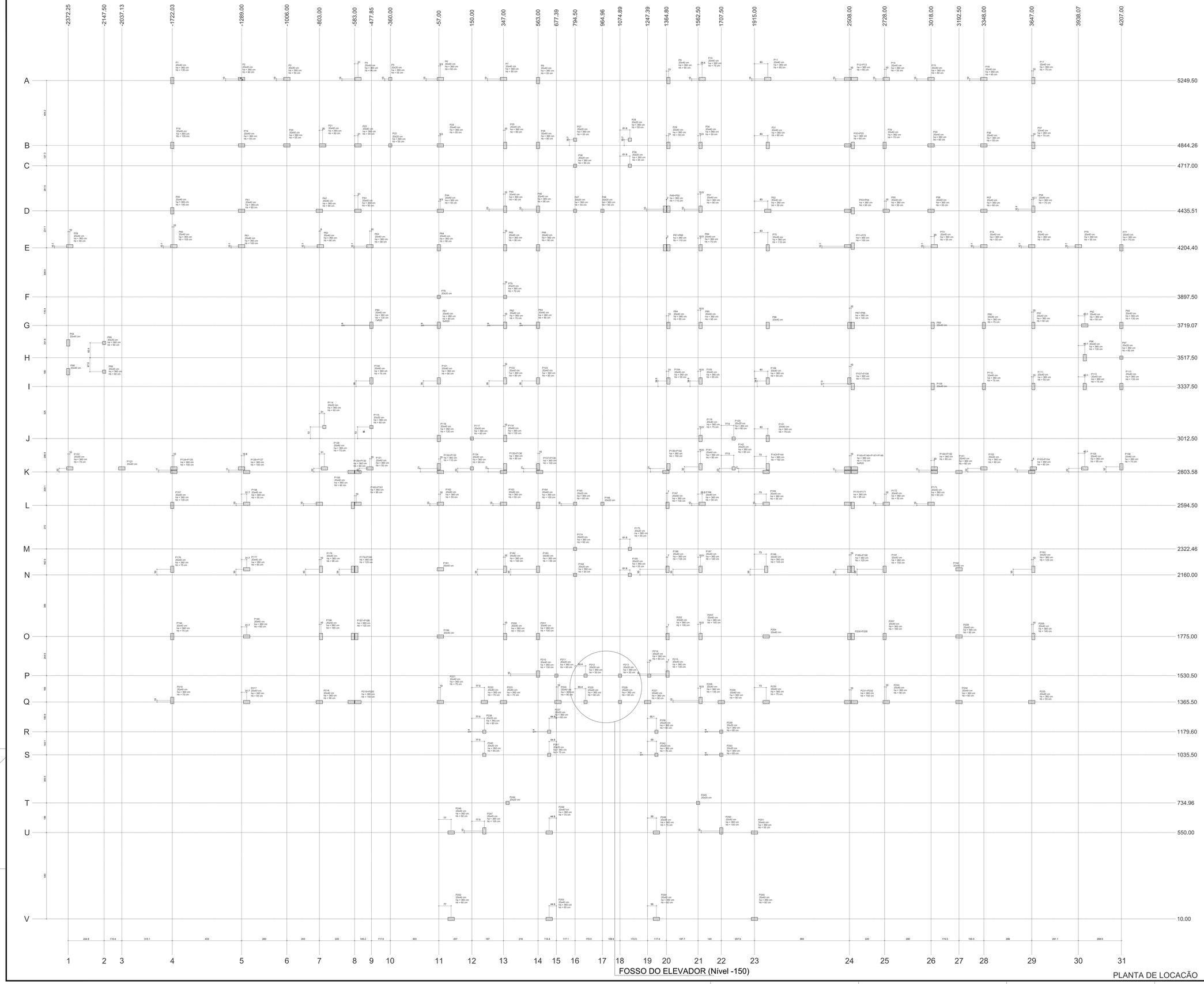



| Nome | Seção | X (cm) | Y (cm) | Carga Máx. (kN) | Dim. | Dim Mx Máximo (kgf.m) Positivo | Dim Mx Máximo (kgf.m) Negativo | Dim My Máximo (kgf.m) Positivo | Dim My Máximo (kgf.m) Negativo | Dim Fx Máximo (tf) Positivo | Dim Fx Máximo (tf) Negativo | Dim Fy Máximo (tf) Positivo | Dim Fy Máximo (tf) Negativo |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1 | 20x40 | -1722.03 | 5249.50 | 18.03 | 18.9 | 1950 | -1950 | 180 | -200 | 0.0 | -0.2 | -0.27 | -0.3 |
| P2 | 20x40 | -1289.00 | 5249.50 | 18.03 | 18.9 | 1950 | -1950 | 180 | -200 | 0.0 | -0.2 | -0.27 | -0.3 |
| P3 | 20x40 | -1006.00 | 5249.50 | 32.7 | 34.3 | 3400 | -3400 | 350 | -400 | 0.0 | -0.3 | -0.47 | -0.5 |
| P4 | 20x40 | -583.00 | 5249.50 | 32.7 | 34.3 | 3400 | -3400 | 350 | -400 | 0.0 | -0.3 | -0.47 | -0.5 |
| P5 | 20x40 | -360.00 | 5249.50 | 32.7 | 34.3 | 3400 | -3400 | 350 | -400 | 0.0 | -0.3 | -0.47 | -0.5 |
| P6 | 20x40 | 347.00 | 5249.50 | 10.8 | 11.4 | 200 | -500 | 950 | -150 | 0.0 | -0.2 | -0.12 | -0.3 |
| P7 | 20x40 | 563.00 | 5249.50 | 3.7 | 7.8 | 500 | -200 | 200 | -700 | 0.0 | -0.2 | -0.4 | -0.1 |
| P8 | 20x40 | 1371.83 | 5249.50 | 10.8 | 8.0 | 700 | -700 | 300 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P9 | 20x40 | 1915.00 | 5249.50 | 27.2 | 23.0 | 1400 | -1400 | 100 | -100 | 0.0 | -0.3 | -0.42 | -0.3 |
| P10 | 20x40 | 1966.66 | 5249.50 | 27.2 | 23.0 | 1400 | -1400 | 100 | -100 | 0.0 | -0.3 | -0.42 | -0.3 |
| P11 | 20x40 | 2728.00 | 5249.50 | 18.1 | 14.8 | 300 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P12 | 20x40 | 3018.00 | 5249.50 | 18.1 | 14.8 | 300 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P13 | 20x40 | 3348.00 | 5249.50 | 14.8 | 13.2 | 600 | -1400 | 100 | -100 | 0.0 | -0.3 | -0.42 | -0.3 |
| P14 | 20x40 | 3647.00 | 5249.50 | 14.8 | 13.2 | 600 | -1400 | 100 | -100 | 0.0 | -0.3 | -0.42 | -0.3 |
| P15 | 20x40 | 3938.07 | 5249.50 | 25.4 | 23.4 | 1300 | -1300 | 200 | -300 | 0.0 | -0.3 | -0.37 | -0.3 |
| P16 | 20x40 | 4207.00 | 5249.50 | 25.4 | 23.4 | 1300 | -1300 | 200 | -300 | 0.0 | -0.3 | -0.37 | -0.3 |
| P17 | 20x40 | -1289.00 | 4844.26 | 18.1 | 18.9 | 500 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P18 | 20x40 | -1006.00 | 4844.26 | 18.1 | 18.9 | 500 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P19 | 20x40 | -583.00 | 4844.26 | 18.1 | 18.9 | 500 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P20 | 20x40 | -360.00 | 4844.26 | 18.1 | 18.9 | 500 | -600 | 700 | -800 | 0.1 | -0.3 | -0.3 | -0.3 |
| P21 | 20x40 | -57.00 | 4844.26 | 28.4 | 24.1 | 400 | -400 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P22 | 20x40 | 150.00 | 4844.26 | 28.4 | 24.1 | 400 | -400 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P23 | 20x40 | 347.00 | 4844.26 | 32.1 | 28.1 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P24 | 20x40 | 563.00 | 4844.26 | 32.1 | 28.1 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P25 | 20x40 | 677.39 | 4844.26 | 13.3 | 11.6 | 1000 | -1100 | 300 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P26 | 20x40 | 794.50 | 4844.26 | 13.3 | 11.6 | 1000 | -1100 | 300 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P27 | 20x20 | 794.50 | 4680.00 | 2.8 | 2.1 | 200 | -100 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P28 | 20x20 | 964.96 | 4680.00 | 2.8 | 2.1 | 200 | -100 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P29 | 20x40 | 1247.39 | 4844.26 | 11.1 | 13.0 | 300 | -600 | 500 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P30 | 20x40 | 1364.80 | 4844.26 | 11.1 | 13.0 | 300 | -600 | 500 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P31 | 20x40 | 1562.50 | 4844.26 | 27.8 | 24.0 | 1300 | -1300 | 200 | -400 | 0.1 | -0.3 | -0.3 | -0.3 |
| P32 | 20x40 | 1707.50 | 4844.26 | 27.8 | 24.0 | 1300 | -1300 | 200 | -400 | 0.1 | -0.3 | -0.3 | -0.3 |
| P33 | 20x40 | 2508.00 | 4844.26 | 22.3 | 19.8 | 400 | -400 | 600 | -700 | 0.0 | -0.3 | -0.3 | -0.3 |
| P34 | 20x40 | 2728.00 | 4844.26 | 22.3 | 19.8 | 1200 | -1200 | 200 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P35 | 20x40 | 3018.00 | 4844.26 | 11.1 | 7.7 | 300 | -400 | 200 | -300 | 0.0 | -0.2 | -0.2 | -0.3 |
| P36 | 20x20 | 3118.50 | 4717.00 | 2.1 | 2.1 | 200 | -100 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P37 | 20x40 | 1722.03 | 4435.51 | 21.1 | 18.2 | 1400 | -1400 | 100 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P38 | 20x40 | 1915.00 | 4435.51 | 21.1 | 18.2 | 1400 | -1400 | 100 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P39 | 20x40 | 2508.00 | 4435.51 | 29.4 | 26.0 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P40 | 20x40 | 2728.00 | 4435.51 | 29.4 | 26.0 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P41 | 20x40 | 3018.00 | 4435.51 | 22.0 | 18.6 | 1100 | -900 | 300 | -300 | 0.0 | -0.2 | -0.3 | -0.3 |
| P42 | 20x40 | 3348.00 | 4435.51 | 22.0 | 18.6 | 1100 | -900 | 300 | -300 | 0.0 | -0.2 | -0.3 | -0.3 |
| P43 | 20x40 | 3647.00 | 4435.51 | 1.1 | 1.0 | 100 | -100 | 100 | -100 | 0.1 | -0.2 | -0.1 | -0.1 |
| P44 | 20x20 | 964.96 | 4435.51 | 1.1 | 1.0 | 100 | -100 | 100 | -100 | 0.1 | -0.2 | -0.1 | -0.1 |
| P45 | 20x40 | 1074.89 | 4435.51 | 23.3 | 20.1 | 1000 | -900 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P46 | 20x40 | 1247.39 | 4435.51 | 13.3 | 27.5 | 300 | -400 | 1000 | -1000 | 0.4 | -0.3 | 0.2 | -0.3 |
| P47 | 20x40 | 1364.80 | 4435.51 | 13.3 | 27.5 | 300 | -400 | 1000 | -1000 | 0.4 | -0.3 | 0.2 | -0.3 |
| P48 | 20x40 | 1562.50 | 4435.51 | 20.6 | 17.9 | 400 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P49 | 20x40 | 1707.50 | 4435.51 | 20.6 | 17.9 | 400 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P50 | 20x40 | 2508.00 | 4435.51 | 21.2 | 17.3 | 400 | -300 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P51 | 20x40 | 2728.00 | 4435.51 | 21.2 | 17.3 | 1300 | -1400 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P52 | 20x40 | 3018.00 | 4435.51 | 28.4 | 24.1 | 300 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P53 | 20x40 | 3348.00 | 4435.51 | 28.4 | 24.1 | 300 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P54 | 20x40 | 3647.00 | 4435.51 | 27.6 | 23.5 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P55 | 20x40 | 3938.07 | 4435.51 | 27.6 | 23.5 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P56 | 20x40 | 4207.00 | 4435.51 | 27.6 | 23.5 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P57 | 20x40 | 1722.03 | 4214.40 | 25.8 | 22.4 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P58 | 20x40 | 1915.00 | 4214.40 | 25.8 | 22.4 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P59 | 20x40 | 2508.00 | 4214.40 | 24.3 | 20.4 | 400 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P60 | 20x40 | 2728.00 | 4214.40 | 24.3 | 20.4 | 400 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P61 | 20x40 | 3018.00 | 4214.40 | 17.1 | 14.9 | 400 | -300 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P62 | 20x40 | 3348.00 | 4214.40 | 17.1 | 14.9 | 400 | -300 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P63 | 20x40 | 3647.00 | 4214.40 | 21.2 | 18.2 | 300 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P64 | 20x40 | 3938.07 | 4214.40 | 21.2 | 18.2 | 300 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P65 | 20x40 | 4207.00 | 4214.40 | 21.2 | 18.2 | 300 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P66 | 20x40 | 347.00 | 4204.40 | 20.6 | 17.4 | 800 | -1000 | 400 | -100 | 0.0 | -0.3 | -0.3 | -0.2 |
| P67 | 20x40 | 563.00 | 4204.40 | 20.6 | 17.4 | 800 | -1000 | 400 | -100 | 0.0 | -0.3 | -0.3 | -0.2 |
| P68 | 20x40 | 1074.89 | 4204.40 | 26.9 | 22.4 | 700 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P69 | 20x40 | 1247.39 | 4204.40 | 26.9 | 22.4 | 700 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P70 | 20x40 | 1364.80 | 4214.40 | 24.3 | 20.4 | 400 | -300 | 800 | -700 | 0.0 | -0.3 | -0.3 | -0.3 |
| P71 | 20x40 | 1562.50 | 4214.40 | 24.3 | 20.4 | 400 | -300 | 800 | -700 | 0.0 | -0.3 | -0.3 | -0.3 |
| P72 | 20x40 | 1707.50 | 4214.40 | 24.3 | 20.4 | 400 | -300 | 800 | -700 | 0.0 | -0.3 | -0.3 | -0.3 |
| P73 | 20x40 | 2508.00 | 4214.40 | 18.0 | 14.7 | 800 | -1300 | 300 | -100 | 0.0 | -0.3 | -0.4 | -0.2 |
| P74 | 20x40 | 2728.00 | 4214.40 | 18.0 | 14.7 | 800 | -1300 | 300 | -100 | 0.0 | -0.3 | -0.4 | -0.2 |
| P75 | 20x20 | 3017.50 | 3897.50 | 1.9 | 1.5 | 300 | -200 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P76 | 20x20 | 3118.50 | 3897.50 | 1.9 | 1.5 | 300 | -200 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P77 | 20x40 | 347.00 | 3720.00 | 23.8 | 20.7 | 1100 | -1200 | 400 | -200 | 0.0 | -0.3 | -0.4 | -0.3 |
| P78 | 20x40 | 563.00 | 3720.00 | 23.8 | 20.7 | 1100 | -1200 | 400 | -200 | 0.0 | -0.3 | -0.4 | -0.3 |
| P79 | 20x40 | 1915.00 | 3719.07 | 31.9 | 27.1 | 1000 | -900 | 200 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P80 | 20x40 | 2508.00 | 3719.07 | 31.9 | 27.1 | 1000 | -900 | 200 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P81 | 20x40 | 2728.00 | 3719.07 | 42.2 | 36.0 | 1400 | -1100 | 200 | -400 | 0.0 | -0.3 | -0.4 | -0.3 |
| P82 | 20x40 | 3018.00 | 3719.07 | 42.2 | 36.0 | 1400 | -1100 | 200 | -400 | 0.0 | -0.3 | -0.4 | -0.3 |
| P83 | 20x40 | 3647.00 | 3719.07 | 25.8 | 21.9 | 1100 | -1200 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P84 | 20x40 | 3938.07 | 3719.07 | 25.8 | 21.9 | 1100 | -1200 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P85 | 20x40 | 4207.00 | 3719.07 | 25.8 | 21.9 | 1100 | -1200 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P86 | 20x40 | 1722.03 | 3517.50 | 20.4 | 16.0 | 500 | -300 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.2 |
| P87 | 20x40 | 1915.00 | 3517.50 | 20.4 | 16.0 | 500 | -300 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.2 |
| P88 | 20x40 | 2508.00 | 3517.50 | 12.7 | 10.4 | 1300 | -1300 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P89 | 20x40 | 2728.00 | 3517.50 | 12.7 | 10.4 | 1300 | -1300 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P90 | 20x40 | 3018.00 | 3517.50 | 5.1 | 4.1 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P91 | 20x40 | 3647.00 | 3517.50 | 5.1 | 4.1 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P92 | 20x40 | 3938.07 | 3517.50 | 5.1 | 4.1 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P93 | 20x40 | 4207.00 | 3517.50 | 5.1 | 4.1 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P94 | 20x40 | 347.00 | 3337.50 | 18.8 | 16.3 | 1300 | -1300 | 400 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P95 | 20x40 | 563.00 | 3337.50 | 18.8 | 16.3 | 1300 | -1300 | 400 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P96 | 20x40 | 1915.00 | 3337.50 | 11.6 | 11.8 | 900 | -1100 | 200 | -100 | 0.0 | -0.3 | -0.3 | -0.2 |
| P97 | 20x40 | 2508.00 | 3337.50 | 11.6 | 11.8 | 900 | -1100 | 200 | -100 | 0.0 | -0.3 | -0.3 | -0.2 |
| P98 | 20x40 | 2728.00 | 3337.50 | 27.0 | 23.2 | 800 | -800 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P99 | 20x40 | 3018.00 | 3337.50 | 27.0 | 23.2 | 800 | -800 | 200 | -300 | 0.0 | -0.3 | -0.4 | -0.3 |
| P100 | 20x40 | 3647.00 | 3337.50 | 32.1 | 27.5 | 1200 | -1200 | 300 | -200 | 0.0 | -0.3 | -0.4 | -0.3 |
| P101 | 20x40 | 3938.07 | 3337.50 | 32.1 | 27.5 | 1200 | -1200 | 300 | -200 | 0.0 | -0.3 | -0.4 | -0.3 |
| P102 | 20x40 | 4207.00 | 3337.50 | 32.1 | 27.5 | 1200 | -1200 | 300 | -200 | 0.0 | -0.3 | -0.4 | -0.3 |
| P103 | 20x40 | 1722.03 | 3012.50 | 15.9 | 13.1 | 1100 | -1100 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P104 | 20x40 | 1915.00 | 3012.50 | 15.9 | 13.1 | 1100 | -1100 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P105 | 20x40 | 2508.00 | 3012.50 | 13.0 | 10.9 | 100 | -300 | 200 | -400 | 0.1 | -0.3 | -0.1 | -0.3 |
| P106 | 20x40 | 2728.00 | 3012.50 | 13.0 | 10.9 | 100 | -300 | 200 | -400 | 0.1 | -0.3 | -0.1 | -0.3 |
| P107 | 20x40 | 3018.00 | 3012.50 | 18.6 | 14.8 | 900 | -1000 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P108 | 20x40 | 3647.00 | 3012.50 | 18.6 | 14.8 | 900 | -1000 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P109 | 20x40 | 3938.07 | 3012.50 | 11.9 | 11.7 | 300 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P110 | 20x40 | 4207.00 | 3012.50 | 11.9 | 11.7 | 300 | -300 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P111 | 20x40 | 3018.00 | 2803.58 | 8.8 | 6.7 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P112 | 20x40 | 3647.00 | 2803.58 | 8.8 | 6.7 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P113 | 20x40 | 4207.00 | 2803.58 | 8.8 | 6.7 | 300 | -300 | 200 | -100 | 0.0 | -0.2 | -0.1 | -0.2 |
| P114 | 20x40 | 1371.83 | 2594.50 | 17.0 | 14.6 | 300 | -300 | 1000 | -900 | 0.0 | -0.4 | 0.1 | -0.3 |
| P115 | 20x40 | 1966.66 | 2594.50 | 17.0 | 14.6 | 300 | -300 | 1000 | -900 | 0.0 | -0.4 | 0.1 | -0.3 |
| P116 | 20x40 | 1371.83 | 2322.46 | 27.4 | 23.6 | 500 | -500 | 900 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P117 | 20x40 | 1966.66 | 2322.46 | 27.4 | 23.6 | 500 | -500 | 900 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P118 | 20x40 | 347.00 | 2160.00 | 33.9 | 27.5 | 800 | -900 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P119 | 20x40 | 563.00 | 2160.00 | 33.9 | 27.5 | 800 | -900 | 800 | -900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P120 | 20x40 | 1371.83 | 2160.00 | 14.5 | 13.0 | 500 | -500 | 1100 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P121 | 20x40 | 1966.66 | 2160.00 | 14.5 | 13.0 | 500 | -500 | 1100 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P122 | 20x40 | 347.00 | 1775.00 | 18.9 | 16.4 | 400 | -500 | 700 | -750 | 0.0 | -0.3 | -0.4 | -0.3 |
| P123 | 20x40 | 563.00 | 1775.00 | 18.9 | 16.4 | 400 | -500 | 700 | -750 | 0.0 | -0.3 | -0.4 | -0.3 |
| P124 | 20x40 | 744.64 | 2322.46 | 3.0 | 2.2 | 200 | -300 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P125 | 20x20 | 1136.32 | 2322.50 | 2.7 | 2.0 | 200 | -100 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P126 | 20x40 | 1722.03 | 2160.00 | 21.1 | 18.2 | 1300 | -1300 | 200 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P127 | 20x40 | 1915.00 | 2160.00 | 21.1 | 18.2 | 1300 | -1300 | 200 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P128 | 20x40 | 793.00 | 2160.00 | 34.4 | 29.0 | 1700 | -1700 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P129 | 20x40 | 1136.32 | 2160.00 | 42.2 | 34.1 | 500 | -600 | 1600 | -1500 | 0.0 | -0.3 | -0.3 | -0.3 |
| P130 | 20x40 | 1371.83 | 2160.00 | 30.4 | 26.8 | 1700 | -1700 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P131 | 20x40 | 1966.66 | 2160.00 | 30.4 | 26.8 | 1700 | -1700 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P132 | 20x40 | 2728.00 | 2160.00 | 27.6 | 23.7 | 1600 | -1600 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P133 | 20x40 | 3018.00 | 2160.00 | 27.6 | 23.7 | 1600 | -1600 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P134 | 20x40 | 1371.83 | 1775.00 | 32.1 | 27.5 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P135 | 20x40 | 1966.66 | 1775.00 | 32.1 | 27.5 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P136 | 20x40 | 2728.00 | 1775.00 | 32.1 | 27.5 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P137 | 20x40 | 3018.00 | 1775.00 | 32.1 | 27.5 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P138 | 20x40 | 1371.83 | 1365.50 | 54.4 | 35.5 | 500 | -600 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P139 | 20x40 | 1966.66 | 1365.50 | 54.4 | 35.5 | 500 | -600 | 700 | -800 | 0.0 | -0.3 | -0.3 | -0.3 |
| P140 | 20x40 | 1257.27 | 1175.00 | 35.7 | 32.7 | 500 | -400 | 400 | -1000 | 0.0 | -0.3 | -0.2 | -0.3 |
| P141 | 20x40 | 1371.83 | 1175.00 | 42.5 | 34.9 | 600 | -600 | 400 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P142 | 20x40 | 1966.66 | 1175.00 | 42.5 | 34.9 | 600 | -600 | 400 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P143 | 20x40 | 2728.00 | 1175.00 | 41.0 | 33.6 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P144 | 20x40 | 3018.00 | 1175.00 | 41.0 | 33.6 | 1000 | -1000 | 300 | -200 | 0.0 | -0.3 | -0.3 | -0.3 |
| P145 | 20x40 | 1371.83 | 793.00 | 12.4 | 8.5 | 1800 | -1500 | 300 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P146 | 20x40 | 1966.66 | 793.00 | 12.4 | 8.5 | 1800 | -1500 | 300 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P147 | 20x40 | 2728.00 | 793.00 | 12.4 | 8.5 | 1800 | -1500 | 300 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P148 | 20x40 | 3018.00 | 793.00 | 12.4 | 8.5 | 1800 | -1500 | 300 | -400 | 0.0 | -0.3 | -0.3 | -0.3 |
| P149 | 20x40 | 1966.66 | 550.00 | 19.8 | 16.8 | 1700 | -1700 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P150 | 20x40 | 2728.00 | 550.00 | 19.8 | 16.8 | 1700 | -1700 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P151 | 20x40 | 3018.00 | 550.00 | 19.8 | 16.8 | 1700 | -1700 | 400 | -300 | 0.0 | -0.3 | -0.3 | -0.3 |
| P152 | 20x40 | 3647.00 | 550.00 | 1.0 | 1.4 | 300 | -200 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P153 | 20x40 | 3938.07 | 550.00 | 1.0 | 1.4 | 300 | -200 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P154 | 20x40 | 4207.00 | 550.00 | 1.0 | 1.4 | 300 | -200 | 100 | -200 | 0.1 | -0.2 | -0.1 | -0.2 |
| P155 | 20x40 | 3647.00 | 10.00 | 5.4 | 4.8 | 800 | -300 | 300 | -300 | 0.0 | -0.1 | -0.2 | -0.0 |
| P156 | 20x40 | 3938.07 | 10.00 | 5.4 | 4.8 | 800 | -300 | 300 | -300 | 0.0 | -0.1 | -0.2 | -0.0 |
| P157 | 20x40 | 4207.00 | 10.00 | 5.4 | 4.8 | 800 | -300 | 300 | -300 | 0.0 | -0.1 | -0.2 | -0.0 |
| P158 | 20x40 | 1722.03 | 10.00 | 1.2 | 1.1 | 200 | -100 | 100 | -100 | 0.1 | -0.2 | -0.1 | -0.1 |
| P1=P13 | | 2518.00 | 5249.50 | 27.8 | 24.1 | 400 | -400 | 900 | -1000 | 0.0 | -0.3 | -0.3 | -0.3 |
| P2=P3 | | 2506.00 | 4844.26 | 32.7 | 34.3 | 3400 | -3400 | 350 | -400 | 0.0 | -0.3 | -0.4 | -0.5 |
| P48=P50 | | 1366.80 | 4435.51 | 21.1 | 18.0 | 1900 | -2000 | 500 | -200 | 0.0 | -0.2 | -0.6 | -0.3 |
| P49=P51 | | 1564.50 | 4435.51 | 20.6 | 17.9 | 1900 | -2000 | 500 | -200 | 0.0 | -0.2 | -0.6 | -0.3 |
| P67=P68 | | 1366.80 | 4204.40 | 21.0 | 17.1 | 1900 | -2000 | 400 | -100 | 0.0 | -0.2 | -0.6 | -0.2 |
| P71=P72 | | 2508.00 | 4214.40 | 44.0 | 37.1 | 1300 | -1100 | 2600 | 0 | 0.0 | -0.2 | -0.6 | -0.3 |
| P73=P74 | | 2518.00 | 4214.40 | 44.0 | 37.1 | 1300 | -1100 | 2600 | 0 | 0.0 | -0.2 | -0.6 | -0.3 |
| P104=P105 | | 2518.00 | 3012.50 | 40.4 | 40.0 | 2300 | -3000 | 0 | -100 | 0.0 | -0.4 | -0.6 | -0.3 |
| P106=P125 | | -1710.00 | 2814.58 | 25.3 | 21.1 | 1000 | -300 | 1400 | -1800 | 0.4 | -0.6 | 0.0 | -0.3 |
| P126=P127 | | -1721.13 | 2814.58 | 25.3 | 21.1 | 1000 | -300 | 1400 | -1800 | 0.4 | -0.6 | 0.0 | -0.3 |
| P128=P130 | | -583.00 | 2803.58 | 18.4 | 13.3 | 700 | -800 | 900 | -1000 | 0.4 | -0.3 | 0.0 | -0.3 |
| P129=P131 | | -583.00 | 2594.50 | 18.4 | 13.3 | 700 | -800 | 900 | -1000 | 0.4 | -0.3 | 0.0 | -0.3 |
| P134=P136 | | 347.00 | 2524.26 | 17.0 | 14.0 | 1900 | -700 | 2200 | -500 | 0.0 | -0.4 | -0.6 | -0.3 |
| P137=P138 | | 373.00 | 2524.26 | 22.8 | 19.1 | 2300 | 0 | 100 | -2200 | 0.4 | -0.4 | -0.3 | -0.3 |
| P139=P140 | | 1364.80 | 2524.26 | 37.0 | 32.1 | 2800 | 0 | 1900 | -2900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P141=P142 | | 1564.50 | 2524.26 | 37.0 | 32.1 | 2800 | 0 | 1900 | -2900 | 0.0 | -0.3 | -0.3 | -0.3 |
| P143=P150 | | 2518.00 | 2514.58 | 39.3 | 35.0 | 1900 | -2100 | 2800 | -1500 | 0.0 | -0.3 | -0.3 | -0.3 |
| P144=P151 | | 2518.00 | 2514.58 | 39.3 | 35.0 | 1900 | -2100 | 2800 | -1500 | 0.0 | -0.3 | -0.3 | -0.3 |
| P145=P146=P147=P148 | | 2518.00 | 2514.58 | 48.6 | 33.4 | 400 | -1100 | 1300 | -300 | 0.0 | -0.4 | -0.5 | -0.3 |
| P160=P161 | | -573.00 | 2594.50 | 38.4 | 25.0 | 0 | -4100 | 1300 | -300 | 0.0 | -0.4 | 0.6 | -0.3 |
| P162=P163 | | -583.00 | 2322.46 | 38.4 | 25.0 | 0 | -4100 | 1300 | -300 | 0.0 | -0.4 | 0.6 | -0.3 |
| P164=P165 | | -583.00 | 2160.00 | 35.9 | 30.1 | 3300 | -2800 | 2400 | 0 | 0.0 | -0.3 | -0.6 | -0.3 |
| P166=P168 | | 2518.00 | 2160.00 | 35.9 | 30.1 | 3300 | -2800 | 2400 | 0 | 0.0 | -0.3 | -0.6 | -0.3 |
| P167=P169 | | 2518.00 | 1775.00 | 36.6 | 30.8 | 2900 | -2400 | 2400 | -300 | 0.0 | -0.3 | -0.6 | -0.3 |
| P200=P206 | | 2518.00 | 1775.00 | 38.1 | 33.9 | 2900 | -2600 | 0 | -2600 | 0.0 | -0.3 | -0.6 | -0.3 |
| P201=P207 | | 2518.00 | 1365.50 | 38.1 | 33.9 | 2900 | -2600 | 0 | -2600 | 0.0 | -0.3 | -0.6 | -0.3 |
| P202=P203 | | 2518.00 | 1179.60 | 48.6 | 42.2 | 0 | -2900 | 1300 | -4100 | 0.0 | -0.3 | -0.6 | -0.3 |
| P245=P246=P247=P248 | | 2518.00 | 2814.58 | 48.6 | 42.2 | 0 | -2900 | 1300 | -4100 | 0.0 | -0.3 | -0.6 | -0.3 |

Os esforços indicados nesta tabela são os valores máximos obtidos para envoltória de todas as combinações definidas para as fundações. Para análises complementares, deve-se consultar o relatório de esforços na fundação, que apresenta os valores calculados para cada combinação.

Antes de ser executado o projeto de fundações, deve ser conferido o projeto de instalações elétricas (SPDA)

A estrutura de concreto e as fundações devem ser executadas respeitando as especificações presentes nas normas NBR 6118 (2023), NBR 14931 (2023), NBR 12655 (2022) e NBR 7480 (2022).

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Avenida Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

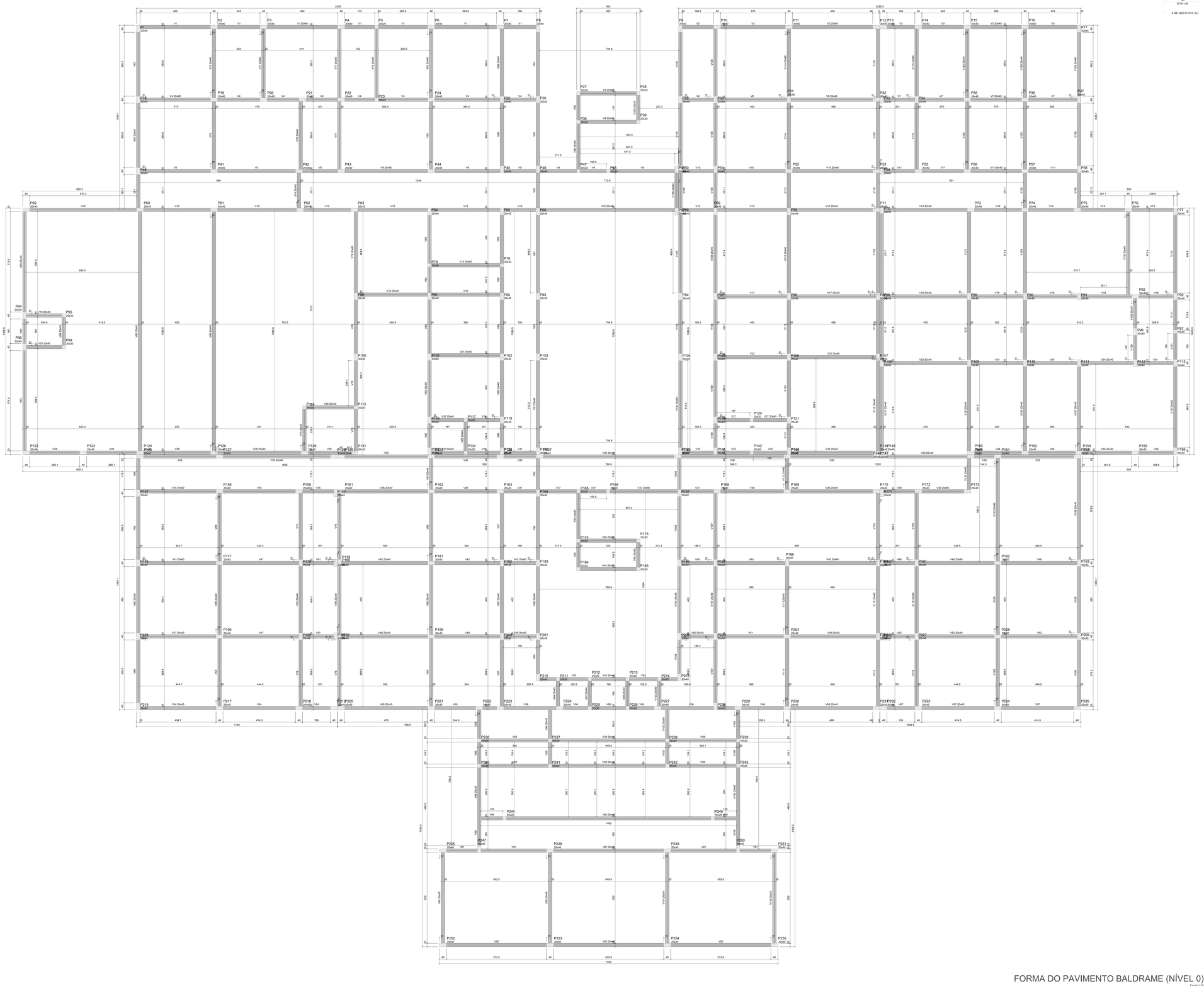
PROJETO: **ESTRUTURAL** — ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA LOCAÇÃO PILARES** — ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA — DATA: **Outubro/2025**

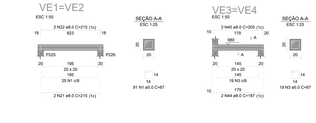
RESPONSÁVEL: ENG. CIVIL ANARA DAYDELLES VOLPATTO - CREA RS 198544 — DESENHO: -

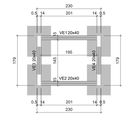
PRANCHA: **EST 01/60**



FORMA DO PAVIMENTO BALDRAME (NÍVEL 0)

Escala: 1:50



| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| VE1 | 20x40 | 0 | -150 |
| VE2 | 20x40 | 0 | -150 |
| VE3 | 20x40 | 0 | -150 |
| VE4 | 20x40 | 0 | -150 |

| Características dos materiais | |
|---|---|
| fck | Módulo de elasticidade |
| (kgf/cm²) | (kgf/cm²) |
| 250 | 241000 |

Dimensão máxima do agregado = 19 mm

| Pilares | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| P2 | 20x40 | 0 | -150 |
| P3 | 20x40 | 0 | -150 |
| P4 | 20x40 | 0 | -150 |
| P5 | 20x20 | 0 | -150 |
| P6 | 20x40 | 0 | -150 |
| P7 | 20x40 | 0 | -150 |
| P8 | 20x40 | 0 | -150 |
| P9 | 20x40 | 0 | -150 |
| P10 | 20x40 | 0 | -150 |
| P11 | 20x40 | 0 | -150 |
| P12 | 20x40 | 0 | -150 |
| P13 | 20x40 | 0 | -150 |
| P14 | 20x40 | 0 | -150 |
| P15 | 20x40 | 0 | -150 |
| P16 | 20x40 | 0 | -150 |
| P17 | 20x40 | 0 | -150 |
| P18 | 20x40 | 0 | -150 |
| P19 | 20x40 | 0 | -150 |
| P20 | 20x40 | 0 | -150 |
| P21 | 20x40 | 0 | -150 |
| P22 | 20x40 | 0 | -150 |
| P23 | 20x20 | 0 | -150 |
| P24 | 20x40 | 0 | -150 |
| P25 | 20x40 | 0 | -150 |
| P26 | 20x40 | 0 | -150 |
| P27 | 20x20 | 0 | -150 |
| P28 | 20x20 | 0 | -150 |
| P29 | 20x40 | 0 | -150 |
| P30 | 20x40 | 0 | -150 |
| P31 | 20x40 | 0 | -150 |
| P32 | 20x40 | 0 | -150 |
| P33 | 20x40 | 0 | -150 |
| P34 | 20x40 | 0 | -150 |
| P35 | 20x40 | 0 | -150 |
| P36 | 20x40 | 0 | -150 |
| P37 | 20x40 | 0 | -150 |
| P38 | 20x20 | 0 | -150 |
| P39 | 20x20 | 0 | -150 |
| P40 | 20x40 | 0 | -150 |
| P41 | 20x40 | 0 | -150 |
| P42 | 20x40 | 0 | -150 |
| P43 | 20x40 | 0 | -150 |
| P44 | 20x40 | 0 | -150 |
| P45 | 20x40 | 0 | -150 |
| P46 | 20x40 | 0 | -150 |
| P47 | 20x20 | 0 | -150 |
| P48 | 20x20 | 0 | -150 |
| P49 | 20x40 | 0 | -150 |
| P50 | 20x40 | 0 | -150 |
| P51 | 20x40 | 0 | -150 |
| P52 | 20x40 | 0 | -150 |
| P53 | 20x40 | 0 | -150 |
| P54 | 20x40 | 0 | -150 |
| P55 | 20x40 | 0 | -150 |
| P56 | 20x40 | 0 | -150 |
| P57 | 20x40 | 0 | -150 |
| P58 | 20x40 | 0 | -150 |
| P59 | 20x40 | 0 | -150 |
| P60 | 20x40 | 0 | -150 |
| P61 | 20x40 | 0 | -150 |
| P62 | 20x40 | 0 | -150 |
| P63 | 20x40 | 0 | -150 |
| P64 | 20x40 | 0 | -150 |
| P65 | 20x40 | 0 | -150 |
| P66 | 20x40 | 0 | -150 |
| P67 | 20x40 | 0 | -150 |
| P68 | 20x40 | 0 | -150 |
| P69 | 20x40 | 0 | -150 |
| P70 | 20x40 | 0 | -150 |
| P71 | 20x40 | 0 | -150 |
| P72 | 20x40 | 0 | -150 |
| P73 | 20x40 | 0 | -150 |
| P74 | 20x40 | 0 | -150 |
| P75 | 20x40 | 0 | -150 |
| P76 | 20x40 | 0 | -150 |
| P77 | 20x40 | 0 | -150 |
| P78 | 20x40 | 0 | -150 |
| P79 | 20x20 | 0 | -150 |
| P80 | 20x40 | 0 | -150 |
| P81 | 20x40 | 0 | -150 |
| P82 | 20x40 | 0 | -150 |
| P83 | 20x40 | 0 | -150 |
| P84 | 20x40 | 0 | -150 |
| P85 | 20x40 | 0 | -150 |
| P86 | 20x40 | 0 | -150 |
| P87 | 20x40 | 0 | -150 |
| P88 | 20x40 | 0 | -150 |
| P89 | 20x40 | 0 | -150 |
| P90 | 20x40 | 0 | -150 |
| P91 | 20x40 | 0 | -150 |
| P92 | 20x40 | 0 | -150 |
| P93 | 20x40 | 0 | -150 |
| P94 | 20x40 | 0 | -150 |
| P95 | 20x20 | 0 | -150 |
| P96 | 20x40 | 0 | -150 |
| P97 | 20x20 | 0 | -150 |
| P98 | 20x40 | 0 | -150 |
| P99 | 20x20 | 0 | -150 |
| P100 | 20x40 | 0 | -150 |
| P101 | 20x40 | 0 | -150 |
| P102 | 20x40 | 0 | -150 |
| P103 | 20x40 | 0 | -150 |
| P104 | 20x40 | 0 | -150 |
| P105 | 20x40 | 0 | -150 |
| P106 | 20x40 | 0 | -150 |
| P107 | 20x40 | 0 | -150 |
| P108 | 20x40 | 0 | -150 |
| P109 | 20x40 | 0 | -150 |
| P110 | 20x40 | 0 | -150 |
| P111 | 20x40 | 0 | -150 |
| P112 | 20x40 | 0 | -150 |
| P113 | 20x40 | 0 | -150 |
| P114 | 20x20 | 0 | -150 |
| P115 | 20x40 | 0 | -150 |
| P116 | 20x40 | 0 | -150 |
| P117 | 20x40 | 0 | -150 |
| P118 | 20x40 | 0 | -150 |
| P119 | 20x40 | 0 | -150 |
| P120 | 20x20 | 0 | -150 |
| P121 | 20x40 | 0 | -150 |
| P122 | 20x40 | 0 | -150 |
| P123 | 20x40 | 0 | -150 |
| P124 | 20x40 | 0 | -150 |
| P125 | 20x40 | 0 | -150 |
| P126 | 20x40 | 0 | -150 |
| P127 | 20x40 | 0 | -150 |
| P128 | 20x40 | 0 | -150 |
| P129 | 20x40 | 0 | -150 |
| P130 | 20x40 | 0 | -150 |
| P131 | 20x40 | 0 | -150 |
| P132 | 20x40 | 0 | -150 |
| P133 | 20x40 | 0 | -150 |
| P134 | 20x20 | 0 | -150 |
| P135 | 20x40 | 0 | -150 |
| P136 | 20x40 | 0 | -150 |
| P137 | 20x40 | 0 | -150 |
| P138 | 20x40 | 0 | -150 |
| P139 | 20x40 | 0 | -150 |
| P140 | 20x40 | 0 | -150 |
| P141 | 20x40 | 0 | -150 |
| P142 | 20x40 | 0 | -150 |
| P143 | 20x40 | 0 | -150 |
| P144 | 20x40 | 0 | -150 |
| P145 | 20x40 | 0 | -150 |
| P146 | 20x40 | 0 | -150 |
| P147 | 20x40 | 0 | -150 |
| P148 | 20x40 | 0 | -150 |
| P149 | 20x40 | 0 | -150 |
| P150 | 20x40 | 0 | -150 |
| P151 | 20x40 | 0 | -150 |
| P152 | 20x40 | 0 | -150 |
| P153 | 20x40 | 0 | -150 |
| P154 | 20x40 | 0 | -150 |
| P155 | 20x40 | 0 | -150 |
| P156 | 20x40 | 0 | -150 |
| P157 | 20x40 | 0 | -150 |
| P158 | 20x40 | 0 | -150 |
| P159 | 20x40 | 0 | -150 |
| P160 | 20x40 | 0 | -150 |
| P161 | 20x40 | 0 | -150 |
| P162 | 20x40 | 0 | -150 |
| P163 | 20x40 | 0 | -150 |
| P164 | 20x40 | 0 | -150 |
| P165 | 20x20 | 0 | -150 |
| P166 | 20x20 | 0 | -150 |
| P167 | 20x40 | 0 | -150 |
| P168 | 20x40 | 0 | -150 |
| P169 | 20x40 | 0 | -150 |
| P170 | 20x40 | 0 | -150 |
| P171 | 20x40 | 0 | -150 |
| P172 | 20x40 | 0 | -150 |
| P173 | 20x40 | 0 | -150 |
| P174 | 20x20 | 0 | -150 |
| P175 | 20x20 | 0 | -150 |
| P176 | 20x40 | 0 | -150 |
| P177 | 20x40 | 0 | -150 |
| P178 | 20x40 | 0 | -150 |
| P179 | 20x40 | 0 | -150 |
| P180 | 20x40 | 0 | -150 |
| P181 | 20x40 | 0 | -150 |
| P182 | 20x40 | 0 | -150 |
| P183 | 20x40 | 0 | -150 |
| P184 | 20x20 | 0 | -150 |
| P185 | 20x20 | 0 | -150 |
| P186 | 20x40 | 0 | -150 |
| P187 | 20x40 | 0 | -150 |
| P188 | 20x40 | 0 | -150 |
| P189 | 20x40 | 0 | -150 |
| P190 | 20x40 | 0 | -150 |
| P191 | 20x40 | 0 | -150 |
| P192 | 20x40 | 0 | -150 |
| P193 | 20x40 | 0 | -150 |
| P194 | 20x40 | 0 | -150 |
| P195 | 20x40 | 0 | -150 |
| P196 | 20x40 | 0 | -150 |
| P197 | 20x40 | 0 | -150 |
| P198 | 20x40 | 0 | -150 |
| P199 | 20x40 | 0 | -150 |
| P200 | 20x40 | 0 | -150 |
| P201 | 20x40 | 0 | -150 |
| P202 | 20x40 | 0 | -150 |
| P203 | 20x40 | 0 | -150 |
| P204 | 20x40 | 0 | -150 |
| P205 | 20x40 | 0 | -150 |
| P206 | 20x40 | 0 | -150 |
| P207 | 20x40 | 0 | -150 |
| P208 | 20x40 | 0 | -150 |
| P209 | 20x40 | 0 | -150 |
| P210 | 20x40 | 0 | -150 |
| P211 | 20x20 | 0 | -150 |
| P212 | 20x20 | 0 | -150 |
| P213 | 20x20 | 0 | -150 |
| P214 | 20x20 | 0 | -150 |
| P215 | 20x40 | 0 | -150 |
| P216 | 20x40 | 0 | -150 |
| P217 | 20x40 | 0 | -150 |
| P218 | 20x40 | 0 | -150 |
| P219 | 20x40 | 0 | -150 |
| P220 | 20x40 | 0 | -150 |
| P221 | 20x40 | 0 | -150 |
| P222 | 20x40 | 0 | -150 |
| P223 | 20x40 | 0 | -150 |
| P224 | 20x40 | 0 | -150 |
| P225 | 20x20 | 0 | -150 |
| P226 | 20x20 | 0 | -150 |
| P227 | 20x40 | 0 | -150 |
| P228 | 20x40 | 0 | -150 |
| P229 | 20x40 | 0 | -150 |
| P230 | 20x40 | 0 | -150 |
| P231 | 20x40 | 0 | -150 |
| P232 | 20x40 | 0 | -150 |
| P233 | 20x40 | 0 | -150 |
| P234 | 20x40 | 0 | -150 |
| P235 | 20x40 | 0 | -150 |
| P236 | 20x40 | 0 | -150 |
| P237 | 20x40 | 0 | -150 |
| P238 | 20x40 | 0 | -150 |
| P239 | 20x20 | 0 | -150 |
| P240 | 20x40 | 0 | -150 |
| P241 | 20x20 | 0 | -150 |
| P242 | 20x20 | 0 | -150 |
| P243 | 20x20 | 0 | -150 |
| P244 | 20x40 | 0 | -150 |
| P245 | 20x40 | 0 | -150 |
| P246 | 20x40 | 0 | -150 |
| P247 | 20x40 | 0 | -150 |
| P248 | 20x40 | 0 | -150 |
| P249 | 20x40 | 0 | -150 |
| P250 | 20x40 | 0 | -150 |
| P251 | 20x40 | 0 | -150 |
| P252 | 20x40 | 0 | -150 |
| P253 | 20x40 | 0 | -150 |
| P254 | 20x40 | 0 | -150 |
| P255 | 20x40 | 0 | -150 |

| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| V1 | 20x40 | 0 | 0 |
| V2 | 20x40 | 0 | 0 |
| V3 | 20x40 | 0 | 0 |
| V4 | 20x40 | 0 | 0 |
| V5 | 20x40 | 0 | 0 |
| V6 | 20x40 | 0 | 0 |
| V7 | 20x40 | 0 | 0 |
| V8 | 20x40 | 0 | 0 |
| V9 | 20x40 | 0 | 0 |
| V10 | 20x40 | 0 | 0 |
| V11 | 20x40 | 0 | 0 |
| V12 | 20x40 | 0 | 0 |
| V13 | 20x40 | 0 | 0 |
| V14 | 20x40 | 0 | 0 |
| V15 | 20x40 | 0 | 0 |
| V16 | 20x40 | 0 | 0 |
| V17 | 20x40 | 0 | 0 |
| V18 | 20x40 | 0 | 0 |
| V19 | 20x40 | 0 | 0 |
| V20 | 20x40 | 0 | 0 |
| V21 | 20x40 | 0 | 0 |
| V22 | 20x40 | 0 | 0 |
| V23 | 20x40 | 0 | 0 |
| V24 | 20x40 | 0 | 0 |
| V25 | 20x40 | 0 | 0 |
| V26 | 20x40 | 0 | 0 |
| V27 | 20x40 | 0 | 0 |
| V28 | 20x40 | 0 | 0 |
| V29 | 20x40 | 0 | 0 |
| V30 | 20x40 | 0 | 0 |
| V31 | 20x40 | 0 | 0 |
| V32 | 20x40 | 0 | 0 |
| V33 | 20x40 | 0 | 0 |
| V34 | 20x40 | 0 | 0 |
| V35 | 20x40 | 0 | 0 |
| V36 | 20x40 | 0 | 0 |
| V37 | 20x40 | 0 | 0 |
| V38 | 20x40 | 0 | 0 |
| V39 | 20x40 | 0 | 0 |
| V40 | 20x40 | 0 | 0 |
| V41 | 20x40 | 0 | 0 |
| V42 | 20x40 | 0 | 0 |
| V43 | 20x40 | 0 | 0 |
| V44 | 20x40 | 0 | 0 |
| V45 | 20x40 | 0 | 0 |
| V46 | 20x40 | 0 | 0 |
| V47 | 20x40 | 0 | 0 |
| V48 | 20x40 | 0 | 0 |
| V49 | 20x40 | 0 | 0 |
| V50 | 20x40 | 0 | 0 |
| V51 | 20x40 | 0 | 0 |
| V52 | 20x40 | 0 | 0 |
| V53 | 20x40 | 0 | 0 |
| V54 | 20x40 | 0 | 0 |
| V55 | 20x40 | 0 | 0 |
| V56 | 20x40 | 0 | 0 |
| V57 | 20x40 | 0 | 0 |
| V58 | 20x40 | 0 | 0 |
| V59 | 20x40 | 0 | 0 |
| V60 | 20x40 | 0 | 0 |
| V61 | 20x40 | 0 | 0 |
| V62 | 20x40 | 0 | 0 |
| V63 | 20x40 | 0 | 0 |
| V64 | 20x40 | 0 | 0 |
| V65 | 20x40 | 0 | 0 |
| V66 | 20x40 | 0 | 0 |
| V67 | 20x40 | 0 | 0 |
| V68 | 20x40 | 0 | 0 |
| V69 | 20x40 | 0 | 0 |
| V70 | 20x40 | 0 | 0 |
| V71 | 20x40 | 0 | 0 |
| V72 | 20x40 | 0 | 0 |
| V73 | 20x40 | 0 | 0 |
| V74 | 20x40 | 0 | 0 |
| V75 | 20x40 | 0 | 0 |
| V76 | 20x40 | 0 | 0 |
| V77 | 20x40 | 0 | 0 |
| V78 | 20x40 | 0 | 0 |
| V79 | 20x40 | 0 | 0 |
| V80 | 20x40 | 0 | 0 |
| V81 | 20x40 | 0 | 0 |
| V82 | 20x40 | 0 | 0 |
| V83 | 20x40 | 0 | 0 |
| V84 | 20x40 | 0 | 0 |
| V85 | 20x40 | 0 | 0 |
| V86 | 20x40 | 0 | 0 |
| V87 | 20x40 | 0 | 0 |
| V88 | 20x40 | 0 | 0 |
| V89 | 20x40 | 0 | 0 |
| V90 | 20x40 | 0 | 0 |
| V91 | 20x40 | 0 | 0 |
| V92 | 20x40 | 0 | 0 |
| V93 | 20x40 | 0 | 0 |
| V94 | 20x40 | 0 | 0 |
| V95 | 20x40 | 0 | 0 |
| V96 | 20x40 | 0 | 0 |
| V97 | 20x40 | 0 | 0 |
| V98 | 20x40 | 0 | 0 |
| V99 | 20x40 | 0 | 0 |
| V100 | 20x40 | 0 | 0 |
| V101 | 20x40 | 0 | 0 |
| V102 | 20x40 | 0 | 0 |
| V103 | 20x40 | 0 | 0 |
| V104 | 20x40 | 0 | 0 |
| V105 | 20x40 | 0 | 0 |
| V106 | 20x40 | 0 | 0 |
| V107 | 20x40 | 0 | 0 |
| V108 | 20x40 | 0 | 0 |
| V109 | 20x40 | 0 | 0 |
| V110 | 20x40 | 0 | 0 |
| V111 | 20x40 | 0 | 0 |
| V112 | 20x40 | 0 | 0 |
| V113 | 20x40 | 0 | 0 |
| V114 | 20x40 | 0 | 0 |
| V115 | 20x40 | 0 | 0 |
| V116 | 20x40 | 0 | 0 |
| V117 | 20x40 | 0 | 0 |
| V118 | 20x40 | 0 | 0 |
| V119 | 20x40 | 0 | 0 |
| V120 | 20x40 | 0 | 0 |
| V121 | 20x40 | 0 | 0 |
| V122 | 20x40 | 0 | 0 |
| V123 | 20x40 | 0 | 0 |
| V124 | 20x40 | 0 | 0 |
| V125 | 20x40 | 0 | 0 |
| V126 | 20x40 | 0 | 0 |
| V127 | 20x40 | 0 | 0 |
| V128 | 20x40 | 0 | 0 |
| V129 | 20x40 | 0 | 0 |
| V130 | 20x40 | 0 | 0 |
| V131 | 20x40 | 0 | 0 |

Legenda dos pilares: Pilar que passa

Legenda das vigas e paredes: Viga

Forma FOSSO DO ELEVADOR (Nível -150)

escala 1:100

Antes de ser executado o projeto de fundações, deve ser conferido o projeto de instalações elétricas (SPDA)

A estrutura de concreto e as fundações devem ser executadas respeitando as especificações presentes nas normas NBR 6118 (2023), NBR 14931 (2023), NBR 12655 (2022) e NBR 7480 (2022).

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 32 18 9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL** — ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA FORMA BALDRAME** — ESCALA: **1/50**

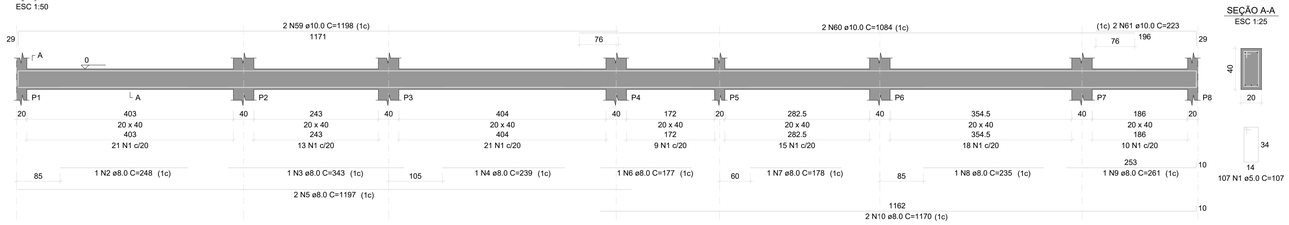
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA — DATA: **Outubro/2025**

DESENHO: *

RESPONSÁVEL: ENG. CIVIL ANDRÉ DICKELLES SILPACITO - CREA RS 198544

PRANCHA: **EST 02 /60**

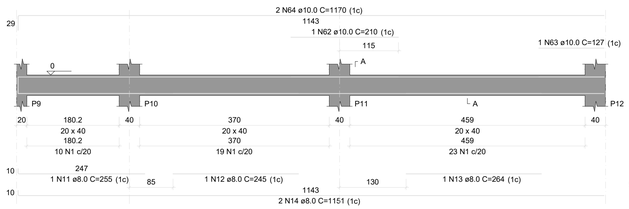
## V1
ESC 1:50



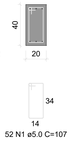

SEÇÃO A-A
ESC 1:25



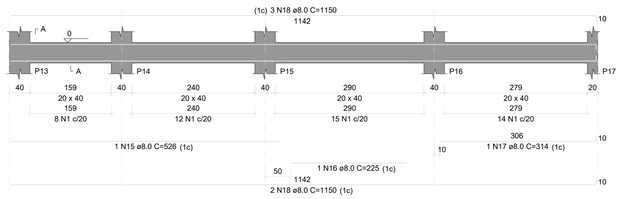

## V2
ESC 1:50




SEÇÃO A-A
ESC 1:25



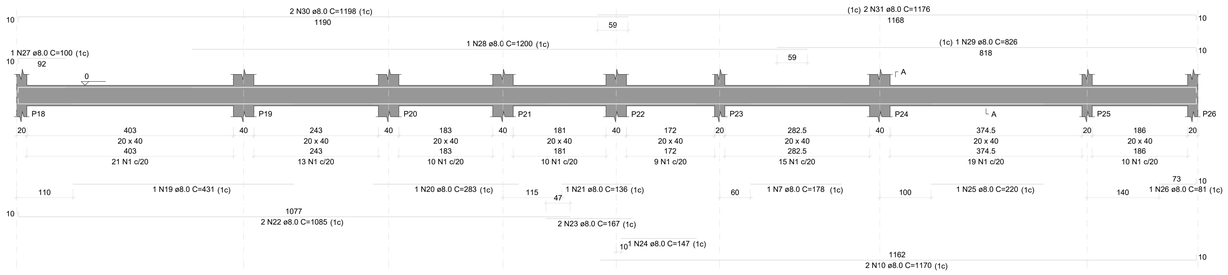

## V3
ESC 1:50




SEÇÃO A-A
ESC 1:25

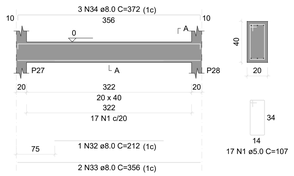



## V4
ESC 1:50




SEÇÃO A-A
ESC 1:25

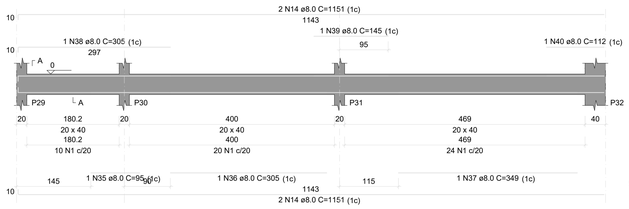
## V5
ESC 1:50



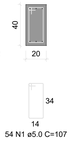

SEÇÃO A-A
ESC 1:25



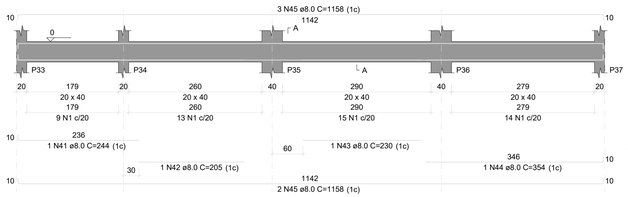

## V6
ESC 1:50




SEÇÃO A-A
ESC 1:25



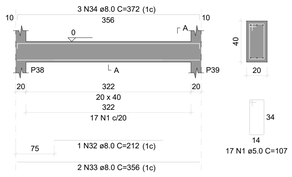

## V7
ESC 1:50




SEÇÃO A-A
ESC 1:25



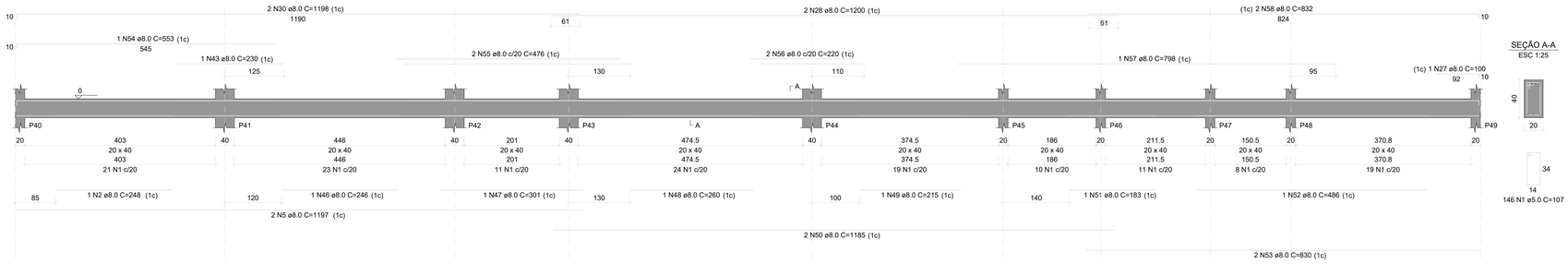

## V8
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V9
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8 V9

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 1 | 642 | 642 |
| CA50 | 2 | 8.0 | 2 | 248 | 496 |
| | 3 | 8.0 | 1 | 343 | 343 |
| | 4 | 8.0 | 1 | 239 | 239 |
| | 5 | 8.0 | 4 | 1197 | 4788 |
| | 6 | 8.0 | 1 | 177 | 177 |
| | 7 | 8.0 | 2 | 178 | 356 |
| | 8 | 8.0 | 1 | 235 | 235 |
| | 9 | 8.0 | 1 | 261 | 261 |
| | 10 | 8.0 | 4 | 1170 | 4680 |
| | 11 | 8.0 | 1 | 255 | 255 |
| | 12 | 8.0 | 1 | 245 | 245 |
| | 13 | 8.0 | 1 | 264 | 264 |
| | 14 | 8.0 | 6 | 1151 | 6906 |
| | 15 | 8.0 | 1 | 526 | 526 |
| | 16 | 8.0 | 1 | 225 | 225 |
| | 17 | 8.0 | 1 | 314 | 314 |
| | 18 | 8.0 | 5 | 1150 | 5750 |
| | 19 | 8.0 | 1 | 431 | 431 |
| | 20 | 8.0 | 1 | 283 | 283 |
| | 21 | 8.0 | 1 | 136 | 136 |
| | 22 | 8.0 | 2 | 1085 | 2170 |
| | 23 | 8.0 | 2 | 167 | 334 |
| | 24 | 8.0 | 1 | 147 | 147 |
| | 25 | 8.0 | 1 | 220 | 220 |
| | 26 | 8.0 | 1 | 81 | 81 |
| | 27 | 8.0 | 1 | 100 | 200 |
| | 28 | 8.0 | 3 | 1200 | 3600 |
| | 29 | 8.0 | 1 | 826 | 826 |
| | 30 | 8.0 | 4 | 1198 | 4792 |
| | 31 | 8.0 | 2 | 1176 | 2352 |
| | 32 | 8.0 | 2 | 212 | 424 |
| | 33 | 8.0 | 4 | 356 | 1424 |
| | 34 | 8.0 | 6 | 372 | 2232 |
| | 35 | 8.0 | 1 | 95 | 95 |
| | 36 | 8.0 | 1 | 305 | 305 |
| | 37 | 8.0 | 1 | 349 | 349 |
| | 38 | 8.0 | 1 | 395 | 395 |
| | 39 | 8.0 | 1 | 145 | 145 |
| | 40 | 8.0 | 1 | 112 | 112 |
| | 41 | 8.0 | 1 | 244 | 244 |
| | 42 | 8.0 | 1 | 205 | 205 |
| | 43 | 8.0 | 2 | 230 | 460 |
| | 44 | 8.0 | 1 | 354 | 354 |
| | 45 | 8.0 | 5 | 1158 | 5790 |
| | 46 | 8.0 | 1 | 246 | 246 |
| | 47 | 8.0 | 1 | 301 | 301 |
| | 48 | 8.0 | 1 | 260 | 260 |
| | 49 | 8.0 | 1 | 215 | 215 |
| | 50 | 8.0 | 2 | 1185 | 2370 |
| | 51 | 8.0 | 1 | 183 | 183 |
| | 52 | 8.0 | 1 | 486 | 486 |
| | 53 | 8.0 | 1 | 830 | 1660 |
| | 54 | 8.0 | 1 | 553 | 553 |
| | 55 | 8.0 | 2 | 476 | 952 |
| | 56 | 8.0 | 2 | 220 | 440 |
| | 57 | 8.0 | 1 | 798 | 798 |
| | 58 | 8.0 | 1 | 832 | 832 |
| | 59 | 10.0 | 2 | 1198 | 2396 |
| | 60 | 10.0 | 2 | 1084 | 2168 |
| | 61 | 10.0 | 1 | 248 | 248 |
| | 62 | 10.0 | 1 | 210 | 210 |
| | 63 | 10.0 | 1 | 127 | 127 |
| | 64 | 10.0 | 2 | 1170 | 2340 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 642 | 278.7 |
| CA60 | 10.0 | 76.9 | 52.1 |
| CA60 | 5.0 | 642 | 108.8 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 330.8 |
| CA60 | 108.8 |

Volume de concreto (C-25) = 9.25 m³
Área de forma = 115.66 m²

**ESPECIFICAÇÕES DO CONCRETO:**

RESISTÊNCIA À COMPRESSÃO DO CONCRETO, FCK DE 28 DIAS = 25 MPa.
MÓDULO DE ELASTICIDADE INICIAL DO CONCRETO, Eci = 28 GPa.
TAMANHO MÁXIMO DO AGREGADO GRAÚDO = 19 MM.
CLASSE DE AGRESSIVIDADE AMBIENTAL II (CAA II).
RELAÇÃO ÁGUA/CIMENTO (A/C) MÁXIMA = 0,60.
AÇOS DAS ARMADURAS, CA50 E CA60.

COBRIMENTO DAS ARMADURAS CONFORME NBR 6118
LAJES - 25 MM
VIGAS E PILARES - 30 MM

A estrutura de concreto e as fundações devem ser executadas respeitando as especificações presentes nas normas NBR 6118 (2023), NBR 14931 (2023), NBR 12655 (2022) e NBR 7480 (2022).

INSTITUTO FEDERAL
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS BALDRAME 1**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

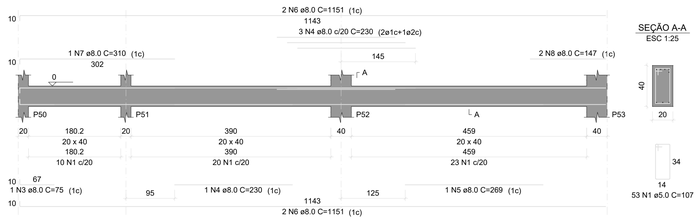
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 03 /60**

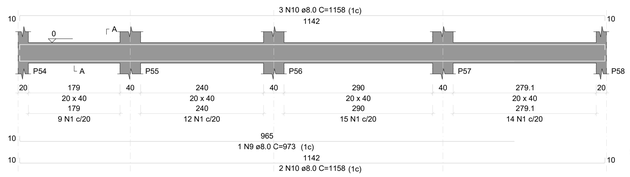
## V10
ESC 1:50



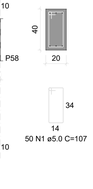

SEÇÃO A-A
ESC 1:25



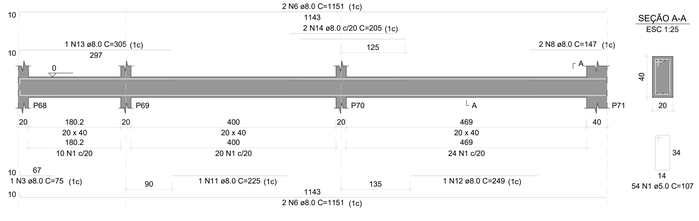

## V11
ESC 1:50




SEÇÃO A-A
ESC 1:25



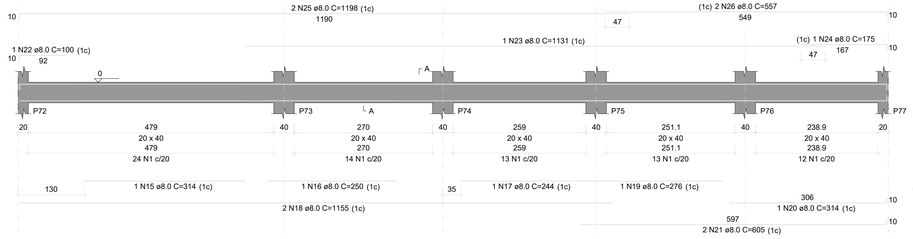

## V13
ESC 1:50



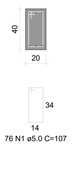

SEÇÃO A-A
ESC 1:25



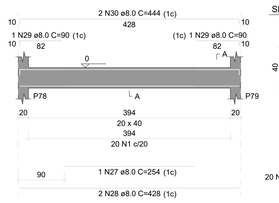

## V14
ESC 1:50



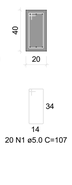

SEÇÃO A-A
ESC 1:25



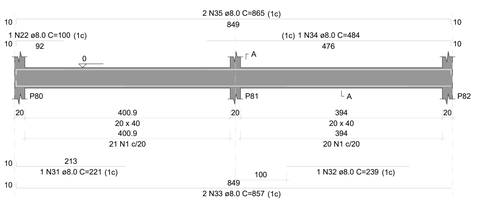

## V15
ESC 1:50




SEÇÃO A-A
ESC 1:25

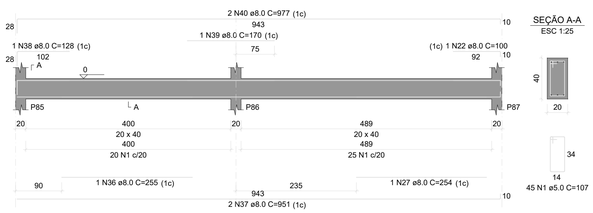



## V16
ESC 1:50




SEÇÃO A-A
ESC 1:25

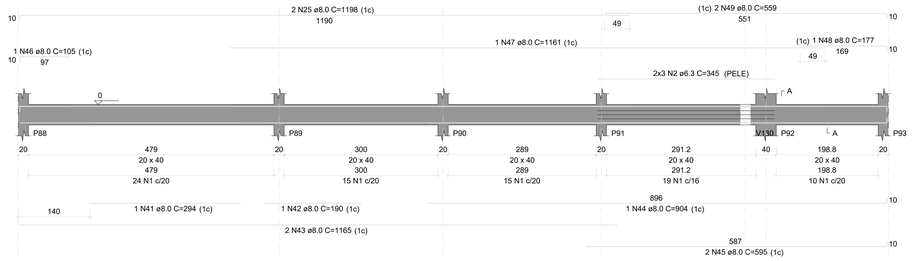
## V17
ESC 1:50



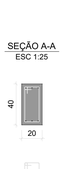

SEÇÃO A-A
ESC 1:25



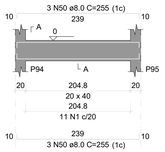

## V18
ESC 1:50



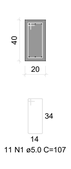

SEÇÃO A-A
ESC 1:25



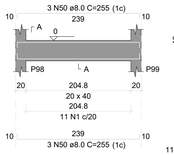

## V19
ESC 1:50



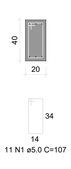

SEÇÃO A-A
ESC 1:25



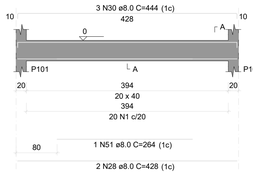

## V20
ESC 1:50




SEÇÃO A-A
ESC 1:25



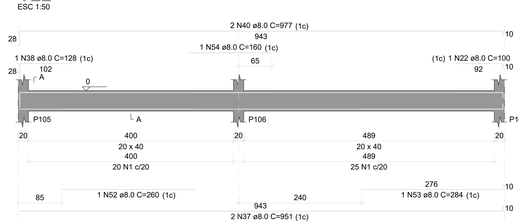

## V21
ESC 1:50




SEÇÃO A-A
ESC 1:25

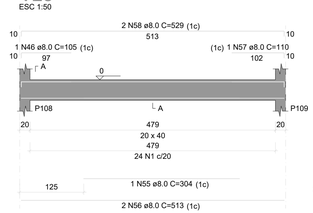



## V22
ESC 1:50

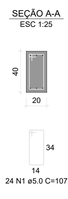



SEÇÃO A-A
ESC 1:25

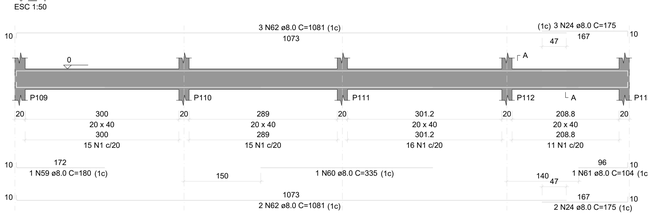
## V23
ESC 1:50



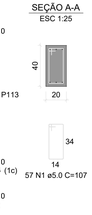

SEÇÃO A-A
ESC 1:25



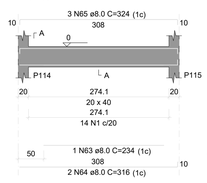

## V24
ESC 1:50




SEÇÃO A-A
ESC 1:25

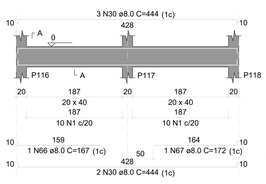



## V25
ESC 1:50

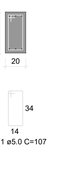



SEÇÃO A-A
ESC 1:25

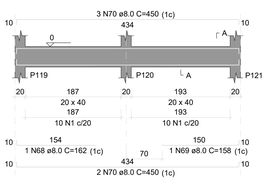
## V26
ESC 1:50



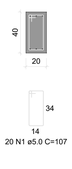

SEÇÃO A-A
ESC 1:25




## V27
ESC 1:50




SEÇÃO A-A
ESC 1:25




### RELAÇÃO DO AÇO

V10 V11 V13
V14 V15 V16
V17 V18 V19
V20 V21 V22
V23 V24 V25
V26 V27

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 644 | 60 | 38640 |
| CA50 | 2 | 8.0 | 2 | 346 | 2070 |
| | 3 | 8.0 | 2 | 75 | 150 |
| | 4 | 8.0 | 4 | 230 | 920 |
| | 5 | 8.0 | 2 | 209 | 418 |
| | 6 | 8.0 | 6 | 1151 | 6906 |
| | 7 | 8.0 | 1 | 310 | 310 |
| | 8 | 8.0 | 4 | 147 | 588 |
| | 9 | 8.0 | 1 | 973 | 973 |
| | 10 | 8.0 | 2 | 1158 | 2316 |
| | 11 | 8.0 | 1 | 225 | 225 |
| | 12 | 8.0 | 1 | 249 | 249 |
| | 13 | 8.0 | 1 | 305 | 305 |
| | 14 | 8.0 | 2 | 205 | 410 |
| | 15 | 8.0 | 1 | 314 | 314 |
| | 16 | 8.0 | 1 | 250 | 250 |
| | 17 | 8.0 | 1 | 244 | 244 |
| | 18 | 8.0 | 2 | 1155 | 2310 |
| | 19 | 8.0 | 1 | 276 | 276 |
| | 20 | 8.0 | 1 | 314 | 314 |
| | 21 | 8.0 | 2 | 605 | 1210 |
| | 22 | 8.0 | 4 | 100 | 400 |
| | 23 | 8.0 | 1 | 1131 | 1131 |
| | 24 | 8.0 | 2 | 175 | 1050 |
| | 25 | 8.0 | 4 | 1198 | 4792 |
| | 26 | 8.0 | 2 | 557 | 1114 |
| | 27 | 8.0 | 2 | 254 | 508 |
| | 28 | 8.0 | 4 | 428 | 1712 |
| | 29 | 8.0 | 2 | 90 | 180 |
| | 30 | 8.0 | 10 | 444 | 4440 |
| | 31 | 8.0 | 1 | 221 | 221 |
| | 32 | 8.0 | 1 | 239 | 239 |
| | 33 | 8.0 | 2 | 857 | 1714 |
| | 34 | 8.0 | 2 | 484 | 968 |
| | 35 | 8.0 | 2 | 865 | 1730 |
| | 36 | 8.0 | 2 | 255 | 510 |
| | 37 | 8.0 | 4 | 951 | 3804 |
| | 38 | 8.0 | 1 | 128 | 128 |
| | 39 | 8.0 | 1 | 170 | 170 |
| | 40 | 8.0 | 4 | 977 | 3908 |
| | 41 | 8.0 | 1 | 294 | 294 |
| | 42 | 8.0 | 1 | 190 | 190 |
| | 43 | 8.0 | 2 | 1155 | 2310 |
| | 44 | 8.0 | 1 | 904 | 904 |
| | 45 | 8.0 | 2 | 595 | 1190 |
| | 46 | 8.0 | 1 | 105 | 105 |
| | 47 | 8.0 | 1 | 1161 | 1161 |
| | 48 | 8.0 | 1 | 177 | 177 |
| | 49 | 8.0 | 12 | 559 | 6708 |
| | 50 | 8.0 | 12 | 250 | 3000 |
| | 51 | 8.0 | 1 | 254 | 254 |
| | 52 | 8.0 | 1 | 260 | 260 |
| | 53 | 8.0 | 1 | 294 | 294 |
| | 54 | 8.0 | 1 | 160 | 160 |
| | 55 | 8.0 | 1 | 304 | 304 |
| | 56 | 8.0 | 2 | 513 | 1026 |
| | 57 | 8.0 | 1 | 110 | 110 |
| | 58 | 8.0 | 2 | 538 | 1076 |
| | 59 | 8.0 | 1 | 180 | 180 |
| | 60 | 8.0 | 1 | 110 | 110 |
| | 61 | 8.0 | 1 | 104 | 104 |
| | 62 | 8.0 | 1 | 1073 | 1073 |
| | 63 | 8.0 | 1 | 234 | 234 |
| | 64 | 8.0 | 2 | 316 | 632 |
| | 65 | 8.0 | 1 | 336 | 336 |
| | 66 | 8.0 | 1 | 167 | 167 |
| | 67 | 8.0 | 1 | 172 | 172 |
| | 68 | 8.0 | 1 | 162 | 162 |
| | 69 | 8.0 | 1 | 158 | 158 |
| | 70 | 8.0 | 1 | 450 | 2250 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 20.7 | 5.6 |
| | 8.0 | 772.9 | 335.5 |
| CA60 | 5.0 | 689.1 | 116.8 |
| PESO TOTAL (kg) | | | |
| CA50 | 341.1 | | |
| CA60 | 116.8 | | |

Volume de concreto (C-25) = 10.00 m³
Área de forma = 124.99 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 2**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

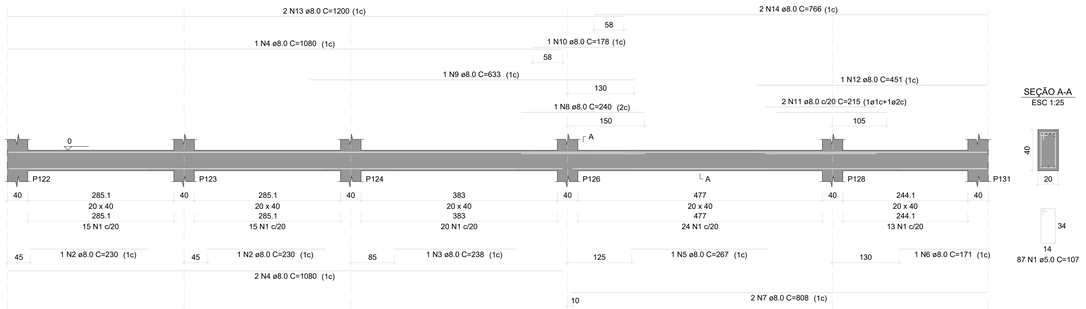
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 04 /60**

