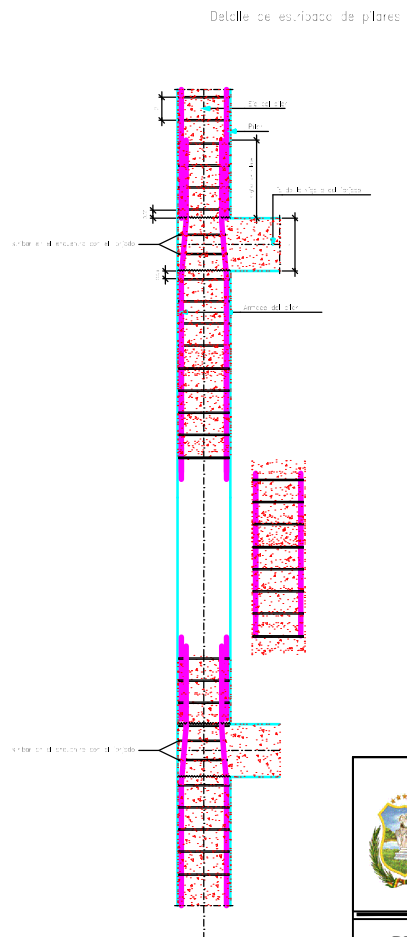


|               |                      |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
|---------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| P1=P2         | P3=P4<br>P5=P6<br>P7 | P8            | P9=P10        | P11           | P12           | P13=P14       | P15           | P16=P17       | P18=P19       | P20=P21       | P22           | P23           | P24           | P25           | P26           | P27           | P28           | P29           | P30           |
|               |                      |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |
| 0.00m x 0.00m | 0.00m x 0.00m        | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m |
| 0.00m x 0.00m | 0.00m x 0.00m        | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m |
| 0.00m x 0.00m | 0.00m x 0.00m        | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m |
| 0.00m x 0.00m | 0.00m x 0.00m        | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m | 0.00m x 0.00m |

Cuadro de pilares  
Hormigón: H-21 , Control Normal  
Acero: AH-B30 , Control Normal  
Escala: 1:100

| Peso (en toneladas)<br>Espesor 1 a 4<br>[kg/m³] | Long. (m) | Resistencia (kg) | Unidad |
|-------------------------------------------------|-----------|------------------|--------|
| 1.00                                            | 1.00      | 1.00             | 1.00   |
| 1.00                                            | 1.00      | 1.00             | 1.00   |
| 1.00                                            | 1.00      | 1.00             | 1.00   |

| P31 | P32 | P40 | P41+P51 | P43 | P44+P47 | P45 | P48 | P49 | P50 | P53 | P54+P55 | P56+P59 | P57+P60+P61 | P63+P64 | P65+P66 | P67 | P72 |
|-----|-----|-----|---------|-----|---------|-----|-----|-----|-----|-----|---------|---------|-------------|---------|---------|-----|-----|
|     |     |     |         |     |         |     |     |     |     |     |         |         |             |         |         |     |     |



UNIVERSIDAD AUTÓNOMA "JUAN MISAEL SARACHO"  
FACULTAD DE CIENCIAS Y TECNOLOGÍA

DISEÑO ESTRUCTURAL  
DE UN CENTRO POLICIAL  
COMUNIDAD RANCHO SUR  
(CYPCAD)

CONTENIDO:  
COLUMNAS

UNIVERSITARIO:  
UNIV. CAMACHO SUBIA LUIS FERNANDO

VoBo

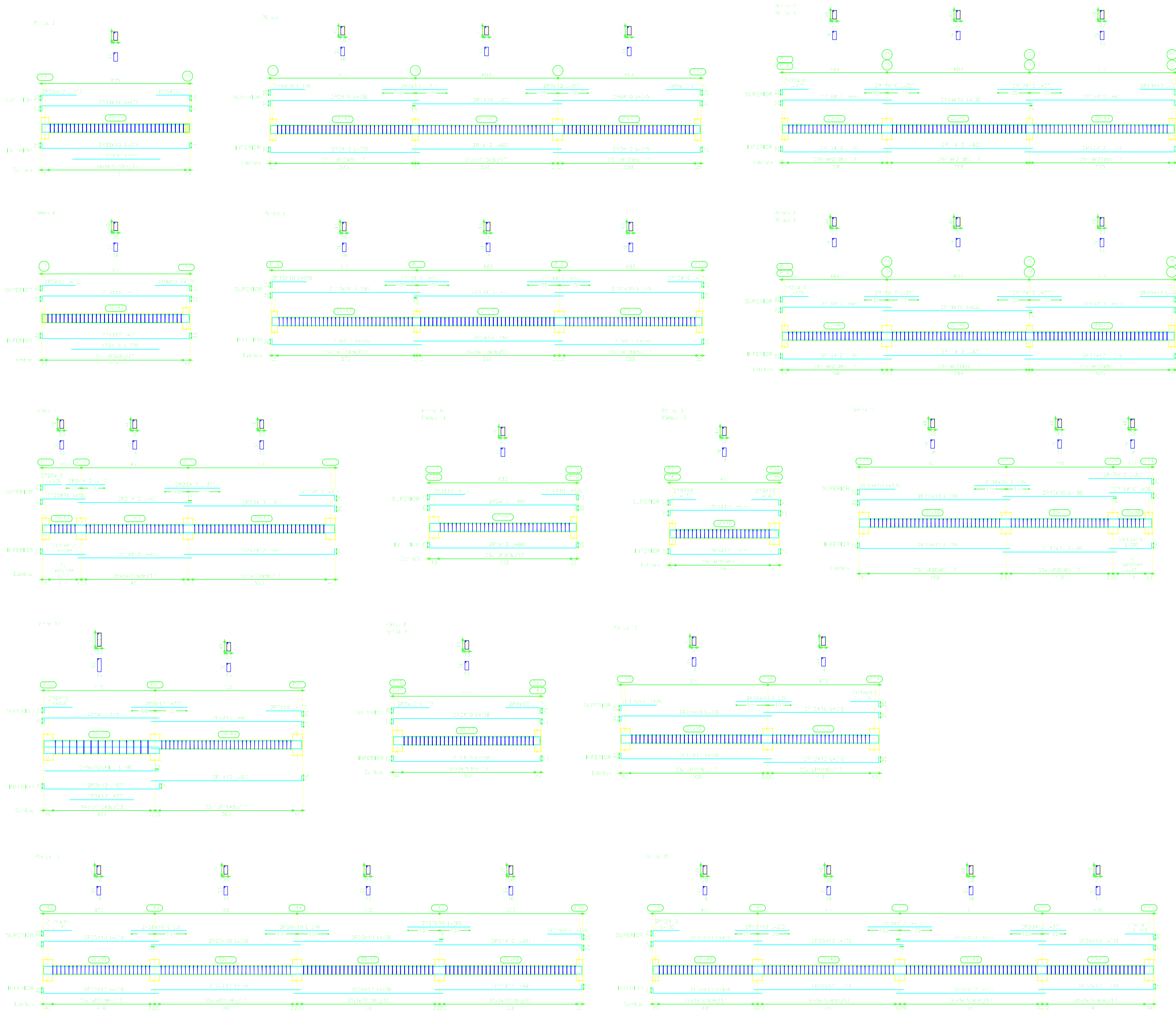
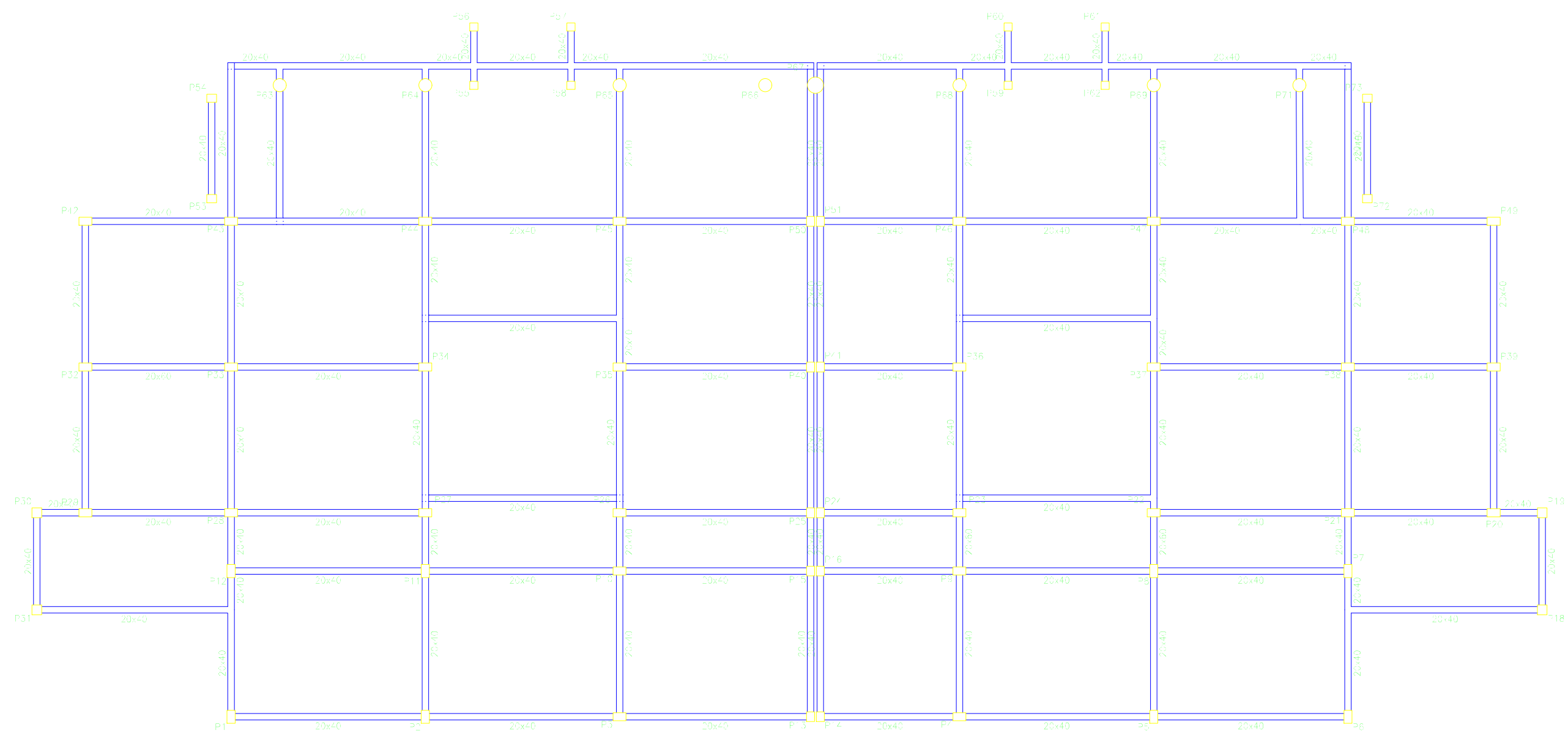
ESCALA:  
1:100

