

Technical drawing of a reinforced concrete slab cross-section (Corte A-A) showing reinforcement details and dimensions.

**Dimensions and Reinforcement:**

- Top Reinforcement:**
  - Left side: 2  $\varnothing 8$
  - Right side: 2  $\varnothing 8$
- Bottom Reinforcement:**
  - Left side: 2  $\varnothing 8$
  - Right side: 2  $\varnothing 8$
- Vertical Dimensions:**
  - Top: 15/45
  - Bottom: 15/45
- Horizontal Dimensions:**
  - Left side: 144, 94, 36
  - Right side: 524, 36
- Reinforcement Labels:**
  - Top: N6 C/25, 18  $\varnothing 5$
  - Bottom: N6 C/25, 13  $\varnothing 5$
  - Left side: P51
  - Right side: P31, P25
- Other Labels:**
  - 144, 94, 36, 524, 36, 31, 144, 94, 36, 524, 36, 31, 144, 94, 36, 524, 36, 31

Technical drawing of a roof structure showing a cross-section and elevation. The cross-section at the top shows a roof with a 15/45 pitch, supported by a wall with a 15/45 pitch. The wall has a thickness of 36 cm. The roof structure includes a main beam (P49) and a secondary beam (P29). The main beam is supported by a wall (P23) and has a height of 144 cm. The secondary beam is supported by a wall (P29) and has a height of 529 cm. The main beam has a diameter of 2 N2 Ø 8 C=180. The secondary beam has a diameter of 2 N3 Ø 8 C=565. The main beam is supported by a wall (P23) and has a height of 144 cm. The secondary beam is supported by a wall (P29) and has a height of 529 cm. The main beam has a diameter of 2 N2 Ø 8 C=180. The secondary beam has a diameter of 2 N3 Ø 8 C=565. The main beam is supported by a wall (P23) and has a height of 144 cm. The secondary beam is supported by a wall (P29) and has a height of 529 cm. The main beam has a diameter of 2 N2 Ø 8 C=180. The secondary beam has a diameter of 2 N3 Ø 8 C=565.

[illegible]

15/45

15/45

Corte A

2 Ø 8

2 Ø 8

2 Ø 8

2 Ø 8

P43

P36

P17

826

2 N1 Ø 8

C=900

37

37

20

405

2 N2 Ø 8

C=425

405

2 N2 Ø 8

C=425

20

30

N3 Ø 5

C=1

9

39

Technical drawing of a reinforced concrete slab (P41) showing dimensions and reinforcement details. The drawing includes a plan view and a cross-section view.

**Plan View Dimensions:**

- Overall width: 15/45
- Overall length: 15/45
- Reinforcement spacing:  $N3 \ C/25$
- Reinforcement diameter:  $15 \varnothing 5$
- Reinforcement diameter:  $2 \varnothing 8$

**Cross-Section View:**

- Section line: A-A
- Section label: P41
- Section label: P34
- Section label: P15
- Section label: Corte
- Section label: 9
- Section label: 39
- Section label: 36
- Section label: 20
- Section label: 405
- Section label:  $2 \ N1 \ \varnothing \ 8$
- Section label:  $C=895$
- Section label:  $2 \ N2 \ \varnothing \ 8 \ C=425$
- Section label:  $2 \ N3 \ \varnothing \ 5 \ C=425$

Technical drawing of a reinforced concrete slab (P40) showing dimensions and reinforcement details. The drawing includes a plan view and a cross-section view (Corte A-A).

