

FUNDAÇÃO - L1  
ESC 1:20

38  
0  
VAR C=VAR  
4 N21 ø10.0 C=VAR  
20  
15  
30  
24  
9  
9 N1 ø5.0 C=78  
VAR  
9 N1 ø12  
ESC 1:25

FUNDAÇÃO - L1  
ESC 1:20

15  
30  
9 N1 Ø5.0 C=78

FUNDAÇÃO - L1  
ESC 1:20

38  
0  
VAR  
4 N21 ø10.0 C=VAR  
9 N1 ø12  
VAR  
20  
9 N1 ø5.0 C=78  
15  
30  
24  
9  
FUND. L1  
ESC 1:25

2 N5 ø8.0 C=669 (1c)

0

A

P1

A

P2

30

292.5

15 x 30

292.5

20 N1 c/15

30

292.5

15 x 30

292.5

20 N1 c/15

30

2 N5 ø8.0 C=669 (1c)

Technical drawing of a rectangular plate. The top view shows a rectangle with dimensions 30 (height) and 15 (width). The side view shows a rectangle with dimensions 24 (height) and 9 (width). The plate is labeled 40 N1 ø5.0 C=78.

2 N5 ø8.0 C=669 (1c)

0

A

P4

P5

VB10

A

30

292.5

15 x 30

292.5

20 N1 c/15

30

292.5

15 x 30

292.5

20 N1 c/15

30

2 N5 ø8.0 C=669 (1c)

Technical drawing of a rectangular plate. The top view shows a rectangle with dimensions 30 (height) and 15 (width). The side view shows a rectangle with dimensions 24 (height) and 9 (width). The plate is labeled 40 N1 ø5.0 C=78.

SEÇÃO A-A  
ESC 1:25

2 N6 ø8.0 C=424 (1c)

0

P7

A

P8

30

370

15 x 30

370

25 N1 c/15

30

2 N6 ø8.0 C=424 (1c)

30

24

9

25 N1 ø5.0 C=70

FUNDAÇÃO:	13xS1	3xS16
	S13	VB1
	VB2	VB3
	VB4	VB5
	VB6	VB7
	VB8	VB9
	VB10	VB11
	VB12	
TERREÇO:	17xP1	V1

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (m³)
CA60	1	5.3	1070	78	8346
CA50	2	6.0	234	109	25500
	3	6.3	60	119	7144
	4	6.3	24	114	2731
	5	8.0	12	869	8020
	6	8.0	4	424	1679
	7	8.0	4	677	2700
	8	8.0	2	707	1413
	9	8.0	6	705	4239
	10	8.0	9	1039	8313
	11	8.0	3	82	24
	12	8.0	1	190	19
	13	8.0	2	659	1311
	14	8.0	2	677	1359
	15	8.0	4	219	874
	16	8.0	4	255	1022
	17	8.0	2	442	88
	18	8.0	2	470	94
	19	8.0	1	165	16
	20	8.0	1	102	10
	21	10.0	68	VAR	68
	22	10.0	68	297	2019

AÇO	DIAM (mm)	C.TOTAL (m)	PESO + 10 % (kg)
CA50	6.3	353.9	95.2
	8.0	334.9	145.3
	10.0	308.1	208.9
CA60	5.0	834.6	141.5
PESO TOTAL (kg)			
CA50	449.5		
CA60	141.5		

Volume de concreto (C-25) = 9.62 m<sup>3</sup>  
Área de forma = 136 m<sup>2</sup>

SEÇÃO A-A  
ESC 1:25

22 20 15 10

669 669

2 N8 ø8.0 C=707 (1c) 2 N7 ø8.0 C=677 (1c)

0 A A P9 P10 P11

15 392.5 15 30 222.5 15 222.5 10

15 x 30 15 x 30

27 N1 c/15 15 N1 c/15

9 24

42 N1 ø5.0 C=78

Technical drawing of a window frame assembly. The drawing shows a cross-section of the frame with various dimensions and components labeled.

**Top Section:**

- Overall width: 669
- Top profile: 2 N9 ø8.0 C=705 (1c)
- Top corner radius: R
- Top corner dimension: 0

**Bottom Section:**

- Overall width: 669
- Bottom profile: 2 N5 ø8.0 C=669 (1c)
- Bottom corner radius: R
- Bottom corner dimension: 0

**Side Sections:**

- Left side profile: P12
- Right side profile: P14
- Side corner radius: R
- Side corner dimension: 0

**Internal Dimensions and Components:**

- Internal width: 307.5
- Internal height: 307.5
- Internal profile: 15 x 30
- Internal corner radius: R
- Internal corner dimension: 0
- Internal profile: 21 N1 c/15