PLANO  
6/16



Plano de piso  
Cimentación  
Escala: 1/50  
Corte Normal  
Escala: 1/50

Plano de piso  
Cimentación  
Escala: 1/50  
Corte Normal  
Escala: 1/50

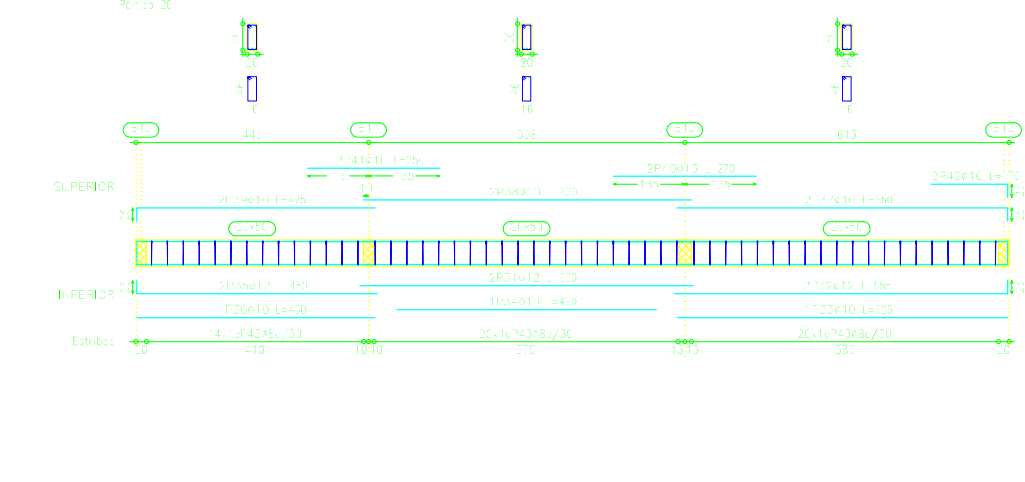
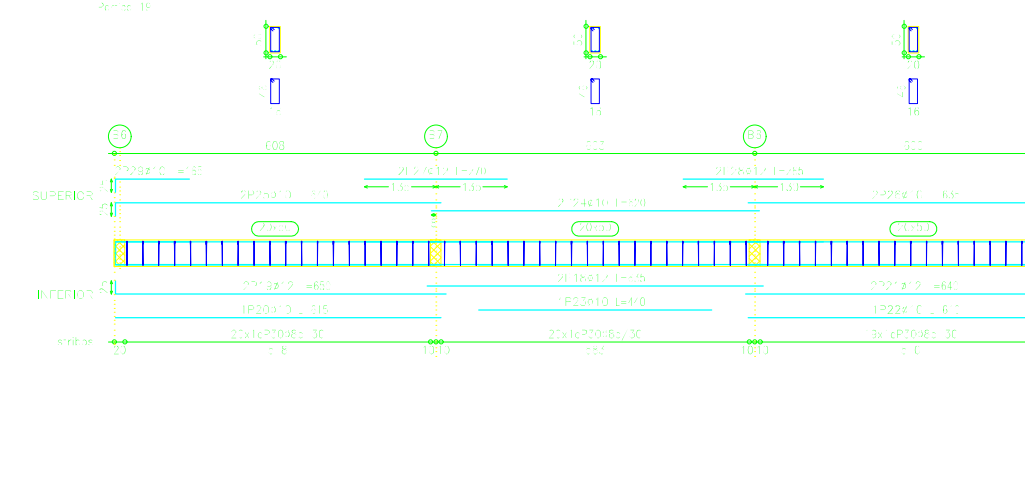
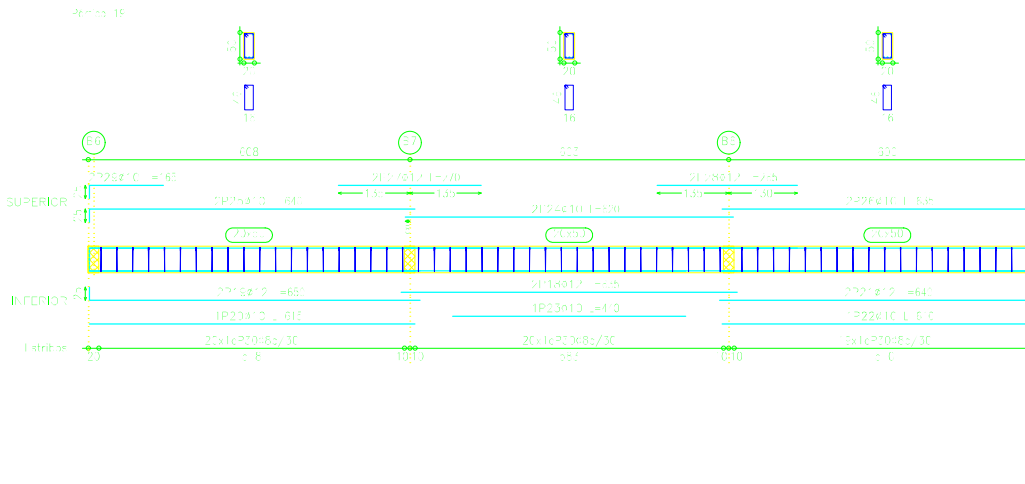
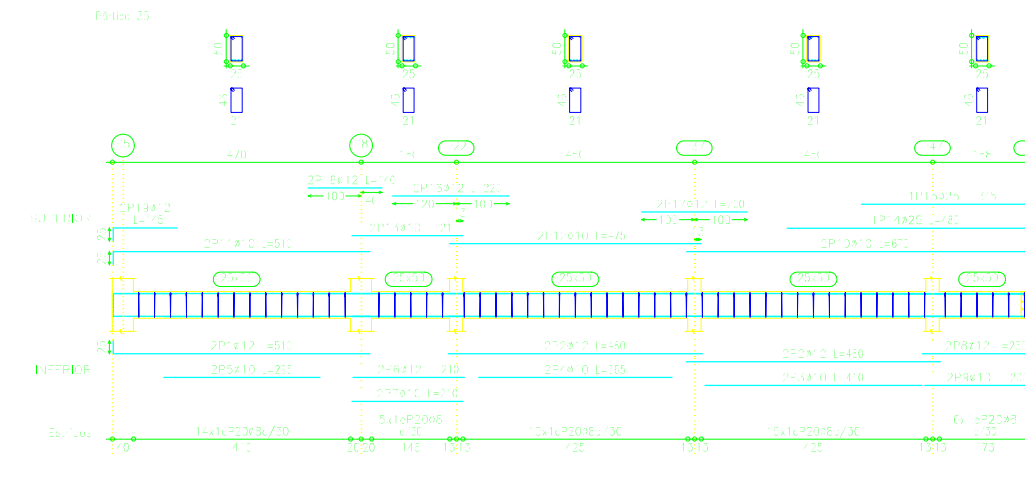
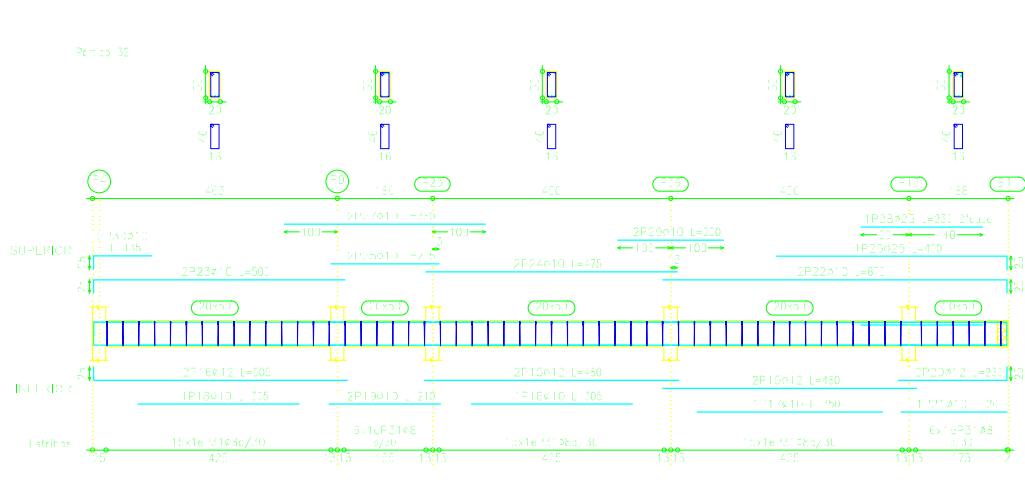
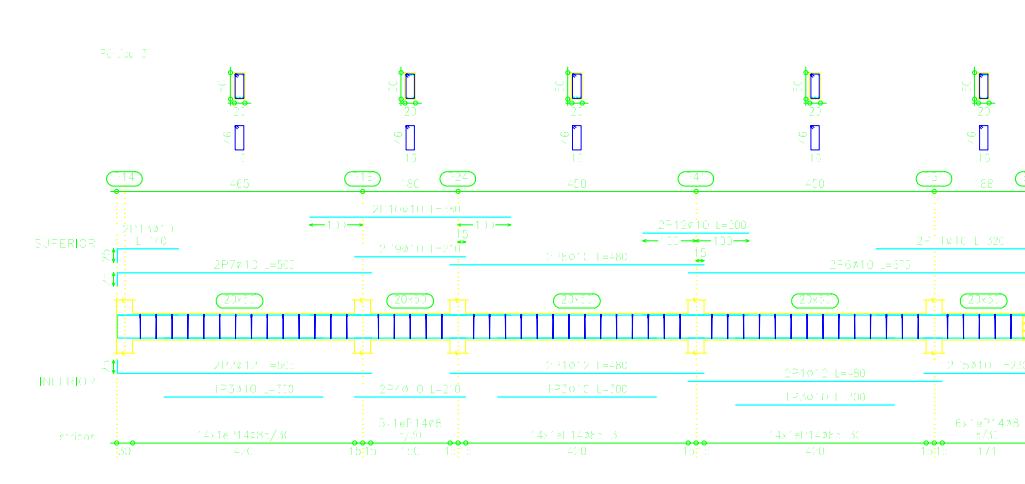
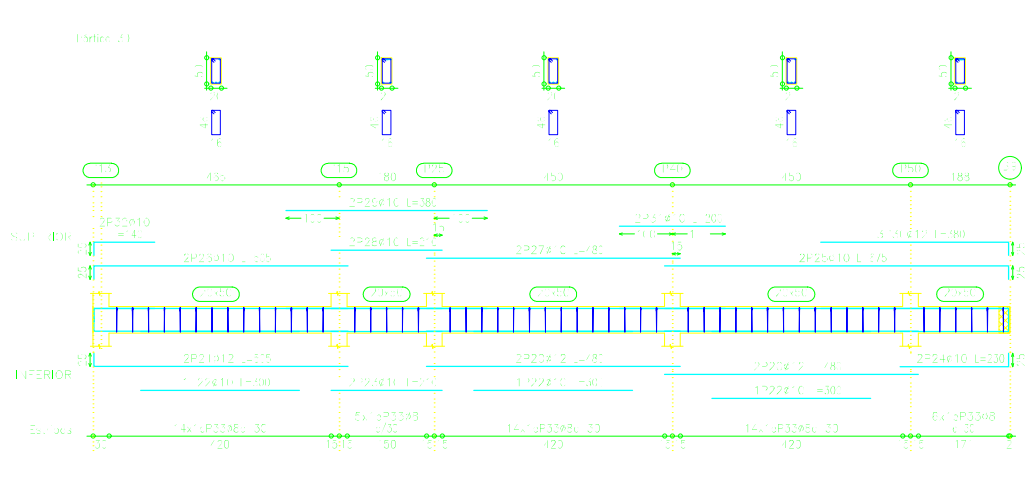
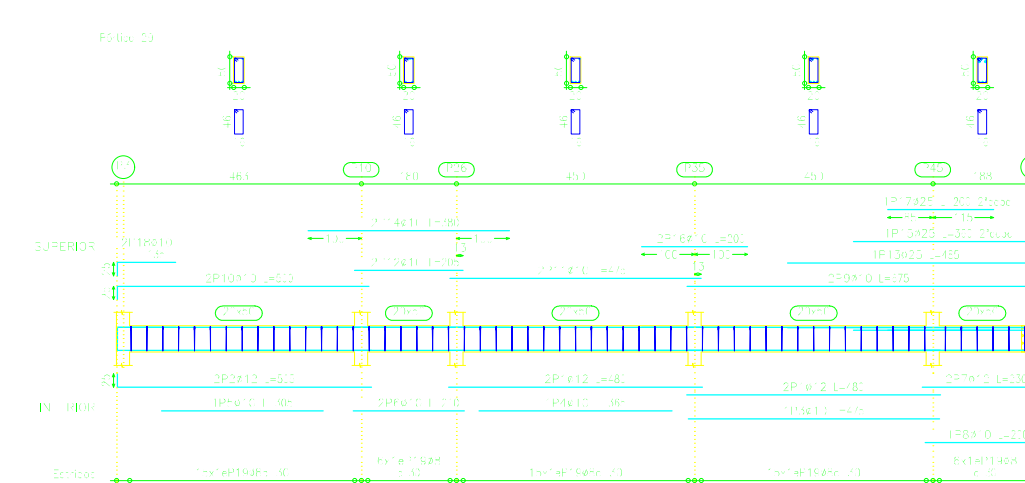
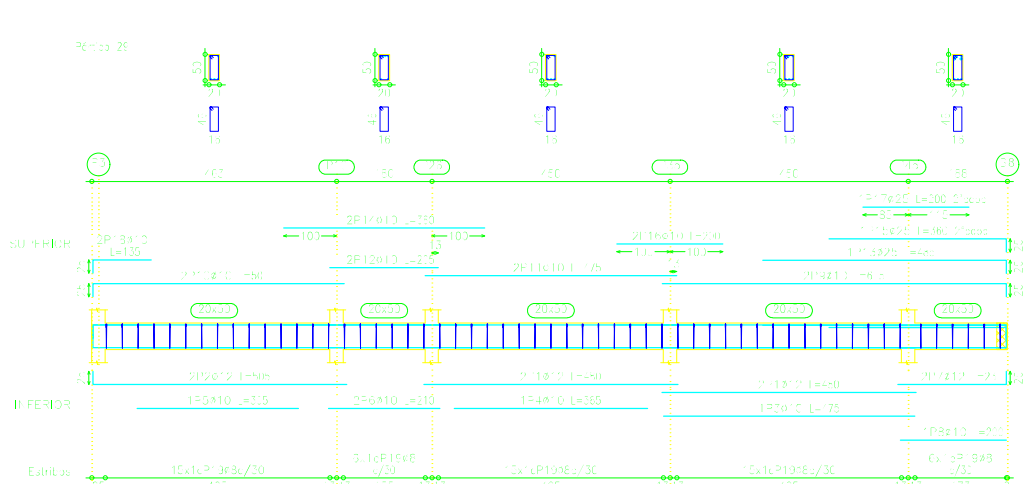
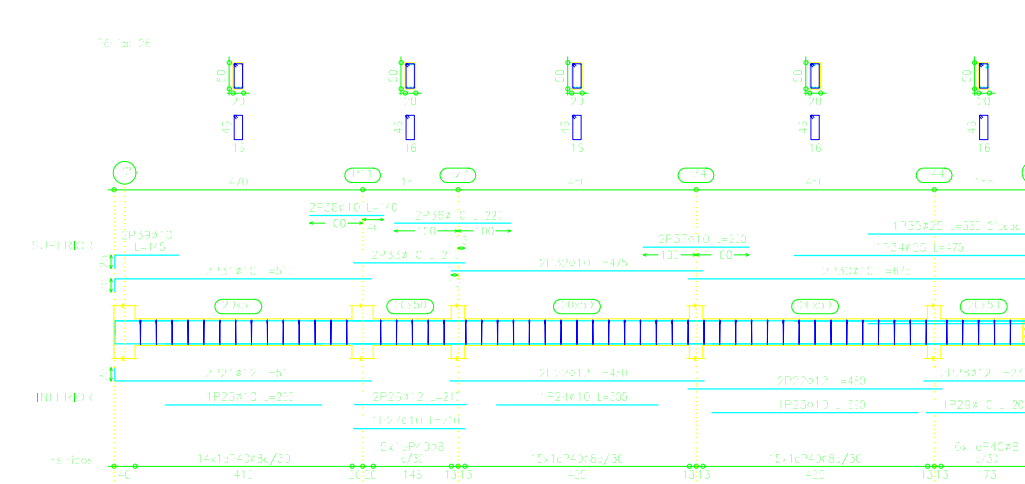
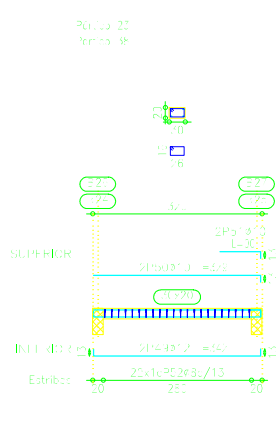
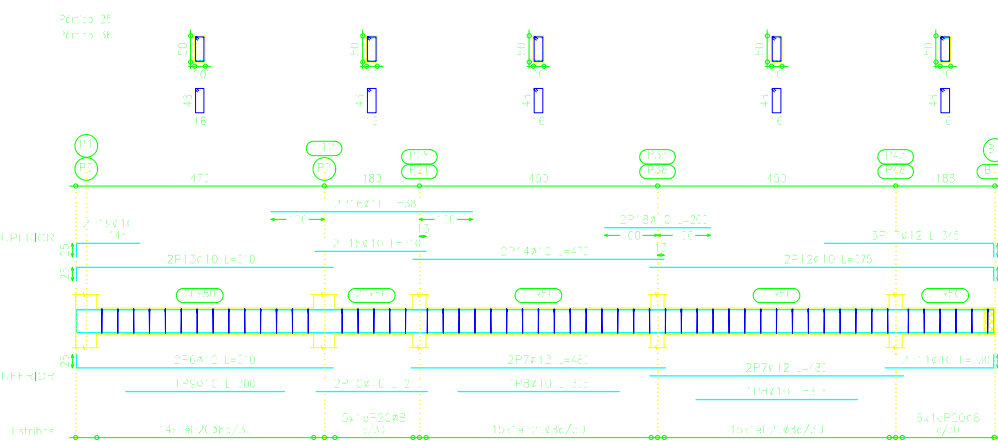
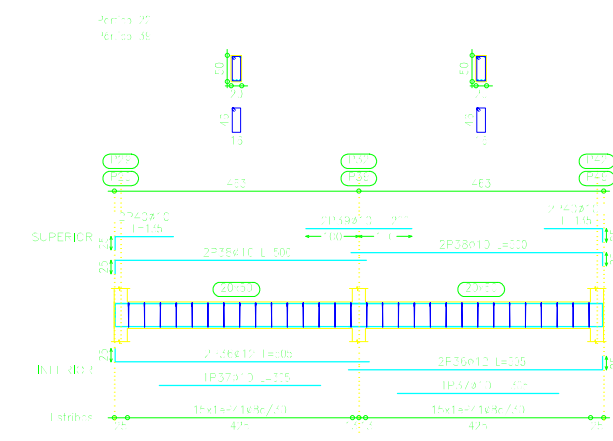
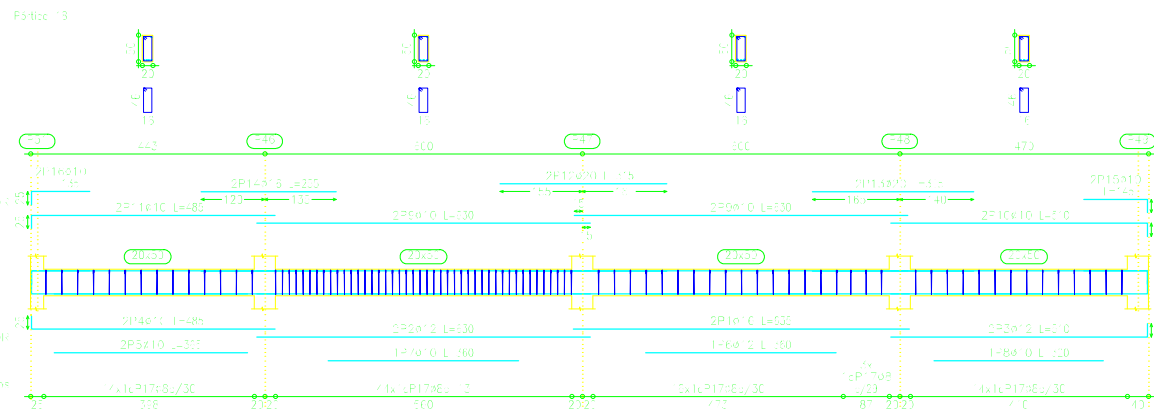
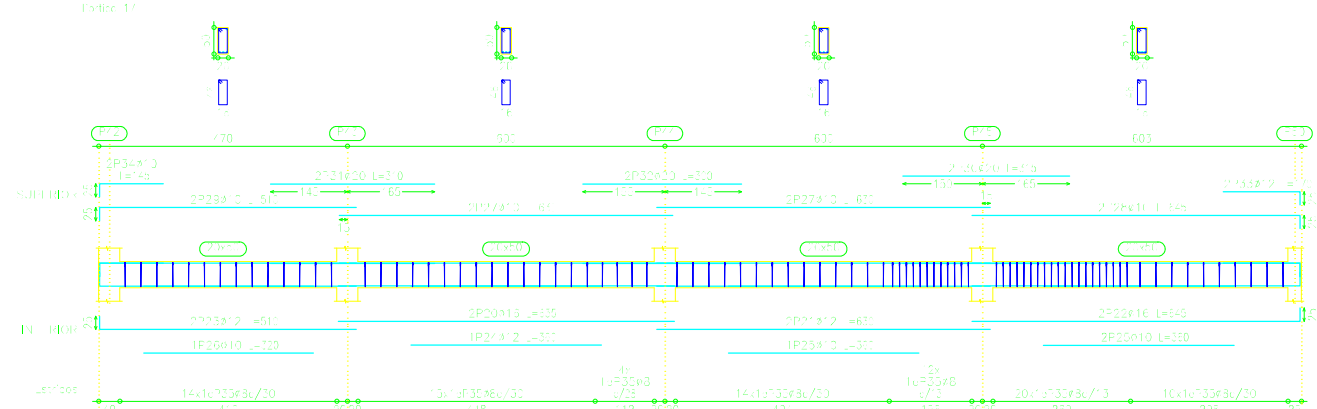
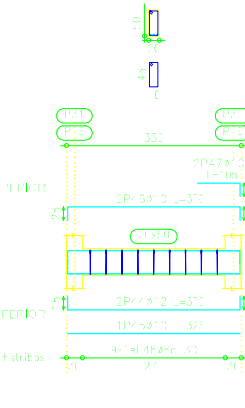
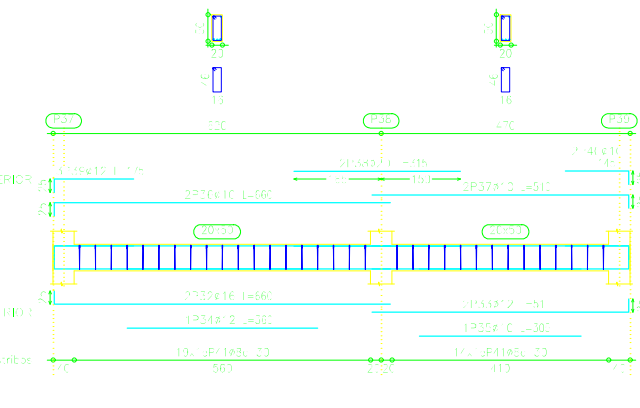
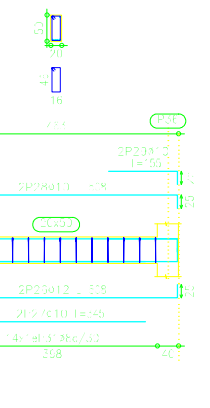
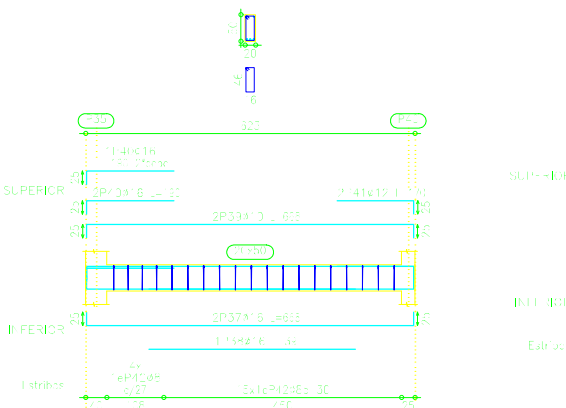
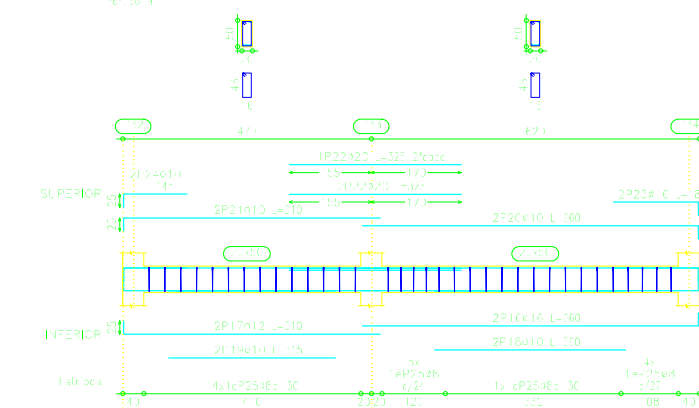
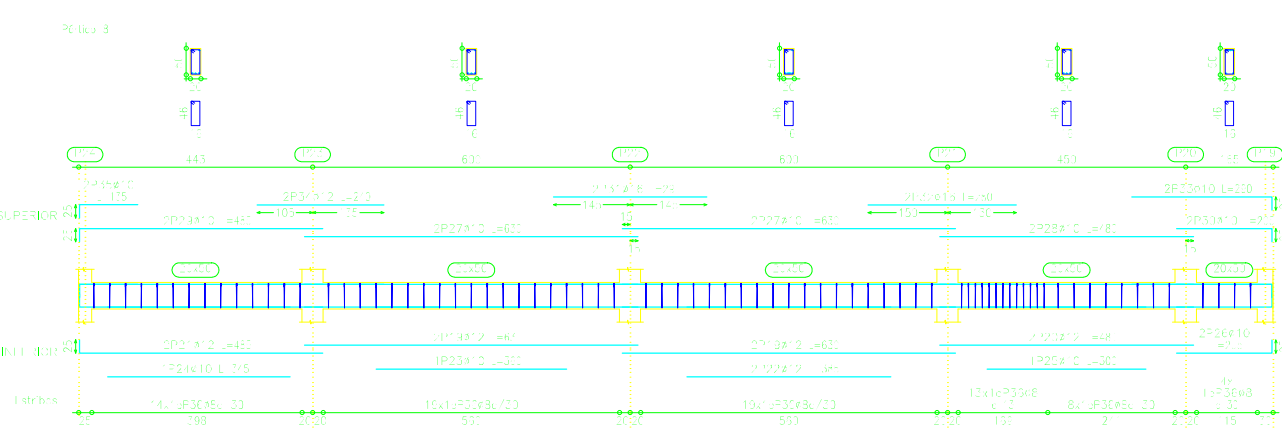
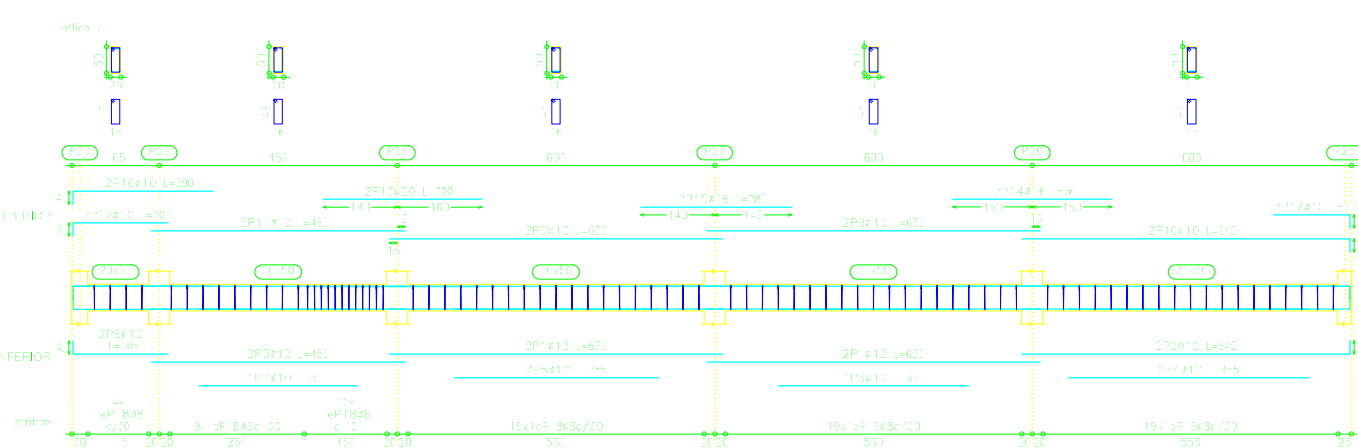
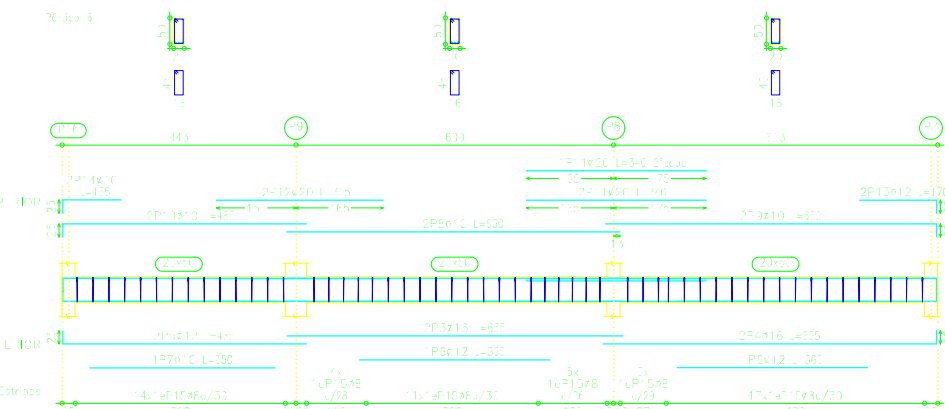
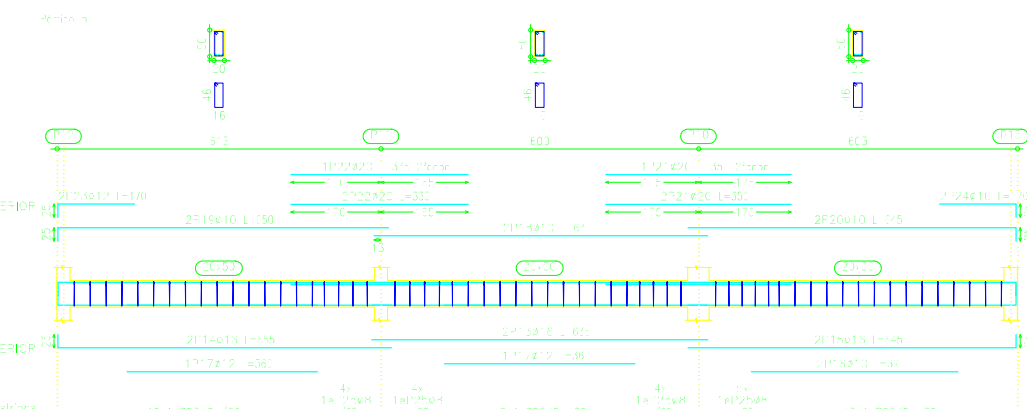
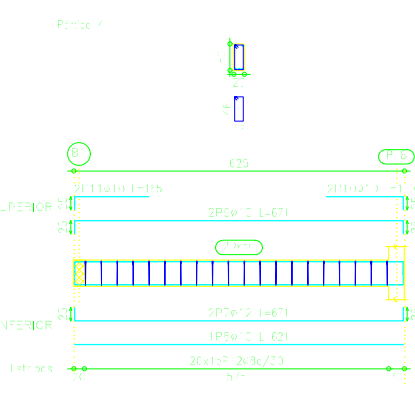
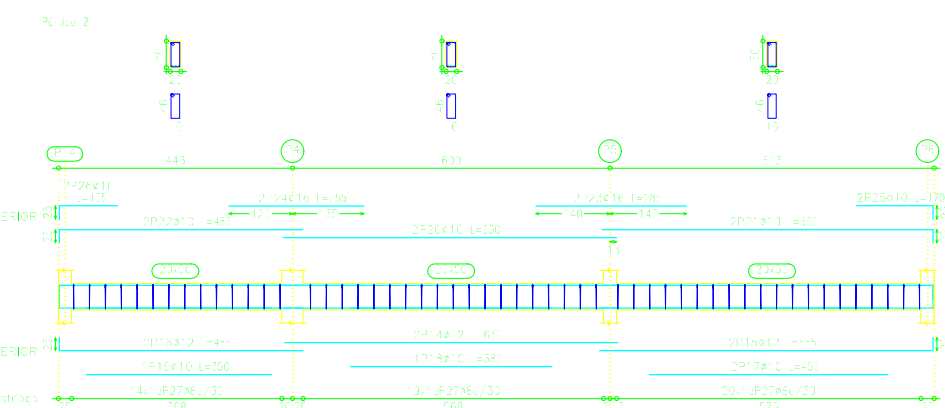
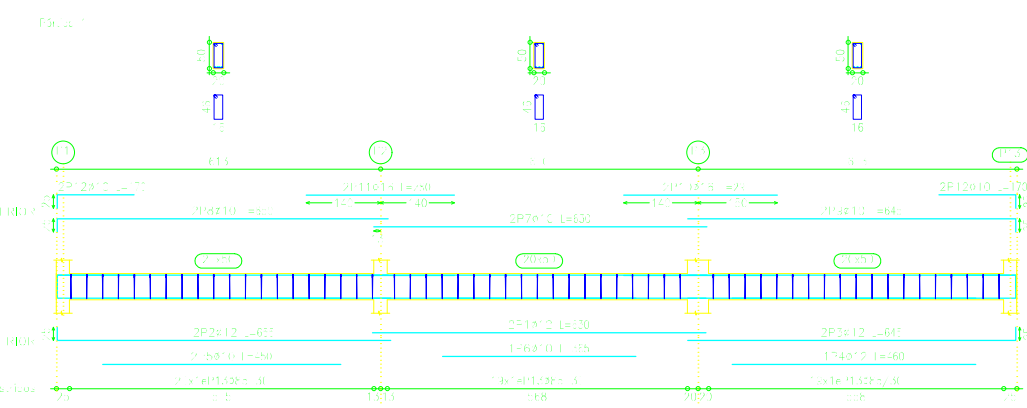
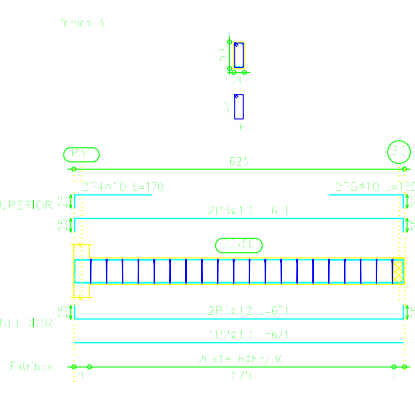
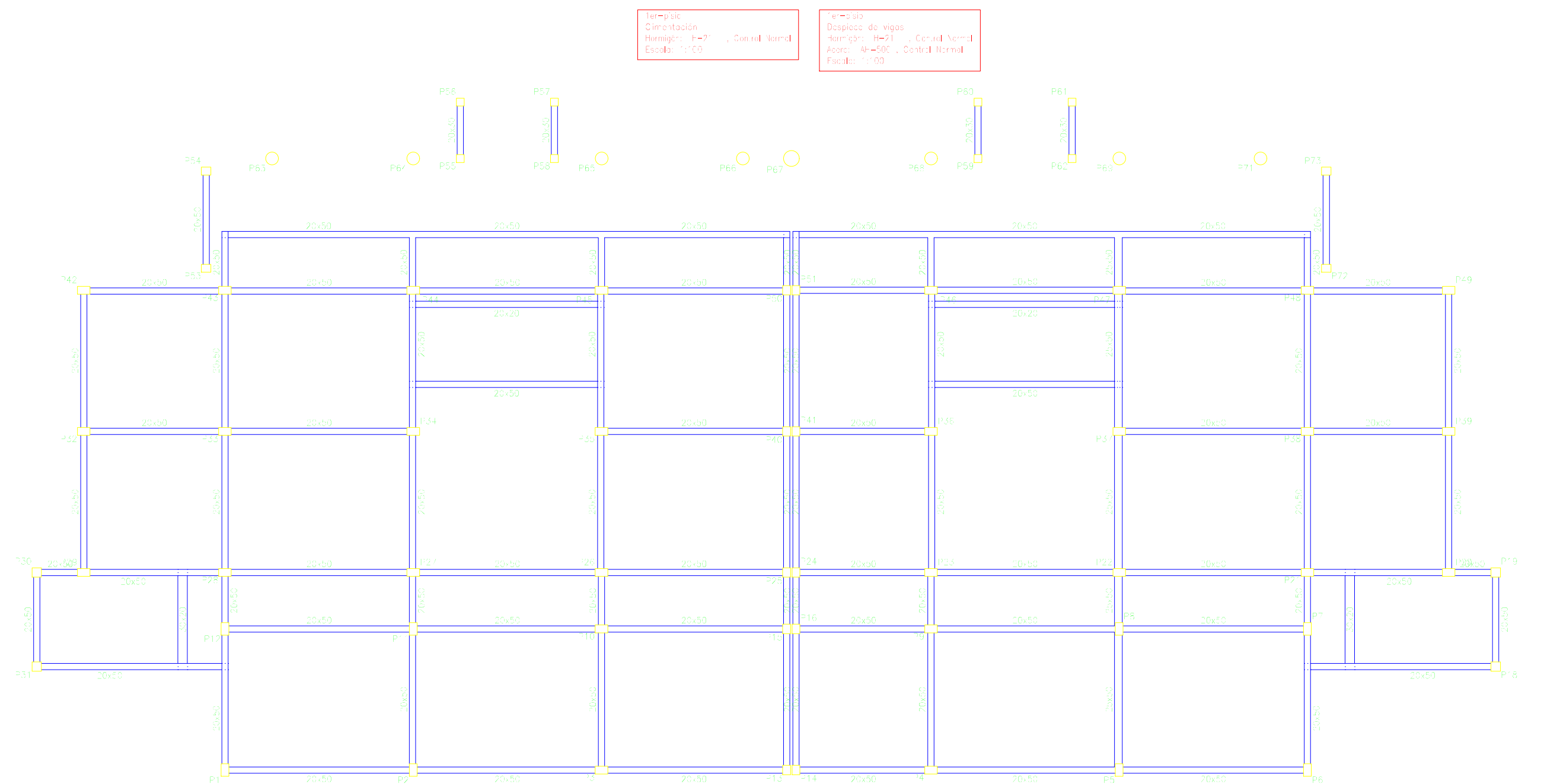