**Plan View Dimensions:**

- Overall width: 15/45
- Overall length: 15/45
- Reinforcement spacing:  $N3 \ C/25$  (15 Ø 5)
- Reinforcement diameter:  $2 \ Ø 8$

**Cross-Section View (Corte A-A):**

- Slab thickness: 821
- Reinforcement diameter:  $2 \ N1 \ Ø 8$
- Reinforcement spacing:  $C=895$
- Reinforcement diameter:  $2 \ Ø 8$
- Reinforcement spacing:  $30 \ N3 \ Ø 5$
- Reinforcement diameter:  $2 \ Ø 8$
- Reinforcement spacing:  $C=425$
- Reinforcement diameter:  $2 \ N2 \ Ø 8$
- Reinforcement spacing:  $C=425$

15/45

15/45

Corte A

35

770

35

20

39

9

30 N3 Ø 5 C=111

N3 C/25  
15 Ø 5

N3 C/25  
15 Ø 5

2 Ø 8

2 Ø 8

2 Ø 8

2 Ø 8

2 Ø 8

2 Ø 8

2 N2 Ø 8 C=405

2 N2 Ø 8 C=405

2 N1 Ø 8  
C=840

P37

P38

P39

[illegible]

Technical drawing of a beam-column joint (Corte A-A) showing reinforcement details. The drawing includes a top view and a side elevation.

**Top View:**

- Beam width: 370
- Beam height: 350
- Reinforcement: 2 N2 Ø 8 C=390
- Section line A-A is indicated with arrows pointing to the left and right views.

**Side Elevation:**

- Beam width: 370
- Beam height: 350
- Reinforcement: 2 N1 Ø 8 C=810
- Section line A-A is indicated with arrows pointing to the left and right views.

1. MEDIDAS EM CENTIMETROS, ELEVÇÃO EM METROS, EXCETO INDICAÇÃO CONTRÁRIA;
2. CONCRETO ESTRUTURAL:  
 $f_{ck} = 25 \text{ MPa}$  ( $250 \text{ kg/cm}^2$ )  
fator água/cimento (a/c)  $\leq 0,45$   
Aço CA-50  $f_{yk} = 500 \text{ MPa}$  e Aço CA-60  $f_{yk} = 600 \text{ MPa}$   
Dimensão máxima do agregado =  $19 \text{ mm}$   
Tensão Admissível do Solo:  $\geq 50 \text{ kN/m}^2$  ( $0,50 \text{ kgf/cm}^2$ ).
3. CORTAR E DOBRAR OS FERROS QUANDO INTERFERIREM COM FUROS.
4. TODO ELEMENTO ESTRUTURAL EM CONTATO COM O SOLO DEVERÁ SER EXECUTADO SOBRE UM LASTRO DE NO MÍNIMO  $5 \text{ cm}$  DE CONCRETO MAGRO COM TEOR DE CIMENTO  $> 250 \text{ kg/m}^3$  (EXCETO QUANDO INDICADO);
5. CLASSE DE AGRESSIVIDADE ADOTADA: II (MODERADA) PARA TODOS OS ELEMENTOS.  
Cobrimento:  $3,0 \text{ cm}$