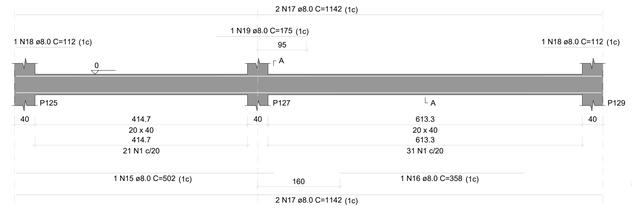
## V28
ESC 1:50



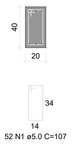

SEÇÃO A-A
ESC 1:25



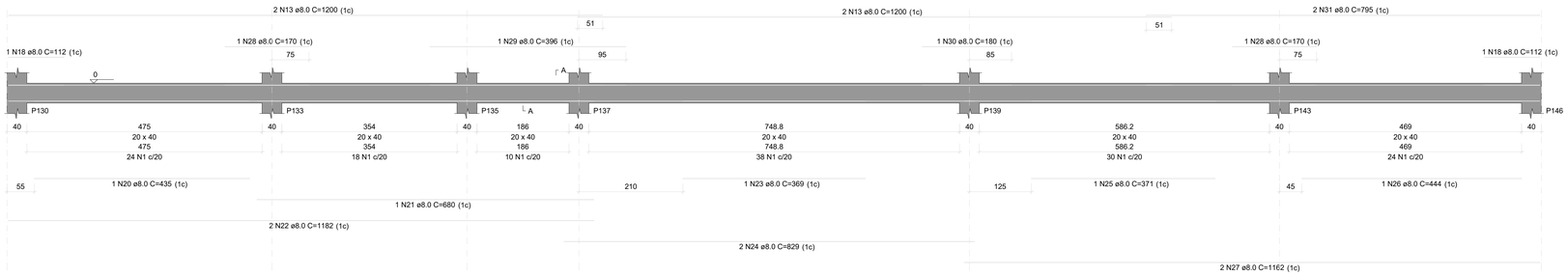

## V29
ESC 1:50




SEÇÃO A-A
ESC 1:25



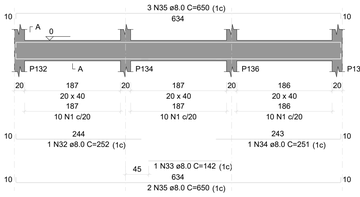

## V30
ESC 1:50



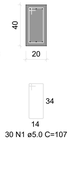

SEÇÃO A-A
ESC 1:25



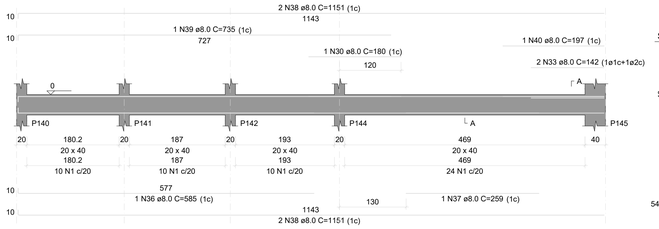

## V31
ESC 1:50



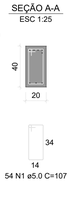

SEÇÃO A-A
ESC 1:25



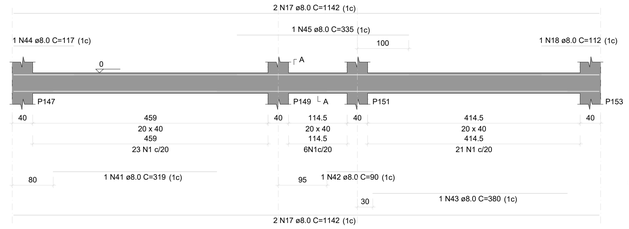

## V32
ESC 1:50



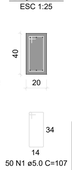

SEÇÃO A-A
ESC 1:25



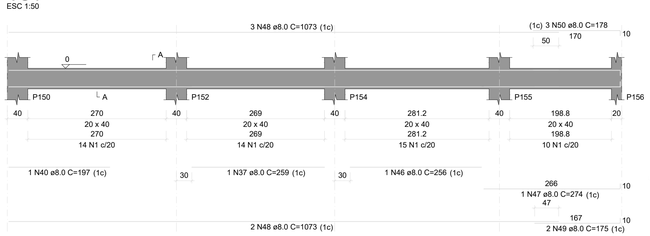

## V33
ESC 1:50



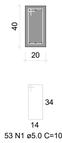

SEÇÃO A-A
ESC 1:25



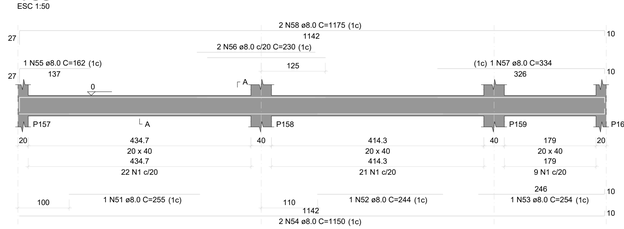

## V34
ESC 1:50



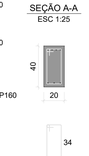

SEÇÃO A-A
ESC 1:25



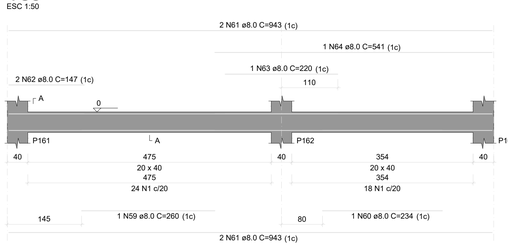

## V35
ESC 1:50



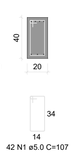

SEÇÃO A-A
ESC 1:25



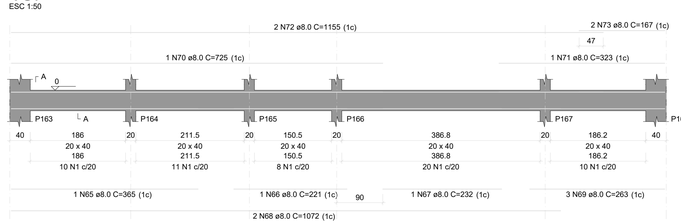

## V36
ESC 1:50



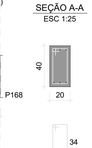

SEÇÃO A-A
ESC 1:25




## V37
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V28 V29 V30
V31 V32 V33
V34 V35 V36
V37

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 2 | 230 | 460 |
| CA50 | 2 | 8.0 | 2 | 230 | 460 |
| | 3 | 8.0 | 2 | 230 | 460 |
| | 4 | 8.0 | 3 | 1080 | 3240 |
| | 5 | 8.0 | 1 | 267 | 267 |
| | 6 | 8.0 | 1 | 174 | 174 |
| | 7 | 8.0 | 2 | 808 | 1616 |
| | 8 | 8.0 | 1 | 248 | 248 |
| | 9 | 8.0 | 1 | 633 | 633 |
| | 10 | 8.0 | 1 | 178 | 178 |
| | 11 | 8.0 | 2 | 215 | 430 |
| | 12 | 8.0 | 1 | 451 | 451 |
| | 13 | 8.0 | 6 | 1205 | 7230 |
| | 14 | 8.0 | 2 | 766 | 1532 |
| | 15 | 8.0 | 1 | 502 | 502 |
| | 16 | 8.0 | 1 | 358 | 358 |
| | 17 | 8.0 | 8 | 1142 | 9136 |
| | 18 | 8.0 | 1 | 112 | 112 |
| | 19 | 8.0 | 1 | 175 | 175 |
| | 20 | 8.0 | 1 | 435 | 435 |
| | 21 | 8.0 | 1 | 680 | 680 |
| | 22 | 8.0 | 2 | 1183 | 2366 |
| | 23 | 8.0 | 1 | 369 | 369 |
| | 24 | 8.0 | 2 | 829 | 1658 |
| | 25 | 8.0 | 1 | 371 | 371 |
| | 26 | 8.0 | 1 | 444 | 444 |
| | 27 | 8.0 | 2 | 1162 | 2324 |
| | 28 | 8.0 | 2 | 170 | 340 |
| | 29 | 8.0 | 2 | 396 | 792 |
| | 30 | 8.0 | 2 | 180 | 360 |
| | 31 | 8.0 | 2 | 795 | 1590 |
| | 32 | 8.0 | 1 | 252 | 252 |
| | 33 | 8.0 | 3 | 142 | 426 |
| | 34 | 8.0 | 1 | 251 | 251 |
| | 35 | 8.0 | 5 | 650 | 3250 |
| | 36 | 8.0 | 1 | 585 | 585 |
| | 37 | 8.0 | 1 | 268 | 268 |
| | 38 | 8.0 | 4 | 1151 | 4604 |
| | 39 | 8.0 | 1 | 735 | 735 |
| | 40 | 8.0 | 2 | 197 | 394 |
| | 41 | 8.0 | 1 | 319 | 319 |
| | 42 | 8.0 | 1 | 90 | 90 |
| | 43 | 8.0 | 1 | 387 | 387 |
| | 44 | 8.0 | 1 | 117 | 117 |
| | 45 | 8.0 | 1 | 335 | 335 |
| | 46 | 8.0 | 1 | 256 | 256 |
| | 47 | 8.0 | 1 | 274 | 274 |
| | 48 | 8.0 | 5 | 1073 | 5365 |
| | 49 | 8.0 | 1 | 350 | 350 |
| | 50 | 8.0 | 1 | 178 | 178 |
| | 51 | 8.0 | 1 | 250 | 250 |
| | 52 | 8.0 | 1 | 244 | 244 |
| | 53 | 8.0 | 1 | 254 | 254 |
| | 54 | 8.0 | 2 | 1150 | 2300 |
| | 55 | 8.0 | 1 | 162 | 162 |
| | 56 | 8.0 | 2 | 232 | 464 |
| | 57 | 8.0 | 1 | 334 | 334 |
| | 58 | 8.0 | 2 | 1175 | 2350 |
| | 59 | 8.0 | 1 | 280 | 280 |
| | 60 | 8.0 | 1 | 234 | 234 |
| | 61 | 8.0 | 4 | 843 | 3372 |
| | 62 | 8.0 | 2 | 147 | 294 |
| | 63 | 8.0 | 1 | 220 | 220 |
| | 64 | 8.0 | 1 | 541 | 541 |
| | 65 | 8.0 | 1 | 365 | 365 |
| | 66 | 8.0 | 1 | 221 | 221 |
| | 67 | 8.0 | 1 | 232 | 232 |
| | 68 | 8.0 | 2 | 1072 | 2144 |
| | 69 | 8.0 | 3 | 263 | 789 |
| | 70 | 8.0 | 1 | 725 | 725 |
| | 71 | 8.0 | 1 | 323 | 323 |
| | 72 | 8.0 | 2 | 1155 | 2310 |
| | 73 | 8.0 | 2 | 167 | 334 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 768.8 | 333.7 |
| CA60 | 5.0 | 666.6 | 113 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 333.7 |
| CA60 | 113 |

Volume de concreto (C-25) = 9.68 m³
Área de forma = 120.96 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS BALDRAME 3**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

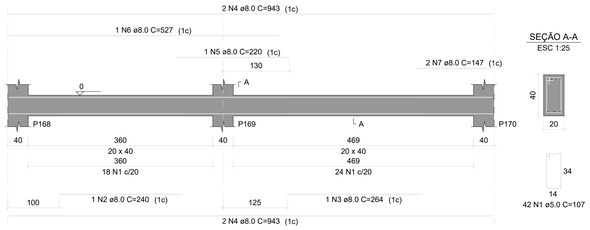
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 05 /60**

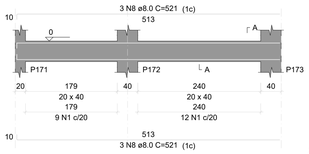
## V38
ESC 1:50



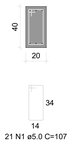

SEÇÃO A-A
ESC 1:25



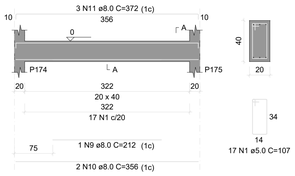

## V39
ESC 1:50




SEÇÃO A-A
ESC 1:25



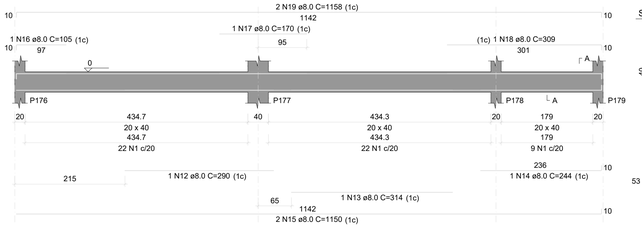

## V40
ESC 1:50



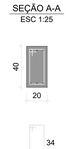

SEÇÃO A-A
ESC 1:25



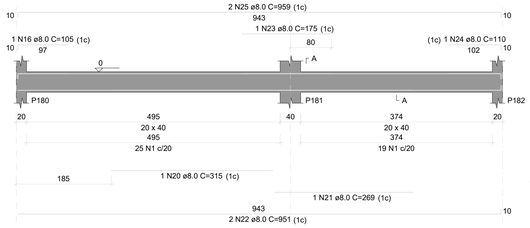

## V41
ESC 1:50



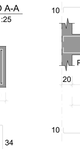

SEÇÃO A-A
ESC 1:25



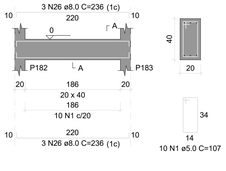

## V42
ESC 1:50




SEÇÃO A-A
ESC 1:25



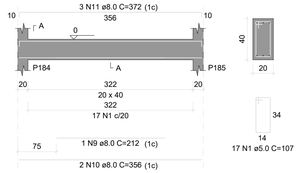

## V43
ESC 1:50




SEÇÃO A-A
ESC 1:25



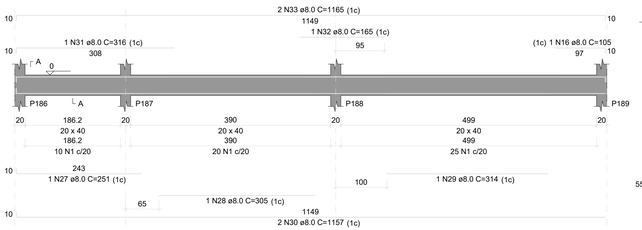

## V44
ESC 1:50



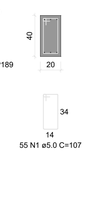

SEÇÃO A-A
ESC 1:25



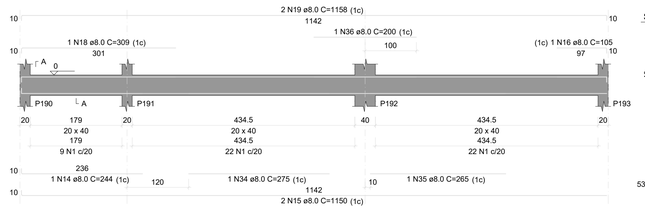

## V45
ESC 1:50




SEÇÃO A-A
ESC 1:25

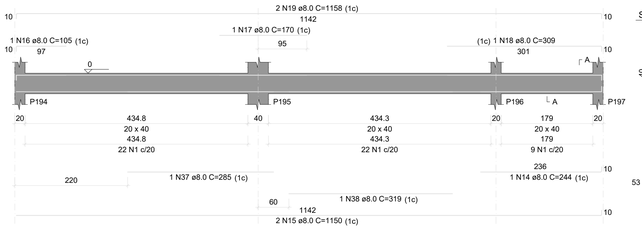



## V46
ESC 1:50



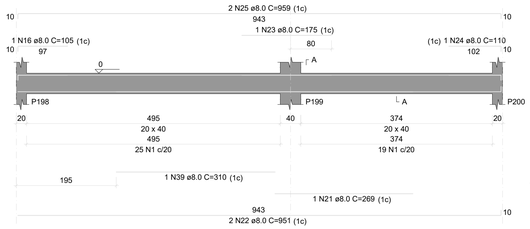

SEÇÃO A-A
ESC 1:25

## V47
ESC 1:50



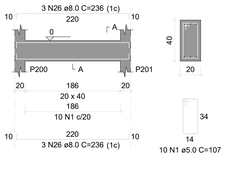

SEÇÃO A-A
ESC 1:25

## V48
ESC 1:50




SEÇÃO A-A
ESC 1:25

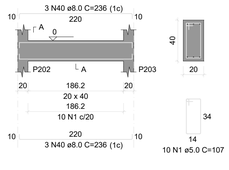
## V49
ESC 1:50




SEÇÃO A-A
ESC 1:25



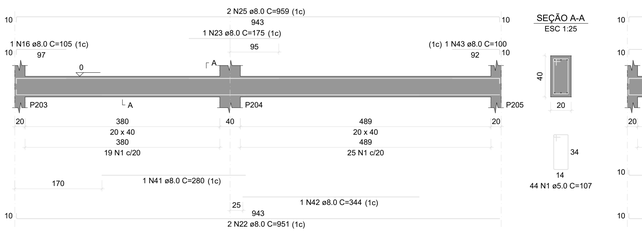

## V50
ESC 1:50




SEÇÃO A-A
ESC 1:25



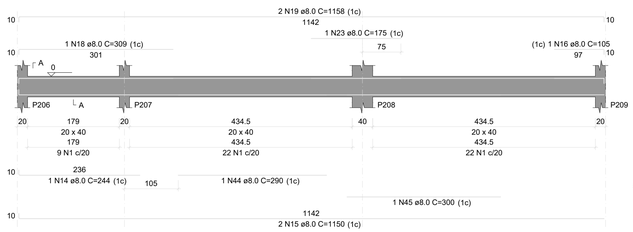

## V51
ESC 1:50




SEÇÃO A-A
ESC 1:25

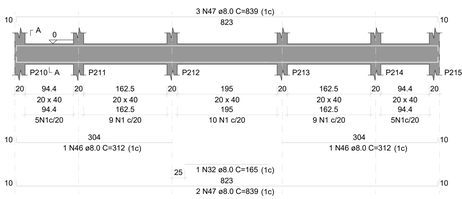



## V52
ESC 1:50

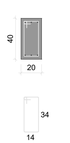



SEÇÃO A-A
ESC 1:25

## V53
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V38 V39 V40
V41 V42 V43
V44 V45 V46
V47 V48 V49
V50 V51 V52
V53

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 1 | 264 | 264 |
| CA60 | 2 | 8.0 | 1 | 240 | 240 |
| | 3 | 8.0 | 1 | 264 | 264 |
| | 4 | 8.0 | 4 | 943 | 3772 |
| | 5 | 8.0 | 1 | 220 | 220 |
| | 6 | 8.0 | 1 | 527 | 527 |
| | 7 | 8.0 | 2 | 147 | 294 |
| | 8 | 8.0 | 6 | 521 | 3126 |
| | 9 | 8.0 | 2 | 212 | 424 |
| | 10 | 8.0 | 4 | 356 | 1424 |
| | 11 | 8.0 | 6 | 372 | 2232 |
| | 12 | 8.0 | 1 | 290 | 290 |
| | 13 | 8.0 | 1 | 314 | 314 |
| | 14 | 8.0 | 4 | 244 | 976 |
| | 15 | 8.0 | 8 | 1150 | 9200 |
| | 16 | 8.0 | 8 | 105 | 840 |
| | 17 | 8.0 | 2 | 170 | 340 |
| | 18 | 8.0 | 4 | 309 | 1236 |
| | 19 | 8.0 | 8 | 1158 | 9264 |
| | 20 | 8.0 | 1 | 315 | 315 |
| | 21 | 8.0 | 2 | 269 | 538 |
| | 22 | 8.0 | 6 | 951 | 5706 |
| | 23 | 8.0 | 4 | 175 | 700 |
| | 24 | 8.0 | 2 | 110 | 220 |
| | 25 | 8.0 | 6 | 959 | 5754 |
| | 26 | 8.0 | 12 | 236 | 2832 |
| | 27 | 8.0 | 1 | 251 | 251 |
| | 28 | 8.0 | 1 | 305 | 305 |
| | 29 | 8.0 | 1 | 314 | 314 |
| | 30 | 8.0 | 2 | 1165 | 2330 |
| | 31 | 8.0 | 1 | 316 | 316 |
| | 32 | 8.0 | 1 | 165 | 330 |
| | 33 | 8.0 | 2 | 1165 | 2330 |
| | 34 | 8.0 | 1 | 275 | 275 |
| | 35 | 8.0 | 1 | 265 | 265 |
| | 36 | 8.0 | 1 | 200 | 200 |
| | 37 | 8.0 | 1 | 265 | 265 |
| | 38 | 8.0 | 1 | 319 | 319 |
| | 39 | 8.0 | 1 | 318 | 318 |
| | 40 | 8.0 | 6 | 236 | 1416 |
| | 41 | 8.0 | 1 | 285 | 285 |
| | 42 | 8.0 | 1 | 344 | 344 |
| | 43 | 8.0 | 1 | 100 | 100 |
| | 44 | 8.0 | 1 | 290 | 290 |
| | 45 | 8.0 | 1 | 300 | 300 |
| | 46 | 8.0 | 1 | 312 | 624 |
| | 47 | 8.0 | 5 | 839 | 4195 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 664.1 | 288.3 |
| CA60 | 5.0 | 603.5 | 102.3 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 288.3 |
| CA60 | 102.3 |

Volume de concreto (C-25) = 8.83 m³
Área de forma = 110.33 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 4**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

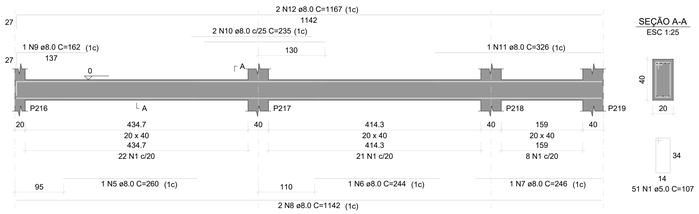
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 06 /60**

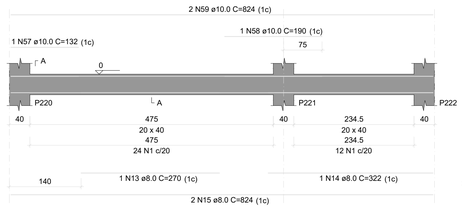
## V54
ESC 1:50




SEÇÃO A-A
ESC 1:25

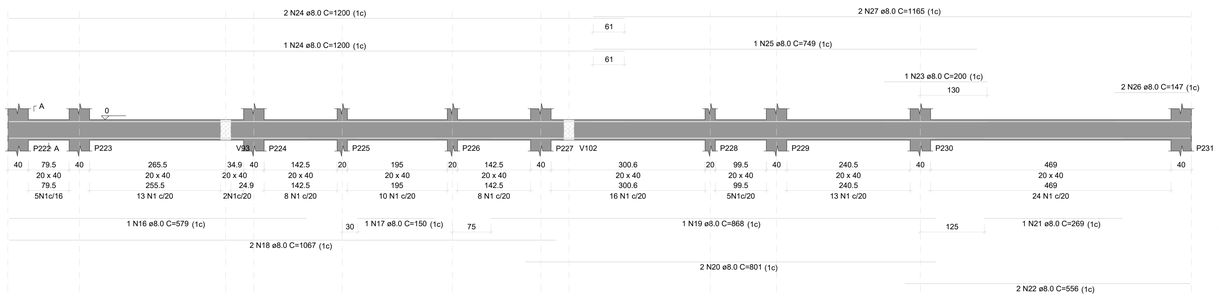



## V55
ESC 1:50

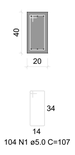



SEÇÃO A-A
ESC 1:25

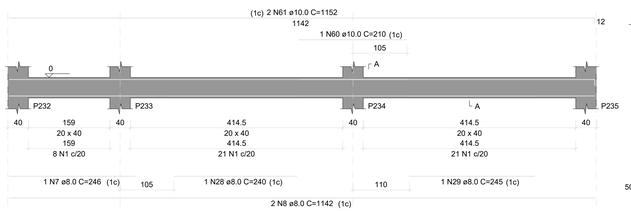
## V56
ESC 1:50




SEÇÃO A-A
ESC 1:25

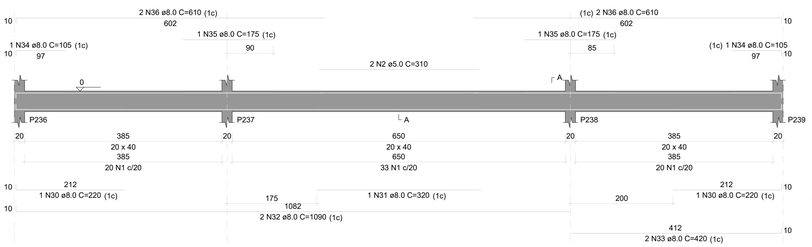



## V57
ESC 1:50

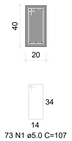



SEÇÃO A-A
ESC 1:25

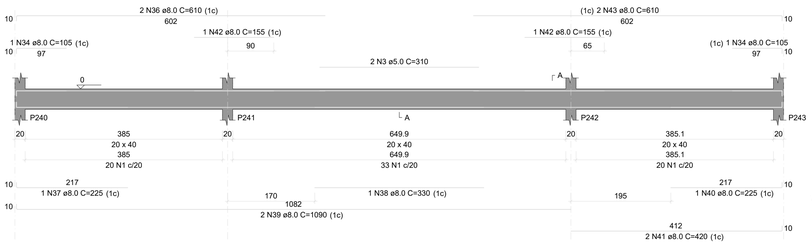
## V58
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V59
ESC 1:50

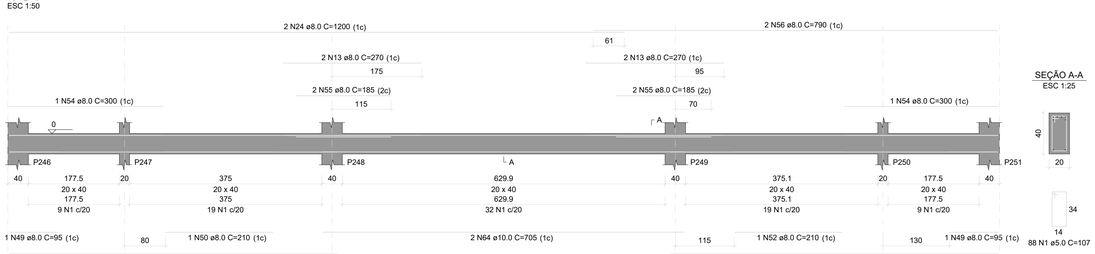



SEÇÃO A-A
ESC 1:25

## V60
ESC 1:50

SEÇÃO A-A
ESC 1:25

## V61
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V54 V55 V56
V57 V58 V59
V60 V61

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 556 | 167 | 92852 |
| | 2 | 8.0 | 2 | 310 | 620 |
| | 3 | 8.0 | 2 | 310 | 620 |
| | 4 | 8.0 | 2 | 630 | 1260 |
| CA50 | 5 | 8.0 | 1 | 260 | 260 |
| | 6 | 8.0 | 1 | 244 | 244 |
| | 7 | 8.0 | 1 | 240 | 240 |
| | 8 | 8.0 | 4 | 1142 | 4568 |
| | 9 | 8.0 | 1 | 162 | 162 |
| | 10 | 8.0 | 2 | 235 | 470 |
| | 11 | 8.0 | 1 | 326 | 326 |
| | 12 | 8.0 | 4 | 1167 | 4668 |
| | 13 | 8.0 | 5 | 270 | 1350 |
| | 14 | 8.0 | 1 | 322 | 322 |
| | 15 | 8.0 | 2 | 824 | 1648 |
| | 16 | 8.0 | 1 | 579 | 579 |
| | 17 | 8.0 | 1 | 150 | 150 |
| | 18 | 8.0 | 2 | 1067 | 2134 |
| | 19 | 8.0 | 2 | 868 | 868 |
| | 20 | 8.0 | 2 | 801 | 1602 |
| | 21 | 8.0 | 1 | 269 | 269 |
| | 22 | 8.0 | 2 | 556 | 1112 |
| | 23 | 8.0 | 1 | 200 | 200 |
| | 24 | 8.0 | 5 | 1200 | 6000 |
| | 25 | 8.0 | 1 | 749 | 749 |
| | 26 | 8.0 | 1 | 147 | 294 |
| | 27 | 8.0 | 2 | 1165 | 2330 |
| | 28 | 8.0 | 1 | 240 | 240 |
| | 29 | 8.0 | 1 | 240 | 240 |
| | 30 | 8.0 | 2 | 220 | 440 |
| | 31 | 8.0 | 1 | 320 | 320 |
| | 32 | 8.0 | 2 | 1050 | 2100 |
| | 33 | 8.0 | 2 | 420 | 840 |
| | 34 | 8.0 | 4 | 105 | 420 |
| | 35 | 8.0 | 2 | 170 | 340 |
| | 36 | 8.0 | 2 | 610 | 3660 |
| | 37 | 8.0 | 1 | 225 | 225 |
| | 38 | 8.0 | 1 | 330 | 330 |
| | 39 | 8.0 | 2 | 1050 | 2100 |
| | 40 | 8.0 | 1 | 225 | 225 |
| | 41 | 8.0 | 2 | 420 | 840 |
| | 42 | 8.0 | 2 | 155 | 310 |
| | 43 | 8.0 | 1 | 150 | 150 |
| | 44 | 8.0 | 1 | 80 | 80 |
| | 45 | 8.0 | 4 | 160 | 640 |
| | 46 | 8.0 | 2 | 470 | 940 |
| | 47 | 8.0 | 2 | 1190 | 2380 |
| | 48 | 8.0 | 1 | 65 | 65 |
| | 49 | 8.0 | 2 | 95 | 190 |
| | 50 | 8.0 | 1 | 210 | 210 |
| | 51 | 8.0 | 2 | 640 | 1280 |
| | 52 | 8.0 | 1 | 210 | 210 |
| | 53 | 8.0 | 2 | 640 | 1280 |
| | 54 | 8.0 | 2 | 300 | 600 |
| | 55 | 8.0 | 4 | 185 | 740 |
| | 56 | 8.0 | 2 | 790 | 1580 |
| | 57 | 10.0 | 1 | 152 | 152 |
| | 58 | 10.0 | 1 | 190 | 190 |
| | 59 | 10.0 | 2 | 824 | 1648 |
| | 60 | 10.0 | 1 | 210 | 210 |
| | 61 | 10.0 | 2 | 1152 | 2304 |
| | 62 | 10.0 | 2 | 220 | 440 |
| | 63 | 10.0 | 4 | 473 | 1896 |
| | 64 | 10.0 | 2 | 705 | 1410 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 522.1 | 226.6 |
| | 10.0 | 82.3 | 55.8 |
| CA60 | 5.0 | 613.5 | 104 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 282.4 |
| CA60 | 104 |

Volume de concreto (C-25) = 8.60 m³
Área de forma = 107.70 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 5**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

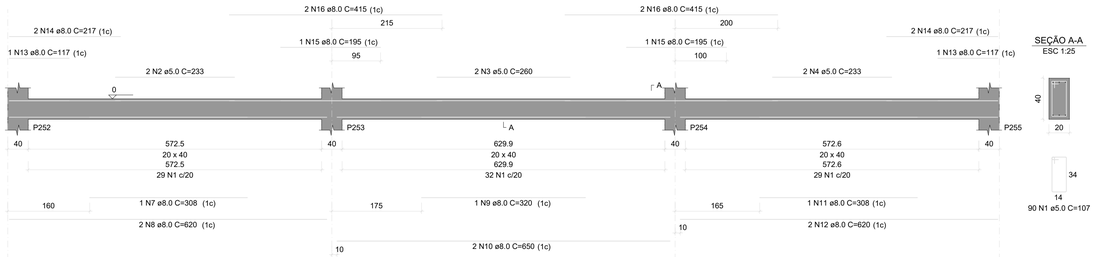
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 07 /60**

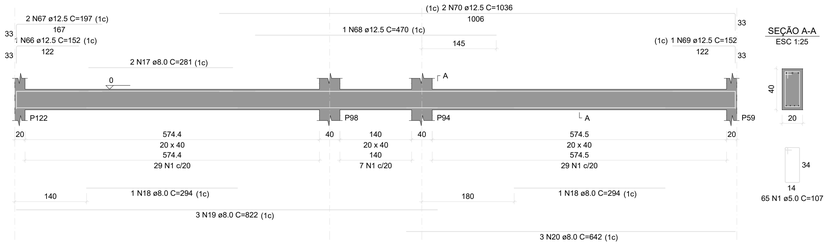
## V62
ESC 1:50




SEÇÃO A-A
ESC 1:25



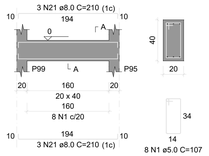

## V63
ESC 1:50




SEÇÃO A-A
ESC 1:25



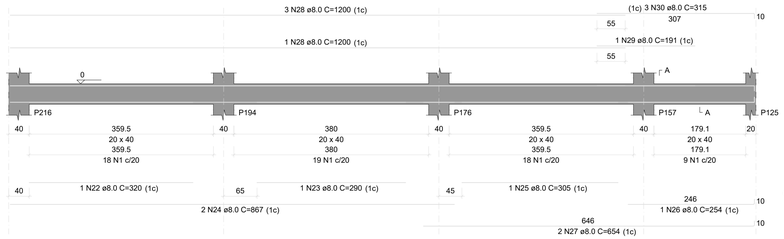

## V64
ESC 1:50



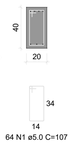

SEÇÃO A-A
ESC 1:25



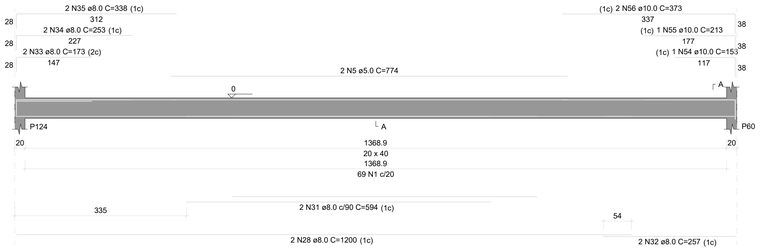

## V65
ESC 1:50



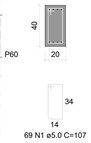

SEÇÃO A-A
ESC 1:25



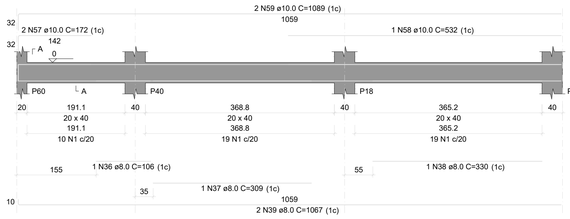

## V66
ESC 1:50




SEÇÃO A-A
ESC 1:25

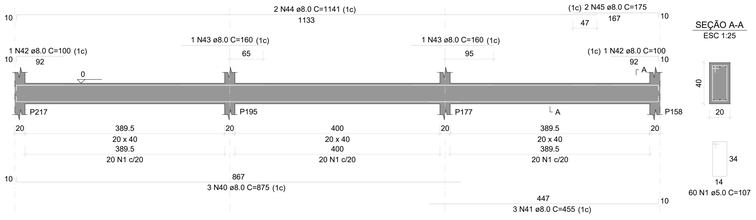



## V67
ESC 1:50




SEÇÃO A-A
ESC 1:25

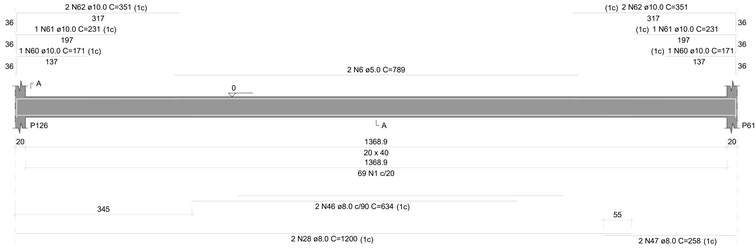
## V68
ESC 1:50



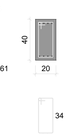

SEÇÃO A-A
ESC 1:25



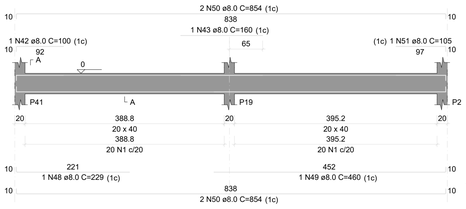

## V69
ESC 1:50



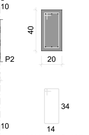

SEÇÃO A-A
ESC 1:25



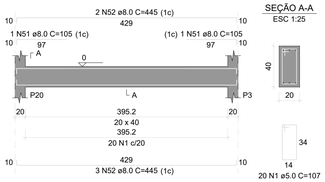

## V70
ESC 1:50




SEÇÃO A-A
ESC 1:25



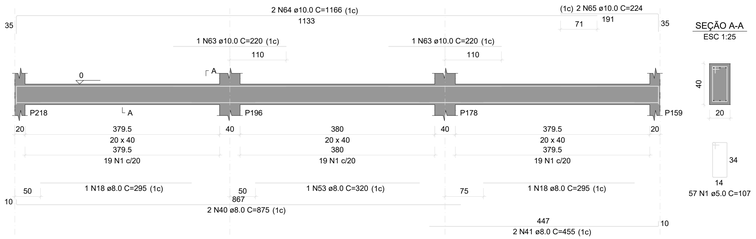

## V71
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V72
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V62 V63 V64
V65 V66 V67
V68 V69 V70
V71 V72

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 2 | 233 | 466 |
| | 2 | 5.0 | 2 | 260 | 520 |
| | 3 | 5.0 | 2 | 233 | 466 |
| | 4 | 5.0 | 2 | 774 | 1548 |
| | 5 | 5.0 | 2 | 789 | 1578 |
| CA50 | 6 | 8.0 | 1 | 308 | 308 |
| | 7 | 8.0 | 2 | 620 | 1240 |
| | 8 | 8.0 | 1 | 320 | 320 |
| | 9 | 8.0 | 2 | 650 | 1300 |
| | 10 | 8.0 | 1 | 308 | 308 |
| | 11 | 8.0 | 2 | 620 | 1240 |
| | 12 | 8.0 | 2 | 117 | 234 |
| | 13 | 8.0 | 4 | 217 | 868 |
| | 14 | 8.0 | 2 | 195 | 390 |
| | 15 | 8.0 | 4 | 415 | 1660 |
| | 16 | 8.0 | 2 | 296 | 592 |
| | 17 | 8.0 | 4 | 294 | 1176 |
| | 18 | 8.0 | 3 | 822 | 2466 |
| | 19 | 8.0 | 3 | 642 | 1926 |
| | 20 | 8.0 | 6 | 210 | 1260 |
| | 21 | 8.0 | 1 | 320 | 320 |
| | 22 | 8.0 | 1 | 320 | 320 |
| | 23 | 8.0 | 1 | 290 | 290 |
| | 24 | 8.0 | 2 | 867 | 1734 |
| | 25 | 8.0 | 1 | 305 | 305 |
| | 26 | 8.0 | 1 | 254 | 254 |
| | 27 | 8.0 | 2 | 654 | 1308 |
| | 28 | 8.0 | 8 | 1250 | 9600 |
| | 29 | 8.0 | 1 | 191 | 191 |
| | 30 | 8.0 | 1 | 310 | 945 |
| | 31 | 8.0 | 2 | 594 | 1188 |
| | 32 | 8.0 | 2 | 257 | 514 |
| | 33 | 8.0 | 2 | 173 | 346 |
| | 34 | 8.0 | 2 | 253 | 506 |
| | 35 | 8.0 | 2 | 338 | 676 |
| | 36 | 8.0 | 1 | 106 | 106 |
| | 37 | 8.0 | 1 | 309 | 309 |
| | 38 | 8.0 | 1 | 330 | 330 |
| | 39 | 8.0 | 2 | 1067 | 2134 |
| | 40 | 8.0 | 5 | 875 | 4375 |
| | 41 | 8.0 | 5 | 455 | 2275 |
| | 42 | 8.0 | 3 | 100 | 300 |
| | 43 | 8.0 | 3 | 160 | 480 |
| | 44 | 8.0 | 2 | 1141 | 2282 |
| | 45 | 8.0 | 2 | 175 | 350 |
| | 46 | 8.0 | 2 | 634 | 1268 |
| | 47 | 8.0 | 2 | 258 | 516 |
| | 48 | 8.0 | 1 | 229 | 229 |
| | 49 | 8.0 | 2 | 460 | 920 |
| | 50 | 8.0 | 4 | 854 | 3416 |
| | 51 | 8.0 | 1 | 105 | 105 |
| | 52 | 8.0 | 5 | 445 | 2225 |
| | 53 | 8.0 | 1 | 320 | 320 |
| | 54 | 10.0 | 1 | 153 | 153 |
| | 55 | 10.0 | 1 | 213 | 213 |
| | 56 | 10.0 | 2 | 373 | 746 |
| | 57 | 10.0 | 2 | 172 | 344 |
| | 58 | 10.0 | 1 | 532 | 532 |
| | 59 | 10.0 | 2 | 1089 | 2178 |
| | 60 | 10.0 | 2 | 171 | 342 |
| | 61 | 10.0 | 2 | 231 | 462 |
| | 62 | 10.0 | 4 | 351 | 1404 |
| | 63 | 10.0 | 2 | 220 | 440 |
| | 64 | 10.0 | 2 | 1166 | 2332 |
| | 65 | 10.0 | 1 | 224 | 224 |
| | 66 | 12.5 | 2 | 152 | 304 |
| | 67 | 12.5 | 2 | 197 | 394 |
| | 68 | 12.5 | 2 | 235 | 470 |
| | 69 | 12.5 | 1 | 152 | 152 |
| | 70 | 12.5 | 2 | 1838 | 3672 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 551.3 | 239.3 |
| | 10.0 | 95.9 | 65.1 |
| | 12.5 | 32.4 | 34.3 |
| CA60 | 5.0 | 677.1 | 114.8 |
| PESO TOTAL (kg) | | | |
| CA50 | 338.7 | | |
| CA60 | 114.8 | | |

Volume de concreto (C-25) = 9.33 m³
Área de forma = 116.62 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 6**

ESCALA:
**1/50**

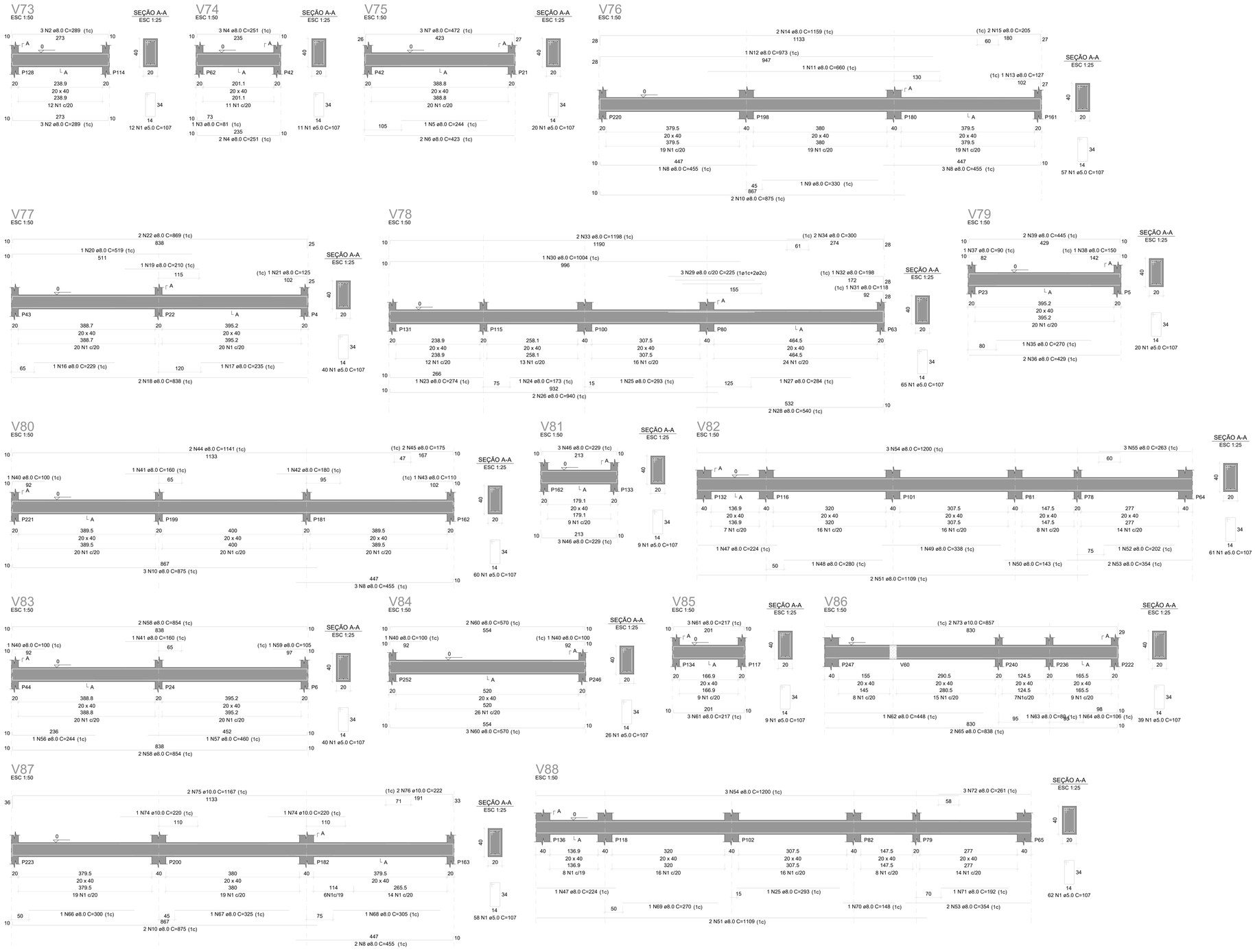
PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 08 /60**




RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V73 | V74 | V75 |
| V76 | V77 | V78 |
| V79 | V80 | V81 |
| V82 | V83 | V84 |
| V85 | V86 | V87 |
| V88 | | |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 60 | 70 | 4200 |
| CA50 | 2 | 8.0 | 6 | 289 | 1734 |
| | 3 | 8.0 | 1 | 81 | 81 |
| | 4 | 8.0 | 5 | 251 | 1255 |
| | 5 | 8.0 | 1 | 244 | 244 |
| | 6 | 8.0 | 2 | 423 | 846 |
| | 7 | 8.0 | 3 | 472 | 1416 |
| | 8 | 8.0 | 2 | 388 | 776 |
| | 9 | 8.0 | 1 | 330 | 330 |
| | 10 | 8.0 | 7 | 875 | 6125 |
| | 11 | 8.0 | 1 | 660 | 660 |
| | 12 | 8.0 | 1 | 973 | 973 |
| | 13 | 8.0 | 1 | 127 | 127 |
| | 14 | 8.0 | 2 | 1159 | 2318 |
| | 15 | 8.0 | 1 | 205 | 410 |
| | 16 | 8.0 | 1 | 229 | 229 |
| | 17 | 8.0 | 1 | 235 | 235 |
| | 18 | 8.0 | 2 | 838 | 1676 |
| | 19 | 8.0 | 1 | 210 | 210 |
| | 20 | 8.0 | 1 | 519 | 519 |
| | 21 | 8.0 | 1 | 125 | 125 |
| | 22 | 8.0 | 2 | 869 | 1738 |
| | 23 | 8.0 | 1 | 274 | 274 |
| | 24 | 8.0 | 1 | 173 | 173 |
| | 25 | 8.0 | 2 | 838 | 1676 |
| | 26 | 8.0 | 1 | 940 | 1880 |
| | 27 | 8.0 | 1 | 824 | 824 |
| | 28 | 8.0 | 2 | 540 | 1080 |
| | 29 | 8.0 | 1 | 875 | 875 |
| | 30 | 8.0 | 1 | 1004 | 1004 |
| | 31 | 8.0 | 1 | 118 | 118 |
| | 32 | 8.0 | 1 | 198 | 198 |
| | 33 | 8.0 | 2 | 1198 | 2396 |
| | 34 | 8.0 | 1 | 300 | 300 |
| | 35 | 8.0 | 1 | 270 | 270 |
| | 36 | 8.0 | 1 | 429 | 858 |
| | 37 | 8.0 | 1 | 90 | 90 |
| | 38 | 8.0 | 1 | 182 | 150 |
| | 39 | 8.0 | 2 | 229 | 458 |
| | 40 | 8.0 | 1 | 100 | 100 |
| | 41 | 8.0 | 1 | 160 | 400 |
| | 42 | 8.0 | 1 | 180 | 320 |
| | 43 | 8.0 | 1 | 193 | 193 |
| | 44 | 8.0 | 1 | 110 | 110 |
| | 45 | 8.0 | 2 | 1141 | 2282 |
| | 46 | 8.0 | 2 | 175 | 350 |
| | 47 | 8.0 | 1 | 224 | 1374 |
| | 48 | 8.0 | 1 | 224 | 448 |
| | 49 | 8.0 | 1 | 280 | 280 |
| | 50 | 8.0 | 1 | 338 | 338 |
| | 51 | 8.0 | 1 | 143 | 143 |
| | 52 | 8.0 | 4 | 202 | 4202 |
| | 53 | 8.0 | 2 | 354 | 708 |
| | 54 | 8.0 | 6 | 1200 | 7200 |
| | 55 | 8.0 | 1 | 263 | 789 |
| | 56 | 8.0 | 1 | 148 | 148 |
| | 57 | 8.0 | 1 | 482 | 482 |
| | 58 | 8.0 | 4 | 854 | 3416 |
| | 59 | 8.0 | 1 | 192 | 192 |
| | 60 | 8.0 | 2 | 570 | 1140 |
| | 61 | 8.0 | 6 | 217 | 1302 |
| | 62 | 8.0 | 1 | 448 | 448 |
| | 63 | 8.0 | 1 | 80 | 80 |
| | 64 | 8.0 | 1 | 198 | 198 |
| | 65 | 8.0 | 2 | 838 | 1676 |
| | 66 | 8.0 | 1 | 300 | 300 |
| | 67 | 8.0 | 1 | 325 | 325 |
| | 68 | 8.0 | 1 | 305 | 305 |
| | 69 | 8.0 | 1 | 270 | 270 |
| | 70 | 8.0 | 1 | 148 | 148 |
| | 71 | 8.0 | 1 | 192 | 192 |
| | 72 | 8.0 | 2 | 857 | 1714 |
| | 73 | 10.0 | 2 | 857 | 1714 |
| | 74 | 10.0 | 2 | 220 | 440 |
| | 75 | 10.0 | 2 | 1167 | 2334 |
| | 76 | 10.0 | 1 | 222 | 222 |
| | 77 | 10.0 | 1 | 222 | 544 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 701.5 | 304.5 |
| | 10.0 | 49.3 | 33.4 |
| CA60 | 5.0 | 630.2 | 106.9 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 337.9 |
| CA60 | 106.9 |

Volume de concreto (C-25) = 9.20 m³
Área de forma = 114.87 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 7**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

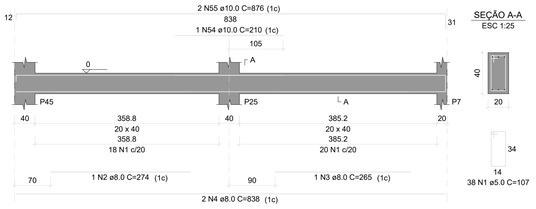
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 09 /60**

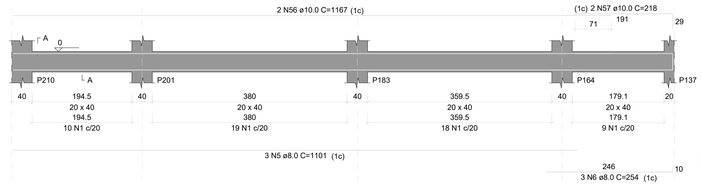
## V89
ESC 1:50



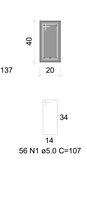

SEÇÃO A-A
ESC 1:25



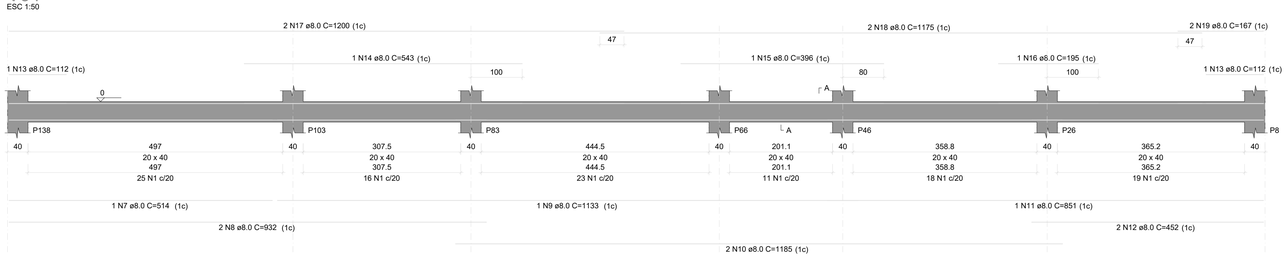

## V90
ESC 1:50




SEÇÃO A-A
ESC 1:25

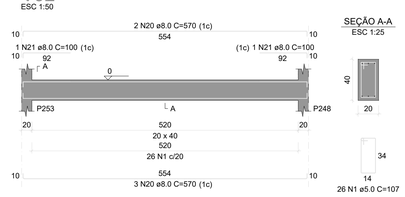



## V91
ESC 1:50

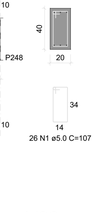



SEÇÃO A-A
ESC 1:25

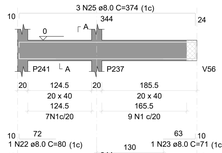
## V92
ESC 1:50



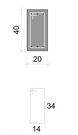

SEÇÃO A-A
ESC 1:25



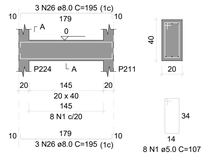

## V93
ESC 1:50




SEÇÃO A-A
ESC 1:25



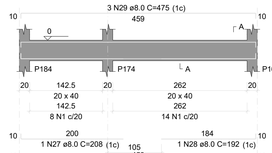

## V94
ESC 1:50



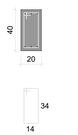

SEÇÃO A-A
ESC 1:25



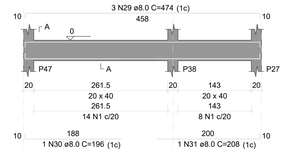

## V95
ESC 1:50



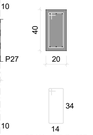

SEÇÃO A-A
ESC 1:25



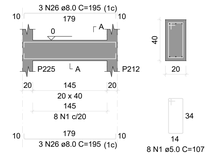

## V96
ESC 1:50



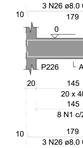

SEÇÃO A-A
ESC 1:25



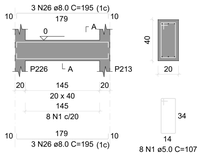

## V97
ESC 1:50




SEÇÃO A-A
ESC 1:25



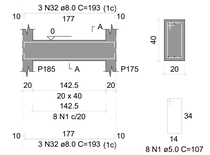

## V98
ESC 1:50



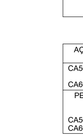

SEÇÃO A-A
ESC 1:25



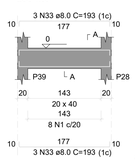

## V99
ESC 1:50



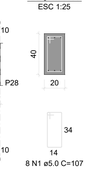

SEÇÃO A-A
ESC 1:25



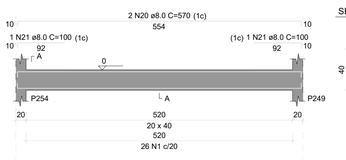

## V100
ESC 1:50



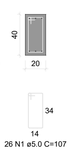

SEÇÃO A-A
ESC 1:25



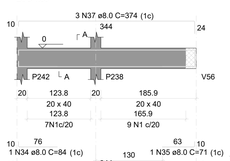

## V101
ESC 1:50



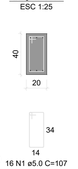

SEÇÃO A-A
ESC 1:25



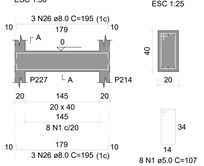

## V102
ESC 1:50




SEÇÃO A-A
ESC 1:25



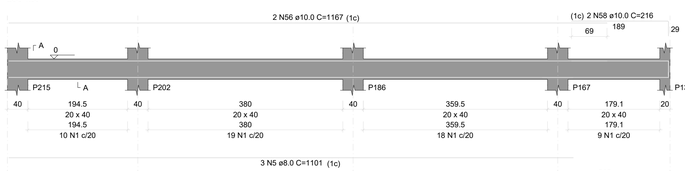

## V103
ESC 1:50



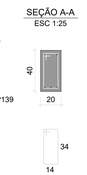

SEÇÃO A-A
ESC 1:25



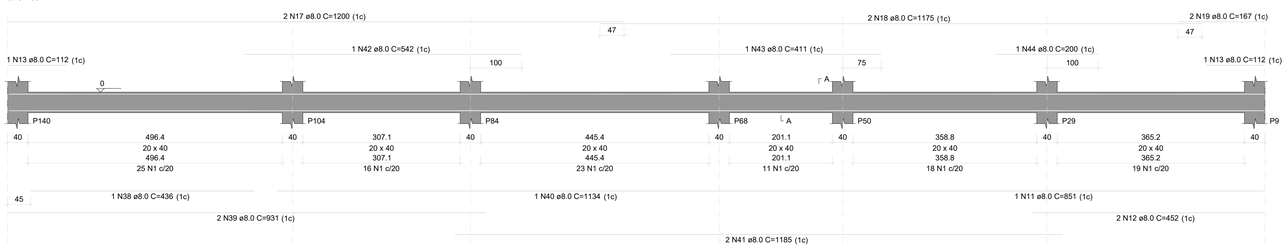

## V104
ESC 1:50



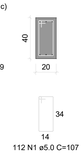

SEÇÃO A-A
ESC 1:25



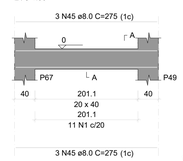

## V105
ESC 1:50



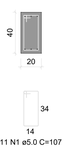

SEÇÃO A-A
ESC 1:25



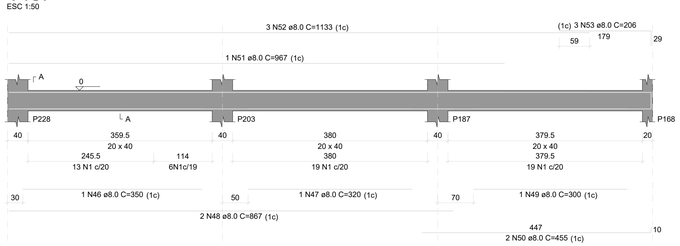

## V106
ESC 1:50



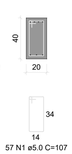

SEÇÃO A-A
ESC 1:25




## V107
ESC 1:50




SEÇÃO A-A
ESC 1:25




### RELAÇÃO DO AÇO

V89 V90 V91
V92 V93 V94
V95 V96 V97
V98 V99 V100
V101 V102 V103
V104 V105 V106
V107

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 1 | 331 | 331 |
| CA50 | 2 | 8.0 | 1 | 274 | 274 |
| | 3 | 8.0 | 1 | 265 | 265 |
| | 4 | 8.0 | 1 | 838 | 1676 |
| | 5 | 8.0 | 8 | 1101 | 8808 |
| | 6 | 8.0 | 6 | 254 | 1524 |
| | 7 | 8.0 | 1 | 514 | 514 |
| | 8 | 8.0 | 2 | 932 | 1864 |
| | 9 | 8.0 | 1 | 1133 | 1133 |
| | 10 | 8.0 | 2 | 1185 | 2370 |
| | 11 | 8.0 | 1 | 851 | 851 |
| | 12 | 8.0 | 4 | 452 | 1808 |
| | 13 | 8.0 | 1 | 112 | 112 |
| | 14 | 8.0 | 1 | 543 | 543 |
| | 15 | 8.0 | 1 | 396 | 396 |
| | 16 | 8.0 | 1 | 195 | 195 |
| | 17 | 8.0 | 4 | 1200 | 4800 |
| | 18 | 8.0 | 4 | 1175 | 4700 |
| | 19 | 8.0 | 4 | 167 | 668 |
| | 20 | 8.0 | 10 | 570 | 5700 |
| | 21 | 8.0 | 1 | 100 | 100 |
| | 22 | 8.0 | 1 | 80 | 80 |
| | 23 | 8.0 | 1 | 71 | 71 |
| | 24 | 8.0 | 2 | 360 | 720 |
| | 25 | 8.0 | 2 | 374 | 1122 |
| | 26 | 8.0 | 24 | 195 | 4680 |
| | 27 | 8.0 | 1 | 208 | 208 |
| | 28 | 8.0 | 1 | 192 | 192 |
| | 29 | 8.0 | 10 | 475 | 4750 |
| | 30 | 8.0 | 1 | 195 | 195 |
| | 31 | 8.0 | 1 | 208 | 208 |
| | 32 | 8.0 | 1 | 193 | 1150 |
| | 33 | 8.0 | 6 | 193 | 1158 |
| | 34 | 8.0 | 1 | 84 | 84 |
| | 35 | 8.0 | 1 | 71 | 71 |
| | 36 | 8.0 | 2 | 360 | 720 |
| | 37 | 8.0 | 2 | 374 | 1122 |
| | 38 | 8.0 | 1 | 436 | 436 |
| | 39 | 8.0 | 2 | 934 | 1868 |
| | 40 | 8.0 | 1 | 1134 | 1134 |
| | 41 | 8.0 | 2 | 1185 | 2370 |
| | 42 | 8.0 | 1 | 542 | 542 |
| | 43 | 8.0 | 1 | 411 | 411 |
| | 44 | 8.0 | 1 | 200 | 200 |
| | 45 | 8.0 | 8 | 275 | 1650 |
| | 46 | 8.0 | 1 | 350 | 350 |
| | 47 | 8.0 | 1 | 320 | 320 |
| | 48 | 8.0 | 2 | 867 | 1734 |
| | 49 | 8.0 | 1 | 300 | 300 |
| | 50 | 8.0 | 2 | 455 | 910 |
| | 51 | 8.0 | 1 | 967 | 967 |
| | 52 | 8.0 | 3 | 1133 | 3399 |
| | 53 | 8.0 | 3 | 206 | 618 |
| | 54 | 10.0 | 2 | 210 | 420 |
| | 55 | 10.0 | 2 | 876 | 1752 |
| | 56 | 10.0 | 2 | 1167 | 2334 |
| | 57 | 10.0 | 2 | 218 | 436 |
| | 58 | 10.0 | 2 | 216 | 432 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 713.2 | 309.6 |
| | 10.0 | 75 | 50.9 |
| CA60 | 5.0 | 661.3 | 112.1 |
| PESO TOTAL (kg) | | | |
| CA50 | 360.4 | | |
| CA60 | 112.1 | | |

Volume de concreto (C-25) = 9.56 m³
Área de forma = 119.52 m²


INSTITUTO FEDERAL FARROUPILHA
PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819


OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS BALDRAME 8**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

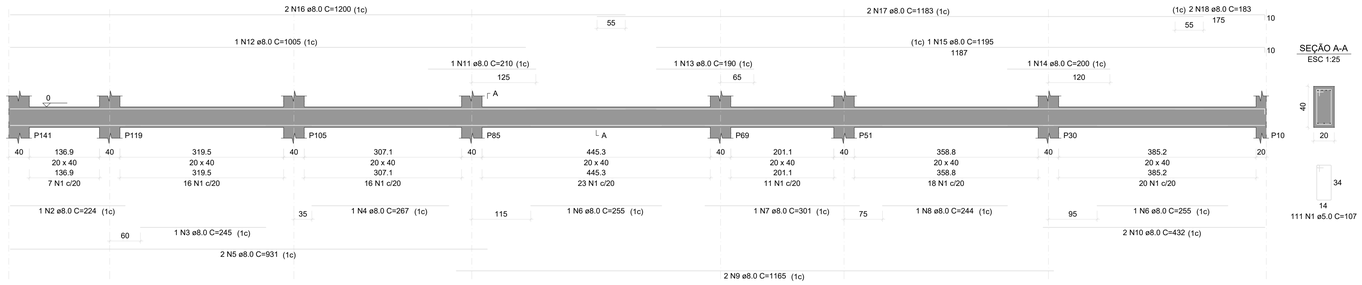
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 10 /60**

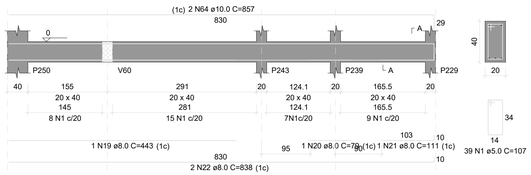
## V108
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V109
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V108 V109 V110
V111 V112 V113
V114 V115 V116

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 12.5 | 2 | 612 | 1224 |
| CA50 | 2 | 8.0 | 2 | 224 | 448 |
| | 3 | 8.0 | 1 | 245 | 245 |
| | 4 | 8.0 | 1 | 267 | 267 |
| | 5 | 8.0 | 6 | 931 | 5586 |
| | 6 | 8.0 | 1 | 245 | 245 |
| | 7 | 8.0 | 1 | 301 | 301 |
| | 8 | 8.0 | 1 | 244 | 244 |
| | 9 | 8.0 | 2 | 1165 | 2330 |
| | 10 | 8.0 | 2 | 432 | 864 |
| | 11 | 8.0 | 1 | 210 | 210 |
| | 12 | 8.0 | 1 | 1005 | 1005 |
| | 13 | 8.0 | 1 | 190 | 190 |
| | 14 | 8.0 | 1 | 200 | 200 |
| | 15 | 8.0 | 1 | 1195 | 1195 |
| | 16 | 8.0 | 4 | 1165 | 4660 |
| | 17 | 8.0 | 2 | 1183 | 2366 |
| | 18 | 8.0 | 1 | 183 | 366 |
| | 19 | 8.0 | 1 | 443 | 443 |
| | 20 | 8.0 | 1 | 79 | 79 |
| | 21 | 8.0 | 1 | 111 | 111 |
| | 22 | 8.0 | 2 | 838 | 1676 |
| | 23 | 8.0 | 2 | 1165 | 2330 |
| | 24 | 8.0 | 3 | 100 | 300 |
| | 25 | 8.0 | 5 | 455 | 2275 |
| | 26 | 8.0 | 1 | 217 | 217 |
| | 27 | 8.0 | 4 | 862 | 3448 |
| | 28 | 8.0 | 1 | 165 | 165 |
| | 29 | 8.0 | 1 | 112 | 112 |
| | 30 | 8.0 | 1 | 79 | 79 |
| | 31 | 8.0 | 5 | 229 | 1145 |
| | 32 | 8.0 | 1 | 240 | 240 |
| | 33 | 8.0 | 1 | 277 | 277 |
| | 34 | 8.0 | 1 | 266 | 266 |
| | 35 | 8.0 | 1 | 118 | 118 |
| | 36 | 8.0 | 2 | 762 | 1524 |
| | 37 | 8.0 | 1 | 220 | 220 |
| | 38 | 8.0 | 1 | 1010 | 1010 |
| | 39 | 8.0 | 2 | 156 | 312 |
| | 40 | 8.0 | 1 | 376 | 376 |
| | 41 | 8.0 | 2 | 490 | 980 |
| | 42 | 8.0 | 1 | 459 | 459 |
| | 43 | 8.0 | 4 | 854 | 3416 |
| | 44 | 8.0 | 1 | 105 | 105 |
| | 45 | 8.0 | 1 | 110 | 110 |
| | 46 | 8.0 | 1 | 315 | 315 |
| | 47 | 8.0 | 2 | 875 | 1750 |
| | 48 | 8.0 | 1 | 663 | 663 |
| | 49 | 8.0 | 1 | 973 | 973 |
| | 50 | 8.0 | 1 | 127 | 127 |
| | 51 | 8.0 | 5 | 1175 | 5875 |
| | 52 | 8.0 | 2 | 254 | 508 |
| | 53 | 8.0 | 1 | 286 | 286 |
| | 54 | 8.0 | 1 | 292 | 292 |
| | 55 | 8.0 | 1 | 250 | 250 |
| | 56 | 8.0 | 1 | 86 | 86 |
| | 57 | 8.0 | 1 | 224 | 224 |
| | 58 | 8.0 | 2 | 1175 | 2350 |
| | 59 | 8.0 | 1 | 230 | 230 |
| | 60 | 8.0 | 2 | 442 | 884 |
| | 61 | 8.0 | 1 | 132 | 132 |
| | 62 | 8.0 | 1 | 182 | 182 |
| | 63 | 8.0 | 2 | 403 | 806 |
| | 64 | 10.0 | 2 | 857 | 1714 |
| | 65 | 12.5 | 2 | 1200 | 2400 |
| | 66 | 12.5 | 2 | 986 | 1972 |

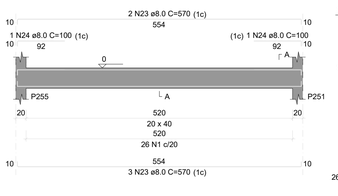
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 557.8 | 242.1 |
| | 10.0 | 17.1 | 11.6 |
| | 12.5 | 43.7 | 46.3 |
| CA60 | 5.0 | 547.8 | 92.9 |

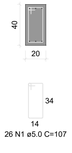
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 300 |
| CA60 | 92.9 |

Volume de concreto (C-25) = 7.96 m³
Área de forma = 99.45 m²

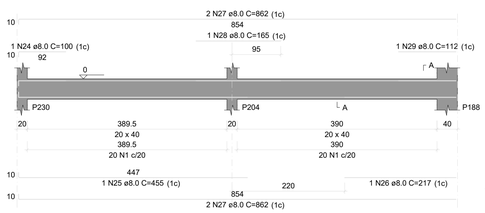
## V110
ESC 1:50



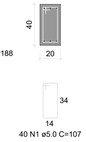

SEÇÃO A-A
ESC 1:25



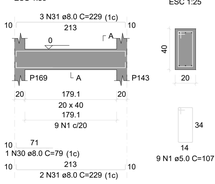

## V111
ESC 1:50




SEÇÃO A-A
ESC 1:25



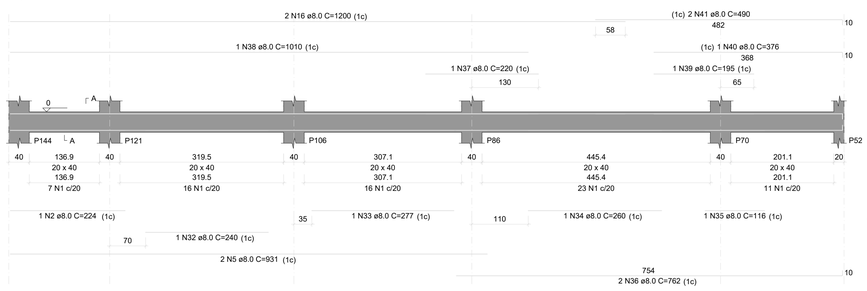

## V112
ESC 1:50



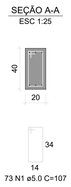

SEÇÃO A-A
ESC 1:25



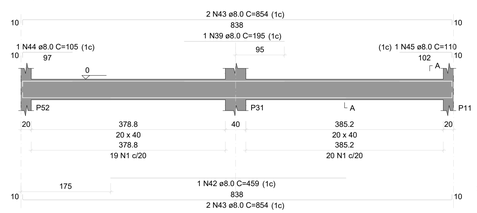

## V113
ESC 1:50



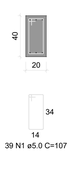

SEÇÃO A-A
ESC 1:25



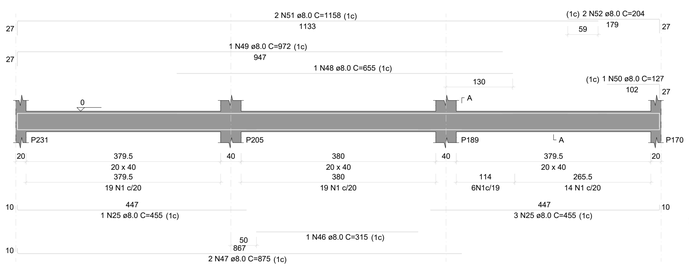

## V114
ESC 1:50



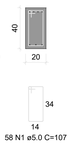

SEÇÃO A-A
ESC 1:25



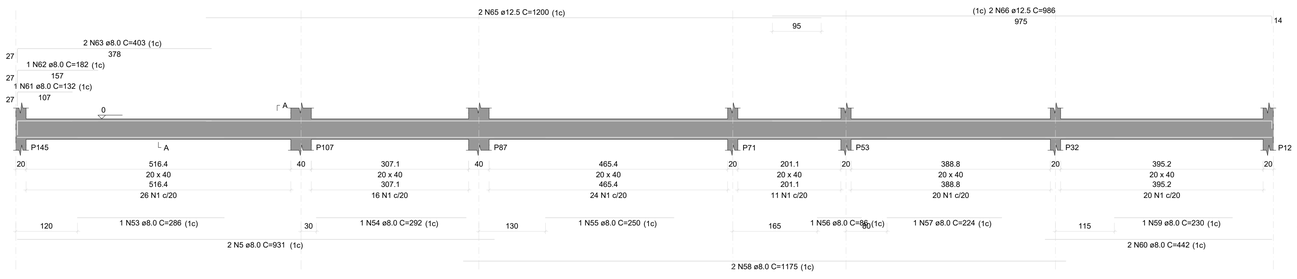

## V115
ESC 1:50



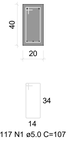

SEÇÃO A-A
ESC 1:25




## V116
ESC 1:50




SEÇÃO A-A
ESC 1:25





INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819


OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS BALDRAME 9**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

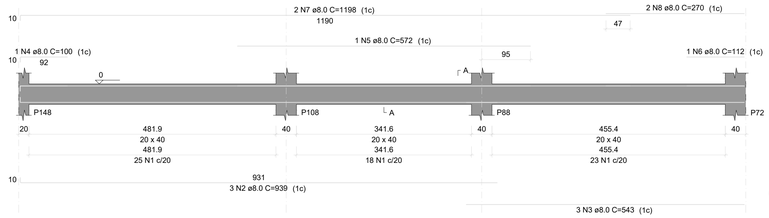
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

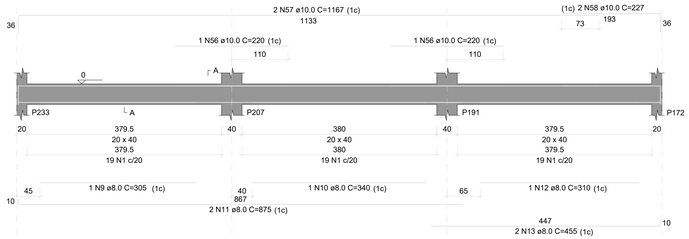
PRANCHA: **EST 11/60**

## V117
ESC 1:50



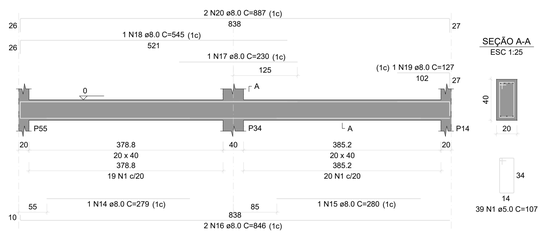

SEÇÃO A-A
ESC 1:25

## V118
ESC 1:50




SEÇÃO A-A
ESC 1:25

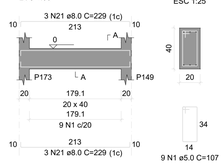
## V119
ESC 1:50




SEÇÃO A-A
ESC 1:25



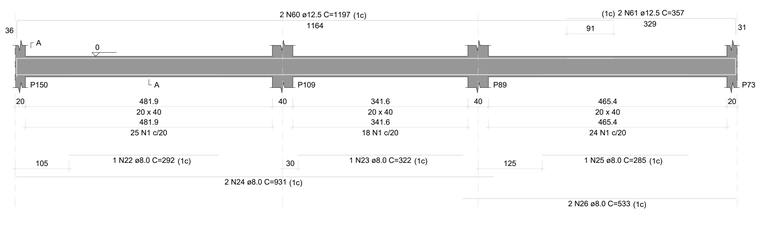

## V120
ESC 1:50




SEÇÃO A-A
ESC 1:25

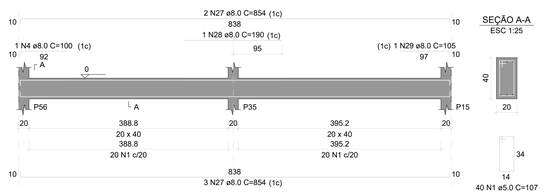



## V121
ESC 1:50




SEÇÃO A-A
ESC 1:25

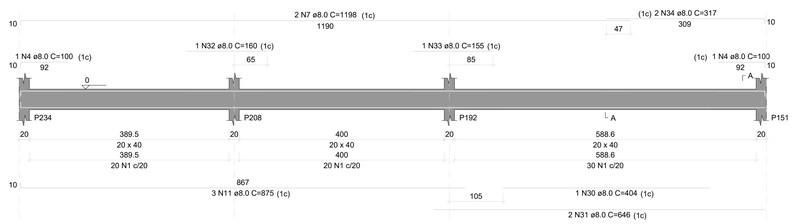
## V122
ESC 1:50



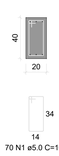

SEÇÃO A-A
ESC 1:25



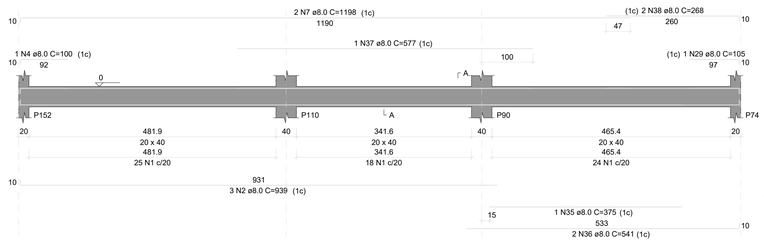

## V123
ESC 1:50




SEÇÃO A-A
ESC 1:25

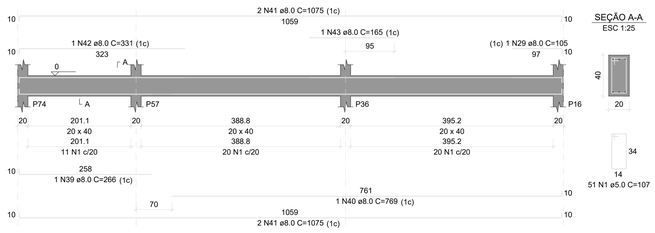



## V124
ESC 1:50




SEÇÃO A-A
ESC 1:25

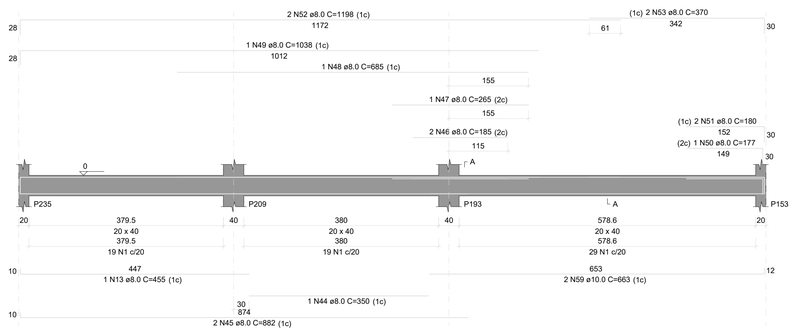
## V125
ESC 1:50




SEÇÃO A-A
ESC 1:25

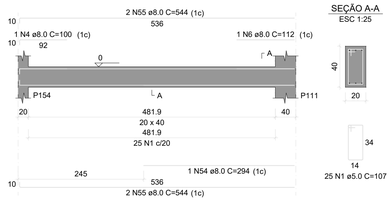



## V126
ESC 1:50




SEÇÃO A-A
ESC 1:25

## V127
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V117 | V118 | V119 |
| V120 | V121 | V122 |
| V123 | V124 | V125 |
| V126 | V127 | |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 558 | 46 | 25668 |
| CA50 | 2 | 8.0 | 3 | 939 | 2817 |
| | 3 | 8.0 | 3 | 543 | 1629 |
| | 4 | 8.0 | 1 | 100 | 100 |
| | 5 | 8.0 | 1 | 572 | 572 |
| | 6 | 8.0 | 2 | 112 | 224 |
| | 7 | 8.0 | 6 | 1198 | 7188 |
| | 8 | 8.0 | 2 | 270 | 540 |
| | 9 | 8.0 | 1 | 305 | 305 |
| | 10 | 8.0 | 1 | 340 | 340 |
| | 11 | 8.0 | 1 | 875 | 875 |
| | 12 | 8.0 | 1 | 310 | 310 |
| | 13 | 8.0 | 3 | 455 | 1365 |
| | 14 | 8.0 | 1 | 279 | 279 |
| | 15 | 8.0 | 1 | 280 | 280 |
| | 16 | 8.0 | 2 | 846 | 1692 |
| | 17 | 8.0 | 1 | 230 | 230 |
| | 18 | 8.0 | 1 | 545 | 545 |
| | 19 | 8.0 | 1 | 127 | 127 |
| | 20 | 8.0 | 2 | 887 | 1774 |
| | 21 | 8.0 | 1 | 229 | 1374 |
| | 22 | 8.0 | 1 | 292 | 292 |
| | 23 | 8.0 | 1 | 322 | 322 |
| | 24 | 8.0 | 2 | 931 | 1862 |
| | 25 | 8.0 | 1 | 285 | 285 |
| | 26 | 8.0 | 2 | 833 | 1666 |
| | 27 | 8.0 | 2 | 854 | 4270 |
| | 28 | 8.0 | 1 | 190 | 190 |
| | 29 | 8.0 | 3 | 159 | 357 |
| | 30 | 8.0 | 1 | 404 | 404 |
| | 31 | 8.0 | 2 | 646 | 1292 |
| | 32 | 8.0 | 1 | 163 | 163 |
| | 33 | 8.0 | 1 | 185 | 185 |
| | 34 | 8.0 | 2 | 317 | 634 |
| | 35 | 8.0 | 1 | 375 | 375 |
| | 36 | 8.0 | 2 | 541 | 1082 |
| | 37 | 8.0 | 1 | 577 | 577 |
| | 38 | 8.0 | 2 | 268 | 536 |
| | 39 | 8.0 | 1 | 268 | 268 |
| | 40 | 8.0 | 1 | 765 | 765 |
| | 41 | 8.0 | 4 | 1075 | 4300 |
| | 42 | 8.0 | 1 | 331 | 331 |
| | 43 | 8.0 | 1 | 185 | 185 |
| | 44 | 8.0 | 1 | 350 | 350 |
| | 45 | 8.0 | 2 | 882 | 1764 |
| | 46 | 8.0 | 2 | 185 | 370 |
| | 47 | 8.0 | 1 | 265 | 265 |
| | 48 | 8.0 | 1 | 685 | 685 |
| | 49 | 8.0 | 1 | 1038 | 1038 |
| | 50 | 8.0 | 1 | 177 | 177 |
| | 51 | 8.0 | 2 | 180 | 360 |
| | 52 | 8.0 | 2 | 1198 | 2396 |
| | 53 | 8.0 | 2 | 370 | 740 |
| | 54 | 8.0 | 1 | 294 | 294 |
| | 55 | 8.0 | 4 | 544 | 2176 |
| | 56 | 10.0 | 2 | 220 | 440 |
| | 57 | 10.0 | 2 | 1167 | 2334 |
| | 58 | 10.0 | 2 | 227 | 454 |
| | 59 | 12.5 | 2 | 963 | 1926 |
| | 60 | 12.5 | 2 | 1197 | 2394 |
| | 61 | 12.5 | 1 | 357 | 357 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 596.5 | 258.9 |
| | 10.0 | 45.5 | 30.9 |
| | 12.5 | 31.1 | 32.9 |
| CA60 | 5.0 | 597.1 | 101.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 322.7 |
| CA60 | 101.2 |

