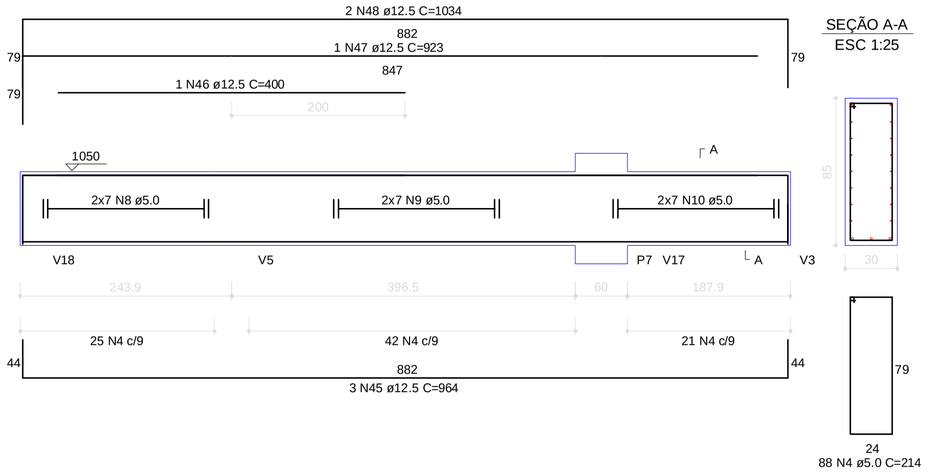

## V3
1:50



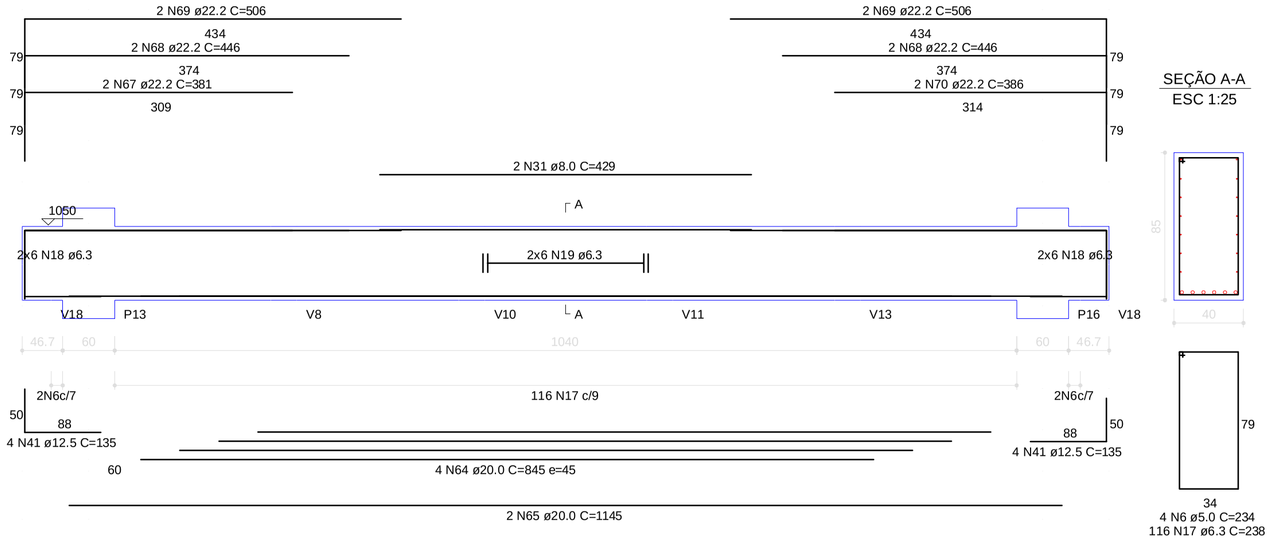

## V7
1:50



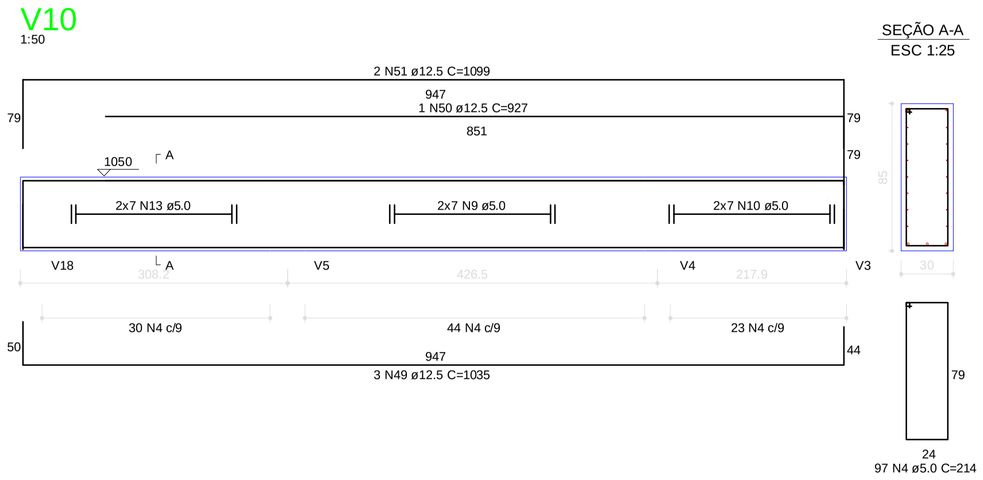

## V8
1:50



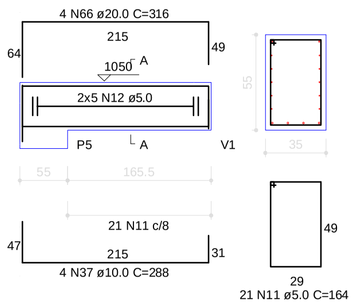

## V5
1:50



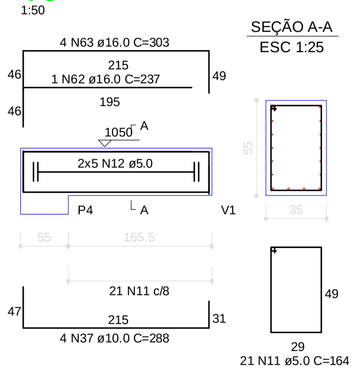

## V10
1:50