| Elemento            | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH-500CN<br>(kg) |
|---------------------|------|-------|-----|---------------|---------------|------------------|
| Pórtico 4           | 1    | ø12   | 2   | 671           | 1342          | 11.9             |
|                     | 2    | ø10   | 1   | 370           | 370           | 2.3              |
|                     | 3    | ø10   | 2   | 671           | 1342          | 8.3              |
|                     | 4    | ø12   | 2   | 170           | 340           | 3.0              |
|                     | 5    | ø10   | 2   | 165           | 330           | 2.0              |
|                     | 6    | ø8    | 34  | 120           | 4080          | 13.1             |
| Total+10%:          |      |       |     |               |               | 43.0             |
| Pórtico 5           | 7    | ø12   | 2   | 630           | 1260          | 11.2             |
|                     | 8    | ø12   | 2   | 655           | 1310          | 11.6             |
|                     | 9    | ø12   | 2   | 645           | 1290          | 11.5             |
|                     | 10   | ø10   | 2   | 630           | 1260          | 7.8              |
|                     | 11   | ø10   | 2   | 650           | 1300          | 8.0              |
|                     | 12   | ø10   | 2   | 645           | 1290          | 8.0              |
|                     | 13   | ø12   | 2   | 270           | 540           | 4.8              |
|                     | 14   | ø12   | 2   | 265           | 530           | 4.7              |
|                     | 15   | ø10   | 4   | 170           | 680           | 4.2              |
|                     | 16   | ø8    | 101 | 120           | 12120         | 47.8             |
| Total+10%:          |      |       |     |               |               | 131.6            |
| Pórtico 7           | 17   | ø12   | 2   | 660           | 1320          | 11.7             |
|                     | 18   | ø12   | 2   | 480           | 960           | 8.5              |
|                     | 19   | ø12   | 2   | 205           | 410           | 3.6              |
|                     | 20   | ø10   | 2   | 660           | 1320          | 8.1              |
|                     | 21   | ø10   | 2   | 480           | 960           | 5.9              |
|                     | 22   | ø10   | 2   | 205           | 410           | 2.5              |
|                     | 23   | ø10   | 2   | 235           | 470           | 2.9              |
|                     | 24   | ø10   | 2   | 165           | 330           | 2.0              |
|                     | 25   | ø10   | 2   | 175           | 350           | 2.2              |
|                     | 26   | ø10   | 2   | 105           | 210           | 1.3              |
|                     | 27   | ø8    | 65  | 120           | 7800          | 30.8             |
| Total+10%:          |      |       |     |               |               | 37.5             |
| Elemento            | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH-500CN<br>(kg) |
| Pórtico 1           | 1    | ø12   | 2   | 630           | 1260          | 11.2             |
|                     | 2    | ø12   | 2   | 655           | 1310          | 11.6             |
|                     | 3    | ø12   | 2   | 645           | 1290          | 11.5             |
|                     | 4    | ø10   | 2   | 630           | 1260          | 7.8              |
|                     | 5    | ø10   | 2   | 650           | 1300          | 8.0              |
|                     | 6    | ø10   | 2   | 645           | 1290          | 8.0              |
|                     | 7    | ø10   | 2   | 275           | 550           | 3.4              |
|                     | 8    | ø12   | 2   | 265           | 530           | 4.7              |
|                     | 9    | ø10   | 4   | 170           | 680           | 4.2              |
|                     | 10   | ø8    | 101 | 120           | 12120         | 47.8             |
| Total+10%:          |      |       |     |               |               | 133.0            |
| Pórtico 2=Pórtico 6 | 11   | ø12   | 2   | 630           | 1260          | 11.2             |
|                     | 12   | ø12   | 2   | 655           | 1310          | 11.6             |
|                     | 13   | ø12   | 2   | 485           | 970           | 8.6              |
|                     | 14   | ø10   | 2   | 630           | 1260          | 7.8              |
|                     | 15   | ø10   | 2   | 650           | 1300          | 8.0              |
|                     | 16   | ø10   | 2   | 485           | 970           | 6.0              |
|                     | 17   | ø12   | 2   | 270           | 540           | 4.8              |
|                     | 18   | ø10   | 2   | 230           | 460           | 2.8              |
|                     | 19   | ø10   | 2   | 170           | 340           | 2.1              |
|                     | 20   | ø10   | 2   | 135           | 270           | 1.7              |
|                     | 21   | ø8    | 52  | 120           | 11040         | 43.6             |
| Total+10%:          |      |       |     |               |               | 119.0            |
| Pórtico 3           | 22   | ø12   | 2   | 671           | 1342          | 11.9             |
|                     | 23   | ø10   | 1   | 370           | 370           | 2.3              |
|                     | 24   | ø10   | 2   | 671           | 1342          | 8.3              |
|                     | 25   | ø12   | 2   | 170           | 340           | 3.0              |
|                     | 26   | ø10   | 2   | 165           | 330           | 2.0              |
|                     | 27   | ø8    | 34  | 120           | 4080          | 13.1             |
| Total+10%:          |      |       |     |               |               | 43.0             |
| Elemento            | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH-500CN<br>(kg) |
| Pórtico 13          | 1    | ø12   | 2   | 660           | 1320          | 11.7             |
|                     | 2    | ø12   | 2   | 530           | 1060          | 9.2              |
|                     | 3    | ø12   | 1   | 270           | 270           | 2.4              |
|                     | 4    | ø10   | 2   | 660           | 1320          | 8.1              |
|                     | 5    | ø10   | 2   | 510           | 1020          | 6.3              |
|                     | 6    | ø12   | 2   | 235           | 470           | 4.2              |
|                     | 7    | ø10   | 2   | 175           | 350           | 2.2              |
|                     | 8    | ø12   | 2   | 145           | 290           | 2.6              |
|                     | 9    | ø10   | 2   | 480           | 960           | 5.9              |
|                     | 10   | ø8    | 14  | 160           | 2240          | 8.8              |
|                     | 11   | ø8    | 33  | 120           | 3960          | 15.6             |
| Total+10%:          |      |       |     |               |               | 35.0             |
| Pórtico 16          | 12   | ø12   | 2   | 660           | 1320          | 11.7             |
|                     | 13   | ø12   | 2   | 510           | 1020          | 9.1              |
|                     | 14   | ø10   | 2   | 660           | 1320          | 8.1              |
|                     | 15   | ø10   | 2   | 510           | 1020          | 6.3              |
|                     | 16   | ø10   | 2   | 235           | 470           | 2.9              |
|                     | 17   | ø10   | 2   | 175           | 350           | 2.2              |
|                     | 18   | ø10   | 2   | 145           | 290           | 1.8              |
|                     | 19   | ø8    | 58  | 120           | 6960          | 27.5             |
| Total+10%:          |      |       |     |               |               | 75.6             |
| Pórtico 19          | 20   | ø12   | 4   | 630           | 2520          | 22.4             |
|                     | 21   | ø12   | 2   | 645           | 1290          | 11.5             |
|                     | 22   | ø12   | 2   | 510           | 1020          | 9.1              |
|                     | 23   | ø10   | 4   | 630           | 2520          | 15.5             |
|                     | 24   | ø10   | 2   | 645           | 1290          | 8.0              |
|                     | 25   | ø10   | 2   | 510           | 1020          | 6.3              |
|                     | 26   | ø10   | 2   | 270           | 540           | 3.3              |
|                     | 27   | ø10   | 2   | 265           | 530           | 3.3              |
|                     | 28   | ø10   | 2   | 235           | 470           | 2.9              |
|                     | 29   | ø10   | 2   | 170           | 340           | 2.1              |
|                     | 30   | ø10   | 2   | 145           | 290           | 1.8              |
|                     | 31   | ø8    | 124 | 120           | 14880         | 58.7             |
| Total+10%:          |      |       |     |               |               | 154.4            |
| Pórtico 20          | 32   | ø12   | 4   | 630           | 2520          | 22.4             |
|                     | 33   | ø12   | 2   | 510           | 1020          | 9.1              |
|                     | 34   | ø12   | 2   | 485           | 970           | 8.6              |
|                     | 35   | ø10   | 4   | 630           | 2520          | 15.5             |
|                     | 36   | ø10   | 2   | 510           | 1020          | 6.3              |
|                     | 37   | ø10   | 2   | 485           | 970           | 6.0              |
|                     | 38   | ø12   | 2   | 270           | 540           | 4.8              |
|                     | 39   | ø12   | 2   | 235           | 470           | 4.2              |
|                     | 40   | ø10   | 2   | 230           | 460           | 2.8              |
|                     | 41   | ø10   | 2   | 145           | 290           | 1.8              |
|                     | 42   | ø10   | 2   | 135           | 270           | 1.7              |
|                     | 43   | ø8    | 115 | 120           | 13800         | 54.5             |
| Total+10%:          |      |       |     |               |               | 151.5            |

| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH-500CN<br>(kg) |
|-----------------------|------|-------|-----|---------------|---------------|------------------|
| Pórtico 21            | 1    | ø12   | 2   | 640           | 1280          | 11.4             |
|                       | 2    | ø12   | 4   | 480           | 1920          | 17.0             |
|                       | 3    | ø10   | 2   | 360           | 360           | 2.2              |
|                       | 4    | ø10   | 2   | 180           | 360           | 2.2              |
|                       | 5    | ø10   | 2   | 200           | 400           | 2.5              |
|                       | 6    | ø10   | 2   | 645           | 1290          | 8.0              |
|                       | 7    | ø10   | 2   | 635           | 1270          | 7.8              |
|                       | 8    | ø10   | 2   | 470           | 940           | 5.8              |
|                       | 9    | ø10   | 2   | 170           | 340           | 2.1              |
|                       | 10   | ø10   | 2   | 350           | 700           | 4.3              |
|                       | 11   | ø16   | 2   | 300           | 610           | 9.6              |
|                       | 12   | ø16   | 2   | 315           | 630           | 9.9              |
|                       | 13   | ø10   | 2   | 165           | 330           | 2.0              |
|                       | 14   | ø8    | 103 | 120           | 12360         | 48.5             |
| Total+10%:            |      |       |     |               | 147.0         |                  |
| Pórtico 22            | 15   | ø12   | 2   | 480           | 960           | 8.5              |
|                       | 16   | ø12   | 2   | 480           | 960           | 8.5              |
|                       | 17   | ø12   | 2   | 330           | 660           | 5.9              |
|                       | 18   | ø10   | 4   | 180           | 720           | 4.4              |
|                       | 19   | ø10   | 2   | 200           | 400           | 2.5              |
|                       | 20   | ø10   | 2   | 645           | 1290          | 8.0              |
|                       | 21   | ø10   | 2   | 475           | 950           | 5.9              |
|                       | 22   | ø10   | 2   | 320           | 640           | 3.9              |
|                       | 23   | ø10   | 4   | 170           | 680           | 4.2              |
|                       | 24   | ø10   | 2   | 320           | 640           | 3.9              |
|                       | 25   | ø10   | 2   | 315           | 630           | 3.9              |
|                       | 26   | ø16   | 2   | 315           | 630           | 9.9              |
|                       | 27   | ø10   | 2   | 130           | 260           | 1.6              |
|                       | 28   | ø8    | 93  | 120           | 11160         | 44.0             |
| Total+10%:            |      |       |     |               | 126.6         |                  |
| Pórtico 23=Pórtico 42 | 29   | ø12   | 2   | 370           | 752           | 6.7              |
|                       | 30   | ø10   | 2   | 370           | 752           | 4.6              |
|                       | 31   | ø10   | 4   | 105           | 420           | 2.6              |
|                       | 32   | ø8    | 16  | 120           | 1920          | 7.6              |
| Total+10%:            |      |       |     |               | 23.7          |                  |
| Pórtico 24=Pórtico 41 | 33   | ø12   | 4   | 500           | 2000          | 17.9             |
|                       | 34   | ø10   | 4   | 500           | 2000          | 12.3             |
|                       | 35   | ø10   | 2   | 200           | 400           | 2.5              |
|                       | 36   | ø10   | 4   | 135           | 540           | 3.3              |
|                       | 37   | ø8    | 50  | 120           | 6000          | 23.7             |
| Total+10%:            |      |       |     |               | 65.7          |                  |
| Pórtico 25=Pórtico 40 | 38   | ø12   | 2   | 381           | 762           | 6.8              |
|                       | 39   | ø10   | 2   | 381           | 762           | 4.7              |
|                       | 40   | ø10   | 2   | 130           | 260           | 1.6              |
|                       | 41   | ø8    | 17  | 120           | 2040          | 8.1              |
| Total+10%:            |      |       |     |               | 23.3          |                  |
| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH-500CN<br>(kg) |
| Pórtico 26=Pórtico 39 | 1    | ø12   | 2   | 530           | 1060          | 9.2              |
|                       | 2    | ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 3    | ø12   | 4   | 480           | 1920          | 17.0             |
|                       | 4    | ø10   | 2   | 210           | 420           | 2.6              |
|                       | 5    | ø10   | 2   | 525           | 1050          | 6.5              |
|                       | 6    | ø10   | 2   | 510           | 1020          | 6.3              |
|                       | 7    | ø10   | 4   | 475           | 1900          | 11.7             |
|                       | 8    | ø10   | 2   | 210           | 420           | 2.6              |
|                       | 9    | ø12   | 2   | 380           | 760           | 6.7              |
|                       | 10   | ø10   | 2   | 215           | 430           | 3.8              |
|                       | 11   | ø10   | 2   | 200           | 400           | 2.5              |
|                       | 12   | ø10   | 2   | 145           | 290           | 1.8              |
|                       | 13   | ø8    | 11  | 120           | 1320          | 52.6             |
| Total+10%:            |      |       |     |               | 145.9         |                  |
| Pórtico 27=Pórtico 38 | 14   | ø12   | 2   | 470           | 940           | 8.3              |
|                       | 15   | ø10   | 2   | 110           | 220           | 1.4              |
|                       | 16   | ø10   | 2   | 520           | 1040          | 6.4              |
|                       | 17   | ø12   | 2   | 315           | 630           | 5.6              |
|                       | 18   | ø8    | 27  | 120           | 3240          | 12.8             |
| Total+10%:            |      |       |     |               | 38.0          |                  |
| Pórtico 28            | 19   | ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 20   | ø12   | 4   | 480           | 1920          | 17.0             |
|                       | 21   | ø10   | 2   | 450           | 900           | 5.5              |
|                       | 22   | ø12   | 2   | 210           | 420           | 3.7              |
|                       | 23   | ø10   | 2   | 110           | 220           | 1.4              |
|                       | 24   | ø10   | 2   | 525           | 1050          | 6.5              |
|                       | 25   | ø10   | 2   | 510           | 1020          | 6.3              |
|                       | 26   | ø10   | 4   | 475           | 1900          | 11.7             |
|                       | 27   | ø10   | 2   | 210           | 420           | 2.6              |
|                       | 28   | ø10   | 2   | 615           | 1230          | 7.6              |
|                       | 29   | ø10   | 2   | 210           | 420           | 2.6              |
|                       | 30   | ø12   | 2   | 200           | 400           | 3.6              |
|                       | 31   | ø10   | 2   | 140           | 280           | 1.7              |
|                       | 32   | ø10   | 2   | 145           | 290           | 1.8              |
|                       | 33   | ø8    | 110 | 120           | 13200         | 52.1             |
| Total+10%:            |      |       |     |               | 146.5         |                  |
| Pórtico 29=Pórtico 36 | 34   | ø12   | 2   | 251           | 502           | 4.5              |
|                       | 35   | ø10   | 2   | 251           | 502           | 3.1              |
|                       | 36   | ø10   | 2   | 90            | 180           | 1.1              |
|                       | 37   | ø8    | 10  | 120           | 1200          | 4.7              |
| Total+10%:            |      |       |     |               | 14.7          |                  |
| Pórtico 30            | 38   | ø12   | 2   | 251           | 502           | 4.5              |
|                       | 39   | ø10   | 2   | 251           | 502           | 3.1              |
|                       | 40   | ø10   | 2   | 105           | 210           | 1.3              |
|                       | 41   | ø8    | 10  | 120           | 1200          | 4.7              |
| Total+10%:            |      |       |     |               | 15.0          |                  |