Volume de concreto (C-25) = 8.72 m³
Área de forma = 109.06 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 10**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

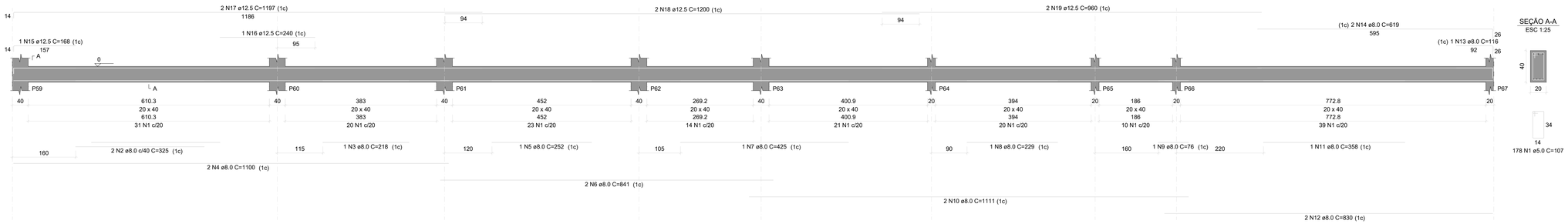
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 12 /60**

## V12
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V12

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 179 | 103 | 18548 |
| CA60 | 2 | 8.0 | 2 | 325 | 650 |
| | 3 | 8.0 | 2 | 218 | 436 |
| | 4 | 8.0 | 2 | 1100 | 2200 |
| | 5 | 8.0 | 2 | 252 | 504 |
| | 6 | 8.0 | 2 | 841 | 1682 |
| | 7 | 8.0 | 2 | 425 | 850 |
| | 8 | 8.0 | 1 | 229 | 229 |
| | 9 | 8.0 | 1 | 76 | 76 |
| | 10 | 8.0 | 2 | 1111 | 2222 |
| | 11 | 8.0 | 1 | 358 | 358 |
| | 12 | 8.0 | 2 | 830 | 1660 |
| | 13 | 8.0 | 1 | 116 | 116 |
| | 14 | 8.0 | 2 | 619 | 1238 |
| | 15 | 12.5 | 1 | 168 | 168 |
| | 16 | 12.5 | 2 | 240 | 480 |
| | 17 | 12.5 | 2 | 1197 | 2394 |
| | 18 | 12.5 | 2 | 1200 | 2400 |
| | 19 | 12.5 | 2 | 960 | 1920 |

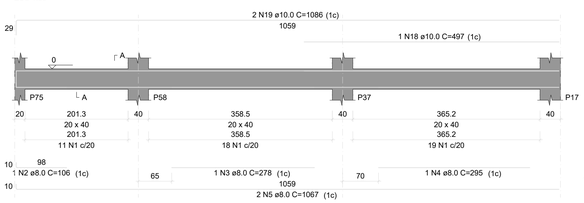
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 113.3 | 49.2 |
| | 12.5 | 71.2 | 75.5 |
| CA60 | 5.0 | 190.5 | 32.3 |

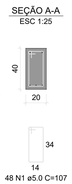
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 124.6 |
| CA60 | 32.3 |

Volume de concreto (C-25) = 2.77 m³
Área de forma = 34.68 m²

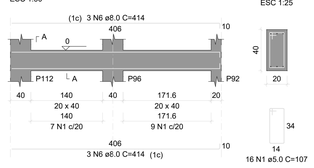
## V128
ESC 1:50




SEÇÃO A-A
ESC 1:25



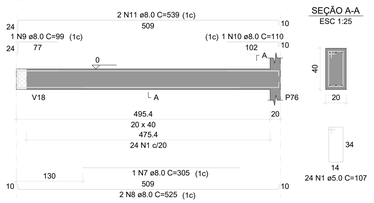

## V129
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V130
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V128 V129 V130
V131

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 153 | 106 | 16254 |
| CA60 | 2 | 8.0 | 1 | 106 | 106 |
| | 3 | 8.0 | 1 | 278 | 278 |
| | 4 | 8.0 | 1 | 295 | 295 |
| | 5 | 8.0 | 2 | 1067 | 2134 |
| | 6 | 8.0 | 6 | 414 | 2484 |
| | 7 | 8.0 | 1 | 305 | 305 |
| | 8 | 8.0 | 2 | 525 | 1050 |
| | 9 | 8.0 | 1 | 99 | 99 |
| | 10 | 8.0 | 1 | 110 | 110 |
| | 11 | 8.0 | 2 | 539 | 1078 |
| | 12 | 8.0 | 1 | 287 | 287 |
| | 13 | 8.0 | 1 | 135 | 135 |
| | 14 | 8.0 | 1 | 157 | 157 |
| | 15 | 8.0 | 2 | 931 | 1862 |
| | 16 | 8.0 | 1 | 285 | 285 |
| | 17 | 8.0 | 2 | 533 | 1066 |
| | 18 | 10.0 | 2 | 497 | 497 |
| | 19 | 10.0 | 2 | 1086 | 2172 |
| | 20 | 10.0 | 1 | 137 | 137 |
| | 21 | 10.0 | 2 | 190 | 380 |
| | 22 | 10.0 | 1 | 132 | 132 |
| | 23 | 10.0 | 2 | 1200 | 2400 |
| | 24 | 10.0 | 2 | 274 | 548 |

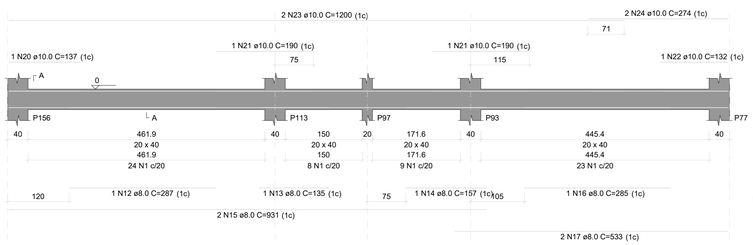
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 117.3 | 50.9 |
| | 10.0 | 62.7 | 42.5 |
| CA60 | 5.0 | 162.6 | 27.6 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 93.4 |
| CA60 | 27.6 |

Volume de concreto (C-25) = 2.39 m³
Área de forma = 29.91 m²

## V131
ESC 1:50




SEÇÃO A-A
ESC 1:25

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS BALDRAME 11**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 13 /60**

FORMA DO PAVIMENTO ALTURA 180 (NÍVEL 180)

Escala 1:25

Vigas

| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
|---|---|---|---|
| V1 | 20x30 | 0 | 180 |
| V2 | 20x30 | 0 | 180 |
| V3 | 20x30 | 0 | 180 |
| V4 | 20x30 | 0 | 180 |
| V5 | 20x40 | 0 | 180 |
| V6 | 20x20 | 0 | 180 |
| V7 | 20x30 | 0 | 180 |
| V8 | 20x30 | 0 | 180 |
| V9 | 20x30 | 0 | 180 |
| V10 | 20x40 | 0 | 180 |

Características dos materiais

| fck (kgf/cm²) | Eci (kgf/cm²) |
|---|---|
| 300 | 300000 |

Dimensão máxima do agregado = 19 mm

Lajes

| Nome | Tipo | Altura (cm) | Elevação (cm) | Nível (cm) | Peso próprio (kgf/m²) | Sobrecarga (kgf/m²) Acidental | Acidental | Localizada |
|---|---|---|---|---|---|---|---|---|
| E1 | Maciça | 15 | 0 | 180 | 375 | 171 | 300 | - |
| E2 | Maciça | 15 | 0 | 180 | 675 | 169 | 300 | - |
| E3 | Maciça | 15 | 0 | 180 | 375 | 154 | 300 | - |
| E4 | Maciça | 15 | 0 | 180 | 562 | 167 | 300 | - |
| F1 | Maciça | 15 | 0 | 180 | 375 | 154 | 300 | - |
| F2 | Maciça | 15 | 0 | 180 | 375 | 154 | 300 | - |
| F3 | Maciça | 15 | 0 | 180 | 375 | 154 | 300 | - |
| F4 | Maciça | 15 | 0 | 180 | 375 | 154 | 300 | - |

Pilares

| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
|---|---|---|---|
| P1 | 20x40 | 0 | 180 |
| P2 | 20x40 | 0 | 180 |
| P3 | 20x40 | 0 | 180 |
| P4 | 20x40 | 0 | 180 |
| P5 | 20x20 | 0 | 180 |
| P6 | 20x40 | 0 | 180 |
| P7 | 20x40 | 0 | 180 |
| P8 | 20x40 | 0 | 180 |
| P9 | 20x40 | 0 | 180 |
| P10 | 20x40 | 0 | 180 |
| P11 | 20x40 | 0 | 180 |
| P12 | 20x40 | 0 | 180 |
| P13 | 20x40 | 0 | 180 |
| P14 | 20x40 | 0 | 180 |
| P15 | 20x40 | 0 | 180 |
| P16 | 20x40 | 0 | 180 |
| P17 | 20x40 | 0 | 180 |
| P18 | 20x40 | 0 | 180 |
| P19 | 20x40 | 0 | 180 |
| P20 | 20x40 | 0 | 180 |
| P21 | 20x40 | 0 | 180 |
| P22 | 20x40 | 0 | 180 |
| P23 | 20x20 | 0 | 180 |
| P24 | 20x40 | 0 | 180 |
| P25 | 20x40 | 0 | 180 |
| P26 | 20x40 | 0 | 180 |
| P27 | 20x20 | 0 | 180 |
| P28 | 20x20 | 0 | 180 |
| P29 | 20x40 | 0 | 180 |
| P30 | 20x40 | 0 | 180 |
| P31 | 20x40 | 0 | 180 |
| P32 | 20x40 | 0 | 180 |
| P33 | 20x40 | 0 | 180 |
| P34 | 20x40 | 0 | 180 |
| P35 | 20x40 | 0 | 180 |
| P36 | 20x40 | 0 | 180 |
| P37 | 20x40 | 0 | 180 |
| P38 | 20x20 | 0 | 180 |
| P39 | 20x20 | 0 | 180 |
| P40 | 20x40 | 0 | 180 |
| P41 | 20x40 | 0 | 180 |
| P42 | 20x40 | 0 | 180 |
| P43 | 20x40 | 0 | 180 |
| P44 | 20x40 | 0 | 180 |
| P45 | 20x40 | 0 | 180 |
| P46 | 20x40 | 0 | 180 |
| P47 | 20x20 | 0 | 180 |
| P48 | 20x40 | 0 | 180 |
| P49 | 20x40 | 0 | 180 |
| P50 | 20x40 | 0 | 180 |
| P51 | 20x40 | 0 | 180 |
| P52 | 20x40 | 0 | 180 |
| P53 | 20x40 | 0 | 180 |
| P54 | 20x40 | 0 | 180 |
| P55 | 20x40 | 0 | 180 |
| P56 | 20x40 | 0 | 180 |
| P57 | 20x40 | 0 | 180 |
| P58 | 20x40 | 0 | 180 |
| P59 | 20x40 | 0 | 180 |
| P60 | 20x40 | 0 | 180 |
| P61 | 20x40 | 0 | 180 |
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| P252 | 20x40 | 0 | 180 |
| P253 | 20x40 | 0 | 180 |
| P254 | 20x40 | 0 | 180 |
| P255 | 20x40 | 0 | 180 |

Legenda dos pilares

- Pilar que morre
- Pilar que passa

Legenda das vigas e paredes

- Viga

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Avenida Santiago de Chile, 195 - Nossa Sra. das Dores - CEP 97030-685
Santa Maria - Rio Grande do Sul
Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA FORMA NÍVEL 180**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

DATA: **Outubro/2025**

DESENHO: -

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAVIGLLELO VOLPATTO CREA RS 198844

PRANCHA: **EST 14 /60**

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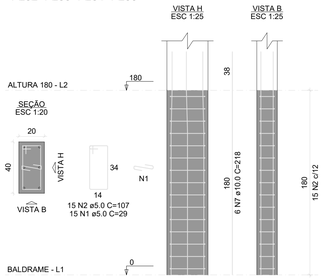


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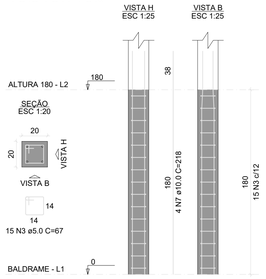


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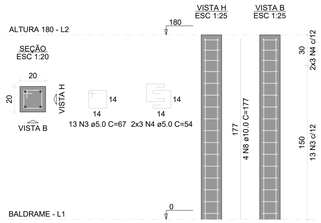


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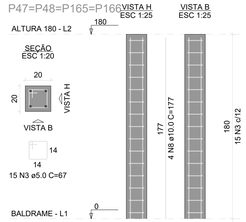


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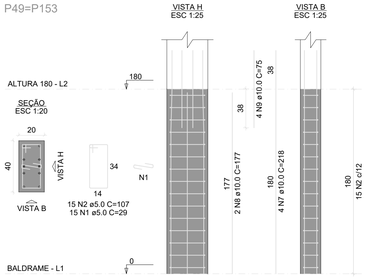


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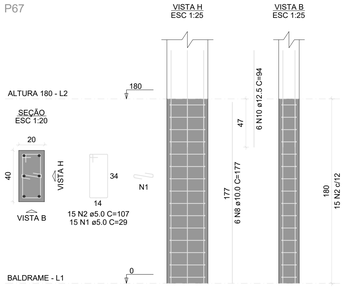



RELAÇÃO DO AÇO

| | | |
|---|---|---|
| 205xP1 | 24xP5 | 8xP27 |
| 4xP47 | 2xP49 | P67 |
| P96 | P100 | P120 |
| P124 | P126 | |
| 4xP236 | | |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 5.0 | 1027 | 67 | 68809 |
| | 2 | 5.0 | 3186 | 107 | 340902 |
| | 3 | 5.0 | 527 | 67 | 35309 |
| | 4 | 5.0 | 80 | 54 | 4320 |
| | 5 | 5.0 | 12 | 29 | 348 |
| | 6 | 5.0 | 16 | 74 | 1184 |
| CA60 | 7 | 10.0 | 1374 | 218 | 299532 |
| | 8 | 10.0 | 88 | 177 | 15222 |
| | 9 | 10.0 | 12 | 75 | 900 |
| | 10 | 12.5 | 10 | 94 | 940 |
| | 11 | 12.5 | 6 | 227 | 1362 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 3115.1 | 2112.7 |
| | 12.5 | 23 | 24.4 |
| CA60 | 5.0 | 4756.5 | 806.4 |
| PESO TOTAL (kg) | | | |
| CA50 | 2137.1 | | |
| CA60 | 806.4 | | |

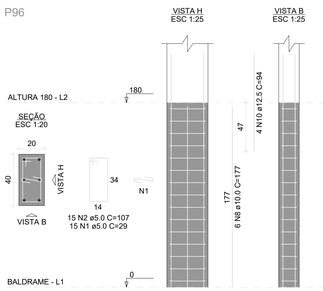
Volume de concreto (C-25) = 33.77 m³
Área de forma = 521.28 m²

**ESPECIFICAÇÕES DO CONCRETO:**

RESISTÊNCIA À COMPRESSÃO DO CONCRETO, FCK DE 28 DIAS = 25 MPa.
MÓDULO DE ELASTICIDADE INICIAL DO CONCRETO, Eci = 28 GPa.
TAMANHO MÁXIMO DO AGREGADO GRAÚDO = 19 MM.
CLASSE DE AGRESSIVIDADE AMBIENTAL II (CAA II).
RELAÇÃO ÁGUA/CIMENTO (A/C) MÁXIMA = 0,60.
AÇOS DAS ARMADURAS, CA50 E CA60.

COBRIMENTO DAS ARMADURAS CONFORME NBR 6118
LAJES - 25 MM
VIGAS E PILARES - 30 MM

P96

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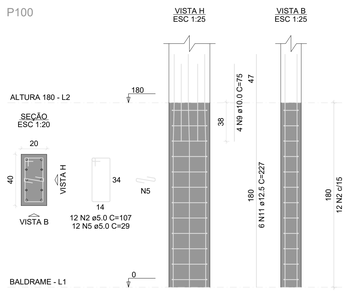


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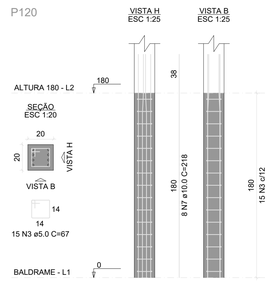


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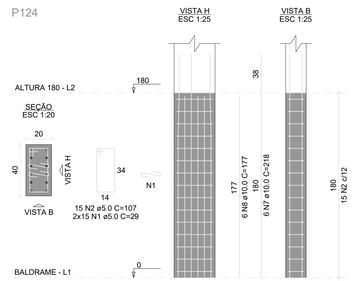


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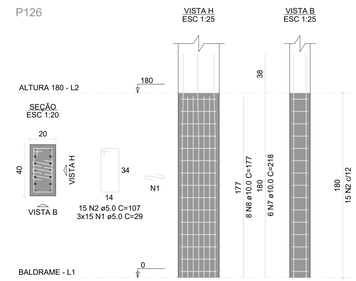


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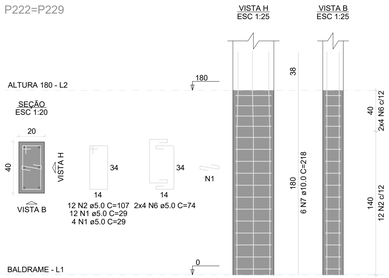


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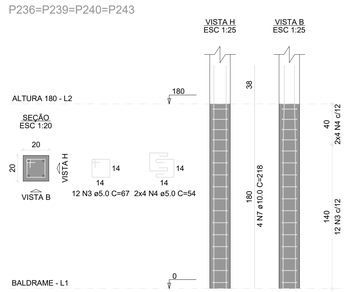



INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819


OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA PILARES NÍVEL 180**

ESCALA:
**1/50**

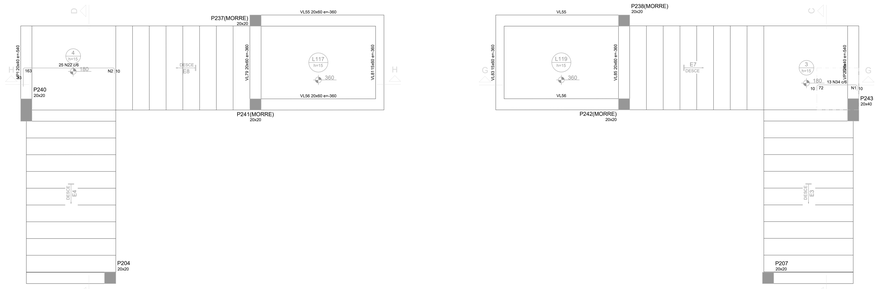
PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

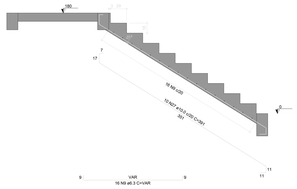
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 15 /60**




Armação negativa da escada P1

ESC 1:25



Corte B-B (E2)

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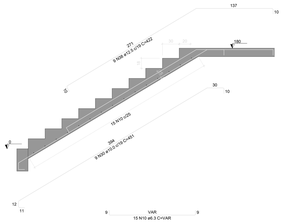
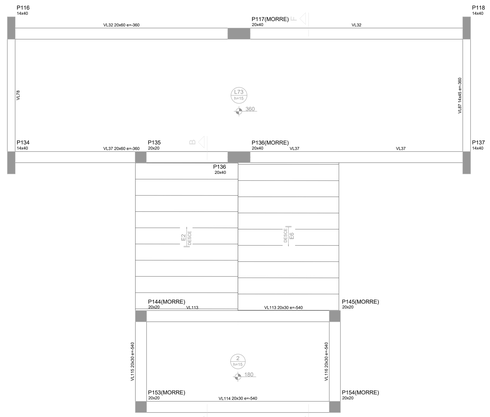
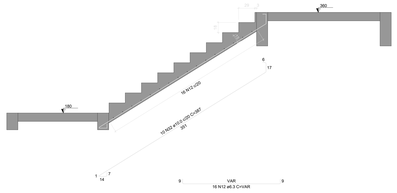


Corte D-D (E4)

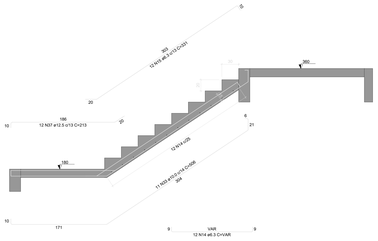
ESC 1:25



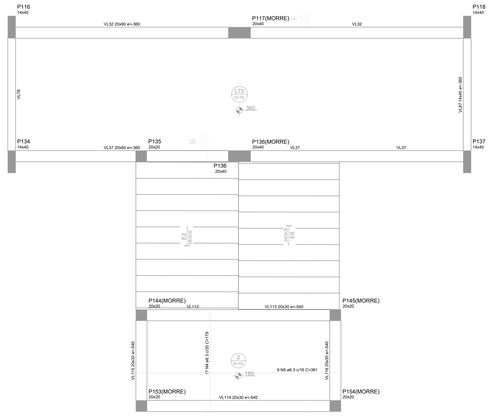
Corte F-F (E6)

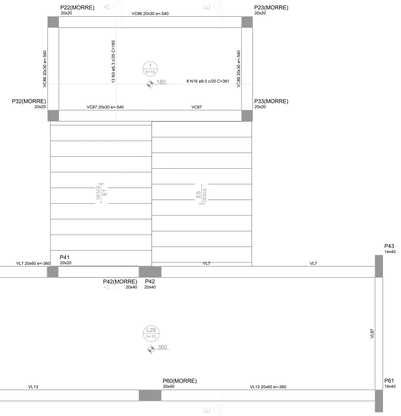
ESC 1:25

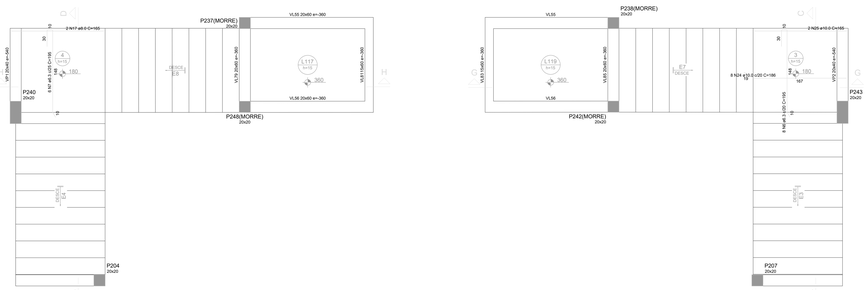


Corte H-H (E8)

ESC 1:25

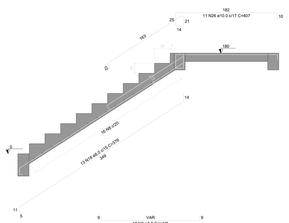


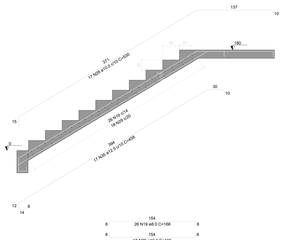

Armação positiva da escada P1

ESC 1:25



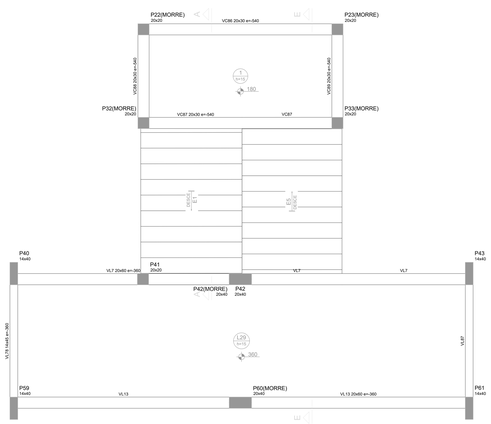
Corte A-A (E1)

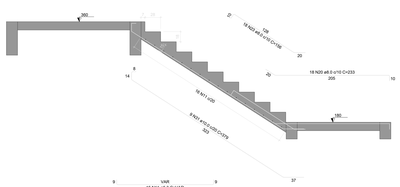
ESC 1:25



Corte C-C (E3)

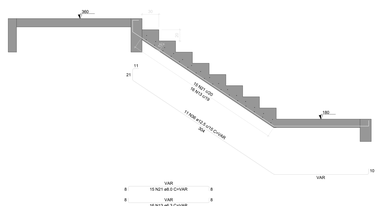
ESC 1:25



Corte E-E (E5)

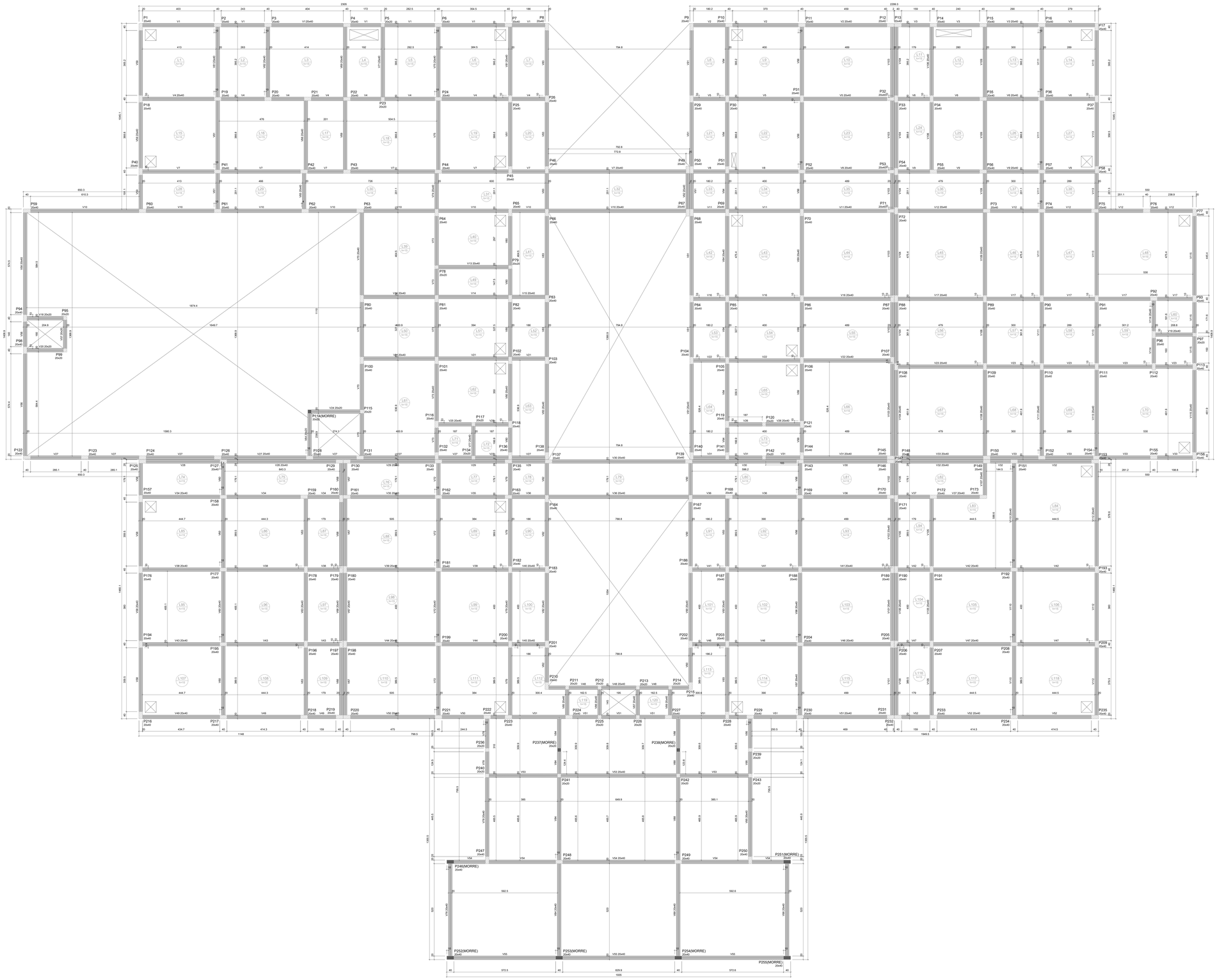
ESC 1:25



Corte G-G (E7)

ESC 1:25

| | |
|---|---|
| INSTITUTO FEDERAL FARROUPILHA | PRÓ-REITORIA DE ADMINISTRAÇÃO<br>COORDENAÇÃO DE ENGENHARIA E ARQUITETURA<br>Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685<br>Santa Maria - Rio Grande do Sul Telefone: (55) 2218-9819 |
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | ÁREA: 4.082,35 m² |
| CONTEÚDO: PLANTA ESCADAS | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| RESPONSÁVEL: ENG. CIVIL (MARIA DAYSELLES VOLPATTO - CREA RS 188844) | DESENHO: - |
| | PRANCHA: EST 16 /60 |



| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| L1 | 20x40 | 0 | 360 |
| V2 | 20x40 | 0 | 360 |
| V3 | 20x40 | 0 | 360 |
| V4 | 20x40 | 0 | 360 |
| V5 | 20x40 | 0 | 360 |
| V6 | 20x40 | 0 | 360 |
| V7 | 20x40 | 0 | 360 |
| V8 | 20x40 | 0 | 360 |
| V9 | 20x40 | 0 | 360 |
| V10 | 20x40 | 0 | 360 |
| V11 | 20x40 | 0 | 360 |
| V12 | 20x40 | 0 | 360 |
| V13 | 20x40 | 0 | 360 |
| V14 | 20x40 | 0 | 360 |
| V15 | 20x40 | 0 | 360 |
| V16 | 20x40 | 0 | 360 |
| V17 | 20x40 | 0 | 360 |
| V18 | 20x20 | 0 | 360 |
| V19 | 20x20 | 0 | 360 |
| V20 | 20x20 | 0 | 360 |
| V21 | 20x40 | 0 | 360 |
| V22 | 20x40 | 0 | 360 |
| V23 | 20x40 | 0 | 360 |
| V24 | 20x20 | 0 | 360 |
| V25 | 20x40 | 0 | 360 |
| V26 | 20x40 | 0 | 360 |
| V27 | 20x40 | 0 | 360 |
| V28 | 20x40 | 0 | 360 |
| V29 | 20x40 | 0 | 360 |
| V30 | 20x40 | 0 | 360 |
| V31 | 20x40 | 0 | 360 |
| V32 | 20x40 | 0 | 360 |
| V33 | 20x40 | 0 | 360 |
| V34 | 20x40 | 0 | 360 |
| V35 | 20x40 | 0 | 360 |
| V36 | 20x40 | 0 | 360 |
| V37 | 20x40 | 0 | 360 |
| V38 | 20x40 | 0 | 360 |
| V39 | 20x40 | 0 | 360 |
| V40 | 20x40 | 0 | 360 |
| V41 | 20x40 | 0 | 360 |
| V42 | 20x40 | 0 | 360 |
| V43 | 20x40 | 0 | 360 |
| V44 | 20x40 | 0 | 360 |
| V45 | 20x40 | 0 | 360 |
| V46 | 20x40 | 0 | 360 |
| V47 | 20x40 | 0 | 360 |
| V48 | 20x40 | 0 | 360 |
| V49 | 20x40 | 0 | 360 |
| V50 | 20x40 | 0 | 360 |
| V51 | 20x40 | 0 | 360 |
| V52 | 20x40 | 0 | 360 |
| V53 | 20x40 | 0 | 360 |
| V54 | 20x40 | 0 | 360 |
| V55 | 20x40 | 0 | 360 |
| V56 | 20x40 | 0 | 360 |
| V57 | 20x20 | 0 | 360 |
| V58 | 20x40 | 0 | 360 |
| V59 | 20x40 | 0 | 360 |
| V60 | 20x40 | 0 | 360 |
| V61 | 20x40 | 0 | 360 |
| V62 | 20x40 | 0 | 360 |
| V63 | 20x40 | 0 | 360 |
| V64 | 20x20 | 0 | 360 |
| V65 | 20x40 | 0 | 360 |
| V66 | 20x40 | 0 | 360 |
| V67 | 20x40 | 0 | 360 |
| V68 | 20x40 | 0 | 360 |
| V69 | 20x40 | 0 | 360 |
| V70 | 20x40 | 0 | 360 |
| V71 | 20x40 | 0 | 360 |
| V72 | 20x20 | 0 | 360 |
| V73 | 20x40 | 0 | 360 |
| V74 | 20x40 | 0 | 360 |
| V75 | 20x40 | 0 | 360 |
| V76 | 20x40 | 0 | 360 |
| V77 | 20x40 | 0 | 360 |
| V78 | 20x40 | 0 | 360 |
| V79 | 20x40 | 0 | 360 |
| V80 | 20x40 | 0 | 360 |
| V81 | 20x40 | 0 | 360 |
| V82 | 20x40 | 0 | 360 |
| V83 | 20x40 | 0 | 360 |
| V84 | 20x40 | 0 | 360 |
| V85 | 20x40 | 0 | 360 |
| V86 | 20x40 | 0 | 360 |
| V87 | 20x40 | 0 | 360 |
| V88 | 20x40 | 0 | 360 |
| V89 | 20x40 | 0 | 360 |
| V90 | 20x40 | 0 | 360 |
| V91 | 20x40 | 0 | 360 |
| V92 | 20x40 | 0 | 360 |
| V93 | 20x20 | 0 | 360 |
| V94 | 20x40 | 0 | 360 |
| V95 | 20x40 | 0 | 360 |
| V96 | 20x40 | 0 | 360 |
| V97 | 20x40 | 0 | 360 |
| V98 | 20x40 | 0 | 360 |
| V99 | 20x40 | 0 | 360 |
| V100 | 20x40 | 0 | 360 |
| V101 | 20x40 | 0 | 360 |
| V102 | 20x40 | 0 | 360 |
| V103 | 20x40 | 0 | 360 |
| V104 | 20x40 | 0 | 360 |
| V105 | 20x40 | 0 | 360 |
| V106 | 20x40 | 0 | 360 |
| V107 | 20x40 | 0 | 360 |
| V108 | 20x40 | 0 | 360 |
| V109 | 20x40 | 0 | 360 |
| V110 | 20x40 | 0 | 360 |
| V111 | 20x40 | 0 | 360 |
| V112 | 20x40 | 0 | 360 |
| V113 | 20x40 | 0 | 360 |
| V114 | 20x40 | 0 | 360 |
| V115 | 20x40 | 0 | 360 |

| Pilares | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| P1 | 20x40 | 0 | 360 |
| P2 | 20x40 | 0 | 360 |
| P3 | 20x40 | 0 | 360 |
| P4 | 20x40 | 0 | 360 |
| P5 | 20x40 | 0 | 360 |
| P6 | 20x40 | 0 | 360 |
| P7 | 20x40 | 0 | 360 |
| P8 | 20x40 | 0 | 360 |
| P9 | 20x40 | 0 | 360 |
| P10 | 20x40 | 0 | 360 |
| P11 | 20x40 | 0 | 360 |
| P12 | 20x40 | 0 | 360 |
| P13 | 20x40 | 0 | 360 |
| P14 | 20x40 | 0 | 360 |
| P15 | 20x40 | 0 | 360 |
| P16 | 20x40 | 0 | 360 |
| P17 | 20x40 | 0 | 360 |
| P18 | 20x40 | 0 | 360 |
| P19 | 20x40 | 0 | 360 |
| P20 | 20x40 | 0 | 360 |
| P21 | 20x40 | 0 | 360 |
| P22 | 20x40 | 0 | 360 |
| P23 | 20x20 | 0 | 360 |
| P24 | 20x40 | 0 | 360 |
| P25 | 20x40 | 0 | 360 |
| P26 | 20x40 | 0 | 360 |
| P27 | 20x40 | 0 | 360 |
| P28 | 20x40 | 0 | 360 |
| P29 | 20x40 | 0 | 360 |
| P30 | 20x40 | 0 | 360 |
| P31 | 20x40 | 0 | 360 |
| P32 | 20x40 | 0 | 360 |
| P33 | 20x40 | 0 | 360 |
| P34 | 20x40 | 0 | 360 |
| P35 | 20x40 | 0 | 360 |
| P36 | 20x40 | 0 | 360 |
| P37 | 20x40 | 0 | 360 |
| P38 | 20x40 | 0 | 360 |
| P39 | 20x40 | 0 | 360 |
| P40 | 20x40 | 0 | 360 |
| P41 | 20x40 | 0 | 360 |
| P42 | 20x40 | 0 | 360 |
| P43 | 20x40 | 0 | 360 |
| P44 | 20x40 | 0 | 360 |
| P45 | 20x40 | 0 | 360 |
| P46 | 20x40 | 0 | 360 |
| P47 | 20x40 | 0 | 360 |
| P48 | 20x40 | 0 | 360 |
| P49 | 20x40 | 0 | 360 |
| P50 | 20x40 | 0 | 360 |
| P51 | 20x40 | 0 | 360 |
| P52 | 20x40 | 0 | 360 |
| P53 | 20x40 | 0 | 360 |
| P54 | 20x40 | 0 | 360 |
| P55 | 20x40 | 0 | 360 |
| P56 | 20x40 | 0 | 360 |
| P57 | 20x40 | 0 | 360 |
| P58 | 20x40 | 0 | 360 |
| P59 | 20x40 | 0 | 360 |
| P60 | 20x40 | 0 | 360 |
| P61 | 20x40 | 0 | 360 |
| P62 | 20x40 | 0 | 360 |
| P63 | 20x40 | 0 | 360 |
| P64 | 20x40 | 0 | 360 |
| P65 | 20x40 | 0 | 360 |
| P66 | 20x40 | 0 | 360 |
| P67 | 20x40 | 0 | 360 |
| P68 | 20x40 | 0 | 360 |
| P69 | 20x40 | 0 | 360 |
| P70 | 20x40 | 0 | 360 |
| P71 | 20x40 | 0 | 360 |
| P72 | 20x40 | 0 | 360 |
| P73 | 20x40 | 0 | 360 |
| P74 | 20x40 | 0 | 360 |
| P75 | 20x40 | 0 | 360 |
| P76 | 20x40 | 0 | 360 |
| P77 | 20x40 | 0 | 360 |
| P78 | 20x20 | 0 | 360 |
| P79 | 20x20 | 0 | 360 |
| P80 | 20x40 | 0 | 360 |
| P81 | 20x40 | 0 | 360 |
| P82 | 20x40 | 0 | 360 |
| P83 | 20x40 | 0 | 360 |
| P84 | 20x40 | 0 | 360 |
| P85 | 20x40 | 0 | 360 |
| P86 | 20x40 | 0 | 360 |
| P87 | 20x40 | 0 | 360 |
| P88 | 20x40 | 0 | 360 |
| P89 | 20x40 | 0 | 360 |
| P90 | 20x40 | 0 | 360 |
| P91 | 20x40 | 0 | 360 |
| P92 | 20x40 | 0 | 360 |
| P93 | 20x40 | 0 | 360 |
| P94 | 20x40 | 0 | 360 |
| P95 | 20x20 | 0 | 360 |
| P96 | 20x40 | 0 | 360 |
| P97 | 20x20 | 0 | 360 |
| P98 | 20x20 | 0 | 360 |
| P99 | 20x20 | 0 | 360 |
| P100 | 20x40 | 0 | 360 |
| P101 | 20x40 | 0 | 360 |
| P102 | 20x40 | 0 | 360 |
| P103 | 20x40 | 0 | 360 |
| P104 | 20x40 | 0 | 360 |
| P105 | 20x40 | 0 | 360 |
| P106 | 20x40 | 0 | 360 |
| P107 | 20x40 | 0 | 360 |
| P108 | 20x40 | 0 | 360 |
| P109 | 20x40 | 0 | 360 |
| P110 | 20x40 | 0 | 360 |
| P111 | 20x40 | 0 | 360 |
| P112 | 20x40 | 0 | 360 |
| P113 | 20x40 | 0 | 360 |
| P114 | 20x40 | 0 | 360 |
| P115 | 20x40 | 0 | 360 |
| P116 | 20x40 | 0 | 360 |
| P117 | 20x40 | 0 | 360 |
| P118 | 20x40 | 0 | 360 |
| P119 | 20x40 | 0 | 360 |
| P120 | 20x40 | 0 | 360 |
| P121 | 20x40 | 0 | 360 |
| P122 | 20x40 | 0 | 360 |
| P123 | 20x40 | 0 | 360 |
| P124 | 20x40 | 0 | 360 |
| P125 | 20x40 | 0 | 360 |
| P126 | 20x40 | 0 | 360 |
| P127 | 20x40 | 0 | 360 |
| P128 | 20x40 | 0 | 360 |
| P129 | 20x40 | 0 | 360 |
| P130 | 20x40 | 0 | 360 |
| P131 | 20x40 | 0 | 360 |
| P132 | 20x40 | 0 | 360 |
| P133 | 20x40 | 0 | 360 |
| P134 | 20x20 | 0 | 360 |
| P135 | 20x40 | 0 | 360 |
| P136 | 20x40 | 0 | 360 |
| P137 | 20x40 | 0 | 360 |
| P138 | 20x40 | 0 | 360 |
| P139 | 20x40 | 0 | 360 |
| P140 | 20x40 | 0 | 360 |
| P141 | 20x40 | 0 | 360 |
| P142 | 20x20 | 0 | 360 |
| P143 | 20x40 | 0 | 360 |
| P144 | 20x40 | 0 | 360 |
| P145 | 20x40 | 0 | 360 |
| P146 | 20x40 | 0 | 360 |
| P147 | 20x40 | 0 | 360 |
| P148 | 20x40 | 0 | 360 |
| P149 | 20x40 | 0 | 360 |
| P150 | 20x40 | 0 | 360 |
| P151 | 20x40 | 0 | 360 |
| P152 | 20x40 | 0 | 360 |
| P153 | 20x40 | 0 | 360 |
| P154 | 20x40 | 0 | 360 |
| P155 | 20x40 | 0 | 360 |
| P156 | 20x40 | 0 | 360 |
| P157 | 20x40 | 0 | 360 |
| P158 | 20x40 | 0 | 360 |
| P159 | 20x40 | 0 | 360 |
| P160 | 20x40 | 0 | 360 |
| P161 | 20x40 | 0 | 360 |
| P162 | 20x40 | 0 | 360 |
| P163 | 20x40 | 0 | 360 |
| P164 | 20x40 | 0 | 360 |
| P165 | 20x40 | 0 | 360 |
| P166 | 20x40 | 0 | 360 |
| P167 | 20x40 | 0 | 360 |
| P168 | 20x40 | 0 | 360 |
| P169 | 20x40 | 0 | 360 |
| P170 | 20x40 | 0 | 360 |
| P171 | 20x40 | 0 | 360 |
| P172 | 20x40 | 0 | 360 |
| P173 | 20x40 | 0 | 360 |
| P174 | 20x40 | 0 | 360 |
| P175 | 20x40 | 0 | 360 |
| P176 | 20x40 | 0 | 360 |
| P177 | 20x40 | 0 | 360 |
| P178 | 20x40 | 0 | 360 |
| P179 | 20x40 | 0 | 360 |
| P180 | 20x40 | 0 | 360 |
| P181 | 20x40 | 0 | 360 |
| P182 | 20x40 | 0 | 360 |
| P183 | 20x40 | 0 | 360 |
| P184 | 20x40 | 0 | 360 |
| P185 | 20x40 | 0 | 360 |
| P186 | 20x40 | 0 | 360 |
| P187 | 20x40 | 0 | 360 |
| P188 | 20x40 | 0 | 360 |
| P189 | 20x40 | 0 | 360 |
| P190 | 20x40 | 0 | 360 |
| P191 | 20x40 | 0 | 360 |
| P192 | 20x40 | 0 | 360 |
| P193 | 20x40 | 0 | 360 |
| P194 | 20x40 | 0 | 360 |
| P195 | 20x40 | 0 | 360 |
| P196 | 20x40 | 0 | 360 |
| P197 | 20x40 | 0 | 360 |
| P198 | 20x40 | 0 | 360 |
| P199 | 20x40 | 0 | 360 |
| P200 | 20x40 | 0 | 360 |
| P201 | 20x40 | 0 | 360 |
| P202 | 20x40 | 0 | 360 |
| P203 | 20x40 | 0 | 360 |
| P204 | 20x40 | 0 | 360 |
| P205 | 20x40 | 0 | 360 |
| P206 | 20x40 | 0 | 360 |
| P207 | 20x40 | 0 | 360 |
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| P211 | 20x20 | 0 | 360 |
| P212 | 20x20 | 0 | 360 |
| P213 | 20x20 | 0 | 360 |
| P214 | 20x20 | 0 | 360 |
| P215 | 20x40 | 0 | 360 |
| P216 | 20x40 | 0 | 360 |
| P217 | 20x40 | 0 | 360 |
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| P220 | 20x40 | 0 | 360 |
| P221 | 20x40 | 0 | 360 |
| P222 | 20x40 | 0 | 360 |
| P223 | 20x40 | 0 | 360 |
| P224 | 20x40 | 0 | 360 |
| P225 | 20x20 | 0 | 360 |
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| P228 | 20x40 | 0 | 360 |
| P229 | 20x40 | 0 | 360 |
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| P232 | 20x40 | 0 | 360 |
| P233 | 20x40 | 0 | 360 |
| P234 | 20x40 | 0 | 360 |
| P235 | 20x40 | 0 | 360 |
| P236 | 20x20 | 0 | 360 |
| P237(MORRE) | 20x20 | 0 | 360 |
| P238(MORRE) | 20x20 | 0 | 360 |
| P239 | 20x20 | 0 | 360 |
| P240 | 20x20 | 0 | 360 |
| P241 | 20x20 | 0 | 360 |
| P242 | 20x20 | 0 | 360 |
| P243 | 20x20 | 0 | 360 |
| P244 | 20x20 | 0 | 360 |
| P245 | 20x20 | 0 | 360 |
| P246(MORRE) | 20x40 | 0 | 360 |
| P247 | 20x40 | 0 | 360 |
| P248 | 20x40 | 0 | 360 |
| P249 | 20x40 | 0 | 360 |
| P250 | 20x40 | 0 | 360 |
| P251(MORRE) | 20x40 | 0 | 360 |
| P252(MORRE) | 20x40 | 0 | 360 |
| P253(MORRE) | 20x40 | 0 | 360 |
| P254(MORRE) | 20x40 | 0 | 360 |
| P255(MORRE) | 20x40 | 0 | 360 |

| Lajes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nome | Tipo | Altura (cm) | Elevação (cm) | Nível (cm) | Peso próprio (kgf/m²) | Sobrecarga (kgf/m²) Acidental | Acidental Localizada |
| L1 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L2 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L3 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L4 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L5 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L6 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L7 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L8 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L9 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L10 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L11 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L12 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L13 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L14 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L15 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L16 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L17 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L18 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L19 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L20 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L21 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L22 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L23 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L24 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L25 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L26 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L27 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L28 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L29 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L30 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L31 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L32 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L33 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L34 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L35 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L36 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L37 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L38 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L39 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L40 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L41 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L42 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L43 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L44 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L45 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L46 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L47 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L48 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L49 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L50 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L51 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L52 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L53 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L54 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L55 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L56 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L57 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L58 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L59 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L60 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L61 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L62 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L63 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L64 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L65 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L66 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L67 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L68 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L69 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L70 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L71 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L72 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L73 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L74 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L75 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L76 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L77 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L78 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L79 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L80 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L81 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L82 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L83 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L84 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L85 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L86 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L87 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L88 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L89 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L90 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L91 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L92 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L93 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L94 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L95 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L96 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L97 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L98 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L99 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L100 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L101 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L102 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L103 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L104 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L105 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L106 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L107 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L108 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L109 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L110 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L111 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L112 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L113 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L114 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L115 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L116 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L117 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L118 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L119 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |
| L120 | Maciça | 15 | 0 | 360 | 375 | 154 | 250 - |

| Características dos materiais | |
|---|---|
| Aço | Fck |
| (kgf/cm²) | (kgf/cm²) |
| 500 | 241300 |

Dimensão máxima do agregado = 19 mm

Legenda dos pilares
- Pilar que morre
- Pilar que passa
- Pilar com mudança de seção

Legenda das vigas e paredes
- Viga

FORMA DO PAVIMENTO LAJE (NÍVEL 360)

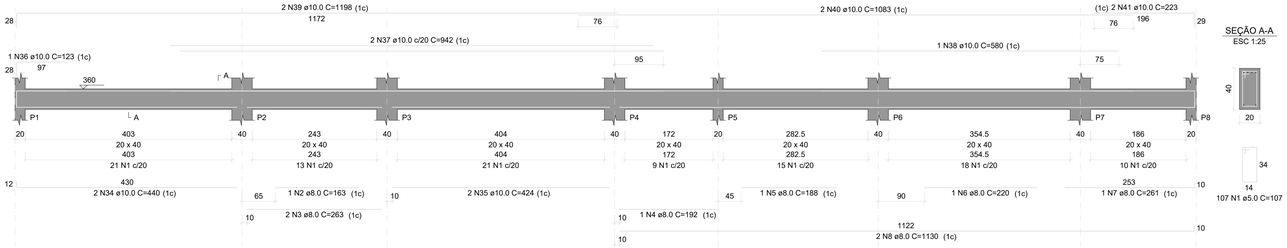
Escala 1:50

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97060-065
Santa Maria - Rio Grande do Sul Telefone: (55) 32-18-9819

| | |
|---|---|
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | ÁREA: 4.082,35 m² |
| CONTEÚDO: PLANTA FORMA PAVIMENTO LAJE | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| RESPONSÁVEL: ENG. CIVIL JHANNA SATOELLES VOLPATTO - CREA RS 198944 | DESENHO: - |
| | PRANCHA: EST 17 /60 |

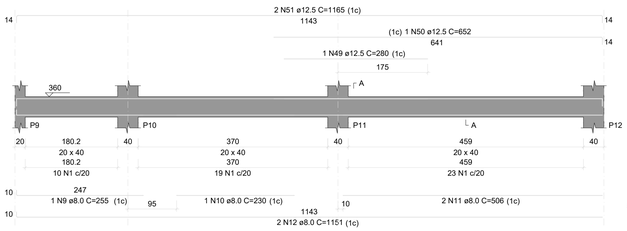
## V1
ESC 1:50



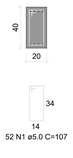

SEÇÃO A-A
ESC 1:25



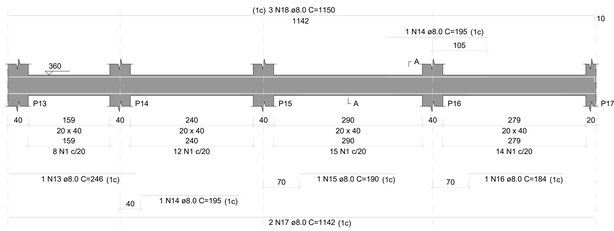

## V2
ESC 1:50




SEÇÃO A-A
ESC 1:25



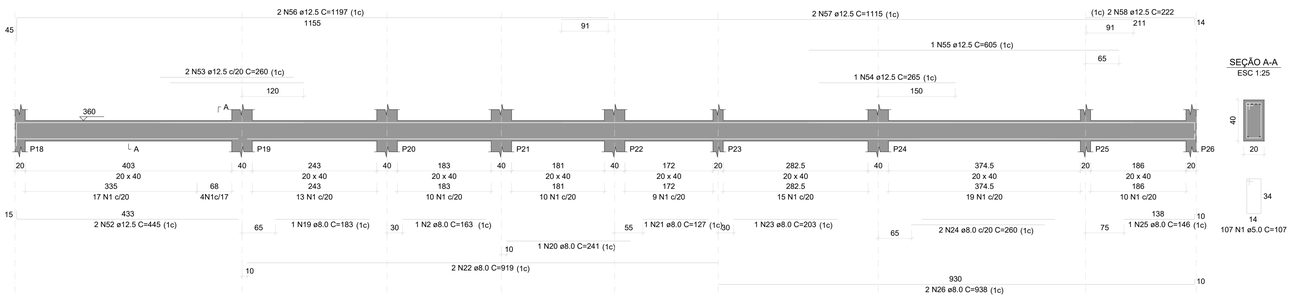

## V3
ESC 1:50




SEÇÃO A-A
ESC 1:25



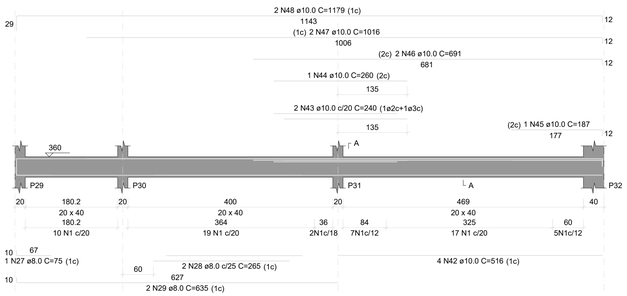

## V4
ESC 1:50



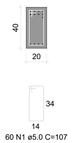

SEÇÃO A-A
ESC 1:25



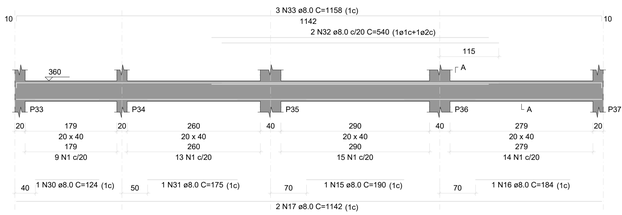

## V5
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V6
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 426 | 107 | 45582 |
| CA50 | 2 | 8.0 | 2 | 163 | 326 |
| | 3 | 8.0 | 2 | 263 | 526 |
| | 4 | 8.0 | 1 | 192 | 192 |
| | 5 | 8.0 | 1 | 188 | 188 |
| | 6 | 8.0 | 1 | 220 | 220 |
| | 7 | 8.0 | 1 | 261 | 261 |
| | 8 | 8.0 | 2 | 1130 | 2260 |
| | 9 | 8.0 | 1 | 255 | 255 |
| | 10 | 8.0 | 1 | 230 | 230 |
| | 11 | 8.0 | 2 | 506 | 1012 |
| | 12 | 8.0 | 2 | 1151 | 2302 |
| | 13 | 8.0 | 1 | 246 | 246 |
| | 14 | 8.0 | 2 | 195 | 390 |
| | 15 | 8.0 | 2 | 190 | 380 |
| | 16 | 8.0 | 2 | 184 | 368 |
| | 17 | 8.0 | 4 | 1142 | 4568 |
| | 18 | 8.0 | 3 | 1150 | 3450 |
| | 19 | 8.0 | 1 | 183 | 183 |
| | 20 | 8.0 | 1 | 241 | 241 |
| | 21 | 8.0 | 1 | 127 | 127 |
| | 22 | 8.0 | 2 | 919 | 1838 |
| | 23 | 8.0 | 1 | 203 | 203 |
| | 24 | 8.0 | 2 | 260 | 520 |
| | 25 | 8.0 | 1 | 146 | 146 |
| | 26 | 8.0 | 2 | 938 | 1876 |
| | 27 | 8.0 | 1 | 75 | 75 |
| | 28 | 8.0 | 2 | 265 | 530 |
| | 29 | 8.0 | 2 | 635 | 1270 |
| | 30 | 8.0 | 1 | 124 | 124 |
| | 31 | 8.0 | 1 | 175 | 175 |
| | 32 | 8.0 | 2 | 540 | 1080 |
| | 33 | 8.0 | 3 | 1158 | 3474 |
| | 34 | 10.0 | 2 | 440 | 880 |
| | 35 | 10.0 | 2 | 424 | 848 |
| | 36 | 10.0 | 1 | 123 | 123 |
| | 37 | 10.0 | 2 | 942 | 1884 |
| | 38 | 10.0 | 1 | 580 | 580 |
| | 39 | 10.0 | 2 | 1198 | 2396 |
| | 40 | 10.0 | 2 | 1083 | 2166 |
| | 41 | 10.0 | 2 | 223 | 446 |
| | 42 | 10.0 | 4 | 516 | 2064 |
| | 43 | 10.0 | 2 | 240 | 480 |
| | 44 | 10.0 | 1 | 260 | 260 |
| | 45 | 10.0 | 1 | 187 | 187 |
| | 46 | 10.0 | 2 | 691 | 1382 |
| | 47 | 10.0 | 2 | 1016 | 2032 |
| | 48 | 10.0 | 2 | 1179 | 2358 |
| | 49 | 12.5 | 1 | 280 | 280 |
| | 50 | 12.5 | 1 | 652 | 652 |
| | 51 | 12.5 | 2 | 1165 | 2330 |
| | 52 | 12.5 | 2 | 445 | 890 |
| | 53 | 12.5 | 2 | 260 | 520 |
| | 54 | 12.5 | 1 | 265 | 265 |
| | 55 | 12.5 | 1 | 605 | 605 |
| | 56 | 12.5 | 2 | 1197 | 2394 |
| | 57 | 12.5 | 2 | 1115 | 2230 |
| | 58 | 12.5 | 2 | 222 | 444 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 290.4 | 126 |
| | 10.0 | 180.9 | 122.7 |
| | 12.5 | 106.1 | 112.4 |
| CA60 | 5.0 | 455.8 | 77.3 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 361.1 |
| CA60 | 77.3 |

Volume de concreto (C-25) = 6.48 m³
Área de forma = 62.76 m²

**ESPECIFICAÇÕES DO CONCRETO:**

RESISTÊNCIA À COMPRESSÃO DO CONCRETO, FCK DE 28 DIAS = 25 MPa.
MÓDULO DE ELASTICIDADE INICIAL DO CONCRETO, Eci = 28 GPa.
TAMANHO MÁXIMO DO AGREGADO GRAÚDO = 19 MM.
CLASSE DE AGRESSIVIDADE AMBIENTAL II (CAA II).
RELAÇÃO ÁGUA/CIMENTO (A/C) MÁXIMA = 0,60.
AÇOS DAS ARMADURAS, CA50 E CA60.

COBRIMENTO DAS ARMADURAS CONFORME NBR 6118
LAJES - 25 MM
VIGAS E PILARES - 30 MM


INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819


OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**
AREA: **4.082,35 m²**

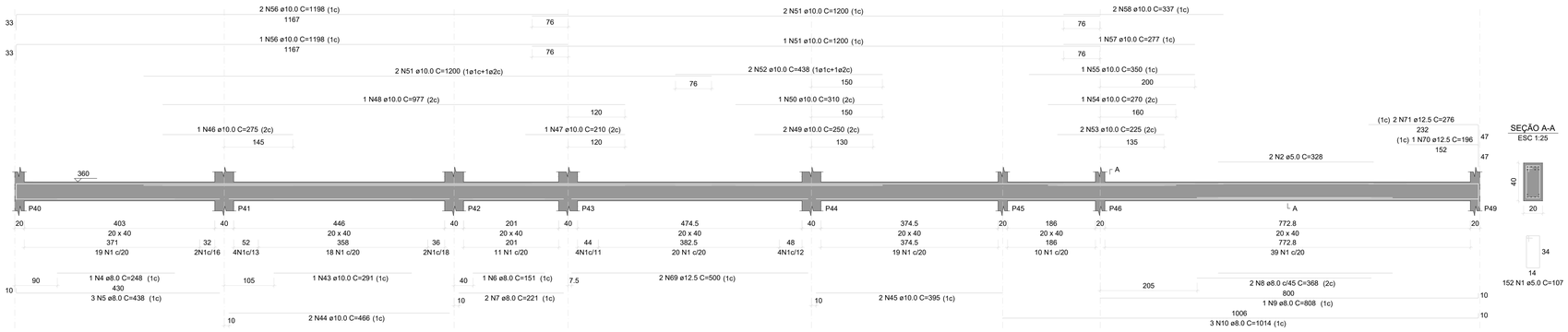
CONTEÚDO: **PLANTA VIGAS LAJE 1**
ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044
PRANCHA: **EST 18 /60**

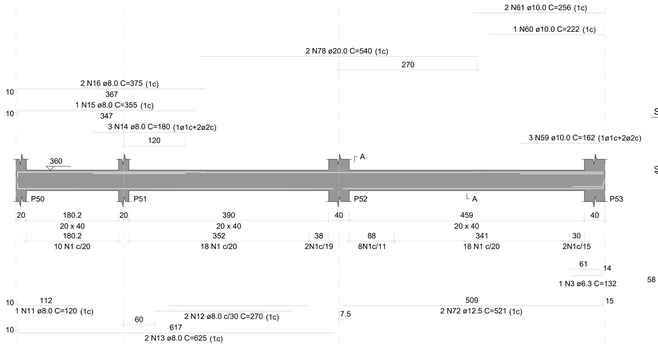
## V7
ESC 1:50



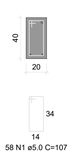

SEÇÃO A-A
ESC 1:25



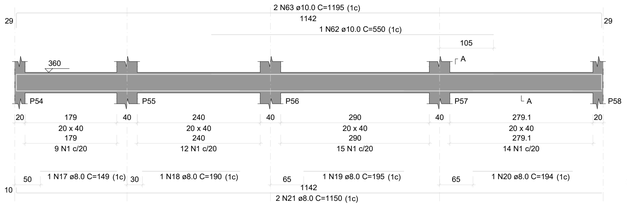

## V8
ESC 1:50




SEÇÃO A-A
ESC 1:25

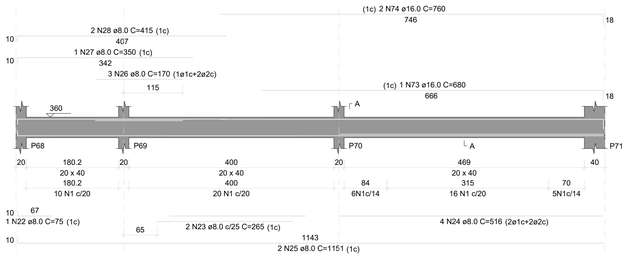



## V9
ESC 1:50



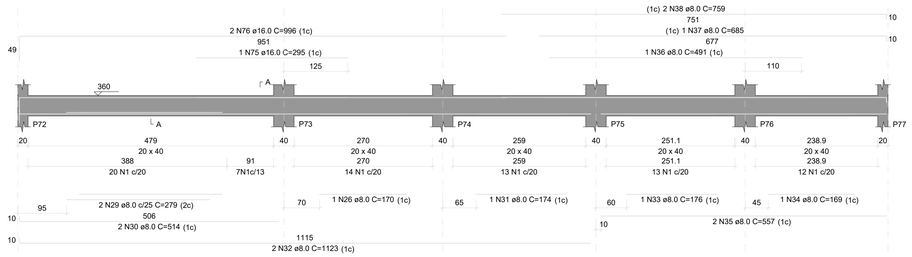

SEÇÃO A-A
ESC 1:25

## V11
ESC 1:50




SEÇÃO A-A
ESC 1:25

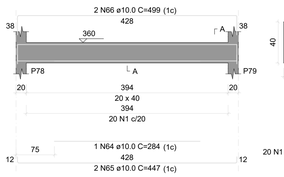
## V12
ESC 1:50



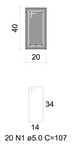

SEÇÃO A-A
ESC 1:25



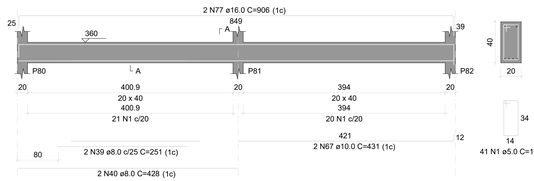

## V13
ESC 1:50




SEÇÃO A-A
ESC 1:25



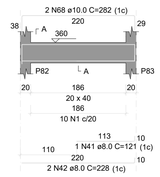

## V14
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V15
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V7 V8 V9
V11 V12 V13
V14 V15

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 467 | 107 | 49969 |
| | 2 | 5.0 | 2 | 328 | 656 |
| CA50 | 3 | 6.3 | 1 | 132 | 132 |
| | 4 | 8.0 | 1 | 248 | 248 |
| | 5 | 8.0 | 3 | 438 | 1314 |
| | 6 | 8.0 | 1 | 151 | 151 |
| | 7 | 8.0 | 2 | 221 | 442 |
| | 8 | 8.0 | 2 | 368 | 736 |
| | 9 | 8.0 | 1 | 808 | 808 |
| | 10 | 8.0 | 3 | 1014 | 3042 |
| | 11 | 8.0 | 1 | 120 | 120 |
| | 12 | 8.0 | 2 | 270 | 540 |
| | 13 | 8.0 | 2 | 625 | 1250 |
| | 14 | 8.0 | 3 | 180 | 540 |
| | 15 | 8.0 | 1 | 355 | 355 |
| | 16 | 8.0 | 2 | 375 | 750 |
| | 17 | 8.0 | 1 | 149 | 149 |
| | 18 | 8.0 | 1 | 190 | 190 |
| | 19 | 8.0 | 1 | 195 | 195 |
| | 20 | 8.0 | 1 | 194 | 194 |
| | 21 | 8.0 | 2 | 1150 | 2300 |
| | 22 | 8.0 | 1 | 75 | 75 |
| | 23 | 8.0 | 2 | 265 | 530 |
| | 24 | 8.0 | 4 | 516 | 2064 |
| | 25 | 8.0 | 2 | 1151 | 2302 |
| | 26 | 8.0 | 4 | 170 | 680 |
| | 27 | 8.0 | 1 | 350 | 350 |
| | 28 | 8.0 | 2 | 415 | 830 |
| | 29 | 8.0 | 2 | 279 | 558 |
| | 30 | 8.0 | 2 | 514 | 1028 |
| | 31 | 8.0 | 1 | 174 | 174 |
| | 32 | 8.0 | 2 | 1123 | 2246 |
| | 33 | 8.0 | 1 | 176 | 176 |
| | 34 | 8.0 | 1 | 169 | 169 |
| | 35 | 8.0 | 2 | 557 | 1114 |
| | 36 | 8.0 | 1 | 491 | 491 |
| | 37 | 8.0 | 1 | 685 | 685 |
| | 38 | 8.0 | 2 | 759 | 1518 |
| | 39 | 8.0 | 2 | 251 | 502 |
| | 40 | 8.0 | 2 | 428 | 856 |
| | 41 | 8.0 | 1 | 121 | 121 |
| | 42 | 8.0 | 2 | 228 | 456 |
| | 43 | 10.0 | 1 | 291 | 291 |
| | 44 | 10.0 | 2 | 466 | 932 |
| | 45 | 10.0 | 2 | 395 | 790 |
| | 46 | 10.0 | 1 | 275 | 275 |
| | 47 | 10.0 | 1 | 210 | 210 |
| | 48 | 10.0 | 1 | 977 | 977 |
| | 49 | 10.0 | 2 | 250 | 500 |
| | 50 | 10.0 | 1 | 310 | 310 |
| | 51 | 10.0 | 5 | 1200 | 6000 |
| | 52 | 10.0 | 2 | 438 | 876 |
| | 53 | 10.0 | 2 | 225 | 450 |
| | 54 | 10.0 | 1 | 270 | 270 |
| | 55 | 10.0 | 1 | 350 | 350 |
| | 56 | 10.0 | 3 | 1198 | 3594 |
| | 57 | 10.0 | 1 | 277 | 277 |
| | 58 | 10.0 | 2 | 337 | 674 |
| | 59 | 10.0 | 3 | 162 | 486 |
| | 60 | 10.0 | 1 | 222 | 222 |
| | 61 | 10.0 | 2 | 256 | 512 |
| | 62 | 10.0 | 1 | 550 | 550 |
| | 63 | 10.0 | 2 | 1195 | 2390 |
| | 64 | 10.0 | 1 | 284 | 284 |
| | 65 | 10.0 | 2 | 447 | 894 |
| | 66 | 10.0 | 2 | 499 | 998 |
| | 67 | 10.0 | 2 | 431 | 862 |
| | 68 | 10.0 | 2 | 282 | 564 |
| | 69 | 12.5 | 2 | 500 | 1000 |
| | 70 | 12.5 | 1 | 196 | 196 |
| | 71 | 12.5 | 2 | 276 | 552 |
| | 72 | 12.5 | 2 | 521 | 1042 |
| | 73 | 16.0 | 1 | 680 | 680 |
| | 74 | 16.0 | 2 | 760 | 1520 |
| | 75 | 16.0 | 1 | 295 | 295 |
| | 76 | 16.0 | 2 | 996 | 1992 |
| | 77 | 16.0 | 2 | 906 | 1812 |
| | 78 | 20.0 | 2 | 540 | 1080 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 1.3 | 0.4 |
| | 8.0 | 302.5 | 131.3 |
| | 10.0 | 245.4 | 166.4 |
| | 12.5 | 27.9 | 29.6 |
| | 16.0 | 63 | 109.4 |
| | 20.0 | 10.8 | 29.3 |
| CA60 | 5.0 | 506.3 | 85.8 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 466.3 |
| CA60 | 85.8 |

Volume de concreto (C-25) = 7.04 m³
Área de forma = 63.47 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 2**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

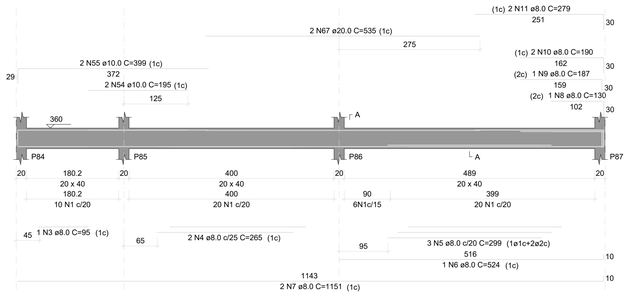
DATA:
**Outubro/2025**

DESENHO:
**-**

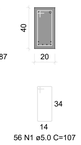
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 19 /60**

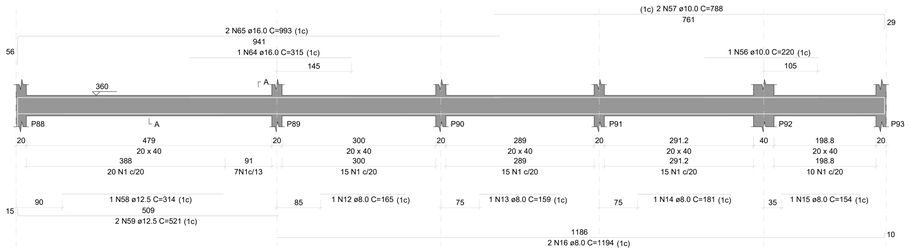
## V16
ESC 1:50



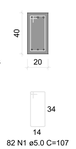

SEÇÃO A-A
ESC 1:25



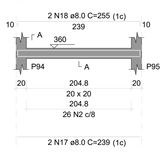

## V17
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V18
ESC 1:50




SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V16 | V17 | V18 |
| V19 | V20 | V21 |
| V22 | V23 | V24 |
| V25 | V26 | |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 381 | 107 | 40767 |
| | 2 | 5.0 | 87 | 67 | 5829 |
| CA50 | 3 | 8.0 | 1 | 95 | 95 |
| | 4 | 8.0 | 4 | 265 | 1060 |
| | 5 | 8.0 | 6 | 299 | 1794 |
| | 6 | 8.0 | 1 | 524 | 524 |
| | 7 | 8.0 | 2 | 1151 | 2302 |
| | 8 | 8.0 | 1 | 130 | 130 |
| | 9 | 8.0 | 1 | 187 | 187 |
| | 10 | 8.0 | 2 | 190 | 380 |
| | 11 | 8.0 | 2 | 279 | 558 |
| | 12 | 8.0 | 1 | 165 | 165 |
| | 13 | 8.0 | 1 | 159 | 159 |
| | 14 | 8.0 | 1 | 181 | 181 |
| | 15 | 8.0 | 1 | 154 | 154 |
| | 16 | 8.0 | 2 | 1194 | 2388 |
| | 17 | 8.0 | 4 | 239 | 956 |
| | 18 | 8.0 | 4 | 255 | 1020 |
| | 19 | 8.0 | 1 | 174 | 174 |
| | 20 | 8.0 | 2 | 243 | 486 |
| | 21 | 8.0 | 3 | 259 | 777 |
| | 22 | 8.0 | 2 | 256 | 512 |
| | 23 | 8.0 | 2 | 269 | 538 |
| | 24 | 8.0 | 1 | 71 | 71 |
| | 25 | 8.0 | 2 | 1071 | 2142 |
| | 26 | 8.0 | 5 | 180 | 900 |
| | 27 | 8.0 | 1 | 240 | 240 |
| | 28 | 8.0 | 1 | 361 | 361 |
| | 29 | 8.0 | 2 | 410 | 820 |
| | 30 | 8.0 | 1 | 75 | 75 |
| | 31 | 8.0 | 4 | 349 | 1396 |
| | 32 | 8.0 | 2 | 1159 | 2318 |
| | 33 | 8.0 | 1 | 355 | 355 |
| | 34 | 8.0 | 2 | 375 | 750 |
| | 35 | 8.0 | 2 | 142 | 284 |
| | 36 | 8.0 | 1 | 145 | 145 |
| | 37 | 8.0 | 1 | 190 | 190 |
| | 38 | 8.0 | 2 | 284 | 568 |
| | 39 | 8.0 | 1 | 514 | 514 |
| | 40 | 8.0 | 1 | 145 | 145 |
| | 41 | 8.0 | 1 | 164 | 164 |
| | 42 | 8.0 | 2 | 1143 | 2286 |
| | 43 | 8.0 | 1 | 191 | 191 |
| | 44 | 8.0 | 1 | 179 | 179 |
| | 45 | 8.0 | 2 | 565 | 1130 |
| | 46 | 8.0 | 2 | 308 | 616 |
| | 47 | 8.0 | 2 | 332 | 664 |
| | 48 | 8.0 | 3 | 147 | 441 |
| | 49 | 8.0 | 2 | 428 | 856 |
| | 50 | 8.0 | 3 | 444 | 1332 |
| | 51 | 8.0 | 1 | 163 | 163 |
| | 52 | 8.0 | 2 | 442 | 884 |
| | 53 | 8.0 | 3 | 450 | 1350 |
| | 54 | 10.0 | 2 | 195 | 390 |
| | 55 | 10.0 | 2 | 399 | 798 |
| | 56 | 10.0 | 1 | 220 | 220 |
| | 57 | 10.0 | 2 | 788 | 1576 |
| | 58 | 12.5 | 1 | 314 | 314 |
| | 59 | 12.5 | 2 | 521 | 1042 |
| | 60 | 12.5 | 1 | 280 | 280 |
| | 61 | 12.5 | 1 | 653 | 653 |
| | 62 | 12.5 | 2 | 1197 | 2394 |
| | 63 | 12.5 | 2 | 655 | 1310 |
| | 64 | 16.0 | 1 | 315 | 315 |
| | 65 | 16.0 | 2 | 993 | 1986 |
| | 66 | 16.0 | 2 | 684 | 1368 |
| | 67 | 20.0 | 2 | 535 | 1070 |
| | 68 | 20.0 | 2 | 545 | 1090 |

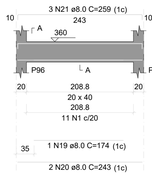
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 360.7 | 156.6 |
| | 10.0 | 29.8 | 20.2 |
| | 12.5 | 59.9 | 63.5 |
| | 16.0 | 36.7 | 63.7 |
| | 20.0 | 21.6 | 58.6 |
| CA60 | 5.0 | 466 | 79 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 362.6 |
| CA60 | 79 |

