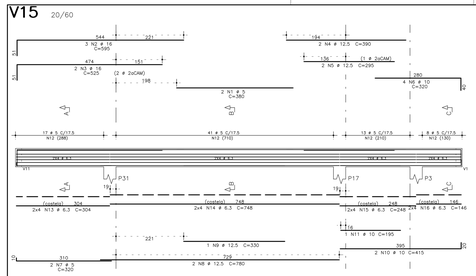
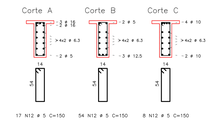
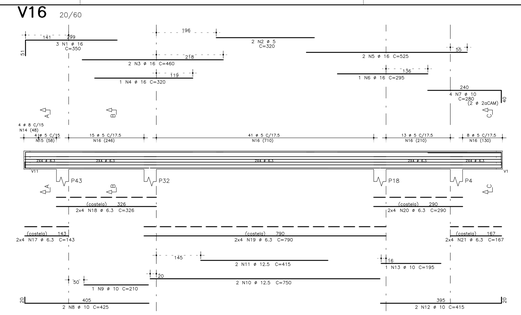
## V15 20/60

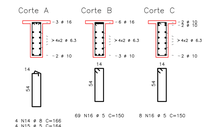



17 N12 # 5 C=150 54 N12 # 5 C=150 8 N12 # 5 C=150

## V16 20/60

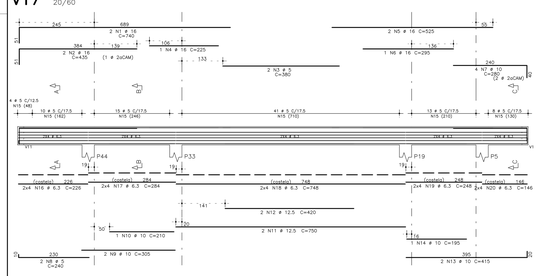


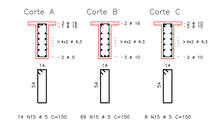




4 N14 # 8 C=166
4 N15 # 5 C=164

69 N16 # 5 C=150 8 N16 # 5 C=150

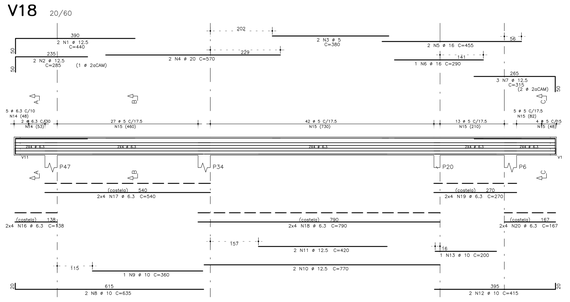
## V17 20/60

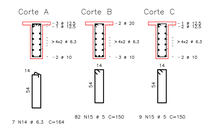



14 N15 # 5 C=150 69 N15 # 5 C=150 8 N15 # 5 C=150

## V18 20/60




7 N14 # 6.3 C=164

82 N15 # 5 C=150 9 N15 # 5 C=150

RESUMO AÇO CA 50-60

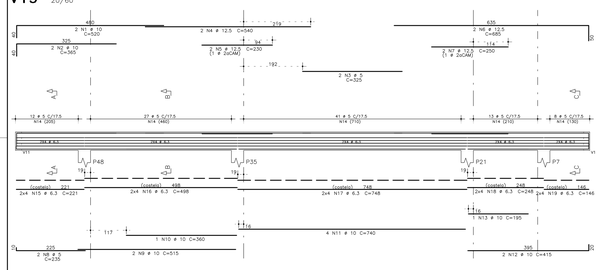
| AÇO | BIT (mm) | COMPR (m) | PESO (kg) |
|---|---|---|---|
| 608 | 5 | 880 | 142 |
| 504 | 6.3 | 855 | 214 |
| 504 | 8 | | |
| 504 | 10 | 275 | 174 |
| 504 | 12.5 | 161 | 161 |
| 504 | 16 | 116 | 185 |
| 504 | 20 | 11 | 28 |
| Peso Total | 608 = | 142 kg | |
| Peso Total | 504 = | 765 kg | |

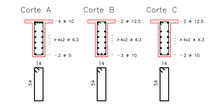
Peso Aço = 907 Kg
Volume de concreto VIGAS DO TERREO = 84.4 m3
Area de forma VIGAS DO TERREO = 694 m²