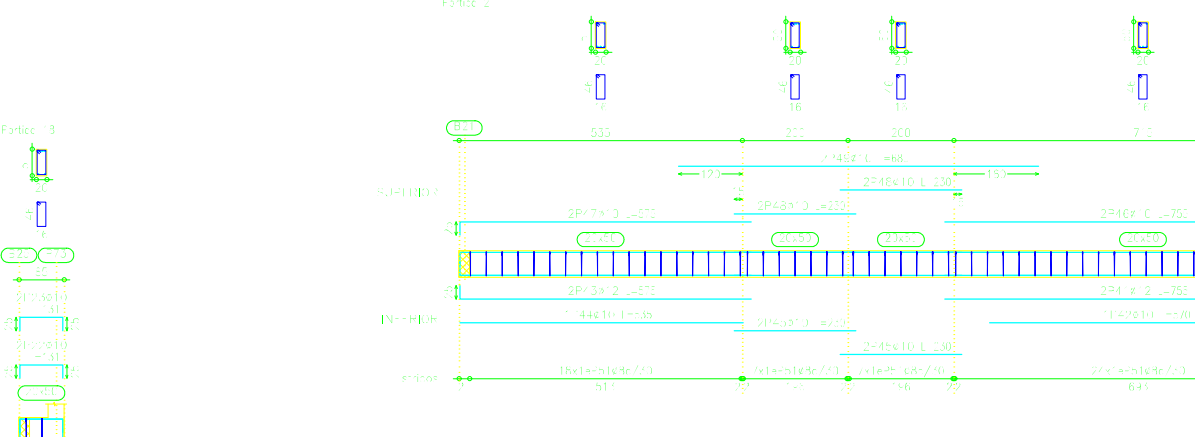
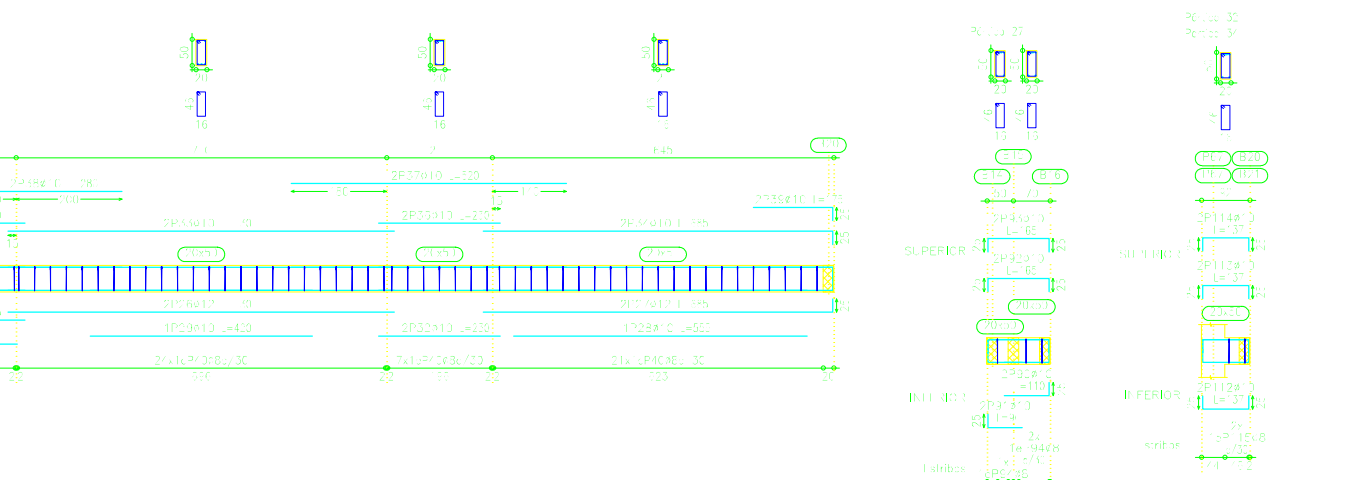
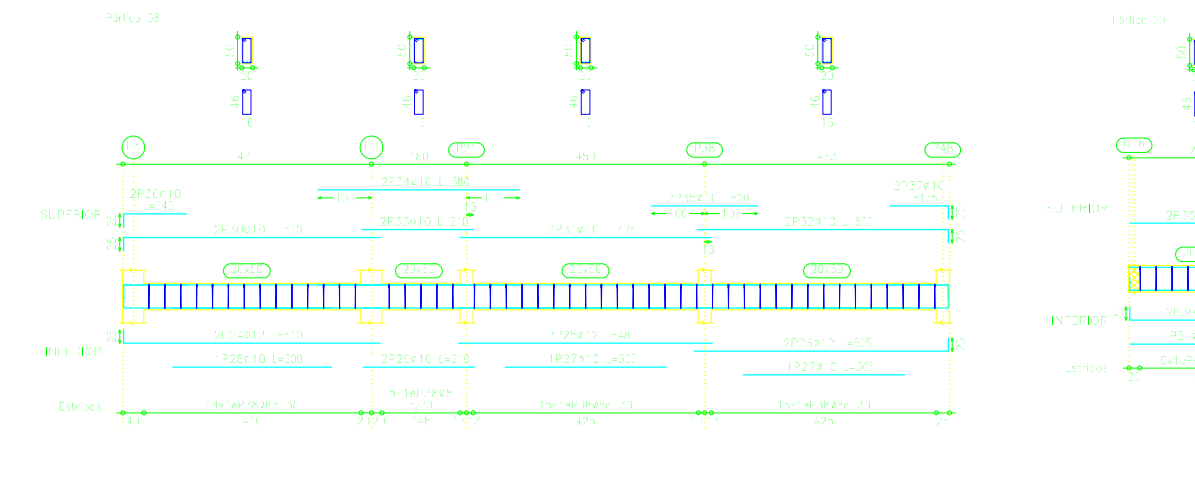
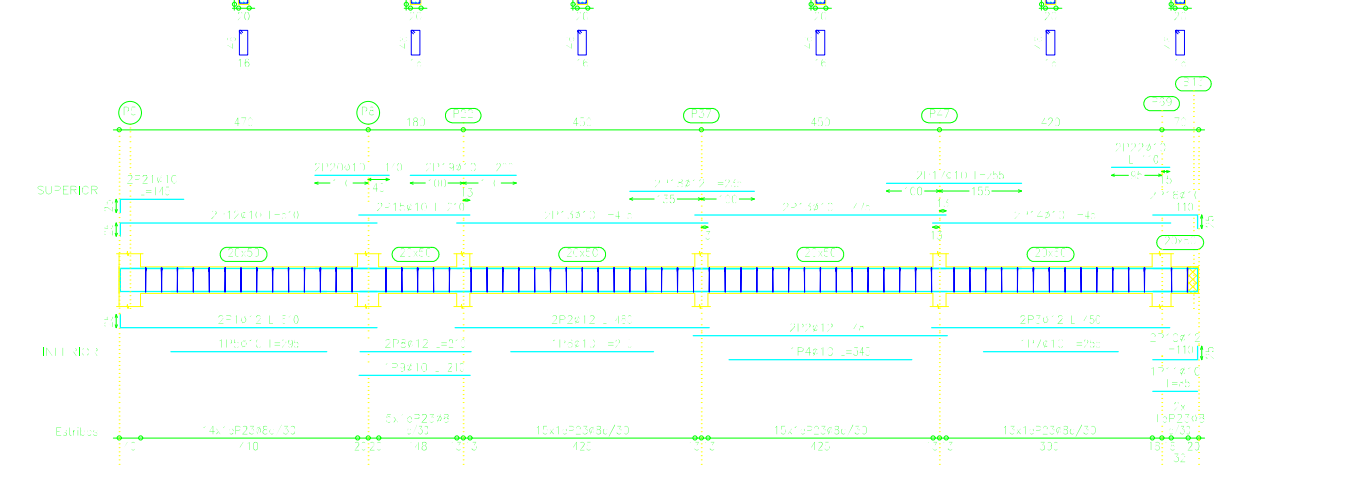
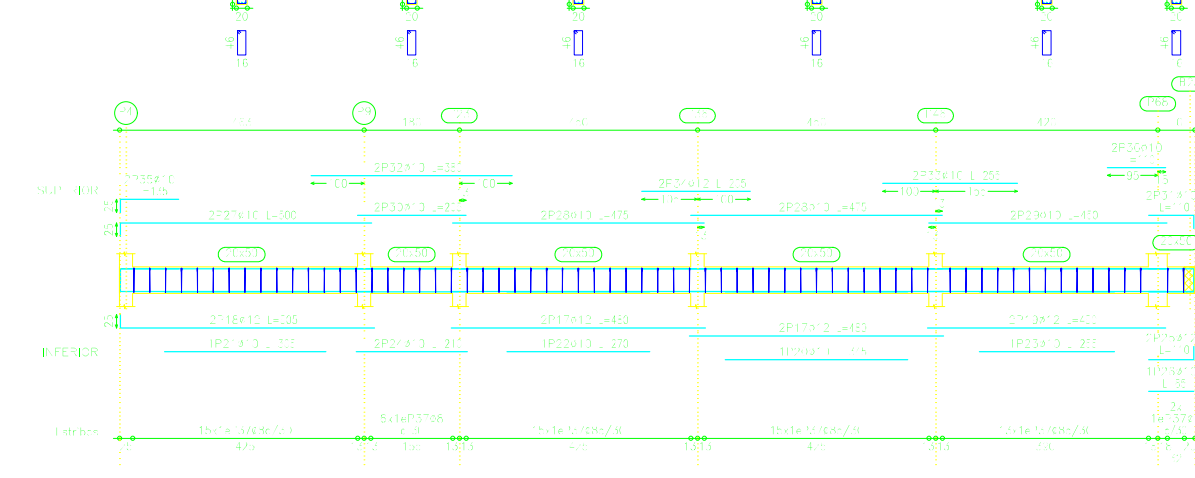
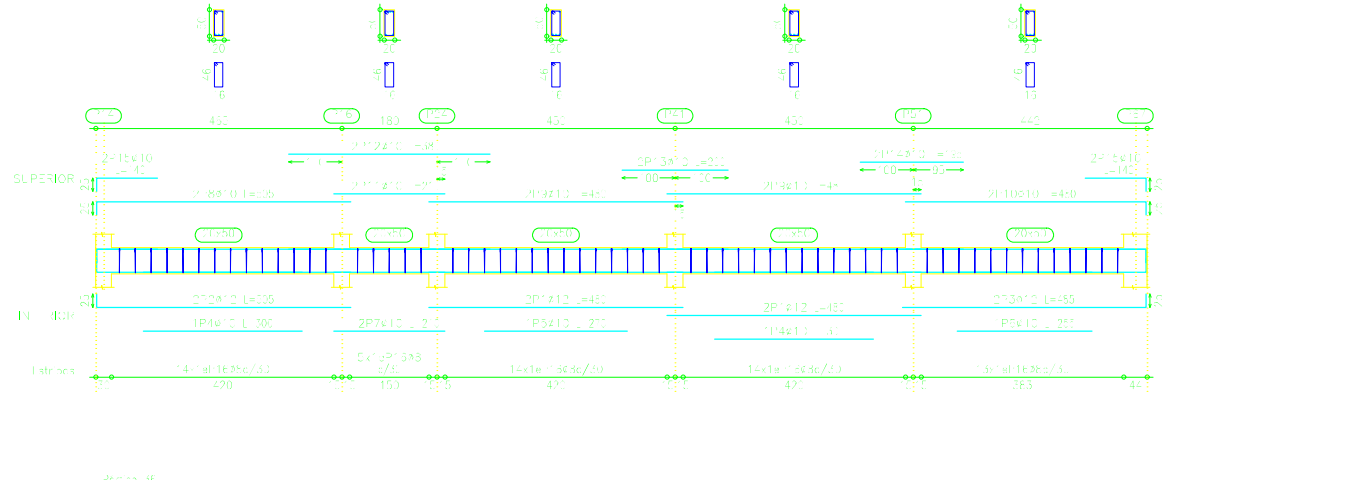
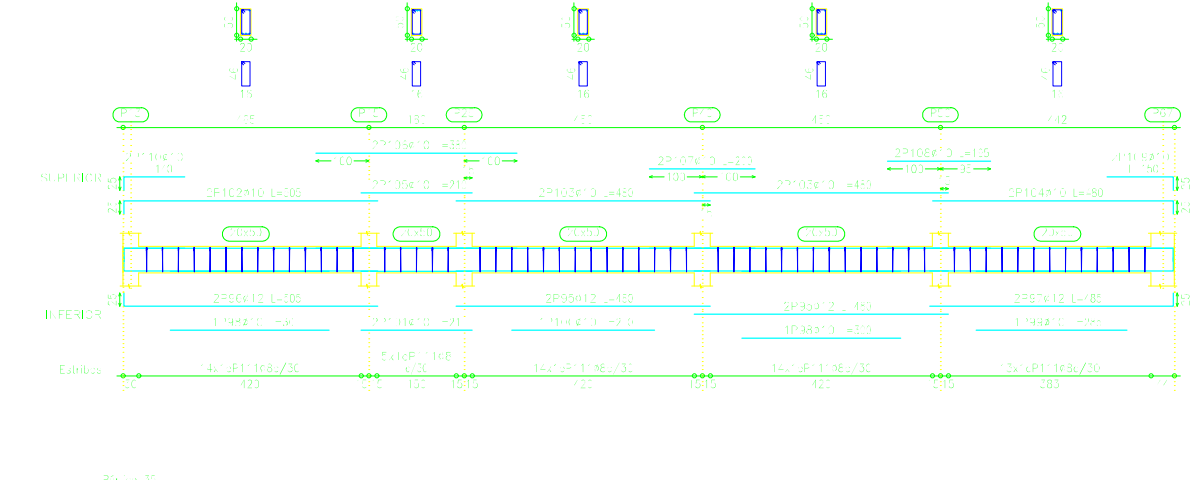
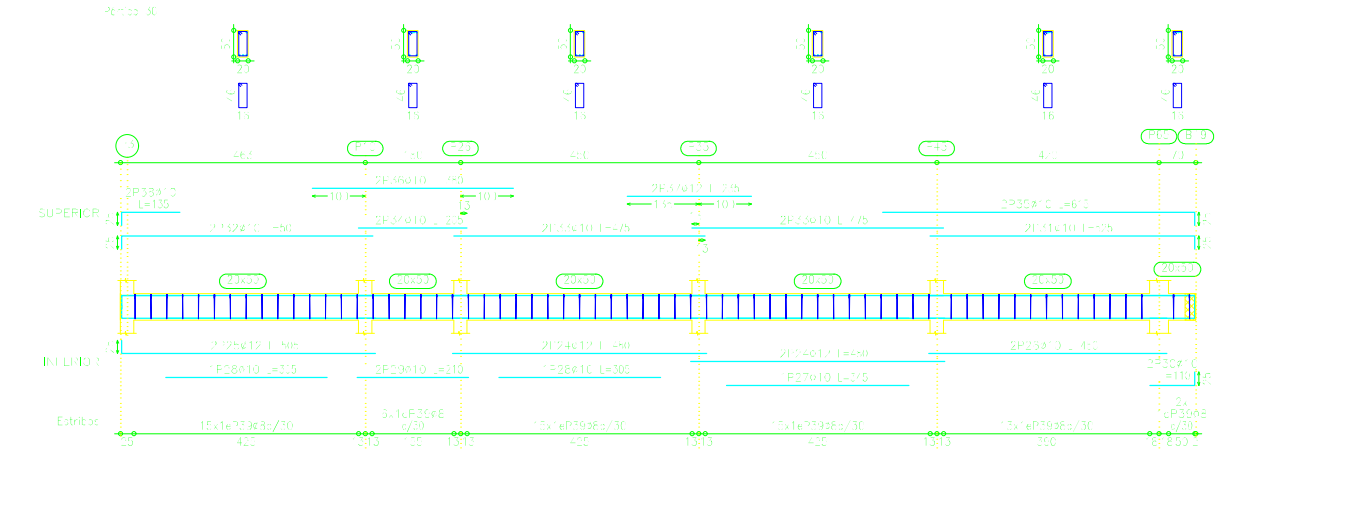
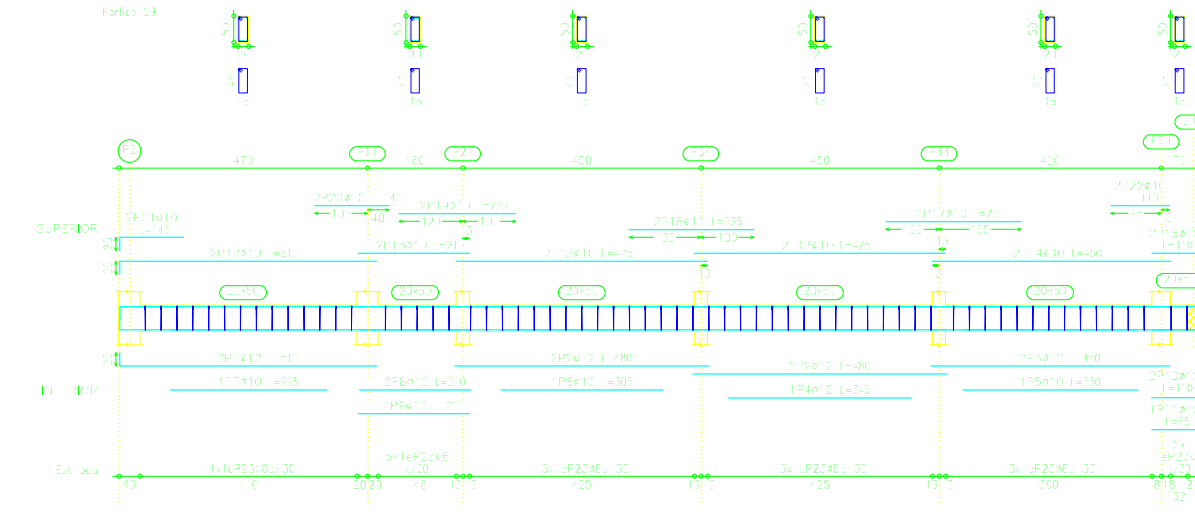
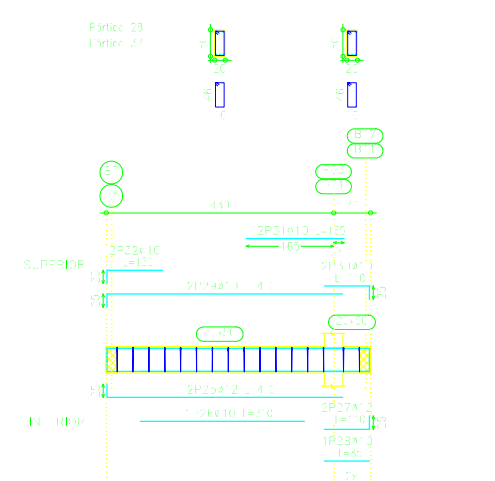
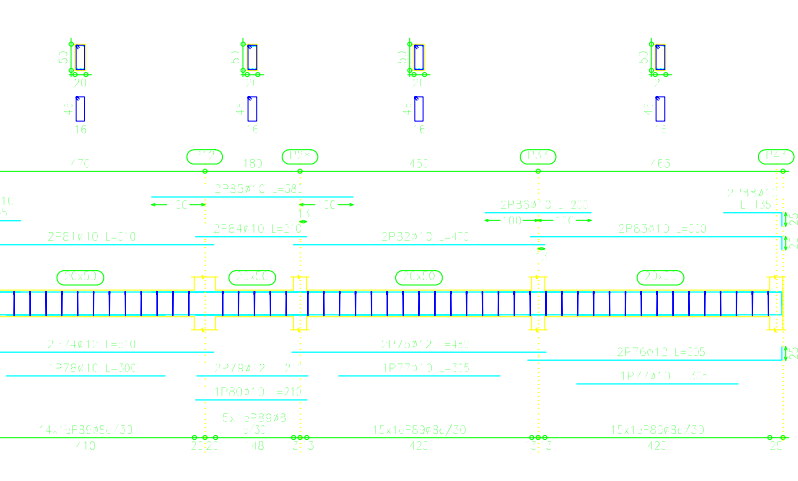
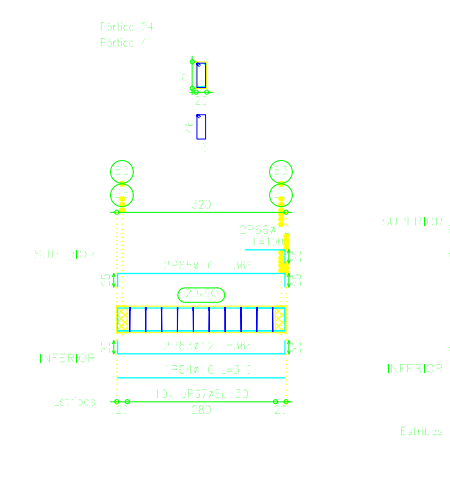
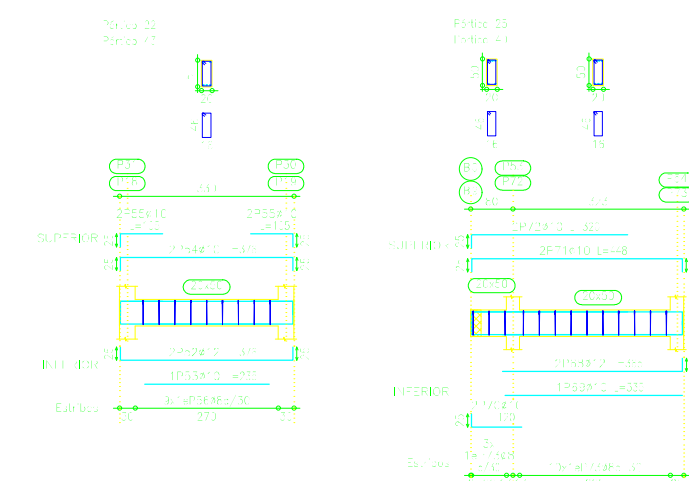
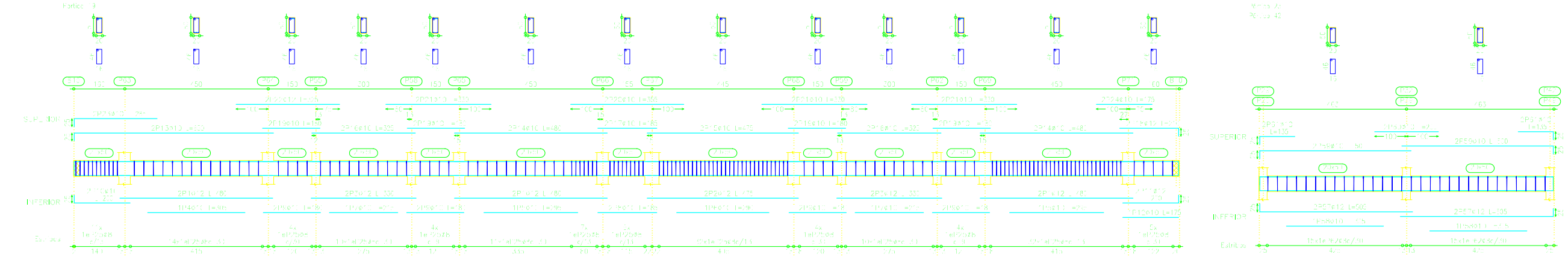
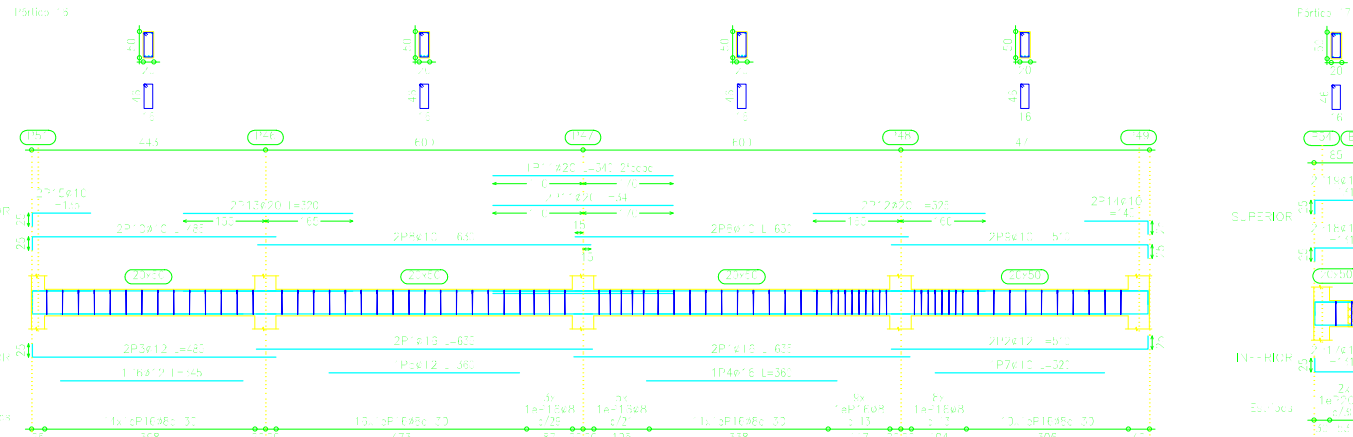
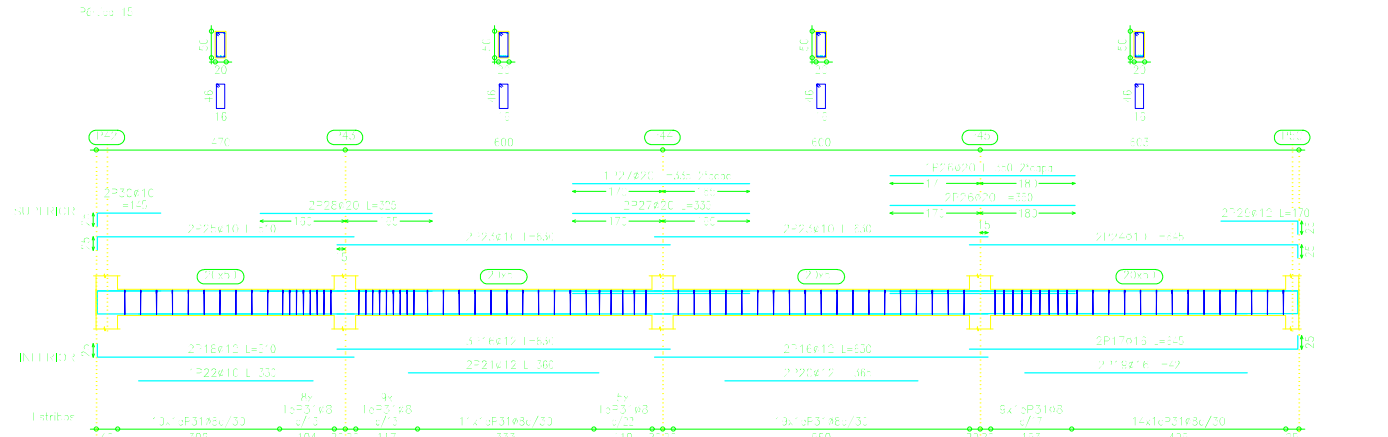
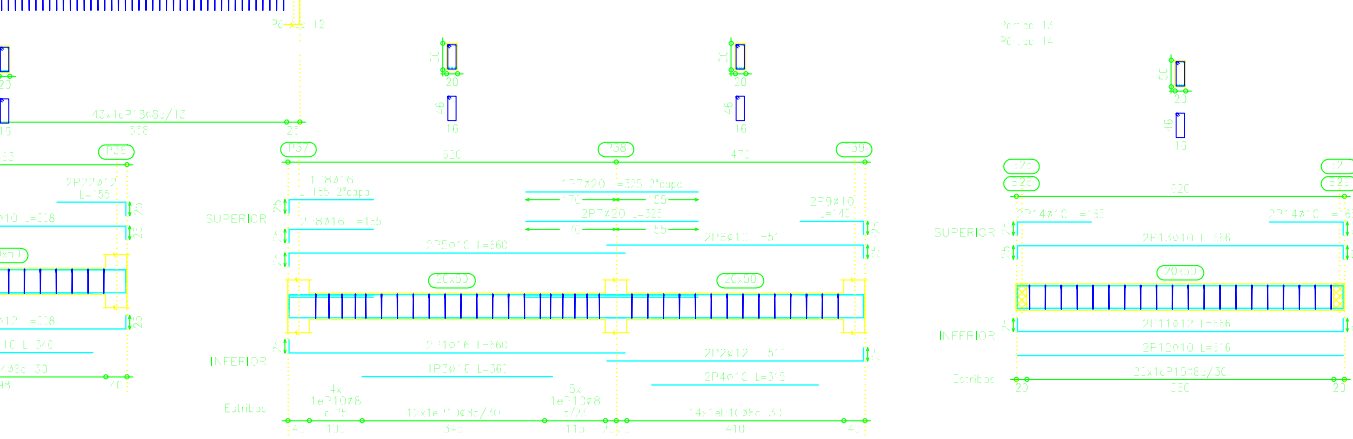
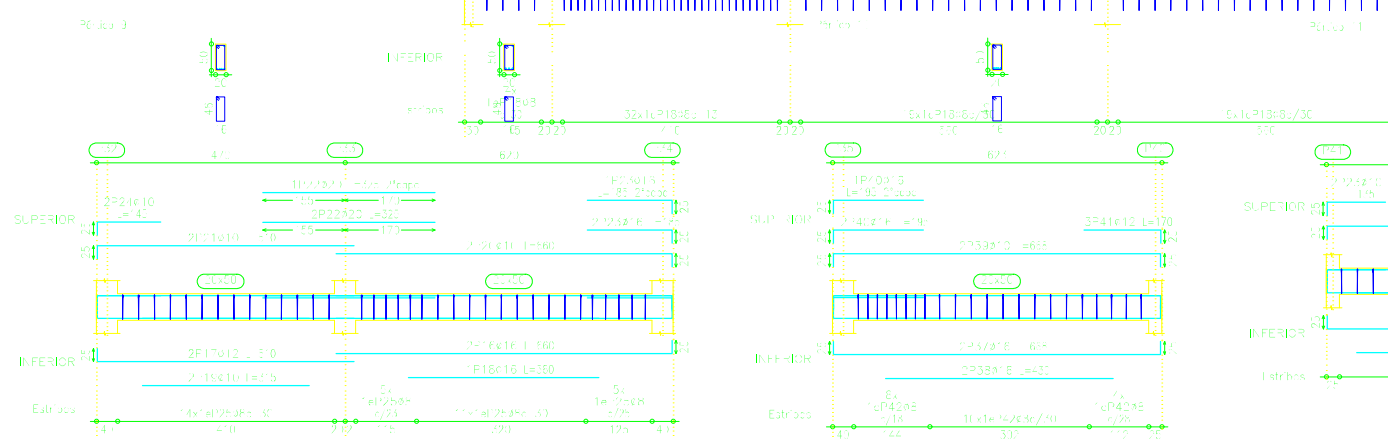
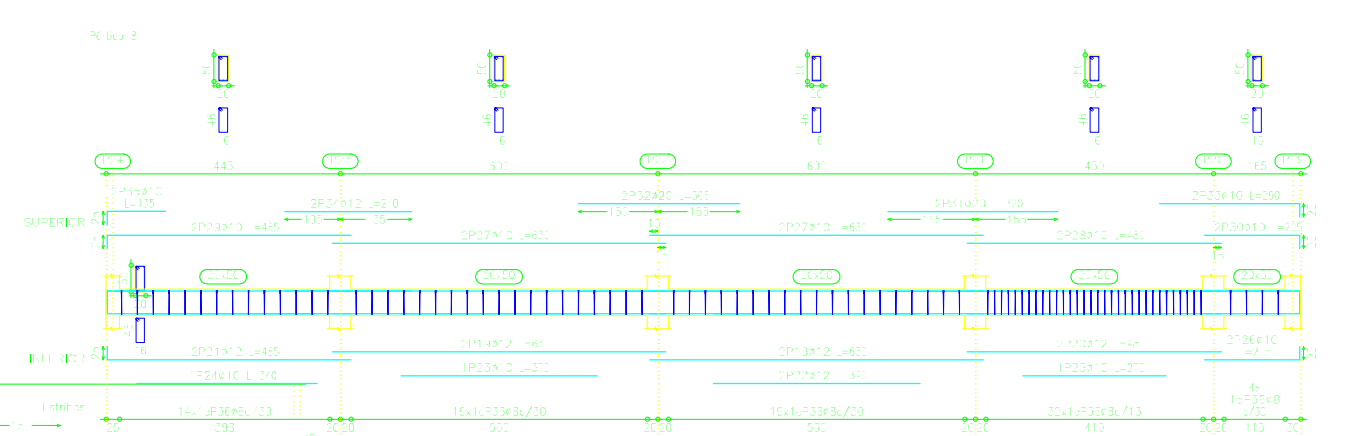
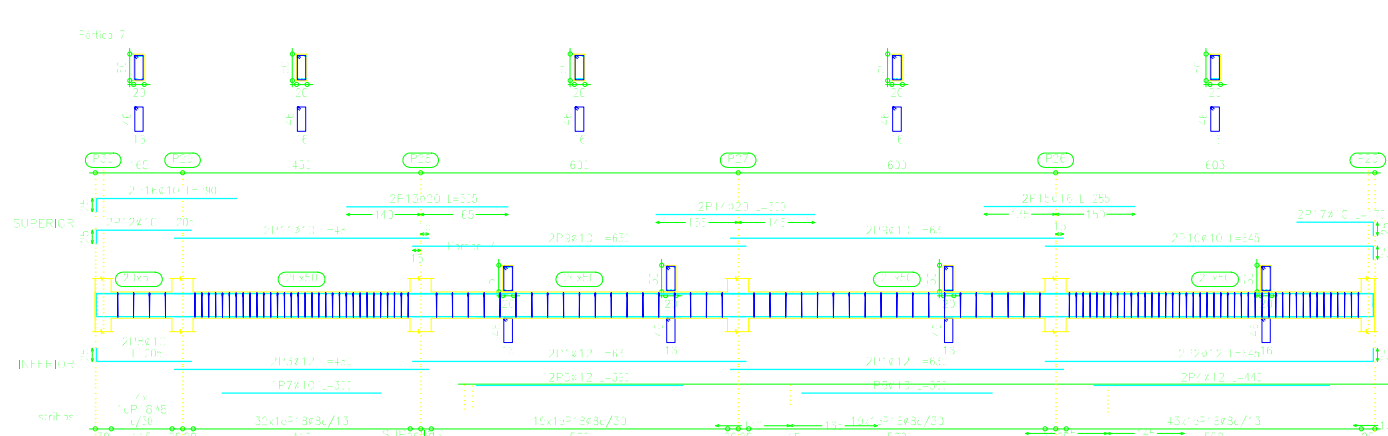
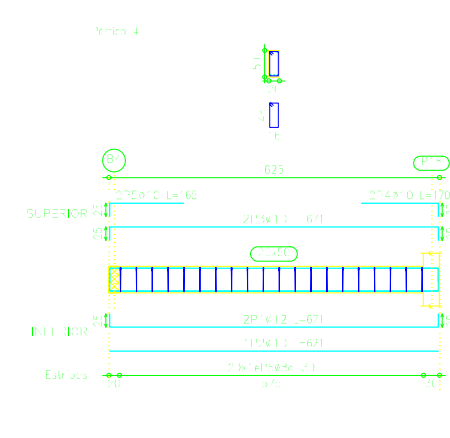
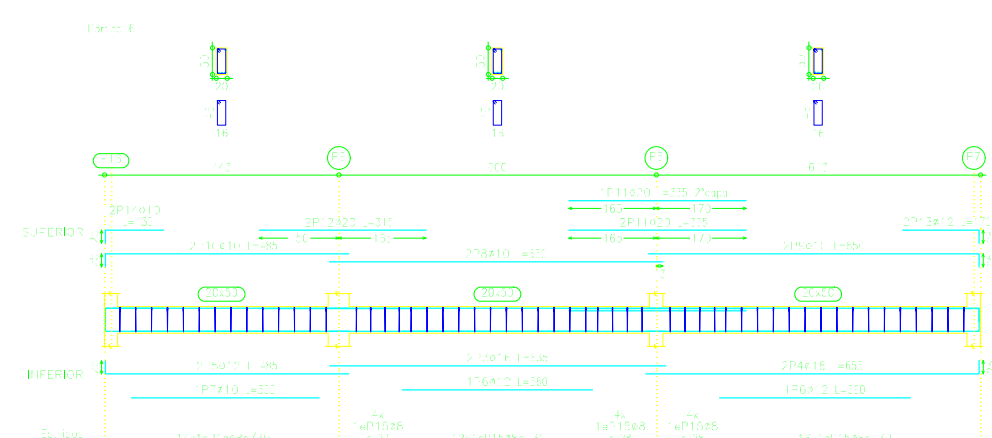
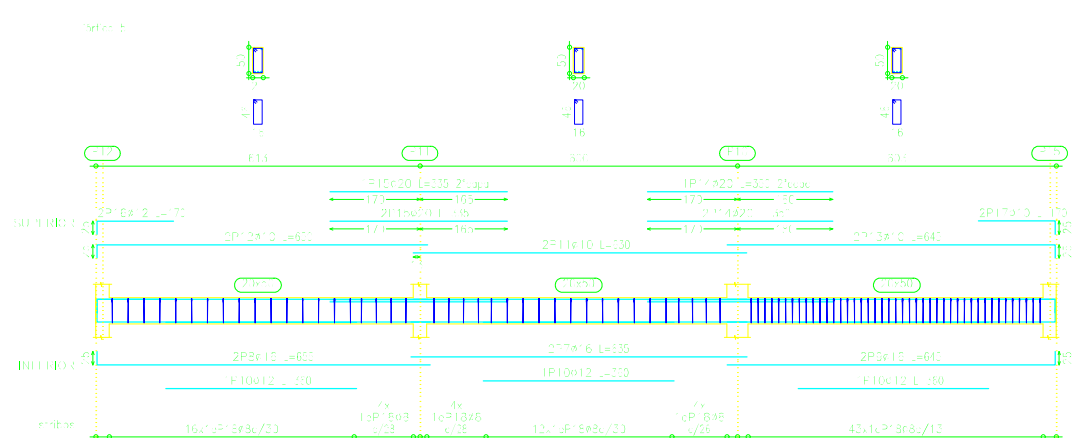
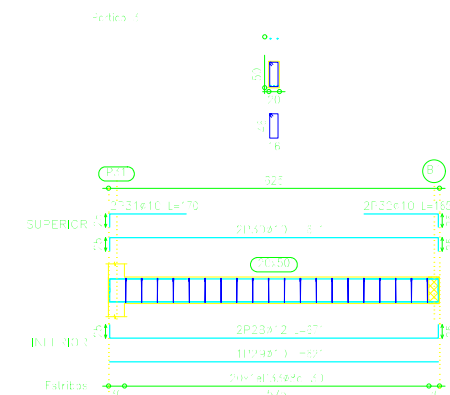
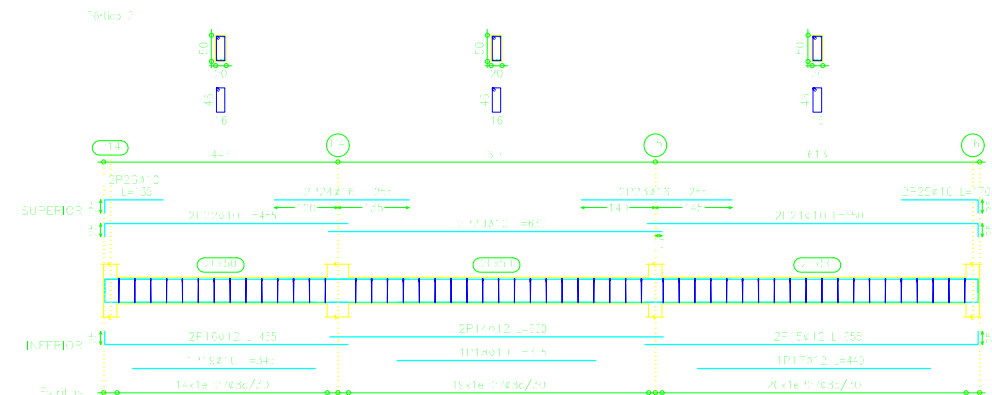
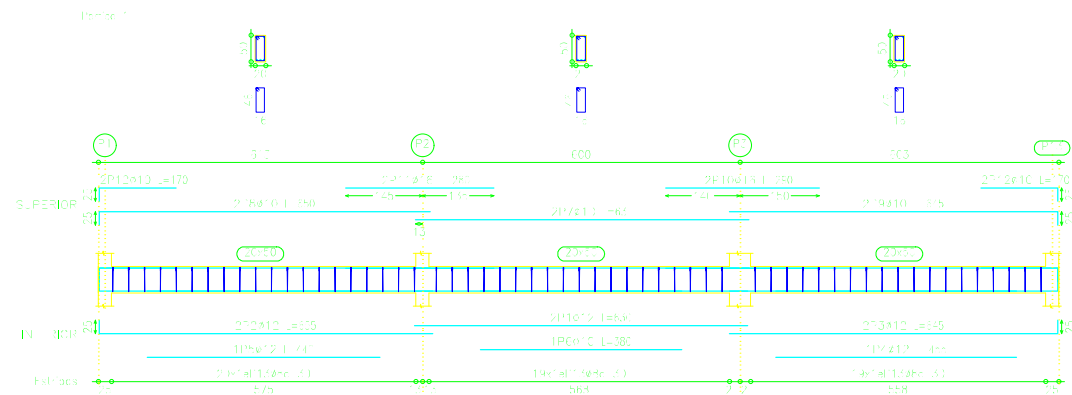
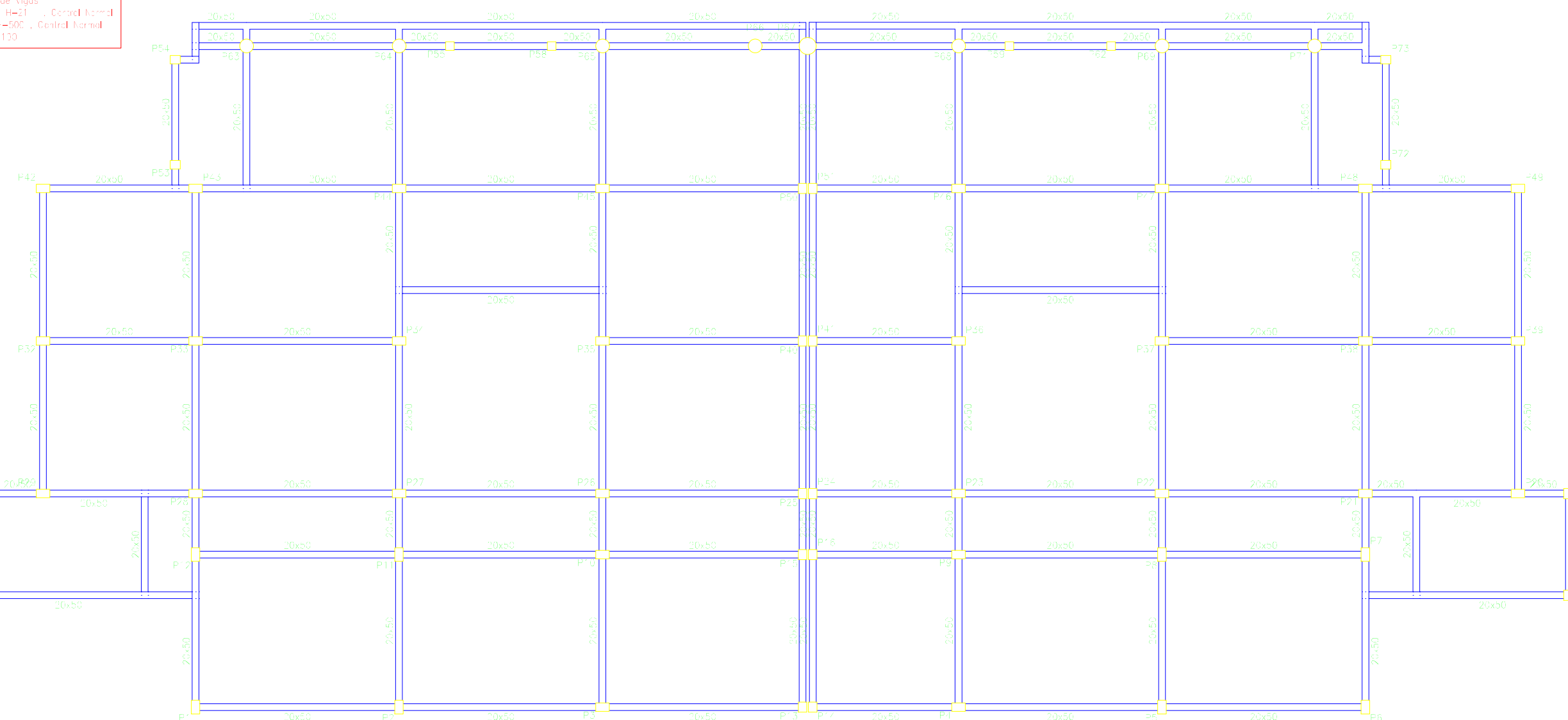
| Resumen Acero<br>1er-piso<br>Vigas | Long. total<br>(m) | Peso+10%<br>(kg) | Total |
|------------------------------------|--------------------|------------------|-------|
| AH=500CN<br>Ø8                     | 2115.3             | 520              |       |
| Ø10                                | 1597.8             | 1084             |       |
| Ø12                                | 875.9              | 859              |       |
| Ø16                                | 211.7              | 367              |       |
| Ø20                                | 90.0               | 244              |       |
| Ø25                                | 33.8               | 143              | 3617  |

| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
|-----------------------|------|-------|-----|---------------|---------------|------------------|
| Pórtico 7             | 1    | Ø12   | 4   | 630           | 2520          | 22.4             |
|                       | 2    | Ø12   | 2   | 645           | 1260          | 11.5             |
|                       | 3    | Ø12   | 2   | 480           | 960           | 8.5              |
|                       | 4    | Ø12   | 2   | 455           | 910           | 8.1              |
|                       | 5    | Ø12   | 2   | 385           | 770           | 6.8              |
|                       | 6    | Ø10   | 1   | 360           | 360           | 2.2              |
|                       | 7    | Ø10   | 1   | 300           | 300           | 1.8              |
|                       | 8    | Ø10   | 2   | 205           | 410           | 2.5              |
|                       | 9    | Ø10   | 4   | 630           | 2520          | 15.5             |
|                       | 10   | Ø10   | 2   | 645           | 1260          | 8.0              |
|                       | 11   | Ø10   | 2   | 480           | 960           | 5.3              |
|                       | 12   | Ø10   | 2   | 205           | 410           | 2.5              |
|                       | 13   | Ø20   | 2   | 300           | 300           | 14.3             |
|                       | 14   | Ø16   | 2   | 300           | 300           | 9.5              |
|                       | 15   | Ø16   | 2   | 285           | 570           | 9.0              |
|                       | 16   | Ø10   | 2   | 290           | 580           | 3.5              |
|                       | 17   | Ø10   | 2   | 170           | 340           | 2.1              |
|                       | 18   | Ø8    | 32  | 140           | 11480         | 45.3             |
| Total+10%:            |      |       |     |               |               | 198.0            |
| Pórtico 8             | 19   | Ø12   | 4   | 630           | 2520          | 22.4             |
|                       | 20   | Ø12   | 2   | 480           | 960           | 8.5              |
|                       | 21   | Ø12   | 2   | 485           | 970           | 8.5              |
|                       | 22   | Ø12   | 2   | 385           | 770           | 6.8              |
|                       | 23   | Ø10   | 1   | 360           | 360           | 2.2              |
|                       | 24   | Ø10   | 1   | 345           | 345           | 2.1              |
|                       | 25   | Ø10   | 1   | 300           | 300           | 1.8              |
|                       | 26   | Ø10   | 2   | 205           | 410           | 2.5              |
|                       | 27   | Ø10   | 4   | 630           | 2520          | 15.5             |
|                       | 28   | Ø10   | 2   | 480           | 960           | 5.3              |
|                       | 29   | Ø10   | 2   | 485           | 970           | 6.0              |
|                       | 30   | Ø10   | 2   | 205           | 410           | 2.5              |
|                       | 31   | Ø16   | 2   | 290           | 580           | 9.2              |
|                       | 32   | Ø16   | 2   | 280           | 560           | 8.8              |
|                       | 33   | Ø10   | 2   | 290           | 580           | 3.5              |
|                       | 34   | Ø12   | 2   | 240           | 480           | 4.3              |
|                       | 35   | Ø10   | 2   | 135           | 270           | 1.7              |
|                       | 36   | Ø8    | 77  | 140           | 10760         | 42.5             |
| Total+10%:            |      |       |     |               |               | 170.4            |
| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
| Pórtico 14            | 1    | Ø12   | 2   | 663           | 1326          | 11.8             |
|                       | 2    | Ø10   | 1   | 510           | 510           | 3.1              |
|                       | 3    | Ø10   | 2   | 663           | 1326          | 8.2              |
|                       | 4    | Ø10   | 2   | 170           | 340           | 2.1              |
|                       | 5    | Ø10   | 2   | 165           | 330           | 2.0              |
|                       | 6    | Ø8    | 20  | 140           | 2800          | 11.0             |
| Total+10%:            |      |       |     |               |               | 42.0             |
| Pórtico 15            | 7    | Ø10   | 2   | 430           | 860           | 5.3              |
|                       | 8    | Ø10   | 2   | 145           | 290           | 1.8              |
|                       | 9    | Ø10   | 2   | 135           | 270           | 1.7              |
|                       | 10   | Ø10   | 2   | 642           | 1284          | 7.9              |
|                       | 11   | Ø10   | 2   | 130           | 260           | 1.5              |
|                       | 12   | Ø10   | 2   | 125           | 250           | 1.5              |
|                       | 13   | Ø8    | 48  | 80            | 3840          | 15.2             |
| Total+10%:            |      |       |     |               |               | 38.5             |
| Pórtico 16            | 14   | Ø10   | 2   | 430           | 860           | 5.3              |
|                       | 15   | Ø10   | 2   | 150           | 300           | 1.8              |
|                       | 16   | Ø10   | 2   | 125           | 250           | 1.5              |
|                       | 17   | Ø10   | 2   | 639           | 1278          | 7.9              |
|                       | 18   | Ø10   | 4   | 125           | 500           | 3.1              |
|                       | 19   | Ø8    | 48  | 80            | 3840          | 15.2             |
| Total+10%:            |      |       |     |               |               | 38.3             |
| Pórtico 17            | 20   | Ø16   | 2   | 635           | 1270          | 20.0             |
|                       | 21   | Ø12   | 2   | 630           | 1260          | 11.2             |
|                       | 22   | Ø16   | 2   | 645           | 1260          | 20.4             |
|                       | 23   | Ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 24   | Ø12   | 1   | 360           | 360           | 3.2              |
|                       | 25   | Ø10   | 3   | 360           | 1080          | 6.7              |
|                       | 26   | Ø10   | 1   | 320           | 320           | 2.0              |
|                       | 27   | Ø10   | 4   | 630           | 2520          | 15.5             |
|                       | 28   | Ø10   | 2   | 645           | 1260          | 8.0              |
|                       | 29   | Ø10   | 2   | 510           | 1020          | 6.3              |
|                       | 30   | Ø20   | 2   | 315           | 320           | 15.5             |
|                       | 31   | Ø20   | 2   | 310           | 320           | 15.3             |
|                       | 32   | Ø20   | 2   | 300           | 300           | 14.8             |
|                       | 33   | Ø12   | 2   | 170           | 340           | 3.0              |
|                       | 34   | Ø10   | 2   | 145           | 290           | 1.8              |
|                       | 35   | Ø8    | 85  | 140           | 12460         | 49.2             |
| Total+10%:            |      |       |     |               |               | 222.2            |
| Pórtico 22=Pórtico 39 | 36   | Ø12   | 4   | 505           | 2020          | 17.9             |
|                       | 37   | Ø10   | 2   | 305           | 510           | 3.8              |
|                       | 38   | Ø10   | 4   | 500           | 2000          | 12.3             |
|                       | 39   | Ø10   | 2   | 200           | 400           | 2.5              |
|                       | 40   | Ø10   | 4   | 135           | 540           | 3.3              |
|                       | 41   | Ø8    | 30  | 140           | 4200          | 16.8             |
| Total+10%:            |      |       |     |               |               | 62.0             |
| (x2):                 |      |       |     |               |               | 124.0            |

| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
|-----------------------|------|-------|-----|---------------|---------------|------------------|
| Pórtico 18            | 1    | Ø16   | 2   | 635           | 1270          | 22.0             |
|                       | 2    | Ø12   | 2   | 630           | 1260          | 11.2             |
|                       | 3    | Ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 4    | Ø10   | 2   | 465           | 970           | 5.0              |
|                       | 5    | Ø10   | 2   | 365           | 730           | 4.5              |
|                       | 6    | Ø12   | 1   | 360           | 360           | 3.2              |
|                       | 7    | Ø10   | 1   | 360           | 360           | 2.2              |
|                       | 8    | Ø10   | 1   | 320           | 320           | 2.0              |
|                       | 9    | Ø10   | 4   | 630           | 2520          | 15.5             |
|                       | 10   | Ø10   | 2   | 510           | 1020          | 9.1              |
|                       | 11   | Ø10   | 2   | 465           | 970           | 5.0              |
|                       | 12   | Ø20   | 2   | 315           | 630           | 15.5             |
|                       | 13   | Ø20   | 2   | 305           | 610           | 15.0             |
|                       | 14   | Ø16   | 2   | 255           | 510           | 8.0              |
|                       | 15   | Ø10   | 2   | 145           | 290           | 1.8              |
|                       | 16   | Ø10   | 2   | 135           | 270           | 1.7              |
|                       | 17   | Ø8    | 91  | 140           | 12740         | 53.0             |
| Total+10%:            |      |       |     |               |               | 196.1            |
| Pórtico 19            | 18   | Ø12   | 2   | 635           | 1270          | 11.2             |
|                       | 19   | Ø12   | 2   | 650           | 1300          | 11.5             |
|                       | 20   | Ø10   | 1   | 615           | 615           | 3.6              |
|                       | 21   | Ø12   | 2   | 640           | 1280          | 11.4             |
|                       | 22   | Ø10   | 1   | 610           | 610           | 3.6              |
|                       | 23   | Ø10   | 1   | 440           | 440           | 2.7              |
|                       | 24   | Ø10   | 2   | 620           | 1240          | 7.6              |
|                       | 25   | Ø10   | 2   | 640           | 1280          | 7.6              |
|                       | 26   | Ø10   | 2   | 635           | 1270          | 7.6              |
|                       | 27   | Ø12   | 2   | 270           | 540           | 4.6              |
|                       | 28   | Ø12   | 2   | 265           | 530           | 4.7              |
|                       | 29   | Ø10   | 2   | 165           | 330           | 2.0              |
|                       | 30   | Ø8    | 59  | 140           | 8260          | 32.6             |
| Total+10%:            |      |       |     |               |               | 123.1            |
| Pórtico 20            | 31   | Ø12   | 2   | 630           | 1260          | 11.2             |
|                       | 32   | Ø12   | 2   | 655           | 1310          | 11.6             |
|                       | 33   | Ø10   | 1   | 625           | 625           | 3.6              |
|                       | 34   | Ø10   | 1   | 460           | 460           | 3.0              |
|                       | 35   | Ø12   | 2   | 460           | 960           | 8.0              |
|                       | 36   | Ø10   | 1   | 450           | 450           | 2.8              |
|                       | 37   | Ø10   | 2   | 650           | 1300          | 8.0              |
|                       | 38   | Ø10   | 2   | 620           | 1240          | 7.6              |
|                       | 39   | Ø10   | 2   | 475           | 950           | 5.6              |
|                       | 40   | Ø16   | 2   | 270           | 540           | 8.0              |
|                       | 41   | Ø10   | 2   | 250           | 500           | 3.1              |
|                       | 42   | Ø10   | 2   | 170           | 340           | 2.1              |
|                       | 43   | Ø8    | 54  | 140           | 7560          | 29.8             |
| Total+10%:            |      |       |     |               |               | 116.6            |
| Pórtico 21=Pórtico 40 | 44   | Ø12   | 2   | 376           | 752           | 6.7              |
|                       | 45   | Ø10   | 1   | 326           | 326           | 2.6              |
|                       | 46   | Ø10   | 2   | 376           | 752           | 4.6              |
|                       | 47   | Ø10   | 2   | 105           | 210           | 1.3              |
|                       | 48   | Ø8    | 9   | 140           | 1260          | 5.0              |
| Total+10%:            |      |       |     |               |               | 21.6             |
| (x2):                 |      |       |     |               |               | 43.2             |
| Pórtico 23=Pórtico 38 | 49   | Ø12   | 2   | 342           | 684           | 6.1              |
|                       | 50   | Ø10   | 2   | 329           | 658           | 4.1              |
|                       | 51   | Ø10   | 2   | 50            | 180           | 1.1              |
|                       | 52   | Ø8    | 22  | 100           | 2200          | 8.7              |
| Total+10%:            |      |       |     |               |               | 22.0             |
| (x2):                 |      |       |     |               |               | 44.0             |
| Elemento              | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
| Pórtico 24=Pórtico 37 | 1    | Ø12   | 2   | 361           | 762           | 6.8              |
|                       | 2    | Ø10   | 1   | 331           | 331           | 2.0              |
|                       | 3    | Ø10   | 2   | 361           | 762           | 4.7              |
|                       | 4    | Ø10   | 2   | 105           | 210           | 1.3              |
|                       | 5    | Ø8    | 10  | 140           | 1400          | 5.5              |
| Total+10%:            |      |       |     |               |               | 22.3             |
| (x2):                 |      |       |     |               |               | 44.6             |
| Pórtico 25=Pórtico 36 | 6    | Ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 7    | Ø12   | 4   | 460           | 1820          | 17.0             |
|                       | 8    | Ø10   | 2   | 305           | 610           | 3.6              |
|                       | 9    | Ø10   | 1   | 300           | 300           | 1.8              |
|                       | 10   | Ø10   | 2   | 210           | 420           | 2.6              |
|                       | 11   | Ø10   | 2   | 230           | 460           | 2.8              |
|                       | 12   | Ø10   | 2   | 675           | 1350          | 8.3              |
|                       | 13   | Ø10   | 2   | 510           | 1020          | 6.3              |
|                       | 14   | Ø10   | 2   | 475           | 950           | 5.6              |
|                       | 15   | Ø10   | 2   | 210           | 420           | 2.6              |
| Pórtico 26            | 16   | Ø10   | 2   | 360           | 760           | 4.7              |
|                       | 17   | Ø12   | 3   | 345           | 1035          | 9.2              |
|                       | 18   | Ø10   | 2   | 260           | 400           | 2.5              |
|                       | 19   | Ø10   | 2   | 145           | 290           | 1.8              |
|                       | 20   | Ø8    | 55  | 140           | 7700          | 33.4             |
| Total+10%:            |      |       |     |               |               | 119.7            |
| (x2):                 |      |       |     |               |               | 239.4            |
| Pórtico 27            | 21   | Ø12   | 2   | 510           | 1020          | 9.1              |
|                       | 22   | Ø12   | 4   | 460           | 1820          | 17.0             |
|                       | 23   | Ø10   | 1   | 390           | 390           | 2.4              |
|                       | 24   | Ø10   | 1   | 305           | 305           | 1.8              |
|                       | 25   | Ø10   | 1   | 295           | 295           | 1.8              |
|                       | 26   | Ø12   | 2   | 210           | 420           | 3.7              |
|                       | 27   | Ø10   | 1   | 210           | 210           | 1.2              |
|                       | 28   | Ø12   | 2   | 220           | 460           | 4.1              |
|                       | 29   | Ø10   | 1   | 260           | 260           | 1.2              |
|                       | 30   | Ø10   | 2   | 675           | 1350          | 8.3              |
|                       | 31   | Ø10   | 2   | 510           | 1020          | 6.3              |
|                       | 32   | Ø10   | 2   | 475           | 950           | 5.6              |
|                       | 33   | Ø10   | 2   | 210           | 420           | 2.6              |
|                       | 34   | Ø25   | 1   | 475           | 475           | 18.3             |
|                       | 35   | Ø25   | 1   | 335           | 335           | 12.6             |
| Pórtico 28=Pórtico 35 | 36   | Ø10   | 2   | 220           | 440           | 2.7              |
|                       | 37   | Ø10   | 2   | 260           | 400           | 2.5              |
|                       | 38   | Ø10   | 2   | 140           | 280           | 1.7              |
|                       | 39   | Ø10   | 2   | 145           | 290           | 1.8              |
|                       | 40   | Ø8    | 55  | 140           | 7700          | 33.4             |
| Total+10%:            |      |       |     |               |               | 149.5            |
| Pórtico 29=Pórtico 32 | 41   | Ø12   | 2   | 247           | 494           | 4.4              |
|                       | 42   | Ø10   | 2   | 247           | 494           | 3.0              |
|                       | 43   | Ø10   | 2   | 75            | 150           | 0.6              |
|                       | 44   | Ø8    | 10  | 100           | 1000          | 3.6              |
| Total+10%:            |      |       |     |               |               | 13.4</           |



