

Technical drawing of a reinforced concrete beam cross-section and longitudinal section.

Cross-section (Top):

- Overall width: 1200 mm
- Top flange width: 200 mm
- Web width: 1000 mm
- Bottom flange width: 200 mm
- Reinforcement: 2 N19 ø10.0 C=1019 (1c) at the top and 2 N18 ø10.0 C=1010 (1c) at the bottom.

Longitudinal section (Bottom):

- Supports: P1, P2, P3
- Reinforcement details:
 - 20 x 30 mm bars at 150 mm spacing (22 N1 c/15)
 - 20 x 30 mm bars at 150 mm spacing (19 N1 c/15)
 - 20 x 30 mm bars at 150 mm spacing (20 N1 c/15)
- Dimensions: 20 x 30 mm bars at 150 mm spacing, 20 x 30 mm bars at 150 mm spacing, 20 N1 c/15 mm spacing.
- Total length: 1009 mm

Technical drawing of a reinforced concrete beam cross-section and elevation.

Cross-section (Top View):

- Beam width: 300 mm
- Beam height: 300 mm
- Top reinforcement: 1 N35 ø12.5, C=380
- Bottom reinforcement: 2 N37 ø12.5, C=684
- Central vertical reinforcement: 1 N36 ø12.5, C=287

Elevation (Side View):

- Beam length: 6840 mm
- Column width: 300 mm
- Column height: 300 mm
- Top reinforcement: 1 N35 ø12.5, C=380
- Bottom reinforcement: 2 N37 ø12.5, C=684
- Central vertical reinforcement: 1 N36 ø12.5, C=287
- Column reinforcement: 4 N1 ø5.0, C=150

Technical drawing of a reinforced concrete beam (Fig. 10.10) showing longitudinal and cross-sectional views with reinforcement details.

Longitudinal Section:

- Top reinforcement: 3 N41 $\varnothing$ 12.5 C=312 (1c)
- Bottom reinforcement: 2 N40 $\varnothing$ 12.5 C=264 (1c)
- Intermediate reinforcement: 1 N39 $\varnothing$ 12.5 C=200 (1c)
- Side reinforcement: 1 N4 $\varnothing$ 8.0 C=81 (1c) on each side
- Dimensions: Total length 264, end zones 27, central zone 230, end zones 20.
- Labels: P8, P9, A, R, ESC 1:25

Cross-section:

- Width: 24
- Height: 30
- Reinforcement: 16 N1 $\varnothing$ 5.0 C=6

Technical drawing of a door assembly, showing a cross-section and a front view.

Cross-section view (top):

- Door thickness: 25
- Frame thickness: 10
- Door width: 264
- Handle (P8) offset from left edge: 20
- Lock (P9) offset from right edge: 20
- Door handle height: 20
- Door handle width: 20
- Door handle depth: 20
- Door handle material: 2 N6 ø8.0 C=295 (1c)
- Door lock material: 2 N5 ø8.0 C=273 (1c)
- Door lock height: 20
- Door lock width: 20
- Door lock depth: 20
- Door lock material: 2 N5 ø8.0 C=273 (1c)

Front view (bottom):

- Door width: 264
- Door height: 24
- Door material: 2 N6 ø8.0 C=295 (1c)
- Door lock material: 2 N5 ø8.0 C=273 (1c)

Scale: ESC 1:25

Relação do aço						
VB101	VB102		VB103			
VB104	VB105		VB106			
VB107	VB108		VB109			
VB110	VB111		VB112			
VB113	VB114		VB115			
VB116	VB117					

AÇO	N	DIAM (mm)	QUANT	C.UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	497	87	43239
	2	5.0	63	77	4851
CA50	3	8.0	2	150	300
	4	8.0	3	81	243
	5	8.0	2	273	546
	6	8.0	2	295	590
	7	8.0	2	656	1312
	8	8.0	2	670	1340
	9	8.0	4	558	2232
	10	8.0	1	84	84
	11	8.0	2	186	372
	12	8.0	2	224	448
	13	8.0	2	118	236
	14	8.0	2	139	278
	15	8.0	1	129	129
	16	8.0	1	92	92
	17	8.0	1	77	77
	18	10.0	2	1010	2020
	19	10.0	2	1019	2038
	20	10.0	2	370	740
	21	10.0	2	388	776
	22	10.0	2	775	1550
	23	10.0	1	171	171
	24	10.0	2	808	1616
	25	10.0	2	655	1310
	26	10.0	2	692	1384
	27	10.0	2	765	1530
	28	10.0	1	146	146
	29	10.0	1	122	122
	30	10.0	1	783	1566
	31	10.0	2	560	1120
	32	10.0	2	152	304
	33	10.0	2	153	306
	34	10.0	2	594	1188
	35	12.5	1	380	380
	36	12.5	2	287	574
	37	12.5	2	684	1368
	38	12.5	3	708	2124
	39	12.5	1	200	200
	40	12.5	2	264	528
	41	12.5	3	312	936
	42	12.5	1	322	322
	43	12.5	2	764	1528
	44	12.5	1	461	461
	45	12.5	2	788	1576
	46	12.5	1	240	240
	47	12.5	2	559	1118
	48	12.5	3	123	369
	49	12.5	1	126	126
	50	12.5	2	594	1188
	51	12.5	1	195	195
	52	12.5	2	654	1308
	53	12.5	1	496	496
	54	12.5	2	1368	2736
	55	12.5	2	384	768
	56	12.5	2	423	846