NOTA:
-O RESUMO DA ARMADURA NÃO INCLUI PERDAS

| AÇO | POS | BIT (mm) | QUANT | COMPRIMENTO UNIT (cm) | COMPRIMENTO TOTAL (cm) |
|---|---|---|---|---|---|
| V15 | | | | | |
| 608 | 1 | 5 | 2 | 380 | 760 |
| 504 | 2 | 16 | 3 | 595 | 1785 |
| 504 | 3 | 16 | 2 | 525 | 1050 |
| 504 | 4 | 12.5 | 2 | 390 | 780 |
| 504 | 5 | 12.5 | 2 | 295 | 590 |
| 504 | 6 | 10 | 4 | 320 | 1280 |
| 608 | 7 | 5 | 2 | 320 | 640 |
| 504 | 8 | 10 | 4 | 280 | 1120 |
| 504 | 9 | 12.5 | 2 | 330 | 330 |
| 504 | 10 | 10 | 2 | 415 | 830 |
| 504 | 11 | 10 | 2 | 195 | 390 |
| 504 | 12 | 10 | 70 | 150 | 11850 |
| 504 | 13 | 6.3 | 8 | 304 | 2432 |
| 504 | 14 | 6.3 | 8 | 748 | 5984 |
| 504 | 15 | 6.3 | 8 | 248 | 1984 |
| 504 | 16 | 6.3 | 8 | 146 | 1168 |
| V16 | | | | | |
| 504 | 1 | 16 | 3 | 350 | 1050 |
| 608 | 2 | 5 | 2 | 320 | 640 |
| 504 | 3 | 16 | 2 | 460 | 920 |
| 504 | 4 | 16 | 1 | 320 | 320 |
| 504 | 5 | 16 | 2 | 525 | 1050 |
| 504 | 6 | 16 | 1 | 295 | 295 |
| 504 | 7 | 10 | 4 | 280 | 1120 |
| 504 | 8 | 10 | 2 | 425 | 850 |
| 504 | 9 | 10 | 1 | 210 | 210 |
| 504 | 10 | 12.5 | 2 | 750 | 1500 |
| 504 | 11 | 12.5 | 2 | 415 | 830 |
| 504 | 12 | 12.5 | 2 | 425 | 850 |
| 504 | 13 | 10 | 1 | 195 | 195 |
| 504 | 14 | 8 | 4 | 169 | 676 |
| 608 | 15 | 5 | 77 | 150 | 11550 |
| 504 | 16 | 6.3 | 8 | 304 | 2432 |
| 504 | 17 | 6.3 | 8 | 326 | 2608 |
| 504 | 18 | 6.3 | 8 | 790 | 6320 |
| 504 | 19 | 6.3 | 8 | 290 | 2320 |
| 504 | 20 | 8.5 | 8 | 167 | 1336 |
| 504 | 21 | 6.3 | 8 | 167 | 1336 |
| V17 | | | | | |
| 504 | 1 | 16 | 2 | 740 | 1480 |
| 504 | 2 | 16 | 2 | 435 | 870 |
| 504 | 3 | 16 | 2 | 380 | 760 |
| 504 | 4 | 16 | 1 | 225 | 225 |
| 504 | 5 | 16 | 2 | 525 | 1050 |
| 504 | 6 | 16 | 1 | 295 | 295 |
| 504 | 7 | 10 | 4 | 280 | 1120 |
| 504 | 8 | 10 | 2 | 305 | 610 |
| 504 | 9 | 10 | 1 | 305 | 305 |
| 504 | 10 | 10 | 1 | 210 | 210 |
| 504 | 11 | 12.5 | 2 | 750 | 1500 |
| 504 | 12 | 12.5 | 2 | 420 | 840 |
| 504 | 13 | 12.5 | 2 | 415 | 830 |
| 504 | 14 | 10 | 1 | 195 | 195 |
| 608 | 15 | 5 | 91 | 150 | 13650 |
| 504 | 16 | 6.3 | 8 | 224 | 1808 |
| 504 | 17 | 6.3 | 8 | 284 | 2272 |
| 504 | 18 | 6.3 | 8 | 748 | 5984 |
| 504 | 19 | 6.3 | 8 | 248 | 1984 |
| 504 | 20 | 6.3 | 8 | 146 | 1168 |
| V18 | | | | | |
| 504 | 1 | 12.5 | 2 | 440 | 880 |
| 608 | 2 | 5 | 2 | 285 | 570 |
| 504 | 3 | 5 | 2 | 380 | 760 |
| 504 | 4 | 20 | 2 | 570 | 1140 |
| 504 | 5 | 16 | 2 | 455 | 910 |
| 504 | 6 | 16 | 1 | 290 | 290 |
| 504 | 7 | 12.5 | 3 | 315 | 945 |
| 504 | 8 | 10 | 2 | 635 | 1270 |
| 504 | 9 | 10 | 1 | 360 | 360 |
| 504 | 10 | 10 | 1 | 265 | 265 |
| 504 | 11 | 12.5 | 2 | 420 | 840 |
| 504 | 12 | 10 | 2 | 415 | 830 |
| 504 | 13 | 10 | 1 | 200 | 200 |
| 504 | 14 | 6.3 | 164 | 164 | 10496 |
| 504 | 15 | 6.3 | 91 | 150 | 13650 |
| 504 | 16 | 6.3 | 8 | 138 | 1104 |
| 504 | 17 | 6.3 | 8 | 540 | 4320 |
| 504 | 18 | 6.3 | 8 | 790 | 6320 |
| 504 | 19 | 6.3 | 8 | 270 | 2160 |
| 504 | 20 | 6.3 | 8 | 167 | 1336 |
| V19 | | | | | |
| 504 | 1 | 10 | 2 | 520 | 1040 |
| 608 | 2 | 5 | 2 | 325 | 650 |
| 504 | 3 | 5 | 2 | 305 | 610 |
| 504 | 4 | 12.5 | 2 | 540 | 1080 |
| 504 | 5 | 12.5 | 2 | 230 | 460 |
| 504 | 6 | 12.5 | 2 | 685 | 1370 |
| 504 | 7 | 12.5 | 2 | 235 | 470 |
| 608 | 8 | 5 | 2 | 235 | 470 |
| 504 | 9 | 10 | 2 | 515 | 1030 |
| 504 | 10 | 10 | 2 | 305 | 610 |
| 504 | 11 | 10 | 4 | 740 | 2960 |
| 504 | 12 | 10 | 1 | 195 | 195 |
| 504 | 13 | 10 | 1 | 185 | 185 |
| 608 | 14 | 5 | 101 | 150 | 15150 |
| 504 | 15 | 6.3 | 8 | 224 | 1808 |
| 504 | 16 | 6.3 | 8 | 488 | 3904 |
| 504 | 17 | 6.3 | 8 | 748 | 5984 |
| 504 | 18 | 6.3 | 8 | 248 | 1984 |
| 504 | 19 | 6.3 | 8 | 146 | 1168 |
| V20 | | | | | |
| 504 | 1 | 10 | 1 | 950 | 1900 |
| 504 | 2 | 10 | 1 | 380 | 380 |
| 608 | 3 | 5 | 2 | 400 | 800 |
| 504 | 4 | 10 | 1 | 225 | 225 |
| 504 | 5 | 10 | 1 | 320 | 320 |
| 504 | 6 | 10 | 1 | 210 | 210 |
| 504 | 7 | 10 | 3 | 295 | 885 |
| 608 | 8 | 5 | 2 | 535 | 1070 |
| 504 | 9 | 10 | 1 | 305 | 305 |
| 504 | 10 | 10 | 1 | 330 | 330 |
| 504 | 11 | 10 | 3 | 770 | 2310 |
| 504 | 12 | 10 | 2 | 415 | 830 |
| 504 | 13 | 10 | 1 | 195 | 195 |
| 608 | 14 | 5 | 101 | 150 | 15050 |
| 504 | 15 | 6.3 | 8 | 251 | 2008 |
| 504 | 16 | 6.3 | 8 | 520 | 4160 |
| 504 | 17 | 6.3 | 8 | 780 | 6240 |
| 504 | 18 | 6.3 | 8 | 260 | 2080 |
| 504 | 19 | 6.3 | 8 | 157 | 1256 |