224\*200  
Espesor de vigas  
40\*200 - Recto  
Área: 8=800 - Central Horizontal  
Escala: 1/100





| Elemento   | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
|------------|------|-------|-----|---------------|---------------|------------------|
| Pórtico 7  | 1    | ø12   | 4   | 630           | 2520          | 22.1             |
|            | 2    | ø12   | 2   | 645           | 1290          | 11.5             |
|            | 3    | ø12   | 2   | 480           | 960           | 8.5              |
|            | 4    | ø12   | 2   | 445           | 890           | 7.9              |
|            | 5    | ø12   | 2   | 390           | 780           | 6.9              |
|            | 6    | ø10   | 1   | 360           | 360           | 2.2              |
|            | 7    | ø10   | 1   | 300           | 300           | 1.8              |
|            | 8    | ø10   | 2   | 285           | 570           | 5.0              |
|            | 9    | ø10   | 2   | 630           | 1260          | 10.9             |
|            | 10   | ø10   | 2   | 645           | 1290          | 8.0              |
|            | 11   | ø10   | 2   | 495           | 990           | 5.9              |
|            | 12   | ø10   | 2   | 285           | 570           | 2.5              |
|            | 13   | ø20   | 2   | 305           | 610           | 15.0             |
|            | 4    | ø20   | 2   | 300           | 600           | 14.8             |
|            | 5    | ø18   | 2   | 285           | 570           | 9.0              |
|            | 6    | ø10   | 2   | 290           | 580           | 3.6              |
|            | 7    | ø10   | 2   | 170           | 340           | 2.1              |
|            | 8    | ø8    | 112 | 40            | 16360         | 66.6             |
| Total= 05  |      |       |     |               |               | 225.2            |
| Pórtico 8  | 8    | ø12   | 2   | 630           | 1260          | 22.1             |
|            | 20   | ø12   | 2   | 660           | 1320          | 8.5              |
|            | 21   | ø12   | 2   | 485           | 970           | 8.6              |
|            | 22   | ø12   | 2   | 390           | 780           | 6.9              |
|            | 23   | ø10   | 1   | 370           | 370           | 2.3              |
|            | 24   | ø10   | 1   | 340           | 340           | 2.1              |
|            | 25   | ø10   | 1   | 270           | 270           | 1.7              |
|            | 26   | ø10   | 2   | 205           | 410           | 2.5              |
|            | 27   | ø10   | 2   | 630           | 1260          | 15.5             |
|            | 28   | ø10   | 2   | 480           | 960           | 5.9              |
|            | 29   | ø10   | 2   | 485           | 970           | 6.0              |
|            | 30   | ø10   | 2   | 205           | 410           | 2.5              |
|            | 31   | ø20   | 2   | 390           | 780           | 15.8             |
|            | 32   | ø20   | 2   | 305           | 610           | 15.0             |
|            | 33   | ø10   | 2   | 290           | 580           | 3.6              |
|            | 34   | ø12   | 2   | 240           | 480           | 4.3              |
|            | 35   | ø10   | 2   | 135           | 270           | 1.7              |
|            | 36   | ø8    | 88  | 40            | 12320         | 48.6             |
| Total= 05  |      |       |     |               |               | 191.3            |
| Pórtico 9  | 37   | ø18   | 2   | 668           | 1336          | 21.1             |
|            | 38   | ø18   | 2   | 430           | 860           | 13.5             |
|            | 39   | ø10   | 2   | 668           | 1336          | 8.2              |
|            | 40   | ø10   | 3   | 95            | 285           | 9.2              |
|            | 41   | ø12   | 3   | 170           | 510           | 4.5              |
|            | 42   | ø8    | 22  | 40            | 8800          | 12.7             |
| Total= 05  |      |       |     |               |               | 75.7             |
| Elemento   | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
| Pórtico 4  | 1    | ø12   | 2   | 671           | 1342          | 11.9             |
|            | 2    | ø10   | 1   | 621           | 621           | 3.8              |
|            | 3    | ø10   | 2   | 671           | 1342          | 8.3              |
|            | 4    | ø10   | 2   | 70            | 140           | 2.1              |
|            | 5    | ø10   | 2   | 65            | 130           | 2.0              |
|            | 6    | ø8    | 20  | 40            | 8000          | 11.0             |
| Total= 05  |      |       |     |               |               | 43.0             |
| Pórtico 5  | 7    | ø18   | 2   | 635           | 1270          | 20.0             |
|            | 8    | ø18   | 2   | 655           | 1310          | 20.7             |
|            | 9    | ø10   | 2   | 645           | 1290          | 20.4             |
|            | 0    | ø12   | 3   | 360           | 1080          | 9.6              |
|            | 1    | ø10   | 2   | 630           | 1260          | 7.8              |
|            | 2    | ø10   | 2   | 660           | 1320          | 8.0              |
|            | 3    | ø10   | 2   | 645           | 1290          | 8.0              |
|            | 4    | ø20   | 3   | 350           | 1050          | 25.9             |
|            | 5    | ø10   | 2   | 330           | 660           | 21.8             |
|            | 6    | ø12   | 2   | 170           | 340           | 5.0              |
|            | 7    | ø10   | 2   | 170           | 340           | 2.1              |
|            | 8    | ø8    | 83  | 40            | 11620         | 45.9             |
| Total= 05  |      |       |     |               |               | 219.8            |
| Pórtico 11 | 3    | ø12   | 2   | 508           | 1016          | 9.0              |
|            | 20   | ø12   | 2   | 340           | 680           | 4.2              |
|            | 21   | ø10   | 2   | 508           | 1016          | 6.3              |
|            | 22   | ø12   | 2   | 55            | 110           | 2.8              |
|            | 23   | ø10   | 2   | 35            | 70            | 1.7              |
|            | 24   | ø8    | 12  | 40            | 1960          | 7.7              |
| Total= 05  |      |       |     |               |               | 36.9             |
| Elemento   | Pos. | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
| Pórtico 1  | 1    | ø12   | 2   | 630           | 1260          | 11.2             |
|            | 2    | ø12   | 2   | 655           | 1310          | 11.6             |
|            | 3    | ø12   | 2   | 645           | 1290          | 11.5             |
|            | 4    | ø12   | 1   | 455           | 455           | 4.0              |
|            | 5    | ø12   | 1   | 440           | 440           | 3.9              |
|            | 6    | ø10   | 1   | 380           | 380           | 2.3              |
|            | 7    | ø10   | 2   | 630           | 1260          | 7.8              |
|            | 8    | ø10   | 2   | 650           | 1300          | 8.0              |
|            | 9    | ø10   | 2   | 645           | 1290          | 8.0              |
|            | 0    | ø18   | 2   | 290           | 580           | 9.2              |
|            | 1    | ø16   | 2   | 280           | 560           | 8.8              |
|            | 2    | ø10   | 4   | 70            | 280           | 4.2              |
|            | 3    | ø8    | 96  | 40            | 8120          | 32.0             |
| Total= 05  |      |       |     |               |               | 136.8            |
| Pórtico 2  | 4    | ø12   | 2   | 630           | 1260          | 11.2             |
|            | 5    | ø12   | 2   | 655           | 1310          | 11.6             |
|            | 6    | ø12   | 2   | 485           | 970           | 8.6              |
|            | 7    | ø12   | 1   | 440           | 440           | 3.9              |
|            | 8    | ø10   | 1   | 370           | 370           | 2.3              |
|            | 9    | ø10   | 1   | 340           | 340           | 2.1              |
|            | 20   | ø10   | 2   | 630           | 1260          | 7.8              |
|            | 21   | ø10   | 2   | 650           | 1300          | 8.0              |
|            | 22   | ø10   | 2   | 485           | 970           | 6.0              |
|            | 23   | ø16   | 2   | 285           | 570           | 9.0              |
|            | 24   | ø16   | 2   | 255           | 510           | 8.0              |
|            | 25   | ø10   | 2   | 170           | 340           | 2.1              |
|            | 26   | ø10   | 2   | 35            | 70            | 1.7              |
|            | 27   | ø8    | 55  | 40            | 7420          | 29.3             |
| Total= 05  |      |       |     |               |               | 122.8            |
| Pórtico 3  | 28   | ø12   | 2   | 671           | 1342          | 11.9             |
|            | 29   | ø10   | 1   | 621           | 621           | 3.8              |
|            | 30   | ø10   | 2   | 671           | 1342          | 8.3              |
|            | 31   | ø10   | 2   | 170           | 340           | 2.1              |
|            | 32   | ø10   | 2   | 65            | 130           | 2.0              |
|            | 33   | ø8    | 20  | 40            | 8000          | 11.0             |
| Total= 05  |      |       |     |               |               | 43.0             |

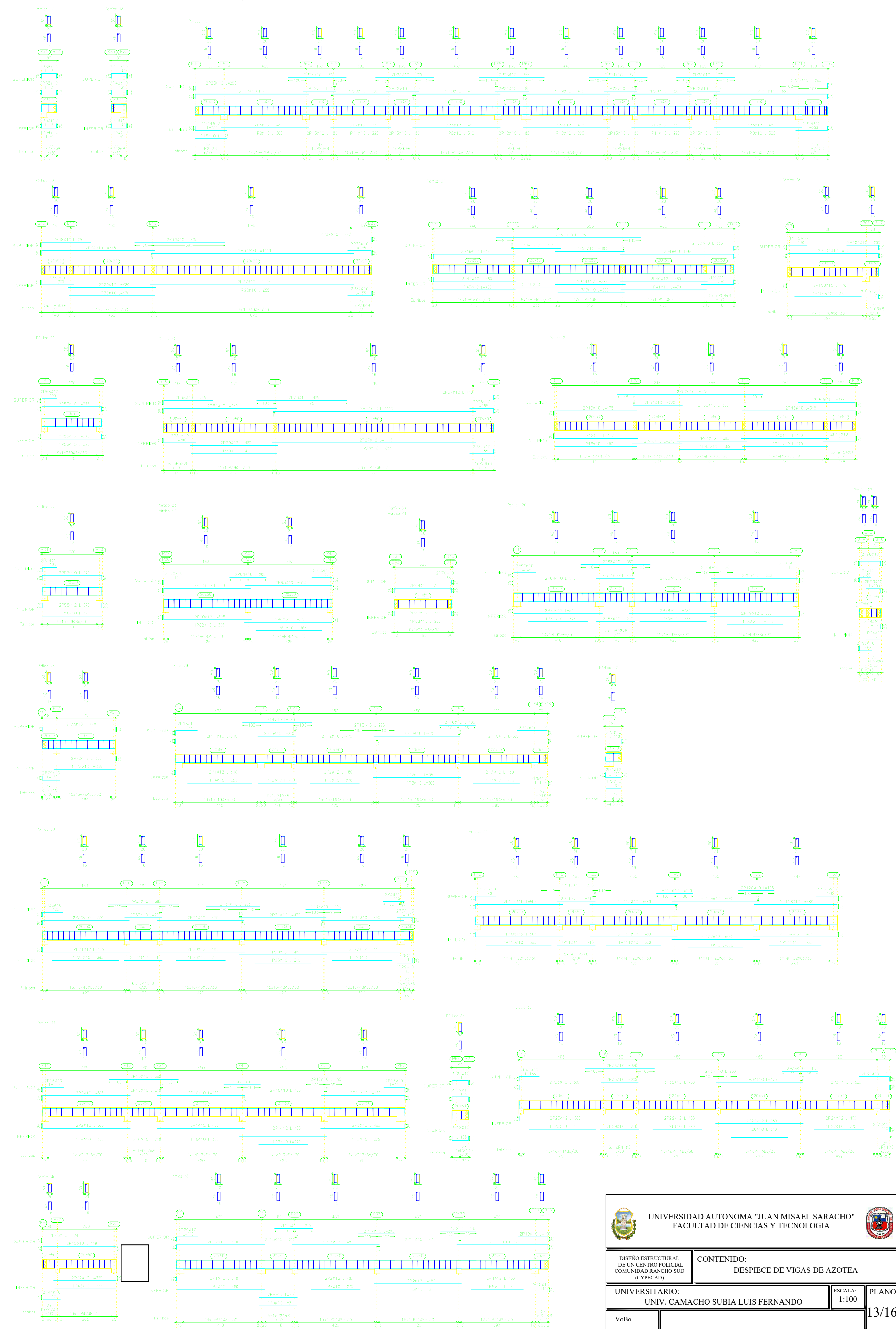
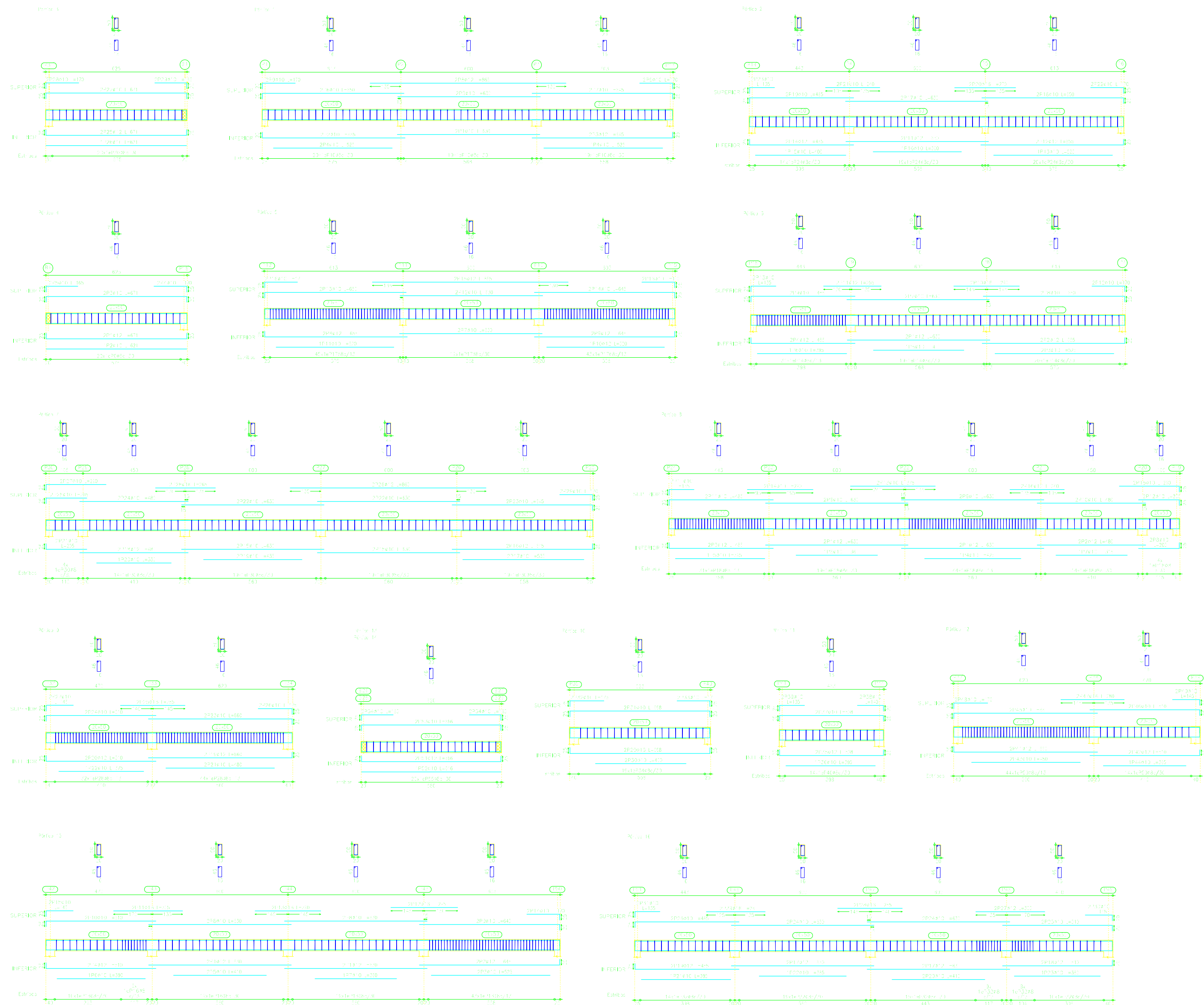
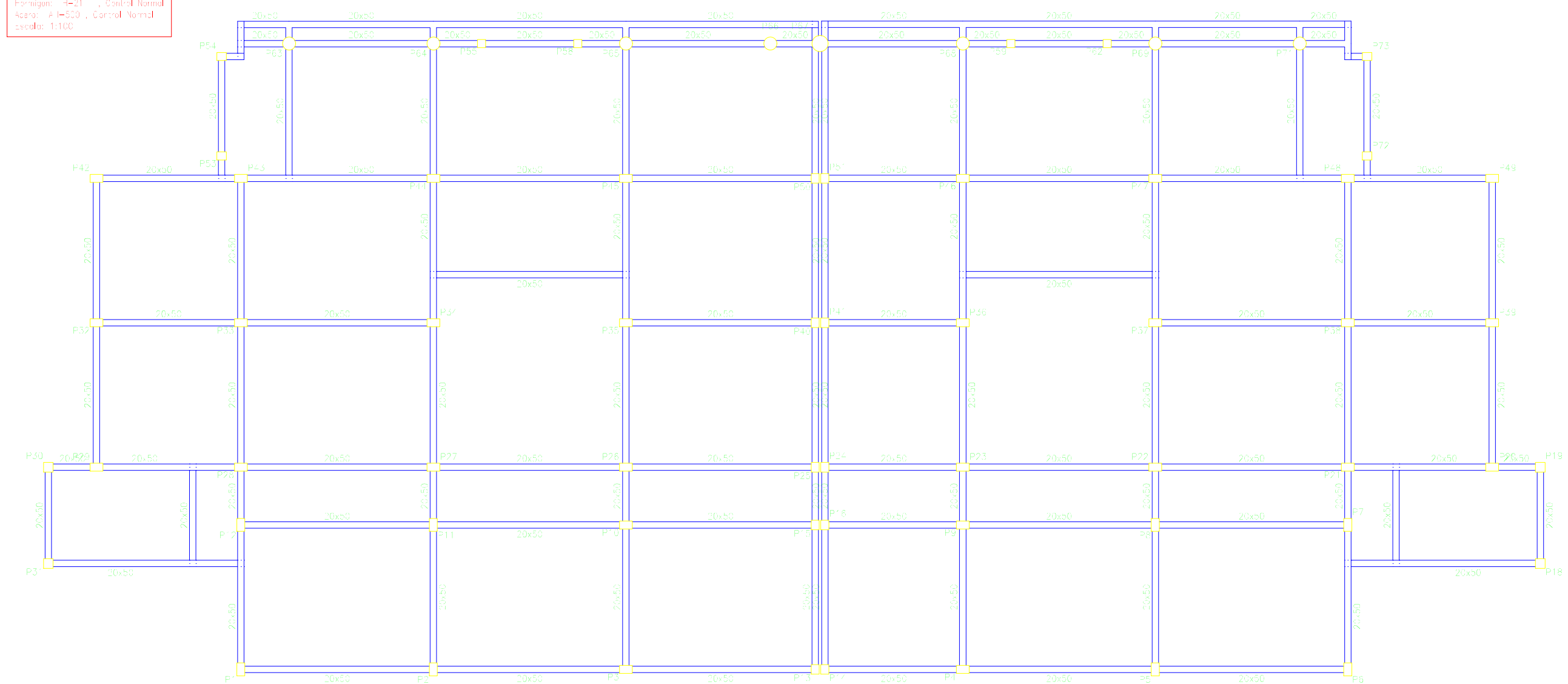
| Resumen Acero     | Long. total<br>(m) | Peso 10%<br>(kg) | Total |
|-------------------|--------------------|------------------|-------|
| 2do-piso<br>Vigas |                    |                  |       |
| AH=500CN ø8       | 2410.8             | 1046             |       |
| ø10               | 1813.8             | 1230             |       |
| ø12               | 980.1              | 957              |       |
| ø16               | 215.2              | 374              |       |
| ø20               | 131.2              | 308              | 3864  |

Pilares que terminan en  
2do-piso  
Hormigón: H-21 , Control Normal  
Acero: AH=500 , Control Normal  
Escala: 1:100