Volume de concreto (C-25) = 6.05 m³
Área de forma = 55.25 m²

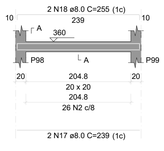
## V19
ESC 1:50




SEÇÃO A-A
ESC 1:25

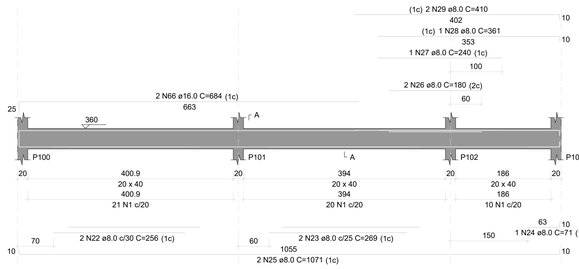



## V20
ESC 1:50




SEÇÃO A-A
ESC 1:25

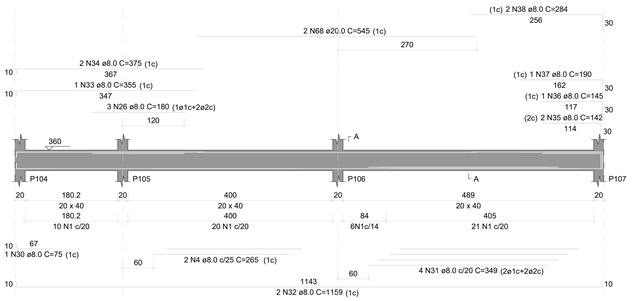
## V21
ESC 1:50



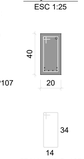

SEÇÃO A-A
ESC 1:25



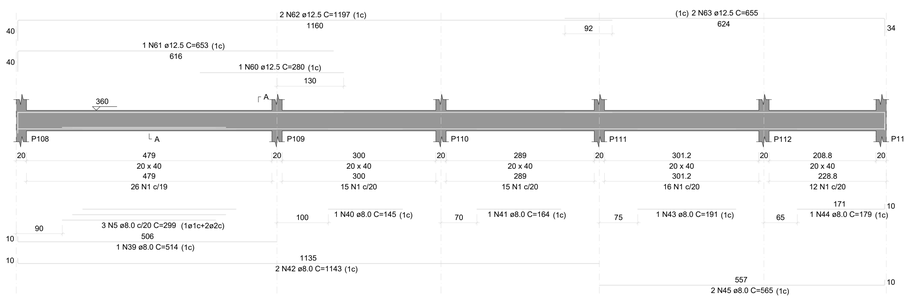

## V22
ESC 1:50



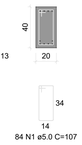

SEÇÃO A-A
ESC 1:25



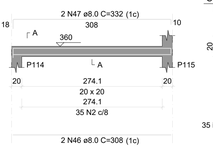

## V23
ESC 1:50




SEÇÃO A-A
ESC 1:25

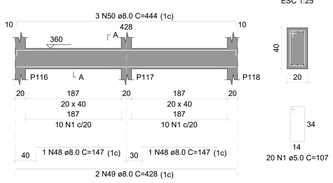



## V24
ESC 1:50




SEÇÃO A-A
ESC 1:25

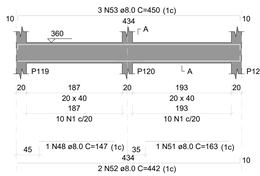
## V25
ESC 1:50



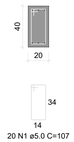

SEÇÃO A-A
ESC 1:25




## V26
ESC 1:50




SEÇÃO A-A
ESC 1:25





INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819


OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 3**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

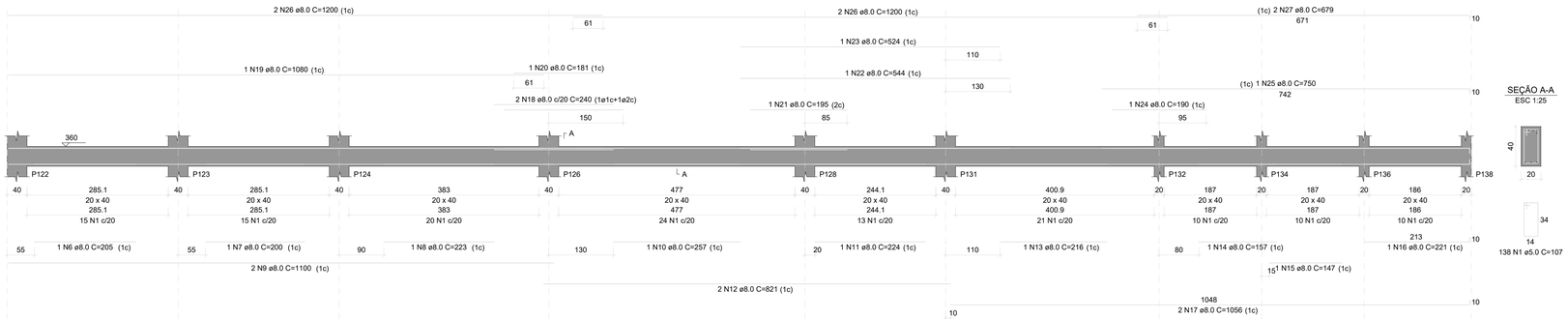
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 20 /60**

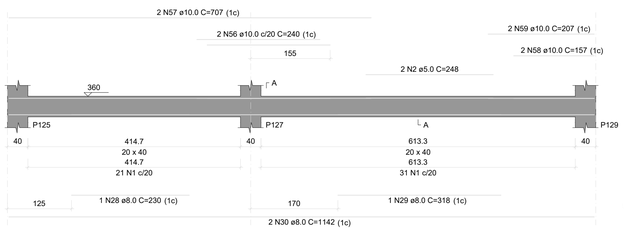
## V27
ESC 1:50



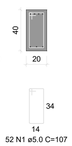

SEÇÃO A-A
ESC 1:25



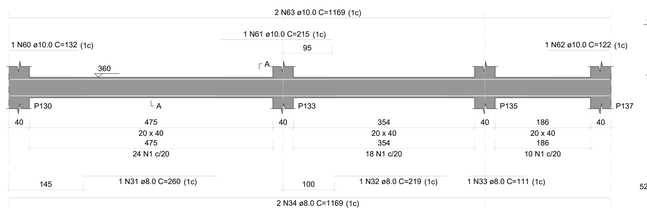

## V28
ESC 1:50



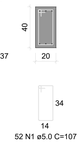

SEÇÃO A-A
ESC 1:25



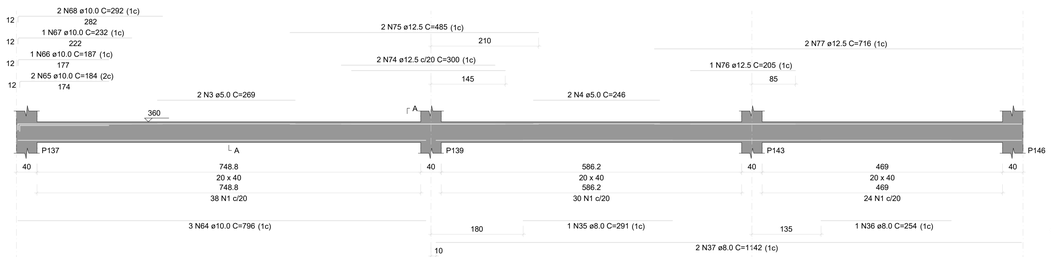

## V29
ESC 1:50



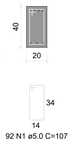

SEÇÃO A-A
ESC 1:25



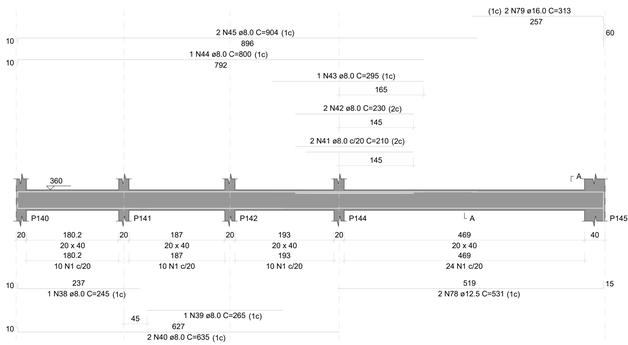

## V30
ESC 1:50



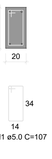

SEÇÃO A-A
ESC 1:25



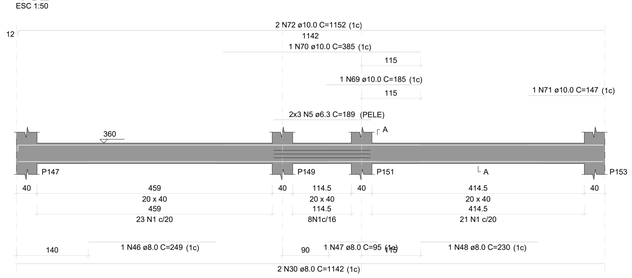

## V31
ESC 1:50



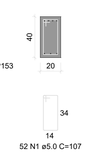

SEÇÃO A-A
ESC 1:25



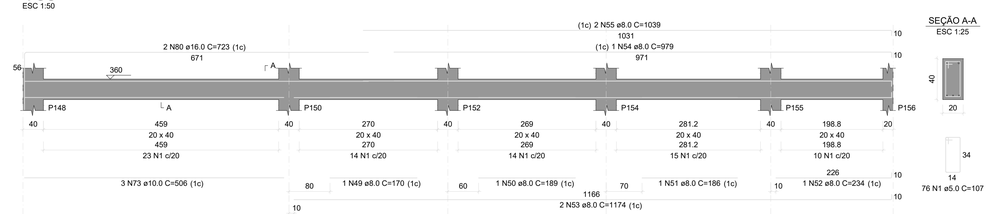

## V32
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V33
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V27 V28 V29
V30 V31 V32
V33

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 516 | 107 | 55212 |
| | 2 | 5.0 | 2 | 248 | 496 |
| | 3 | 5.0 | 2 | 269 | 538 |
| | 4 | 5.0 | 2 | 246 | 492 |
| CA50 | 5 | 6.3 | 6 | 189 | 1134 |
| | 6 | 8.0 | 1 | 205 | 205 |
| | 7 | 8.0 | 1 | 200 | 200 |
| | 8 | 8.0 | 1 | 223 | 223 |
| | 9 | 8.0 | 2 | 1100 | 2200 |
| | 10 | 8.0 | 1 | 257 | 257 |
| | 11 | 8.0 | 1 | 224 | 224 |
| | 12 | 8.0 | 2 | 821 | 1642 |
| | 13 | 8.0 | 1 | 216 | 216 |
| | 14 | 8.0 | 1 | 157 | 157 |
| | 15 | 8.0 | 1 | 147 | 147 |
| | 16 | 8.0 | 1 | 221 | 221 |
| | 17 | 8.0 | 2 | 1056 | 2112 |
| | 18 | 8.0 | 2 | 240 | 480 |
| | 19 | 8.0 | 1 | 1080 | 1080 |
| | 20 | 8.0 | 1 | 181 | 181 |
| | 21 | 8.0 | 1 | 195 | 195 |
| | 22 | 8.0 | 1 | 544 | 544 |
| | 23 | 8.0 | 1 | 524 | 524 |
| | 24 | 8.0 | 1 | 190 | 190 |
| | 25 | 8.0 | 1 | 750 | 750 |
| | 26 | 8.0 | 4 | 1200 | 4800 |
| | 27 | 8.0 | 2 | 679 | 1358 |
| | 28 | 8.0 | 1 | 230 | 230 |
| | 29 | 8.0 | 1 | 318 | 318 |
| | 30 | 8.0 | 4 | 1142 | 4568 |
| | 31 | 8.0 | 1 | 260 | 260 |
| | 32 | 8.0 | 1 | 219 | 219 |
| | 33 | 8.0 | 1 | 111 | 111 |
| | 34 | 8.0 | 2 | 1169 | 2338 |
| | 35 | 8.0 | 1 | 291 | 291 |
| | 36 | 8.0 | 1 | 254 | 254 |
| | 37 | 8.0 | 2 | 1142 | 2284 |
| | 38 | 8.0 | 1 | 245 | 245 |
| | 39 | 8.0 | 1 | 265 | 265 |
| | 40 | 8.0 | 2 | 635 | 1270 |
| | 41 | 8.0 | 2 | 210 | 420 |
| | 42 | 8.0 | 2 | 230 | 460 |
| | 43 | 8.0 | 1 | 295 | 295 |
| | 44 | 8.0 | 1 | 800 | 800 |
| | 45 | 8.0 | 2 | 904 | 1808 |
| | 46 | 8.0 | 1 | 249 | 249 |
| | 47 | 8.0 | 1 | 95 | 95 |
| | 48 | 8.0 | 1 | 230 | 230 |
| | 49 | 8.0 | 1 | 170 | 170 |
| | 50 | 8.0 | 1 | 189 | 189 |
| | 51 | 8.0 | 1 | 186 | 186 |
| | 52 | 8.0 | 1 | 234 | 234 |
| | 53 | 8.0 | 2 | 1174 | 2348 |
| | 54 | 8.0 | 1 | 979 | 979 |
| | 55 | 8.0 | 2 | 1039 | 2078 |
| | 56 | 10.0 | 2 | 240 | 480 |
| | 57 | 10.0 | 2 | 707 | 1414 |
| | 58 | 10.0 | 2 | 157 | 314 |
| | 59 | 10.0 | 2 | 207 | 414 |
| | 60 | 10.0 | 1 | 132 | 132 |
| | 61 | 10.0 | 1 | 215 | 215 |
| | 62 | 10.0 | 1 | 122 | 122 |
| | 63 | 10.0 | 2 | 1169 | 2338 |
| | 64 | 10.0 | 3 | 796 | 2388 |
| | 65 | 10.0 | 2 | 184 | 368 |
| | 66 | 10.0 | 1 | 187 | 187 |
| | 67 | 10.0 | 1 | 232 | 232 |
| | 68 | 10.0 | 2 | 292 | 584 |
| | 69 | 10.0 | 1 | 185 | 185 |
| | 70 | 10.0 | 1 | 385 | 385 |
| | 71 | 10.0 | 1 | 147 | 147 |
| | 72 | 10.0 | 2 | 1152 | 2304 |
| | 73 | 10.0 | 3 | 506 | 1518 |
| | 74 | 12.5 | 2 | 300 | 600 |
| | 75 | 12.5 | 2 | 485 | 970 |
| | 76 | 12.5 | 1 | 205 | 205 |
| | 77 | 12.5 | 2 | 716 | 1432 |
| | 78 | 12.5 | 2 | 531 | 1062 |
| | 79 | 16.0 | 2 | 313 | 626 |
| | 80 | 16.0 | 2 | 723 | 1446 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 11.3 | 3.1 |
| | 8.0 | 411 | 178.4 |
| | 10.0 | 137.3 | 93.1 |
| | 12.5 | 42.7 | 45.2 |
| | 16.0 | 20.7 | 36 |
| CA60 | 5.0 | 567.4 | 96.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 355.8 |
| CA60 | 96.2 |

Volume de concreto (C-25) = 7.98 m³
Área de forma = 87.32 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS LAJE 4**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

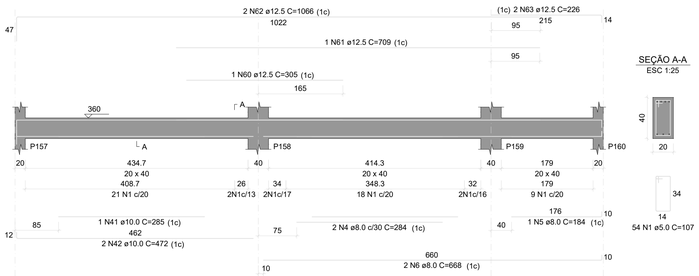
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 21/60**

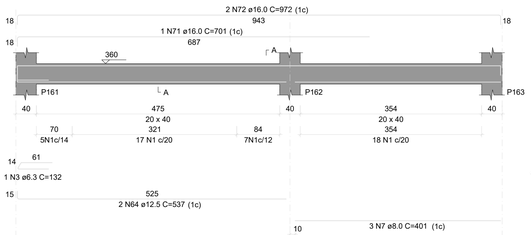
## V34
ESC 1:50



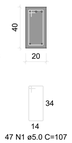

SEÇÃO A-A
ESC 1:25



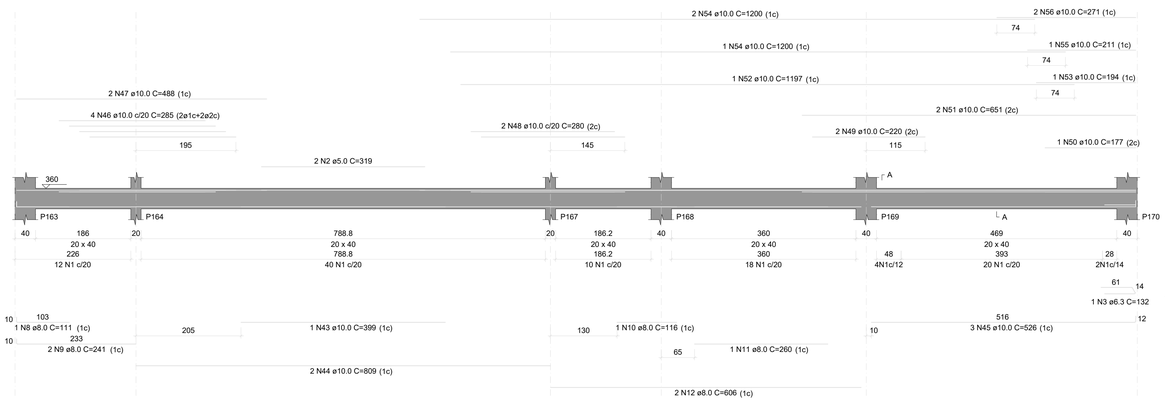

## V35
ESC 1:50



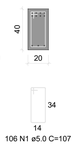

SEÇÃO A-A
ESC 1:25



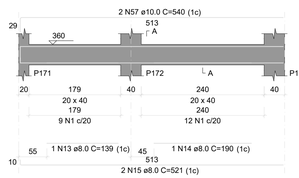

## V36
ESC 1:50




SEÇÃO A-A
ESC 1:25

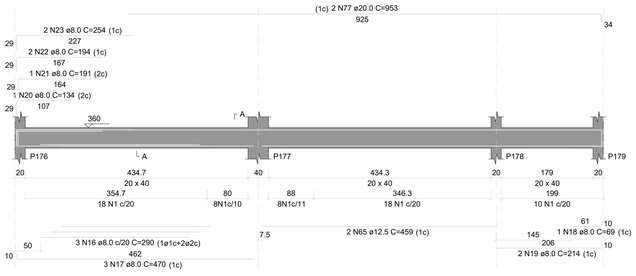



## V37
ESC 1:50

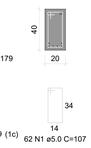



SEÇÃO A-A
ESC 1:25

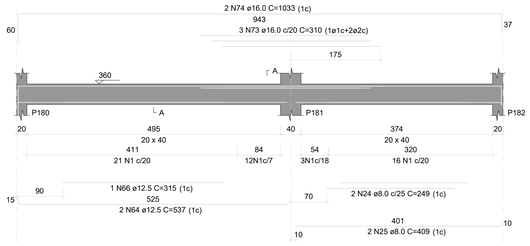
## V38
ESC 1:50



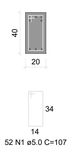

SEÇÃO A-A
ESC 1:25



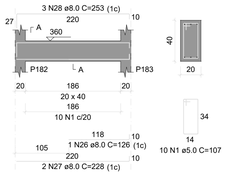

## V39
ESC 1:50




SEÇÃO A-A
ESC 1:25



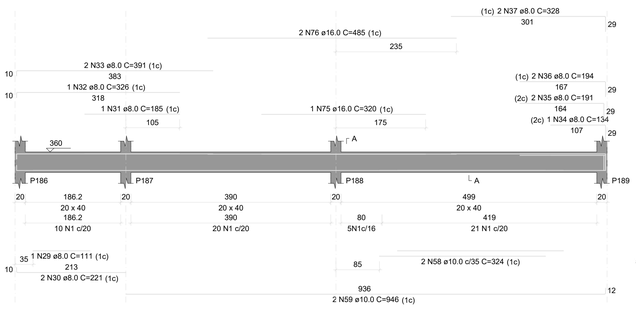

## V40
ESC 1:50



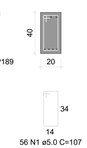

SEÇÃO A-A
ESC 1:25



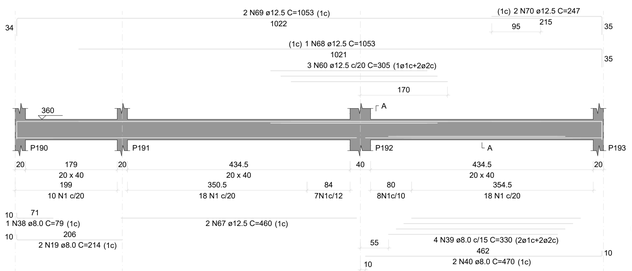

## V41
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V42
ESC 1:50




SEÇÃO A-A
ESC 1:25

### RELAÇÃO DO AÇO

V34 V35 V36
V37 V38 V39
V40 V41 V42

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 469 | 107 | 50183 |
| | 2 | 5.0 | 2 | 319 | 638 |
| CA50 | 3 | 6.3 | 2 | 132 | 264 |
| | 4 | 8.0 | 2 | 284 | 568 |
| | 5 | 8.0 | 1 | 184 | 184 |
| | 6 | 8.0 | 2 | 668 | 1336 |
| | 7 | 8.0 | 3 | 401 | 1203 |
| | 8 | 8.0 | 1 | 111 | 111 |
| | 9 | 8.0 | 2 | 241 | 482 |
| | 10 | 8.0 | 1 | 116 | 116 |
| | 11 | 8.0 | 1 | 260 | 260 |
| | 12 | 8.0 | 2 | 606 | 1212 |
| | 13 | 8.0 | 1 | 139 | 139 |
| | 14 | 8.0 | 1 | 190 | 190 |
| | 15 | 8.0 | 2 | 521 | 1042 |
| | 16 | 8.0 | 3 | 290 | 870 |
| | 17 | 8.0 | 3 | 470 | 1410 |
| | 18 | 8.0 | 1 | 69 | 69 |
| | 19 | 8.0 | 4 | 214 | 856 |
| | 20 | 8.0 | 1 | 134 | 134 |
| | 21 | 8.0 | 1 | 191 | 191 |
| | 22 | 8.0 | 2 | 194 | 388 |
| | 23 | 8.0 | 2 | 254 | 508 |
| | 24 | 8.0 | 2 | 249 | 498 |
| | 25 | 8.0 | 2 | 409 | 818 |
| | 26 | 8.0 | 1 | 126 | 126 |
| | 27 | 8.0 | 2 | 228 | 456 |
| | 28 | 8.0 | 3 | 253 | 759 |
| | 29 | 8.0 | 1 | 111 | 111 |
| | 30 | 8.0 | 2 | 221 | 442 |
| | 31 | 8.0 | 1 | 185 | 185 |
| | 32 | 8.0 | 1 | 326 | 326 |
| | 33 | 8.0 | 2 | 391 | 782 |
| | 34 | 8.0 | 1 | 134 | 134 |
| | 35 | 8.0 | 2 | 191 | 382 |
| | 36 | 8.0 | 2 | 194 | 388 |
| | 37 | 8.0 | 2 | 328 | 656 |
| | 38 | 8.0 | 1 | 79 | 79 |
| | 39 | 8.0 | 4 | 330 | 1320 |
| | 40 | 8.0 | 2 | 470 | 940 |
| | 41 | 10.0 | 1 | 285 | 285 |
| | 42 | 10.0 | 2 | 472 | 944 |
| | 43 | 10.0 | 1 | 399 | 399 |
| | 44 | 10.0 | 2 | 809 | 1618 |
| | 45 | 10.0 | 3 | 526 | 1578 |
| | 46 | 10.0 | 4 | 285 | 1140 |
| | 47 | 10.0 | 2 | 488 | 976 |
| | 48 | 10.0 | 2 | 280 | 560 |
| | 49 | 10.0 | 2 | 220 | 440 |
| | 50 | 10.0 | 1 | 177 | 177 |
| | 51 | 10.0 | 2 | 651 | 1302 |
| | 52 | 10.0 | 1 | 1197 | 1197 |
| | 53 | 10.0 | 1 | 194 | 194 |
| | 54 | 10.0 | 3 | 1200 | 3600 |
| | 55 | 10.0 | 1 | 211 | 211 |
| | 56 | 10.0 | 2 | 271 | 542 |
| | 57 | 10.0 | 2 | 540 | 1080 |
| | 58 | 10.0 | 2 | 324 | 648 |
| | 59 | 10.0 | 2 | 946 | 1892 |
| | 60 | 12.5 | 4 | 305 | 1220 |
| | 61 | 12.5 | 1 | 709 | 709 |
| | 62 | 12.5 | 2 | 1066 | 2132 |
| | 63 | 12.5 | 2 | 226 | 452 |
| | 64 | 12.5 | 4 | 537 | 2148 |
| | 65 | 12.5 | 2 | 459 | 918 |
| | 66 | 12.5 | 1 | 315 | 315 |
| | 67 | 12.5 | 2 | 460 | 920 |
| | 68 | 12.5 | 1 | 1053 | 1053 |
| | 69 | 12.5 | 2 | 1053 | 2106 |
| | 70 | 12.5 | 2 | 247 | 494 |
| | 71 | 16.0 | 1 | 701 | 701 |
| | 72 | 16.0 | 2 | 972 | 1944 |
| | 73 | 16.0 | 3 | 310 | 930 |
| | 74 | 16.0 | 2 | 1033 | 2066 |
| | 75 | 16.0 | 1 | 320 | 320 |
| | 76 | 16.0 | 2 | 485 | 970 |
| | 77 | 20.0 | 2 | 953 | 1906 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 2.6 | 0.7 |
| | 8.0 | 196.7 | 85.4 |
| | 10.0 | 187.8 | 127.4 |
| | 12.5 | 124.7 | 132.1 |
| | 16.0 | 69.3 | 120.3 |
| | 20.0 | 19.1 | 51.7 |
| CA60 | 5.0 | 508.2 | 86.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 517.6 |
| CA60 | 86.2 |

Volume de concreto (C-25) = 6.79 m³
Área de forma = 60.63 m²

**INSTITUTO FEDERAL FARROUPILHA**

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS LAJE 5**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

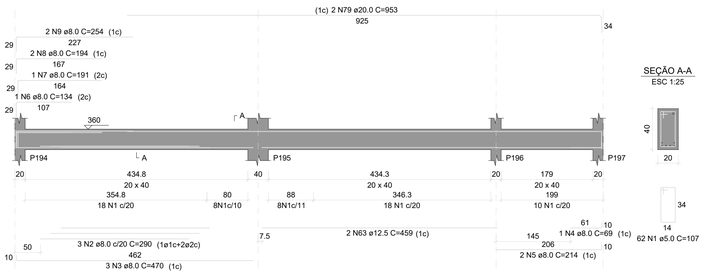
DATA: **Outubro/2025**

DESENHO: **-**

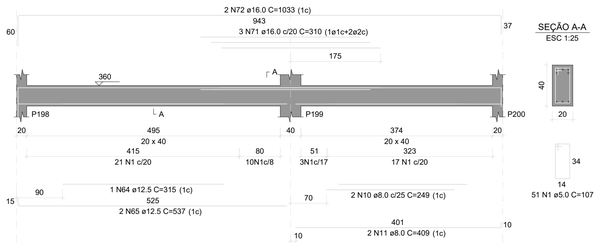
RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 22 /60**

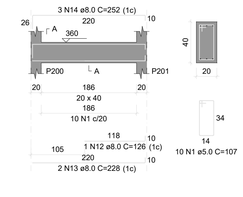
## V43
ESC 1:50



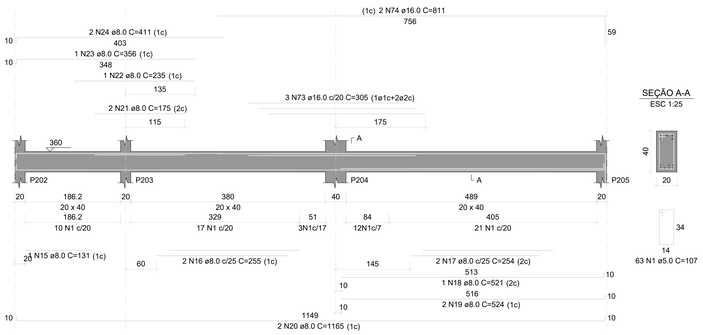

## V44
ESC 1:50



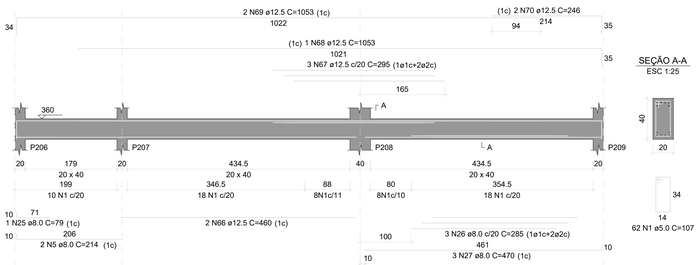

## V45
ESC 1:50



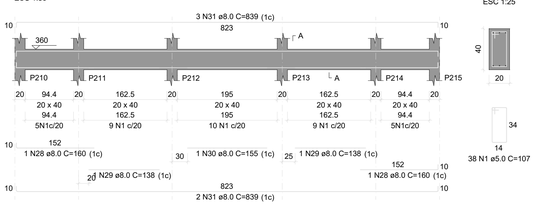

## V46
ESC 1:50



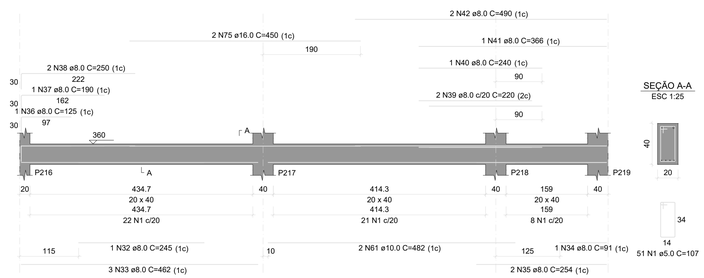

## V47
ESC 1:50



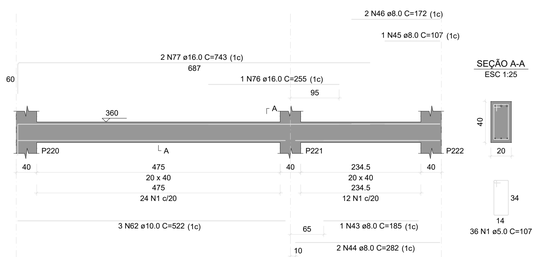

## V48
ESC 1:50



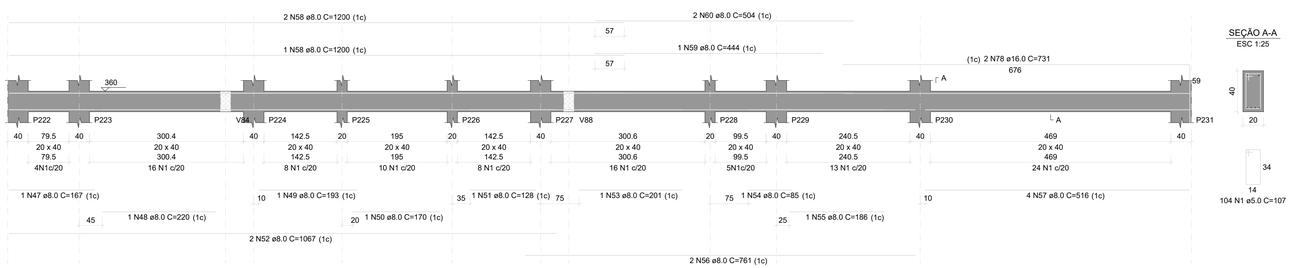

## V49
ESC 1:50




## V50
ESC 1:50




## V51
ESC 1:50




### RELAÇÃO DO AÇO

V43 V44 V45
V46 V47 V48
V49 V50 V51

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 477 | 107 | 51039 |
| CA50 | 2 | 8.0 | 3 | 290 | 870 |
| | 3 | 8.0 | 3 | 470 | 1410 |
| | 4 | 8.0 | 1 | 69 | 69 |
| | 5 | 8.0 | 4 | 214 | 856 |
| | 6 | 8.0 | 1 | 134 | 134 |
| | 7 | 8.0 | 1 | 191 | 191 |
| | 8 | 8.0 | 2 | 194 | 388 |
| | 9 | 8.0 | 2 | 254 | 508 |
| | 10 | 8.0 | 2 | 249 | 498 |
| | 11 | 8.0 | 2 | 409 | 818 |
| | 12 | 8.0 | 1 | 126 | 126 |
| | 13 | 8.0 | 2 | 228 | 456 |
| | 14 | 8.0 | 3 | 252 | 756 |
| | 15 | 8.0 | 1 | 131 | 131 |
| | 16 | 8.0 | 2 | 255 | 510 |
| | 17 | 8.0 | 2 | 254 | 508 |
| | 18 | 8.0 | 1 | 521 | 521 |
| | 19 | 8.0 | 2 | 524 | 1048 |
| | 20 | 8.0 | 2 | 1165 | 2330 |
| | 21 | 8.0 | 2 | 175 | 350 |
| | 22 | 8.0 | 1 | 235 | 235 |
| | 23 | 8.0 | 1 | 356 | 356 |
| | 24 | 8.0 | 2 | 411 | 822 |
| | 25 | 8.0 | 1 | 79 | 79 |
| | 26 | 8.0 | 3 | 285 | 855 |
| | 27 | 8.0 | 3 | 470 | 1410 |
| | 28 | 8.0 | 2 | 160 | 320 |
| | 29 | 8.0 | 2 | 138 | 276 |
| | 30 | 8.0 | 1 | 155 | 155 |
| | 31 | 8.0 | 5 | 839 | 4195 |
| | 32 | 8.0 | 1 | 245 | 245 |
| | 33 | 8.0 | 3 | 462 | 1386 |
| | 34 | 8.0 | 1 | 91 | 91 |
| | 35 | 8.0 | 2 | 254 | 508 |
| | 36 | 8.0 | 1 | 125 | 125 |
| | 37 | 8.0 | 1 | 190 | 190 |
| | 38 | 8.0 | 2 | 250 | 500 |
| | 39 | 8.0 | 2 | 220 | 440 |
| | 40 | 8.0 | 1 | 240 | 240 |
| | 41 | 8.0 | 1 | 366 | 366 |
| | 42 | 8.0 | 2 | 490 | 980 |
| | 43 | 8.0 | 1 | 185 | 185 |
| | 44 | 8.0 | 2 | 282 | 564 |
| | 45 | 8.0 | 1 | 107 | 107 |
| | 46 | 8.0 | 2 | 172 | 344 |
| | 47 | 8.0 | 1 | 167 | 167 |
| | 48 | 8.0 | 1 | 220 | 220 |
| | 49 | 8.0 | 1 | 193 | 193 |
| | 50 | 8.0 | 1 | 170 | 170 |
| | 51 | 8.0 | 1 | 128 | 128 |
| | 52 | 8.0 | 2 | 1067 | 2134 |
| | 53 | 8.0 | 1 | 201 | 201 |
| | 54 | 8.0 | 1 | 85 | 85 |
| | 55 | 8.0 | 1 | 186 | 186 |
| | 56 | 8.0 | 2 | 761 | 1522 |
| | 57 | 8.0 | 4 | 516 | 2064 |
| | 58 | 8.0 | 3 | 1200 | 3600 |
| | 59 | 8.0 | 1 | 444 | 444 |
| | 60 | 8.0 | 2 | 504 | 1008 |
| | 61 | 10.0 | 2 | 482 | 964 |
| | 62 | 10.0 | 3 | 522 | 1566 |
| | 63 | 12.5 | 2 | 459 | 918 |
| | 64 | 12.5 | 1 | 315 | 315 |
| | 65 | 12.5 | 2 | 537 | 1074 |
| | 66 | 12.5 | 2 | 460 | 920 |
| | 67 | 12.5 | 3 | 295 | 885 |
| | 68 | 12.5 | 1 | 1053 | 1053 |
| | 69 | 12.5 | 2 | 1053 | 2106 |
| | 70 | 12.5 | 2 | 246 | 492 |
| | 71 | 16.0 | 3 | 310 | 930 |
| | 72 | 16.0 | 2 | 1033 | 2066 |
| | 73 | 16.0 | 3 | 305 | 915 |
| | 74 | 16.0 | 2 | 811 | 1622 |
| | 75 | 16.0 | 2 | 450 | 900 |
| | 76 | 16.0 | 1 | 255 | 255 |
| | 77 | 16.0 | 2 | 743 | 1486 |
| | 78 | 16.0 | 2 | 731 | 1462 |
| | 79 | 20.0 | 2 | 953 | 1906 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 395.7 | 171.8 |
| | 10.0 | 25.3 | 17.2 |
| | 12.5 | 77.6 | 82.3 |
| | 16.0 | 96.4 | 167.3 |
| | 20.0 | 19.1 | 51.7 |
| CA60 | 5.0 | 510.4 | 86.5 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 490.2 |
| CA60 | 86.5 |

Volume de concreto (C-25) = 6.88 m³
Área de forma = 67.56 m²


INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819


OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS LAJE 5**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

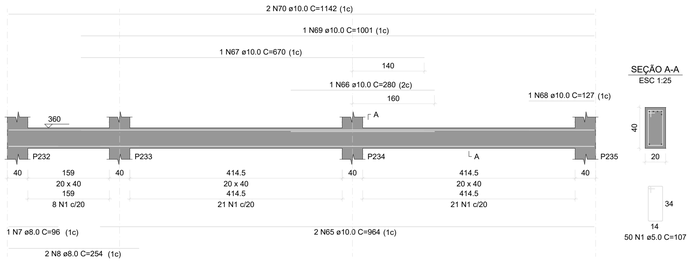
DATA: **Outubro/2025**

DESENHO: -

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 23 /60**

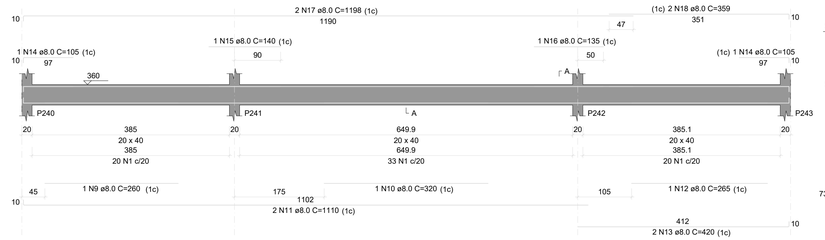
## V52
ESC 1:50



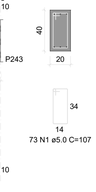

SEÇÃO A-A
ESC 1:25



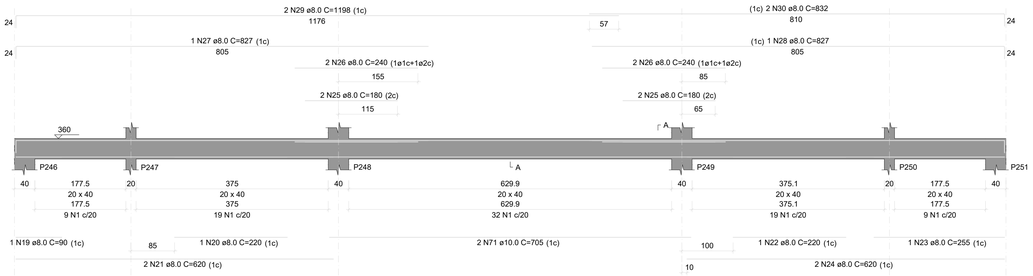

## V53
ESC 1:50



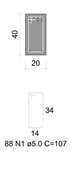

SEÇÃO A-A
ESC 1:25



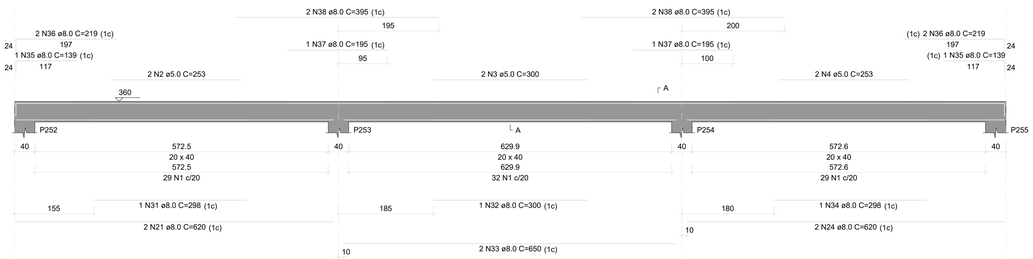

## V54
ESC 1:50



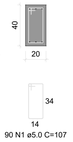

SEÇÃO A-A
ESC 1:25



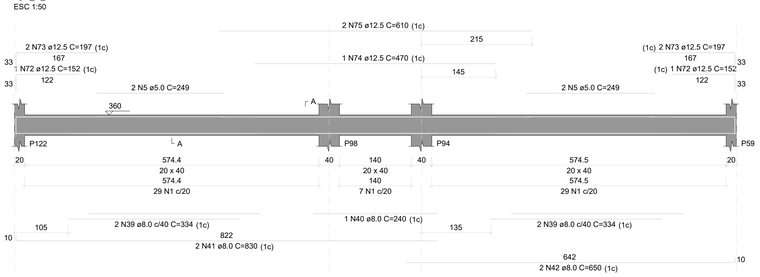

## V55
ESC 1:50



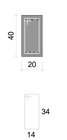

SEÇÃO A-A
ESC 1:25



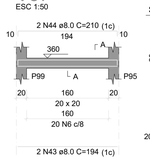

## V56
ESC 1:50




SEÇÃO A-A
ESC 1:25

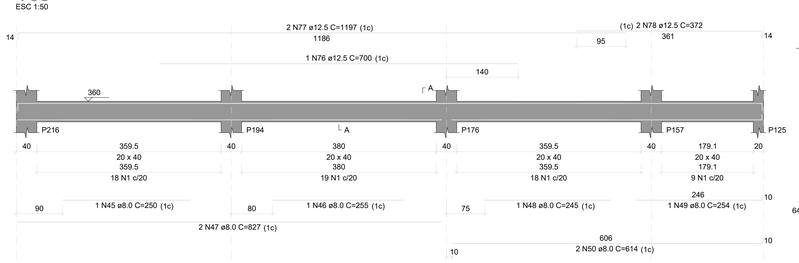



## V57
ESC 1:50

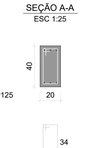



SEÇÃO A-A
ESC 1:25

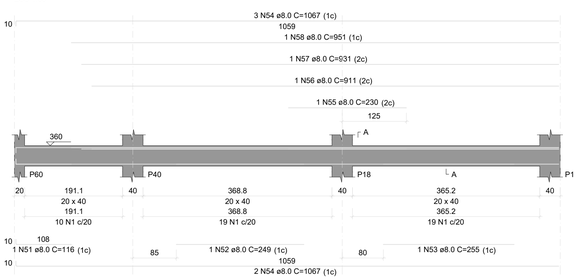
## V58
ESC 1:50



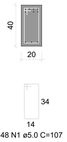

SEÇÃO A-A
ESC 1:25



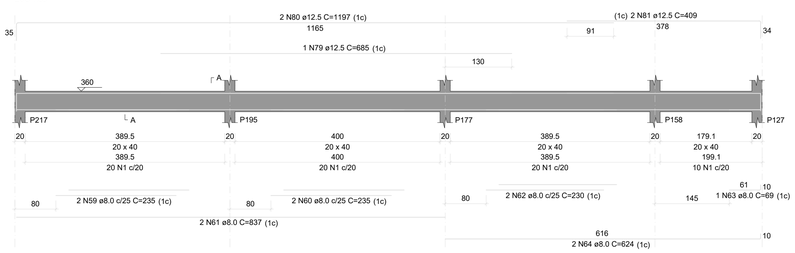

## V59
ESC 1:50



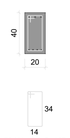

SEÇÃO A-A
ESC 1:25




## V60
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V52 V53 V54
V55 V56 V57
V58 V59 V60

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 548 | 107 | 58636 |
| | 2 | 5.0 | 2 | 253 | 506 |
| | 3 | 5.0 | 2 | 300 | 600 |
| | 4 | 5.0 | 2 | 253 | 506 |
| | 5 | 5.0 | 4 | 249 | 996 |
| | 6 | 5.0 | 20 | 67 | 1340 |
| CA50 | 7 | 8.0 | 1 | 96 | 96 |
| | 8 | 8.0 | 2 | 254 | 508 |
| | 9 | 8.0 | 1 | 260 | 260 |
| | 10 | 8.0 | 1 | 320 | 320 |
| | 11 | 8.0 | 2 | 1110 | 2220 |
| | 12 | 8.0 | 1 | 265 | 265 |
| | 13 | 8.0 | 2 | 420 | 840 |
| | 14 | 8.0 | 2 | 105 | 210 |
| | 15 | 8.0 | 1 | 140 | 140 |
| | 16 | 8.0 | 1 | 135 | 135 |
| | 17 | 8.0 | 2 | 1198 | 2396 |
| | 18 | 8.0 | 2 | 359 | 718 |
| | 19 | 8.0 | 1 | 90 | 90 |
| | 20 | 8.0 | 1 | 220 | 220 |
| | 21 | 8.0 | 4 | 620 | 2480 |
| | 22 | 8.0 | 1 | 220 | 220 |
| | 23 | 8.0 | 1 | 255 | 255 |
| | 24 | 8.0 | 4 | 620 | 2480 |
| | 25 | 8.0 | 4 | 180 | 720 |
| | 26 | 8.0 | 4 | 240 | 960 |
| | 27 | 8.0 | 1 | 827 | 827 |
| | 28 | 8.0 | 1 | 827 | 827 |
| | 29 | 8.0 | 2 | 1198 | 2396 |
| | 30 | 8.0 | 2 | 832 | 1664 |
| | 31 | 8.0 | 1 | 298 | 298 |
| | 32 | 8.0 | 1 | 300 | 300 |
| | 33 | 8.0 | 2 | 650 | 1300 |
| | 34 | 8.0 | 1 | 298 | 298 |
| | 35 | 8.0 | 2 | 139 | 278 |
| | 36 | 8.0 | 4 | 219 | 876 |
| | 37 | 8.0 | 2 | 195 | 390 |
| | 38 | 8.0 | 4 | 395 | 1580 |
| | 39 | 8.0 | 4 | 334 | 1336 |
| | 40 | 8.0 | 1 | 240 | 240 |
| | 41 | 8.0 | 2 | 830 | 1660 |
| | 42 | 8.0 | 2 | 650 | 1300 |
| | 43 | 8.0 | 2 | 194 | 388 |
| | 44 | 8.0 | 2 | 210 | 420 |
| | 45 | 8.0 | 1 | 250 | 250 |
| | 46 | 8.0 | 1 | 255 | 255 |
| | 47 | 8.0 | 2 | 827 | 1654 |
| | 48 | 8.0 | 1 | 245 | 245 |
| | 49 | 8.0 | 1 | 254 | 254 |
| | 50 | 8.0 | 2 | 614 | 1228 |
| | 51 | 8.0 | 1 | 116 | 116 |
| | 52 | 8.0 | 1 | 249 | 249 |
| | 53 | 8.0 | 1 | 255 | 255 |
| | 54 | 8.0 | 5 | 1067 | 5335 |
| | 55 | 8.0 | 1 | 230 | 230 |
| | 56 | 8.0 | 1 | 911 | 911 |
| | 57 | 8.0 | 1 | 931 | 931 |
| | 58 | 8.0 | 1 | 951 | 951 |
| | 59 | 8.0 | 2 | 235 | 470 |
| | 60 | 8.0 | 2 | 235 | 470 |
| | 61 | 8.0 | 2 | 837 | 1674 |
| | 62 | 8.0 | 2 | 230 | 460 |
| | 63 | 8.0 | 1 | 69 | 69 |
| | 64 | 8.0 | 2 | 624 | 1248 |
| | 65 | 10.0 | 2 | 964 | 1928 |
| | 66 | 10.0 | 1 | 280 | 280 |
| | 67 | 10.0 | 1 | 670 | 670 |
| | 68 | 10.0 | 1 | 127 | 127 |
| | 69 | 10.0 | 1 | 1001 | 1001 |
| | 70 | 10.0 | 2 | 1142 | 2284 |
| | 71 | 10.0 | 2 | 705 | 1410 |
| | 72 | 12.5 | 2 | 152 | 304 |
| | 73 | 12.5 | 4 | 197 | 788 |
| | 74 | 12.5 | 1 | 470 | 470 |
| | 75 | 12.5 | 2 | 610 | 1220 |
| | 76 | 12.5 | 1 | 700 | 700 |
| | 77 | 12.5 | 2 | 1197 | 2394 |
| | 78 | 12.5 | 2 | 372 | 744 |
| | 79 | 12.5 | 1 | 685 | 685 |
| | 80 | 12.5 | 2 | 1197 | 2394 |
| | 81 | 12.5 | 2 | 409 | 818 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 491.7 | 213.4 |
| | 10.0 | 77 | 52.2 |
| | 12.5 | 105.2 | 111.4 |
| CA60 | 5.0 | 625.8 | 106.1 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 377.1 |
| CA60 | 106.1 |

Volume de concreto (C-25) = 8.69 m³
Área de forma = 99.98 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS LAJE 5**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

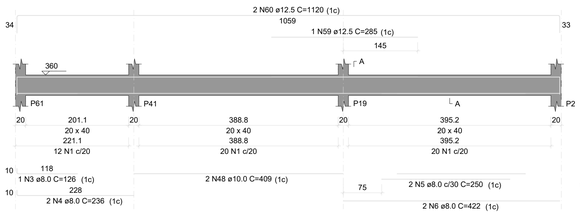
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 24 /60**

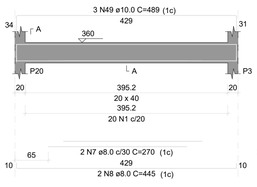
## V61
ESC 1:50



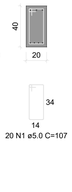

SEÇÃO A-A
ESC 1:25



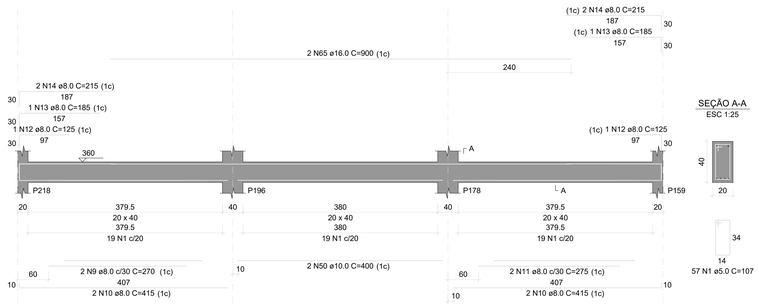

## V62
ESC 1:50




SEÇÃO A-A
ESC 1:25



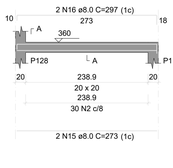

## V63
ESC 1:50




SEÇÃO A-A
ESC 1:25

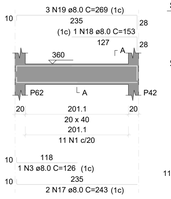



## V64
ESC 1:50

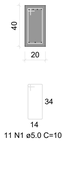



SEÇÃO A-A
ESC 1:25

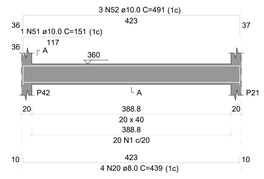
## V65
ESC 1:50



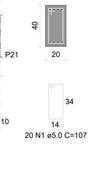

SEÇÃO A-A
ESC 1:25



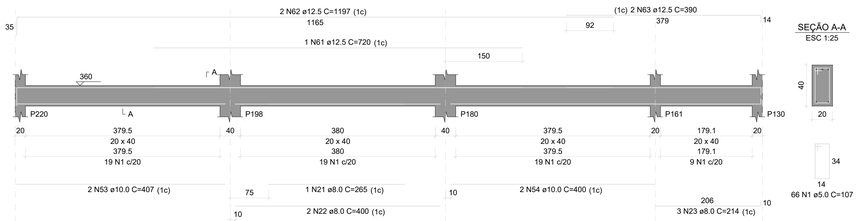

## V66
ESC 1:50




SEÇÃO A-A
ESC 1:25



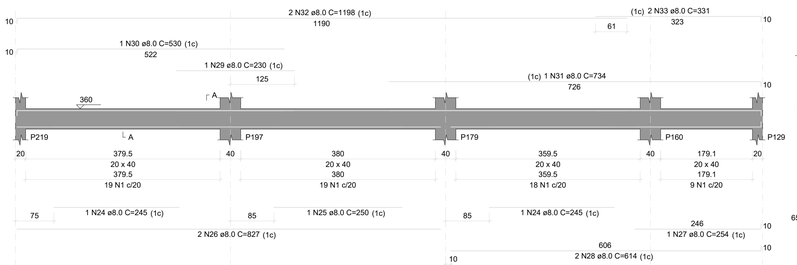

## V67
ESC 1:50




SEÇÃO A-A
ESC 1:25

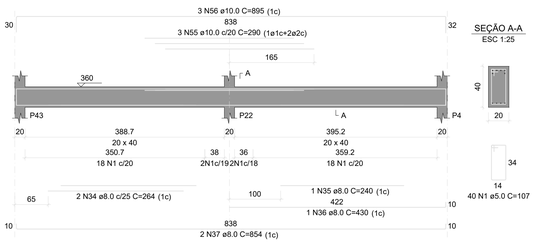



## V68
ESC 1:50




SEÇÃO A-A
ESC 1:25

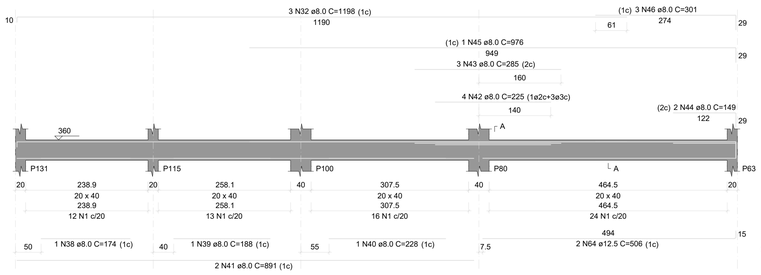
## V69
ESC 1:50



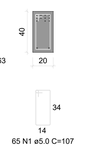

SEÇÃO A-A
ESC 1:25



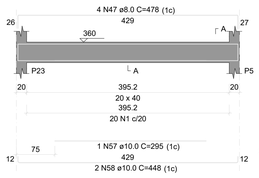

## V70
ESC 1:50



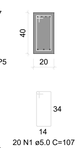

SEÇÃO A-A
ESC 1:25




## V71
ESC 1:50




SEÇÃO A-A
ESC 1:25




### RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V61 | V62 | V63 |
| V64 | V65 | V66 |
| V67 | V68 | V69 |
| V70 | V71 | |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 416 | 107 | 44512 |
| | 2 | 5.0 | 30 | 67 | 2010 |
| CA50 | 3 | 8.0 | 2 | 126 | 252 |
| | 4 | 8.0 | 2 | 236 | 472 |
| | 5 | 8.0 | 2 | 250 | 500 |
| | 6 | 8.0 | 2 | 422 | 844 |
| | 7 | 8.0 | 2 | 270 | 540 |
| | 8 | 8.0 | 2 | 445 | 890 |
| | 9 | 8.0 | 2 | 270 | 540 |
| | 10 | 8.0 | 4 | 415 | 1660 |
| | 11 | 8.0 | 2 | 275 | 550 |
| | 12 | 8.0 | 2 | 125 | 250 |
| | 13 | 8.0 | 2 | 185 | 370 |
| | 14 | 8.0 | 4 | 215 | 860 |
| | 15 | 8.0 | 2 | 273 | 546 |
| | 16 | 8.0 | 2 | 297 | 594 |
| | 17 | 8.0 | 2 | 243 | 486 |
| | 18 | 8.0 | 1 | 153 | 153 |
| | 19 | 8.0 | 3 | 269 | 807 |
| | 20 | 8.0 | 4 | 439 | 1756 |
| | 21 | 8.0 | 1 | 265 | 265 |
| | 22 | 8.0 | 2 | 400 | 800 |
| | 23 | 8.0 | 3 | 214 | 642 |
| | 24 | 8.0 | 2 | 245 | 490 |
| | 25 | 8.0 | 1 | 250 | 250 |
| | 26 | 8.0 | 2 | 827 | 1654 |
| | 27 | 8.0 | 1 | 254 | 254 |
| | 28 | 8.0 | 2 | 614 | 1228 |
| | 29 | 8.0 | 1 | 230 | 230 |
| | 30 | 8.0 | 1 | 530 | 530 |
| | 31 | 8.0 | 1 | 734 | 734 |
| | 32 | 8.0 | 5 | 1198 | 5990 |
| | 33 | 8.0 | 2 | 331 | 662 |
| | 34 | 8.0 | 2 | 264 | 528 |
| | 35 | 8.0 | 1 | 240 | 240 |
| | 36 | 8.0 | 1 | 430 | 430 |
| | 37 | 8.0 | 2 | 854 | 1708 |
| | 38 | 8.0 | 1 | 174 | 174 |
| | 39 | 8.0 | 1 | 188 | 188 |
| | 40 | 8.0 | 1 | 228 | 228 |
| | 41 | 8.0 | 2 | 891 | 1782 |
| | 42 | 8.0 | 4 | 225 | 900 |
| | 43 | 8.0 | 3 | 285 | 855 |
| | 44 | 8.0 | 2 | 149 | 298 |
| | 45 | 8.0 | 1 | 976 | 976 |
| | 46 | 8.0 | 3 | 301 | 903 |
| | 47 | 8.0 | 4 | 478 | 1912 |
| | 48 | 10.0 | 2 | 409 | 818 |
| | 49 | 10.0 | 3 | 489 | 1467 |
| | 50 | 10.0 | 2 | 400 | 800 |
| | 51 | 10.0 | 1 | 151 | 151 |
| | 52 | 10.0 | 3 | 491 | 1473 |
| | 53 | 10.0 | 2 | 407 | 814 |
| | 54 | 10.0 | 2 | 400 | 800 |
| | 55 | 10.0 | 3 | 290 | 870 |
| | 56 | 10.0 | 3 | 895 | 2685 |
| | 57 | 10.0 | 1 | 295 | 295 |
| | 58 | 10.0 | 2 | 448 | 896 |
| | 59 | 12.5 | 1 | 285 | 285 |
| | 60 | 12.5 | 2 | 1120 | 2240 |
| | 61 | 12.5 | 1 | 720 | 720 |
| | 62 | 12.5 | 2 | 1197 | 2394 |
| | 63 | 12.5 | 2 | 390 | 780 |
| | 64 | 12.5 | 2 | 506 | 1012 |
| | 65 | 16.0 | 2 | 900 | 1800 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 369.2 | 160.3 |
| | 10.0 | 110.7 | 75.1 |
| | 12.5 | 74.3 | 78.7 |
| | 16.0 | 18 | 31.3 |
| CA60 | 5.0 | 465.2 | 78.9 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 345.3 |
| CA60 | 78.9 |

Volume de concreto (C-25) = 6.63 m³
Área de forma = 64.47 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 6**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

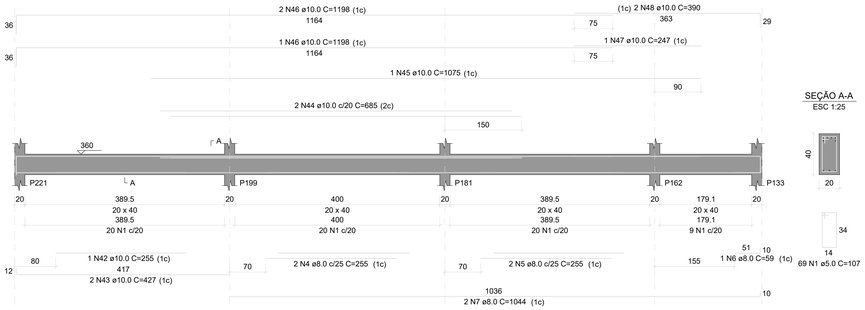
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 25 /60**

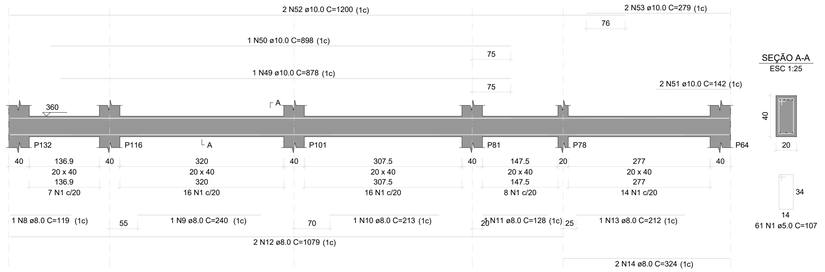
## V72
ESC 1:50




SEÇÃO A-A
ESC 1:25



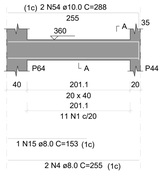

## V73
ESC 1:50



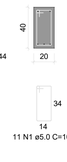

SEÇÃO A-A
ESC 1:25



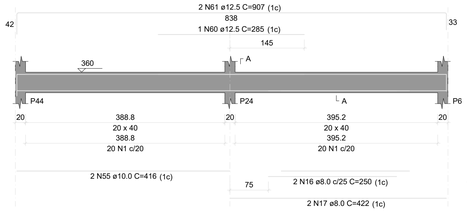

## V74
ESC 1:50




SEÇÃO A-A
ESC 1:25

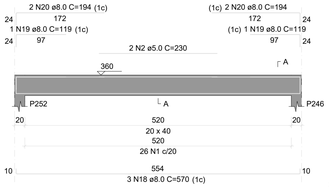



## V75
ESC 1:50

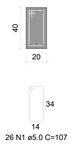



SEÇÃO A-A
ESC 1:25

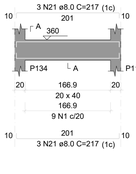
## V76
ESC 1:50




SEÇÃO A-A
ESC 1:25



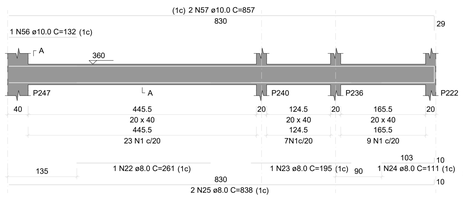

## V77
ESC 1:50



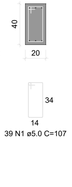

SEÇÃO A-A
ESC 1:25



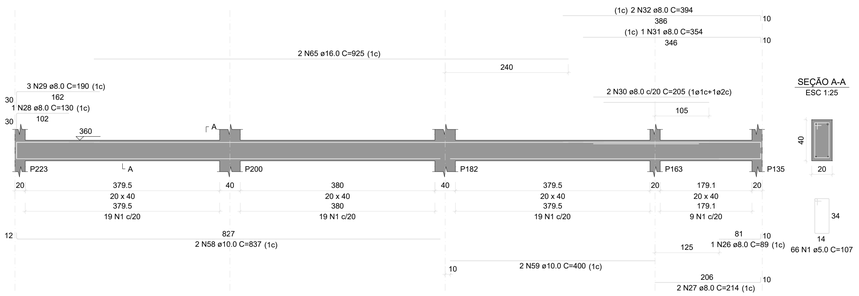

## V78
ESC 1:50




SEÇÃO A-A
ESC 1:25



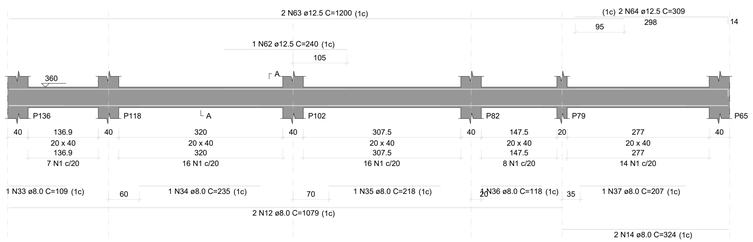

## V79
ESC 1:50



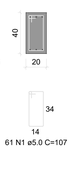

SEÇÃO A-A
ESC 1:25



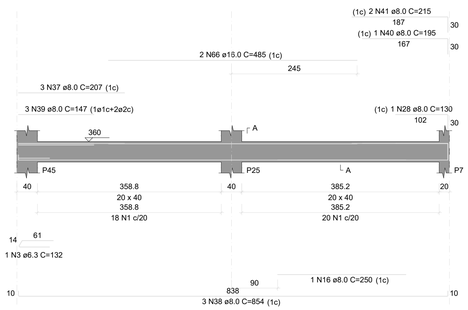

## V80
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V81
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V72 V73 V74
V75 V76 V77
V78 V79 V80
V81

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 420 | 107 | 44940 |
| | 2 | 5.0 | 2 | 230 | 460 |
| CA50 | 3 | 6.3 | 1 | 132 | 132 |
| | 4 | 8.0 | 4 | 255 | 1020 |
| | 5 | 8.0 | 2 | 255 | 510 |
| | 6 | 8.0 | 1 | 59 | 59 |
| | 7 | 8.0 | 2 | 1044 | 2088 |
| | 8 | 8.0 | 1 | 119 | 119 |
| | 9 | 8.0 | 1 | 240 | 240 |
| | 10 | 8.0 | 1 | 213 | 213 |
| | 11 | 8.0 | 1 | 128 | 128 |
| | 12 | 8.0 | 4 | 1079 | 4316 |
| | 13 | 8.0 | 1 | 212 | 212 |
| | 14 | 8.0 | 4 | 324 | 1296 |
| | 15 | 8.0 | 1 | 153 | 153 |
| | 16 | 8.0 | 3 | 250 | 750 |
| | 17 | 8.0 | 2 | 422 | 844 |
| | 18 | 8.0 | 3 | 570 | 1710 |
| | 19 | 8.0 | 2 | 119 | 238 |
| | 20 | 8.0 | 4 | 194 | 776 |
| | 21 | 8.0 | 6 | 217 | 1302 |
| | 22 | 8.0 | 1 | 261 | 261 |
| | 23 | 8.0 | 1 | 195 | 195 |
| | 24 | 8.0 | 1 | 111 | 111 |
| | 25 | 8.0 | 2 | 838 | 1676 |
| | 26 | 8.0 | 1 | 89 | 89 |
| | 27 | 8.0 | 2 | 214 | 428 |
| | 28 | 8.0 | 2 | 130 | 260 |
| | 29 | 8.0 | 3 | 190 | 570 |
| | 30 | 8.0 | 2 | 205 | 410 |
| | 31 | 8.0 | 1 | 354 | 354 |
| | 32 | 8.0 | 2 | 394 | 788 |
| | 33 | 8.0 | 1 | 109 | 109 |
| | 34 | 8.0 | 1 | 235 | 235 |
| | 35 | 8.0 | 1 | 218 | 218 |
| | 36 | 8.0 | 1 | 118 | 118 |
| | 37 | 8.0 | 4 | 207 | 828 |
| | 38 | 8.0 | 3 | 854 | 2562 |
| | 39 | 8.0 | 3 | 147 | 441 |
| | 40 | 8.0 | 1 | 195 | 195 |
| | 41 | 8.0 | 2 | 215 | 430 |
| | 42 | 10.0 | 1 | 255 | 255 |
| | 43 | 10.0 | 2 | 427 | 854 |
| | 44 | 10.0 | 2 | 685 | 1370 |
| | 45 | 10.0 | 1 | 1075 | 1075 |
| | 46 | 10.0 | 3 | 1198 | 3594 |
| | 47 | 10.0 | 1 | 247 | 247 |
| | 48 | 10.0 | 2 | 390 | 780 |
| | 49 | 10.0 | 1 | 878 | 878 |
| | 50 | 10.0 | 1 | 898 | 898 |
| | 51 | 10.0 | 2 | 142 | 284 |
| | 52 | 10.0 | 2 | 1200 | 2400 |
| | 53 | 10.0 | 2 | 279 | 558 |
| | 54 | 10.0 | 2 | 288 | 576 |
| | 55 | 10.0 | 2 | 416 | 832 |
| | 56 | 10.0 | 1 | 132 | 132 |
| | 57 | 10.0 | 2 | 857 | 1714 |
| | 58 | 10.0 | 2 | 837 | 1674 |
| | 59 | 10.0 | 2 | 400 | 800 |
| | 60 | 12.5 | 1 | 285 | 285 |
| | 61 | 12.5 | 2 | 907 | 1814 |
| | 62 | 12.5 | 1 | 240 | 240 |
| | 63 | 12.5 | 2 | 1200 | 2400 |
| | 64 | 12.5 | 2 | 309 | 618 |
| | 65 | 16.0 | 2 | 925 | 1850 |
| | 66 | 16.0 | 2 | 485 | 970 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 1.3 | 0.4 |
| | 8.0 | 262.5 | 113.9 |
| | 10.0 | 189.2 | 128.3 |
| | 12.5 | 53.6 | 56.8 |
| | 16.0 | 28.2 | 49 |
| CA60 | 5.0 | 454 | 77 |
| PESO TOTAL (kg) | | | |
| CA50 | 348.3 | | |
| CA60 | 77 | | |

Volume de concreto (C-25) = 6.56 m³
Área de forma = 61.20 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 7**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

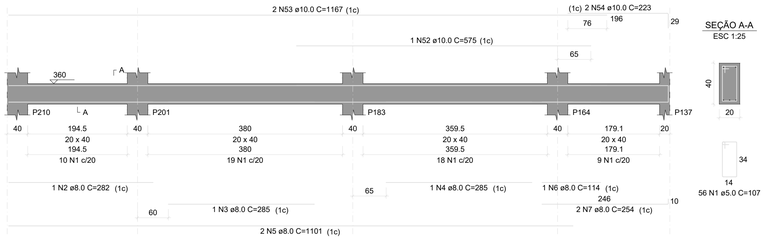
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 26 /60**

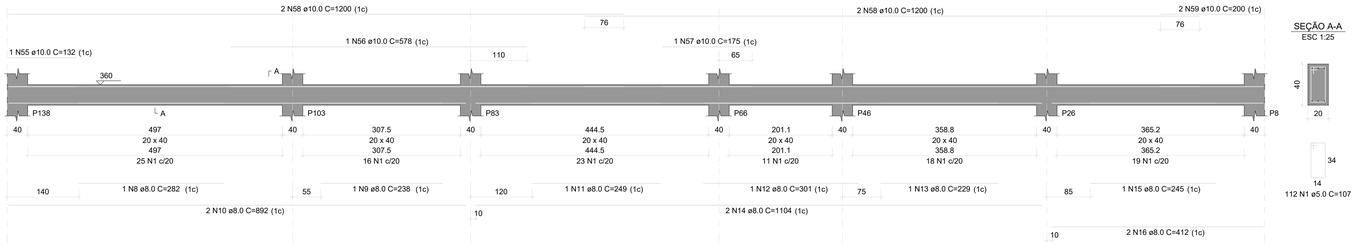
## V82
ESC 1:50



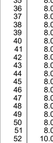

SEÇÃO A-A
ESC 1:25



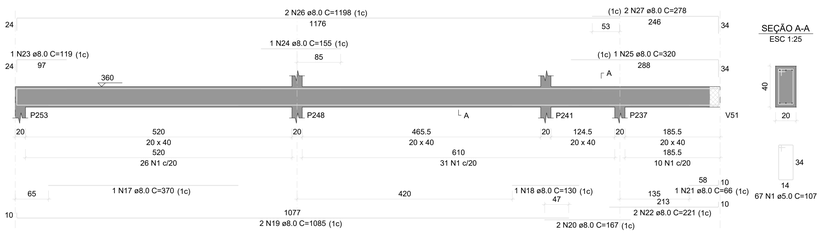

## V83
ESC 1:50




SEÇÃO A-A
ESC 1:25



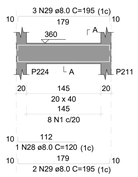

## V84
ESC 1:50



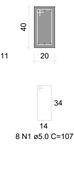

SEÇÃO A-A
ESC 1:25



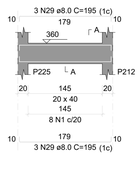

## V85
ESC 1:50




SEÇÃO A-A
ESC 1:25

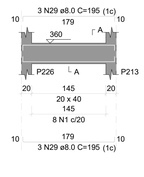



## V86
ESC 1:50



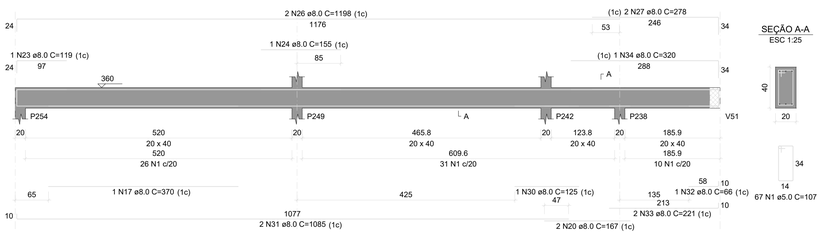

SEÇÃO A-A
ESC 1:25

## V87
ESC 1:50




SEÇÃO A-A
ESC 1:25

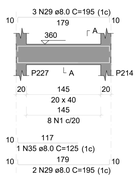
## V88
ESC 1:50



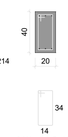

SEÇÃO A-A
ESC 1:25



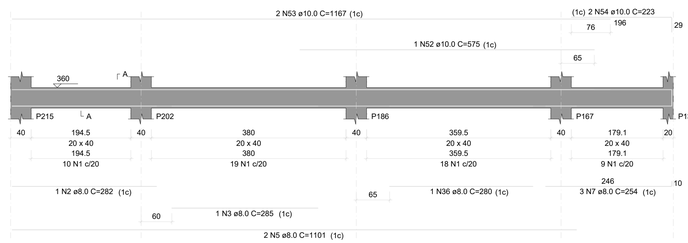

## V89
ESC 1:50




SEÇÃO A-A
ESC 1:25

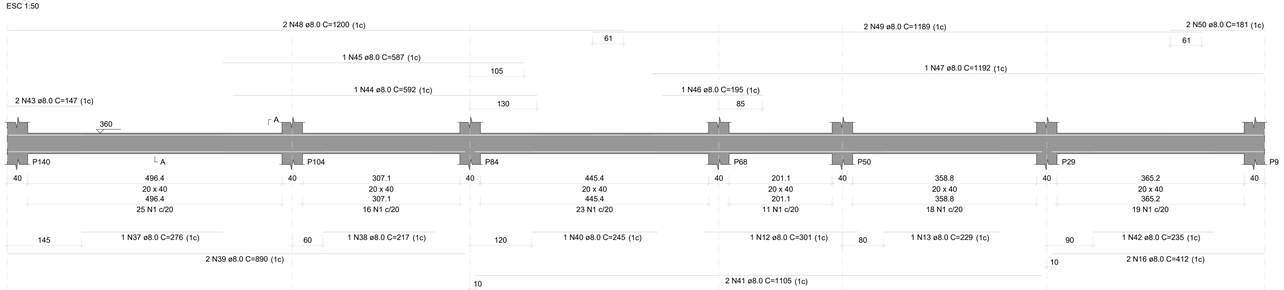



## V90
ESC 1:50

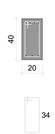



SEÇÃO A-A
ESC 1:25

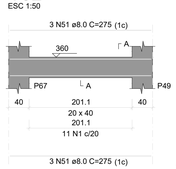
## V91
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V92
ESC 1:50




SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V82 V83 V84
V85 V86 V87
V88 V89 V90
V91 V92

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 513 | 107 | 54891 |
| CA50 | 2 | 8.0 | 2 | 282 | 564 |
| | 3 | 8.0 | 2 | 285 | 570 |
| | 4 | 8.0 | 1 | 285 | 285 |
| | 5 | 8.0 | 4 | 1101 | 4404 |
| | 6 | 8.0 | 1 | 114 | 114 |
| | 7 | 8.0 | 5 | 254 | 1270 |
| | 8 | 8.0 | 1 | 282 | 282 |
| | 9 | 8.0 | 1 | 238 | 238 |
| | 10 | 8.0 | 2 | 892 | 1784 |
| | 11 | 8.0 | 1 | 249 | 249 |
| | 12 | 8.0 | 2 | 301 | 602 |
| | 13 | 8.0 | 2 | 229 | 458 |
| | 14 | 8.0 | 2 | 1104 | 2208 |
| | 15 | 8.0 | 1 | 245 | 245 |
| | 16 | 8.0 | 4 | 412 | 1648 |
| | 17 | 8.0 | 2 | 370 | 740 |
| | 18 | 8.0 | 1 | 130 | 130 |
| | 19 | 8.0 | 2 | 1085 | 2170 |
| | 20 | 8.0 | 4 | 167 | 668 |
| | 21 | 8.0 | 1 | 66 | 66 |
| | 22 | 8.0 | 2 | 221 | 442 |
| | 23 | 8.0 | 2 | 119 | 238 |
| | 24 | 8.0 | 2 | 155 | 310 |
| | 25 | 8.0 | 1 | 320 | 320 |
| | 26 | 8.0 | 4 | 1198 | 4792 |
| | 27 | 8.0 | 4 | 278 | 1112 |
| | 28 | 8.0 | 1 | 120 | 120 |
| | 29 | 8.0 | 22 | 195 | 4290 |
| | 30 | 8.0 | 1 | 125 | 125 |
| | 31 | 8.0 | 2 | 1085 | 2170 |
| | 32 | 8.0 | 1 | 66 | 66 |
| | 33 | 8.0 | 2 | 221 | 442 |
| | 34 | 8.0 | 1 | 320 | 320 |
| | 35 | 8.0 | 1 | 125 | 125 |
| | 36 | 8.0 | 1 | 280 | 280 |
| | 37 | 8.0 | 1 | 276 | 276 |
| | 38 | 8.0 | 1 | 217 | 217 |
| | 39 | 8.0 | 2 | 890 | 1780 |
| | 40 | 8.0 | 1 | 245 | 245 |
| | 41 | 8.0 | 2 | 1105 | 2210 |
| | 42 | 8.0 | 1 | 235 | 235 |
| | 43 | 8.0 | 2 | 147 | 294 |
| | 44 | 8.0 | 1 | 592 | 592 |
| | 45 | 8.0 | 1 | 587 | 587 |
| | 46 | 8.0 | 1 | 195 | 195 |
| | 47 | 8.0 | 1 | 1192 | 1192 |
| | 48 | 8.0 | 2 | 1200 | 2400 |
| | 49 | 8.0 | 2 | 1189 | 2378 |
| | 50 | 8.0 | 2 | 181 | 362 |
| | 51 | 8.0 | 6 | 275 | 1650 |
| | 52 | 10.0 | 2 | 575 | 1150 |
| | 53 | 10.0 | 4 | 1167 | 4668 |
| | 54 | 10.0 | 4 | 223 | 892 |
| | 55 | 10.0 | 1 | 132 | 132 |
| | 56 | 10.0 | 1 | 578 | 578 |
| | 57 | 10.0 | 1 | 175 | 175 |
| | 58 | 10.0 | 4 | 1200 | 4800 |
| | 59 | 10.0 | 2 | 200 | 400 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 484.6 | 210.3 |
| | 10.0 | 128 | 86.8 |
| CA60 | 5.0 | 548.9 | 93.1 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 297.1 |
| CA60 | 93.1 |

Volume de concreto (C-25) = 7.94 m³
Área de forma = 86.95 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 8**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

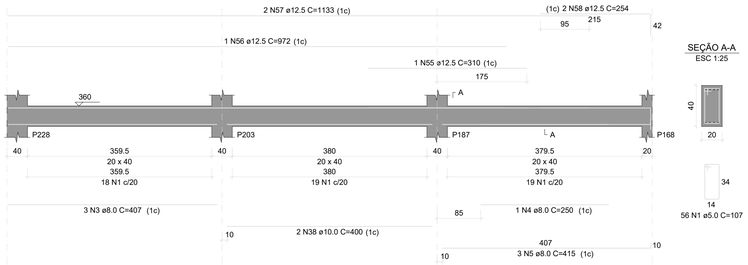
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 27 /60**