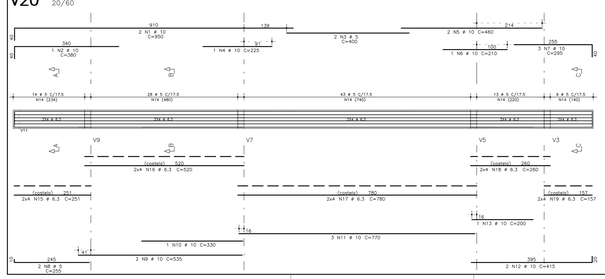
## V19 20/60

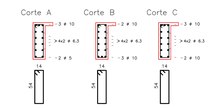



12 N14 # 5 C=150 81 N14 # 5 C=150 8 N14 # 5 C=150

## V20 20/60




14 N14 # 5 C=150 84 N14 # 5 C=150 9 N14 # 5 C=150

## COMENTÁRIOS

| ITEM | DESCRIÇÃO | DATA |
|---|---|---|
| 00 | EMISSÃO INICIAL | 01/07/2013 |
| 01 | INDICAÇÃO DE ART | 13/03/2014 |

## RESPONSÁVEIS TÉCNICOS

| | | |
|---|---|---|
| PROJETO | ENGº MARCIO ARAUJO MORTONI SILVA | CREA: 5115/D-RN |
| | ART Nº 07201400021480 | |
| FISCALIZAÇÃO | ARQº RENATO BARBOSA | CAU A 68875-4 |

POWER ENGENHARIA
OBRAS E SERVIÇOS ESPECIAIS

BRASÍLIA – DF

| | |
|---|---|
| ENDEREÇO | QE 23, ÁREA ESPECIAL 01, GUARÁ |
| PROPRIETÁRIO | COMPANHIA URBANIZADORA DA NOVA CAPITAL DO BRASIL |
| AUTOR DO PROJETO | POWER ENGENHARIA, COMÉRCIO E SERVIÇOS LTDA |
| RESPONSÁVEL TÉCNICO | |

PROPRIETÁRIO

AUTOR DO PROJETO — CREA 3674/W

RESPONSÁVEL TÉCNICO — CREA

CREA

# CÁLCULO ESTRUTURAL

| SIGLA | | DESENHO Nº |
|---|---|---|
| CE | REFORMA E REVITALIZAÇÃO DO ESTÁDIO DO CAVE<br>BILHETERIA<br>VIGAS TERREO 05 | 1422 |

| DATA | ESC. DESENHO | DESENHO | |
|---|---|---|---|
| JULHO/2013 | INDICADA | ADONIAS | PROJETO EXECUTIVO |