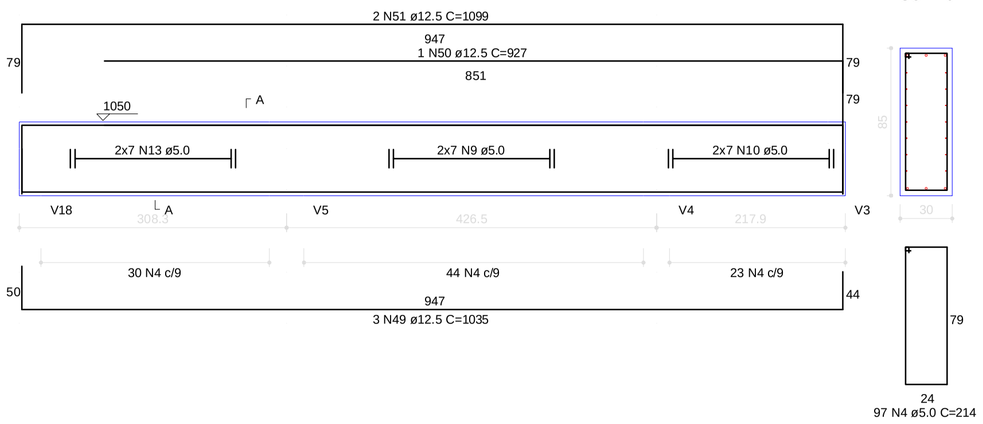

## V12
1:50



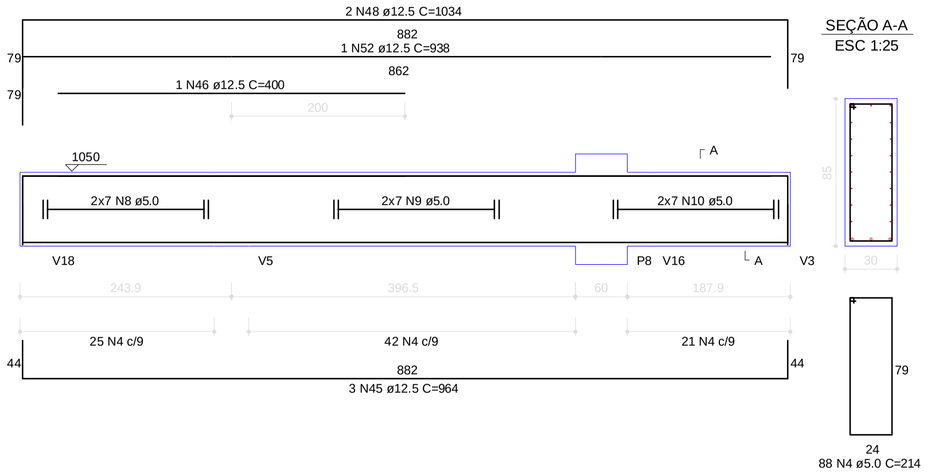

## V9
1:50



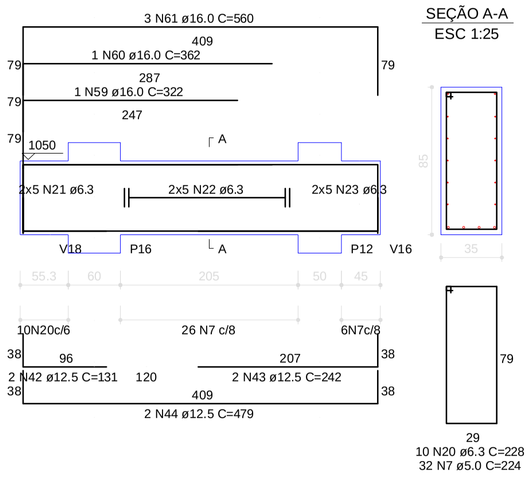

## V11
1:50



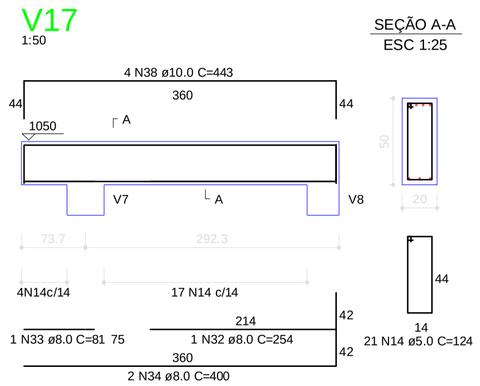

## V13
1:50



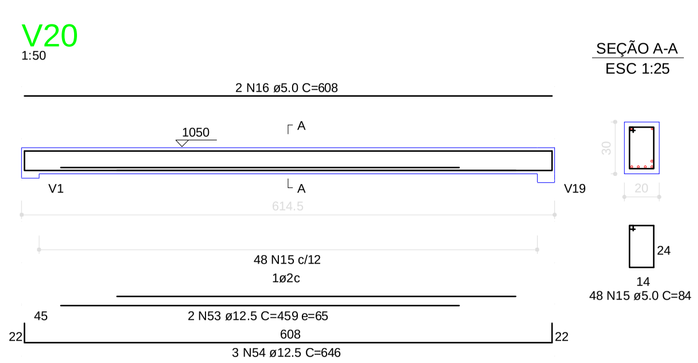

## V14
1:50