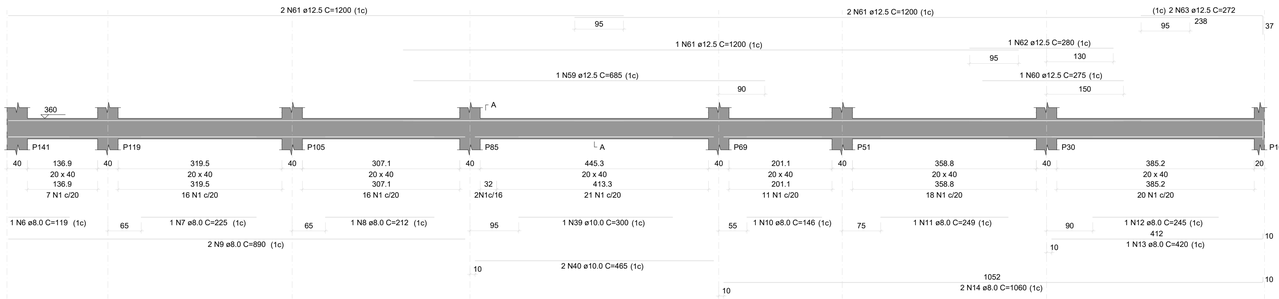
## V93
ESC 1:50



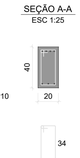

SEÇÃO A-A
ESC 1:25



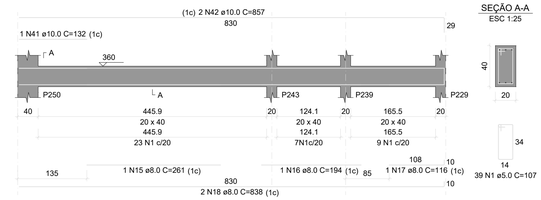

## V94
ESC 1:50




SEÇÃO A-A
ESC 1:25



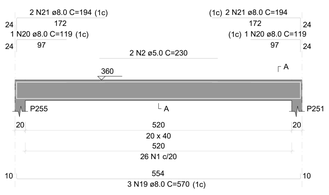

## V95
ESC 1:50




SEÇÃO A-A
ESC 1:25

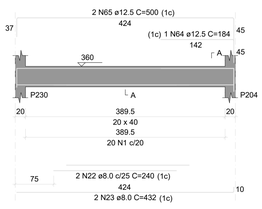



## V96
ESC 1:50

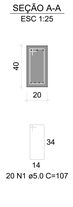



SEÇÃO A-A
ESC 1:25

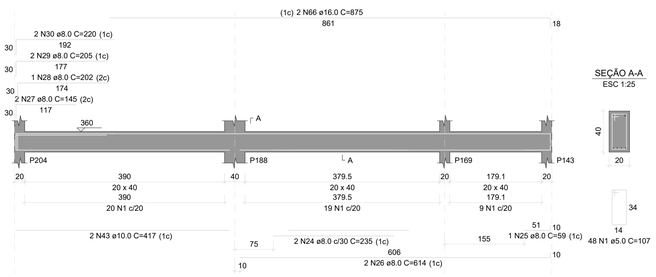
## V97
ESC 1:50




SEÇÃO A-A
ESC 1:25



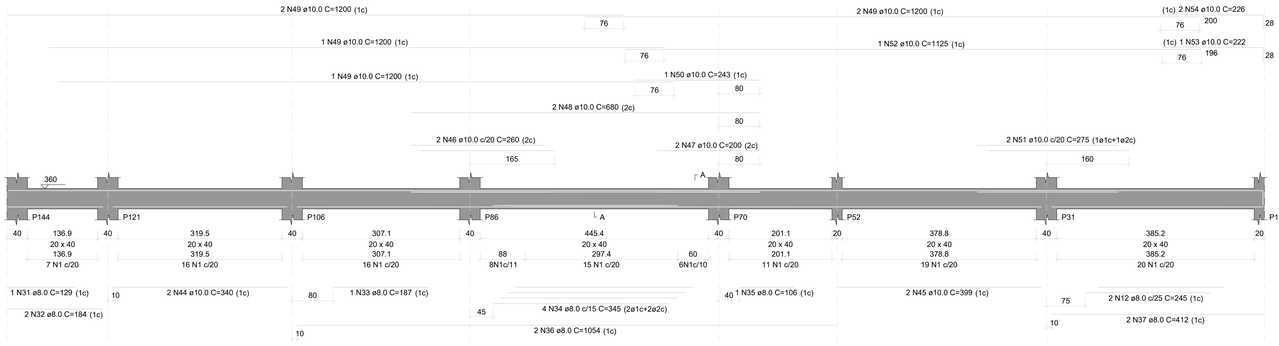

## V98
ESC 1:50



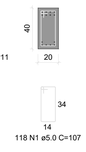

SEÇÃO A-A
ESC 1:25




## V99
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V93 V94 V95
V96 V97 V98
V99

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 418 | 107 | 44726 |
| | 2 | 5.0 | 2 | 230 | 460 |
| CA50 | 3 | 8.0 | 3 | 407 | 1221 |
| | 4 | 8.0 | 1 | 250 | 250 |
| | 5 | 8.0 | 3 | 415 | 1245 |
| | 6 | 8.0 | 1 | 119 | 119 |
| | 7 | 8.0 | 1 | 225 | 225 |
| | 8 | 8.0 | 1 | 212 | 212 |
| | 9 | 8.0 | 2 | 890 | 1780 |
| | 10 | 8.0 | 1 | 146 | 146 |
| | 11 | 8.0 | 1 | 249 | 249 |
| | 12 | 8.0 | 3 | 245 | 735 |
| | 13 | 8.0 | 1 | 420 | 420 |
| | 14 | 8.0 | 2 | 1060 | 2120 |
| | 15 | 8.0 | 1 | 261 | 261 |
| | 16 | 8.0 | 1 | 194 | 194 |
| | 17 | 8.0 | 1 | 116 | 116 |
| | 18 | 8.0 | 2 | 838 | 1676 |
| | 19 | 8.0 | 3 | 570 | 1710 |
| | 20 | 8.0 | 2 | 119 | 238 |
| | 21 | 8.0 | 4 | 194 | 776 |
| | 22 | 8.0 | 2 | 240 | 480 |
| | 23 | 8.0 | 2 | 432 | 864 |
| | 24 | 8.0 | 2 | 235 | 470 |
| | 25 | 8.0 | 1 | 59 | 59 |
| | 26 | 8.0 | 2 | 614 | 1228 |
| | 27 | 8.0 | 2 | 145 | 290 |
| | 28 | 8.0 | 1 | 202 | 202 |
| | 29 | 8.0 | 2 | 205 | 410 |
| | 30 | 8.0 | 2 | 220 | 440 |
| | 31 | 8.0 | 1 | 129 | 129 |
| | 32 | 8.0 | 2 | 184 | 368 |
| | 33 | 8.0 | 1 | 187 | 187 |
| | 34 | 8.0 | 4 | 345 | 1380 |
| | 35 | 8.0 | 1 | 106 | 106 |
| | 36 | 8.0 | 2 | 1054 | 2108 |
| | 37 | 8.0 | 2 | 412 | 824 |
| | 38 | 10.0 | 2 | 400 | 800 |
| | 39 | 10.0 | 1 | 300 | 300 |
| | 40 | 10.0 | 2 | 465 | 930 |
| | 41 | 10.0 | 1 | 132 | 132 |
| | 42 | 10.0 | 2 | 857 | 1714 |
| | 43 | 10.0 | 2 | 417 | 834 |
| | 44 | 10.0 | 2 | 340 | 680 |
| | 45 | 10.0 | 2 | 399 | 798 |
| | 46 | 10.0 | 2 | 260 | 520 |
| | 47 | 10.0 | 2 | 200 | 400 |
| | 48 | 10.0 | 2 | 680 | 1360 |
| | 49 | 10.0 | 6 | 1200 | 7200 |
| | 50 | 10.0 | 1 | 243 | 243 |
| | 51 | 10.0 | 2 | 275 | 550 |
| | 52 | 10.0 | 1 | 1125 | 1125 |
| | 53 | 10.0 | 1 | 222 | 222 |
| | 54 | 10.0 | 2 | 226 | 452 |
| | 55 | 12.5 | 1 | 310 | 310 |
| | 56 | 12.5 | 1 | 972 | 972 |
| | 57 | 12.5 | 2 | 1133 | 2266 |
| | 58 | 12.5 | 2 | 254 | 508 |
| | 59 | 12.5 | 1 | 685 | 685 |
| | 60 | 12.5 | 1 | 275 | 275 |
| | 61 | 12.5 | 5 | 1200 | 6000 |
| | 62 | 12.5 | 1 | 280 | 280 |
| | 63 | 12.5 | 2 | 272 | 544 |
| | 64 | 12.5 | 1 | 184 | 184 |
| | 65 | 12.5 | 2 | 500 | 1000 |
| | 66 | 16.0 | 2 | 875 | 1750 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 232.4 | 100.9 |
| | 10.0 | 182.6 | 123.8 |
| | 12.5 | 130.2 | 138 |
| | 16.0 | 17.5 | 30.4 |
| CA60 | 5.0 | 451.9 | 76.6 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 393.1 |
| CA60 | 76.6 |

Volume de concreto (C-25) = 6.43 m³
Área de forma = 60.05 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 9**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

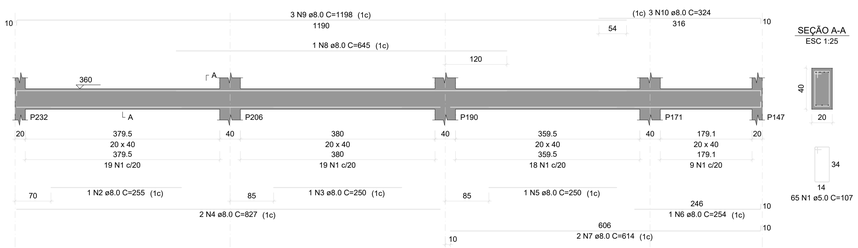
DATA:
**Outubro/2025**

DESENHO:
**-**

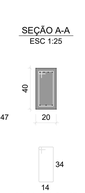
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 28 /60**

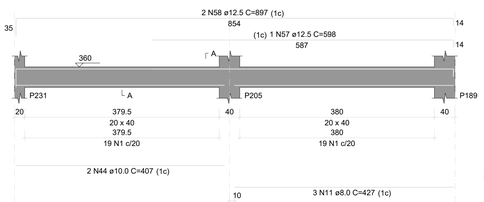
## V100
ESC 1:50




SEÇÃO A-A
ESC 1:25

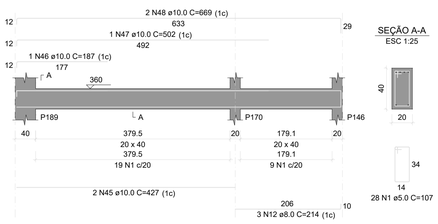



## V101
ESC 1:50




SEÇÃO A-A
ESC 1:25

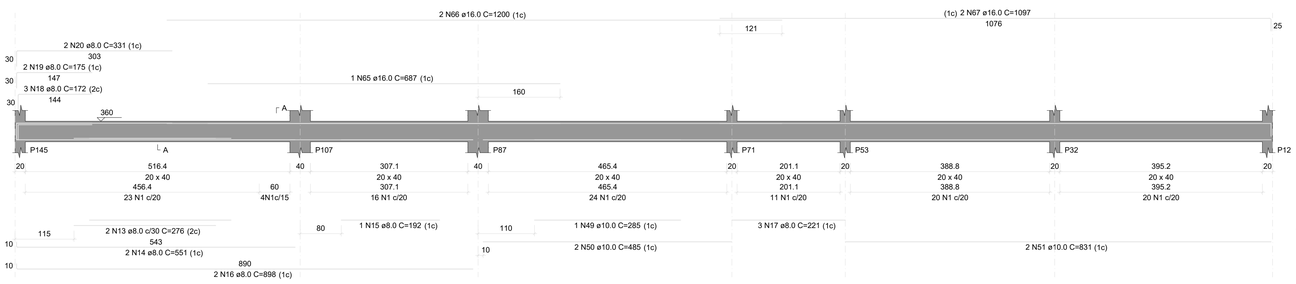
## V102
ESC 1:50



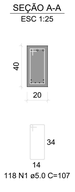

SEÇÃO A-A
ESC 1:25



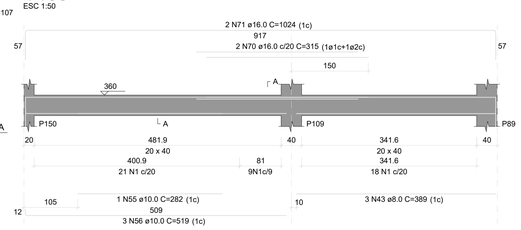

## V103
ESC 1:50



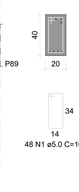

SEÇÃO A-A
ESC 1:25



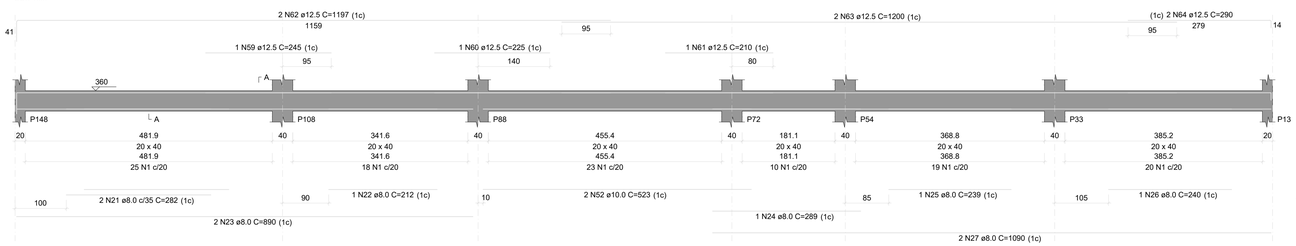

## V108
ESC 1:50




SEÇÃO A-A
ESC 1:25

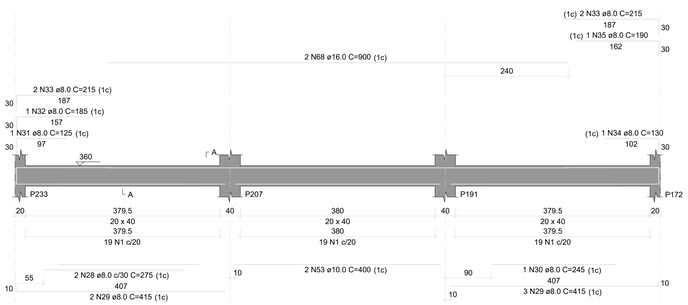



## V104
ESC 1:50

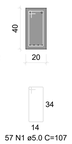



SEÇÃO A-A
ESC 1:25

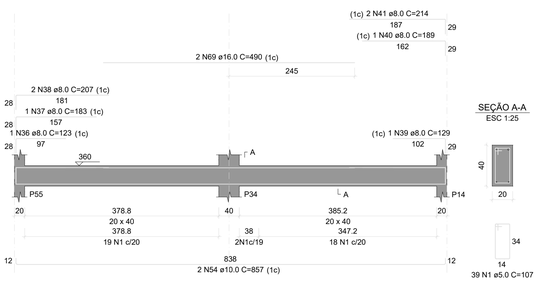
## V105
ESC 1:50




SEÇÃO A-A
ESC 1:25



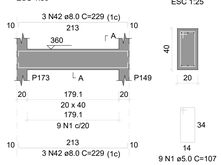

## V106
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V107
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V10

### RELAÇÃO DO AÇO

V100 V101 V102
V103 V104 V105
V106 V107 V108

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 517 | 107 | 55319 |
| CA50 | 2 | 8.0 | 1 | 255 | 255 |
| | 3 | 8.0 | 1 | 250 | 250 |
| | 4 | 8.0 | 2 | 827 | 1654 |
| | 5 | 8.0 | 1 | 250 | 250 |
| | 6 | 8.0 | 1 | 254 | 254 |
| | 7 | 8.0 | 2 | 614 | 1228 |
| | 8 | 8.0 | 1 | 645 | 645 |
| | 9 | 8.0 | 3 | 1198 | 3594 |
| | 10 | 8.0 | 3 | 324 | 972 |
| | 11 | 8.0 | 3 | 427 | 1281 |
| | 12 | 8.0 | 3 | 214 | 642 |
| | 13 | 8.0 | 2 | 276 | 552 |
| | 14 | 8.0 | 2 | 551 | 1102 |
| | 15 | 8.0 | 1 | 192 | 192 |
| | 16 | 8.0 | 2 | 898 | 1796 |
| | 17 | 8.0 | 3 | 221 | 663 |
| | 18 | 8.0 | 3 | 172 | 516 |
| | 19 | 8.0 | 2 | 175 | 350 |
| | 20 | 8.0 | 2 | 331 | 662 |
| | 21 | 8.0 | 2 | 282 | 564 |
| | 22 | 8.0 | 1 | 212 | 212 |
| | 23 | 8.0 | 2 | 890 | 1780 |
| | 24 | 8.0 | 1 | 289 | 289 |
| | 25 | 8.0 | 1 | 239 | 239 |
| | 26 | 8.0 | 1 | 240 | 240 |
| | 27 | 8.0 | 2 | 1090 | 2180 |
| | 28 | 8.0 | 2 | 275 | 550 |
| | 29 | 8.0 | 5 | 415 | 2075 |
| | 30 | 8.0 | 1 | 245 | 245 |
| | 31 | 8.0 | 1 | 125 | 125 |
| | 32 | 8.0 | 1 | 185 | 185 |
| | 33 | 8.0 | 4 | 215 | 860 |
| | 34 | 8.0 | 1 | 130 | 130 |
| | 35 | 8.0 | 1 | 190 | 190 |
| | 36 | 8.0 | 1 | 123 | 123 |
| | 37 | 8.0 | 1 | 183 | 183 |
| | 38 | 8.0 | 2 | 207 | 414 |
| | 39 | 8.0 | 1 | 129 | 129 |
| | 40 | 8.0 | 1 | 189 | 189 |
| | 41 | 8.0 | 2 | 214 | 428 |
| | 42 | 8.0 | 6 | 229 | 1374 |
| | 43 | 8.0 | 3 | 389 | 1167 |
| | 44 | 10.0 | 2 | 407 | 814 |
| | 45 | 10.0 | 2 | 427 | 854 |
| | 46 | 10.0 | 1 | 187 | 187 |
| | 47 | 10.0 | 1 | 502 | 502 |
| | 48 | 10.0 | 2 | 669 | 1338 |
| | 49 | 10.0 | 1 | 285 | 285 |
| | 50 | 10.0 | 2 | 485 | 970 |
| | 51 | 10.0 | 2 | 831 | 1662 |
| | 52 | 10.0 | 2 | 523 | 1046 |
| | 53 | 10.0 | 2 | 400 | 800 |
| | 54 | 10.0 | 2 | 857 | 1714 |
| | 55 | 10.0 | 1 | 282 | 282 |
| | 56 | 10.0 | 3 | 519 | 1557 |
| | 57 | 12.5 | 1 | 598 | 598 |
| | 58 | 12.5 | 2 | 897 | 1794 |
| | 59 | 12.5 | 1 | 245 | 245 |
| | 60 | 12.5 | 1 | 225 | 225 |
| | 61 | 12.5 | 1 | 210 | 210 |
| | 62 | 12.5 | 2 | 1197 | 2394 |
| | 63 | 12.5 | 2 | 1200 | 2400 |
| | 64 | 12.5 | 2 | 290 | 580 |
| | 65 | 16.0 | 1 | 687 | 687 |
| | 66 | 16.0 | 2 | 1200 | 2400 |
| | 67 | 16.0 | 2 | 1097 | 2194 |
| | 68 | 16.0 | 2 | 900 | 1800 |
| | 69 | 16.0 | 2 | 490 | 980 |
| | 70 | 16.0 | 2 | 315 | 630 |
| | 71 | 16.0 | 2 | 1024 | 2048 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 307.3 | 133.4 |
| | 10.0 | 120.1 | 81.5 |
| | 12.5 | 84.5 | 89.5 |
| | 16.0 | 107.4 | 186.4 |
| CA60 | 5.0 | 553.2 | 93.8 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 490.8 |
| CA60 | 93.8 |

Volume de concreto (C-25) = 8.01 m³
Área de forma = 80.72 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 10**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

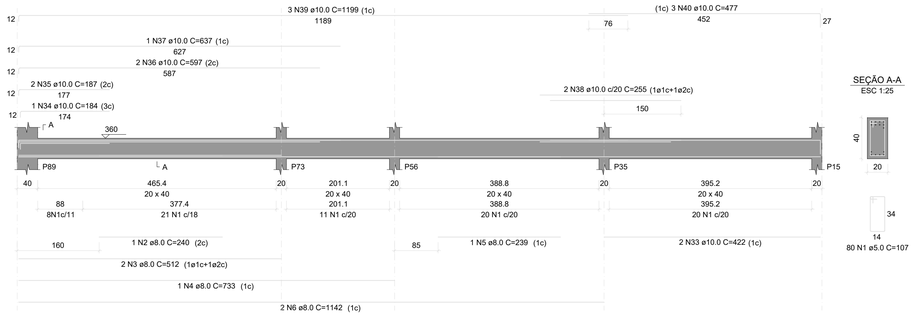
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 29 /60**

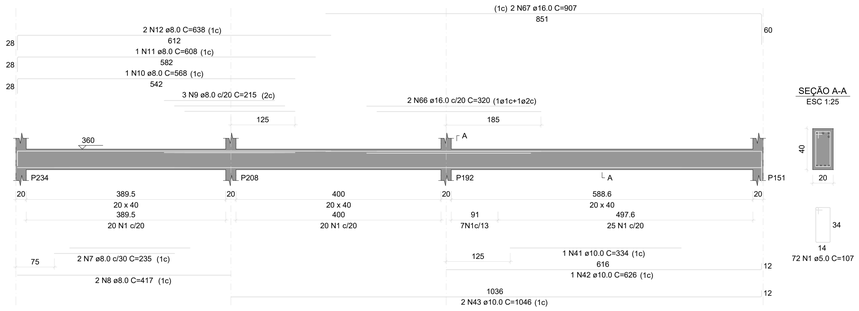
## V109
ESC 1:50




SEÇÃO A-A
ESC 1:25



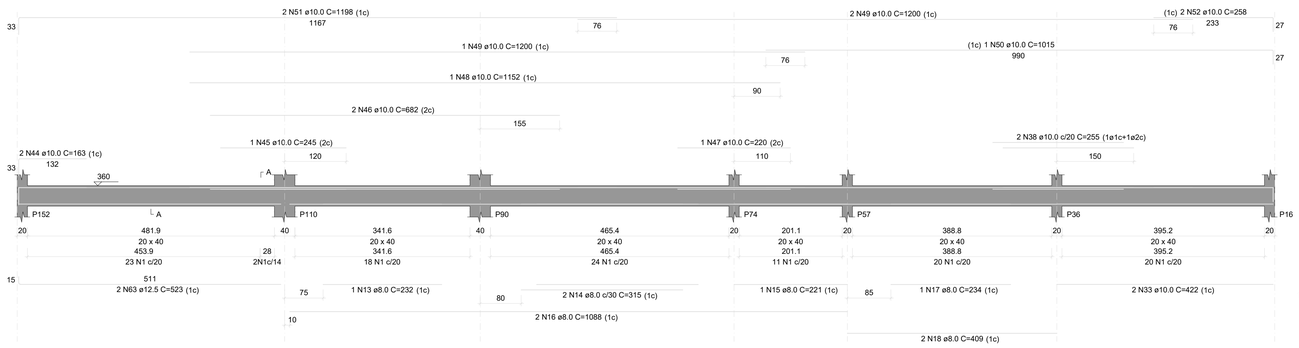

## V110
ESC 1:50




SEÇÃO A-A
ESC 1:25

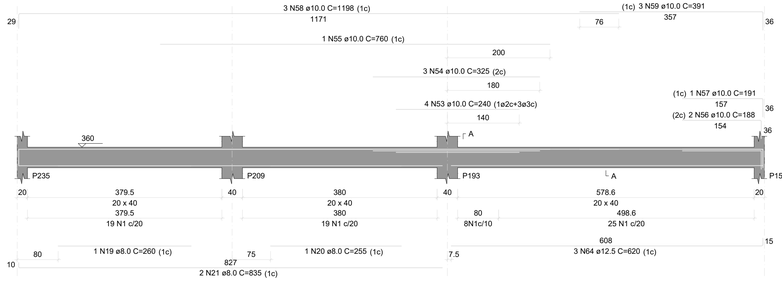



## V111
ESC 1:50

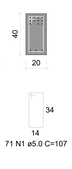



SEÇÃO A-A
ESC 1:25

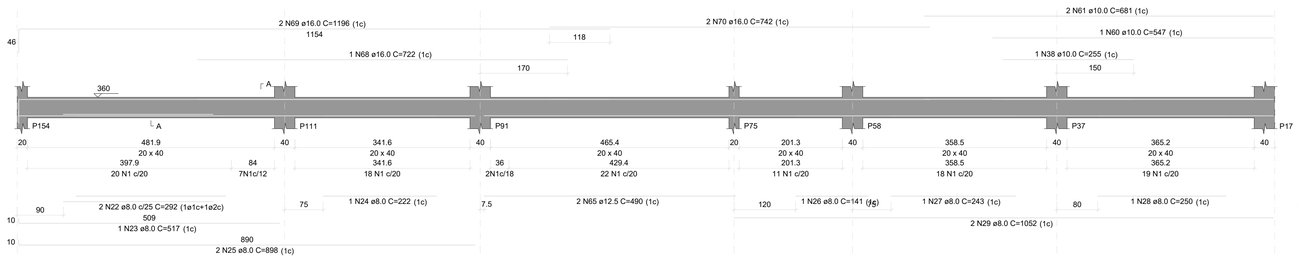
## V112
ESC 1:50



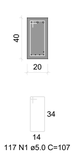

SEÇÃO A-A
ESC 1:25



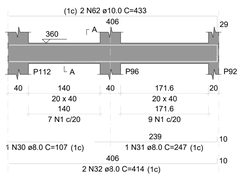

## V113
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V114
ESC 1:50




SEÇÃO A-A
ESC 1:25

RELAÇÃO DO AÇO

V109 V110 V111
V112 V113 V114

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 474 | 107 | 50718 |
| CA50 | 2 | 8.0 | 1 | 240 | 240 |
| | 3 | 8.0 | 2 | 512 | 1024 |
| | 4 | 8.0 | 1 | 733 | 733 |
| | 5 | 8.0 | 1 | 239 | 239 |
| | 6 | 8.0 | 2 | 1142 | 2284 |
| | 7 | 8.0 | 2 | 235 | 470 |
| | 8 | 8.0 | 2 | 417 | 834 |
| | 9 | 8.0 | 3 | 215 | 645 |
| | 10 | 8.0 | 1 | 568 | 568 |
| | 11 | 8.0 | 1 | 608 | 608 |
| | 12 | 8.0 | 2 | 638 | 1276 |
| | 13 | 8.0 | 1 | 232 | 232 |
| | 14 | 8.0 | 2 | 315 | 630 |
| | 15 | 8.0 | 1 | 221 | 221 |
| | 16 | 8.0 | 2 | 1088 | 2176 |
| | 17 | 8.0 | 1 | 234 | 234 |
| | 18 | 8.0 | 2 | 409 | 818 |
| | 19 | 8.0 | 1 | 260 | 260 |
| | 20 | 8.0 | 1 | 255 | 255 |
| | 21 | 8.0 | 2 | 835 | 1670 |
| | 22 | 8.0 | 2 | 292 | 584 |
| | 23 | 8.0 | 1 | 517 | 517 |
| | 24 | 8.0 | 1 | 222 | 222 |
| | 25 | 8.0 | 2 | 898 | 1796 |
| | 26 | 8.0 | 1 | 141 | 141 |
| | 27 | 8.0 | 1 | 243 | 243 |
| | 28 | 8.0 | 1 | 250 | 250 |
| | 29 | 8.0 | 2 | 1052 | 2104 |
| | 30 | 8.0 | 1 | 107 | 107 |
| | 31 | 8.0 | 1 | 247 | 247 |
| | 32 | 8.0 | 2 | 414 | 828 |
| | 33 | 10.0 | 4 | 422 | 1688 |
| | 34 | 10.0 | 1 | 184 | 184 |
| | 35 | 10.0 | 2 | 187 | 374 |
| | 36 | 10.0 | 2 | 597 | 1194 |
| | 37 | 10.0 | 1 | 637 | 637 |
| | 38 | 10.0 | 5 | 255 | 1275 |
| | 39 | 10.0 | 3 | 1199 | 3597 |
| | 40 | 10.0 | 3 | 477 | 1431 |
| | 41 | 10.0 | 1 | 334 | 334 |
| | 42 | 10.0 | 1 | 626 | 626 |
| | 43 | 10.0 | 2 | 1046 | 2092 |
| | 44 | 10.0 | 2 | 163 | 326 |
| | 45 | 10.0 | 1 | 245 | 245 |
| | 46 | 10.0 | 2 | 682 | 1364 |
| | 47 | 10.0 | 1 | 220 | 220 |
| | 48 | 10.0 | 1 | 1152 | 1152 |
| | 49 | 10.0 | 3 | 1200 | 3600 |
| | 50 | 10.0 | 1 | 1015 | 1015 |
| | 51 | 10.0 | 2 | 1198 | 2396 |
| | 52 | 10.0 | 2 | 258 | 516 |
| | 53 | 10.0 | 4 | 240 | 960 |
| | 54 | 10.0 | 3 | 325 | 975 |
| | 55 | 10.0 | 1 | 760 | 760 |
| | 56 | 10.0 | 2 | 188 | 376 |
| | 57 | 10.0 | 1 | 191 | 191 |
| | 58 | 10.0 | 3 | 1198 | 3594 |
| | 59 | 10.0 | 3 | 391 | 1173 |
| | 60 | 10.0 | 1 | 547 | 547 |
| | 61 | 10.0 | 2 | 681 | 1362 |
| | 62 | 10.0 | 2 | 433 | 866 |
| | 63 | 12.5 | 2 | 523 | 1046 |
| | 64 | 12.5 | 3 | 620 | 1860 |
| | 65 | 12.5 | 2 | 490 | 980 |
| | 66 | 16.0 | 2 | 320 | 640 |
| | 67 | 16.0 | 2 | 907 | 1814 |
| | 68 | 16.0 | 1 | 722 | 722 |
| | 69 | 16.0 | 2 | 1196 | 2392 |
| | 70 | 16.0 | 2 | 742 | 1484 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 224.6 | 97.5 |
| | 10.0 | 350.7 | 237.8 |
| | 12.5 | 38.9 | 41.2 |
| | 16.0 | 70.5 | 122.4 |
| CA60 | 5.0 | 507.2 | 86 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 498.9 |
| CA60 | 86 |

Volume de concreto (C-25) = 7.20 m³
Área de forma = 66.71 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 11**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 30 /60**

RELAÇÃO DO AÇO

V10

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 178 | 107 | 19046 |
| | 2 | 5.0 | 2 | 235 | 470 |
| | 3 | 5.0 | 2 | 323 | 646 |
| CA50 | 4 | 8.0 | 2 | 315 | 630 |
| | 5 | 8.0 | 1 | 238 | 238 |
| | 6 | 8.0 | 2 | 1080 | 2160 |
| | 7 | 8.0 | 1 | 184 | 184 |
| | 8 | 8.0 | 1 | 241 | 241 |
| | 9 | 8.0 | 2 | 269 | 538 |
| | 10 | 8.0 | 2 | 1144 | 2288 |
| | 11 | 8.0 | 2 | 368 | 736 |
| | 12 | 8.0 | 1 | 808 | 808 |
| | 13 | 8.0 | 3 | 1014 | 3042 |
| | 14 | 8.0 | 1 | 117 | 117 |
| | 15 | 8.0 | 3 | 177 | 531 |
| | 16 | 8.0 | 3 | 237 | 711 |
| | 17 | 10.0 | 2 | 472 | 944 |
| | 18 | 12.5 | 5 | 1200 | 6000 |
| | 19 | 12.5 | 1 | 848 | 848 |
| | 20 | 12.5 | 3 | 275 | 825 |
| | 21 | 12.5 | 2 | 541 | 1082 |
| | 22 | 12.5 | 1 | 196 | 196 |
| | 23 | 12.5 | 2 | 276 | 552 |

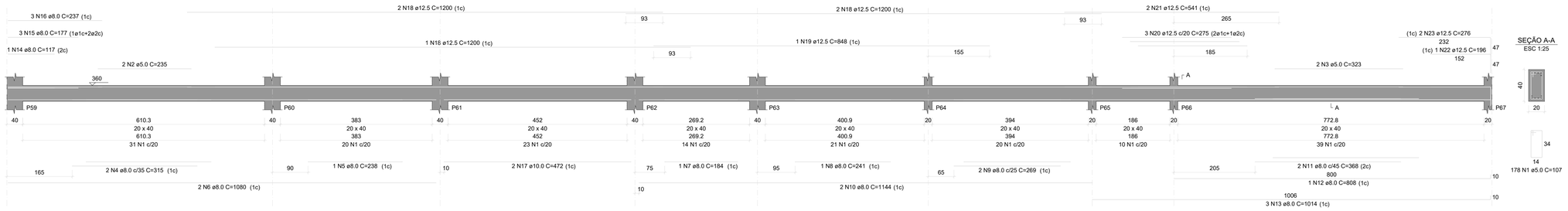
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 122.2 | 53.1 |
| | 10.0 | 9.4 | 6.4 |
| | 12.5 | 95 | 100.7 |
| CA60 | 5.0 | 201.6 | 34.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 160.2 |
| CA60 | 34.2 |

Volume de concreto (C-25) = 2.77 m³
Área de forma = 28.92 m²

ESC 1:50

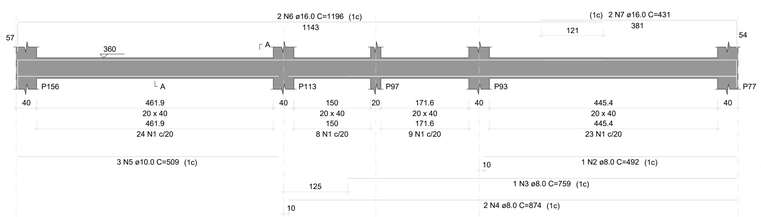



SEÇÃO A-A
ESC 1:25




## V115

ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V115

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 64 | 107 | 6848 |
| CA50 | 2 | 8.0 | 1 | 492 | 492 |
| | 3 | 8.0 | 1 | 759 | 759 |
| | 4 | 8.0 | 2 | 874 | 1748 |
| | 5 | 10.0 | 3 | 509 | 1527 |
| | 6 | 16.0 | 2 | 1196 | 2392 |
| | 7 | 16.0 | 2 | 431 | 862 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 30 | 13 |
| | 10.0 | 15.3 | 10.4 |
| | 16.0 | 32.5 | 56.5 |
| CA60 | 5.0 | 68.5 | 11.6 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 79.9 |
| CA60 | 11.6 |

Volume de concreto (C-25) = 0.98 m³
Área de forma = 10.67 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS LAJE 12**

ESCALA:
**1/50**

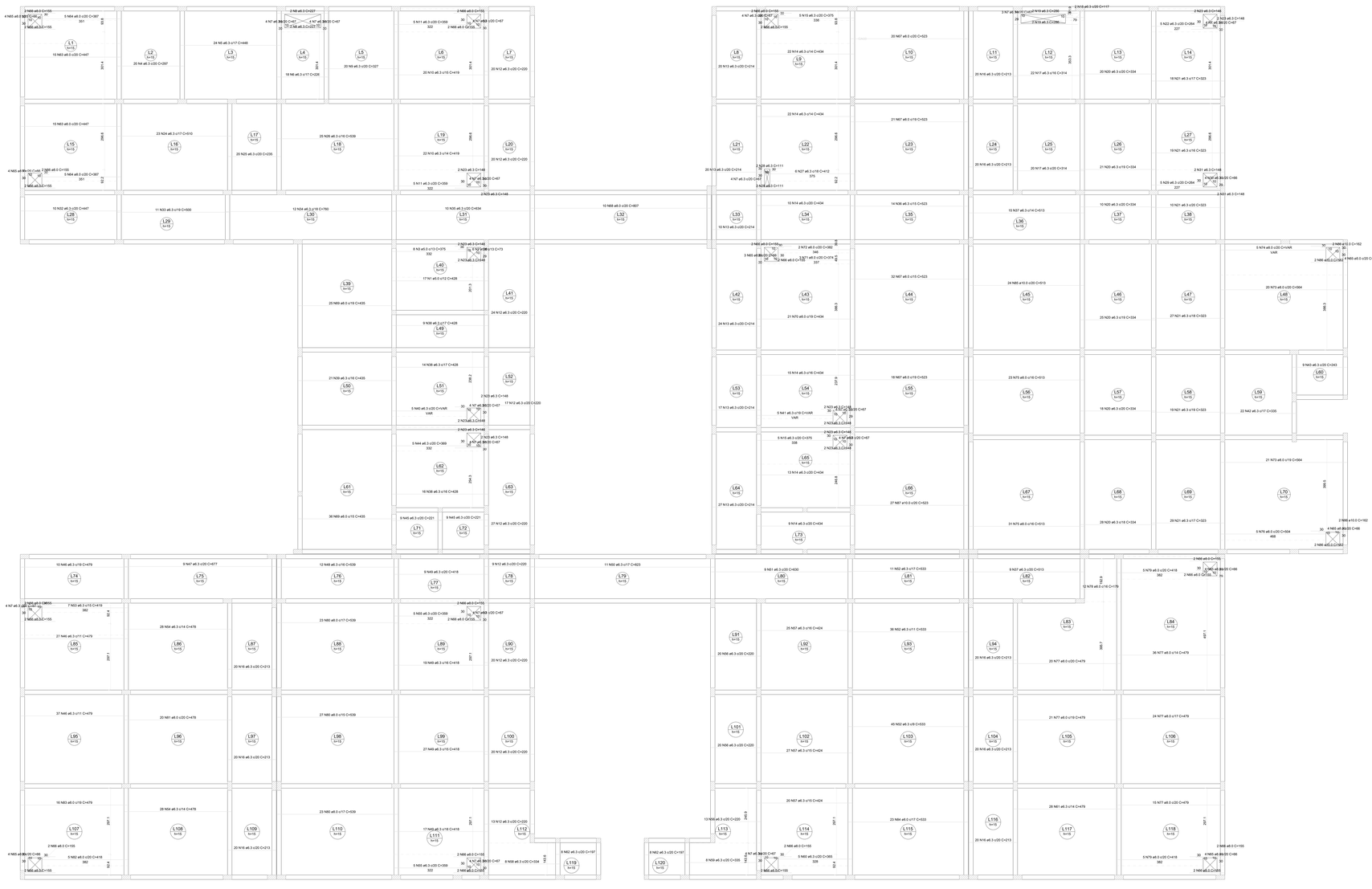
PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 31/60**



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO LAJE (EIXO X)

Escala 1:50

DETALHE DA ARMADURA DE BORDO LIVRE DA LAJE

RELAÇÃO DO AÇO

Positivos X

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 6.0 | 17 | 43 | 731 |
| | 2 | 6.0 | 8 | 73 | 438 |
| | 3 | 6.0 | 8 | 55 | 440 |
| | 4 | 6.3 | 20 | 207 | 4140 |
| | 5 | 6.3 | 24 | 448 | 10752 |
| | 6 | 6.3 | 12 | 351 | 4212 |
| | 7 | 6.3 | 63 | 67 | 4221 |
| | 8 | 6.3 | 4 | 227 | 908 |
| | 9 | 6.3 | 12 | 351 | 4212 |
| | 10 | 6.3 | 42 | 410 | 17220 |
| | 11 | 6.3 | 12 | 299 | 3588 |
| | 12 | 6.3 | 150 | 208 | 31200 |
| | 13 | 6.3 | 118 | 212 | 25016 |
| | 14 | 6.3 | 12 | 312 | 3744 |
| | 15 | 6.3 | 10 | 375 | 3750 |
| | 16 | 6.3 | 12 | 312 | 3744 |
| | 17 | 6.3 | 45 | 214 | 9630 |
| | 18 | 6.3 | 2 | 117 | 234 |
| | 19 | 6.3 | 2 | 117 | 234 |
| | 20 | 6.3 | 102 | 334 | 40748 |
| | 21 | 6.3 | 102 | 323 | 39406 |
| | 22 | 6.3 | 4 | 148 | 592 |
| | 23 | 6.3 | 26 | 145 | 4144 |
| | 24 | 6.3 | 23 | 310 | 17120 |
| | 25 | 6.3 | 23 | 310 | 17120 |
| | 26 | 6.3 | 25 | 539 | 13475 |
| | 27 | 6.3 | 8 | 412 | 3412 |
| | 28 | 6.3 | 4 | 148 | 592 |
| | 29 | 6.3 | 2 | 264 | 1320 |
| | 30 | 6.3 | 4 | 148 | 592 |
| | 31 | 6.3 | 4 | 148 | 592 |
| | 32 | 6.3 | 10 | 390 | 3900 |
| | 33 | 6.3 | 10 | 390 | 3900 |
| | 34 | 6.3 | 12 | 780 | 9120 |
| | 35 | 6.3 | 14 | 520 | 7280 |
| | 36 | 6.3 | 14 | 520 | 7280 |
| | 37 | 6.3 | 24 | 513 | 12312 |
| | 38 | 6.3 | 21 | 435 | 9135 |
| | 39 | 6.3 | 21 | 435 | 9135 |
| | 40 | 6.3 | 5 | VAR | VAR |
| | 41 | 6.3 | 5 | VAR | VAR |
| | 42 | 6.3 | 22 | 335 | 7370 |
| | 43 | 6.3 | 9 | 243 | 2187 |
| | 44 | 6.3 | 9 | 243 | 2187 |
| | 45 | 6.3 | 15 | 221 | 3315 |
| | 46 | 6.3 | 74 | 479 | 35446 |
| | 47 | 6.3 | 12 | 299 | 3588 |
| | 48 | 6.3 | 12 | 299 | 3588 |
| | 49 | 6.3 | 12 | 299 | 3588 |
| | 50 | 6.3 | 11 | 823 | 9053 |
| | 51 | 6.3 | 6 | 533 | 3198 |
| | 52 | 6.3 | 6 | 533 | 3198 |
| | 53 | 6.3 | 7 | 419 | 2933 |
| | 54 | 6.3 | 7 | 419 | 2933 |
| | 55 | 6.3 | 16 | 299 | 4784 |
| | 56 | 6.3 | 53 | 220 | 11660 |
| | 57 | 6.3 | 53 | 220 | 11660 |
| | 58 | 6.3 | 4 | 324 | 2572 |
| | 59 | 6.3 | 8 | 335 | 2680 |
| | 60 | 6.3 | 8 | 335 | 2680 |
| | 61 | 6.3 | 26 | 479 | 12452 |
| | 62 | 6.3 | 16 | 197 | 3152 |
| | 63 | 6.3 | 16 | 197 | 3152 |
| | 64 | 6.3 | 10 | 367 | 3670 |
| | 65 | 6.3 | 41 | 185 | 7585 |
| | 66 | 6.3 | 97 | 323 | 31331 |
| | 67 | 6.3 | 91 | 323 | 29393 |
| | 68 | 6.3 | 81 | 435 | 35235 |
| | 69 | 6.3 | 5 | 324 | 1620 |
| | 70 | 6.3 | 3 | 374 | 1122 |
| | 72 | 6.3 | 2 | 382 | 764 |
| | 73 | 6.3 | 54 | 513 | 27702 |
| | 74 | 6.3 | 4 | VAR | VAR |
| | 75 | 6.3 | 54 | 513 | 27702 |
| | 76 | 6.3 | 4 | VAR | VAR |
| | 77 | 6.3 | 116 | 479 | 55564 |
| | 78 | 6.3 | 12 | 179 | 2148 |
| | 79 | 6.3 | 12 | 179 | 2148 |
| | 80 | 6.3 | 73 | 535 | 39047 |
| | 81 | 6.3 | 20 | 478 | 9560 |
| | 82 | 6.3 | 20 | 478 | 9560 |
| | 83 | 6.3 | 16 | 479 | 7664 |
| | 84 | 6.3 | 24 | 533 | 12792 |
| | 85 | 10.0 | 2 | 192 | 384 |
| | 86 | 10.0 | 8 | 192 | 1536 |
| | 87 | 10.0 | 3 | 323 | 1412 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA60 | 6.3 | 6598.5 | 1776.2 |
| | 6.0 | 1000.0 | 166.4 |
| | 10.0 | 227.3 | 185.1 |
| CA50 | 6.3 | 1021.1 | 18.2 |

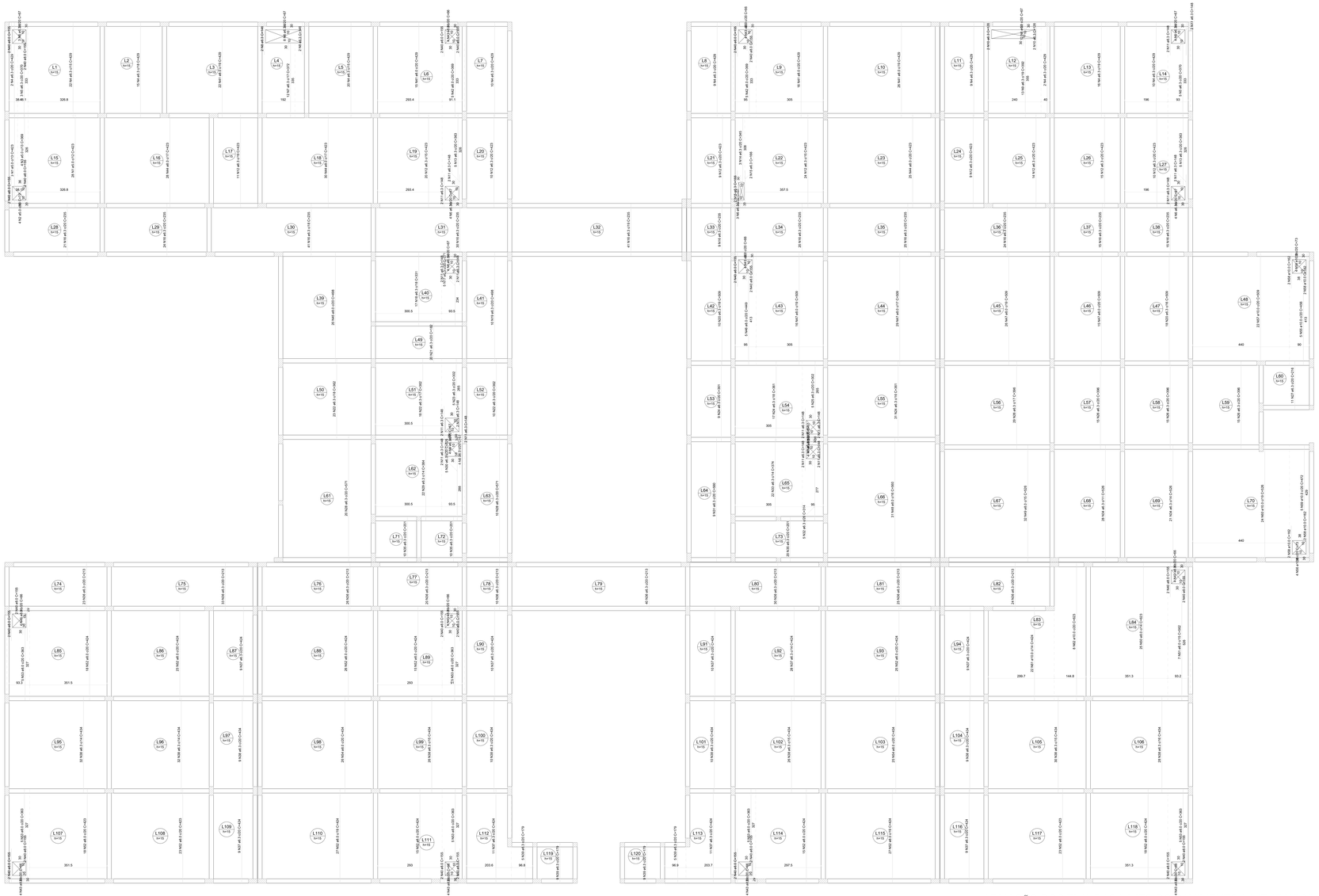
PESO TOTAL (kg)

| | |
|---|---|
| CA50 | 3304 |
| CA60 | 18.2 |

Volume de concreto (C-25) = 227.39 m³

Área da forma = 1515.82 m²

| | |
|---|---|
| INSTITUTO FEDERAL FARROUPILHA | PRÓ-REITORIA DE ADMINISTRAÇÃO<br>COORDENAÇÃO DE ENGENHARIA E ARQUITETURA<br>Avenida Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685<br>Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819 |
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | ÁREA: 4.082,35 m² |
| CONTEÚDO: PLANTA PAVIMENTO LAJE ARMAÇÃO POSITIVA EIXO X | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| | DESENHO: - |
| RESPONSÁVEL: ENG. CIVIL JHANNA DAYDELLES VOLPATTO - CREA RS 198844 | PRANCHA: EST 32 /60 |



ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO LAJE (EIXO Y)

Escala 1:50

DETALHE DA ARMADURA
DE BORDO LIVRE DA LAJE

VISTA

RELAÇÃO DO AÇO

Positivos Y

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (m) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 11 | 421 | 4631 |
| | 2 | 5.0 | 4 | 73 | 292 |
| | 3 | 6.3 | 4 | 421 | 1684 |
| CA50 | 4 | 6.3 | 115 | 420 | 48300 |
| | 5 | 6.3 | 8 | 370 | 2960 |
| | 6 | 6.3 | 8 | 371 | 2968 |
| | 7 | 6.3 | 12 | 372 | 4464 |
| | 8 | 6.3 | 4 | 146 | 584 |
| | 9 | 6.3 | 4 | 147 | 588 |
| | 10 | 6.3 | 4 | 126 | 504 |
| | 11 | 6.3 | 32 | 148 | 4736 |
| | 12 | 6.3 | 12 | 149 | 1788 |
| | 13 | 6.3 | 10 | 363 | 3630 |
| | 14 | 6.3 | 4 | 165 | 660 |
| | 15 | 6.3 | 4 | 166 | 664 |
| | 16 | 6.3 | 96 | 167 | 16032 |
| | 17 | 6.3 | 4 | 331 | 1324 |
| | 18 | 6.3 | 17 | 331 | 5627 |
| | 19 | 6.3 | 11 | 332 | 3652 |
| | 20 | 6.3 | 29 | 509 | 14761 |
| | 21 | 6.3 | 20 | 182 | 3640 |
| | 22 | 6.3 | 4 | 183 | 732 |
| | 23 | 6.3 | 5 | 302 | 1510 |
| | 24 | 6.3 | 67 | 301 | 20167 |
| | 25 | 6.3 | 4 | 302 | 1208 |
| | 26 | 6.3 | 74 | 396 | 29304 |
| | 27 | 6.3 | 11 | 216 | 2376 |
| | 28 | 6.3 | 11 | 217 | 2387 |
| | 29 | 6.3 | 4 | 394 | 1576 |
| | 30 | 6.3 | 5 | 395 | 1975 |
| | 31 | 6.3 | 4 | 322 | 1288 |
| | 32 | 6.3 | 5 | 323 | 1615 |
| | 33 | 6.3 | 4 | 324 | 1296 |
| | 34 | 6.3 | 49 | 526 | 25774 |
| | 35 | 6.3 | 4 | 527 | 2108 |
| | 36 | 6.3 | 101 | 211 | 21311 |
| | 37 | 6.3 | 106 | 424 | 44944 |
| | 38 | 6.3 | 4 | 425 | 1700 |
| | 39 | 6.3 | 29 | 170 | 4930 |
| | 40 | 6.3 | 46 | 155 | 7140 |
| | 41 | 6.3 | 4 | 156 | 624 |
| | 42 | 6.3 | 10 | 365 | 3650 |
| | 43 | 6.3 | 4 | 66 | 264 |
| | 44 | 6.3 | 30 | 167 | 5010 |
| | 45 | 6.3 | 4 | 449 | 1796 |
| | 46 | 6.3 | 5 | 449 | 2245 |
| | 47 | 6.3 | 31 | 560 | 17360 |
| | 48 | 6.3 | 31 | 561 | 17391 |
| | 49 | 6.3 | 4 | 625 | 1500 |
| | 50 | 6.3 | 23 | 626 | 14398 |
| | 51 | 6.3 | 4 | 627 | 1504 |
| | 52 | 6.3 | 23 | 628 | 14444 |
| | 53 | 6.3 | 30 | 363 | 10890 |
| | 54 | 6.3 | 4 | 364 | 1456 |
| | 55 | 6.3 | 5 | 449 | 2245 |
| | 56 | 10.0 | 4 | 73 | 584 |
| | 57 | 10.0 | 4 | 74 | 592 |
| | 58 | 10.0 | 4 | 162 | 1296 |
| | 59 | 10.0 | 5 | 472 | 2360 |
| | 60 | 10.0 | 4 | 473 | 1892 |
| | 61 | 10.0 | 7 | 424 | 2968 |
| | 62 | 10.0 | 8 | 623 | 4984 |

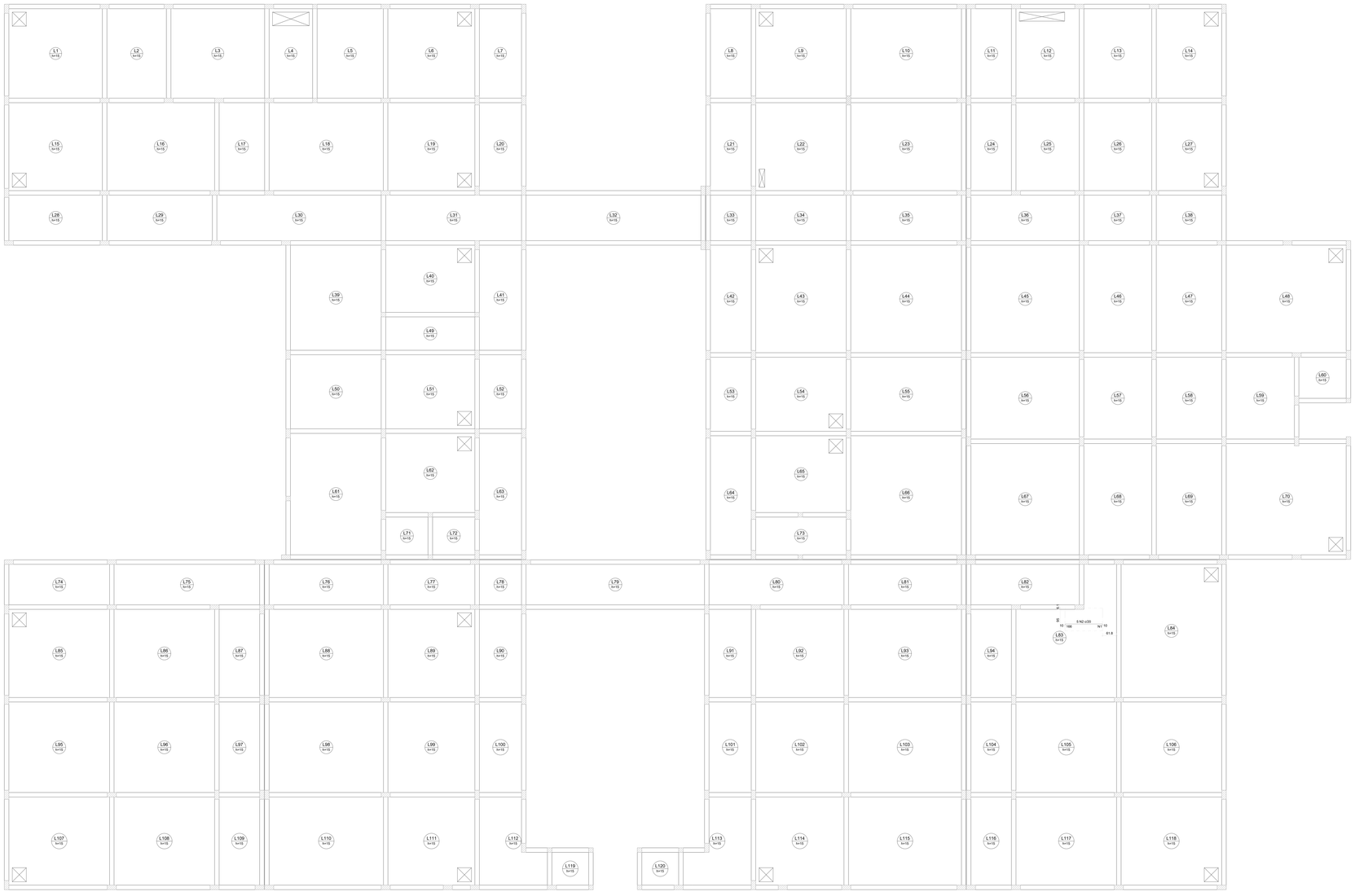
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 3815.8 | 1511.1 |
| | 8.0 | 1414.5 | 1485.8 |
| | 10.0 | 1414.5 | 871.6 |
| CA60 | 5.0 | 148.8 | 25.2 |
| PESO TOTAL (kg) | | | |
| CA50 | 3294.7 | | |
| CA60 | 25.2 | | |

Volume de concreto (C-25) = 0.00 m³

Área de forma = 0.00 m²

| | |
|---|---|
| INSTITUTO FEDERAL FARROUPILHA | PRÓ-REITORIA DE ADMINISTRAÇÃO<br>COORDENAÇÃO DE ENGENHARIA E ARQUITETURA<br>Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685<br>Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818 |
| OBRA: CONSTRUÇÃO DO PREDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | ÁREA: 4.082,35 m² |
| CONTEÚDO: PLANTA PAVIMENTO LAJE ARMAÇÃO POSITIVA EIXO Y | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| RESPONSÁVEL: ENG. CIVIL JHANNA DAVINELLES VILPONTE - CREA RS 198944 | DESENHO: - |
| | PRANCHA: EST 33 /60 |

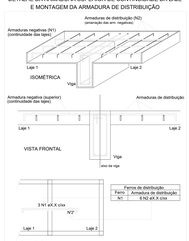



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO LAJE (EIXO X)

Escala 1:100

Armaduras de distribuição
Armadura Armadura de distribuição
N2 11 N1 a62.2 (16 C/15)

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE
E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO




| Ferros de distribuição | |
|---|---|
| Ferro | Armadura de distribuição |
| N2 | 5 N2 a5.X c/xx |

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER INNTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos X:

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (m) | C.TOTAL (m) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 11 | 10 | 110 |
| CA50 | 2 | 12.5 | 5 | 180 | 900 |

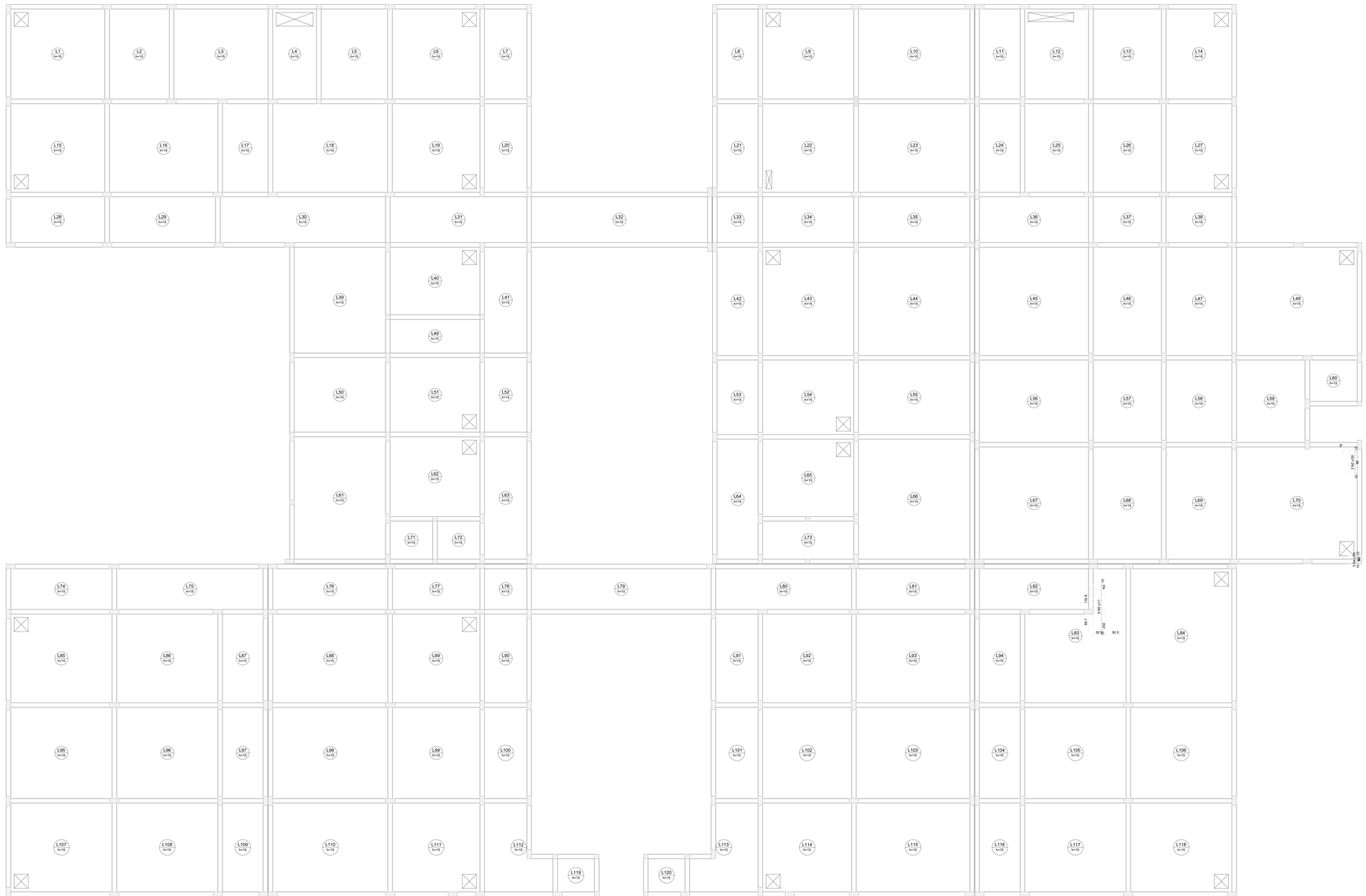
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA60 | 12.5 | 5 | 8.6 |
| CA60 | 5.0 | 11.1 | 1.8 |
| PESO TOTAL (kg) | | | |
| CA60 | 1.8 | | |
| CA50 | 8.6 | | |

Volume de concreto (C-25) = 0.00 m³

Área de forma = 0.00 m²

| | |
|---|---|
| INSTITUTO FEDERAL FARROUPILHA | PRÓ-REITORIA DE ADMINISTRAÇÃO<br>COORDENAÇÃO DE ENGENHARIA E ARQUITETURA<br>Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685<br>Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818 |
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | AREA: 4.082,35 m² |
| CONTEÚDO: PLANTA PAVIMENTO LAJE ARMAÇÃO NEGATIVA EIXO X | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| | DESENHO: - |
| RESPONSÁVEL: ENG. CIVIL JAMINA SAYMELLES VOLPATTO - CREA RS 198844 | PRANCHA: EST 34 /60 |

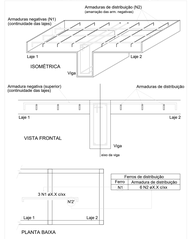



ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO LAJE (EIXO Y)

Escala 1:50

| Armadura | Armaduras de distribuição |
|---|---|
| N4 | 3 N1 ø5.0 c/17 C=50 |
| N5 | 12 N3 ø5.0 c/17 C=52 |

## DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO




| Ferros de distribuição | |
|---|---|
| Ferro | Armadura de distribuição |
| N1 | 8 N2 ø4.X c/xx |

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

## RELAÇÃO DO AÇO

Negativos Y

| AÇO | N | DIAM (mm) | QUANT (un) | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 2 | 15 | 30 |
| | 2 | 5.0 | 2 | 119 | 238 |
| CA50 | 3 | 6.3 | 12 | 52 | 624 |
| | 4 | 5.0 | 3 | 37 | 111 |
| | 5 | 5.0 | 3 | 218 | 1090 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 1.8 | 0.4 |
| | 5.0 | 10.8 | 4.7 |
| CA60 | 5.0 | 9.5 | 1.8 |
| PESO TOTAL (kg) | | | |
| CA50 | 5.1 | | |
| CA60 | 1.8 | | |

Volume de concreto (C-25) = 0.00 m³
Área de forma = 0.00 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Avenida Santiago do Chile, 100 - Nossa Sra. das Dores - CEP 97030-005
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818

| | |
|---|---|
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | ÁREA: 4.082,35 m² |
| CONTEÚDO: PLANTA PAVIMENTO LAJE ARMAÇÃO NEGATIVA EIXO Y | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| | DESENHO: - |
| RESPONSÁVEL: ENG. CIVIL JANAÍNA SAVIGELLES CUNTATTO CREA-RS 198004 | PRANCHA: EST 35 /60 |

P1=P2=P3=P4=P6=P7=P8=P9=P10=P11=P12=P13=
=P14=P15=P16=P17=P18=P19=P20=P21=P22=
=P24=P25=P26=P29=P30=P31=P32=P33=P34=
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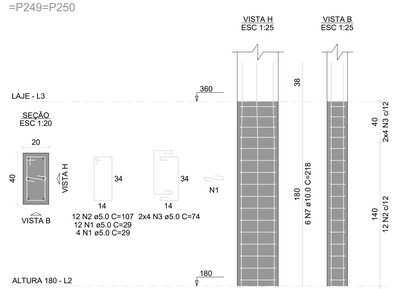


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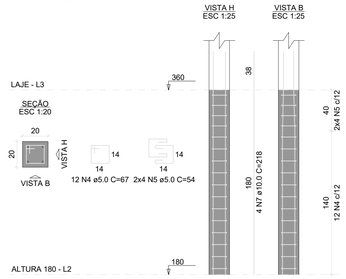
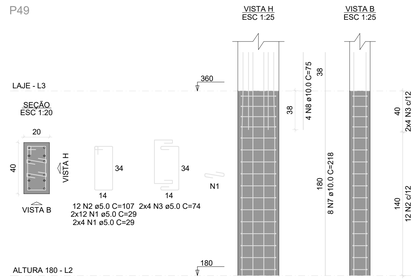
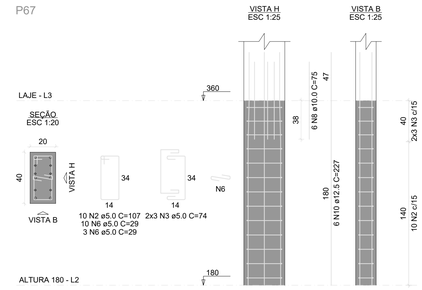



P49




P67




RELAÇÃO DO AÇO

P153 P170 2xP237
6xP246

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 144 | 29 | 4176 |
| | 2 | 5.0 | 96 | 107 | 10272 |
| | 3 | 5.0 | 64 | 74 | 4736 |
| | 4 | 5.0 | 24 | 67 | 1608 |
| | 5 | 5.0 | 16 | 54 | 864 |
| CA50 | 6 | 10.0 | 58 | 177 | 10266 |
| | 7 | 12.5 | 12 | 94 | 1128 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 102.7 | 69.6 |
| | 12.5 | 11.3 | 12 |
| CA60 | 5.0 | 216.6 | 36.7 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 81.6 |
| CA60 | 36.7 |

Volume de concreto (C-25) = 1.30 m³
Área de forma = 20.16 m²

RELAÇÃO DO AÇO

184xP1 21xP5 P49
P67 2xP72 4xP87
6xP88 2xP95 P96
P100 P114 P120
P124 4xP148 P151

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 3264 | 29 | 94656 |
| | 2 | 5.0 | 2456 | 107 | 262792 |
| | 3 | 5.0 | 1636 | 74 | 121064 |
| | 4 | 5.0 | 306 | 67 | 20502 |
| | 5 | 5.0 | 188 | 54 | 10152 |
| | 6 | 5.0 | 13 | 29 | 377 |
| CA50 | 7 | 10.0 | 1296 | 218 | 282528 |
| | 8 | 10.0 | 76 | 75 | 5700 |
| | 9 | 10.0 | 38 | 177 | 6726 |
| | 10 | 12.5 | 10 | 227 | 2270 |
| | 11 | 12.5 | 24 | 94 | 2256 |

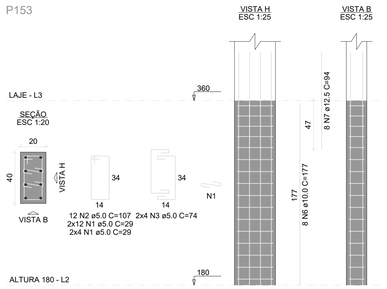
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 2936.5 | 1991.5 |
| | 12.5 | 45.3 | 48 |
| CA60 | 5.0 | 5095.4 | 863.9 |

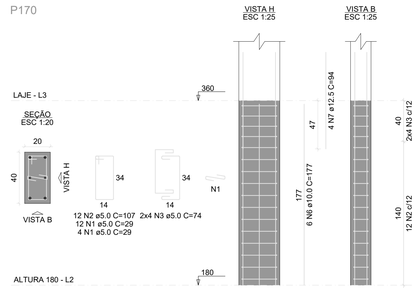
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 2039.4 |
| CA60 | 863.9 |

Volume de concreto (C-25) = 31.46 m³
Área de forma = 480.96 m²

P153




P170

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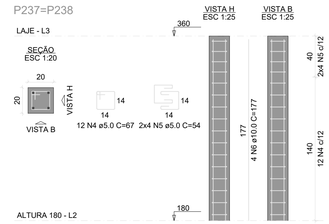


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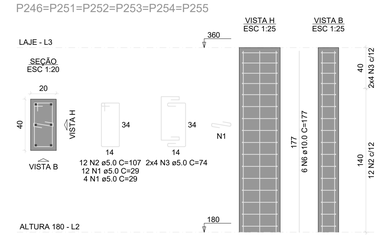


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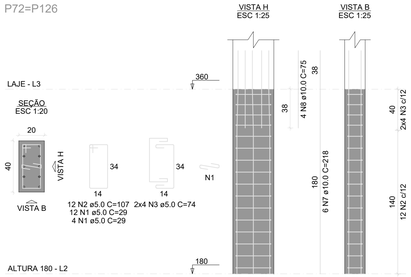


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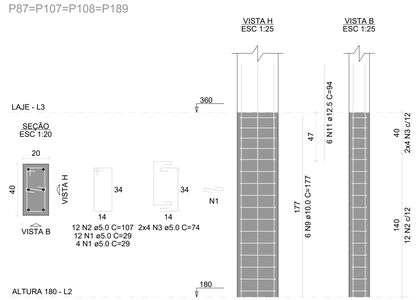


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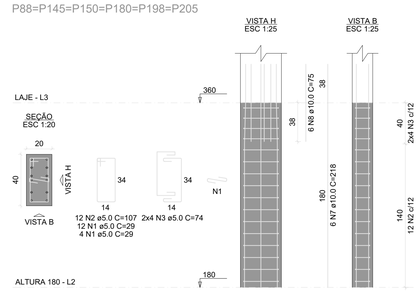


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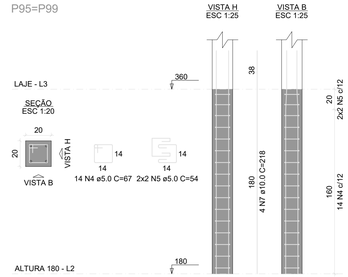


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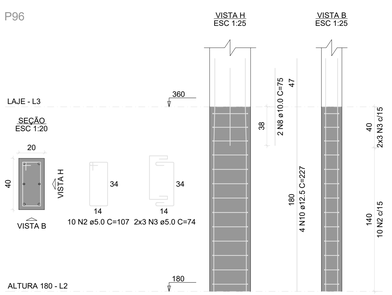


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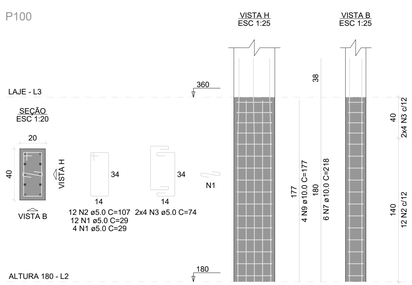


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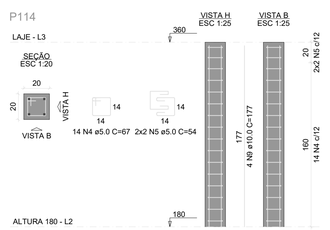
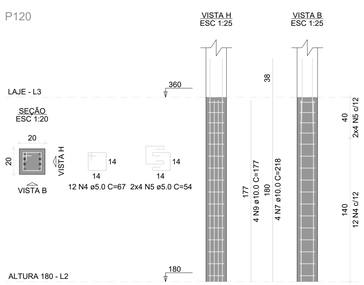
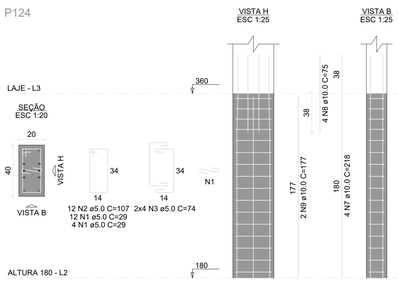



P120




P124

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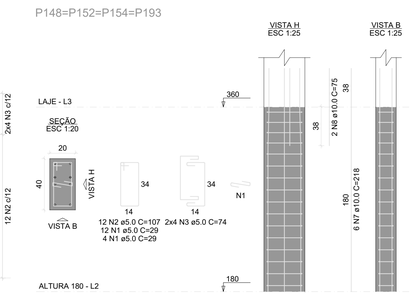
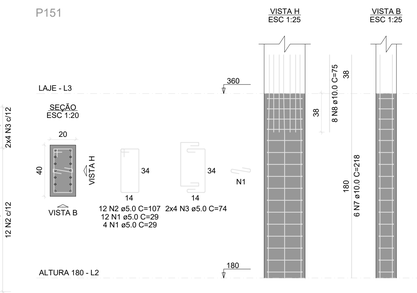



P151





INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul, Telefone: (55) 3218-9819


OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA PILARES LAJE**

ESCALA: **1/50**

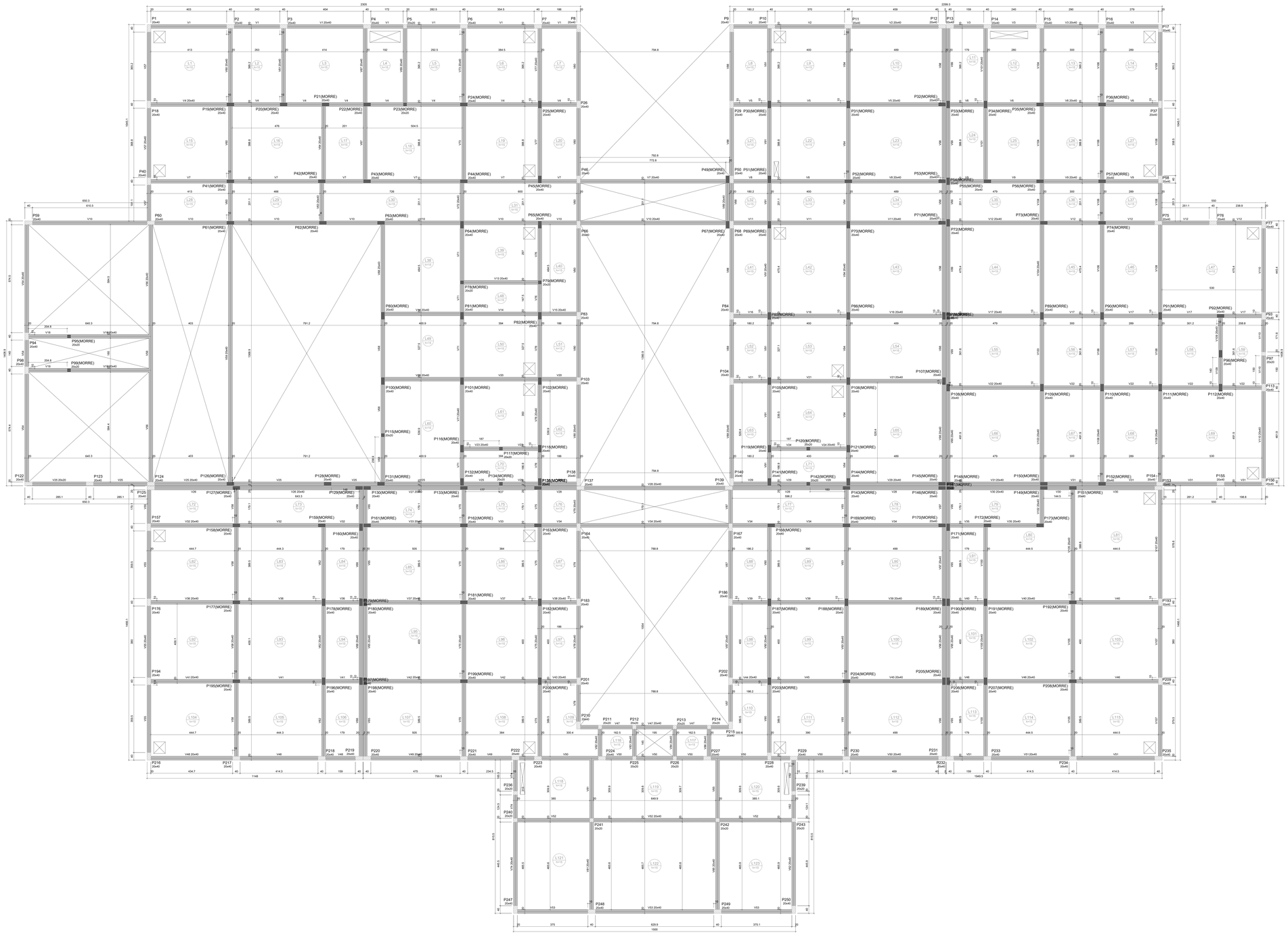
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 36 /60**



| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| V1 | 20x40 | 0 | 720 |
| V2 | 20x40 | 0 | 720 |
| V3 | 20x40 | 0 | 720 |
| V4 | 20x40 | 0 | 720 |
| V5 | 20x40 | 0 | 720 |
| V6 | 20x40 | 0 | 720 |
| V7 | 20x40 | 0 | 720 |
| V8 | 20x40 | 0 | 720 |
| V9 | 20x40 | 0 | 720 |
| V10 | 20x40 | 0 | 720 |
| V11 | 20x40 | 0 | 720 |
| V12 | 20x40 | 0 | 720 |
| V13 | 20x40 | 0 | 720 |
| V14 | 20x40 | 0 | 720 |
| V15 | 20x40 | 0 | 720 |
| V16 | 20x40 | 0 | 720 |
| V17 | 20x40 | 0 | 720 |
| V18 | 20x40 | 0 | 720 |
| V19 | 20x40 | 0 | 720 |
| V20 | 20x40 | 0 | 720 |
| V21 | 20x40 | 0 | 720 |
| V22 | 20x40 | 0 | 720 |
| V23 | 20x40 | 0 | 720 |
| V24 | 20x40 | 0 | 720 |
| V25 | 20x20 | 0 | 720 |
| V26 | 20x20 | 0 | 720 |
| V27 | 20x40 | 0 | 720 |
| V28 | 20x40 | 0 | 720 |
| V29 | 20x40 | 0 | 720 |
| V30 | 20x40 | 0 | 720 |
| V31 | 20x40 | 0 | 720 |
| V32 | 20x40 | 0 | 720 |
| V33 | 20x40 | 0 | 720 |
| V34 | 20x40 | 0 | 720 |
| V35 | 20x40 | 0 | 720 |
| V36 | 20x40 | 0 | 720 |
| V37 | 20x40 | 0 | 720 |
| V38 | 20x40 | 0 | 720 |
| V39 | 20x40 | 0 | 720 |
| V40 | 20x40 | 0 | 720 |
| V41 | 20x40 | 0 | 720 |
| V42 | 20x40 | 0 | 720 |
| V43 | 20x40 | 0 | 720 |
| V44 | 20x40 | 0 | 720 |
| V45 | 20x40 | 0 | 720 |
| V46 | 20x40 | 0 | 720 |
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| V48 | 20x40 | 0 | 720 |
| V49 | 20x40 | 0 | 720 |
| V50 | 20x40 | 0 | 720 |
| V51 | 20x40 | 0 | 720 |
| V52 | 20x40 | 0 | 720 |
| V53 | 20x40 | 0 | 720 |
| V54 | 20x40 | 0 | 720 |
| V55 | 20x40 | 0 | 720 |
| V56 | 20x40 | 0 | 720 |
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| V59 | 20x40 | 0 | 720 |
| V60 | 20x40 | 0 | 720 |
| V61 | 20x40 | 0 | 720 |
| V62 | 20x40 | 0 | 720 |
| V63 | 20x40 | 0 | 720 |
| V64 | 20x40 | 0 | 720 |
| V65 | 20x40 | 0 | 720 |
| V66 | 20x40 | 0 | 720 |
| V67 | 20x40 | 0 | 720 |
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| V89 | 20x40 | 0 | 720 |
| V90 | 20x40 | 0 | 720 |
| V91 | 20x40 | 0 | 720 |
| V92 | 20x40 | 0 | 720 |
| V93 | 20x40 | 0 | 720 |
| V94 | 20x40 | 0 | 720 |
| V95 | 20x40 | 0 | 720 |
| V96 | 20x40 | 0 | 720 |
| V97 | 20x40 | 0 | 720 |
| V98 | 20x40 | 0 | 720 |
| V99 | 20x40 | 0 | 720 |
| V100 | 20x40 | 0 | 720 |
| V101 | 20x40 | 0 | 720 |
| V102 | 20x40 | 0 | 720 |
| V103 | 20x40 | 0 | 720 |
| V104 | 20x40 | 0 | 720 |
| V105 | 20x40 | 0 | 720 |
| V106 | 20x40 | 0 | 720 |
| V107 | 20x40 | 0 | 720 |
| V108 | 20x40 | 0 | 720 |
| V109 | 20x40 | 0 | 720 |
| V110 | 20x40 | 0 | 720 |

| Pilares | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| P1 | 20x40 | 0 | 720 |
| P2 | 20x40 | 0 | 720 |
| P3 | 20x40 | 0 | 720 |
| P4 | 20x40 | 0 | 720 |
| P5 | 20x40 | 0 | 720 |
| P6 | 20x40 | 0 | 720 |
| P7 | 20x40 | 0 | 720 |
| P8 | 20x40 | 0 | 720 |
| P9 | 20x40 | 0 | 720 |
| P10 | 20x40 | 0 | 720 |
| P11 | 20x40 | 0 | 720 |
| P12 | 20x40 | 0 | 720 |
| P13 | 20x40 | 0 | 720 |
| P14 | 20x40 | 0 | 720 |
| P15 | 20x40 | 0 | 720 |
| P16 | 20x40 | 0 | 720 |
| P17 | 20x40 | 0 | 720 |
| P18 | 20x40 | 0 | 720 |
| P19 | 20x40 | 0 | 720 |
| P20 | 20x40 | 0 | 720 |
| P21 | 20x40 | 0 | 720 |
| P22 | 20x40 | 0 | 720 |
| P23 | 20x40 | 0 | 720 |
| P24 | 20x40 | 0 | 720 |
| P25 | 20x40 | 0 | 720 |
| P26 | 20x40 | 0 | 720 |
| P27 | 20x40 | 0 | 720 |
| P28 | 20x40 | 0 | 720 |
| P29 | 20x40 | 0 | 720 |
| P30 | 20x40 | 0 | 720 |
| P31 | 20x40 | 0 | 720 |
| P32 | 20x40 | 0 | 720 |
| P33 | 20x40 | 0 | 720 |
| P34 | 20x40 | 0 | 720 |
| P35 | 20x40 | 0 | 720 |
| P36 | 20x40 | 0 | 720 |
| P37 | 20x40 | 0 | 720 |
| P38 | 20x40 | 0 | 720 |
| P39 | 20x40 | 0 | 720 |
| P40 | 20x40 | 0 | 720 |
| P41 | 20x40 | 0 | 720 |
| P42 | 20x40 | 0 | 720 |
| P43 | 20x40 | 0 | 720 |
| P44 | 20x40 | 0 | 720 |
| P45 | 20x40 | 0 | 720 |
| P46 | 20x40 | 0 | 720 |
| P47 | 20x40 | 0 | 720 |
| P48 | 20x40 | 0 | 720 |
| P49 | 20x40 | 0 | 720 |
| P50 | 20x40 | 0 | 720 |
| P51 | 20x40 | 0 | 720 |
| P52 | 20x40 | 0 | 720 |
| P53 | 20x40 | 0 | 720 |
| P54 | 20x40 | 0 | 720 |
| P55 | 20x40 | 0 | 720 |
| P56 | 20x40 | 0 | 720 |
| P57 | 20x40 | 0 | 720 |
| P58 | 20x40 | 0 | 720 |
| P59 | 20x40 | 0 | 720 |
| P60 | 20x40 | 0 | 720 |
| P61 | 20x40 | 0 | 720 |
| P62 | 20x40 | 0 | 720 |
| P63 | 20x40 | 0 | 720 |
| P64 | 20x40 | 0 | 720 |
| P65 | 20x40 | 0 | 720 |
| P66 | 20x40 | 0 | 720 |
| P67 | 20x40 | 0 | 720 |
| P68 | 20x40 | 0 | 720 |
| P69 | 20x40 | 0 | 720 |
| P70 | 20x40 | 0 | 720 |
| P71 | 20x40 | 0 | 720 |
| P72 | 20x40 | 0 | 720 |
| P73 | 20x40 | 0 | 720 |
| P74 | 20x40 | 0 | 720 |
| P75 | 20x40 | 0 | 720 |
| P76 | 20x40 | 0 | 720 |
| P77 | 20x40 | 0 | 720 |
| P78 | 20x20 | 0 | 720 |
| P79 | 20x20 | 0 | 720 |
| P80 | 20x40 | 0 | 720 |
| P81 | 20x40 | 0 | 720 |
| P82 | 20x40 | 0 | 720 |
| P83 | 20x40 | 0 | 720 |
| P84 | 20x40 | 0 | 720 |
| P85 | 20x40 | 0 | 720 |
| P86 | 20x40 | 0 | 720 |
| P87 | 20x40 | 0 | 720 |
| P88 | 20x40 | 0 | 720 |
| P89 | 20x40 | 0 | 720 |
| P90 | 20x40 | 0 | 720 |
| P91 | 20x40 | 0 | 720 |
| P92 | 20x40 | 0 | 720 |
| P93 | 20x40 | 0 | 720 |
| P94 | 20x40 | 0 | 720 |
| P95 | 20x40 | 0 | 720 |
| P96 | 20x40 | 0 | 720 |
| P97 | 20x40 | 0 | 720 |
| P98 | 20x40 | 0 | 720 |
| P99 | 20x40 | 0 | 720 |
| P100 | 20x40 | 0 | 720 |
| P101 | 20x40 | 0 | 720 |
| P102 | 20x40 | 0 | 720 |
| P103 | 20x40 | 0 | 720 |
| P104 | 20x40 | 0 | 720 |
| P105 | 20x40 | 0 | 720 |
| P106 | 20x40 | 0 | 720 |
| P107 | 20x40 | 0 | 720 |
| P108 | 20x40 | 0 | 720 |
| P109 | 20x40 | 0 | 720 |
| P110 | 20x40 | 0 | 720 |
| P111 | 20x40 | 0 | 720 |
| P112 | 20x40 | 0 | 720 |
| P113 | 20x40 | 0 | 720 |
| P114 | 20x40 | 0 | 720 |
| P115 | 20x40 | 0 | 720 |
| P116 | 20x40 | 0 | 720 |
| P117 | 20x20 | 0 | 720 |
| P118 | 20x40 | 0 | 720 |
| P119 | 20x40 | 0 | 720 |
| P120 | 20x20 | 0 | 720 |
| P121 | 20x40 | 0 | 720 |
| P122 | 20x40 | 0 | 720 |
| P123 | 20x40 | 0 | 720 |
| P124 | 20x40 | 0 | 720 |
| P125 | 20x40 | 0 | 720 |
| P126 | 20x40 | 0 | 720 |
| P127 | 20x40 | 0 | 720 |
| P128 | 20x40 | 0 | 720 |
| P129 | 20x40 | 0 | 720 |
| P130 | 20x40 | 0 | 720 |
| P131 | 20x40 | 0 | 720 |
| P132 | 20x40 | 0 | 720 |
| P133 | 20x40 | 0 | 720 |
| P134 | 20x40 | 0 | 720 |
| P135 | 20x40 | 0 | 720 |
| P136 | 20x40 | 0 | 720 |
| P137 | 20x40 | 0 | 720 |
| P138 | 20x40 | 0 | 720 |
| P139 | 20x40 | 0 | 720 |
| P140 | 20x40 | 0 | 720 |
| P141 | 20x40 | 0 | 720 |
| P142 | 20x40 | 0 | 720 |
| P143 | 20x40 | 0 | 720 |
| P144 | 20x40 | 0 | 720 |
| P145 | 20x40 | 0 | 720 |
| P146 | 20x40 | 0 | 720 |
| P147 | 20x40 | 0 | 720 |
| P148 | 20x40 | 0 | 720 |
| P149 | 20x40 | 0 | 720 |
| P150 | 20x40 | 0 | 720 |
| P151 | 20x40 | 0 | 720 |
| P152 | 20x40 | 0 | 720 |
| P153 | 20x40 | 0 | 720 |
| P154 | 20x40 | 0 | 720 |
| P155 | 20x40 | 0 | 720 |
| P156 | 20x40 | 0 | 720 |
| P157 | 20x40 | 0 | 720 |
| P158 | 20x40 | 0 | 720 |
| P159 | 20x40 | 0 | 720 |
| P160 | 20x40 | 0 | 720 |
| P161 | 20x40 | 0 | 720 |
| P162 | 20x40 | 0 | 720 |
| P163 | 20x40 | 0 | 720 |
| P164 | 20x40 | 0 | 720 |
| P165 | 20x40 | 0 | 720 |
| P166 | 20x40 | 0 | 720 |
| P167 | 20x40 | 0 | 720 |
| P168 | 20x40 | 0 | 720 |
| P169 | 20x40 | 0 | 720 |
| P170 | 20x40 | 0 | 720 |
| P171 | 20x40 | 0 | 720 |
| P172 | 20x40 | 0 | 720 |
| P173 | 20x40 | 0 | 720 |
| P174 | 20x40 | 0 | 720 |
| P175 | 20x40 | 0 | 720 |
| P176 | 20x40 | 0 | 720 |
| P177 | 20x40 | 0 | 720 |
| P178 | 20x40 | 0 | 720 |
| P179 | 20x40 | 0 | 720 |
| P180 | 20x40 | 0 | 720 |
| P181 | 20x40 | 0 | 720 |
| P182 | 20x40 | 0 | 720 |
| P183 | 20x40 | 0 | 720 |
| P184 | 20x40 | 0 | 720 |
| P185 | 20x40 | 0 | 720 |
| P186 | 20x40 | 0 | 720 |
| P187 | 20x40 | 0 | 720 |
| P188 | 20x40 | 0 | 720 |
| P189 | 20x40 | 0 | 720 |
| P190 | 20x40 | 0 | 720 |
| P191 | 20x40 | 0 | 720 |
| P192 | 20x40 | 0 | 720 |
| P193 | 20x40 | 0 | 720 |
| P194 | 20x40 | 0 | 720 |
| P195 | 20x40 | 0 | 720 |
| P196 | 20x40 | 0 | 720 |
| P197 | 20x40 | 0 | 720 |
| P198 | 20x40 | 0 | 720 |
| P199 | 20x40 | 0 | 720 |
| P200 | 20x40 | 0 | 720 |
| P201 | 20x40 | 0 | 720 |
| P202 | 20x40 | 0 | 720 |
| P203 | 20x40 | 0 | 720 |
| P204 | 20x40 | 0 | 720 |
| P205 | 20x40 | 0 | 720 |
| P206 | 20x40 | 0 | 720 |
| P207 | 20x40 | 0 | 720 |
| P208 | 20x40 | 0 | 720 |
| P209 | 20x40 | 0 | 720 |
| P210 | 20x40 | 0 | 720 |
| P211 | 20x20 | 0 | 720 |
| P212 | 20x20 | 0 | 720 |
| P213 | 20x20 | 0 | 720 |
| P214 | 20x40 | 0 | 720 |
| P215 | 20x40 | 0 | 720 |
| P216 | 20x40 | 0 | 720 |
| P217 | 20x40 | 0 | 720 |
| P218 | 20x40 | 0 | 720 |
| P219 | 20x40 | 0 | 720 |
| P220 | 20x40 | 0 | 720 |
| P221 | 20x40 | 0 | 720 |
| P222 | 20x40 | 0 | 720 |
| P223 | 20x40 | 0 | 720 |
| P224 | 20x40 | 0 | 720 |
| P225 | 20x20 | 0 | 720 |
| P226 | 20x20 | 0 | 720 |
| P227 | 20x40 | 0 | 720 |
| P228 | 20x40 | 0 | 720 |
| P229 | 20x40 | 0 | 720 |
| P230 | 20x40 | 0 | 720 |
| P231 | 20x40 | 0 | 720 |
| P232 | 20x40 | 0 | 720 |
| P233 | 20x40 | 0 | 720 |
| P234 | 20x40 | 0 | 720 |
| P235 | 20x40 | 0 | 720 |
| P236 | 20x20 | 0 | 720 |
| P237 | 20x20 | 0 | 720 |
| P238 | 20x20 | 0 | 720 |
| P239 | 20x20 | 0 | 720 |
| P240 | 20x20 | 0 | 720 |
| P241 | 20x20 | 0 | 720 |
| P242 | 20x20 | 0 | 720 |
| P243 | 20x20 | 0 | 720 |
| P244 | 20x20 | 0 | 720 |
| P245 | 20x20 | 0 | 720 |
| P246 | 20x20 | 0 | 720 |
| P247 | 20x40 | 0 | 720 |
| P248 | 20x40 | 0 | 720 |
| P249 | 20x40 | 0 | 720 |
| P250 | 20x40 | 0 | 720 |

| Lajes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Detalhe | | | | Sobrecarga (kgf/m²) | | |
| Nome | Tipo | Altura (cm) | Elevação (cm) | Nível (cm) | Peso próprio (kgf/m²) | Adicional | Acidental | Localizada |
| L1 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L2 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L3 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L4 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L5 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L6 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L7 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L8 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L9 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L10 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L11 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L12 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L13 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L14 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L15 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L16 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L17 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L18 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L19 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L20 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L21 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L22 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L23 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L24 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L25 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L26 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L27 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L28 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L29 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L30 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L31 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L32 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L33 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L34 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L35 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L36 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L37 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L38 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L39 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L40 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L41 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L42 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L43 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L44 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L45 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L46 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L47 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L48 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L49 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L50 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L51 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L52 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L53 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L54 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L55 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L56 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L57 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L58 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L59 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L60 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L61 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L62 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L63 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L64 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L65 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L66 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L67 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L68 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L69 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L70 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L71 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L72 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L73 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L74 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L75 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L76 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L77 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L78 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L79 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L80 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L81 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L82 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L83 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L84 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L85 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L86 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L87 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L88 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L89 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L90 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L91 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L92 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L93 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L94 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L95 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L96 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L97 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L98 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L99 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L100 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L101 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L102 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L103 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L104 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L105 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L106 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L107 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L108 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L109 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L110 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L111 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L112 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L113 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L114 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L115 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L116 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L117 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L118 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L119 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L120 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L121 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L122 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |
| L123 | Maciça | 15 | 0 | 720 | 375 | 100 | 100 | - |

| Características dos materiais | |
|---|---|
| fck | Eck |
| 25MPa | 24GPa |
| CA-50 | |

Dimensão máxima do agregado = 19 mm

Legenda dos pilares
- Pilar que nasce
- Pilar que passa

Legenda das vigas e paredes
- Viga

# FORMA DO PAVIMENTO LAJE COBERTURA (NÍVEL 720)

Escala 1:50

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818

OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA

LOCAL: INSTITUTO FEDERAL FARROUPILHA

PROJETO: ESTRUTURAL — ÁREA: 4.082,35 m²

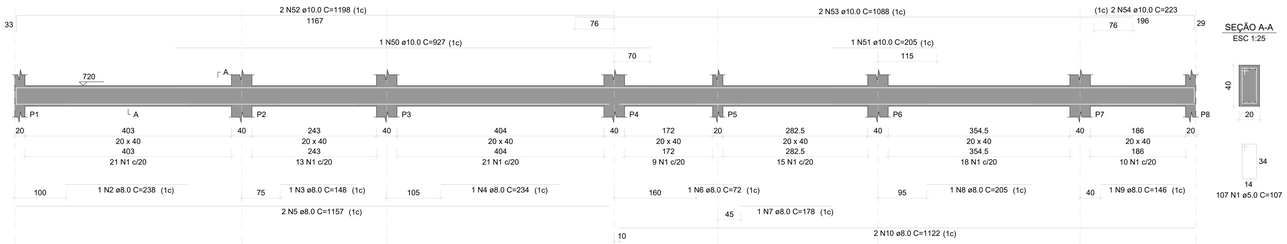
CONTEÚDO: PLANTA FORMA PAVIMENTO COBERTURA — ESCALA: 1/50

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA — DATA: Outubro/2025

RESPONSÁVEL: ENG. CIVIL JHANNA DAYSELLES VILPONTO - CREA RS 198904 — DESENHO: -

PRANCHA: EST 37 /60

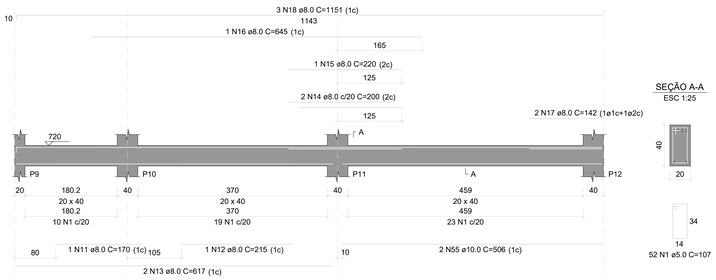
## V1
ESC 1:50




SEÇÃO A-A
ESC 1:25



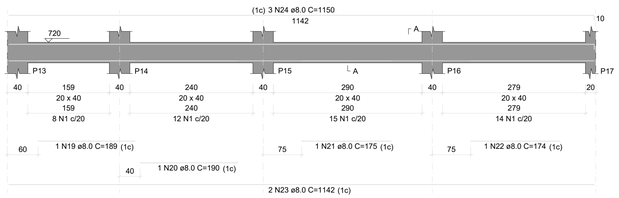

## V2
ESC 1:50



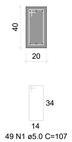

SEÇÃO A-A
ESC 1:25



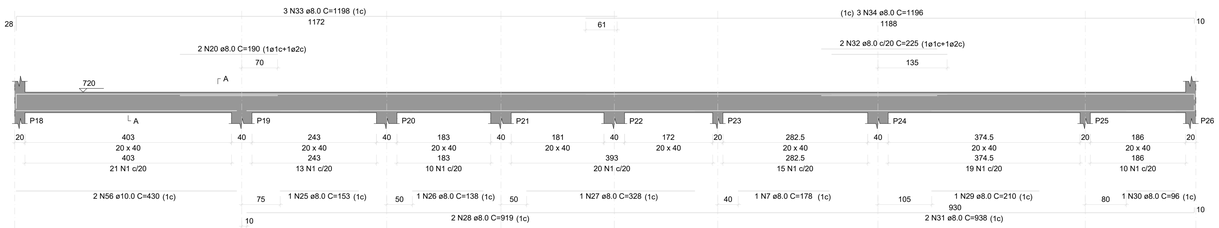

## V3
ESC 1:50



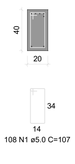

SEÇÃO A-A
ESC 1:25



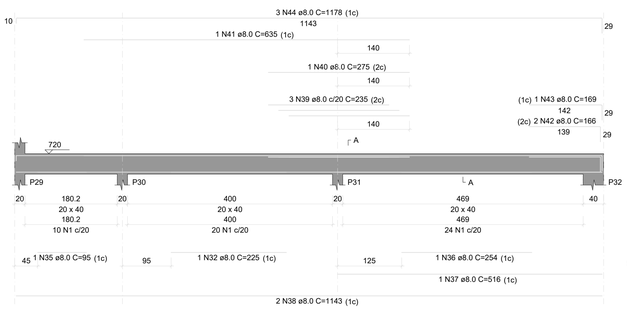

## V4
ESC 1:50



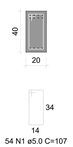

SEÇÃO A-A
ESC 1:25



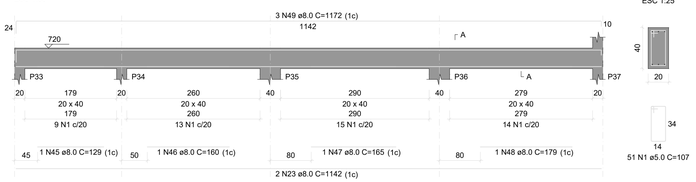

## V5
ESC 1:50



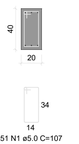

SEÇÃO A-A
ESC 1:25




## V6
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 421 | 107 | 45047 |
| CA50 | 2 | 8.0 | 1 | 238 | 238 |
| | 3 | 8.0 | 1 | 148 | 148 |
| | 4 | 8.0 | 1 | 234 | 234 |
| | 5 | 8.0 | 2 | 1157 | 2314 |
| | 6 | 8.0 | 1 | 72 | 72 |
| | 7 | 8.0 | 2 | 178 | 356 |
| | 8 | 8.0 | 1 | 205 | 205 |
| | 9 | 8.0 | 1 | 146 | 146 |
| | 10 | 8.0 | 2 | 1122 | 2244 |
| | 11 | 8.0 | 1 | 170 | 170 |
| | 12 | 8.0 | 1 | 215 | 215 |
| | 13 | 8.0 | 2 | 617 | 1234 |
| | 14 | 8.0 | 2 | 200 | 400 |
| | 15 | 8.0 | 1 | 220 | 220 |
| | 16 | 8.0 | 1 | 645 | 645 |
| | 17 | 8.0 | 2 | 142 | 284 |
| | 18 | 8.0 | 3 | 1151 | 3453 |
| | 19 | 8.0 | 1 | 189 | 189 |
| | 20 | 8.0 | 3 | 190 | 570 |
| | 21 | 8.0 | 1 | 175 | 175 |
| | 22 | 8.0 | 1 | 174 | 174 |
| | 23 | 8.0 | 4 | 1142 | 4568 |
| | 24 | 8.0 | 3 | 1150 | 3450 |
| | 25 | 8.0 | 1 | 153 | 153 |
| | 26 | 8.0 | 1 | 138 | 138 |
| | 27 | 8.0 | 1 | 328 | 328 |
| | 28 | 8.0 | 2 | 919 | 1838 |
| | 29 | 8.0 | 1 | 210 | 210 |
| | 30 | 8.0 | 1 | 96 | 96 |
| | 31 | 8.0 | 2 | 938 | 1876 |
| | 32 | 8.0 | 3 | 225 | 675 |
| | 33 | 8.0 | 3 | 1198 | 3594 |
| | 34 | 8.0 | 3 | 1196 | 3588 |
| | 35 | 8.0 | 1 | 95 | 95 |
| | 36 | 8.0 | 1 | 254 | 254 |
| | 37 | 8.0 | 1 | 516 | 516 |
| | 38 | 8.0 | 2 | 1143 | 2286 |
| | 39 | 8.0 | 3 | 235 | 705 |
| | 40 | 8.0 | 1 | 275 | 275 |
| | 41 | 8.0 | 1 | 635 | 635 |
| | 42 | 8.0 | 2 | 166 | 332 |
| | 43 | 8.0 | 1 | 169 | 169 |
| | 44 | 8.0 | 3 | 1178 | 3534 |
| | 45 | 8.0 | 1 | 129 | 129 |
| | 46 | 8.0 | 1 | 160 | 160 |
| | 47 | 8.0 | 1 | 165 | 165 |
| | 48 | 8.0 | 1 | 179 | 179 |
| | 49 | 8.0 | 3 | 1172 | 3516 |
| | 50 | 10.0 | 1 | 927 | 927 |
| | 51 | 10.0 | 1 | 205 | 205 |
| | 52 | 10.0 | 2 | 1198 | 2396 |
| | 53 | 10.0 | 2 | 1088 | 2176 |
| | 54 | 10.0 | 2 | 223 | 446 |
| | 55 | 10.0 | 2 | 506 | 1012 |
| | 56 | 10.0 | 2 | 430 | 860 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 471.5 | 204.7 |
| | 10.0 | 80.2 | 54.4 |
| CA60 | 5.0 | 450.5 | 76.4 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 259.1 |
| CA60 | 76.4 |

Volume de concreto (C-25) = 6.48 m³
Área de forma = 62.76 m²

**ESPECIFICAÇÕES DO CONCRETO:**

RESISTÊNCIA À COMPRESSÃO DO CONCRETO, FCK DE 28 DIAS = 25 MPa.
MÓDULO DE ELASTICIDADE INICIAL DO CONCRETO, Eci = 28 GPa.
TAMANHO MÁXIMO DO AGREGADO GRAÚDO = 19 MM.
CLASSE DE AGRESSIVIDADE AMBIENTAL II (CAA II).
RELAÇÃO ÁGUA/CIMENTO (A/C) MÁXIMA = 0,60.
AÇOS DAS ARMADURAS, CA50 E CA60.

COBRIMENTO DAS ARMADURAS CONFORME NBR 6118
LAJES - 25 MM
VIGAS E PILARES - 30 MM


INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819


OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS COBERTURA 1**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

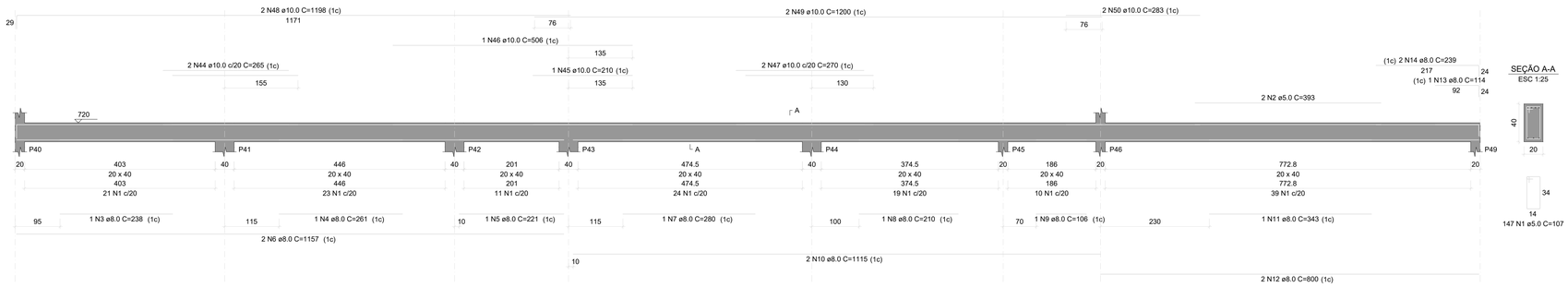
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 38 /60**

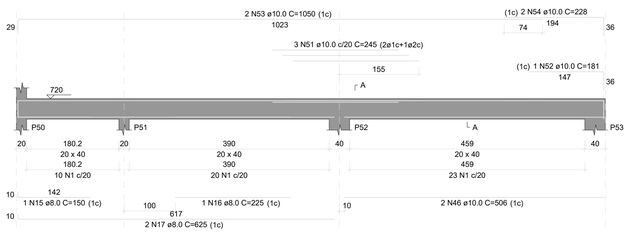
## V7
ESC 1:50



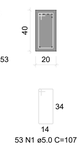

SEÇÃO A-A
ESC 1:25



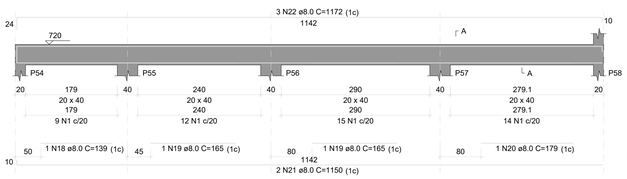

## V8
ESC 1:50



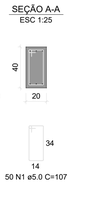

SEÇÃO A-A
ESC 1:25



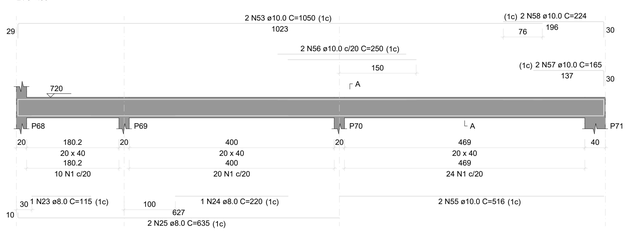

## V9
ESC 1:50



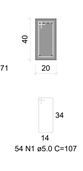

SEÇÃO A-A
ESC 1:25



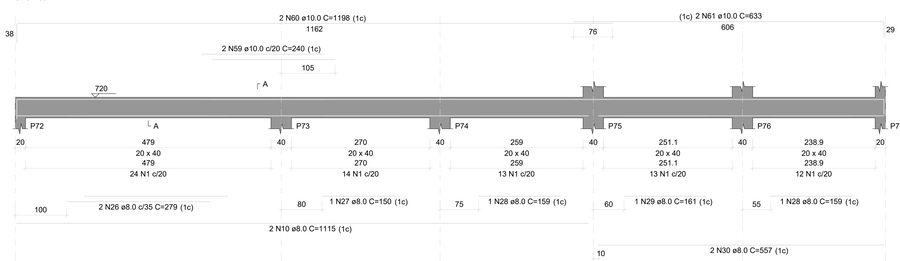

## V11
ESC 1:50




SEÇÃO A-A
ESC 1:25

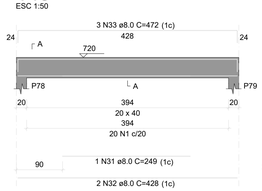



## V12
ESC 1:50



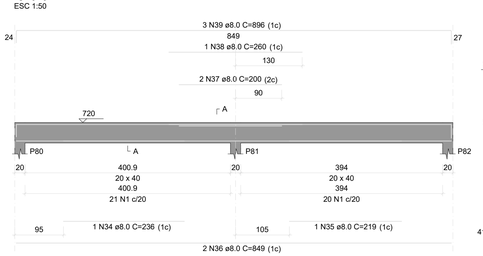

SEÇÃO A-A
ESC 1:25

## V13
ESC 1:50

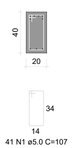



SEÇÃO A-A
ESC 1:25

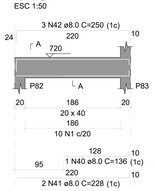
## V14
ESC 1:50



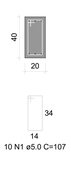

SEÇÃO A-A
ESC 1:25



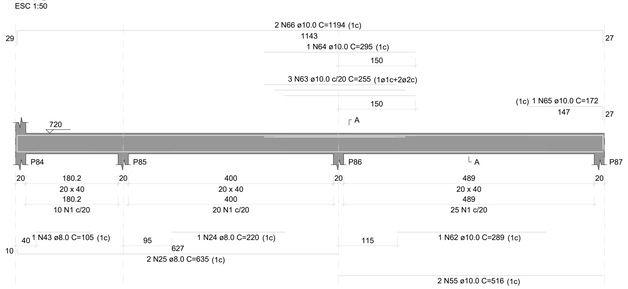

## V15
ESC 1:50



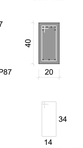

SEÇÃO A-A
ESC 1:25




## V16
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V7 V8 V9
V11 V12 V13
V14 V15 V16

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 506 | 107 | 54142 |
| | 2 | 5.0 | 2 | 393 | 786 |
| CA50 | 3 | 8.0 | 1 | 238 | 238 |
| | 4 | 8.0 | 1 | 261 | 261 |
| | 5 | 8.0 | 1 | 221 | 221 |
| | 6 | 8.0 | 2 | 1157 | 2314 |
| | 7 | 8.0 | 1 | 280 | 280 |
| | 8 | 8.0 | 1 | 210 | 210 |
| | 9 | 8.0 | 1 | 106 | 106 |
| | 10 | 8.0 | 4 | 1115 | 4460 |
| | 11 | 8.0 | 1 | 343 | 343 |
| | 12 | 8.0 | 2 | 800 | 1600 |
| | 13 | 8.0 | 1 | 114 | 114 |
| | 14 | 8.0 | 2 | 239 | 478 |
| | 15 | 8.0 | 1 | 150 | 150 |
| | 16 | 8.0 | 1 | 225 | 225 |
| | 17 | 8.0 | 2 | 625 | 1250 |
| | 18 | 8.0 | 1 | 139 | 139 |
| | 19 | 8.0 | 2 | 165 | 330 |
| | 20 | 8.0 | 1 | 179 | 179 |
| | 21 | 8.0 | 2 | 1150 | 2300 |
| | 22 | 8.0 | 3 | 1172 | 3516 |
| | 23 | 8.0 | 1 | 115 | 115 |
| | 24 | 8.0 | 2 | 220 | 440 |
| | 25 | 8.0 | 4 | 635 | 2540 |
| | 26 | 8.0 | 2 | 279 | 558 |
| | 27 | 8.0 | 1 | 150 | 150 |
| | 28 | 8.0 | 2 | 159 | 318 |
| | 29 | 8.0 | 1 | 161 | 161 |
| | 30 | 8.0 | 2 | 557 | 1114 |
| | 31 | 8.0 | 1 | 249 | 249 |
| | 32 | 8.0 | 2 | 428 | 856 |
| | 33 | 8.0 | 3 | 472 | 1416 |
| | 34 | 8.0 | 1 | 236 | 236 |
| | 35 | 8.0 | 1 | 219 | 219 |
| | 36 | 8.0 | 2 | 849 | 1698 |
| | 37 | 8.0 | 2 | 200 | 400 |
| | 38 | 8.0 | 1 | 260 | 260 |
| | 39 | 8.0 | 3 | 896 | 2688 |
| | 40 | 8.0 | 1 | 136 | 136 |
| | 41 | 8.0 | 2 | 228 | 456 |
| | 42 | 8.0 | 3 | 250 | 750 |
| | 43 | 8.0 | 1 | 105 | 105 |
| | 44 | 10.0 | 2 | 265 | 530 |
| | 45 | 10.0 | 1 | 210 | 210 |
| | 46 | 10.0 | 3 | 506 | 1518 |
| | 47 | 10.0 | 2 | 270 | 540 |
| | 48 | 10.0 | 2 | 1198 | 2396 |
| | 49 | 10.0 | 2 | 1200 | 2400 |
| | 50 | 10.0 | 2 | 283 | 566 |
| | 51 | 10.0 | 3 | 245 | 735 |
| | 52 | 10.0 | 1 | 181 | 181 |
| | 53 | 10.0 | 4 | 1050 | 4200 |
| | 54 | 10.0 | 2 | 228 | 456 |
| | 55 | 10.0 | 4 | 516 | 2064 |
| | 56 | 10.0 | 2 | 250 | 500 |
| | 57 | 10.0 | 2 | 165 | 330 |
| | 58 | 10.0 | 2 | 224 | 448 |
| | 59 | 10.0 | 2 | 240 | 480 |
| | 60 | 10.0 | 2 | 1198 | 2396 |
| | 61 | 10.0 | 2 | 633 | 1266 |
| | 62 | 10.0 | 1 | 289 | 289 |
| | 63 | 10.0 | 3 | 255 | 765 |
| | 64 | 10.0 | 1 | 295 | 295 |
| | 65 | 10.0 | 1 | 172 | 172 |
| | 66 | 10.0 | 2 | 1194 | 2388 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 335.8 | 145.7 |
| | 10.0 | 251.3 | 170.4 |
| CA60 | 5.0 | 549.3 | 93.1 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 316.1 |
| CA60 | 93.1 |

Volume de concreto (C-25) = 7.89 m³
Área de forma = 72.12 m²


INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819


OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 2**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

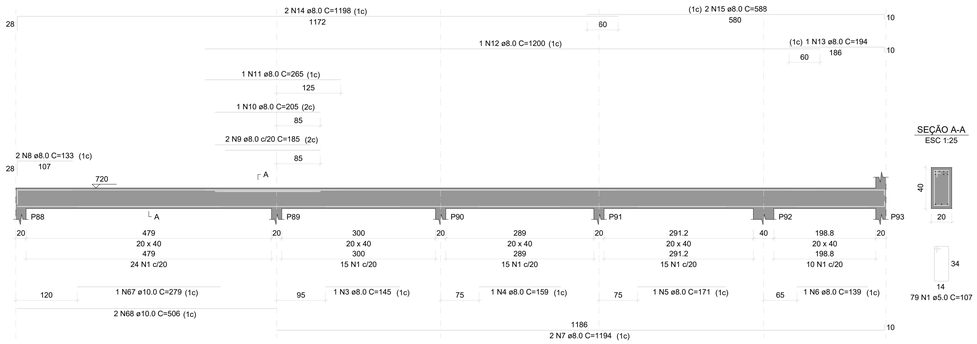
DATA:
**Outubro/2025**

DESENHO:
**-**

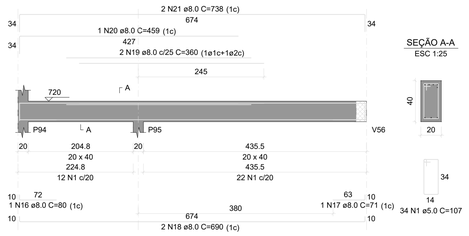
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 39 /60**

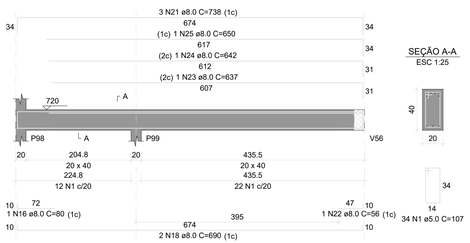
## V17
ESC 1:50



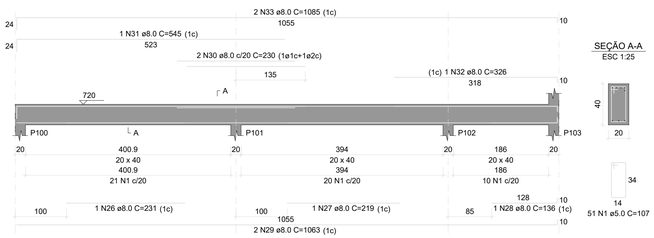

## V18
ESC 1:50



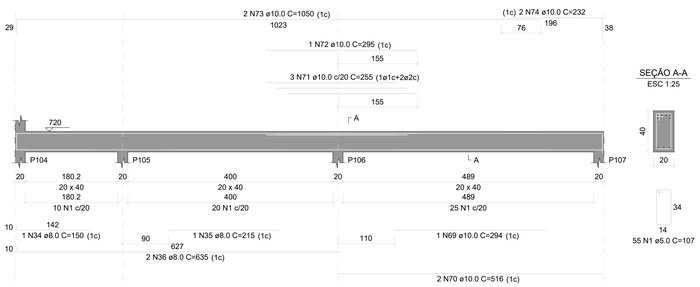

## V19
ESC 1:50



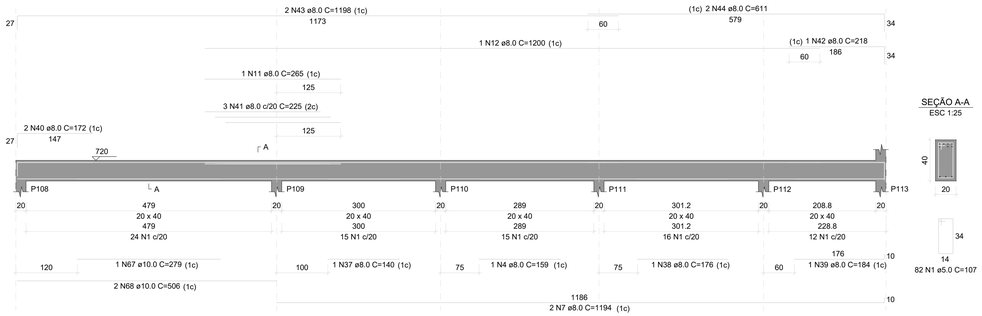

## V20
ESC 1:50



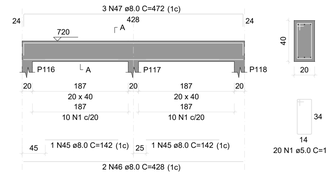

## V21
ESC 1:50



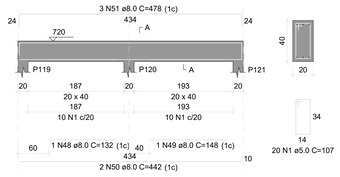

## V22
ESC 1:50



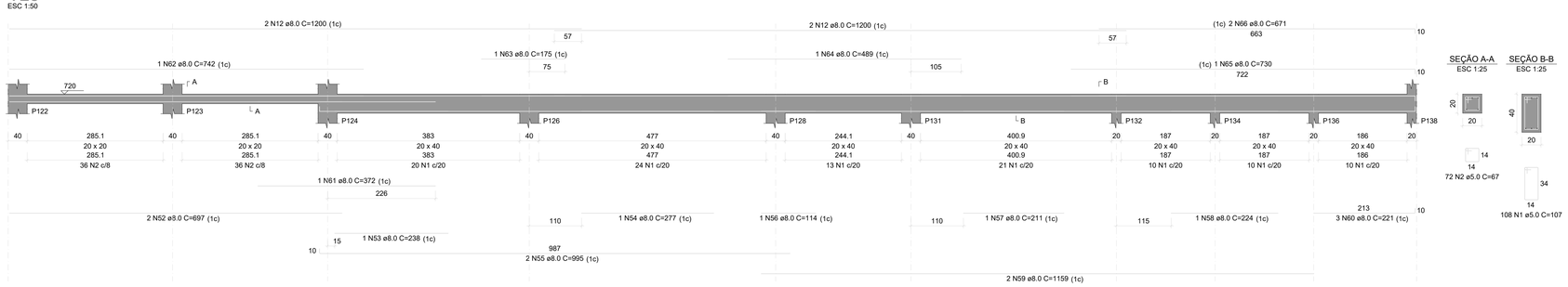

## V23
ESC 1:50




## V24
ESC 1:50




## V25
ESC 1:50




### RELAÇÃO DO AÇO

V17 V18 V19
V20 V21 V22
V23 V24 V25

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 483 | 107 | 51681 |
| | 2 | 5.0 | 72 | 67 | 4824 |
| CA50 | 3 | 8.0 | 1 | 145 | 145 |
| | 4 | 8.0 | 2 | 159 | 318 |
| | 5 | 8.0 | 1 | 171 | 171 |
| | 6 | 8.0 | 1 | 139 | 139 |
| | 7 | 8.0 | 4 | 1194 | 4776 |
| | 8 | 8.0 | 2 | 133 | 266 |
| | 9 | 8.0 | 2 | 185 | 370 |
| | 10 | 8.0 | 1 | 205 | 205 |
| | 11 | 8.0 | 2 | 265 | 530 |
| | 12 | 8.0 | 6 | 1200 | 7200 |
| | 13 | 8.0 | 1 | 194 | 194 |
| | 14 | 8.0 | 2 | 1198 | 2396 |
| | 15 | 8.0 | 2 | 588 | 1176 |
| | 16 | 8.0 | 2 | 80 | 160 |
| | 17 | 8.0 | 1 | 71 | 71 |
| | 18 | 8.0 | 4 | 690 | 2760 |
| | 19 | 8.0 | 2 | 360 | 720 |
| | 20 | 8.0 | 1 | 459 | 459 |
| | 21 | 8.0 | 5 | 738 | 3690 |
| | 22 | 8.0 | 1 | 56 | 56 |
| | 23 | 8.0 | 1 | 637 | 637 |
| | 24 | 8.0 | 1 | 642 | 642 |
| | 25 | 8.0 | 1 | 650 | 650 |
| | 26 | 8.0 | 1 | 231 | 231 |
| | 27 | 8.0 | 1 | 219 | 219 |
| | 28 | 8.0 | 1 | 136 | 136 |
| | 29 | 8.0 | 2 | 1063 | 2126 |
| | 30 | 8.0 | 2 | 230 | 460 |
| | 31 | 8.0 | 1 | 545 | 545 |
| | 32 | 8.0 | 1 | 326 | 326 |
| | 33 | 8.0 | 2 | 1085 | 2170 |
| | 34 | 8.0 | 1 | 150 | 150 |
| | 35 | 8.0 | 1 | 215 | 215 |
| | 36 | 8.0 | 2 | 635 | 1270 |
| | 37 | 8.0 | 1 | 140 | 140 |
| | 38 | 8.0 | 1 | 176 | 176 |
| | 39 | 8.0 | 1 | 184 | 184 |
| | 40 | 8.0 | 2 | 172 | 344 |
| | 41 | 8.0 | 3 | 225 | 675 |
| | 42 | 8.0 | 1 | 218 | 218 |
| | 43 | 8.0 | 2 | 1198 | 2396 |
| | 44 | 8.0 | 2 | 611 | 1222 |
| | 45 | 8.0 | 2 | 142 | 284 |
| | 46 | 8.0 | 2 | 428 | 856 |
| | 47 | 8.0 | 3 | 472 | 1416 |
| | 48 | 8.0 | 1 | 132 | 132 |
| | 49 | 8.0 | 1 | 148 | 148 |
| | 50 | 8.0 | 2 | 442 | 884 |
| | 51 | 8.0 | 3 | 478 | 1434 |
| | 52 | 8.0 | 2 | 697 | 1394 |
| | 53 | 8.0 | 1 | 238 | 238 |
| | 54 | 8.0 | 1 | 277 | 277 |
| | 55 | 8.0 | 2 | 995 | 1990 |
| | 56 | 8.0 | 1 | 114 | 114 |
| | 57 | 8.0 | 1 | 211 | 211 |
| | 58 | 8.0 | 1 | 224 | 224 |
| | 59 | 8.0 | 2 | 1159 | 2318 |
| | 60 | 8.0 | 3 | 221 | 663 |
| | 61 | 8.0 | 1 | 372 | 372 |
| | 62 | 8.0 | 1 | 742 | 742 |
| | 63 | 8.0 | 1 | 175 | 175 |
| | 64 | 8.0 | 1 | 489 | 489 |
| | 65 | 8.0 | 1 | 730 | 730 |
| | 66 | 8.0 | 2 | 671 | 1342 |
| | 67 | 10.0 | 2 | 279 | 558 |
| | 68 | 10.0 | 4 | 506 | 2024 |
| | 69 | 10.0 | 1 | 294 | 294 |
| | 70 | 10.0 | 2 | 516 | 1032 |
| | 71 | 10.0 | 3 | 255 | 765 |
| | 72 | 10.0 | 1 | 295 | 295 |
| | 73 | 10.0 | 2 | 1050 | 2100 |
| | 74 | 10.0 | 2 | 232 | 464 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 573.7 | 249 |
| | 10.0 | 75.3 | 51.1 |
| CA60 | 5.0 | 565.1 | 95.8 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 300.1 |
| CA60 | 95.8 |

Volume de concreto (C-25) = 7.62 m³
Área de forma = 76.62 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 3**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

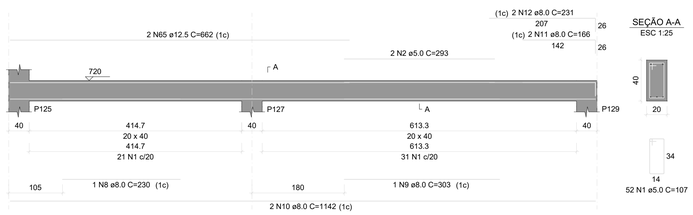
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 40 /60**

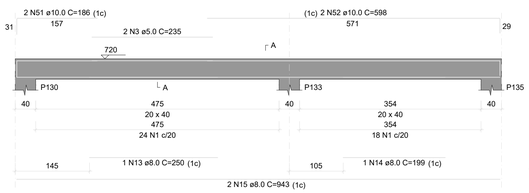
## V26
ESC 1:50



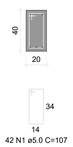

SEÇÃO A-A
ESC 1:25



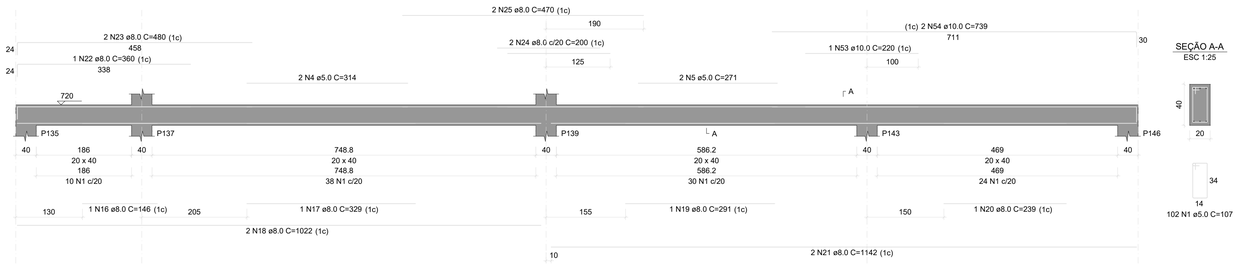

## V27
ESC 1:50




SEÇÃO A-A
ESC 1:25



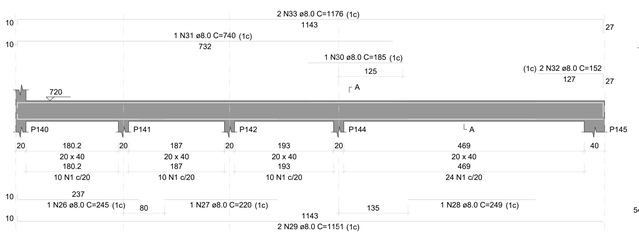

## V28
ESC 1:50



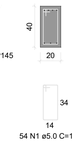

SEÇÃO A-A
ESC 1:25



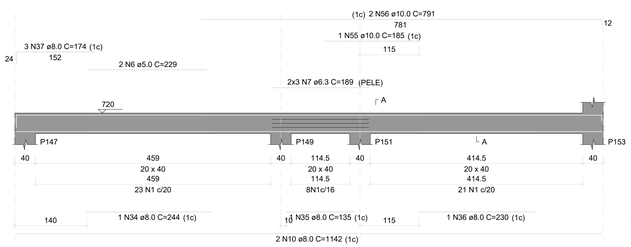

## V29
ESC 1:50



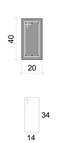

SEÇÃO A-A
ESC 1:25



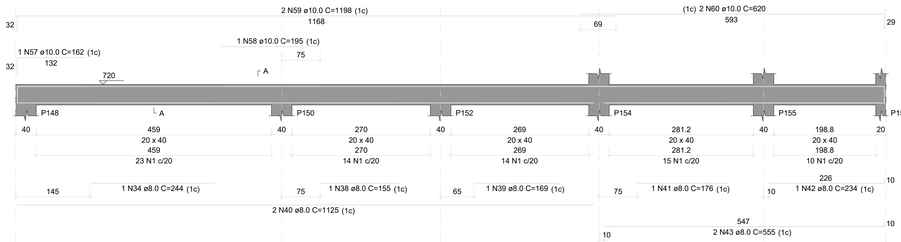

## V30
ESC 1:50



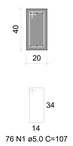

SEÇÃO A-A
ESC 1:25



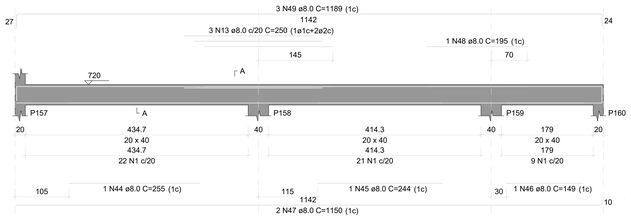

## V31
ESC 1:50



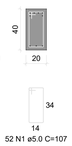

SEÇÃO A-A
ESC 1:25



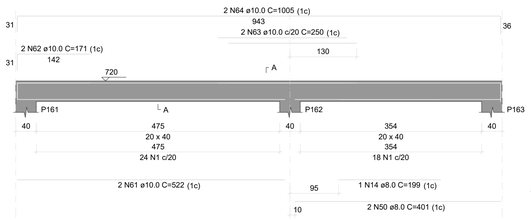

## V32
ESC 1:50



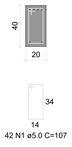

SEÇÃO A-A
ESC 1:25




## V33
ESC 1:50




SEÇÃO A-A
ESC 1:25




### RELAÇÃO DO AÇO

V26 V27 V28
V29 V30 V31
V32 V33

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 472 | 107 | 50504 |
| | 2 | 5.0 | 2 | 293 | 586 |
| | 3 | 5.0 | 2 | 235 | 470 |
| | 4 | 5.0 | 2 | 314 | 628 |
| | 5 | 5.0 | 2 | 271 | 542 |
| | 6 | 5.0 | 2 | 229 | 458 |
| CA50 | 7 | 6.3 | 6 | 189 | 1134 |
| | 8 | 8.0 | 1 | 230 | 230 |
| | 9 | 8.0 | 1 | 303 | 303 |
| | 10 | 8.0 | 4 | 1142 | 4568 |
| | 11 | 8.0 | 2 | 166 | 332 |
| | 12 | 8.0 | 2 | 231 | 462 |
| | 13 | 8.0 | 4 | 250 | 1000 |
| | 14 | 8.0 | 2 | 199 | 398 |
| | 15 | 8.0 | 2 | 943 | 1886 |
| | 16 | 8.0 | 1 | 146 | 146 |
| | 17 | 8.0 | 1 | 329 | 329 |
| | 18 | 8.0 | 2 | 1022 | 2044 |
| | 19 | 8.0 | 1 | 291 | 291 |
| | 20 | 8.0 | 1 | 239 | 239 |
| | 21 | 8.0 | 2 | 1142 | 2284 |
| | 22 | 8.0 | 1 | 360 | 360 |
| | 23 | 8.0 | 2 | 480 | 960 |
| | 24 | 8.0 | 2 | 200 | 400 |
| | 25 | 8.0 | 2 | 470 | 940 |
| | 26 | 8.0 | 1 | 245 | 245 |
| | 27 | 8.0 | 1 | 220 | 220 |
| | 28 | 8.0 | 1 | 249 | 249 |
| | 29 | 8.0 | 2 | 1151 | 2302 |
| | 30 | 8.0 | 1 | 185 | 185 |
| | 31 | 8.0 | 1 | 740 | 740 |
| | 32 | 8.0 | 2 | 152 | 304 |
| | 33 | 8.0 | 2 | 1176 | 2352 |
| | 34 | 8.0 | 2 | 244 | 488 |
| | 35 | 8.0 | 1 | 135 | 135 |
| | 36 | 8.0 | 1 | 230 | 230 |
| | 37 | 8.0 | 3 | 174 | 522 |
| | 38 | 8.0 | 1 | 155 | 155 |
| | 39 | 8.0 | 1 | 169 | 169 |
| | 40 | 8.0 | 2 | 1125 | 2250 |
| | 41 | 8.0 | 1 | 176 | 176 |
| | 42 | 8.0 | 1 | 234 | 234 |
| | 43 | 8.0 | 2 | 555 | 1110 |
| | 44 | 8.0 | 1 | 255 | 255 |
| | 45 | 8.0 | 1 | 244 | 244 |
| | 46 | 8.0 | 1 | 149 | 149 |
| | 47 | 8.0 | 2 | 1150 | 2300 |
| | 48 | 8.0 | 1 | 195 | 195 |
| | 49 | 8.0 | 3 | 1189 | 3567 |
| | 50 | 8.0 | 2 | 401 | 802 |
| | 51 | 10.0 | 2 | 186 | 372 |
| | 52 | 10.0 | 2 | 598 | 1196 |
| | 53 | 10.0 | 1 | 220 | 220 |
| | 54 | 10.0 | 2 | 739 | 1478 |
| | 55 | 10.0 | 1 | 185 | 185 |
| | 56 | 10.0 | 2 | 791 | 1582 |
| | 57 | 10.0 | 1 | 162 | 162 |
| | 58 | 10.0 | 1 | 195 | 195 |
| | 59 | 10.0 | 2 | 1198 | 2396 |
| | 60 | 10.0 | 2 | 620 | 1240 |
| | 61 | 10.0 | 2 | 522 | 1044 |
| | 62 | 10.0 | 2 | 171 | 342 |
| | 63 | 10.0 | 2 | 250 | 500 |
| | 64 | 10.0 | 2 | 1005 | 2010 |
| | 65 | 12.5 | 2 | 662 | 1324 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 11.3 | 3.1 |
| | 8.0 | 367.5 | 159.5 |
| | 10.0 | 129.2 | 87.6 |
| | 12.5 | 13.2 | 14 |
| CA60 | 5.0 | 531.9 | 90.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 264.2 |
| CA60 | 90.2 |

Volume de concreto (C-25) = 7.36 m³
Área de forma = 76.53 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS COBERTURA 4**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

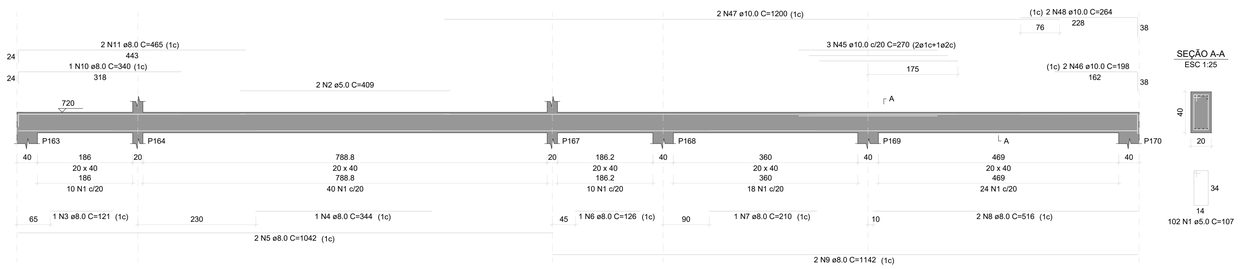
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 41/60**

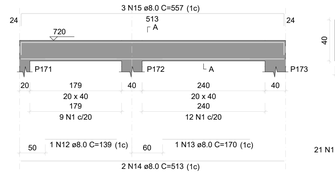
## V34
ESC 1:50



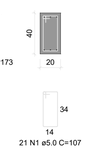

SEÇÃO A-A
ESC 1:25




## V35
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V34 V35 V36
V37 V38 V39
V40 V41 V42
V43 V44

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 456 | 107 | 48792 |
| | 2 | 5.0 | 2 | 409 | 818 |
| CA50 | 3 | 8.0 | 1 | 121 | 121 |
| | 4 | 8.0 | 1 | 344 | 344 |
| | 5 | 8.0 | 2 | 1042 | 2084 |
| | 6 | 8.0 | 1 | 126 | 126 |
| | 7 | 8.0 | 2 | 210 | 420 |
| | 8 | 8.0 | 2 | 516 | 1032 |
| | 9 | 8.0 | 2 | 1142 | 2284 |
| | 10 | 8.0 | 1 | 340 | 340 |
| | 11 | 8.0 | 2 | 465 | 930 |
| | 12 | 8.0 | 1 | 139 | 139 |
| | 13 | 8.0 | 2 | 170 | 340 |
| | 14 | 8.0 | 2 | 513 | 1026 |
| | 15 | 8.0 | 3 | 557 | 1671 |
| | 16 | 8.0 | 4 | 270 | 1080 |
| | 17 | 8.0 | 4 | 462 | 1848 |
| | 18 | 8.0 | 1 | 104 | 104 |
| | 19 | 8.0 | 4 | 206 | 824 |
| | 20 | 8.0 | 2 | 214 | 428 |
| | 21 | 8.0 | 4 | 401 | 1604 |
| | 22 | 8.0 | 1 | 156 | 156 |
| | 23 | 8.0 | 4 | 228 | 912 |
| | 24 | 8.0 | 6 | 250 | 1500 |
| | 25 | 8.0 | 1 | 156 | 156 |
| | 26 | 8.0 | 2 | 631 | 1262 |
| | 27 | 8.0 | 2 | 205 | 410 |
| | 28 | 8.0 | 1 | 225 | 225 |
| | 29 | 8.0 | 3 | 285 | 855 |
| | 30 | 8.0 | 1 | 801 | 801 |
| | 31 | 8.0 | 1 | 118 | 118 |
| | 32 | 8.0 | 1 | 178 | 178 |
| | 33 | 8.0 | 2 | 1183 | 2366 |
| | 34 | 8.0 | 1 | 99 | 99 |
| | 35 | 8.0 | 2 | 260 | 520 |
| | 36 | 8.0 | 2 | 462 | 924 |
| | 37 | 8.0 | 1 | 313 | 313 |
| | 38 | 8.0 | 2 | 478 | 956 |
| | 39 | 8.0 | 1 | 134 | 134 |
| | 40 | 8.0 | 2 | 214 | 428 |
| | 41 | 8.0 | 1 | 126 | 126 |
| | 42 | 8.0 | 1 | 106 | 106 |
| | 43 | 8.0 | 2 | 228 | 456 |
| | 44 | 8.0 | 3 | 250 | 750 |
| | 45 | 10.0 | 3 | 270 | 810 |
| | 46 | 10.0 | 2 | 198 | 396 |
| | 47 | 10.0 | 2 | 1200 | 2400 |
| | 48 | 10.0 | 2 | 264 | 528 |
| | 49 | 10.0 | 4 | 454 | 1816 |
| | 50 | 10.0 | 2 | 300 | 600 |
| | 51 | 10.0 | 4 | 522 | 2088 |
| | 52 | 10.0 | 1 | 187 | 187 |
| | 53 | 10.0 | 6 | 290 | 1740 |
| | 54 | 10.0 | 2 | 330 | 660 |
| | 55 | 10.0 | 2 | 1003 | 2006 |
| | 56 | 10.0 | 1 | 294 | 294 |
| | 57 | 10.0 | 2 | 526 | 1052 |
| | 58 | 10.0 | 2 | 455 | 910 |
| | 59 | 10.0 | 1 | 187 | 187 |
| | 60 | 10.0 | 2 | 1003 | 2006 |
| | 61 | 12.5 | 2 | 310 | 620 |
| | 62 | 12.5 | 2 | 1189 | 2378 |
| | 63 | 12.5 | 2 | 1050 | 2100 |
| | 64 | 12.5 | 2 | 246 | 492 |
| | 65 | 16.0 | 2 | 711 | 1422 |

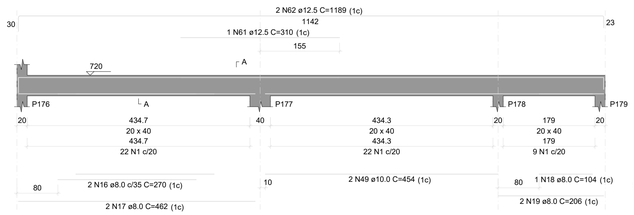
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 305 | 132.4 |
| | 10.0 | 176.8 | 119.9 |
| | 12.5 | 55.9 | 59.2 |
| | 16.0 | 14.2 | 24.7 |
| CA60 | 5.0 | 496.1 | 84.1 |

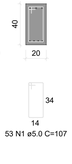
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 336.2 |
| CA60 | 84.1 |

Volume de concreto (C-25) = 7.14 m³
Área de forma = 64.84 m²

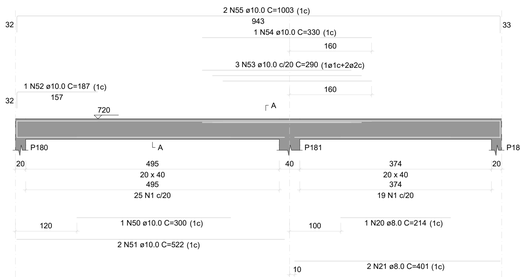
## V36
ESC 1:50



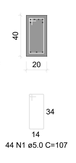

SEÇÃO A-A
ESC 1:25



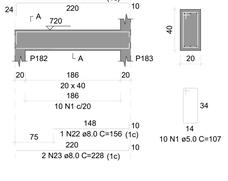

## V37
ESC 1:50




SEÇÃO A-A
ESC 1:25



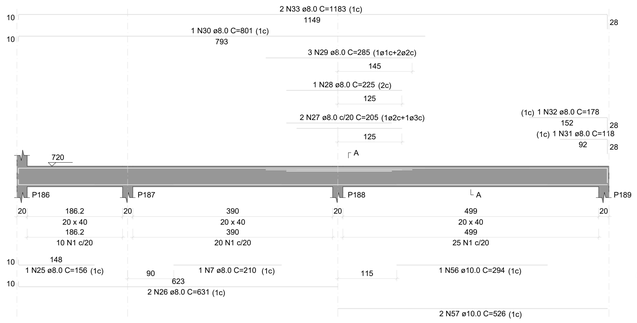

## V38
ESC 1:50



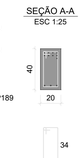

SEÇÃO A-A
ESC 1:25



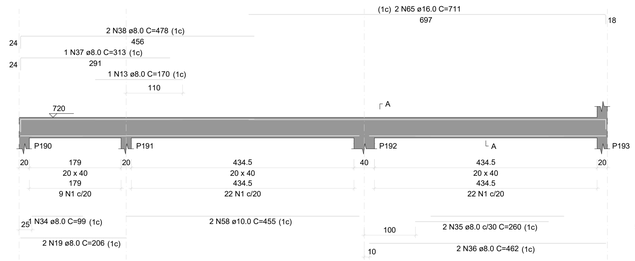

## V39
ESC 1:50



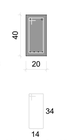

SEÇÃO A-A
ESC 1:25



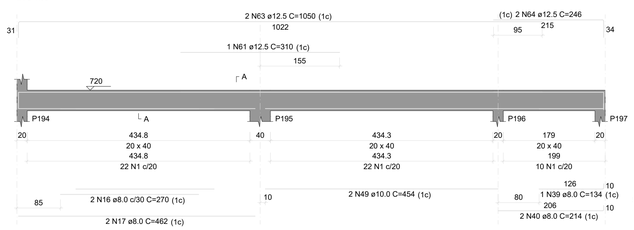

## V40
ESC 1:50



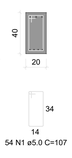

SEÇÃO A-A
ESC 1:25



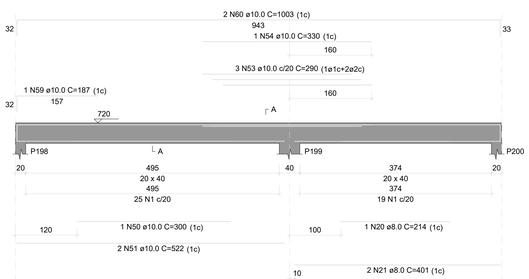

## V41
ESC 1:50



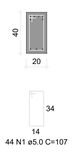

SEÇÃO A-A
ESC 1:25



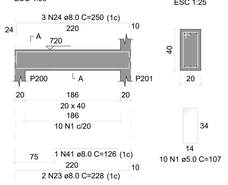

## V42
ESC 1:50




SEÇÃO A-A
ESC 1:25



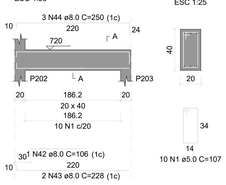

## V43
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V44
ESC 1:50




SEÇÃO A-A
ESC 1:25




INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 5**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

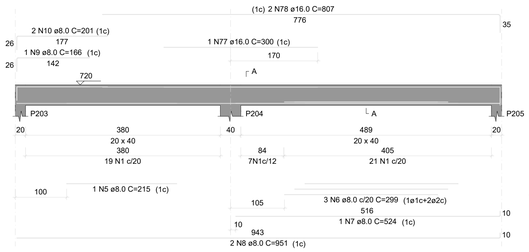
DATA:
**Outubro/2025**

DESENHO:
**-**

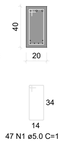
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 42 /60**

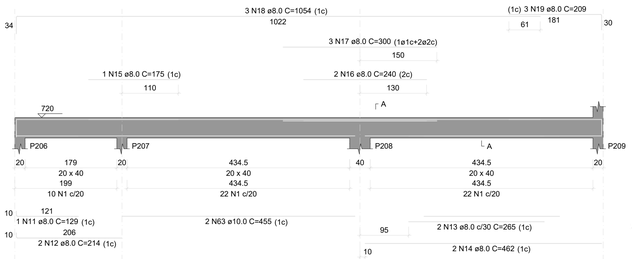
## V45
ESC 1:50




SEÇÃO A-A
ESC 1:25

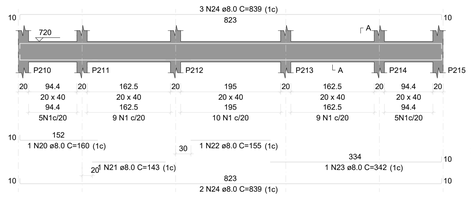



## V46
ESC 1:50

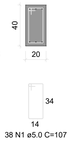



SEÇÃO A-A
ESC 1:25

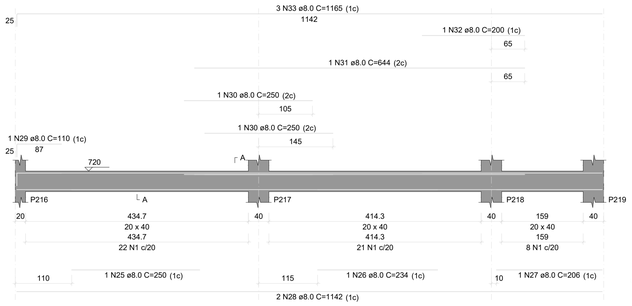
## V47
ESC 1:50




SEÇÃO A-A
ESC 1:25

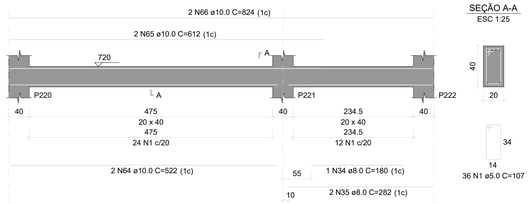



## V48
ESC 1:50




SEÇÃO A-A
ESC 1:25

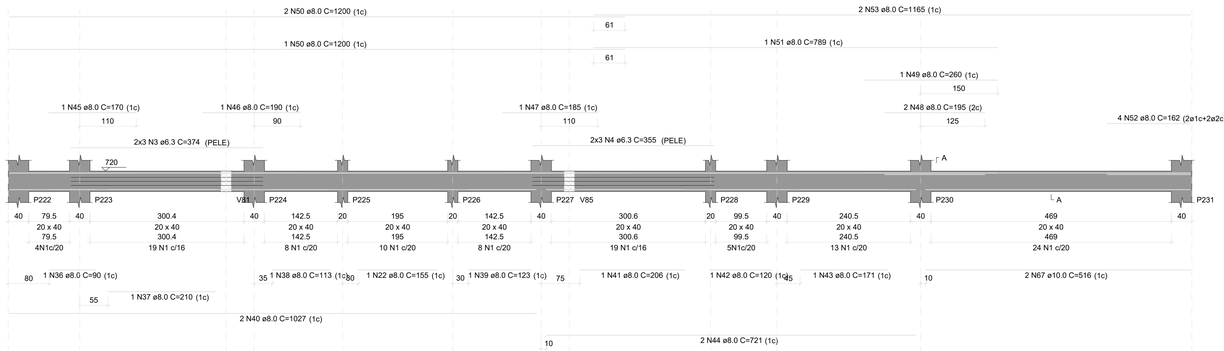
## V49
ESC 1:50



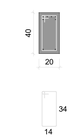

SEÇÃO A-A
ESC 1:25



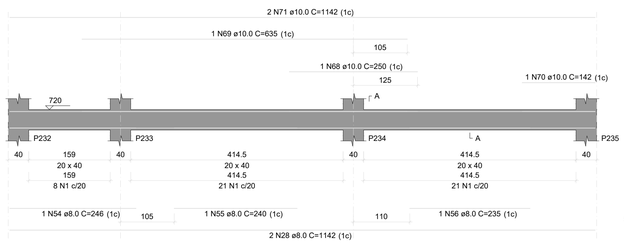

## V50
ESC 1:50



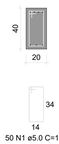

SEÇÃO A-A
ESC 1:25



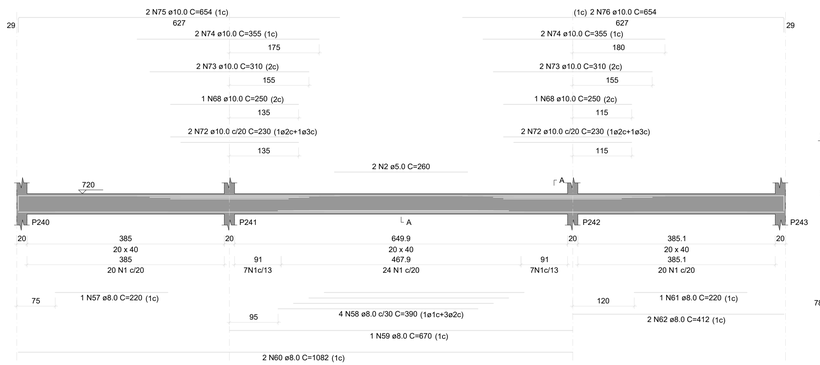

## V51
ESC 1:50



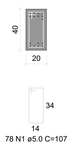

SEÇÃO A-A
ESC 1:25




## V52
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V45 V46 V47
V48 V49 V50
V51 V52

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 464 | 107 | 49648 |
| | 2 | 5.0 | 2 | 260 | 520 |
| CA50 | 3 | 6.3 | 6 | 374 | 2244 |
| | 4 | 6.3 | 6 | 355 | 2130 |
| | 5 | 8.0 | 1 | 215 | 215 |
| | 6 | 8.0 | 3 | 299 | 897 |
| | 7 | 8.0 | 1 | 524 | 524 |
| | 8 | 8.0 | 2 | 951 | 1902 |
| | 9 | 8.0 | 1 | 166 | 166 |
| | 10 | 8.0 | 2 | 201 | 402 |
| | 11 | 8.0 | 1 | 129 | 129 |
| | 12 | 8.0 | 2 | 214 | 428 |
| | 13 | 8.0 | 2 | 265 | 530 |
| | 14 | 8.0 | 2 | 462 | 924 |
| | 15 | 8.0 | 1 | 175 | 175 |
| | 16 | 8.0 | 2 | 240 | 480 |
| | 17 | 8.0 | 3 | 300 | 900 |
| | 18 | 8.0 | 3 | 1054 | 3162 |
| | 19 | 8.0 | 3 | 209 | 627 |
| | 20 | 8.0 | 1 | 160 | 160 |
| | 21 | 8.0 | 1 | 143 | 143 |
| | 22 | 8.0 | 2 | 155 | 310 |
| | 23 | 8.0 | 1 | 342 | 342 |
| | 24 | 8.0 | 5 | 839 | 4195 |
| | 25 | 8.0 | 1 | 250 | 250 |
| | 26 | 8.0 | 1 | 234 | 234 |
| | 27 | 8.0 | 1 | 206 | 206 |
| | 28 | 8.0 | 4 | 1142 | 4568 |
| | 29 | 8.0 | 1 | 110 | 110 |
| | 30 | 8.0 | 2 | 250 | 500 |
| | 31 | 8.0 | 1 | 644 | 644 |
| | 32 | 8.0 | 1 | 200 | 200 |
| | 33 | 8.0 | 3 | 1165 | 3495 |
| | 34 | 8.0 | 1 | 180 | 180 |
| | 35 | 8.0 | 2 | 282 | 564 |
| | 36 | 8.0 | 1 | 90 | 90 |
| | 37 | 8.0 | 1 | 210 | 210 |
| | 38 | 8.0 | 1 | 113 | 113 |
| | 39 | 8.0 | 1 | 123 | 123 |
| | 40 | 8.0 | 2 | 1027 | 2054 |
| | 41 | 8.0 | 1 | 206 | 206 |
| | 42 | 8.0 | 1 | 120 | 120 |
| | 43 | 8.0 | 1 | 171 | 171 |
| | 44 | 8.0 | 2 | 721 | 1442 |
| | 45 | 8.0 | 1 | 170 | 170 |
| | 46 | 8.0 | 1 | 190 | 190 |
| | 47 | 8.0 | 1 | 185 | 185 |
| | 48 | 8.0 | 2 | 195 | 390 |
| | 49 | 8.0 | 1 | 260 | 260 |
| | 50 | 8.0 | 3 | 1200 | 3600 |
| | 51 | 8.0 | 1 | 789 | 789 |
| | 52 | 8.0 | 4 | 162 | 648 |
| | 53 | 8.0 | 2 | 1165 | 2330 |
| | 54 | 8.0 | 1 | 246 | 246 |
| | 55 | 8.0 | 1 | 240 | 240 |
| | 56 | 8.0 | 1 | 235 | 235 |
| | 57 | 8.0 | 1 | 220 | 220 |
| | 58 | 8.0 | 4 | 390 | 1560 |
| | 59 | 8.0 | 1 | 670 | 670 |
| | 60 | 8.0 | 2 | 1082 | 2164 |
| | 61 | 8.0 | 1 | 220 | 220 |
| | 62 | 8.0 | 2 | 412 | 824 |
| | 63 | 10.0 | 2 | 455 | 910 |
| | 64 | 10.0 | 2 | 522 | 1044 |
| | 65 | 10.0 | 2 | 612 | 1224 |
| | 66 | 10.0 | 2 | 824 | 1648 |
| | 67 | 10.0 | 2 | 516 | 1032 |
| | 68 | 10.0 | 3 | 250 | 750 |
| | 69 | 10.0 | 1 | 635 | 635 |
| | 70 | 10.0 | 1 | 142 | 142 |
| | 71 | 10.0 | 2 | 1142 | 2284 |
| | 72 | 10.0 | 4 | 230 | 920 |
| | 73 | 10.0 | 4 | 310 | 1240 |
| | 74 | 10.0 | 4 | 355 | 1420 |
| | 75 | 10.0 | 2 | 654 | 1308 |
| | 76 | 10.0 | 2 | 654 | 1308 |
| | 77 | 16.0 | 1 | 300 | 300 |
| | 78 | 16.0 | 2 | 807 | 1614 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 43.7 | 11.8 |
| | 8.0 | 470.3 | 204.1 |
| | 10.0 | 158.7 | 107.6 |
| | 16.0 | 19.1 | 33.2 |
| CA60 | 5.0 | 501.7 | 85.1 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 356.7 |
| CA60 | 85.1 |

Volume de concreto (C-25) = 6.99 m³
~~Área de forma = 67.96 m²~~

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 6**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

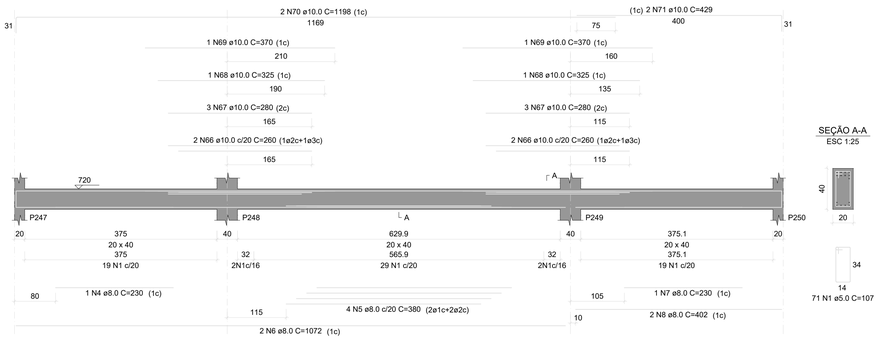
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 43 /60**