|     | AÇO | POS | BIT |    | QUANT | COMPRIIMENTO |             |
|-----|-----|-----|-----|----|-------|--------------|-------------|
|     |     |     |     | mm |       | UNIT         | TOTAL<br>cm |
| V5  |     | 50A | 1   | 8  | 2     | 810          | 1620        |
|     |     | 50A | 2   | 8  | 4     | 390          | 1560        |
|     |     | 60A | 3   | 5  | 28    | 111          | 3108        |
|     |     |     |     |    |       |              |             |
| V9  |     | 50A | 1   | 8  | 2     | 840          | 1680        |
|     |     | 50A | 2   | 8  | 4     | 405          | 1620        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V13 |     | 50A | 1   | 8  | 2     | 895          | 1790        |
|     |     | 50A | 2   | 8  | 4     | 425          | 1700        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V14 |     | 50A | 1   | 8  | 2     | 895          | 1790        |
|     |     | 50A | 2   | 8  | 4     | 425          | 1700        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V15 |     | 50A | 1   | 8  | 2     | 895          | 1790        |
|     |     | 50A | 2   | 8  | 4     | 425          | 1700        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V16 |     | 50A | 1   | 8  | 2     | 900          | 1800        |
|     |     | 50A | 2   | 8  | 4     | 425          | 1700        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V17 |     | 50A | 1   | 8  | 2     | 900          | 1800        |
|     |     | 50A | 2   | 8  | 4     | 425          | 1700        |
|     |     | 60A | 3   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V20 |     | 50A | 1   | 8  | 2     | 155          | 310         |
|     |     | 60A | 2   | 5  | 2     | 305          | 610         |
|     |     | 50A | 3   | 10 | 2     | 400          | 800         |
|     |     | 50A | 4   | 8  | 2     | 205          | 410         |
|     |     | 50A | 5   | 8  | 2     | 205          | 410         |
|     |     | 50A | 6   | 6  | 2     | 650          | 1300        |
|     |     | 60A | 7   | 5  | 30    | 111          | 3330        |
|     |     |     |     |    |       |              |             |
| V21 |     | 60A | 1   | 5  | 2     | 210          | 420         |
|     |     | 50A | 2   | 8  | 2     | 180          | 360         |
|     |     | 50A | 3   | 8  | 2     | 565          | 1130        |
|     |     | 50A | 4   | 8  | 2     | 485          | 970         |
|     |     | 50A | 5   | 8  | 2     | 375          | 750         |
|     |     | 60A | 6   | 5  | 31    | 111          | 3441        |
|     |     |     |     |    |       |              |             |
|     |     |     |     |    |       |              |             |
| V22 |     | 60A | 1   | 5  | 2     | 365          | 730         |
|     |     | 50A | 2   | 8  | 2     | 445          | 890         |
|     |     | 50A | 3   | 8  | 2     | 580          | 1160        |
|     |     | 50A | 4   | 8  | 2     | 200          | 400         |
|     |     | 60A | 5   | 5  | 28    | 111          | 3108        |
|     |     |     |     |    |       |              |             |
|     |     |     |     |    |       |              |             |
|     |     |     |     |    |       |              |             |
| V23 |     | 60A | 1   | 5  | 2     | 210          | 420         |
|     |     | 50A | 2   | 8  | 2     | 180          | 360         |
|     |     | 50A | 3   | 8  | 2     | 565          | 1130        |
|     |     | 50A | 4   | 8  | 2     | 490          | 980         |
|     |     | 50A | 5   | 8  | 2     | 370          | 740         |
|     |     | 60A | 6   | 5  | 31    | 111          | 3441        |
|     |     |     |     |    |       |              |             |
|     |     |     |     |    |       |              |             |
| V26 |     | 60A | 1   | 5  | 2     | 215          | 430         |
|     |     | 50A | 2   | 8  | 2     | 180          | 360         |
|     |     | 50A | 3   | 8  | 2     | 560          | 1120        |
|     |     | 50A | 4   | 8  | 2     | 495          | 990         |
|     |     | 50A | 5   | 8  | 2     | 365          | 730         |
|     |     | 60A | 6   | 5  | 31    | 111          | 3441        |
|     |     |     |     |    |       |              |             |
|     |     |     |     |    |       |              |             |

| RESUMO DE AÇO |       |       |         |
|---------------|-------|-------|---------|
| AÇO           | BIT   | COMPR | PESO    |
|               | mm    | m     | kgf     |
| 60A           | 5     | 430   | 66      |
| 50A           | 8     | 382   | 151     |
| 50A           | 10    | 8     | 5       |
| Peso Total    | 60A = |       | 66 kgf  |
| Peso Total    | 50A = |       | 156 kgf |

|         |            |         |                                             |          |             |           |
|---------|------------|---------|---------------------------------------------|----------|-------------|-----------|
|         |            |         |                                             |          |             |           |
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|             |                                           |                                                                                 |                                                                                                      |
|-------------|-------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
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| PROJETO:    |                                           | VIGA DE COBERTURA                                                               |                                                                                                      |
| LOCALIDADE: |                                           | RUA NÚCLEO COLÔNIAL LANDULFO ALVES, Km 40, BR 324 - CANDEIAS-BA                 |                                                                                                      |
| TÍTULO:     |                                           | ESCOLA ARGENTINA CASTELO BRANCO<br>DETALHAMENTO VIGA DE COBERTURA - FOLHA 21/23 | REVISÃO: 00<br>ESCALA: INDICADA                                                                      |
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