| Elemento              | Pos.               | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |      |
|-----------------------|--------------------|-------|-----|---------------|---------------|------------------|------|
| P07                   | 1                  | ø12   | 10  | 695           | 6950          | 61.7             |      |
|                       | 2                  | ø6    | 45  | 154           | 6930          | 15.4             |      |
|                       | Total= 10%         |       |     |               |               | 84.8             |      |
|                       | 3                  | ø16   | 2   | 630           | 1260          | 20.0             |      |
|                       | 7                  | ø16   | 2   | 630           | 1260          | 20.7             |      |
|                       | 8                  | ø12   | 2   | 480           | 960           | 8.1              |      |
|                       | 6                  | ø12   | 2   | 360           | 720           | 6.4              |      |
|                       | 7                  | ø10   | 1   | 355           | 355           | 2.2              |      |
|                       | 8                  | ø10   | 2   | 635           | 1260          | 7.8              |      |
|                       | 9                  | ø10   | 2   | 660           | 1320          | 8.5              |      |
| Pórtico 6             | 10                 | ø10   | 2   | 485           | 970           | 6.0              |      |
|                       | 11                 | ø20   | 3   | 335           | 1005          | 24.8             |      |
|                       | 12                 | ø20   | 2   | 315           | 630           | 15.5             |      |
|                       | 13                 | ø12   | 2   | 170           | 340           | 3.0              |      |
|                       | 14                 | ø10   | 2   | 130           | 260           | 1.7              |      |
|                       | 15                 | ø8    | 118 | 120           | 14160         | 26.8             |      |
|                       | Total= 10%         |       |     |               |               | 170.0            |      |
|                       | Pórtico 9          | 16    | ø16 | 2             | 660           | 1320             | 20.8 |
|                       |                    | 17    | ø12 | 2             | 510           | 1020             | 9.1  |
|                       |                    | 18    | ø16 | 1             | 350           | 350              | 5.7  |
|                       |                    | 19    | ø10 | 2             | 315           | 630              | 3.3  |
|                       |                    | 20    | ø10 | 2             | 665           | 1320             | 6.1  |
|                       |                    | 21    | ø10 | 2             | 510           | 1020             | 6.3  |
| 22                    |                    | ø20   | 3   | 325           | 975           | 24.0             |      |
| 23                    |                    | ø16   | 3   | 185           | 555           | 8.8              |      |
| 24                    |                    | ø10   | 2   | 140           | 280           | 1.8              |      |
| 25                    |                    | ø8    | 35  | 140           | 4900          | 16.3             |      |
| Total= 10%            |                    |       |     |               | 118.9         |                  |      |
| Elemento              | Pos.               | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |      |
| Pórtico 12            | 1                  | ø16   | 2   | 660           | 1320          | 20.8             |      |
|                       | 2                  | ø12   | 2   | 510           | 1020          | 9.1              |      |
|                       | 3                  | ø16   | 1   | 350           | 350           | 5.7              |      |
|                       | 7                  | ø10   | 2   | 310           | 620           | 3.3              |      |
|                       | 6                  | ø10   | 2   | 660           | 1320          | 6.1              |      |
|                       | 8                  | ø10   | 2   | 510           | 1020          | 6.3              |      |
|                       | 7                  | ø20   | 3   | 325           | 975           | 24.0             |      |
|                       | 8                  | ø16   | 3   | 185           | 555           | 8.8              |      |
|                       | 9                  | ø10   | 2   | 140           | 280           | 1.8              |      |
|                       | 10                 | ø8    | 35  | 140           | 4900          | 16.3             |      |
| Total= 10%            |                    |       |     |               | 119.9         |                  |      |
| Pórtico 13+Pórtico 14 | 11                 | ø12   | 2   | 666           | 1332          | 11.8             |      |
|                       | 12                 | ø10   | 2   | 616           | 1232          | 7.6              |      |
|                       | 13                 | ø10   | 2   | 666           | 1332          | 6.2              |      |
|                       | 14                 | ø10   | 4   | 160           | 640           | 4.1              |      |
|                       | 15                 | ø8    | 20  | 140           | 2800          | 11.0             |      |
| Total= 10%            |                    |       |     |               | 47.0          |                  |      |
| Total= 10%<br>(Σ:)    |                    |       |     |               | 84.0          |                  |      |
| Pórtico 19            | 16                 | ø12   | 5   | 630           | 3150          | 28.0             |      |
|                       | 17                 | ø16   | 2   | 645           | 1290          | 20.4             |      |
|                       | 18                 | ø12   | 2   | 510           | 1020          | 9.1              |      |
|                       | 19                 | ø16   | 2   | 420           | 840           | 13.3             |      |
|                       | 20                 | ø12   | 2   | 365           | 730           | 6.5              |      |
|                       | 21                 | ø12   | 2   | 360           | 720           | 6.4              |      |
|                       | 22                 | ø10   | 1   | 330           | 330           | 2.0              |      |
|                       | 23                 | ø10   | 4   | 630           | 2520          | 15.5             |      |
|                       | 24                 | ø10   | 2   | 645           | 1290          | 16.5             |      |
|                       | 25                 | ø10   | 2   | 510           | 1020          | 9.1              |      |
|                       | 26                 | ø20   | 3   | 350           | 1050          | 25.9             |      |
|                       | 27                 | ø20   | 3   | 350           | 1050          | 24.8             |      |
|                       | 28                 | ø20   | 2   | 325           | 650           | 16.0             |      |
|                       | 29                 | ø12   | 2   | 170           | 340           | 3.0              |      |
|                       | 30                 | ø10   | 2   | 140           | 280           | 1.8              |      |
|                       | 31                 | ø8    | 85  | 140           | 11900         | 47.0             |      |
| Total= 10%            |                    |       |     |               | 257.4         |                  |      |
| Elemento              | Pos.               | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |      |
| Pórtico 16            | 1                  | ø16   | 4   | 635           | 2540          | 40.1             |      |
|                       | 2                  | ø12   | 2   | 510           | 1020          | 9.1              |      |
|                       | 3                  | ø12   | 2   | 485           | 970           | 8.6              |      |
|                       | 4                  | ø16   | 1   | 360           | 360           | 5.7              |      |
|                       | 5                  | ø12   | 1   | 360           | 360           | 3.2              |      |
|                       | 6                  | ø12   | 1   | 345           | 345           | 3.1              |      |
|                       | 7                  | ø10   | 2   | 630           | 1260          | 7.8              |      |
|                       | 8                  | ø10   | 2   | 645           | 1290          | 8.0              |      |
|                       | 9                  | ø10   | 2   | 630           | 1260          | 15.5             |      |
|                       | 0                  | ø10   | 2   | 510           | 1020          | 6.3              |      |
|                       | 10                 | ø10   | 2   | 660           | 1320          | 6.0              |      |
|                       | 11                 | ø20   | 3   | 340           | 1020          | 21.2             |      |
|                       | 12                 | ø20   | 2   | 325           | 650           | 16.0             |      |
|                       | 13                 | ø10   | 2   | 135           | 270           | 1.7              |      |
|                       | 14                 | ø8    | 75  | 140           | 10540         | 42.0             |      |
| Total= 10%            |                    |       |     |               | 222.3         |                  |      |
| Pórtico 17            | 17                 | ø10   | 2   | 131           | 262           | 1.8              |      |
|                       | 18                 | ø10   | 2   | 131           | 262           | 1.8              |      |
|                       | 20                 | ø8    | 2   | 140           | 280           | 1.1              |      |
| Total= 10%            |                    |       |     |               | 6.5           |                  |      |
| Pórtico 18            | 21                 | ø10   | 2   | 151           | 302           | 1.6              |      |
|                       | 22                 | ø10   | 2   | 151           | 302           | 1.6              |      |
|                       | 23                 | ø10   | 2   | 151           | 302           | 1.8              |      |
| 24                    | ø8                 | 2     | 140 | 280           | 1.1           |                  |      |
| Total= 10%            |                    |       |     |               | 6.5           |                  |      |
| Pórtico 28+Pórtico 31 | 25                 | ø12   | 2   | 470           | 940           | 8.3              |      |
|                       | 26                 | ø10   | 1   | 310           | 310           | 1.3              |      |
|                       | 27                 | ø12   | 2   | 110           | 220           | 2.0              |      |
|                       | 28                 | ø10   | 1   | 85            | 84            | 0.5              |      |
|                       | 29                 | ø10   | 2   | 630           | 1260          | 6.4              |      |
|                       | 30                 | ø10   | 2   | 110           | 220           | 1.4              |      |
|                       | 31                 | ø10   | 2   | 185           | 370           | 2.3              |      |
|                       | 32                 | ø10   | 2   | 120           | 240           | 1.0              |      |
|                       | 33                 | ø8    | 16  | 140           | 2240          | 8.8              |      |
|                       | Total= 10%<br>(Σ:) |       |     |               |               | 35.3             |      |
|                       |                    |       |     |               | 71.8          |                  |      |



DESIGN  
SECTION 04 - 04  
PROYECTO 4-01 - Central Rural  
Kilómetro 4-01 - Central Rural  
Escala: 1:100



UNIVERSIDAD AUTÓNOMA "JUAN MISAEL SARACHO"  
FACULTAD DE CIENCIAS Y TECNOLOGÍA

DESIGN ESTRUCTURAL  
DE UN CENTRO POLICIAL  
COMUNIDAD RANCHO S/D  
(CYPECAD)

CONTENIDO:  
DESPIECE DE VIGAS DE AZOTEA

UNIVERSITARIO:  
UNIV. CAMACHO SUBIA LUIS FERNANDO

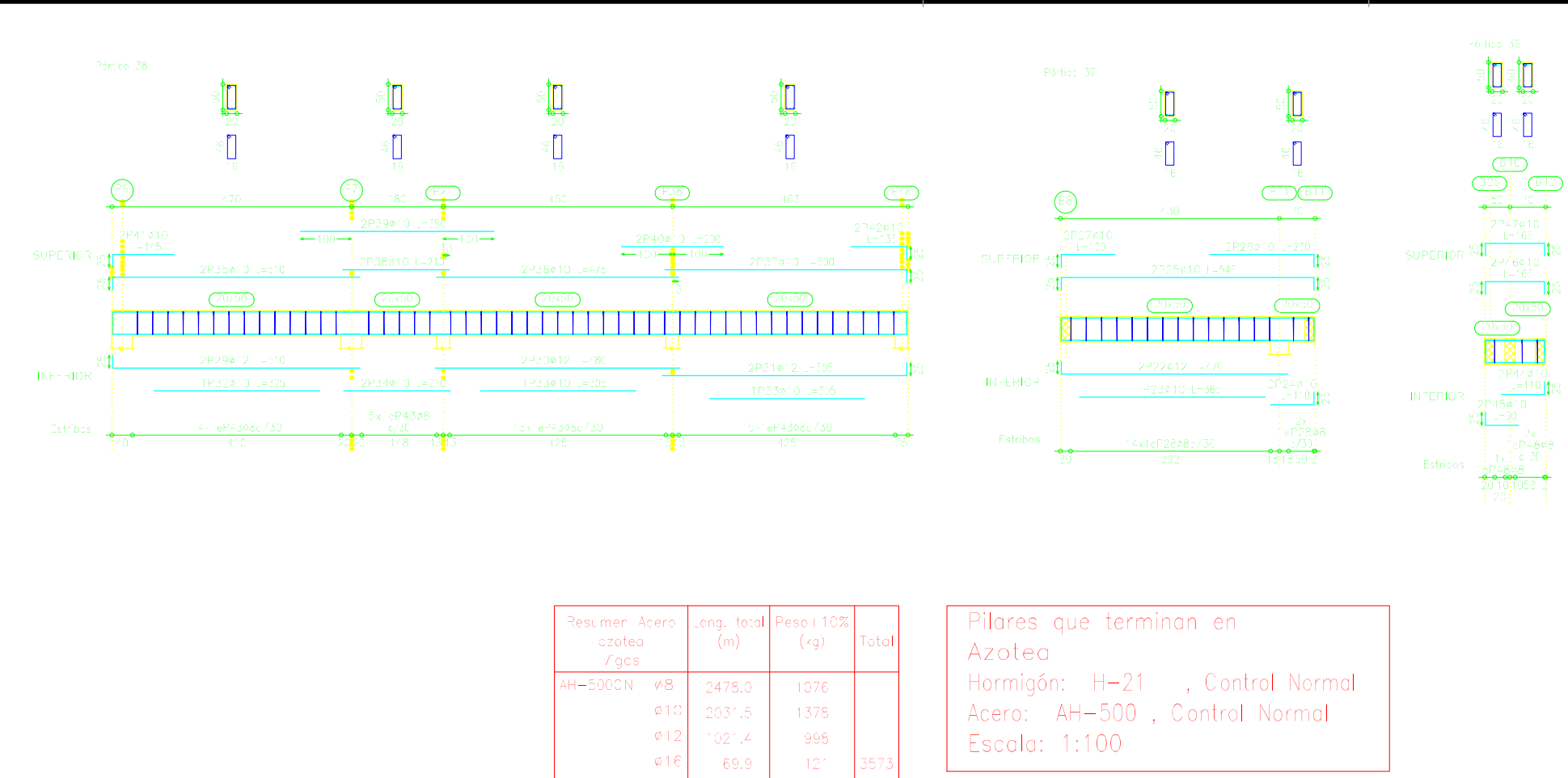
ESCALA:  
1:100

VoBo

PLANO

13/16

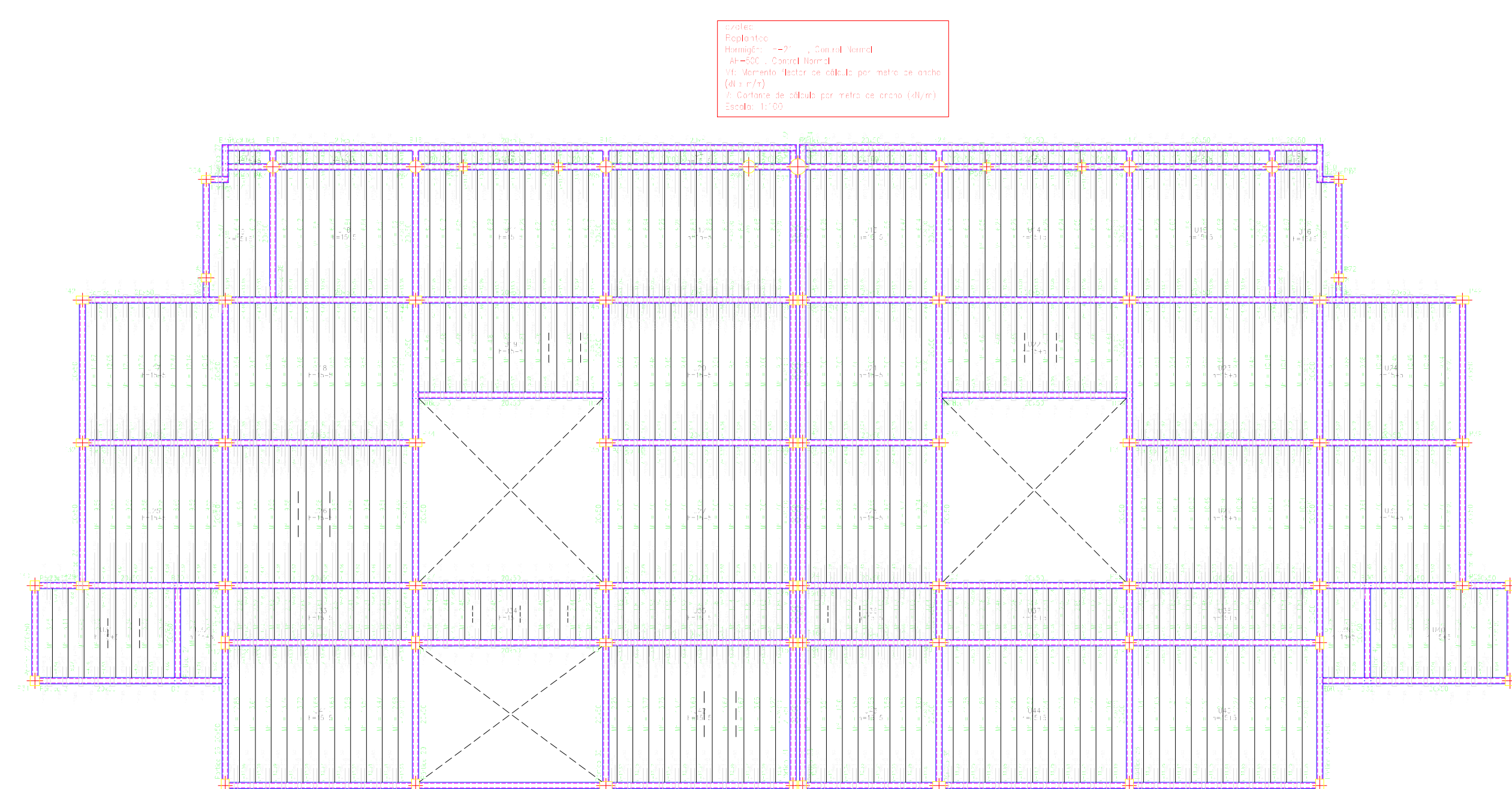




| Elemento   | Pos. | Diám. | No. | Long. (cm) | Total (cm) | AH=500CN (kg) |
|------------|------|-------|-----|------------|------------|---------------|
| Pilar 1    | 1    | #12   | 2   | 650        | 1300       | 8.1           |
|            | 2    | #12   | 2   | 650        | 1300       | 8.1           |
|            | 3    | #12   | 2   | 665        | 1290       | 11.5          |
|            | 4    | #12   | 2   | 590        | 1075       | 9.7           |
|            | 5    | #12   | 2   | 650        | 1285       | 7.8           |
|            | 6    | #12   | 2   | 650        | 1300       | 8.0           |
|            | 7    | #12   | 2   | 665        | 1290       | 8.0           |
|            | 8    | #12   | 2   | 885        | 1750       | 15.4          |
|            | 9    | #12   | 4   | 170        | 680        | 4.2           |
|            | 10   | #8    | 58  | 140        | 8120       | 32.0          |
| Total=108% |      |       |     |            | 173.9      |               |
| Pilar 2    | 1    | #12   | 2   | 630        | 1260       | 11.2          |
|            | 12   | #12   | 2   | 555        | 1210       | 11.6          |
|            | 13   | #12   | 1   | 525        | 525        | 3.1           |
|            | 14   | #12   | 2   | 455        | 970        | 6.6           |
|            | 15   | #12   | 1   | 700        | 100        | 2.5           |
|            | 16   | #12   | 1   | 695        | 960        | 2.4           |
|            | 17   | #12   | 2   | 630        | 1260       | 7.9           |
|            | 18   | #12   | 2   | 650        | 1300       | 8.0           |
|            | 19   | #12   | 2   | 485        | 270        | 6.0           |
|            | 20   | #16   | 2   | 540        | 540        | 8.5           |
| 21         | #12  | 2     | 240 | 480        | 3.0        |               |
| 22         | #12  | 2     | 170 | 340        | 2.1        |               |
| 23         | #12  | 2     | 130 | 260        | 1.7        |               |
| 24         | #8   | 53    | 120 | 7420       | 28.5       |               |
| Total=108% |      |       |     |            | 118.5      |               |
| Pilar 3    | 25   | #12   | 3   | 67         | 1242       | 11.9          |
|            | 26   | #12   | 1   | 62         | 621        | 3.8           |
|            | 27   | #12   | 2   | 67         | 1310       | 6.4           |
|            | 28   | #12   | 2   | 167        | 340        | 2.1           |
|            | 29   | #12   | 2   | 195        | 330        | 2.0           |
|            | 30   | #8    | 20  | 140        | 2800       | 11.0          |
| Total=108% |      |       |     |            | 43.0       |               |
| Elemento   | Pos. | Diám. | No. | Long. (cm) | Total (cm) | AH=500CN (kg) |
| Pilar 6    | 1    | #12   | 1   | 650        | 2020       | 22.1          |
|            | 2    | #12   | 2   | 480        | 960        | 8.5           |
|            | 3    | #12   | 2   | 455        | 270        | 8.6           |
|            | 4    | #12   | 1   | 425        | 425        | 2.6           |
|            | 5    | #12   | 1   | 355        | 335        | 2.4           |
|            | 6    | #12   | 1   | 360        | 360        | 2.2           |
|            | 7    | #12   | 1   | 315        | 315        | 1.9           |
|            | 8    | #12   | 1   | 315        | 410        | 2.5           |
|            | 9    | #12   | 4   | 630        | 2620       | 15.6          |
|            | 10   | #12   | 2   | 480        | 960        | 5.9           |
|            | 11   | #12   | 1   | 485        | 870        | 6.0           |
|            | 12   | #12   | 2   | 200        | 410        | 2.3           |
|            | 13   | #12   | 2   | 370        | 750        | 4.6           |
|            | 14   | #12   | 2   | 205        | 530        | 3.6           |
|            | 15   | #12   | 2   | 200        | 580        | 3.6           |
|            | 16   | #12   | 2   | 240        | 480        | 4.3           |
|            | 17   | #12   | 2   | 135        | 270        | 1.7           |
|            | 18   | #8    | 112 | 140        | 15840      | 61.8          |
| Total=108% |      |       |     |            | 176.2      |               |
| Pilar 9    | 19   | #12   | 3   | 550        | 1230       | 11.7          |
|            | 20   | #12   | 2   | 510        | 1020       | 9.1           |
|            | 21   | #12   | 2   | 480        | 860        | 5.9           |
|            | 22   | #12   | 1   | 375        | 375        | 2.3           |
|            | 23   | #12   | 7   | 660        | 1320       | 6.1           |
|            | 24   | #12   | 2   | 610        | 1020       | 6.1           |
|            | 25   | #16   | 2   | 255        | 570        | 9.0           |
|            | 26   | #12   | 1   | 175        | 360        | 2.9           |
|            | 27   | #12   | 3   | 145        | 290        | 1.8           |
|            | 28   | #8    | 78  | 140        | 10540      | 42.0          |
| Total=108% |      |       |     |            | 168.9      |               |
| Pilar 10   | 29   | #16   | 2   | 665        | 1336       | 21.1          |
|            | 30   | #12   | 1   | 575        | 200        | 4.3           |
|            | 31   | #12   | 2   | 665        | 1336       | 8.2           |
|            | 32   | #12   | 2   | 175        | 250        | 2.2           |
|            | 33   | #12   | 2   | 170        | 240        | 2.1           |
|            | 34   | #8    | 19  | 140        | 2660       | 10.5          |
| Total=108% |      |       |     |            | 53.2       |               |
| Pilar 11   | 35   | #12   | 7   | 205        | 1076       | 4.0           |
|            | 36   | #12   | 1   | 590        | 394        | 2.4           |
|            | 37   | #12   | 2   | 555        | 1016       | 6.5           |
|            | 38   | #12   | 2   | 140        | 280        | 1.7           |
|            | 39   | #12   | 2   | 138        | 270        | 1.6           |
|            | 40   | #8    | 14  | 140        | 1950       | 7.7           |
| Total=108% |      |       |     |            | 31.7       |               |
| Pilar 12   | 41   | #12   | 3   | 660        | 1320       | 11.7          |
|            | 42   | #12   | 2   | 510        | 1020       | 9.1           |
|            | 43   | #12   | 1   | 550        | 550        | 3.3           |
|            | 44   | #12   | 1   | 505        | 365        | 2.3           |
|            | 45   | #12   | 0   | 660        | 1260       | 6.1           |
|            | 46   | #12   | 7   | 510        | 1020       | 6.3           |
|            | 47   | #16   | 2   | 290        | 580        | 8.9           |
|            | 48   | #12   | 2   | 175        | 350        | 2.2           |
| 49         | #12  | 3     | 145 | 290        | 1.9        |               |
| 50         | #8   | 68    | 140 | 8120       | 32.0       |               |
| Total=108% |      |       |     |            | 97.0       |               |
| Pilar 13   | 51   | #12   | 3   | 666        | 1332       | 11.8          |
|            | 52   | #12   | 1   | 616        | 616        | 3.8           |
|            | 53   | #12   | 2   | 666        | 1332       | 8.2           |
|            | 54   | #12   | 4   | 185        | 740        | 4.1           |
|            | 55   | #8    | 20  | 140        | 2800       | 11.0          |
| Total=108% |      |       |     |            | 42.8       |               |
| Total=108% |      |       |     |            | 65.6       |               |