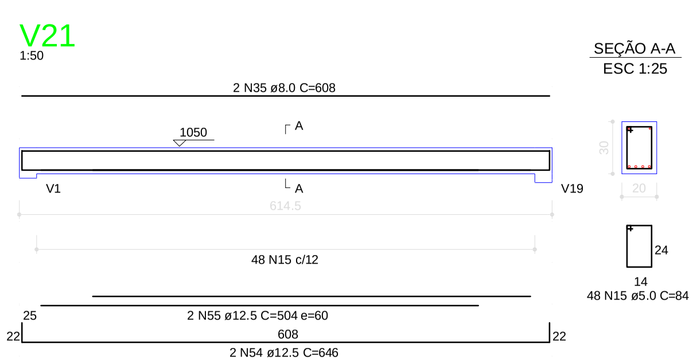

## V17
1:50



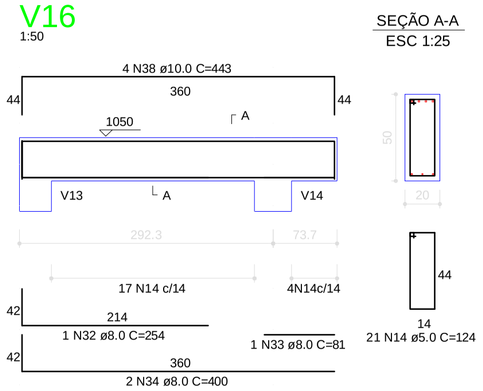

## V20
1:50




## V21
1:50




## V16
1:50




### RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V1 | V3 | V4 |
| V5 | V7 | V8 |
| V9 | V10 | V11 |
| V12 | V13 | V14 |
| V16 | V17 | V20 |
| V21 | | |