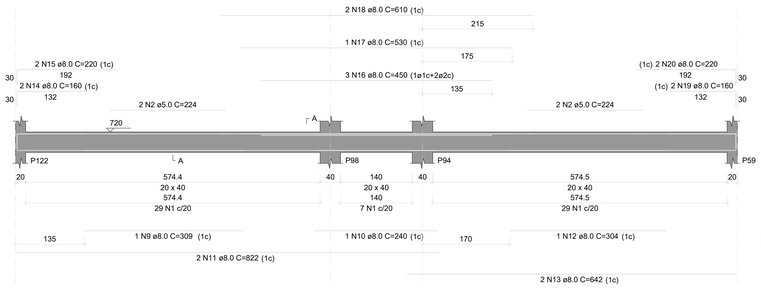
## V53
ESC 1:50



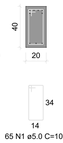

SEÇÃO A-A
ESC 1:25




## V54
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V53 V54 V55
V56 V57 V58
V59 V60 V61
V62 V63 V64

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 615 | 107 | 65805 |
| | 2 | 5.0 | 4 | 224 | 896 |
| | 3 | 5.0 | 2 | 854 | 1708 |
| CA50 | 4 | 8.0 | 4 | 230 | 920 |
| | 5 | 8.0 | 4 | 380 | 1520 |
| | 6 | 8.0 | 2 | 1072 | 2144 |
| | 7 | 8.0 | 1 | 230 | 230 |
| | 8 | 8.0 | 2 | 402 | 804 |
| | 9 | 8.0 | 1 | 309 | 309 |
| | 10 | 8.0 | 1 | 240 | 240 |
| | 11 | 8.0 | 2 | 822 | 1644 |
| | 12 | 8.0 | 1 | 304 | 304 |
| | 13 | 8.0 | 2 | 642 | 1284 |
| | 14 | 8.0 | 2 | 160 | 320 |
| | 15 | 8.0 | 2 | 220 | 440 |
| | 16 | 8.0 | 3 | 450 | 1350 |
| | 17 | 8.0 | 1 | 530 | 530 |
| | 18 | 8.0 | 2 | 610 | 1220 |
| | 19 | 8.0 | 2 | 160 | 320 |
| | 20 | 8.0 | 2 | 220 | 440 |
| | 21 | 8.0 | 2 | 230 | 460 |
| | 22 | 8.0 | 1 | 235 | 235 |
| | 23 | 8.0 | 4 | 827 | 3308 |
| | 24 | 8.0 | 1 | 220 | 220 |
| | 25 | 8.0 | 1 | 254 | 254 |
| | 26 | 8.0 | 2 | 614 | 1228 |
| | 27 | 8.0 | 1 | 694 | 694 |
| | 28 | 8.0 | 4 | 1200 | 4800 |
| | 29 | 8.0 | 2 | 256 | 512 |
| | 30 | 8.0 | 2 | 155 | 310 |
| | 31 | 8.0 | 2 | 167 | 334 |
| | 32 | 8.0 | 2 | 237 | 474 |
| | 33 | 8.0 | 2 | 1198 | 2396 |
| | 34 | 8.0 | 2 | 308 | 616 |
| | 35 | 8.0 | 1 | 121 | 121 |
| | 36 | 8.0 | 2 | 234 | 468 |
| | 37 | 8.0 | 2 | 235 | 470 |
| | 38 | 8.0 | 2 | 1059 | 2118 |
| | 39 | 8.0 | 1 | 760 | 760 |
| | 40 | 8.0 | 3 | 1087 | 3261 |
| | 41 | 8.0 | 1 | 127 | 127 |
| | 42 | 8.0 | 1 | 210 | 210 |
| | 43 | 8.0 | 1 | 215 | 215 |
| | 44 | 8.0 | 1 | 64 | 64 |
| | 45 | 8.0 | 2 | 1044 | 2088 |
| | 46 | 8.0 | 3 | 205 | 615 |
| | 47 | 8.0 | 3 | 1198 | 3594 |
| | 48 | 8.0 | 3 | 371 | 1113 |
| | 49 | 8.0 | 2 | 609 | 1218 |
| | 50 | 8.0 | 2 | 262 | 524 |
| | 51 | 8.0 | 2 | 158 | 316 |
| | 52 | 8.0 | 2 | 258 | 516 |
| | 53 | 8.0 | 1 | 225 | 225 |
| | 54 | 8.0 | 2 | 1067 | 2134 |
| | 55 | 8.0 | 3 | 479 | 1437 |
| | 56 | 8.0 | 1 | 250 | 250 |
| | 57 | 8.0 | 1 | 225 | 225 |
| | 58 | 8.0 | 2 | 407 | 814 |
| | 59 | 8.0 | 3 | 650 | 1950 |
| | 60 | 8.0 | 3 | 1141 | 3423 |
| | 61 | 8.0 | 3 | 198 | 594 |
| | 62 | 8.0 | 1 | 106 | 106 |
| | 63 | 8.0 | 2 | 243 | 486 |
| | 64 | 8.0 | 3 | 279 | 837 |
| | 65 | 8.0 | 2 | 423 | 846 |
| | 66 | 10.0 | 4 | 260 | 1040 |
| | 67 | 10.0 | 6 | 280 | 1680 |
| | 68 | 10.0 | 2 | 325 | 650 |
| | 69 | 10.0 | 2 | 370 | 740 |
| | 70 | 10.0 | 2 | 1198 | 2396 |
| | 71 | 10.0 | 2 | 429 | 858 |
| | 72 | 10.0 | 1 | 1181 | 1181 |
| | 73 | 10.0 | 1 | 192 | 192 |
| | 74 | 10.0 | 2 | 1200 | 2400 |
| | 75 | 10.0 | 2 | 351 | 702 |
| | 76 | 10.0 | 2 | 417 | 834 |
| | 77 | 10.0 | 2 | 176 | 352 |
| | 78 | 10.0 | 2 | 255 | 510 |
| | 79 | 10.0 | 2 | 1120 | 2240 |
| | 80 | 10.0 | 2 | 429 | 858 |
| | 81 | 10.0 | 2 | 485 | 970 |
| | 82 | 12.5 | 1 | 178 | 178 |
| | 83 | 12.5 | 2 | 378 | 756 |

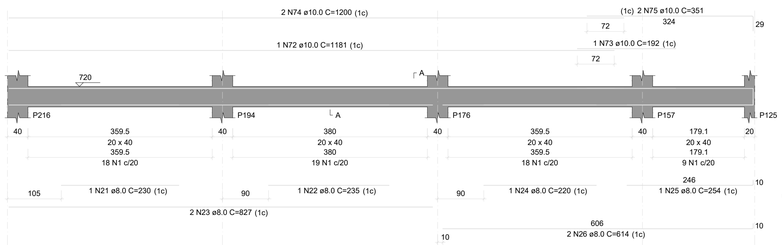
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 609.9 | 264.7 |
| | 10.0 | 176 | 119.4 |
| | 12.5 | 9.3 | 9.9 |
| CA60 | 5.0 | 684.1 | 116 |

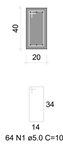
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 394 |
| CA60 | 116 |

Volume de concreto (C-25) = 9.66 m³
Área de forma = 102.19 m²

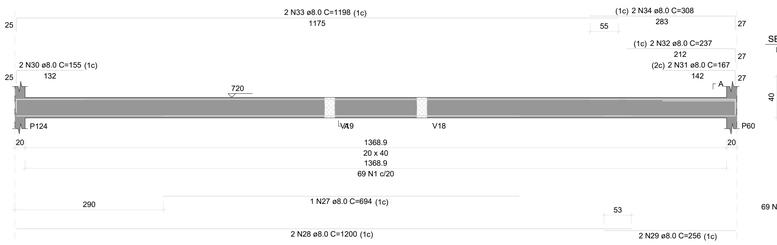
## V55
ESC 1:50



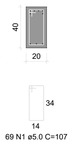

SEÇÃO A-A
ESC 1:25



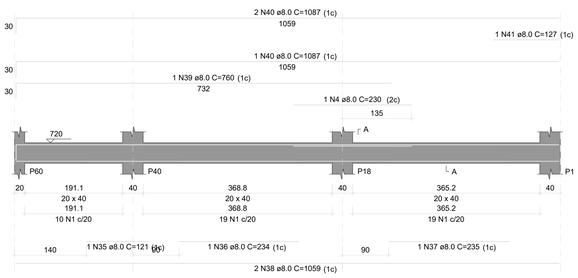

## V56
ESC 1:50



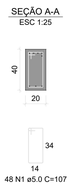

SEÇÃO A-A
ESC 1:25



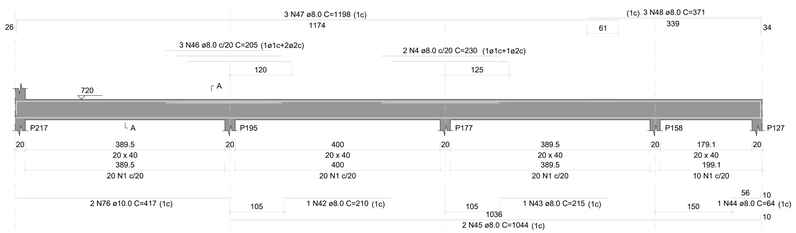

## V57
ESC 1:50




SEÇÃO A-A
ESC 1:25

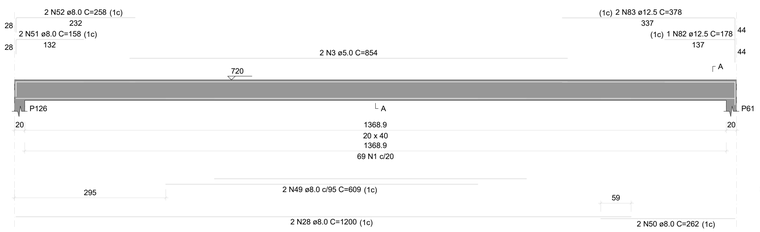



## V58
ESC 1:50

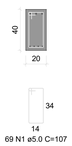



SEÇÃO A-A
ESC 1:25

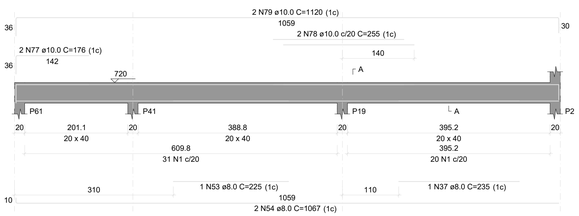
## V59
ESC 1:50




SEÇÃO A-A
ESC 1:25

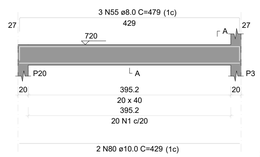



## V60
ESC 1:50

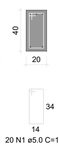



SEÇÃO A-A
ESC 1:25

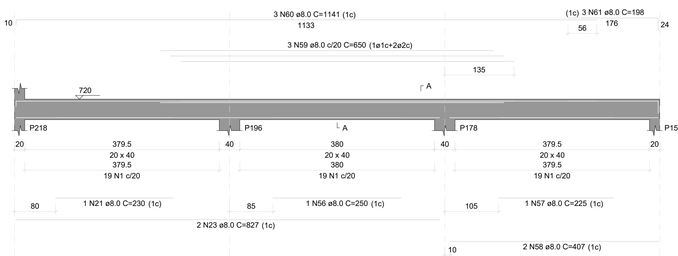
## V61
ESC 1:50



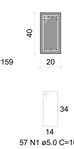

SEÇÃO A-A
ESC 1:25



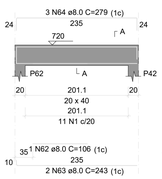

## V62
ESC 1:50



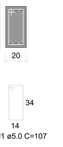

SEÇÃO A-A
ESC 1:25



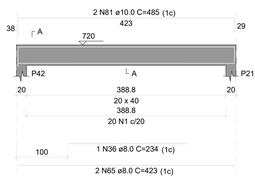

## V63
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V64
ESC 1:50




SEÇÃO A-A
ESC 1:25

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 7**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

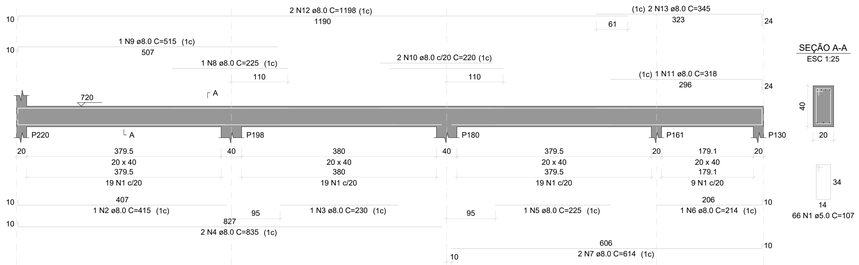
DATA:
**Outubro/2025**

DESENHO:
**-**

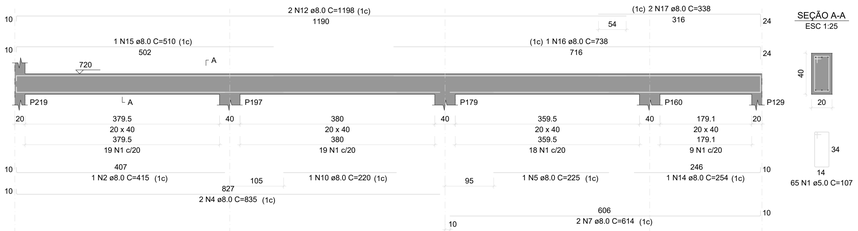
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 44 /60**

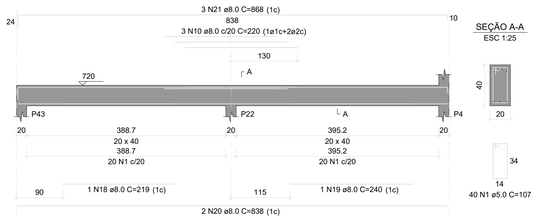
## V65
ESC 1:50



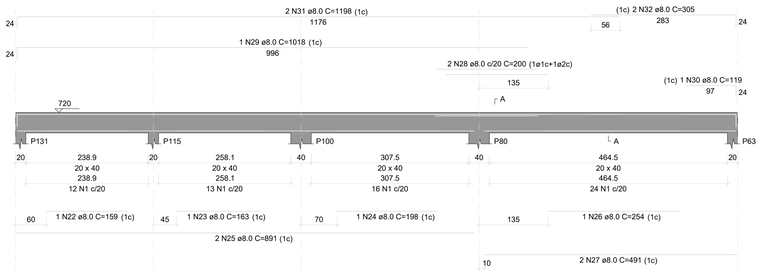

## V66
ESC 1:50



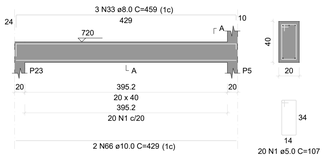

## V67
ESC 1:50



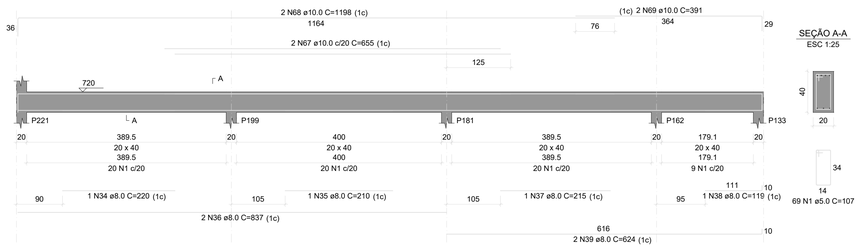

## V68
ESC 1:50



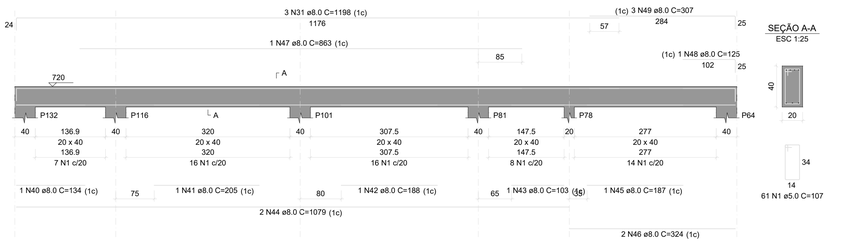

## V69
ESC 1:50



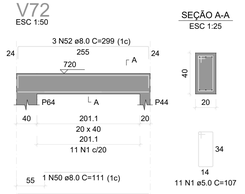

## V70
ESC 1:50



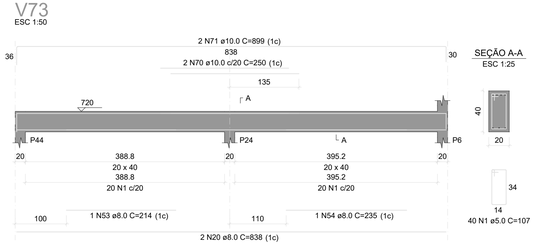

## V71
ESC 1:50



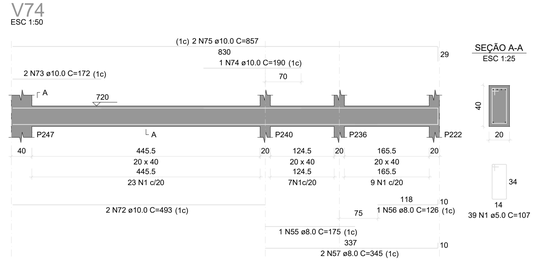

## V72
ESC 1:50



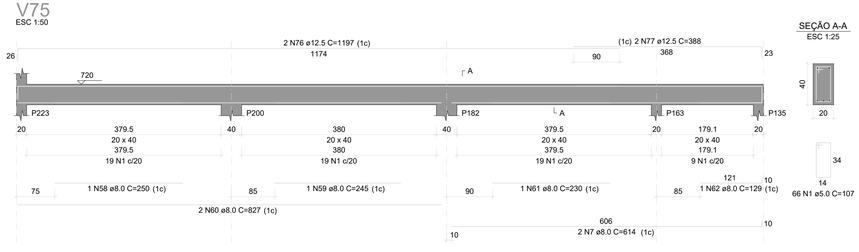

## V73
ESC 1:50



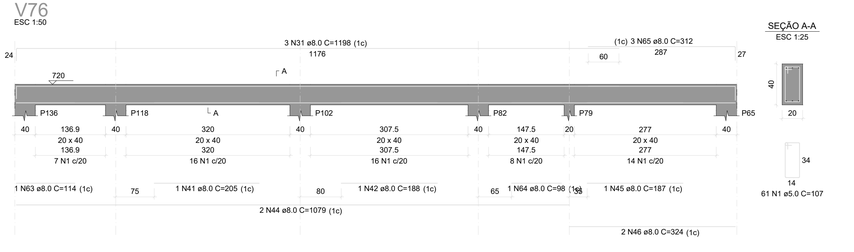

## V74
ESC 1:50




## V75
ESC 1:50




## V76
ESC 1:50




### RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V65 | V66 | V67 |
| V68 | V69 | V70 |
| V71 | V72 | V73 |
| V74 | V75 | V76 |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 603 | 107 | 64521 |
| CA50 | 2 | 8.0 | 2 | 415 | 830 |
| | 3 | 8.0 | 1 | 230 | 230 |
| | 4 | 8.0 | 4 | 835 | 3340 |
| | 5 | 8.0 | 2 | 225 | 450 |
| | 6 | 8.0 | 1 | 214 | 214 |
| | 7 | 8.0 | 6 | 614 | 3684 |
| | 8 | 8.0 | 1 | 225 | 225 |
| | 9 | 8.0 | 1 | 515 | 515 |
| | 10 | 8.0 | 6 | 220 | 1320 |
| | 11 | 8.0 | 1 | 318 | 318 |
| | 12 | 8.0 | 4 | 1198 | 4792 |
| | 13 | 8.0 | 2 | 345 | 690 |
| | 14 | 8.0 | 1 | 254 | 254 |
| | 15 | 8.0 | 1 | 510 | 510 |
| | 16 | 8.0 | 1 | 738 | 738 |
| | 17 | 8.0 | 2 | 338 | 676 |
| | 18 | 8.0 | 1 | 219 | 219 |
| | 19 | 8.0 | 1 | 240 | 240 |
| | 20 | 8.0 | 4 | 838 | 3352 |
| | 21 | 8.0 | 3 | 868 | 2604 |
| | 22 | 8.0 | 1 | 159 | 159 |
| | 23 | 8.0 | 1 | 163 | 163 |
| | 24 | 8.0 | 1 | 198 | 198 |
| | 25 | 8.0 | 2 | 891 | 1782 |
| | 26 | 8.0 | 1 | 254 | 254 |
| | 27 | 8.0 | 2 | 491 | 982 |
| | 28 | 8.0 | 2 | 200 | 400 |
| | 29 | 8.0 | 1 | 1018 | 1018 |
| | 30 | 8.0 | 1 | 119 | 119 |
| | 31 | 8.0 | 8 | 1198 | 9584 |
| | 32 | 8.0 | 2 | 305 | 610 |
| | 33 | 8.0 | 3 | 459 | 1377 |
| | 34 | 8.0 | 1 | 220 | 220 |
| | 35 | 8.0 | 1 | 210 | 210 |
| | 36 | 8.0 | 2 | 837 | 1674 |
| | 37 | 8.0 | 1 | 215 | 215 |
| | 38 | 8.0 | 1 | 119 | 119 |
| | 39 | 8.0 | 2 | 624 | 1248 |
| | 40 | 8.0 | 1 | 134 | 134 |
| | 41 | 8.0 | 2 | 205 | 410 |
| | 42 | 8.0 | 2 | 188 | 376 |
| | 43 | 8.0 | 1 | 103 | 103 |
| | 44 | 8.0 | 4 | 1079 | 4316 |
| | 45 | 8.0 | 2 | 187 | 374 |
| | 46 | 8.0 | 4 | 324 | 1296 |
| | 47 | 8.0 | 1 | 863 | 863 |
| | 48 | 8.0 | 1 | 125 | 125 |
| | 49 | 8.0 | 3 | 307 | 921 |
| | 50 | 8.0 | 1 | 111 | 111 |
| | 51 | 8.0 | 2 | 255 | 510 |
| | 52 | 8.0 | 3 | 299 | 897 |
| | 53 | 8.0 | 1 | 214 | 214 |
| | 54 | 8.0 | 1 | 235 | 235 |
| | 55 | 8.0 | 1 | 175 | 175 |
| | 56 | 8.0 | 1 | 126 | 126 |
| | 57 | 8.0 | 2 | 345 | 690 |
| | 58 | 8.0 | 1 | 250 | 250 |
| | 59 | 8.0 | 1 | 245 | 245 |
| | 60 | 8.0 | 2 | 827 | 1654 |
| | 61 | 8.0 | 1 | 230 | 230 |
| | 62 | 8.0 | 1 | 129 | 129 |
| | 63 | 8.0 | 1 | 114 | 114 |
| | 64 | 8.0 | 1 | 98 | 98 |
| | 65 | 8.0 | 3 | 312 | 936 |
| | 66 | 10.0 | 2 | 429 | 858 |
| | 67 | 10.0 | 2 | 655 | 1310 |
| | 68 | 10.0 | 2 | 1198 | 2396 |
| | 69 | 10.0 | 2 | 391 | 782 |
| | 70 | 10.0 | 2 | 250 | 500 |
| | 71 | 10.0 | 2 | 899 | 1798 |
| | 72 | 10.0 | 2 | 493 | 986 |
| | 73 | 10.0 | 2 | 172 | 344 |
| | 74 | 10.0 | 1 | 190 | 190 |
| | 75 | 10.0 | 2 | 857 | 1714 |
| | 76 | 12.5 | 2 | 1197 | 2394 |
| | 77 | 12.5 | 2 | 388 | 776 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 610.6 | 265 |
| | 10.0 | 108.8 | 73.8 |
| | 12.5 | 31.7 | 33.6 |
| CA60 | 5.0 | 645.2 | 109.4 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 372.4 |
| CA60 | 109.4 |

Volume de concreto (C-25) = 9.47 m³
Área de forma = 89.80 m²

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS COBERTURA 8**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

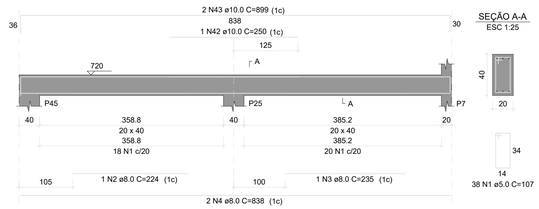
DATA: **Outubro/2025**

DESENHO: **-**

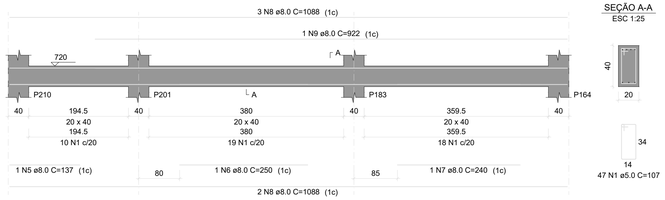
RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 45 /60**

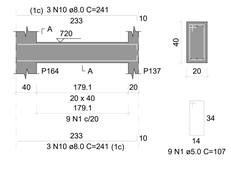
## V77
ESC 1:50



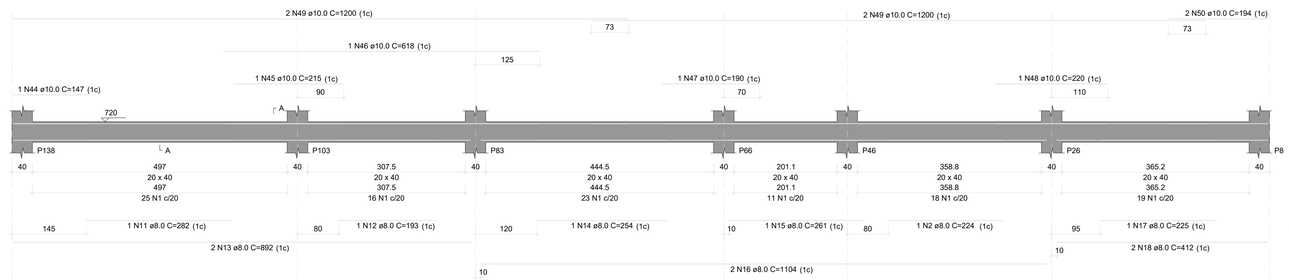

## V78
ESC 1:50



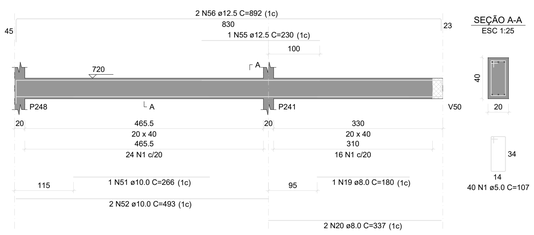

## V79
ESC 1:50



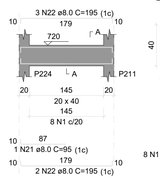

## V80
ESC 1:50



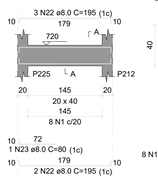

## V81
ESC 1:50



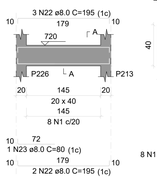

## V82
ESC 1:50



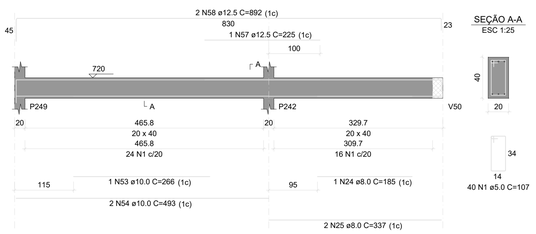

## V83
ESC 1:50



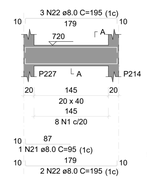

## V84
ESC 1:50



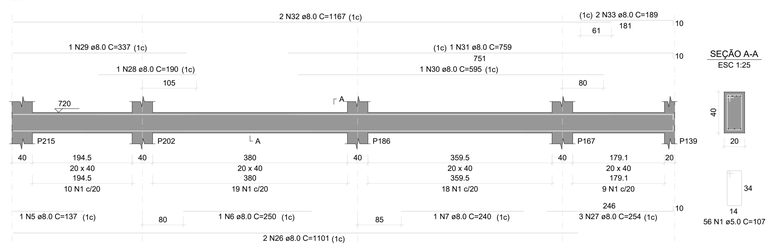

## V85
ESC 1:50



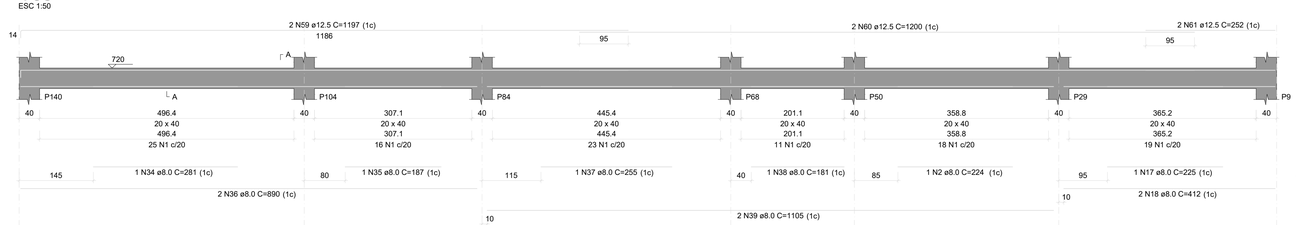

## V86
ESC 1:50



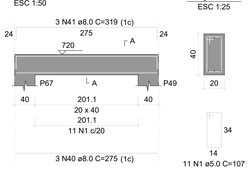

## V87
ESC 1:50




## V88
ESC 1:50




## V89
ESC 1:50




### RELAÇÃO DO AÇO

V77 V78 V79
V80 V81 V82
V83 V84 V85
V86 V87 V88
V89

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 497 | 107 | 53179 |
| CA50 | 2 | 8.0 | 3 | 224 | 672 |
| | 3 | 8.0 | 1 | 235 | 235 |
| | 4 | 8.0 | 2 | 838 | 1676 |
| | 5 | 8.0 | 2 | 137 | 274 |
| | 6 | 8.0 | 2 | 250 | 500 |
| | 7 | 8.0 | 2 | 240 | 480 |
| | 8 | 8.0 | 5 | 1088 | 5440 |
| | 9 | 8.0 | 1 | 922 | 922 |
| | 10 | 8.0 | 6 | 241 | 1446 |
| | 11 | 8.0 | 1 | 282 | 282 |
| | 12 | 8.0 | 1 | 193 | 193 |
| | 13 | 8.0 | 2 | 892 | 1784 |
| | 14 | 8.0 | 1 | 254 | 254 |
| | 15 | 8.0 | 1 | 261 | 261 |
| | 16 | 8.0 | 2 | 1104 | 2208 |
| | 17 | 8.0 | 2 | 225 | 450 |
| | 18 | 8.0 | 4 | 412 | 1648 |
| | 19 | 8.0 | 1 | 180 | 180 |
| | 20 | 8.0 | 2 | 337 | 674 |
| | 21 | 8.0 | 2 | 95 | 190 |
| | 22 | 8.0 | 20 | 195 | 3900 |
| | 23 | 8.0 | 2 | 80 | 160 |
| | 24 | 8.0 | 1 | 185 | 185 |
| | 25 | 8.0 | 2 | 337 | 674 |
| | 26 | 8.0 | 2 | 1101 | 2202 |
| | 27 | 8.0 | 3 | 254 | 762 |
| | 28 | 8.0 | 1 | 190 | 190 |
| | 29 | 8.0 | 1 | 337 | 337 |
| | 30 | 8.0 | 1 | 595 | 595 |
| | 31 | 8.0 | 1 | 759 | 759 |
| | 32 | 8.0 | 2 | 1167 | 2334 |
| | 33 | 8.0 | 2 | 189 | 378 |
| | 34 | 8.0 | 1 | 281 | 281 |
| | 35 | 8.0 | 1 | 187 | 187 |
| | 36 | 8.0 | 2 | 890 | 1780 |
| | 37 | 8.0 | 1 | 255 | 255 |
| | 38 | 8.0 | 1 | 181 | 181 |
| | 39 | 8.0 | 2 | 1105 | 2210 |
| | 40 | 8.0 | 3 | 275 | 825 |
| | 41 | 8.0 | 3 | 319 | 957 |
| | 42 | 10.0 | 1 | 250 | 250 |
| | 43 | 10.0 | 2 | 899 | 1798 |
| | 44 | 10.0 | 1 | 147 | 147 |
| | 45 | 10.0 | 1 | 215 | 215 |
| | 46 | 10.0 | 1 | 618 | 618 |
| | 47 | 10.0 | 1 | 190 | 190 |
| | 48 | 10.0 | 1 | 220 | 220 |
| | 49 | 10.0 | 4 | 1200 | 4800 |
| | 50 | 10.0 | 2 | 194 | 388 |
| | 51 | 10.0 | 1 | 266 | 266 |
| | 52 | 10.0 | 2 | 493 | 986 |
| | 53 | 10.0 | 1 | 266 | 266 |
| | 54 | 10.0 | 2 | 493 | 986 |
| | 55 | 12.5 | 1 | 230 | 230 |
| | 56 | 12.5 | 2 | 892 | 1784 |
| | 57 | 12.5 | 1 | 225 | 225 |
| | 58 | 12.5 | 2 | 892 | 1784 |
| | 59 | 12.5 | 2 | 1197 | 2394 |
| | 60 | 12.5 | 2 | 1200 | 2400 |
| | 61 | 12.5 | 2 | 252 | 504 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 389.2 | 168.9 |
| | 10.0 | 111.3 | 75.5 |
| | 12.5 | 93.2 | 98.8 |
| CA60 | 5.0 | 531.8 | 90.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 343.2 |
| CA60 | 90.2 |

Volume de concreto (C-25) = 7.74 m³
Área de forma = 78.59 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 9**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

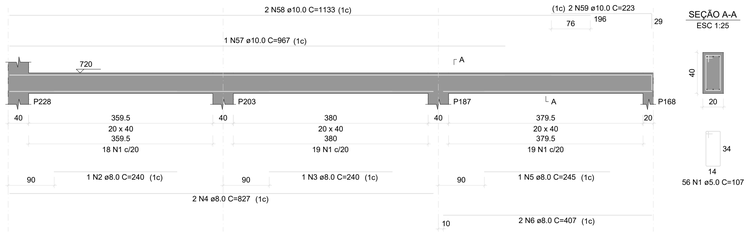
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 46 /60**

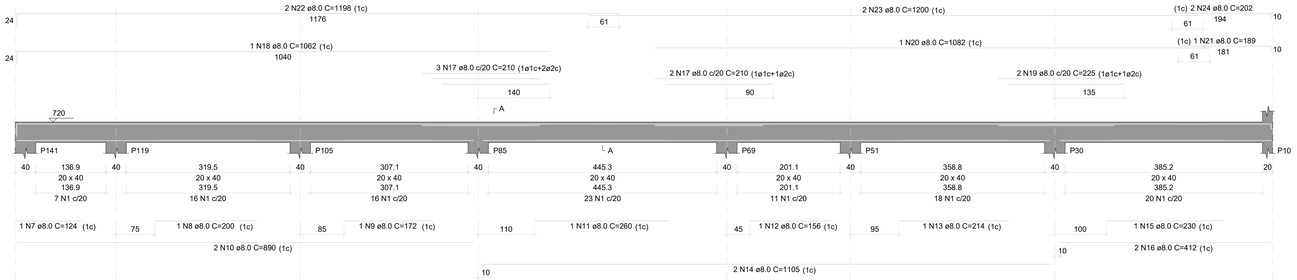
## V90
ESC 1:50



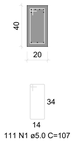

SEÇÃO A-A
ESC 1:25



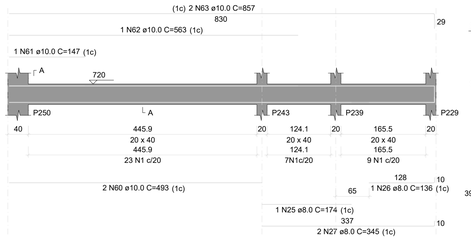

## V91
ESC 1:50




SEÇÃO A-A
ESC 1:25

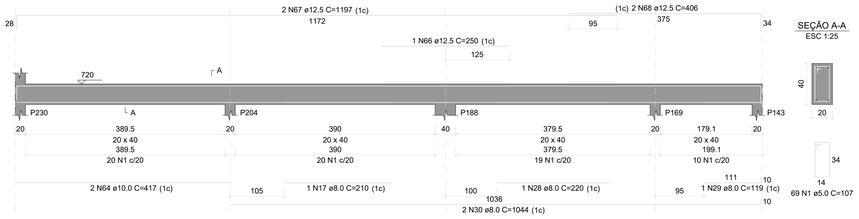



## V92
ESC 1:50




SEÇÃO A-A
ESC 1:25

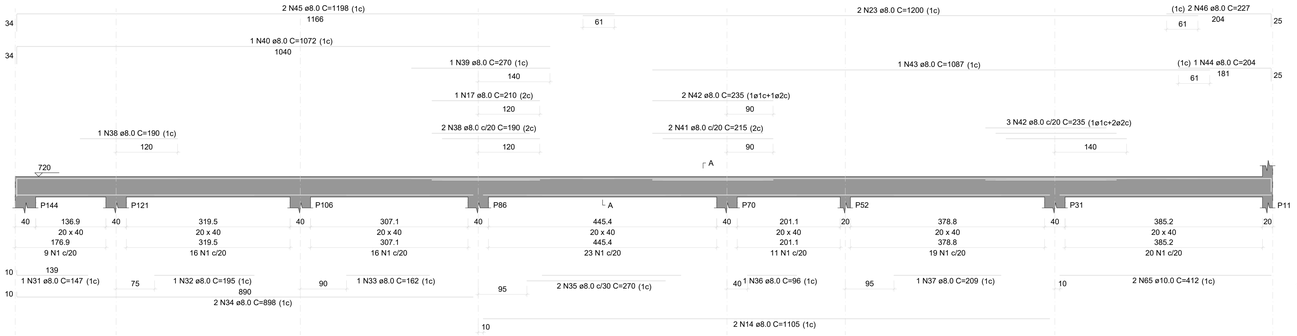
## V93
ESC 1:50



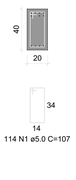

SEÇÃO A-A
ESC 1:25



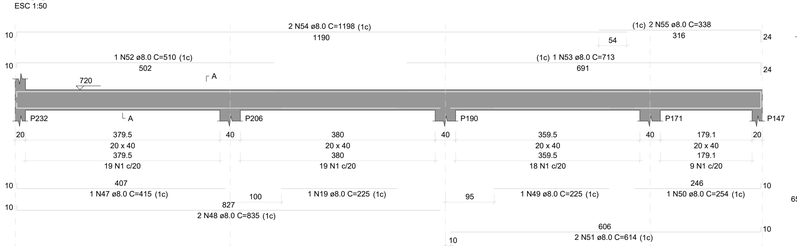

## V94
ESC 1:50



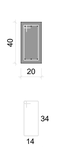

SEÇÃO A-A
ESC 1:25



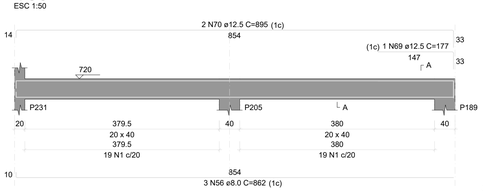

## V95
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V96
ESC 1:50




SEÇÃO A-A
ESC 1:25




### RELAÇÃO DO AÇO

V90 V91 V92
V93 V94 V95
V96

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 492 | 107 | 52644 |
| CA50 | 2 | 8.0 | 1 | 240 | 240 |
| | 3 | 8.0 | 1 | 240 | 240 |
| | 4 | 8.0 | 2 | 827 | 1654 |
| | 5 | 8.0 | 1 | 245 | 245 |
| | 6 | 8.0 | 2 | 407 | 814 |
| | 7 | 8.0 | 1 | 124 | 124 |
| | 8 | 8.0 | 1 | 200 | 200 |
| | 9 | 8.0 | 1 | 172 | 172 |
| | 10 | 8.0 | 2 | 899 | 1798 |
| | 11 | 8.0 | 1 | 260 | 260 |
| | 12 | 8.0 | 1 | 156 | 156 |
| | 13 | 8.0 | 1 | 214 | 214 |
| | 14 | 8.0 | 4 | 1105 | 4420 |
| | 15 | 8.0 | 1 | 230 | 230 |
| | 16 | 8.0 | 2 | 412 | 824 |
| | 17 | 8.0 | 7 | 210 | 1470 |
| | 18 | 8.0 | 1 | 1062 | 1062 |
| | 19 | 8.0 | 3 | 225 | 675 |
| | 20 | 8.0 | 1 | 1082 | 1082 |
| | 21 | 8.0 | 1 | 189 | 189 |
| | 22 | 8.0 | 2 | 1198 | 2396 |
| | 23 | 8.0 | 4 | 1200 | 4800 |
| | 24 | 8.0 | 2 | 202 | 404 |
| | 25 | 8.0 | 1 | 174 | 174 |
| | 26 | 8.0 | 1 | 136 | 136 |
| | 27 | 8.0 | 2 | 345 | 690 |
| | 28 | 8.0 | 1 | 220 | 220 |
| | 29 | 8.0 | 1 | 119 | 119 |
| | 30 | 8.0 | 2 | 1044 | 2088 |
| | 31 | 8.0 | 1 | 147 | 147 |
| | 32 | 8.0 | 1 | 195 | 195 |
| | 33 | 8.0 | 1 | 162 | 162 |
| | 34 | 8.0 | 2 | 898 | 1796 |
| | 35 | 8.0 | 2 | 270 | 540 |
| | 36 | 8.0 | 1 | 96 | 96 |
| | 37 | 8.0 | 1 | 209 | 209 |
| | 38 | 8.0 | 3 | 190 | 570 |
| | 39 | 8.0 | 1 | 270 | 270 |
| | 40 | 8.0 | 1 | 1072 | 1072 |
| | 41 | 8.0 | 2 | 215 | 430 |
| | 42 | 8.0 | 5 | 235 | 1175 |
| | 43 | 8.0 | 1 | 1087 | 1087 |
| | 44 | 8.0 | 1 | 204 | 204 |
| | 45 | 8.0 | 2 | 1198 | 2396 |
| | 46 | 8.0 | 2 | 227 | 454 |
| | 47 | 8.0 | 1 | 415 | 415 |
| | 48 | 8.0 | 2 | 835 | 1670 |
| | 49 | 8.0 | 1 | 225 | 225 |
| | 50 | 8.0 | 1 | 254 | 254 |
| | 51 | 8.0 | 2 | 614 | 1228 |
| | 52 | 8.0 | 1 | 510 | 510 |
| | 53 | 8.0 | 1 | 713 | 713 |
| | 54 | 8.0 | 2 | 1198 | 2396 |
| | 55 | 8.0 | 2 | 338 | 676 |
| | 56 | 8.0 | 3 | 862 | 2586 |
| | 57 | 10.0 | 1 | 967 | 967 |
| | 58 | 10.0 | 2 | 1133 | 2266 |
| | 59 | 10.0 | 2 | 223 | 446 |
| | 60 | 10.0 | 2 | 493 | 986 |
| | 61 | 10.0 | 1 | 147 | 147 |
| | 62 | 10.0 | 1 | 563 | 563 |
| | 63 | 10.0 | 2 | 857 | 1714 |
| | 64 | 10.0 | 2 | 417 | 834 |
| | 65 | 10.0 | 2 | 412 | 824 |
| | 66 | 12.5 | 1 | 250 | 250 |
| | 67 | 12.5 | 2 | 1197 | 2394 |
| | 68 | 12.5 | 2 | 406 | 812 |
| | 69 | 12.5 | 1 | 177 | 177 |
| | 70 | 12.5 | 2 | 895 | 1790 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 485.5 | 210.7 |
| | 10.0 | 87.5 | 59.3 |
| | 12.5 | 54.2 | 57.5 |
| CA60 | 5.0 | 526.4 | 89.3 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 327.5 |
| CA60 | 89.3 |

Volume de concreto (C-25) = 7.66 m³
Área de forma = 71.24 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 10**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

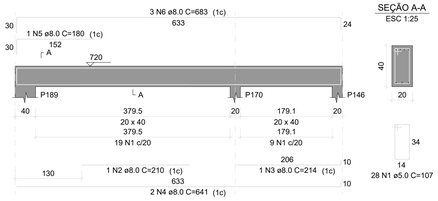
DATA:
**Outubro/2025**

DESENHO:
**-**

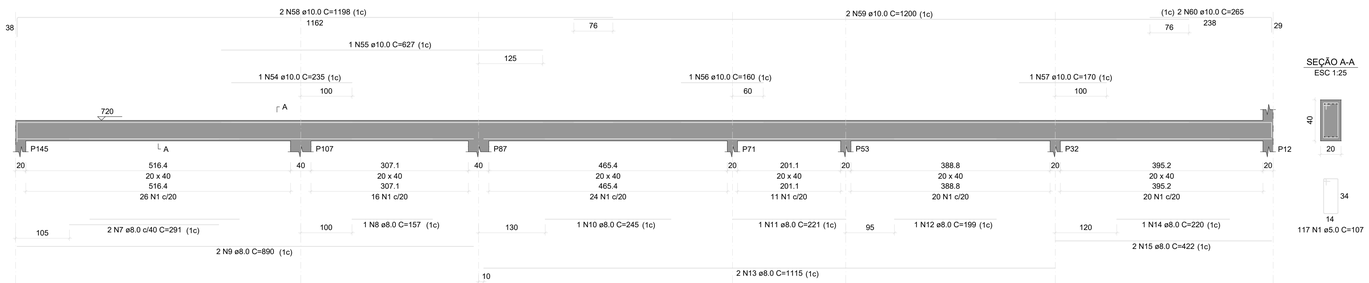
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 47 /60**

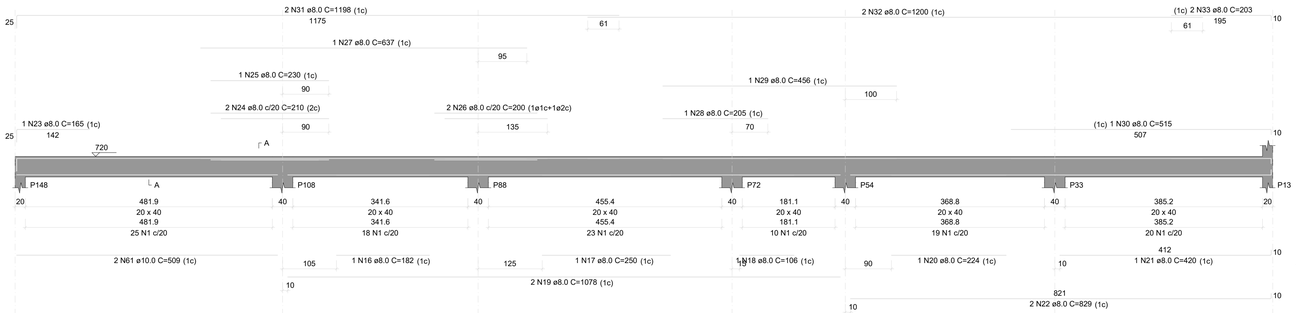
## V97
ESC 1:50



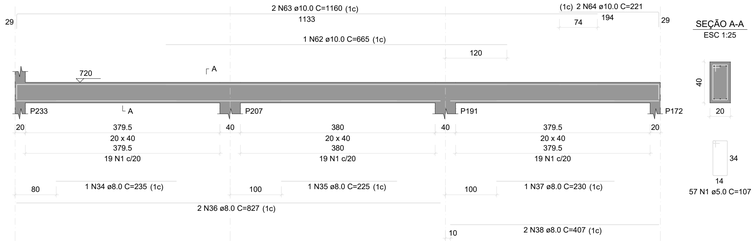

## V98
ESC 1:50



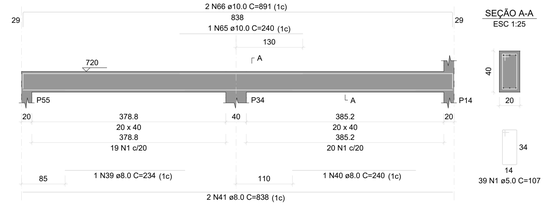

## V99
ESC 1:50



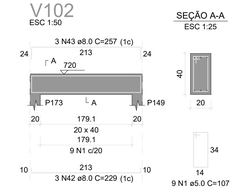

## V100
ESC 1:50



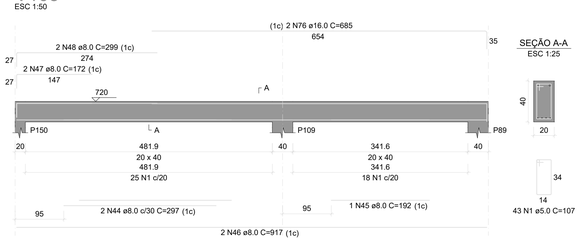

## V101
ESC 1:50



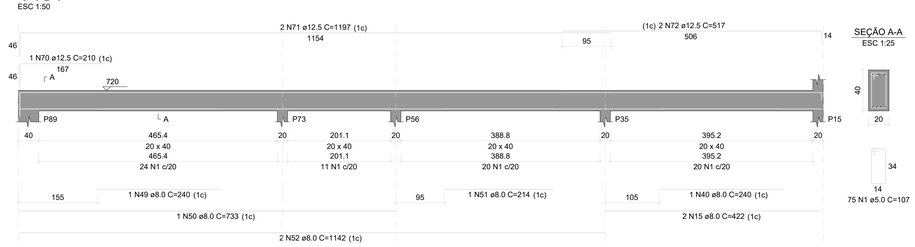

## V102
ESC 1:50



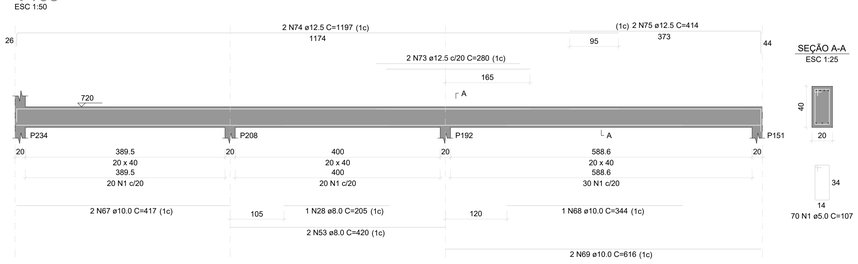

## V103
ESC 1:50




## V104
ESC 1:50




## V105
ESC 1:50




### RELAÇÃO DO AÇO

V97 V98 V99
V100 V101 V102
V103 V104 V105

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 553 | 107 | 59171 |
| CA50 | 2 | 8.0 | 1 | 210 | 210 |
| | 3 | 8.0 | 1 | 214 | 214 |
| | 4 | 8.0 | 2 | 641 | 1282 |
| | 5 | 8.0 | 1 | 180 | 180 |
| | 6 | 8.0 | 3 | 683 | 2049 |
| | 7 | 8.0 | 2 | 291 | 582 |
| | 8 | 8.0 | 1 | 157 | 157 |
| | 9 | 8.0 | 2 | 890 | 1780 |
| | 10 | 8.0 | 1 | 245 | 245 |
| | 11 | 8.0 | 1 | 221 | 221 |
| | 12 | 8.0 | 1 | 199 | 199 |
| | 13 | 8.0 | 2 | 1115 | 2230 |
| | 14 | 8.0 | 1 | 220 | 220 |
| | 15 | 8.0 | 4 | 422 | 1688 |
| | 16 | 8.0 | 1 | 182 | 182 |
| | 17 | 8.0 | 1 | 250 | 250 |
| | 18 | 8.0 | 1 | 106 | 106 |
| | 19 | 8.0 | 2 | 1078 | 2156 |
| | 20 | 8.0 | 1 | 224 | 224 |
| | 21 | 8.0 | 1 | 420 | 420 |
| | 22 | 8.0 | 2 | 829 | 1658 |
| | 23 | 8.0 | 1 | 165 | 165 |
| | 24 | 8.0 | 2 | 210 | 420 |
| | 25 | 8.0 | 1 | 230 | 230 |
| | 26 | 8.0 | 2 | 200 | 400 |
| | 27 | 8.0 | 1 | 637 | 637 |
| | 28 | 8.0 | 2 | 205 | 410 |
| | 29 | 8.0 | 1 | 456 | 456 |
| | 30 | 8.0 | 1 | 515 | 515 |
| | 31 | 8.0 | 2 | 1198 | 2396 |
| | 32 | 8.0 | 2 | 1200 | 2400 |
| | 33 | 8.0 | 2 | 203 | 406 |
| | 34 | 8.0 | 1 | 235 | 235 |
| | 35 | 8.0 | 1 | 225 | 225 |
| | 36 | 8.0 | 2 | 827 | 1654 |
| | 37 | 8.0 | 1 | 230 | 230 |
| | 38 | 8.0 | 2 | 407 | 814 |
| | 39 | 8.0 | 1 | 234 | 234 |
| | 40 | 8.0 | 2 | 240 | 480 |
| | 41 | 8.0 | 2 | 838 | 1676 |
| | 42 | 8.0 | 3 | 229 | 687 |
| | 43 | 8.0 | 3 | 257 | 771 |
| | 44 | 8.0 | 2 | 297 | 594 |
| | 45 | 8.0 | 1 | 192 | 192 |
| | 46 | 8.0 | 2 | 917 | 1834 |
| | 47 | 8.0 | 2 | 172 | 344 |
| | 48 | 8.0 | 2 | 299 | 598 |
| | 49 | 8.0 | 1 | 240 | 240 |
| | 50 | 8.0 | 1 | 733 | 733 |
| | 51 | 8.0 | 1 | 214 | 214 |
| | 52 | 8.0 | 2 | 1142 | 2284 |
| | 53 | 8.0 | 2 | 420 | 840 |
| | 54 | 10.0 | 1 | 235 | 235 |
| | 55 | 10.0 | 1 | 627 | 627 |
| | 56 | 10.0 | 1 | 160 | 160 |
| | 57 | 10.0 | 1 | 170 | 170 |
| | 58 | 10.0 | 2 | 1198 | 2396 |
| | 59 | 10.0 | 2 | 1200 | 2400 |
| | 60 | 10.0 | 2 | 265 | 530 |
| | 61 | 10.0 | 2 | 509 | 1018 |
| | 62 | 10.0 | 1 | 665 | 665 |
| | 63 | 10.0 | 2 | 1160 | 2320 |
| | 64 | 10.0 | 2 | 221 | 442 |
| | 65 | 10.0 | 1 | 240 | 240 |
| | 66 | 10.0 | 2 | 891 | 1782 |
| | 67 | 10.0 | 2 | 417 | 834 |
| | 68 | 10.0 | 1 | 344 | 344 |
| | 69 | 10.0 | 2 | 616 | 1232 |
| | 70 | 12.5 | 1 | 210 | 210 |
| | 71 | 12.5 | 2 | 1197 | 2394 |
| | 72 | 12.5 | 2 | 517 | 1034 |
| | 73 | 12.5 | 2 | 280 | 560 |
| | 74 | 12.5 | 2 | 1197 | 2394 |
| | 75 | 12.5 | 2 | 414 | 828 |
| | 76 | 16.0 | 2 | 685 | 1370 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 395.7 | 171.7 |
| | 10.0 | 154 | 104.4 |
| | 12.5 | 74.2 | 78.6 |
| | 16.0 | 13.7 | 23.8 |
| CA60 | 5.0 | 591.7 | 100.3 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 378.6 |
| CA60 | 100.3 |

Volume de concreto (C-25) = 8.62 m³
Área de forma = 83.03 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS COBERTURA 11**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

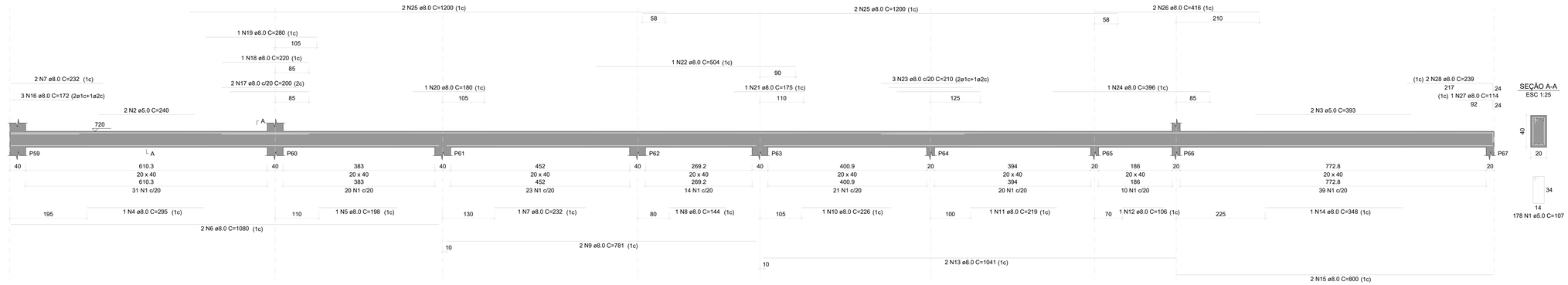
DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 48 /60**

## V10
ESC 1:50




RELAÇÃO DO AÇO

V10

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 178 | 107 | 19046 |
| | 2 | 5.0 | 2 | 240 | 480 |
| | 3 | 5.0 | 2 | 393 | 786 |
| CA50 | 4 | 8.0 | 1 | 295 | 295 |
| | 5 | 8.0 | 1 | 198 | 198 |
| | 6 | 8.0 | 2 | 1080 | 2160 |
| | 7 | 8.0 | 3 | 232 | 696 |
| | 8 | 8.0 | 1 | 144 | 144 |
| | 9 | 8.0 | 2 | 781 | 1562 |
| | 10 | 8.0 | 1 | 226 | 226 |
| | 11 | 8.0 | 1 | 219 | 219 |
| | 12 | 8.0 | 1 | 106 | 106 |
| | 13 | 8.0 | 2 | 1041 | 2082 |
| | 14 | 8.0 | 1 | 348 | 348 |
| | 15 | 8.0 | 2 | 800 | 1600 |
| | 16 | 8.0 | 3 | 172 | 516 |
| | 17 | 8.0 | 2 | 200 | 400 |
| | 18 | 8.0 | 1 | 220 | 220 |
| | 19 | 8.0 | 1 | 280 | 280 |
| | 20 | 8.0 | 1 | 180 | 180 |
| | 21 | 8.0 | 1 | 175 | 175 |
| | 22 | 8.0 | 1 | 504 | 504 |
| | 23 | 8.0 | 3 | 210 | 630 |
| | 24 | 8.0 | 1 | 396 | 396 |
| | 25 | 8.0 | 4 | 1200 | 4800 |
| | 26 | 8.0 | 2 | 416 | 832 |
| | 27 | 8.0 | 1 | 114 | 114 |
| | 28 | 8.0 | 2 | 239 | 478 |

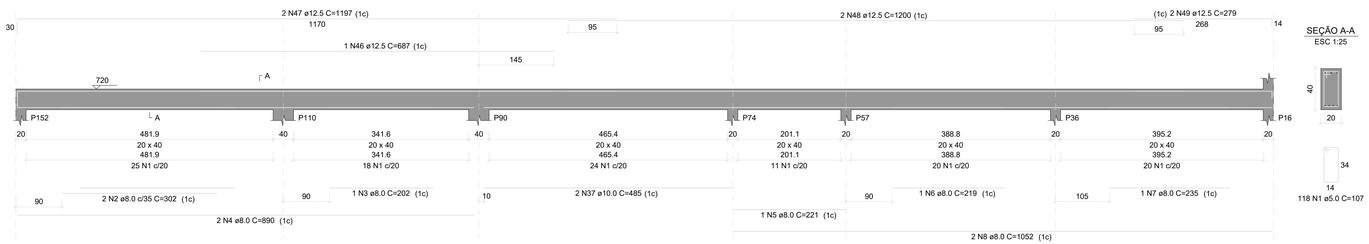
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 191.6 | 83.2 |
| CA60 | 5.0 | 203.1 | 34.4 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 83.2 |
| CA60 | 34.4 |

Volume de concreto (C-25) = 2.77 m³
Área de forma = 30.08 m²

## V106
ESC 1:50




RELAÇÃO DO AÇO

V106 V107 V108
V109 V110

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 380 | 107 | 40660 |
| CA50 | 2 | 8.0 | 2 | 302 | 604 |
| | 3 | 8.0 | 1 | 202 | 202 |
| | 4 | 8.0 | 2 | 890 | 1780 |
| | 5 | 8.0 | 1 | 221 | 221 |
| | 6 | 8.0 | 1 | 219 | 219 |
| | 7 | 8.0 | 1 | 235 | 235 |
| | 8 | 8.0 | 2 | 1052 | 2104 |
| | 9 | 8.0 | 1 | 240 | 240 |
| | 10 | 8.0 | 1 | 230 | 230 |
| | 11 | 8.0 | 2 | 827 | 1654 |
| | 12 | 8.0 | 2 | 307 | 614 |
| | 13 | 8.0 | 1 | 197 | 197 |
| | 14 | 8.0 | 2 | 898 | 1796 |
| | 15 | 8.0 | 2 | 290 | 580 |
| | 16 | 8.0 | 1 | 146 | 146 |
| | 17 | 8.0 | 1 | 223 | 223 |
| | 18 | 8.0 | 2 | 1105 | 2210 |
| | 19 | 8.0 | 1 | 230 | 230 |
| | 20 | 8.0 | 2 | 412 | 824 |
| | 21 | 8.0 | 1 | 125 | 125 |
| | 22 | 8.0 | 1 | 185 | 185 |
| | 23 | 8.0 | 2 | 297 | 594 |
| | 24 | 8.0 | 2 | 175 | 350 |
| | 25 | 8.0 | 1 | 860 | 860 |
| | 26 | 8.0 | 1 | 1187 | 1187 |
| | 27 | 8.0 | 1 | 122 | 122 |
| | 28 | 8.0 | 2 | 1200 | 2400 |
| | 29 | 8.0 | 2 | 233 | 466 |
| | 30 | 8.0 | 1 | 112 | 112 |
| | 31 | 8.0 | 1 | 177 | 177 |
| | 32 | 8.0 | 2 | 414 | 828 |
| | 33 | 8.0 | 3 | 450 | 1350 |
| | 34 | 8.0 | 1 | 105 | 105 |
| | 35 | 8.0 | 1 | 122 | 122 |
| | 36 | 8.0 | 2 | 362 | 724 |
| | 37 | 10.0 | 2 | 485 | 970 |
| | 38 | 10.0 | 2 | 509 | 1018 |
| | 39 | 10.0 | 2 | 492 | 984 |
| | 40 | 10.0 | 2 | 599 | 1198 |
| | 41 | 10.0 | 1 | 225 | 225 |
| | 42 | 10.0 | 1 | 142 | 142 |
| | 43 | 10.0 | 1 | 577 | 577 |
| | 44 | 10.0 | 2 | 1200 | 2400 |
| | 45 | 10.0 | 2 | 279 | 558 |
| | 46 | 12.5 | 1 | 687 | 687 |
| | 47 | 12.5 | 2 | 1197 | 2394 |
| | 48 | 12.5 | 2 | 1200 | 2400 |
| | 49 | 12.5 | 2 | 279 | 558 |
| | 50 | 12.5 | 2 | 620 | 1240 |
| | 51 | 12.5 | 2 | 280 | 560 |
| | 52 | 12.5 | 1 | 340 | 340 |
| | 53 | 12.5 | 1 | 177 | 177 |
| | 54 | 12.5 | 2 | 1197 | 2394 |
| | 55 | 12.5 | 2 | 411 | 822 |
| | 56 | 16.0 | 2 | 827 | 1654 |

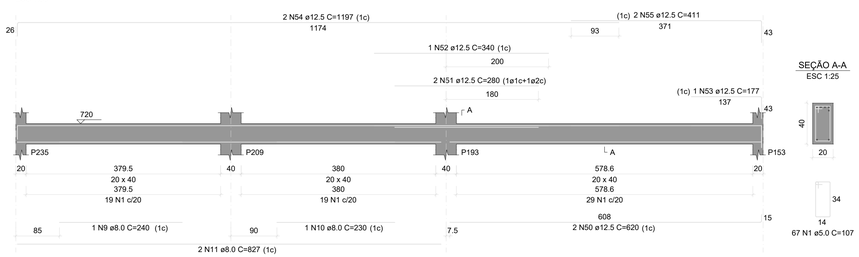
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 240.2 | 104.2 |
| | 10.0 | 80.7 | 54.7 |
| | 12.5 | 115.7 | 122.6 |
| | 16.0 | 16.5 | 28.7 |
| CA60 | 5.0 | 406.6 | 68.9 |

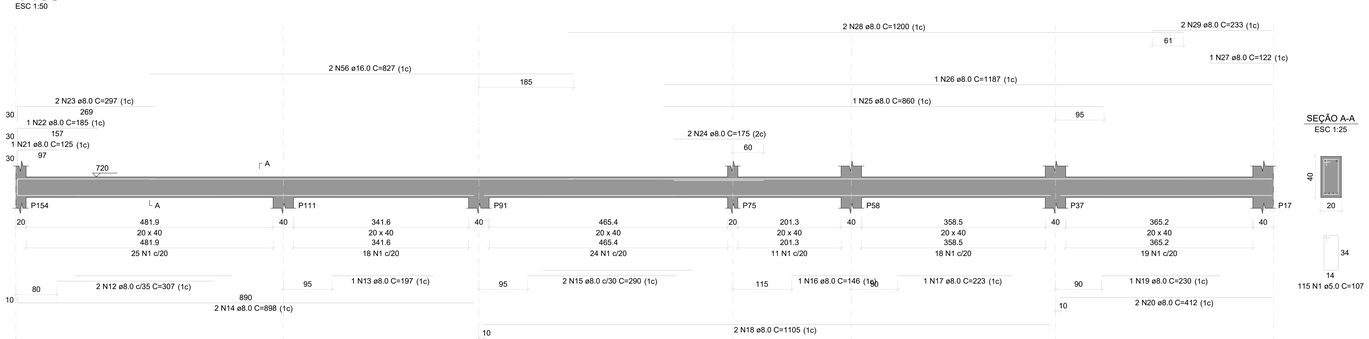
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 310.3 |
| CA60 | 68.9 |

Volume de concreto (C-25) = 5.93 m³
Área de forma = 57.14 m²

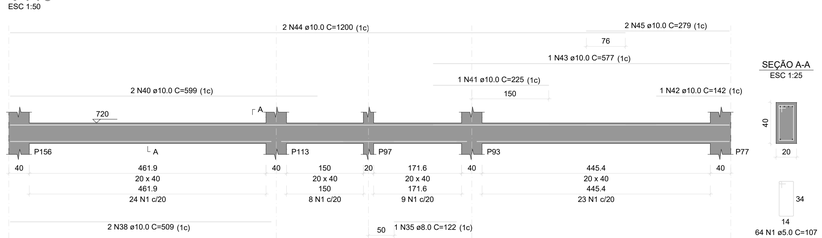
## V107
ESC 1:50



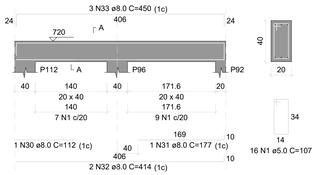

## V108
ESC 1:50




## V110
ESC 1:50




## V109
ESC 1:50




INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS COBERTURA 12**

ESCALA: **1/50**

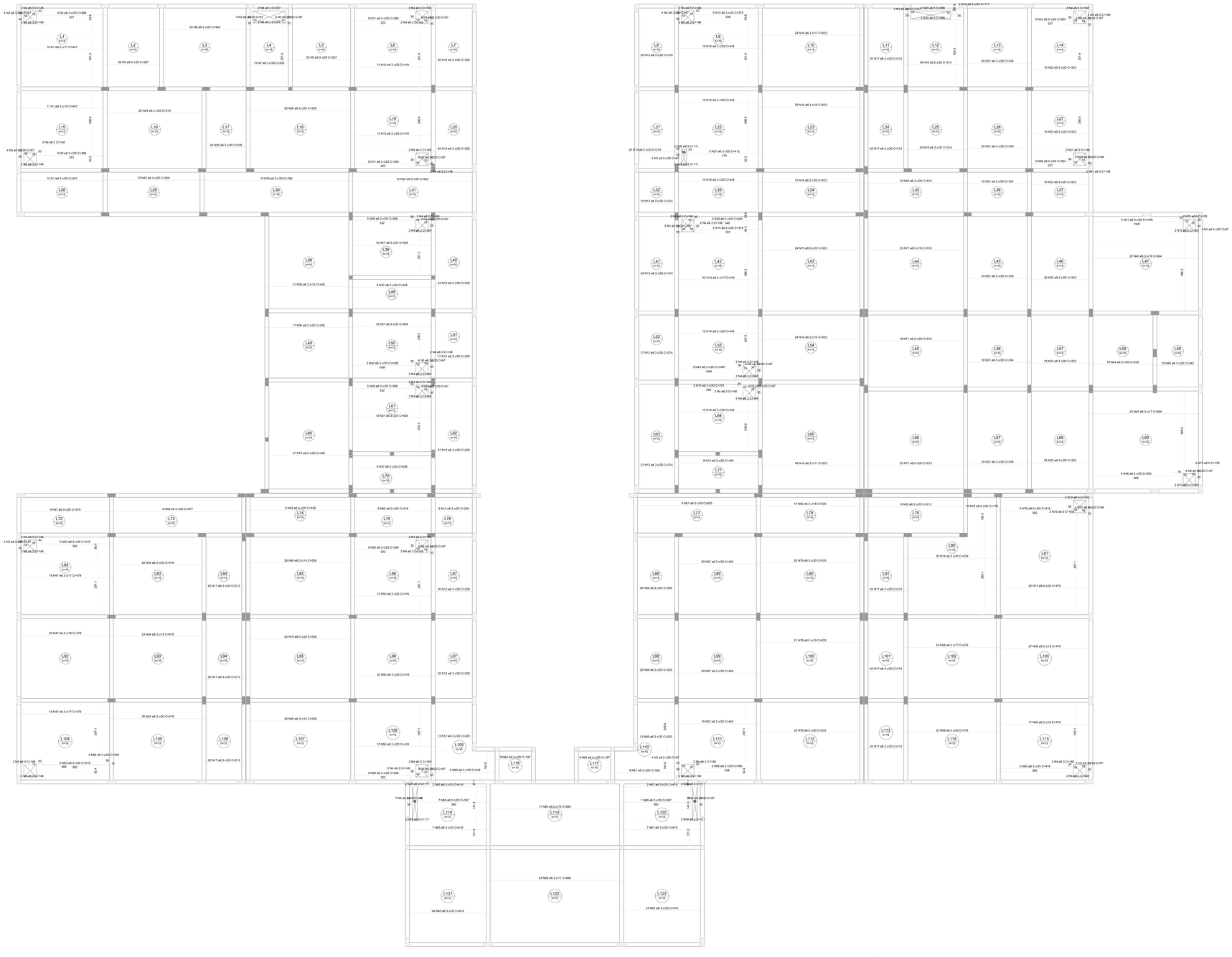
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 49 /60**



## DETALHE DA ARMADURA DE BORDO LIVRE DA LAJE

## RELAÇÃO DO AÇO

Positivos X

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (m) |
|---|---|---|---|---|---|
| CA50 | 1 | 6.3 | 20 | 420 | 8400 |
| | 2 | 6.3 | 10 | 588 | 5880 |
| | 3 | 6.3 | 72 | 140 | 10080 |
| | 4 | 6.3 | 72 | 145 | 10440 |
| | 5 | 6.3 | 20 | 297 | 5940 |
| | 6 | 6.3 | 20 | 297 | 5940 |
| | 7 | 6.3 | 15 | 335 | 5025 |
| | 8 | 6.3 | 4 | 227 | 908 |
| | 9 | 6.3 | 20 | 297 | 5940 |
| | 10 | 6.3 | 30 | 418 | 12540 |
| | 11 | 6.3 | 10 | 359 | 3590 |
| | 12 | 6.3 | 10 | 359 | 3590 |
| | 13 | 6.3 | 118 | 214 | 25252 |
| | 14 | 6.3 | 97 | 434 | 42098 |
| | 15 | 6.3 | 97 | 434 | 42098 |
| | 16 | 6.3 | 121 | 523 | 63283 |
| | 17 | 6.3 | 38 | 314 | 11932 |
| | 18 | 6.3 | 2 | 314 | 628 |
| | 19 | 6.3 | 2 | 154 | 308 |
| | 20 | 6.3 | 2 | 154 | 308 |
| | 21 | 6.3 | 117 | 334 | 39078 |
| | 22 | 6.3 | 5 | 334 | 1670 |
| | 23 | 6.3 | 5 | 264 | 1320 |
| | 24 | 6.3 | 20 | 510 | 10200 |
| | 25 | 6.3 | 20 | 510 | 10200 |
| | 26 | 6.3 | 20 | 539 | 10780 |
| | 27 | 6.3 | 5 | 412 | 2060 |
| | 28 | 6.3 | 5 | 412 | 2060 |
| | 29 | 6.3 | 5 | 264 | 1320 |
| | 30 | 6.3 | 4 | 66 | 264 |
| | 31 | 6.3 | 4 | 66 | 264 |
| | 32 | 6.3 | 10 | 550 | 5500 |
| | 33 | 6.3 | 10 | 790 | 7900 |
| | 34 | 6.3 | 10 | 790 | 7900 |
| | 35 | 6.3 | 18 | 513 | 9234 |
| | 36 | 6.3 | 52 | 426 | 22152 |
| | 37 | 6.3 | 52 | 426 | 22152 |
| | 38 | 6.3 | 2 | 383 | 766 |
| | 39 | 6.3 | 2 | 383 | 766 |
| | 40 | 6.3 | 46 | 564 | 25944 |
| | 41 | 6.3 | 5 | VAR | VAR |
| | 42 | 6.3 | 5 | VAR | VAR |
| | 43 | 6.3 | 5 | VAR | VAR |
| | 44 | 6.3 | 18 | 243 | 4374 |
| | 45 | 6.3 | 18 | 243 | 4374 |
| | 46 | 6.3 | 5 | 505 | 2525 |
| | 47 | 6.3 | 5 | 505 | 2525 |
| | 48 | 6.3 | 77 | 637 | 49049 |
| | 49 | 6.3 | 83 | 538 | 33967 |
| | 50 | 6.3 | 83 | 538 | 33967 |
| | 51 | 6.3 | 8 | 550 | 4400 |
| | 52 | 6.3 | 10 | 533 | 5330 |
| | 53 | 6.3 | 10 | 533 | 5330 |
| | 54 | 6.3 | 43 | 478 | 20554 |
| | 55 | 6.3 | 53 | 220 | 11660 |
| | 56 | 6.3 | 53 | 220 | 11660 |
| | 57 | 6.3 | 99 | 478 | 47322 |
| | 58 | 6.3 | 4 | 505 | 2020 |
| | 59 | 6.3 | 4 | 505 | 2020 |
| | 60 | 6.3 | 5 | 335 | 1675 |
| | 61 | 6.3 | 5 | 365 | 1825 |
| | 62 | 6.3 | 5 | 365 | 1825 |
| | 63 | 6.3 | 16 | 187 | 2992 |
| | 64 | 6.3 | 16 | 187 | 2992 |
| | 65 | 6.3 | 33 | 419 | 13827 |
| | 66 | 6.3 | 33 | 419 | 13827 |
| | 67 | 6.3 | 33 | 419 | 13827 |
| | 68 | 6.3 | 7 | 397 | 2779 |
| | 69 | 6.3 | 7 | 397 | 2779 |
| | 70 | 6.3 | 24 | 523 | 12552 |
| | 71 | 6.3 | 66 | 523 | 34518 |
| | 72 | 6.3 | 66 | 523 | 34518 |
| | 73 | 6.3 | 22 | 480 | 11040 |
| | 74 | 6.3 | 22 | 480 | 11040 |
| | 75 | 6.3 | 10 | 174 | 1740 |
| | 76 | 6.3 | 10 | 174 | 1740 |
| | 77 | 6.3 | 4 | 66 | 264 |
| | 78 | 6.3 | 81 | 533 | 53703 |
| | 79 | 6.3 | 81 | 533 | 53703 |
| | 80 | 6.3 | 17 | 394 | 11928 |

## RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 6383.3 | 2305.8 |
| | 8.0 | 1418.2 | 818.3 |
| PESO TOTAL (kg) | | | |
| CA50 | 3070.6 | | |

Volume de concreto (C-25) = 238.98 m³
Área de forma = 1599.88 m²

# ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO LAJE COBERTURA (EIXO X)

Escala 1:50

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Avenida Santiago do Chile, 195 - Nossa Sra. Aparecida - CEP: 97030-685
Santa Maria - Rio Grande do Sul
Telefone: (55) 3218-9819

OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA

LOCAL: INSTITUTO FEDERAL FARROUPILHA

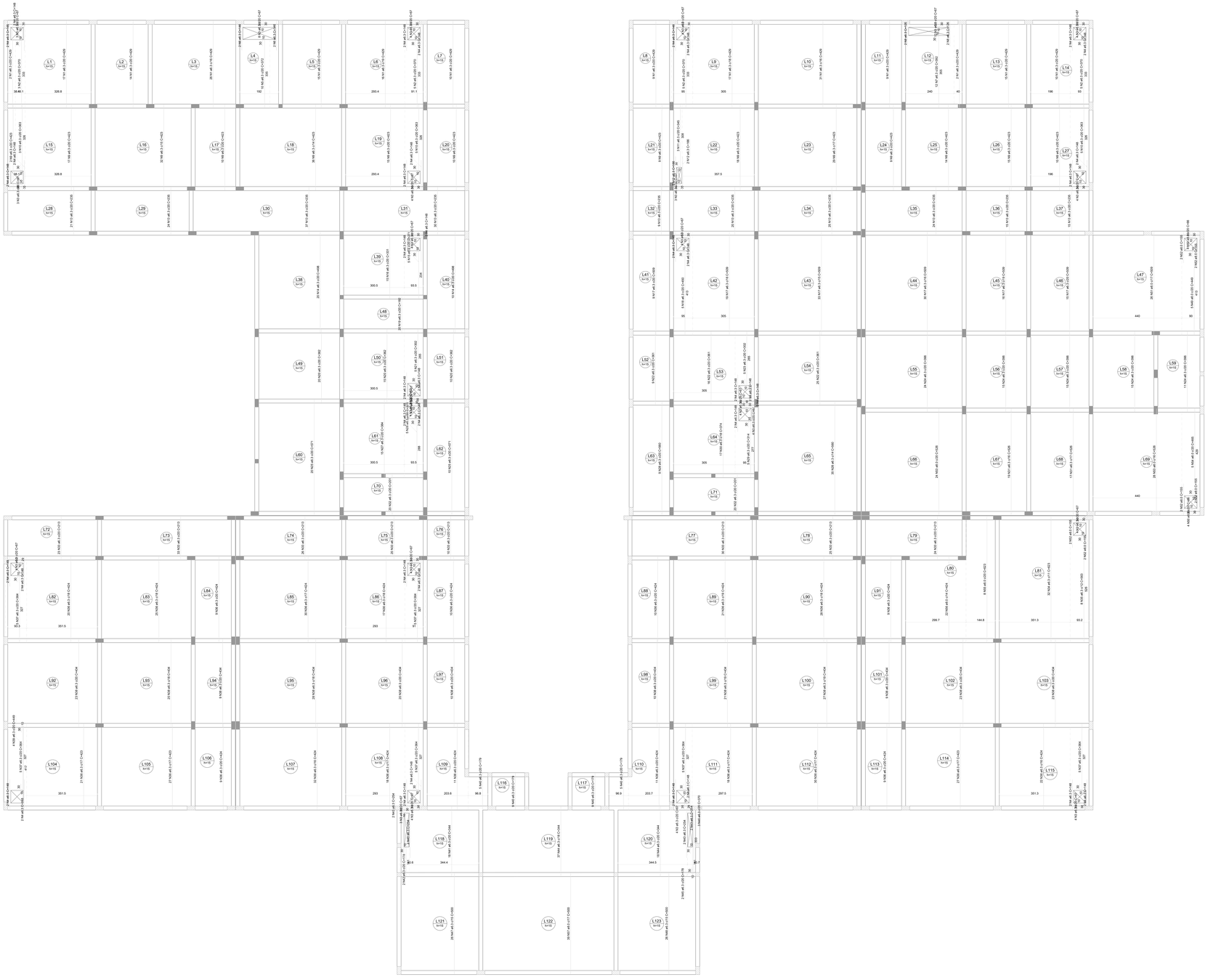
PROJETO: ESTRUTURAL — ÁREA: 4.082,35 m²

CONTEÚDO: PLANTA LAJE COBERTURA ARMAÇÃO POSITIVA EIXO X — ESCALA: 1/50

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA — DATA: Outubro/2025

RESPONSÁVEL: ENG. CIVIL JIMARA SAVIGLLELO VOLPATTO - CREA RS 198944 — DESENHO: *

PRANCHA: EST 50 /60



## DETALHE DA ARMADURA DE BORDO LIVRE DA LAJE

## RELAÇÃO DO AÇO

Positivos Y

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 6.3 | 133 | 343 | 45619 |
| | 2 | 6.3 | 18 | 370 | 6660 |
| | 3 | 6.3 | 3 | 370 | 1110 |
| | 4 | 6.3 | 70 | 168 | 11760 |
| | 5 | 6.3 | 10 | 372 | 3720 |
| | 6 | 6.3 | 3 | 372 | 1116 |
| | 7 | 6.3 | 12 | 359 | 4308 |
| | 8 | 6.3 | 4 | 126 | 504 |
| | 9 | 6.3 | 39 | 120 | 4680 |
| | 10 | 6.3 | 13 | 363 | 4719 |
| | 11 | 6.3 | 1 | 345 | 1035 |
| | 12 | 6.3 | 3 | 345 | 1035 |
| | 13 | 6.3 | 220 | 235 | 51700 |
| | 14 | 6.3 | 10 | 448 | 14960 |
| | 15 | 6.3 | 3 | 448 | 1344 |
| | 16 | 6.3 | 13 | 351 | 4563 |
| | 17 | 6.3 | 1 | 351 | 351 |
| | 18 | 6.3 | 102 | 609 | 62090 |
| | 19 | 6.3 | 3 | 609 | 1827 |
| | 20 | 6.3 | 21 | 182 | 3822 |
| | 21 | 6.3 | 5 | 302 | 1510 |
| | 22 | 6.3 | 3 | 302 | 906 |
| | 23 | 6.3 | 5 | 350 | 1750 |
| | 24 | 6.3 | 80 | 395 | 31600 |
| | 25 | 6.3 | 3 | 395 | 1185 |
| | 26 | 6.3 | 5 | 325 | 1625 |
| | 27 | 6.3 | 10 | 389 | 3890 |
| | 28 | 6.3 | 5 | 325 | 1625 |
| | 29 | 6.3 | 1 | 314 | 1570 |
| | 30 | 6.3 | 17 | 374 | 6358 |
| | 31 | 6.3 | 3 | 374 | 1122 |
| | 32 | 6.3 | 40 | 201 | 8040 |
| | 33 | 6.3 | 191 | 213 | 40683 |
| | 34 | 6.3 | 3 | 213 | 639 |
| | 35 | 6.3 | 1 | 363 | 363 |
| | 36 | 6.3 | 48 | 364 | 17472 |
| | 37 | 6.3 | 3 | 364 | 1092 |
| | 38 | 6.3 | 226 | 434 | 98084 |
| | 39 | 6.3 | 1 | 434 | 434 |
| | 40 | 6.3 | 28 | 173 | 4844 |
| | 41 | 6.3 | 3 | 173 | 519 |
| | 42 | 6.3 | 1 | 173 | 173 |
| | 43 | 6.3 | 9 | 254 | 2286 |
| | 44 | 6.3 | 3 | 254 | 762 |
| | 45 | 6.3 | 2 | 175 | 350 |
| | 46 | 6.3 | 3 | 370 | 1110 |
| | 47 | 6.3 | 38 | 350 | 13300 |
| | 48 | 6.3 | 1 | 500 | 500 |
| | 49 | 6.3 | 5 | 449 | 2245 |
| | 50 | 6.3 | 3 | 449 | 1347 |
| | 51 | 6.3 | 29 | 509 | 15234 |
| | 52 | 6.3 | 12 | 128 | 1920 |
| | 53 | 6.3 | 3 | 128 | 384 |
| | 54 | 6.3 | 4 | 565 | 2260 |
| | 55 | 6.3 | 1 | 565 | 565 |
| | 56 | 6.3 | 22 | 424 | 9328 |
| | 57 | 6.3 | 36 | 524 | 18864 |

## RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (cm) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 3262.1 | 2464.4 |
| | 8.0 | 815.6 | 393.1 |
| PESO TOTAL (kg) | | | |
| CA50 | 2843.5 | | |

Volume de concreto (C-25) = 0.00 m³
Área de forma = 0.00 m²

ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO LAJE COBERTURA (EIXO Y)

Escala 1:50

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818

OBRA: CONSTRUÇÃO DO PREDIO DA REITORIA

LOCAL: INSTITUTO FEDERAL FARROUPILHA

PROJETO: ESTRUTURAL

AREA: 4.082,35 m²

CONTEÚDO: PLANTA LAJE COBERTURA ARMAÇÃO POSITIVA EIXO Y

ESCALA: 1/50

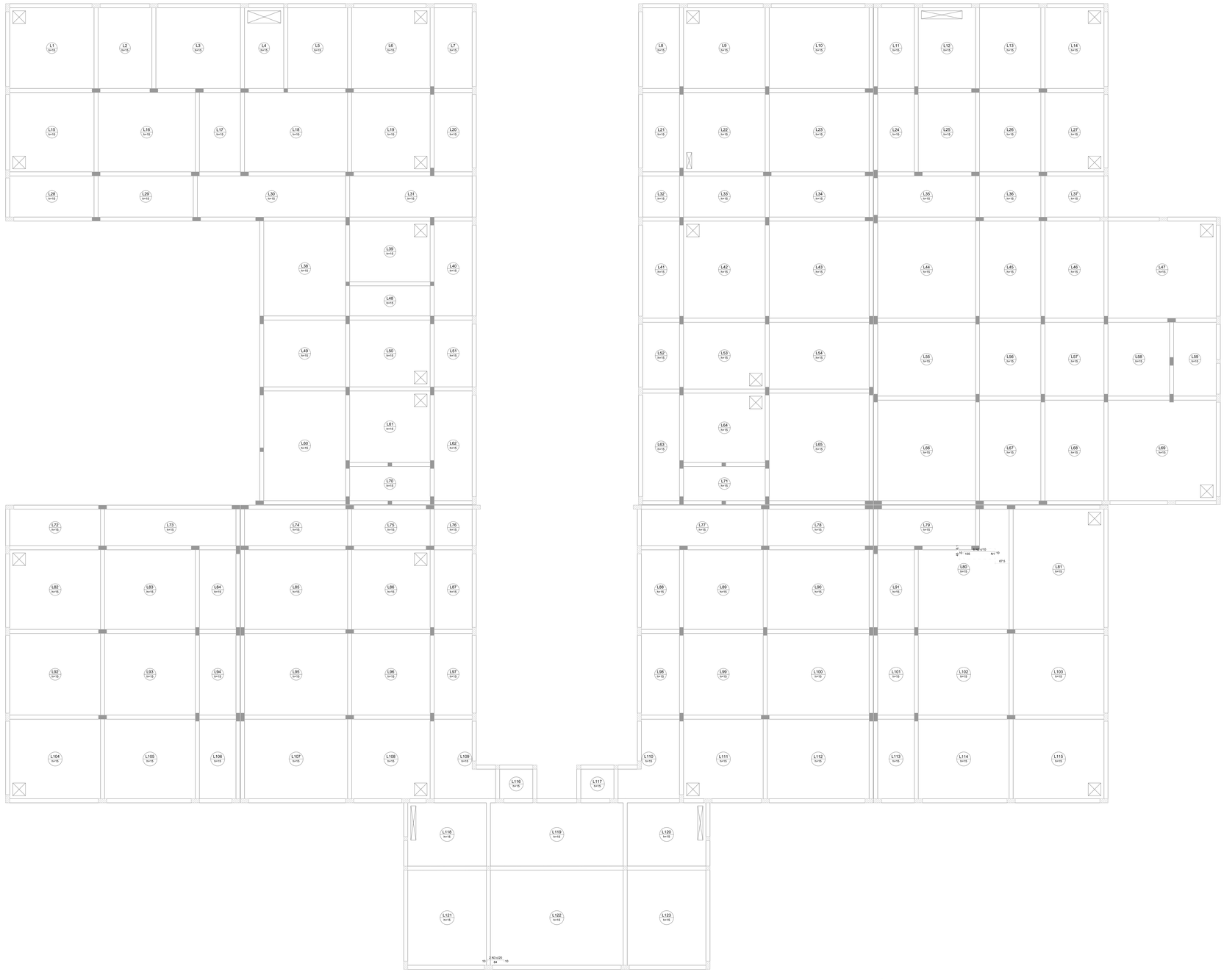
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

DATA: Outubro/2025

DESENHO: -

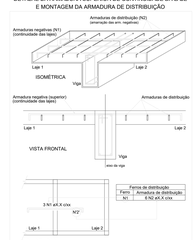
RESPONSÁVEL: ENG. CIVIL ANARRA DICKELLES VEUNETTO - CREA RS 196044

PRANCHA: EST 51/60




Armaduras de distribuição
Armadura: Armadura de distribuição
N2: 10 N1 a5 0 -L17-C-S1

## DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO




| Ferros de distribuição | |
|---|---|
| Ferro | Armadura de distribuição |
| N1 | 5 N2 a5 X c/cm |

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

## RELAÇÃO DO AÇO

Negativos X

| AÇO | N | DIAM (mm) | QUANT | C UNIT (cm) | C TOTAL (m) |
|---|---|---|---|---|---|
| CA50 | 1 | 8.0 | 10 | 51 | 510 |
| CA60 | 2 | 6.0 | 5 | 171 | 1026 |
| | 3 | 8.0 | 2 | 100 | 200 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 12.3 | 9.3 |
| CA60 | 5.0 | 5.1 | 0.8 |
| PESO TOTAL POR AÇO | | | |
| CA50 | 9.3 | | |
| CA60 | 0.8 | | |

Volume de concreto (C-25) = 0.00 m³
Área de forma = 0.00 m²

# ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO LAJE COBERTURA (EIXO X)

Escala 1:50

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Avenida Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97030-685
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA LAJE COBERTURA ARMAÇÃO NEGATIVA EIXO X**

ESCALA: **1/50**

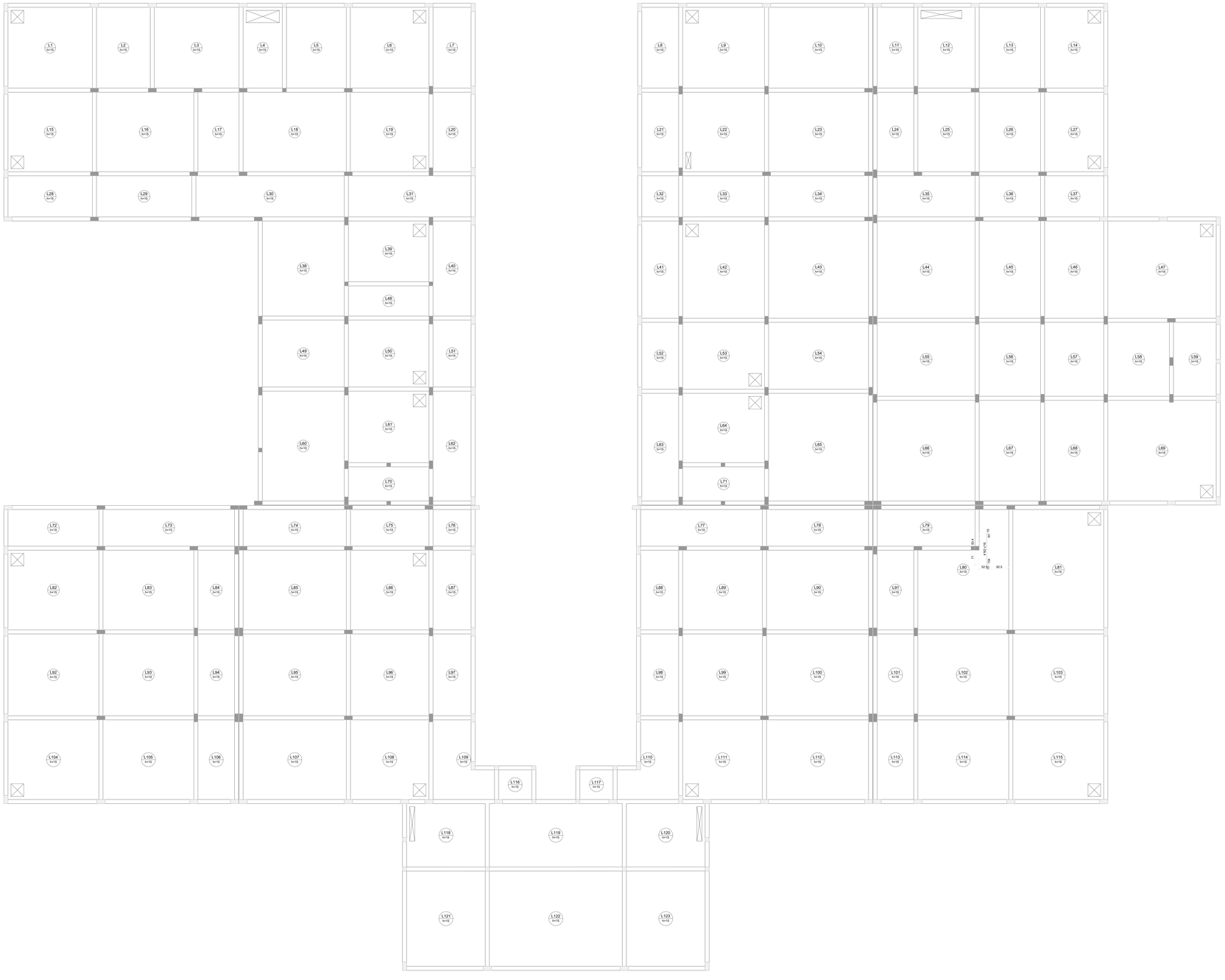
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

DATA: **Outubro/2025**

DESENHO: -

RESPONSÁVEL: ENG. CIVIL JAMMA DAYDELLED VOLPATTO - CREA RS 198844

PRANCHA: **EST 52 /60**



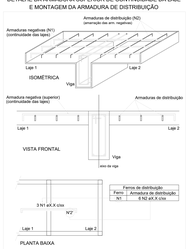

ARMAÇÃO NEGATIVA DAS LAJES DO PAVIMENTO LAJE COBERTURA (EIXO Y)

Escala: 1:50

Armaduras de distribuição

| Armadura | Armadura de distribuição |
|---|---|
| N2 | 9 N1 ø5.0 c/17 C=52 |

DETALHE DA ARMADURA SUPERIOR DE CONTINUIDADE DA LAJE E MONTAGEM DA ARMADURA DE DISTRIBUIÇÃO




| Ferros de distribuição | |
|---|---|
| Ferro | Armadura de distribuição |
| N1 | 6 N2 ø6.X c/xx |

NOTA: A ARMADURA DE DISTRIBUIÇÃO DAS CONTINUIDADES DEVE SER ININTERRUPTA E COM TRASPASSE (CASO HAJA EMENDAS).

RELAÇÃO DO AÇO

Negativos Y

| AÇO | N | DIAM (mm) | QUANT (cm) | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 2 | 8.0 | 4 | 110 | 440 |
| CA60 | 2 | 5.0 | 4 | 110 | 880 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 4.4 | 2.7 |
| CA60 | 5.0 | 8.8 | 2.6 |

PESO TOTAL (kg)

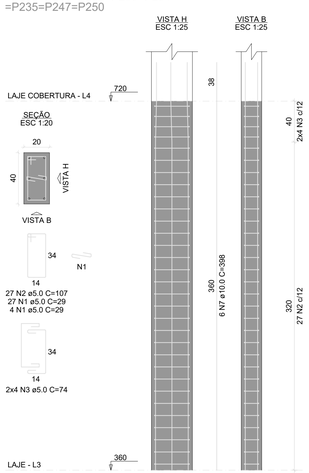
| | |
|---|---|
| CA50 | 3 |
| CA60 | 2.6 |

Volume de concreto (C-25) = 0.00 m³

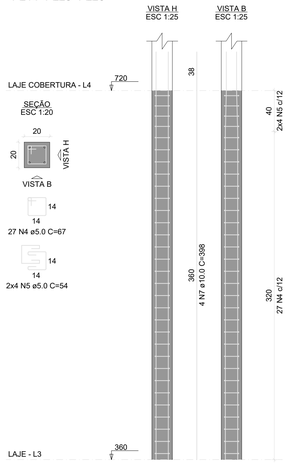
Área de forma = 0.00 m²

| | |
|---|---|
| INSTITUTO FEDERAL FARROUPILHA | PRÓ-REITORIA DE ADMINISTRAÇÃO<br>COORDENAÇÃO DE ENGENHARIA E ARQUITETURA<br>Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97060-680<br>Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818 |
| OBRA: CONSTRUÇÃO DO PRÉDIO DA REITORIA | |
| LOCAL: INSTITUTO FEDERAL FARROUPILHA | |
| PROJETO: ESTRUTURAL | AREA: 4.082.35 m² |
| CONTEÚDO: PLANTA LAJE COBERTURA ARMAÇÃO NEGATIVA EIXO Y | ESCALA: 1/50 |
| PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA | DATA: Outubro/2025 |
| RESPONSÁVEL: ENG. CIVIL JANAINA CASTELLES VOLPATTO - CREA RS 198944 | DESENHO: - |
| | PRANCHA: EST 53 /60 |

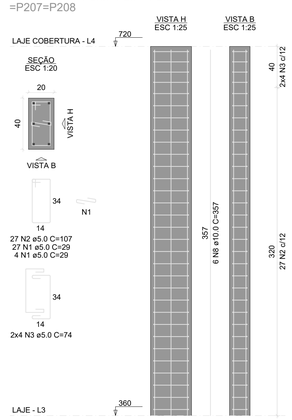
P1=P2=P3=P4=P6=P7=P8=P9=
=P10=P11=P12=P13=P14=P15=
=P16=P17=P18=P28=P29=P37=
=P40=P46=P50=P58=P59=P60=
=P66=P68=P75=P76=P77=P83=
=P84=P93=P94=P98=P103=P104=
=P113=P122=P123=P125=P137=P138=
=P139=P140=P155=P156=P157=
=P164=P167=P176=P183=P186=
=P194=P201=P202=P209=P210=
=P215=P216=P217=P218=P219=
=P220=P221=P222=P228=P229=
=P230=P231=P232=P233=P234=
=P235=P247=P250



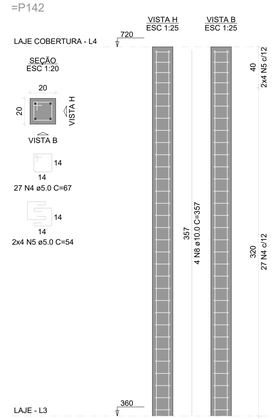

P5=P97=P211=P212=P213=
=P214=P225=P226



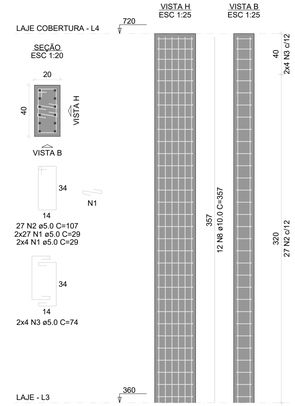

P19=P20=P21=P22=P24=P25=
=P30=P31=P32=P33=P34=P35=
=P36=P41=P42=P43=P44=P45=
=P51=P52=P53=P54=P55=P56=
=P57=P61=P62=P63=P64=P65=
=P69=P70=P71=P73=P74=P80=
=P81=P82=P85=P86=P89=P90=
=P91=P92=P96=P100=P101=
=P102=P105=P106=P109=P110=
=P111=P112=P116=P118=P119=
=P121=P127=P128=P129=P130=
=P131=P132=P133=P135=P136=
=P141=P143=P144=P146=P147=
=P149=P158=P159=P160=P161=
=P162=P163=P168=P169=P171=
=P172=P173=P177=P178=P179=
=P181=P182=P187=P188=P190=
=P191=P192=P195=P196=P197=
=P199=P200=P203=P204=P206=
=P207=P208



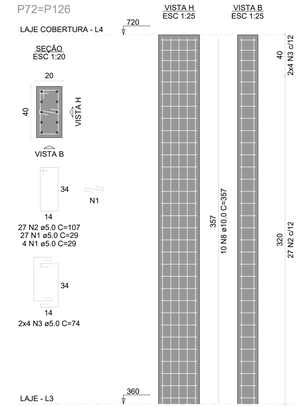

P23=P78=P79=P95=P99=
=P115=P117=P120=P134=
=P142




P49=P67=P88=P145=P150=P180=
=P198=P205




P72=P126




RELAÇÃO DO AÇO

| | | |
|---|---|---|
| 77xP1 | 8xP5 | 104xP19 |
| 10xP23 | 8xP49 | 2xP72 |
| 4xP87 | P124 | 2xP148 |
| P151 | P153 | 2xP154 |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 6541 | 29 | 189689 |
| | 2 | 5.0 | 5402 | 107 | 578014 |
| | 3 | 5.0 | 1598 | 74 | 118252 |
| | 4 | 5.0 | 486 | 67 | 32562 |
| | 5 | 5.0 | 144 | 54 | 7776 |
| | 6 | 5.0 | 150 | 29 | 4350 |
| CA50 | 7 | 10.0 | 510 | 398 | 202980 |
| | 8 | 10.0 | 818 | 357 | 292026 |
| | 9 | 10.0 | 2 | 75 | 150 |
| | 10 | 12.5 | 24 | 357 | 8568 |
| | 11 | 12.5 | 8 | 407 | 3256 |

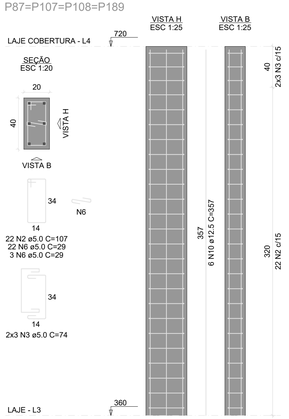
RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 4927.7 | 3341.9 |
| | 12.5 | 118.2 | 125.3 |
| CA60 | 5.0 | 9306.4 | 1577.9 |

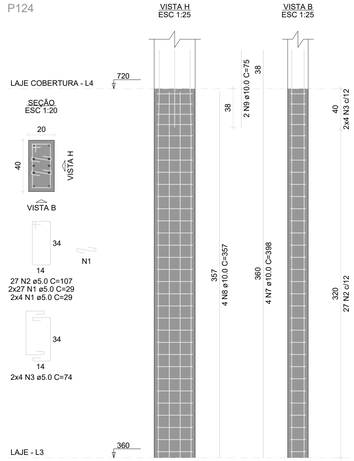
| PESO TOTAL (kg) | |
|---|---|
| CA50 | 3467.2 |
| CA60 | 1577.9 |

Volume de concreto (C-25) = 60.77 m³
Área de forma = 924.48 m²

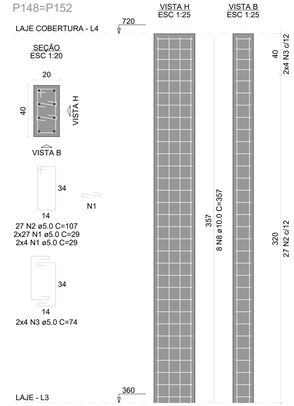
P87=P107=P108=P189



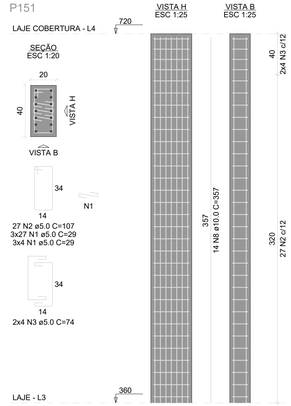

P124



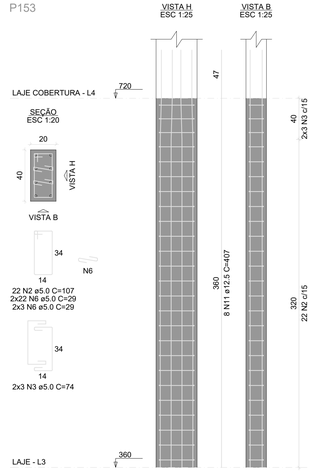

P148=P152



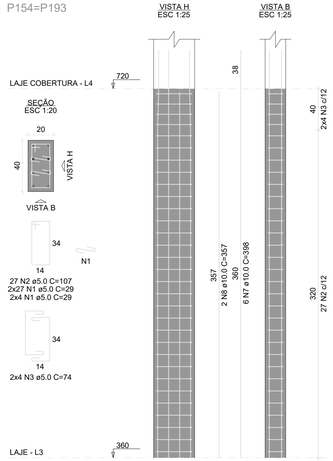

P151




P153




P154=P193




INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

ÁREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA COBERTURA PILARES 1**

ESCALA:
**1/50**

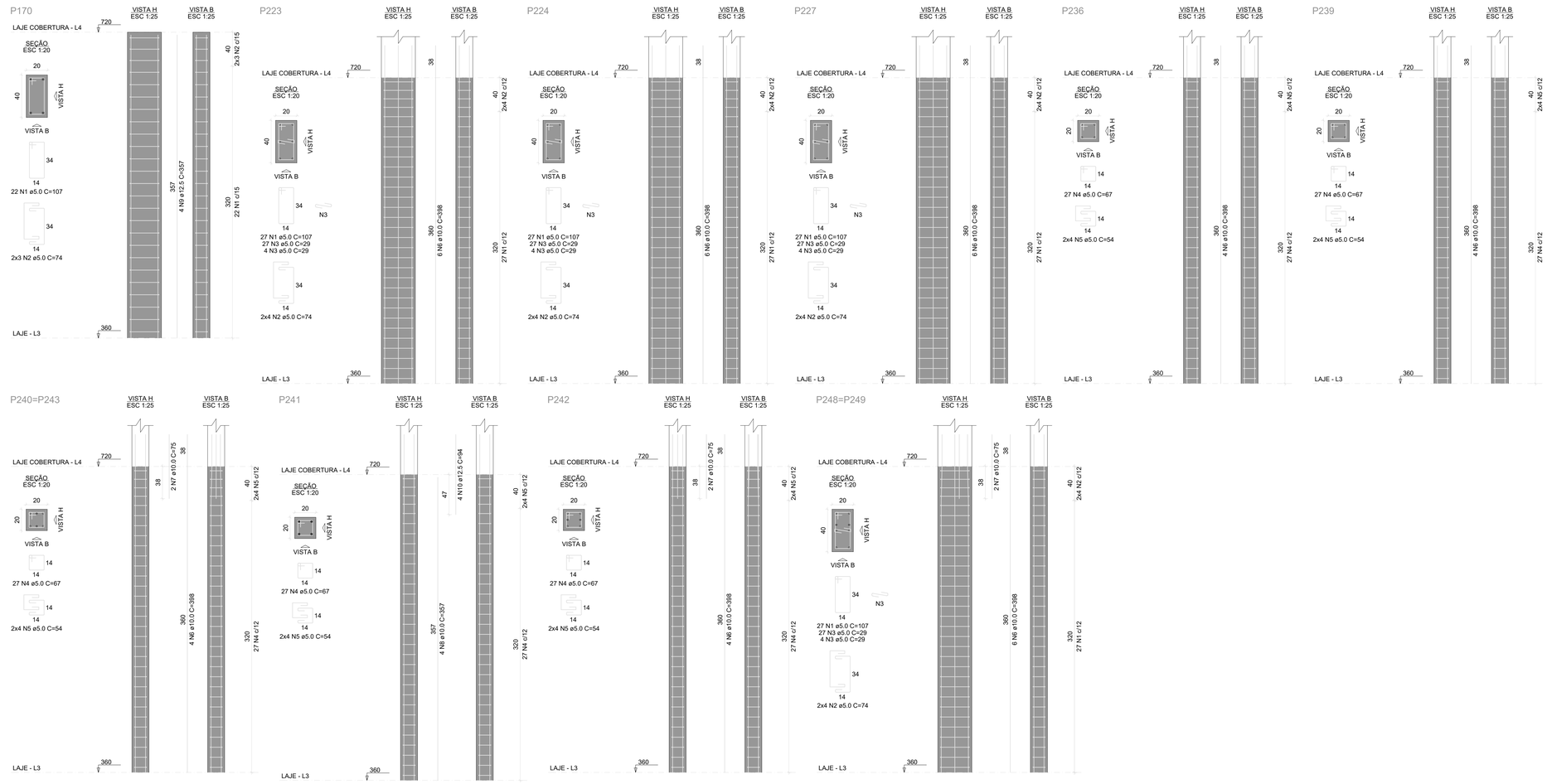
PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 54 /60**




RELAÇÃO DO AÇO

P170 P223 P224
P227 P236 P239
2xP240 P241 P242
2xP248

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 157 | 107 | 16799 |
| | 2 | 5.0 | 46 | 74 | 3404 |
| | 3 | 5.0 | 155 | 29 | 4495 |
| | 4 | 5.0 | 162 | 67 | 10854 |
| | 5 | 5.0 | 48 | 54 | 2592 |
| CA50 | 6 | 10.0 | 50 | 398 | 19900 |
| | 7 | 10.0 | 10 | 75 | 750 |
| | 8 | 10.0 | 4 | 357 | 1428 |
| | 9 | 12.5 | 4 | 357 | 1428 |
| | 10 | 12.5 | 4 | 94 | 376 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 220.8 | 149.7 |
| | 12.5 | 18 | 19.1 |
| CA60 | 5.0 | 381.4 | 64.7 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 168.8 |
| CA60 | 64.7 |

Volume de concreto (C-25) = 2.59 m³
Área de forma = 43.20 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA COBERTURA PILARES 2**

ESCALA:
**1/50**

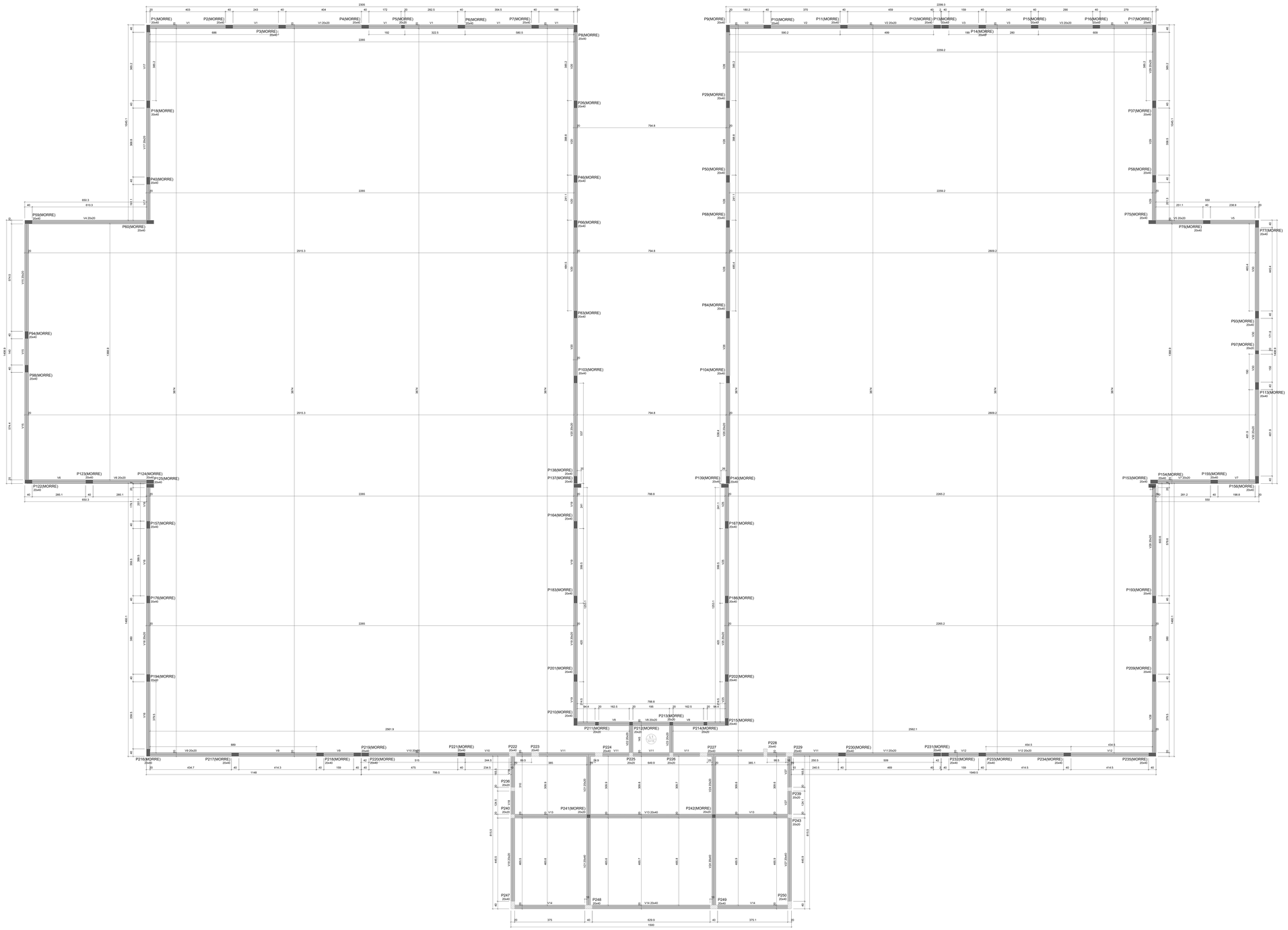
PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA:
**Outubro/2025**

DESENHO:
**-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 55 /60**



FORMA DO PAVIMENTO PLATIBANDA (NÍVEL 980)

Escala 1:50

| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| V1 | 20x20 | 0 | 980 |
| V2 | 20x20 | 0 | 980 |
| V3 | 20x20 | 0 | 980 |
| V4 | 20x20 | 0 | 980 |
| V5 | 20x20 | 0 | 980 |
| V6 | 20x20 | 0 | 980 |
| V7 | 20x20 | 0 | 980 |
| V8 | 20x20 | 0 | 980 |
| V9 | 20x20 | 0 | 980 |
| V10 | 20x20 | 0 | 980 |
| V11 | 20x20 | 0 | 980 |
| V12 | 20x20 | 0 | 980 |
| V13 | 20x40 | 0 | 980 |
| V14 | 20x40 | 0 | 980 |
| V15 | 20x20 | 0 | 980 |
| V16 | 20x20 | 0 | 980 |
| V17 | 20x20 | 0 | 980 |
| V18 | 20x20 | 0 | 980 |
| V19 | 20x20 | 0 | 980 |
| V20 | 20x20 | 0 | 980 |
| V21 | 20x40 | 0 | 980 |
| V22 | 20x20 | 0 | 980 |
| V23 | 20x20 | 0 | 980 |
| V24 | 20x20 | 0 | 980 |
| V25 | 20x40 | 0 | 980 |
| V26 | 20x20 | 0 | 980 |
| V27 | 20x20 | 0 | 980 |
| V28 | 20x20 | 0 | 980 |
| V29 | 20x20 | 0 | 980 |
| V30 | 20x20 | 0 | 980 |
| V31 | 20x20 | 0 | 980 |

| Lajes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dados | | | | | Sobrecarga (kgf/m²) | | |
| Nome | Tipo | Altura (cm) | Elevação (cm) | Nível (cm) | Peso próprio (kgf/m²) | Adicional | Acidental | Localizada |
| L1 | Maciça | 15 | 0 | 980 | 375 | 100 | 100 | - |

| Características dos materiais | |
|---|---|
| fck(kgf/cm²) | Ecs(kgf/cm²) |
| 250 | 241500 |

Dimensão máxima do agregado = 19 mm

| Pilares | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| P1 | 20x40 | 0 | 980 |
| P2 | 20x40 | 0 | 980 |
| P3 | 20x40 | 0 | 980 |
| P4 | 20x40 | 0 | 980 |
| P5 | 20x40 | 0 | 980 |
| P6 | 20x40 | 0 | 980 |
| P7 | 20x40 | 0 | 980 |
| P8 | 20x40 | 0 | 980 |
| P9 | 20x40 | 0 | 980 |
| P10 | 20x40 | 0 | 980 |
| P11 | 20x40 | 0 | 980 |
| P12 | 20x40 | 0 | 980 |
| P13 | 20x40 | 0 | 980 |
| P14 | 20x40 | 0 | 980 |
| P15 | 20x40 | 0 | 980 |
| P16 | 20x40 | 0 | 980 |
| P17 | 20x40 | 0 | 980 |
| P18 | 20x40 | 0 | 980 |
| P26 | 20x40 | 0 | 980 |
| P29 | 20x40 | 0 | 980 |
| P37 | 20x40 | 0 | 980 |
| P40 | 20x40 | 0 | 980 |
| P46 | 20x40 | 0 | 980 |
| P50 | 20x40 | 0 | 980 |
| P58 | 20x40 | 0 | 980 |
| P59 | 20x40 | 0 | 980 |
| P60 | 20x40 | 0 | 980 |
| P66 | 20x40 | 0 | 980 |
| P68 | 20x40 | 0 | 980 |
| P75 | 20x40 | 0 | 980 |
| P76 | 20x40 | 0 | 980 |
| P77 | 20x40 | 0 | 980 |
| P83 | 20x40 | 0 | 980 |
| P84 | 20x40 | 0 | 980 |
| P93 | 20x40 | 0 | 980 |
| P94 | 20x40 | 0 | 980 |
| P97 | 20x40 | 0 | 980 |
| P98 | 20x40 | 0 | 980 |
| P103 | 20x40 | 0 | 980 |
| P104 | 20x40 | 0 | 980 |
| P113 | 20x40 | 0 | 980 |
| P123 | 20x40 | 0 | 980 |
| P124 | 20x40 | 0 | 980 |
| P125 | 20x40 | 0 | 980 |
| P137 | 20x40 | 0 | 980 |
| P138 | 20x40 | 0 | 980 |
| P139 | 20x40 | 0 | 980 |
| P146 | 20x40 | 0 | 980 |
| P153 | 20x40 | 0 | 980 |
| P154 | 20x40 | 0 | 980 |
| P155 | 20x40 | 0 | 980 |
| P156 | 20x40 | 0 | 980 |
| P157 | 20x40 | 0 | 980 |
| P164 | 20x40 | 0 | 980 |
| P167 | 20x40 | 0 | 980 |
| P176 | 20x40 | 0 | 980 |
| P183 | 20x40 | 0 | 980 |
| P186 | 20x40 | 0 | 980 |
| P193 | 20x40 | 0 | 980 |
| P194 | 20x40 | 0 | 980 |
| P201 | 20x40 | 0 | 980 |
| P202 | 20x40 | 0 | 980 |
| P209 | 20x40 | 0 | 980 |
| P210 | 20x40 | 0 | 980 |
| P211 | 20x40 | 0 | 980 |
| P212 | 20x20 | 0 | 980 |
| P213 | 20x20 | 0 | 980 |
| P214 | 20x40 | 0 | 980 |
| P215 | 20x40 | 0 | 980 |
| P216 | 20x40 | 0 | 980 |
| P217 | 20x40 | 0 | 980 |
| P218 | 20x40 | 0 | 980 |
| P219 | 20x40 | 0 | 980 |
| P220 | 20x40 | 0 | 980 |
| P221 | 20x40 | 0 | 980 |
| P222 | 20x40 | 0 | 980 |
| P223 | 20x40 | 0 | 980 |
| P224 | 20x20 | 0 | 980 |
| P225 | 20x20 | 0 | 980 |
| P226 | 20x20 | 0 | 980 |
| P227 | 20x40 | 0 | 980 |
| P228 | 20x40 | 0 | 980 |
| P229 | 20x40 | 0 | 980 |
| P230 | 20x40 | 0 | 980 |
| P231 | 20x40 | 0 | 980 |
| P232 | 20x40 | 0 | 980 |
| P233 | 20x40 | 0 | 980 |
| P234 | 20x40 | 0 | 980 |
| P235 | 20x40 | 0 | 980 |
| P236 | 20x20 | 0 | 980 |
| P239 | 20x20 | 0 | 980 |
| P240 | 20x20 | 0 | 980 |
| P241 | 20x20 | 0 | 980 |
| P242 | 20x20 | 0 | 980 |
| P243 | 20x20 | 0 | 980 |
| P247 | 20x40 | 0 | 980 |
| P248 | 20x40 | 0 | 980 |
| P249 | 20x40 | 0 | 980 |
| P250 | 20x40 | 0 | 980 |

| Legenda dos pilares |
|---|
| Pilar que morre |
| Pilar que passa |

| Legenda das vigas e paredes |
|---|
| Viga |

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
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Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97030-085
Santa Maria - Rio Grande do Sul Telefone: (55) 3218-9818

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

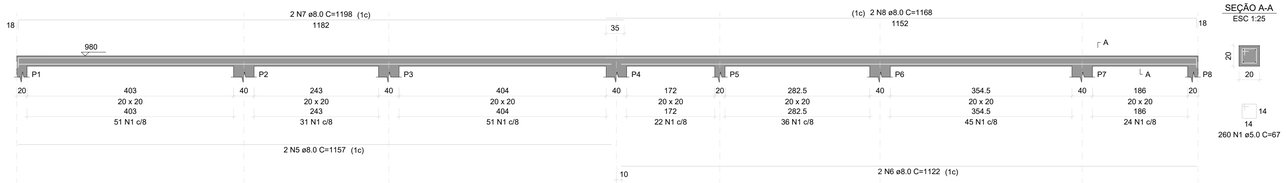
PROJETO: **ESTRUTURAL** — ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA FORMA PLATIBANDA** — ESCALA: **1/50**

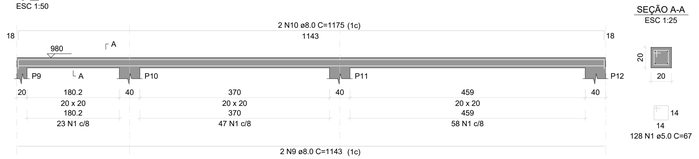
PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA — DATA: **Outubro/2025**

RESPONSÁVEL: ENG. CIVIL JHANNA DAYSELLES VILPONTE - CREA RS 198544 — DESENHO: **-** — PRANCHA: **EST 56 /60**

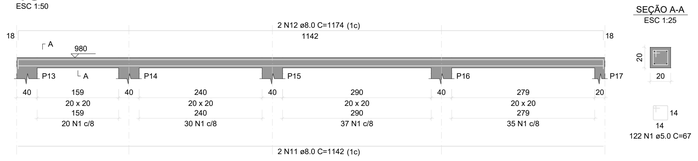
## V1
ESC 1:50



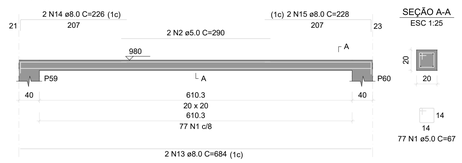

## V2
ESC 1:50



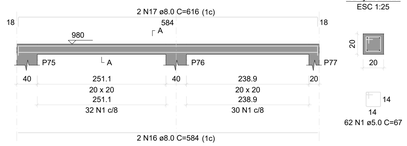

## V3
ESC 1:50



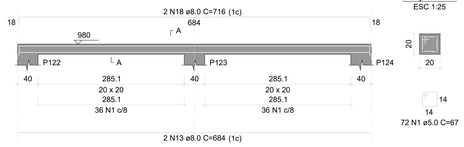

## V4
ESC 1:50



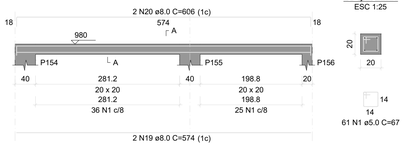

## V5
ESC 1:50



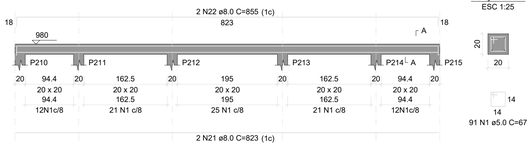

## V6
ESC 1:50



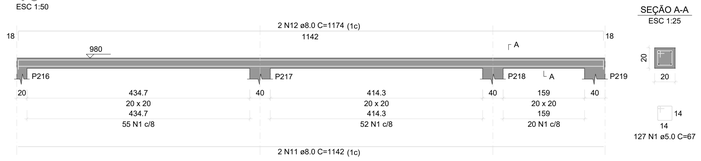

## V7
ESC 1:50



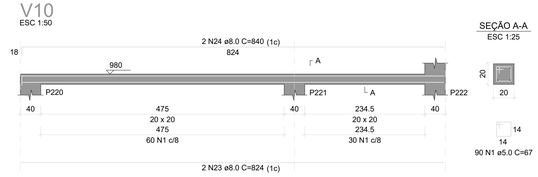

## V8
ESC 1:50



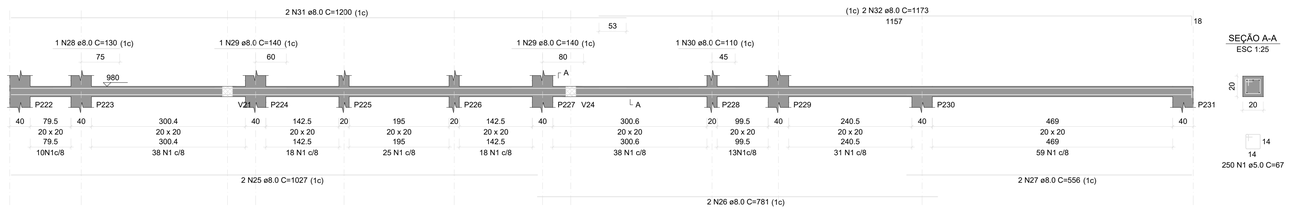

## V9
ESC 1:50



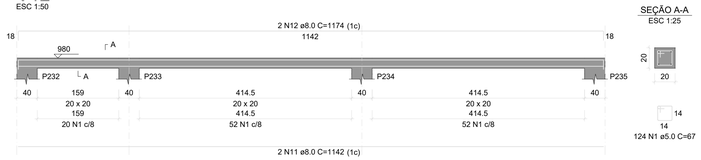

## V10
ESC 1:50



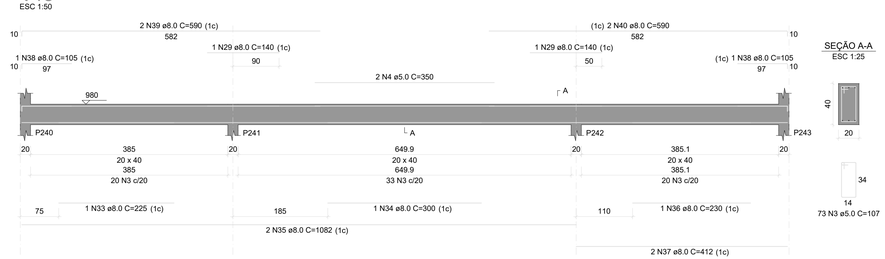

## V11
ESC 1:50




## V12
ESC 1:50




## V13
ESC 1:50




### RELAÇÃO DO AÇO

V1 V2 V3
V4 V5 V6
V7 V8 V9
V10 V11 V12
V13

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 1464 | 67 | 98088 |
| | 2 | 5.0 | 2 | 290 | 580 |
| | 3 | 5.0 | 73 | 107 | 7811 |
| | 4 | 5.0 | 2 | 350 | 700 |
| CA50 | 5 | 8.0 | 2 | 1157 | 2314 |
| | 6 | 8.0 | 2 | 1122 | 2244 |
| | 7 | 8.0 | 2 | 1198 | 2396 |
| | 8 | 8.0 | 2 | 1168 | 2336 |
| | 9 | 8.0 | 2 | 1143 | 2286 |
| | 10 | 8.0 | 2 | 1175 | 2350 |
| | 11 | 8.0 | 6 | 1142 | 6852 |
| | 12 | 8.0 | 6 | 1174 | 7044 |
| | 13 | 8.0 | 4 | 684 | 2736 |
| | 14 | 8.0 | 2 | 226 | 452 |
| | 15 | 8.0 | 2 | 228 | 456 |
| | 16 | 8.0 | 2 | 584 | 1168 |
| | 17 | 8.0 | 2 | 616 | 1232 |
| | 18 | 8.0 | 2 | 716 | 1432 |
| | 19 | 8.0 | 2 | 574 | 1148 |
| | 20 | 8.0 | 2 | 606 | 1212 |
| | 21 | 8.0 | 2 | 823 | 1646 |
| | 22 | 8.0 | 2 | 855 | 1710 |
| | 23 | 8.0 | 2 | 824 | 1648 |
| | 24 | 8.0 | 2 | 840 | 1680 |
| | 25 | 8.0 | 2 | 1027 | 2054 |
| | 26 | 8.0 | 2 | 781 | 1562 |
| | 27 | 8.0 | 2 | 556 | 1112 |
| | 28 | 8.0 | 1 | 130 | 130 |
| | 29 | 8.0 | 4 | 140 | 560 |
| | 30 | 8.0 | 1 | 110 | 110 |
| | 31 | 8.0 | 2 | 1200 | 2400 |
| | 32 | 8.0 | 2 | 1173 | 2346 |
| | 33 | 8.0 | 1 | 225 | 225 |
| | 34 | 8.0 | 1 | 300 | 300 |
| | 35 | 8.0 | 2 | 1082 | 2164 |
| | 36 | 8.0 | 1 | 230 | 230 |
| | 37 | 8.0 | 2 | 412 | 824 |
| | 38 | 8.0 | 2 | 105 | 210 |
| | 39 | 8.0 | 2 | 590 | 1180 |
| | 40 | 8.0 | 2 | 590 | 1180 |

### RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 609.3 | 264.5 |
| CA60 | 5.0 | 1071.8 | 181.7 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 264.5 |
| CA60 | 181.7 |

Volume de concreto (C-25) = 5,77 m³
Área de forma = 83.15 m²

**ESPECIFICAÇÕES DO CONCRETO:**

RESISTÊNCIA À COMPRESSÃO DO CONCRETO, FCK DE 28 DIAS = 25 MPa.
MÓDULO DE ELASTICIDADE INICIAL DO CONCRETO, Eci = 28 GPa.
TAMANHO MÁXIMO DO AGREGADO GRAÚDO = 19 MM.
CLASSE DE AGRESSIVIDADE AMBIENTAL II (CAA II).
RELAÇÃO ÁGUA/CIMENTO (A/C) MÁXIMA = 0,60.
AÇOS DAS ARMADURAS, CA50 E CA60.

COBRIMENTO DAS ARMADURAS CONFORME NBR 6118
LAJES - 25 MM
VIGAS E PILARES - 30 MM

### RELAÇÃO DO AÇO

Positivos X Positivos Y

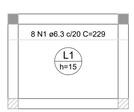
| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA50 | 1 | 6.3 | 8 | 229 | 1832 |
| | 2 | 6.3 | 10 | 179 | 1790 |

### RESUMO DO AÇO

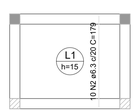
| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 6.3 | 36.2 | 9.7 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 9.7 |

Volume de concreto (C-25) = 0.43 m³
Área de forma = 2.86 m²




ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PLATIBANDA (EIXO X)
Escala 1:50




ARMAÇÃO POSITIVA DAS LAJES DO PAVIMENTO PLATIBANDA (EIXO Y)
Escala 1:50

INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS PLATIBANDA 1 E LAJE**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

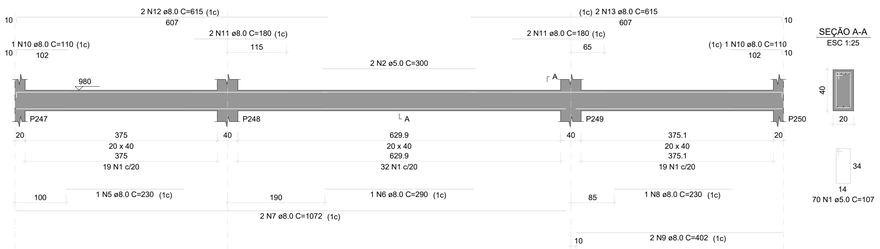
DATA: **Outubro/2025**

DESENHO: **-**

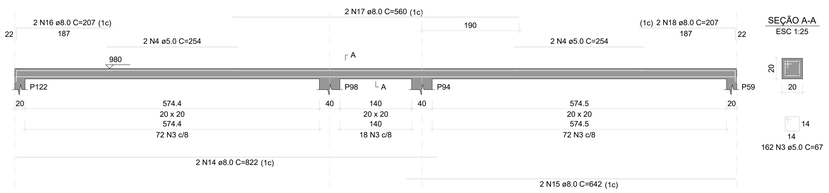
RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 57 /60**

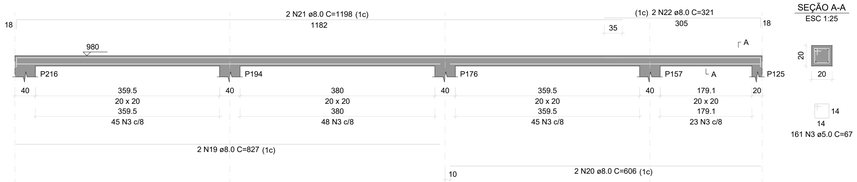
## V14
ESC 1:50



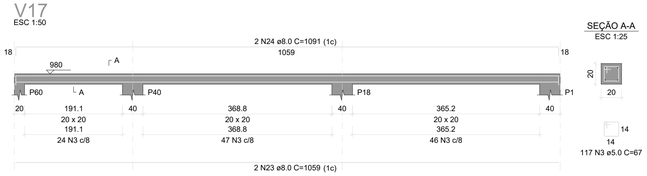

## V15
ESC 1:50



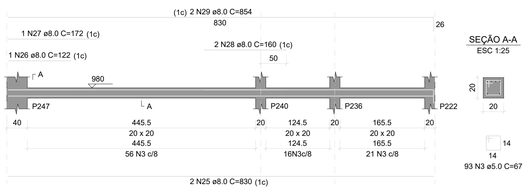

## V16
ESC 1:50



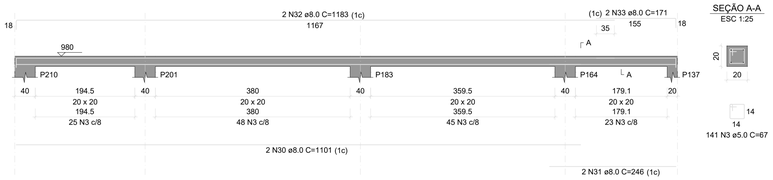

## V17
ESC 1:50



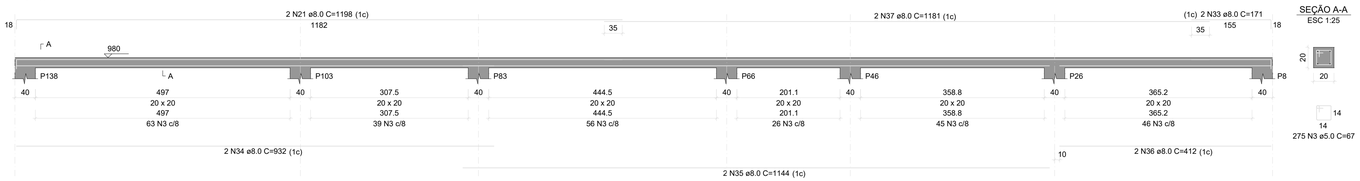

## V18
ESC 1:50



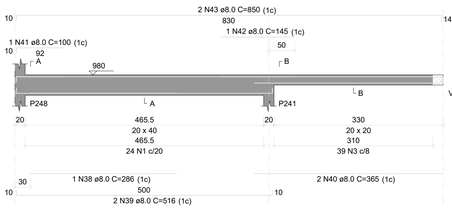

## V19
ESC 1:50



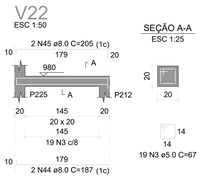

## V20
ESC 1:50



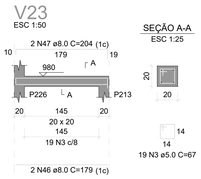

## V21
ESC 1:50



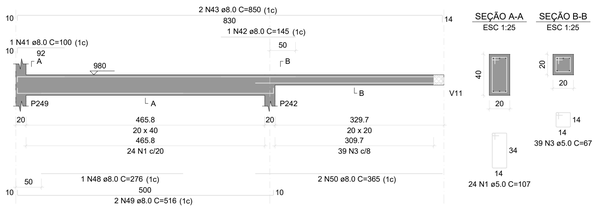

## V22
ESC 1:50



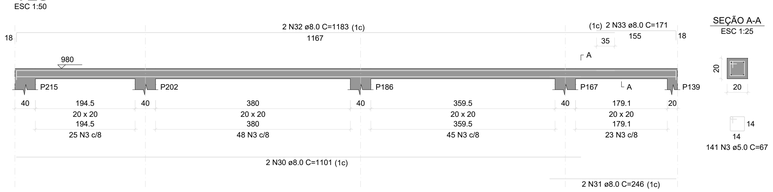

## V23
ESC 1:50




## V24
ESC 1:50




## V25
ESC 1:50




RELAÇÃO DO AÇO

| | | |
|---|---|---|
| V14 | V15 | V16 |
| V17 | V18 | V19 |
| V20 | V21 | V22 |
| V23 | V24 | V25 |

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 118 | 107 | 12626 |
| | 2 | 5.0 | 2 | 300 | 600 |
| | 3 | 5.0 | 1206 | 67 | 80802 |
| | 4 | 5.0 | 4 | 254 | 1016 |
| CA50 | 5 | 8.0 | 1 | 230 | 230 |
| | 6 | 8.0 | 1 | 290 | 290 |
| | 7 | 8.0 | 2 | 1072 | 2144 |
| | 8 | 8.0 | 1 | 230 | 230 |
| | 9 | 8.0 | 2 | 402 | 804 |
| | 10 | 8.0 | 2 | 110 | 220 |
| | 11 | 8.0 | 4 | 180 | 720 |
| | 12 | 8.0 | 2 | 615 | 1230 |
| | 13 | 8.0 | 2 | 615 | 1230 |
| | 14 | 8.0 | 2 | 822 | 1644 |
| | 15 | 8.0 | 2 | 642 | 1284 |
| | 16 | 8.0 | 2 | 207 | 414 |
| | 17 | 8.0 | 2 | 560 | 1120 |
| | 18 | 8.0 | 2 | 207 | 414 |
| | 19 | 8.0 | 2 | 827 | 1654 |
| | 20 | 8.0 | 2 | 606 | 1212 |
| | 21 | 8.0 | 4 | 1198 | 4792 |
| | 22 | 8.0 | 2 | 321 | 642 |
| | 23 | 8.0 | 2 | 1059 | 2118 |
| | 24 | 8.0 | 2 | 1091 | 2182 |
| | 25 | 8.0 | 2 | 830 | 1660 |
| | 26 | 8.0 | 1 | 122 | 122 |
| | 27 | 8.0 | 1 | 172 | 172 |
| | 28 | 8.0 | 2 | 160 | 320 |
| | 29 | 8.0 | 2 | 854 | 1708 |
| | 30 | 8.0 | 4 | 1101 | 4404 |
| | 31 | 8.0 | 4 | 246 | 984 |
| | 32 | 8.0 | 4 | 1183 | 4732 |
| | 33 | 8.0 | 6 | 171 | 1026 |
| | 34 | 8.0 | 2 | 932 | 1864 |
| | 35 | 8.0 | 2 | 1144 | 2288 |
| | 36 | 8.0 | 2 | 412 | 824 |
| | 37 | 8.0 | 2 | 1181 | 2362 |
| | 38 | 8.0 | 1 | 286 | 286 |
| | 39 | 8.0 | 2 | 516 | 1032 |
| | 40 | 8.0 | 2 | 365 | 730 |
| | 41 | 8.0 | 2 | 100 | 200 |
| | 42 | 8.0 | 2 | 145 | 290 |
| | 43 | 8.0 | 4 | 850 | 3400 |
| | 44 | 8.0 | 2 | 187 | 374 |
| | 45 | 8.0 | 2 | 205 | 410 |
| | 46 | 8.0 | 2 | 179 | 358 |
| | 47 | 8.0 | 2 | 204 | 408 |
| | 48 | 8.0 | 1 | 276 | 276 |
| | 49 | 8.0 | 2 | 516 | 1032 |
| | 50 | 8.0 | 2 | 365 | 730 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 565.7 | 245.5 |
| CA60 | 5.0 | 950.4 | 161.1 |
| PESO TOTAL (kg) | | | |
| CA50 | 245.5 | | |
| CA60 | 161.1 | | |

Volume de concreto (C-25) = 5.67 m³
Área de forma = 80.02 m²

INSTITUTO FEDERAL
FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA:
**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO:
**ESTRUTURAL**

AREA:
**4.082,35 m²**

CONTEÚDO:
**PLANTA VIGAS PLATIBANDA 2**

ESCALA:
**1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

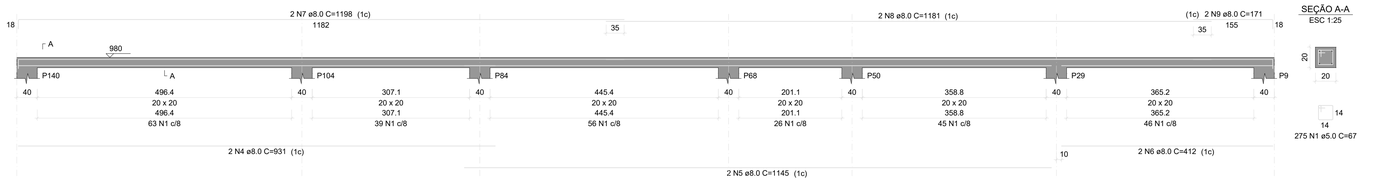
DATA:
**Outubro/2025**

DESENHO:
**-**

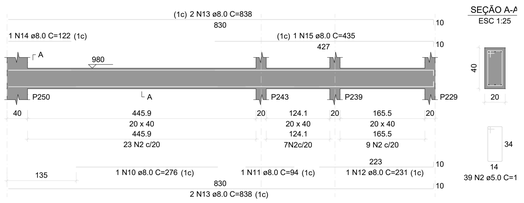
RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA:
**EST 58 /60**

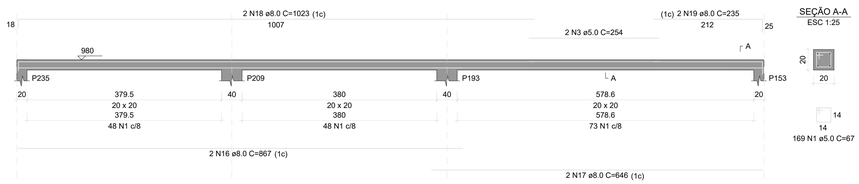
## V26
ESC 1:50



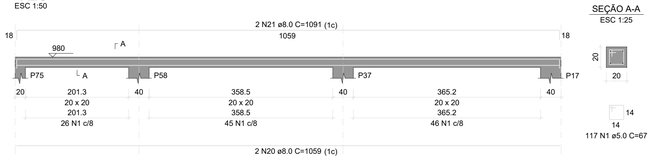

## V27
ESC 1:50



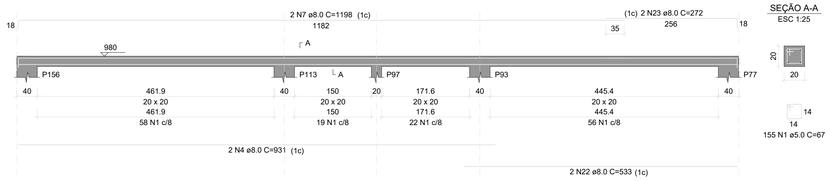

## V28
ESC 1:50




## V29
ESC 1:50




## V30
ESC 1:50




RELAÇÃO DO AÇO

V26 V27 V28
V29 V30

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 716 | 67 | 47972 |
| | 2 | 5.0 | 39 | 107 | 4173 |
| | 3 | 5.0 | 2 | 254 | 508 |
| CA50 | 4 | 8.0 | 4 | 931 | 3724 |
| | 5 | 8.0 | 2 | 1145 | 2290 |
| | 6 | 8.0 | 2 | 412 | 824 |
| | 7 | 8.0 | 4 | 1198 | 4792 |
| | 8 | 8.0 | 2 | 1181 | 2362 |
| | 9 | 8.0 | 2 | 171 | 342 |
| | 10 | 8.0 | 1 | 276 | 276 |
| | 11 | 8.0 | 1 | 94 | 94 |
| | 12 | 8.0 | 1 | 231 | 231 |
| | 13 | 8.0 | 4 | 838 | 3352 |
| | 14 | 8.0 | 1 | 122 | 122 |
| | 15 | 8.0 | 1 | 435 | 435 |
| | 16 | 8.0 | 2 | 867 | 1734 |
| | 17 | 8.0 | 2 | 646 | 1292 |
| | 18 | 8.0 | 2 | 1023 | 2046 |
| | 19 | 8.0 | 2 | 235 | 470 |
| | 20 | 8.0 | 2 | 1059 | 2118 |
| | 21 | 8.0 | 2 | 1091 | 2182 |
| | 22 | 8.0 | 2 | 533 | 1066 |
| | 23 | 8.0 | 2 | 272 | 544 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 303 | 131.5 |
| CA60 | 5.0 | 526.5 | 89.3 |
| PESO TOTAL (kg) | | | |
| CA50 | 131.5 | | |
| CA60 | 89.3 | | |

Volume de concreto (C-25) = 2.87 m³
Área de forma = 41.59 m²

RELAÇÃO DO AÇO

75xP1 6xP6 P153
2xP222 2xP225 6xP229
4xP240 P241 P242
2xP248

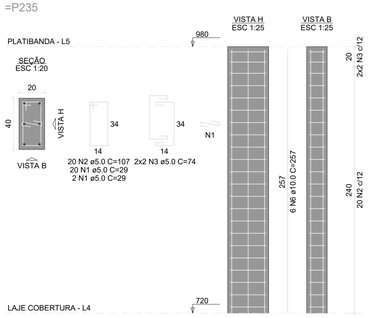
| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 1877 | 29 | 54433 |
| | 2 | 5.0 | 1635 | 107 | 174945 |
| | 3 | 5.0 | 348 | 74 | 25752 |
| | 4 | 5.0 | 232 | 67 | 15544 |
| | 5 | 5.0 | 62 | 54 | 3348 |
| CA50 | 6 | 10.0 | 504 | 257 | 129528 |
| | 7 | 10.0 | 80 | 298 | 23840 |
| | 8 | 10.0 | 4 | 75 | 300 |
| | 9 | 12.5 | 4 | 257 | 1028 |

RESUMO DO AÇO

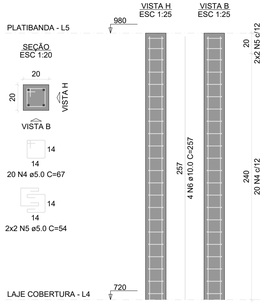
| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 1433.5 | 972.2 |
| | 12.5 | 10.3 | 10.9 |
| CA60 | 5.0 | 2740.2 | 464.6 |
| PESO TOTAL (kg) | | | |
| CA50 | 983.1 | | |
| CA60 | 464.6 | | |

Volume de concreto (C-25) = 19.34 m³
Área de forma = 297.44 m²

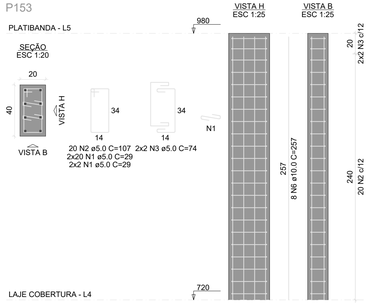
## P1=P2=P3=P4=P6=P7=P8=P9=P10=P11=P12=P13=P14=P15=P16=P17=P18=P26=P29=P37=P40=P46=P50=P58=P59=P60=P66=P68=P75=P76=P77=P83=P84=P93=P94=P98=P103=P104=P113=P122=P123=P124=P125=P137=P138=P139=P140=P154=P155=P156=P157=P164=P167=P176=P183=P186=P193=P194=P201=P202=P209=P210=P215=P216=P217=P218=P219=P220=P221=P230=P231=P232=P233=P234=P235



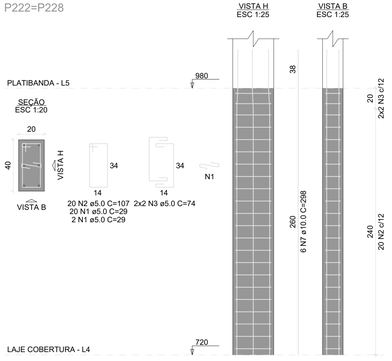

## P5=P97=P211=P212=P213=P214



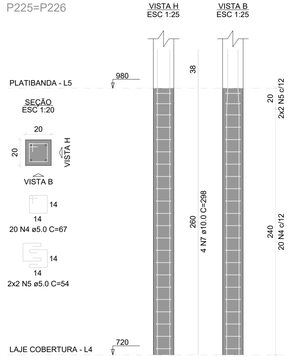

## P153



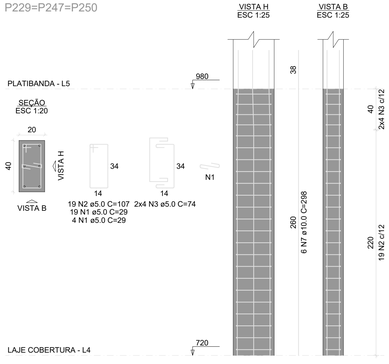

## P222=P228



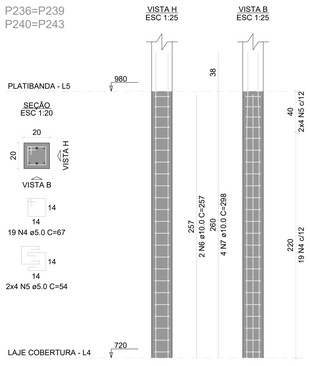

## P225=P226



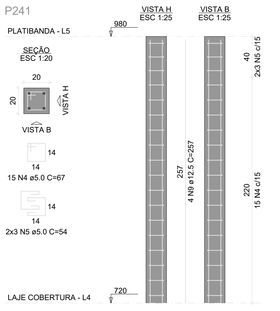

## P223=P224=P227 P229=P247=P250



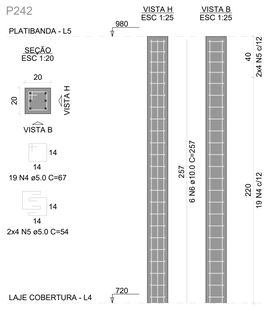

## P236=P239 P240=P243



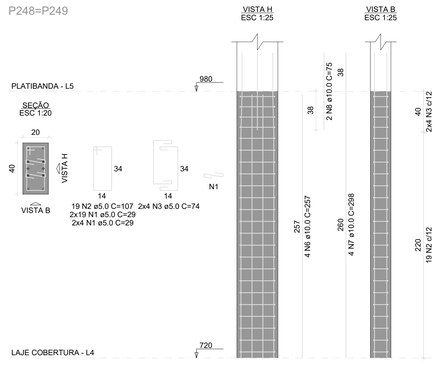

## P241




## P242




## P248=P249




INSTITUTO FEDERAL FARROUPILHA

PRÓ-REITORIA DE ADMINISTRAÇÃO
COORDENAÇÃO DE ENGENHARIA E ARQUITETURA
Alameda Santiago do Chile, 195 - Nossa Sra. das Dores - CEP 97050-685
Santa Maria - Rio Grande do Sul. Telefone: (55) 3218-9819

OBRA: **CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL: **INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**

AREA: **4.082,35 m²**

CONTEÚDO: **PLANTA VIGAS 3 E PILARES**

ESCALA: **1/50**

PROPRIETÁRIO: INSTITUTO FEDERAL FARROUPILHA

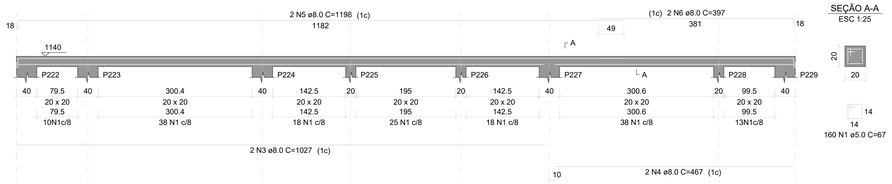
DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL: ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 59 /60**

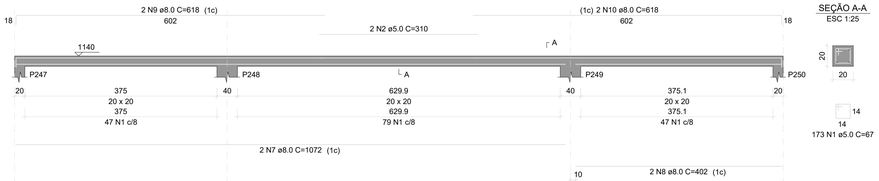
## V1
ESC 1:50




SEÇÃO A-A
ESC 1:25



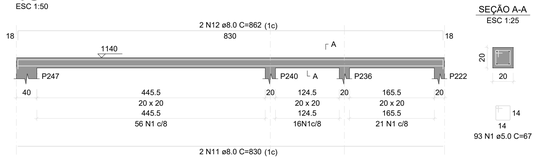

## V2
ESC 1:50




SEÇÃO A-A
ESC 1:25



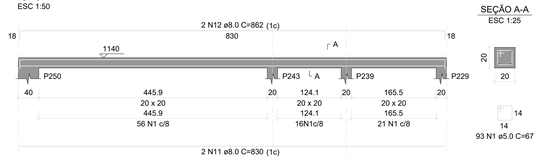

## V3
ESC 1:50




SEÇÃO A-A
ESC 1:25




## V4
ESC 1:50




SEÇÃO A-A
ESC 1:25




RELAÇÃO DO AÇO

V1 V2 V3
V4

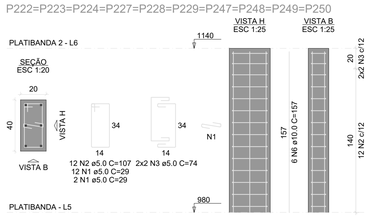
| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 519 | 67 | 34773 |
| | 2 | 5.0 | 2 | 310 | 620 |
| CA50 | 3 | 8.0 | 2 | 1027 | 2054 |
| | 4 | 8.0 | 2 | 467 | 934 |
| | 5 | 8.0 | 2 | 1198 | 2396 |
| | 6 | 8.0 | 2 | 397 | 794 |
| | 7 | 8.0 | 2 | 1072 | 2144 |
| | 8 | 8.0 | 2 | 402 | 804 |
| | 9 | 8.0 | 2 | 618 | 1236 |
| | 10 | 8.0 | 2 | 618 | 1236 |
| | 11 | 8.0 | 4 | 830 | 3320 |
| | 12 | 8.0 | 4 | 862 | 3448 |

RESUMO DO AÇO

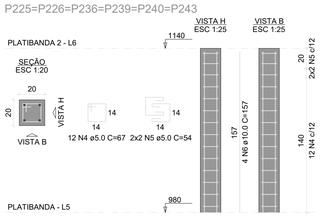
| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 8.0 | 183.7 | 79.7 |
| CA60 | 5.0 | 353.9 | 60 |
| PESO TOTAL (kg) | | | |
| CA50 | 79.7 | | |
| CA60 | 60 | | |

Volume de concreto (C-25) = 1.64 m³
Área de forma = 24.67 m²

## P222=P223=P224=P227=P228=P229=P247=P248=P249=P250




## P225=P226=P236=P239=P240=P243




RELAÇÃO DO AÇO

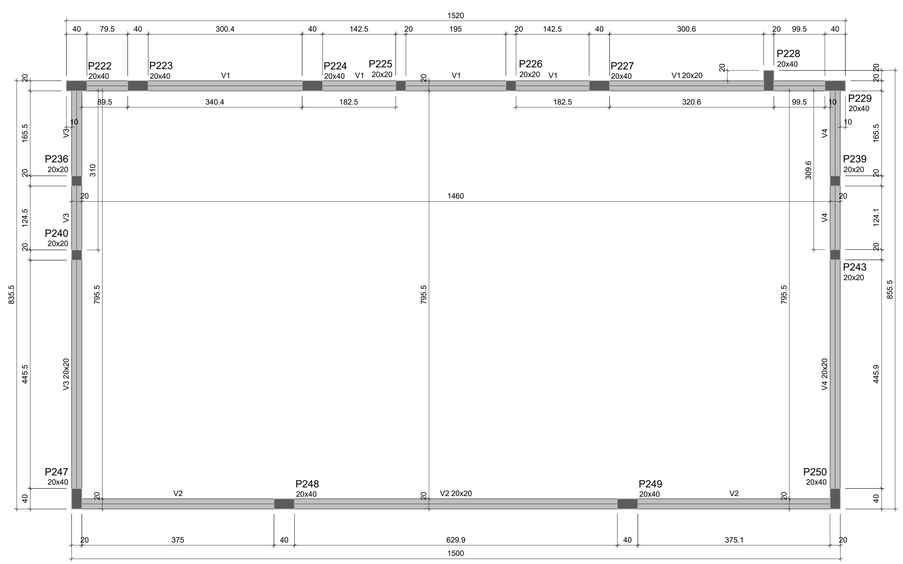
7xP222 4xP225

| AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 98 | 29 | 2842 |
| | 2 | 5.0 | 84 | 107 | 8988 |
| | 3 | 5.0 | 28 | 74 | 2072 |
| | 4 | 5.0 | 48 | 67 | 3216 |
| | 5 | 5.0 | 16 | 54 | 864 |
| CA50 | 6 | 10.0 | 84 | 157 | 13188 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10% (kg) |
|---|---|---|---|
| CA50 | 10.0 | 91.1 | 61.8 |
| CA60 | 5.0 | 179.8 | 30.5 |
| PESO TOTAL (kg) | | | |
| CA50 | 61.8 | | |
| CA60 | 30.5 | | |

Volume de concreto (C-25) = 1.66 m³
Área de forma = 26.88 m²




# FORMA DO PAVIMENTO PLATIBANDA 2 (NÍVEL 1140)

Escala 1:50

| Vigas | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| V1 | 20x20 | 0 | 1140 |
| V2 | 20x20 | 0 | 1140 |
| V3 | 20x20 | 0 | 1140 |
| V4 | 20x20 | 0 | 1140 |

| Características dos materiais | |
|---|---|
| fck (kgf/cm²) | Ecs (kgf/cm²) |
| 250 | 241500 |

Dimensão máxima do agregado = 19 mm

| Pilares | | | |
|---|---|---|---|
| Nome | Seção (cm) | Elevação (cm) | Nível (cm) |
| P222 | 20x40 | 0 | 1140 |
| P223 | 20x40 | 0 | 1140 |
| P224 | 20x40 | 0 | 1140 |
| P225 | 20x20 | 0 | 1140 |
| P226 | 20x20 | 0 | 1140 |
| P227 | 20x40 | 0 | 1140 |
| P228 | 20x40 | 0 | 1140 |
| P229 | 20x40 | 0 | 1140 |
| P236 | 20x20 | 0 | 1140 |
| P239 | 20x20 | 0 | 1140 |
| P240 | 20x20 | 0 | 1140 |
| P243 | 20x20 | 0 | 1140 |
| P247 | 20x40 | 0 | 1140 |
| P248 | 20x40 | 0 | 1140 |
| P249 | 20x40 | 0 | 1140 |
| P250 | 20x40 | 0 | 1140 |

| Legenda dos pilares |
|---|
| Pilar que morre |

| Legenda das vigas e paredes |
|---|
| Viga |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**CONSTRUÇÃO DO PRÉDIO DA REITORIA**

LOCAL:
**INSTITUTO FEDERAL FARROUPILHA**

PROJETO: **ESTRUTURAL**
ÁREA: **4.082,35 m²**

CONTEÚDO: **PLANTA PAVIMENTO PLATIBANDA 2**
ESCALA: **1/50**

PROPRIETÁRIO:
INSTITUTO FEDERAL FARROUPILHA

DATA: **Outubro/2025**

DESENHO: **-**

RESPONSÁVEL:
ENG. CIVIL JANAÍNA SAYDELLES VOLPATTO - CREA RS 198044

PRANCHA: **EST 60 /60**