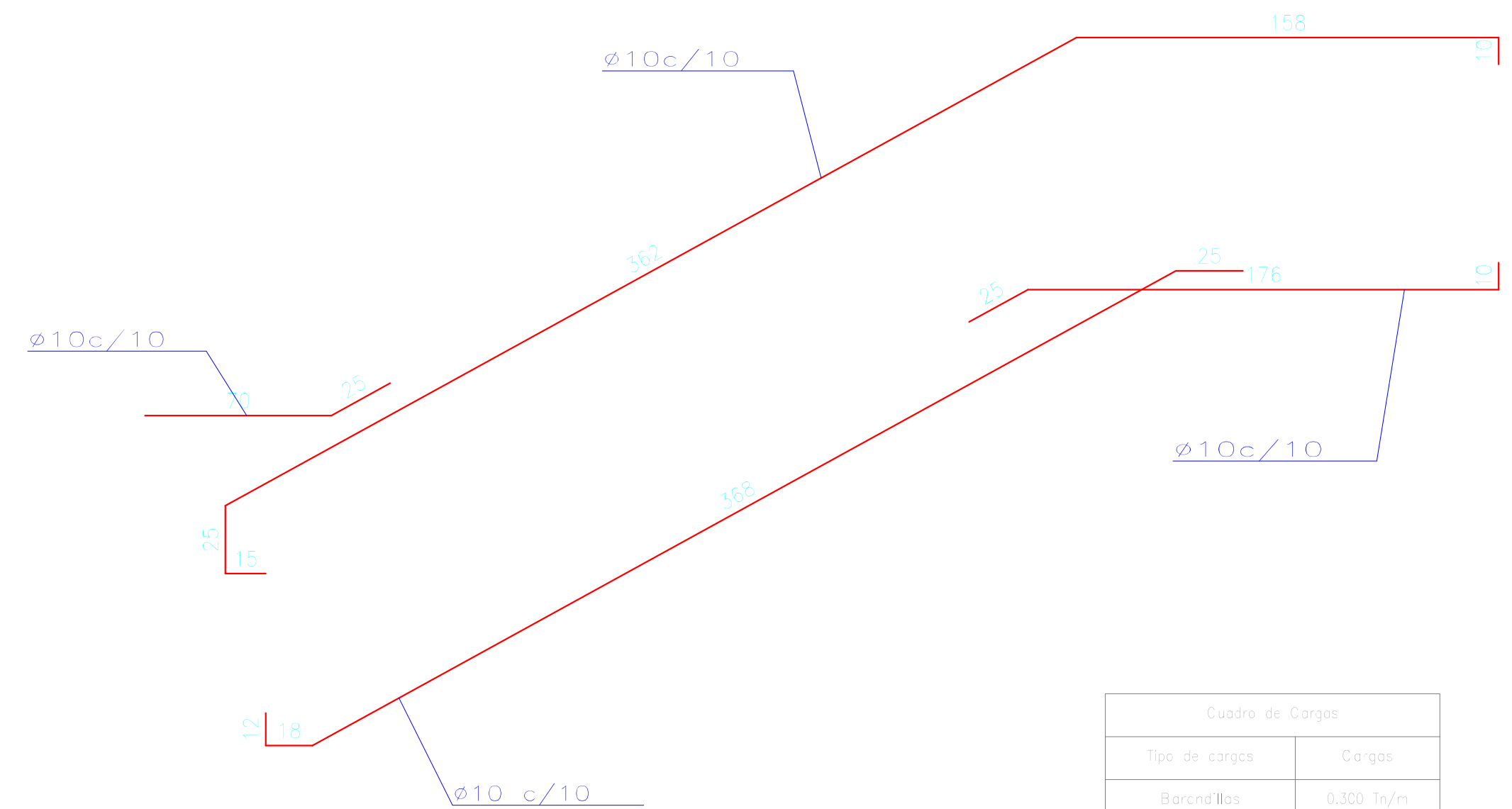
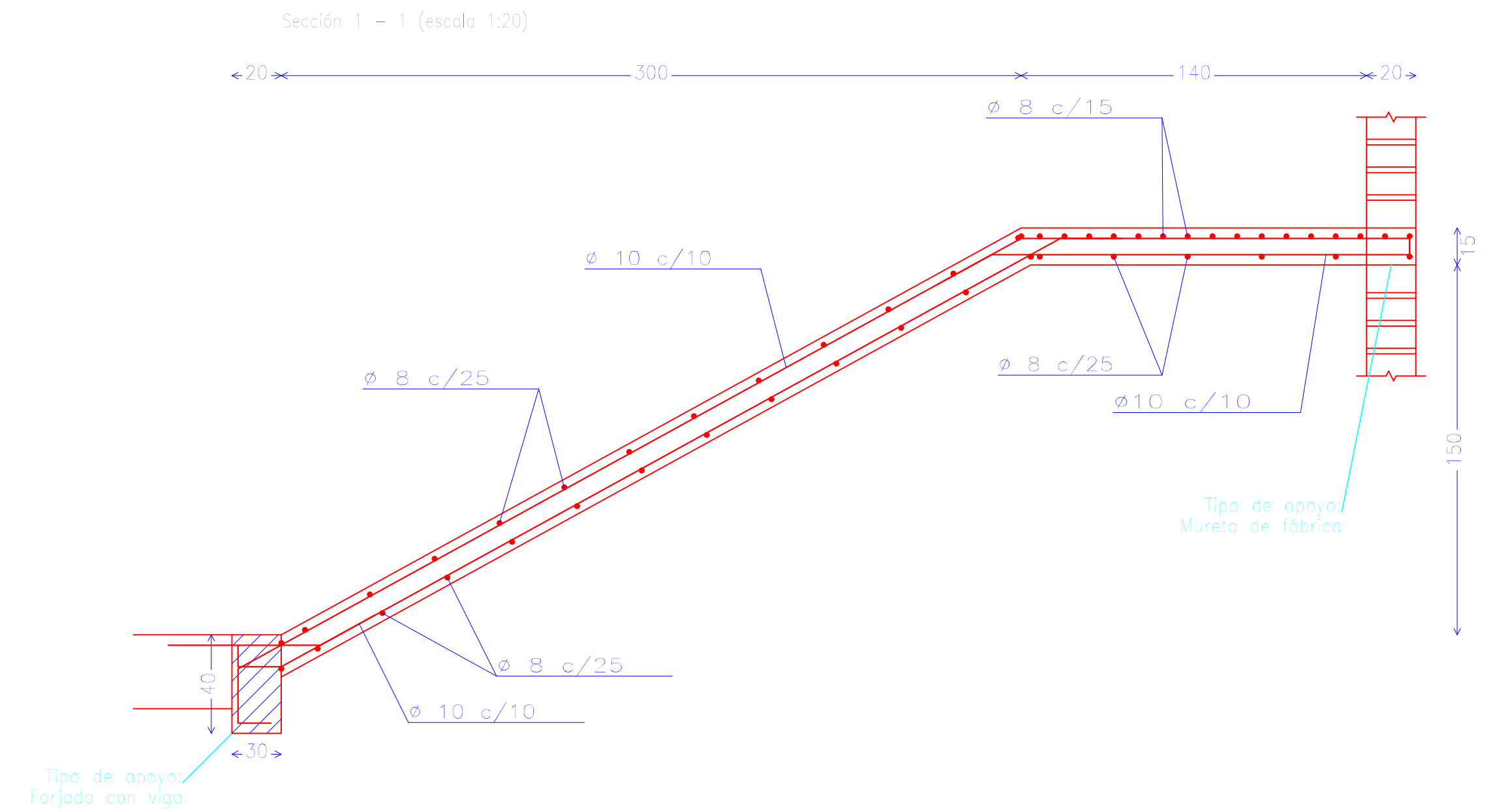
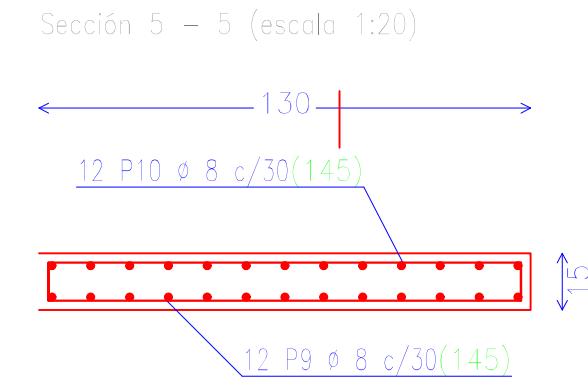
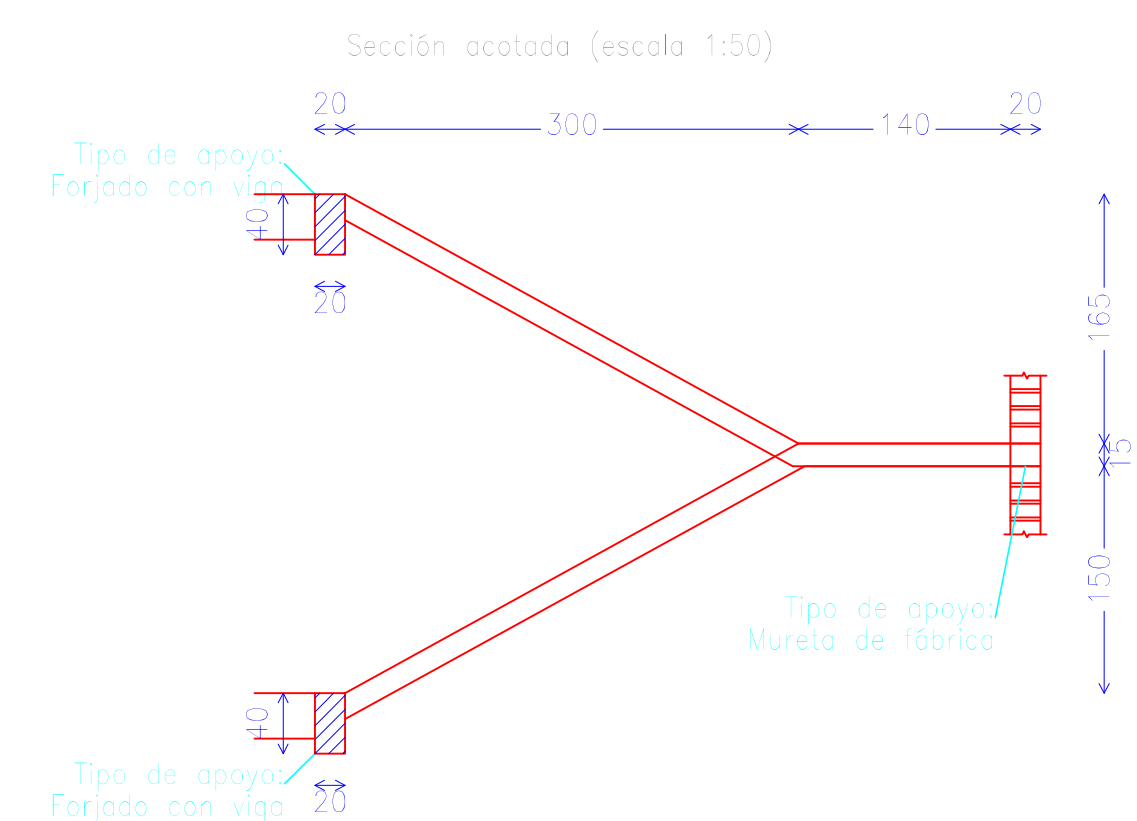
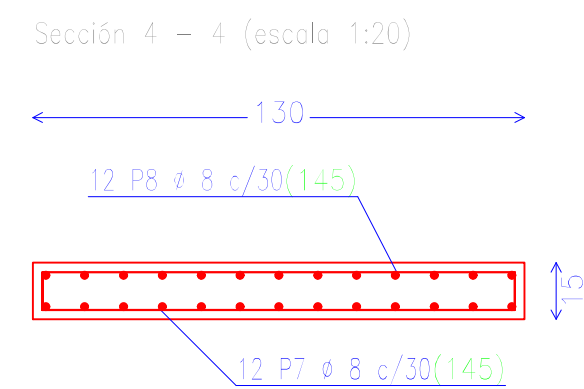
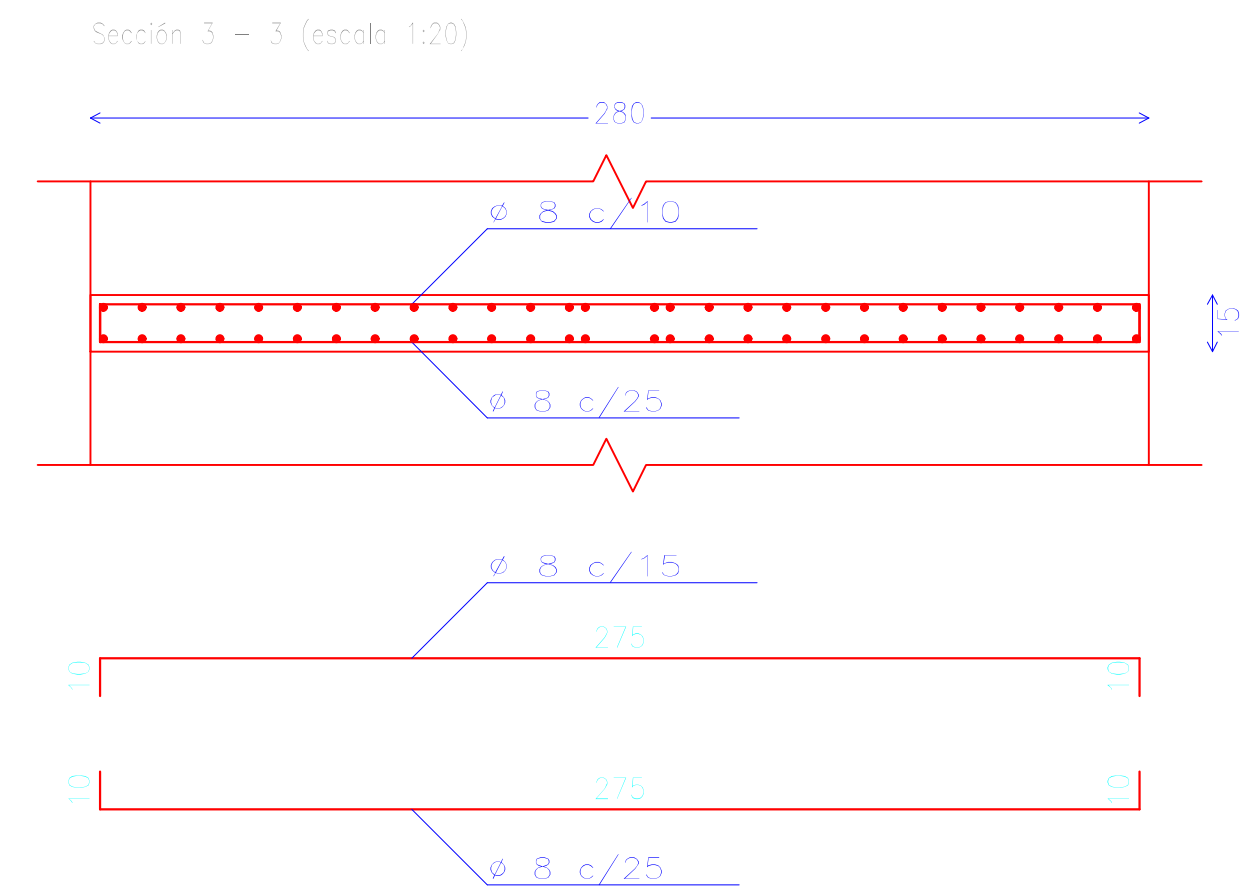
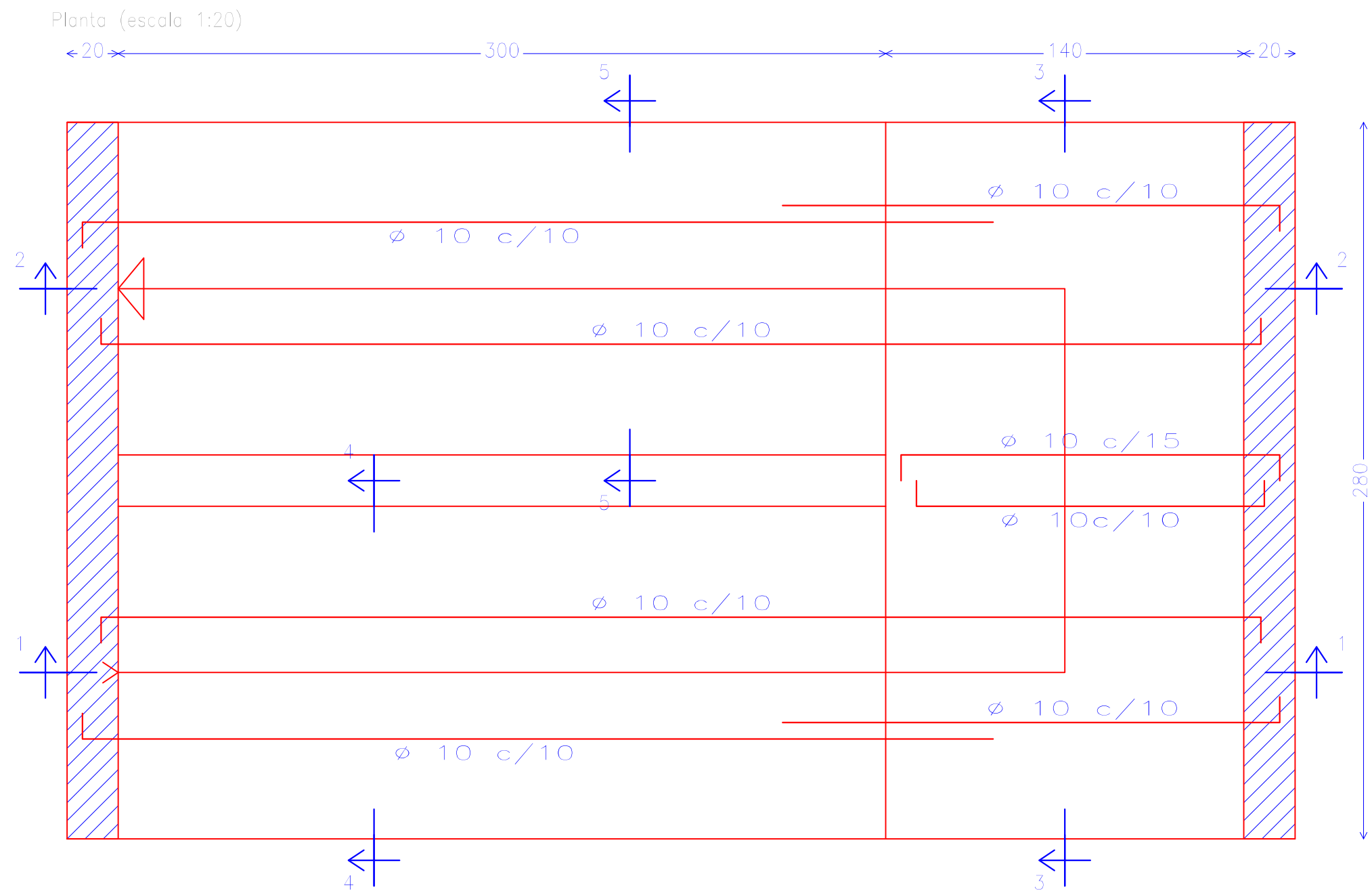
| Elemento   | Pos.      | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
|------------|-----------|-------|-----|---------------|---------------|------------------|
| Pilar 15   | 1         | #12   | 2   | 650           | 1300          | 7.8              |
|            | 2         | #12   | 2   | 650           | 1300          | 7.8              |
|            | 3         | #10   | 2   | 590           | 1000          | 6.3              |
|            | 4         | #12   | 2   | 510           | 1020          | 9.1              |
|            | 5         | #10   | 2   | 470           | 830           | 9.1              |
|            | 6         | #10   | 1   | 390           | 390           | 2.4              |
|            | 7         | #10   | 1   | 360           | 360           | 2.2              |
|            | 8         | #10   | 4   | 630           | 2520          | 15.5             |
|            | 9         | #10   | 2   | 645           | 1290          | 8.0              |
|            | 10        | #10   | 2   | 510           | 1020          | 6.3              |
|            | 11        | #15   | 2   | 305           | 610           | 9.6              |
|            | 12        | #15   | 2   | 285           | 570           | 9.6              |
|            | 13        | #10   | 2   | 280           | 560           | 9.2              |
|            | 14        | #10   | 2   | 70            | 360           | 2.1              |
|            | 15        | #10   | 2   | 230           | 460           | 1.8              |
|            | 16        | #8    | 58  | 40            | 10550         | 39.2             |
| Total= 93% |           |       |     |               | 133.8         |                  |
| Pilar 16   | 17        | #12   | 4   | 630           | 2520          | 22.4             |
|            | 18        | #12   | 2   | 510           | 1020          | 9.1              |
|            | 19        | #12   | 2   | 485           | 970           | 8.6              |
|            | 20        | #10   | 2   | 310           | 620           | 3.1              |
|            | 21        | #10   | 1   | 365           | 365           | 2.4              |
|            | 22        | #10   | 1   | 385           | 385           | 2.4              |
|            | 23        | #10   | 1   | 385           | 385           | 2.3              |
|            | 24        | #10   | 4   | 630           | 2520          | 15.5             |
|            | 25        | #10   | 2   | 510           | 1020          | 6.3              |
|            | 26        | #10   | 2   | 485           | 970           | 6.0              |
|            | 27        | #12   | 1   | 405           | 405           | 3.1              |
|            | 28        | #16   | 2   | 285           | 570           | 9.0              |
|            | 29        | #15   | 2   | 260           | 520           | 8.2              |
|            | 30        | #10   | 2   | 145           | 290           | 1.8              |
|            | 31        | #10   | 2   | 35            | 270           | 1.7              |
|            | 32        | #8    | 75  | 40            | 10550         | 41.4             |
| Total= 93% |           |       |     |               | 162.1         |                  |
| Pilar 17   | 33        | #12   | 2   | 31            | 262           | 2.3              |
|            | 34        | #10   | 1   | 81            | 81            | 0.5              |
|            | 35        | #10   | 2   | 31            | 262           | 1.6              |
|            | 36        | #10   | 2   | 31            | 262           | 1.6              |
|            | 37        | #8    | 2   | 40            | 280           | 1.1              |
|            | Total= 9% |       |     |               |               | 7.8              |
| Pilar 18   | 38        | #12   | 2   | 31            | 262           | 2.3              |
|            | 39        | #10   | 1   | 81            | 81            | 0.5              |
|            | 40        | #10   | 2   | 31            | 262           | 1.6              |
|            | 41        | #10   | 2   | 31            | 262           | 1.6              |
|            | 42        | #8    | 2   | 40            | 280           | 1.1              |
|            | Total= 9% |       |     |               |               | 7.8              |
| #8= 108.7  |           |       |     |               |               |                  |
| #10= 110.9 |           |       |     |               |               |                  |
| #12= 102.4 |           |       |     |               |               |                  |
| #15= 49.8  |           |       |     |               |               |                  |
| #16= 371.8 |           |       |     |               |               |                  |
| Elemento   | Pos.      | Diám. | No. | Long.<br>(cm) | Total<br>(cm) | AH=500CN<br>(kg) |
| Pilar 29   | 1         | #12   | 2   | 510           | 1020          | 9.1              |
|            | 2         | #12   | 2   | 490           | 1020          | 12.0             |
|            | 3         | #12   | 2   | 460           | 900           | 8.0              |
|            | 4         | #10   | 1   | 365           | 365           | 2.2              |
|            | 5         | #10   | 1   | 365           | 365           | 1.9              |
|            | 6         | #10   | 1   | 270           | 270           | 1.7              |
|            | 7         | #10   | 1   | 265           | 265           | 1.6              |
|            | 8         | #10   | 2   | 210           | 420           | 2.6              |
|            | 9         | #10   | 2   | 12            | 220           | 1.4              |
|            | 10        | #10   | 2   | 125           | 250           | 1.4              |
|            | 11        | #10   | 2   | 510           | 1020          | 6.3              |
|            | 12        | #10   | 2   | 475           | 1000          | 11.7             |
|            | 13        | #10   | 2   | 270           | 540           | 2.6              |
|            | 14        | #10   | 2   | 380           | 760           | 4.7              |
|            | 15        | #10   | 2   | 295           | 590           | 3.6              |
|            | 16        | #10   | 2   | 55            | 390           | 2.4              |
| 17         | #10       | 2     | 55  | 390           | 2.3           |                  |
| 18         | #10       | 2     | 45  | 290           | 1.8           |                  |
| 19         | #8        | 64    | 40  | 8950          | 35.4          |                  |
| Total= 93% |           |       |     |               | 150.1         |                  |
| Pilar 30   | 20        | #12   | 4   | 480           | 1920          | 17.0             |
|            | 21        | #12   | 2   | 565           | 1010          | 9.0              |
|            | 22        | #12   | 2   | 450           | 900           | 8.0              |
|            | 23        | #10   | 1   | 365           | 365           | 2.3              |
|            | 24        | #10   | 1   | 350           | 350           | 2.0              |
|            | 25        | #10   | 1   | 310           | 310           | 1.9              |
|            | 26        | #10   | 1   | 270           | 270           | 1.7              |
|            | 27        | #10   | 2   | 210           | 420           | 2.6              |
|            | 28        | #10   | 2   | 110           | 220           | 1.4              |
|            | 29        | #10   | 1   | 85            | 85            | 0.5              |
|            | 30        | #10   | 2   | 500           | 1000          | 6.2              |
|            | 31        | #10   | 4   | 475           | 1900          | 11.7             |
|            | 32        | #10   | 2   | 460           | 920           | 8.0              |
|            | 33        | #10   | 2   | 205           | 410           | 2.5              |
|            | 34        | #10   | 2   | 110           | 220           | 1.4              |
|            | 35        | #10   | 2   | 385           | 770           | 4.7              |
| 36         | #10       | 2     | 295 | 590           | 3.6           |                  |
| 37         | #10       | 2     | 95  | 390           | 2.4           |                  |
| 38         | #10       | 2     | 35  | 270           | 1.7           |                  |
| 39         | #10       | 1     | 15  | 150           | 1.4           |                  |
| 40         | #8        | 65    | 40  | 9250          | 36.5          |                  |
| Total= 93% |           |       |     |               | 137.1         |                  |
| Pilar 43   | 41        | #12   | 2   | 375           | 750           | 6.7              |
|            | 42        | #10   | 1   | 235           | 235           | 1.4              |
|            | 43        | #10   | 2   | 375           | 750           | 4.6              |
|            | 44        | #10   | 4   | 425           | 1700          | 2.6              |
|            | 45        | #8    | 9   | 40            | 1200          | 5.0              |
| Total 103% |           |       |     |               | 22.3          |                  |







ESCALERA TIPO I



| Elemento    | Pos. | Diám. | No. | Pat. (cm) | Recta (cm) | Pat. (cm) | Long. (cm) | Total (cm) | B420 S. CN (Kg) |
|-------------|------|-------|-----|-----------|------------|-----------|------------|------------|-----------------|
| Escala      | 1    | Ø12   | 13  |           | 423        |           | 423        | 5469       | 48.8            |
|             | 2    | Ø12   | 13  |           | 559        |           | 559        | 7267       | 64.5            |
|             | 3    | Ø10   | 13  |           | 570        |           | 570        | 7410       | 45.7            |
|             | 4    | Ø10   | 13  |           | 95         |           | 95         | 1225       | 7.6             |
|             | 5    | Ø10   | 6   |           | 295        |           | 295        | 1770       | 10.9            |
|             | 6    | Ø10   | 16  |           | 295        |           | 295        | 4720       | 29.7            |
|             | 7    | Ø10   | 12  |           | 145        |           | 145        | 1740       | 10.7            |
|             | 8    | Ø10   | 12  |           | 145        |           | 145        | 1740       | 10.7            |
|             | 9    | Ø10   | 12  |           | 145        |           | 145        | 1740       | 10.7            |
|             | 10   | Ø10   | 12  |           | 145        |           | 145        | 1740       | 10.7            |
|             | 11   | Ø10   | 13  |           | 436        |           | 436        | 5668       | 34.9            |
|             | 12   | Ø12   | 13  |           | 211        |           | 211        | 2743       | 24.4            |
|             | 13   | Ø10   | 13  |           | 215        |           | 215        | 2755       | 17.2            |
|             | 14   | Ø12   | 2   |           | 175        |           | 175        | 350        | 3.7             |
|             | 15   | Ø10   | 2   |           | 175        |           | 175        | 350        | 2.2             |
| Total ± 10% |      |       |     |           |            |           |            |            | 364.3           |
| Ø10:        |      |       |     |           |            |           |            |            | 209.4           |
| Ø12:        |      |       |     |           |            |           |            |            | 154.9           |
| Total:      |      |       |     |           |            |           |            |            | 364.3           |

| Cuadro de Cargas  |             |
|-------------------|-------------|
| Tipo de cargas    | Cargas      |
| Barandillas       | 0.300 Tn/m  |
| Scorecarga de uso | 0.300 Tn/m2 |
| Pedifacado        | 0.200 Tn/m2 |

PLANILLA DE FIERROS - ESCALERA TIPO I

UNIVERSIDAD AUTONOMA "JUAN MISAEL SARACHO"  
FACULTAD DE CIENCIAS Y TECNOLOGIA

DISEÑO ESTRUCTURAL  
DE UN CENTRO POLICIAL  
COMUNIDAD RANCHO SUD

CONTENIDO:  
  
ESCALERA

UNIVERSITARIO:  
UNIV. CAMACHO SUBIA LUIS FERNANDO

ESCALA:  
1:100

PLANO  
16/16

VoBo