| AÇO | N | DIAM | Q | UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| 60 | 1 | 5.0 | 84 | 94 | 7896 |
| | 2 | 5.0 | 2 | 250 | 500 |
| | 3 | 5.0 | 57 | 74 | 4218 |
| | 4 | 5.0 | 436 | 214 | 93304 |
| | 5 | 5.0 | 14 | corr | 9940 |
| | 6 | 5.0 | 4 | 234 | 936 |
| | 7 | 5.0 | 64 | 224 | 14336 |
| | 8 | 5.0 | 28 | corr | 6832 |
| | 9 | 5.0 | 56 | corr | 23912 |
| | 10 | 5.0 | 56 | corr | 12208 |
| | 11 | 5.0 | 42 | 164 | 6888 |
| | 12 | 5.0 | 20 | corr | 4420 |
| | 13 | 5.0 | 28 | corr | 8624 |
| | 14 | 5.0 | 42 | 124 | 5208 |
| | 15 | 5.0 | 96 | 84 | 8064 |
| | 16 | 5.0 | 2 | 608 | 1216 |
| 50 | 17 | 6.3 | 116 | 238 | 27608 |
| | 18 | 6.3 | 24 | corr | 1848 |
| | 19 | 6.3 | 12 | corr | 13200 |
| | 20 | 6.3 | 20 | 228 | 4560 |
| | 21 | 6.3 | 20 | corr | 1700 |
| | 22 | 6.3 | 20 | corr | 5200 |
| | 23 | 6.3 | 20 | corr | 1400 |
| | 24 | 8.0 | 1 | 440 | 440 |
| | 25 | 8.0 | 2 | 992 | 1984 |
| | 26 | 8.0 | 1 | 245 | 245 |
| | 27 | 8.0 | 3 | 342 | 1026 |
| | 28 | 8.0 | 2 | 529 | 1058 |
| | 29 | 8.0 | 2 | 704 | 1408 |
| | 30 | 8.0 | 3 | 708 | 2124 |
| | 31 | 8.0 | 2 | 429 | 858 |
| | 32 | 8.0 | 2 | 254 | 508 |
| | 33 | 8.0 | 2 | 81 | 162 |
| | 34 | 8.0 | 4 | 400 | 1600 |
| | 35 | 8.0 | 2 | 608 | 1216 |
| | 36 | 10.0 | 2 | 559 | 1118 |
| | 37 | 10.0 | 8 | 288 | 2304 |
| | 38 | 10.0 | 8 | 443 | 3544 |
| | 39 | 12.5 | 3 | 590 | 1770 |
| | 40 | 12.5 | 2 | 798 | 1596 |
| | 41 | 12.5 | 8 | 135 | 1080 |
| | 42 | 12.5 | 4 | 131 | 524 |
| | 43 | 12.5 | 4 | 242 | 968 |
| | 44 | 12.5 | 4 | 479 | 1916 |
| | 45 | 12.5 | 6 | 964 | 5784 |
| | 46 | 12.5 | 2 | 400 | 800 |
| | 47 | 12.5 | 1 | 923 | 923 |
| | 48 | 12.5 | 4 | 1034 | 4136 |
| | 49 | 12.5 | 6 | 1035 | 6210 |
| | 50 | 12.5 | 2 | 927 | 1854 |
| | 51 | 12.5 | 4 | 1099 | 4396 |
| | 52 | 12.5 | 1 | 938 | 938 |
| | 53 | 12.5 | 2 | 459 | 918 |
| | 54 | 12.5 | 5 | 646 | 3230 |
| | 55 | 12.5 | 2 | 504 | 1008 |
| | 56 | 16.0 | 2 | 277 | 554 |
| | 57 | 16.0 | 2 | 277 | 554 |
| | 58 | 16.0 | 2 | 785 | 1570 |
| | 59 | 16.0 | 2 | 322 | 644 |
| | 60 | 16.0 | 2 | 362 | 724 |
| | 61 | 16.0 | 6 | 560 | 3360 |
| | 62 | 16.0 | 1 | 237 | 237 |
| | 63 | 16.0 | 4 | 303 | 1212 |
| | 64 | 20.0 | 4 | 845 | 3380 |
| | 65 | 20.0 | 2 | 1145 | 2290 |
| | 66 | 20.0 | 4 | 316 | 1264 |
| | 67 | 22.2 | 2 | 381 | 762 |
| | 68 | 22.2 | 4 | 446 | 1784 |
| | 69 | 22.2 | 4 | 506 | 2024 |
| | 70 | 22.2 | 2 | 386 | 772 |

### RESUMO DO AÇO

| AÇO | DIAM | C.TOTAL (m) | PESO+10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 555.3 | 149.7 |
| | 8.0 | 126.3 | 54.9 |
| | 10.0 | 69.7 | 47.3 |
| | 12.5 | 380.6 | 403.6 |
| | 16.0 | 88.5 | 153.9 |
| | 20.0 | 69.4 | 188.3 |
| | 22.2 | 53.5 | 175.7 |
| CA60 | 5.0 | 2089.1 | 353.8 |
| PESO TOTAL | | | |
| CA50 | 1173.3 | | |
| CA60 | 353.8 | | |

Volume de concreto total = 21.48 m³
Área de forma total = 172.38 m²
fck = 300.00 kgf/cm²

| | |
|---|---|
| TÍTULO: | FERRAGEM VIGAS 2º PAVTO |
| OBRA: | BLOCO CENTRAL |
| LOCAL: | FRANCA SP |
| CLIENTE: | UNIFACEF |
| ENG. | VIRGÍNIO H. V. REIS |
| CREA: | 0600706662 |
| ESCALA: | INDICADA |
| DATA | NOV 2012 |
| OBS: | |

9/12

A1 - 841x594