**Notes:**

- SEÇÃO A-A
- ESC 1:25
- 42 N1 ø5.0 C=705

SEÇÃO A-A  
ESC 1:25

SEÇÃO B-B  
ESC 1:25

2 N9 ø8.0 C=705 (1c)

669

20

0

A

P15

P16

P17

307.5

15 x 30

307.5

15 x 30

307.5

21 N1 c/15

21 N1 c/15

669

2 N7 ø8.0 C=677 (1c)

10

15

30

15

10

9

24

42 N1 ø5.0 C=78

Technical drawing of a reinforced concrete slab cross-section. The drawing shows a horizontal slab with a top reinforcement bar (1 N11 ø8.0 C=82) and a bottom reinforcement bar (2 N10 ø8.0 C=1039). The slab is supported by a wall on the left and a column on the right. The wall has a thickness of 150 mm. The column has a diameter of 95 mm. The slab thickness is 150 mm. The drawing includes dimensions for the reinforcement bars, the wall thickness, and the column diameter. The reinforcement bars are labeled with their diameter, length, and spacing. The wall and column are labeled with their dimensions. The slab is labeled with its thickness. The drawing is a cross-section view, showing the internal structure of the slab and its supports.

Technical drawing of a reinforced concrete slab (SEÇÃO A-A) showing dimensions and reinforcement details. The drawing includes a side elevation and two cross-sections.

**Side Elevation:**

- Top reinforcement: 2 N14  $\varnothing$ 8.0 C=677
- Bottom reinforcement: 2 N13  $\varnothing$ 8.0 C=659 (1c)
- Span lengths: 185, 210, 195
- Support widths: 30, 15, 15, 15
- Column widths: 15 x 30, 15 x 30, 15 x 30
- Reinforcement labels: P9, P7, P4, A, P1

**Cross-sections:**

- Top cross-section: 80 cm height, 15 cm width, 15 mm reinforcement bar.
- Bottom cross-section: 24 cm height, 9 cm width, 15 mm reinforcement bar.

**Labels and Dimensions:**

- Top reinforcement: 2 N14  $\varnothing$ 8.0 C=677
- Bottom reinforcement: 2 N13  $\varnothing$ 8.0 C=659 (1c)
- Span lengths: 185, 210, 195
- Support widths: 30, 15, 15, 15
- Column widths: 15 x 30, 15 x 30, 15 x 30
- Reinforcement labels: P9, P7, P4, A, P1
- Section label: SEÇÃO A-A
- Scale: ESC 1:25
- Bottom reinforcement: 40 N1  $\varnothing$ 8.0 C=78

[illegible]

20

2 N18 ø8.0 C=470 (1c)

434

20

0

r A

P10

P8

A

VB2

15 15 30

185

15 15 30

225

13 N11 c/15

185

14 N11 c/15

210

434

2 N17 ø8.0 C=442 (1c)

10

SEÇÃO A-A

ESC 1:25

30

15

24

9

27 N11 ø5.0 C=780

Technical drawing of a reinforced concrete slab (L. A) showing top and side views.

**Top View:**

- Overall dimensions: 150 (width) x 70 (depth).
- Reinforcement details:
  - 2 N10 ø8.0 C=1039 (1c)
  - 1 N19 ø8.0 C=165 (1c)
  - 1 N20 ø8.0 C=102 (1c)
- Section line A-A is indicated.

**Side View:**

- Slab thickness: 30 cm.
- Reinforcement details:
  - 32 N1 c/15
  - 32 N1 ø5.0 C=78
- Reinforcement bars are shown with dimensions: 477.5, 15 x 30, and 30.

SEÇÃO A-A  
ESC 1:25

20 2 N16 ø8.0 C=255 (1c) 20

219

0 A

P6 P3

15 195 15

15 x 30

13 N1 c/15

2 N16 ø8.0 C=219 (1c)

30 15

24 9

13 N1 ø5.0 C=78

TERREO - L2

ESC 1:20

300


200

250

300

0

ATUALIZAÇÃO

CONTRATADA:  CARVALHO AMARAL ENGENHARIA  
CNPJ N°: 16.783.066/0001-35  
Avenida Mestre Fininha, n° 726, 1° andar  
Centro, Montes Claros/MG,  
CEP: 39401-074

CONTRATANTE:

PREFEITURA MUNICIPAL DE JAPONVÁR/MG



CNPJ N°: 01.612.476/0001-46  
Rua Curitiba, 112  
Centro, Japãovar/MG,

TÍTULO: PROJETO ESTRUTURAL  
REFORMA E AMPLIAÇÃO ESCOLA M. ÁUREA ROD. AGUIA  
FUNDAÇÃO, VIGAS BALDRAMES E PILARES

ENDEREÇO DA OBRA:  
COMUNIDADE VILA SÃO  
CRISTOVÃO

DATA:	13/10/202
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ESCALA:	INDICADA
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PRANCHA:

ARQUIVO: DE-2021.1653-MG.JAP-EST-EXE.001=0 02/04

02/04