Technical drawing of a reinforced concrete beam cross-section. The beam has a total width of 654 mm and a height of 80 mm. It is reinforced with 2 N8 bars at the top (2 N8 ø8.0 C=670 (1c)) and 2 N7 bars at the bottom (2 N7 ø8.0 C=656 (1c)). The beam is supported by two columns, P11 and P12. The distance between the columns is 309.8 mm. The beam is labeled VB139. The drawing includes dimensions for the reinforcement bars, the beam height, and the distance between the columns.

27

12

774

2 N24 ø10.0 C=808 (1c)

1 N23 ø10.0 C=171 (1c)

170

95

0

P15

P16

P17

20

330

20 x 30

330

22 N1 cr15

30

370

20 x 30

370

25 N1 cr15

30

774

2 N22 ø10.0 C=775 (1c)

SEÇÃO A-A

ESC 1:25

30

20

24

14

47 N1 ø5.0 C=8

Technical drawing of a reinforced concrete beam (L A) showing cross-sections and dimensions. The beam has a total length of 549 cm. It features 2 N9 top bars and 2 N9 bottom bars, with a concrete cover (C) of 558 mm. The beam is supported by columns (P17, P18, P19). The cross-section is 30 cm wide and 24 cm high. The drawing includes dimensions for the beam length, bar spacing, and column dimensions.

Technical drawing of a reinforced concrete beam (Fig. 10.10). The drawing shows a side elevation and a cross-section.

Side Elevation:

- Overall length: 654 cm
- Support spacing: 20 cm
- Reinforcement: 2 N26 ø10.0 C=692 (1c) at the top and 2 N25 ø10.0 C=655 (1c) at the bottom.
- Section line A-A is indicated.

Cross-section:

- Width: 24 cm
- Height: 30 cm
- Reinforcement cage width: 20 cm

Scale: ESC 1:25

Technical drawing of a 20x30mm plate. The main drawing shows a plate with dimensions 20x30mm. It features two N12 ø8.0 holes (C=224 (1c)) and two N11 ø8.0 holes (C=186 (1c)). The plate is labeled VB132 and VB134. A detail view shows a 10 N1 ø15 hole. The plate is shown in a perspective view and a top view. The top view shows the plate with dimensions 20x30mm and a 10 N1 ø15 hole. The perspective view shows the plate with dimensions 20x30mm and a 10 N1 ø15 hole. The plate is labeled VB132 and VB134. A detail view shows a 10 N1 ø15 hole. The plate is shown in a perspective view and a top view. The top view shows the plate with dimensions 20x30mm and a 10 N1 ø15 hole. The perspective view shows the plate with dimensions 20x30mm and a 10 N1 ø15 hole. The plate is labeled VB132 and VB134. A detail view shows a 10 N1 ø15 hole.

[illegible]

Technical drawing of a beam cross-section showing reinforcement details. The drawing includes dimensions for concrete cover, reinforcement spacing, and section lengths. Key dimensions include 27mm top and bottom cover, 437mm total length, 764mm section length, and 54mm top cover for the bottom reinforcement. Reinforcement includes 1 N44 ø12.5 C=461 (1c), 2 N45 ø12.5 C=788 (1c), 22 N1 c/15, 1 N15 ø8.0 C=129 (1c), and 2 N43 ø12.5 C=764 (1c).

Technical drawing of a reinforced concrete beam (Viga) showing dimensions and reinforcement details. The drawing is labeled "SEÇÃO A-A" and "ESC 1:25".

Dimensions:

- Top flange width: 559
- Top flange height: 27
- Top flange width (right): 102
- Bottom flange width: 30
- Bottom flange height: 20
- Bottom flange length: 140
- Bottom flange width (right): 24
- Bottom flange height (right): 14
- Bottom flange width (right): 35
- Bottom flange height (right): 5.0

Reinforcement:

- Top: 2 N50 ø12.5 C=594 (1c)
- Left: 1 N48 ø12.5 C=123 (1c)
- Right: 1 N49 ø12.5 C=126 (1c)
- Bottom left: 1 N16 ø8.0 C=92 (1c)
- Bottom right: 1 N17 ø8.0 C=77 (1c)
- Bottom right: 35 N1 ø5.0 C=8

Other details:

- Supports: P27, P28
- Reinforcement: VB134
- Reinforcement: L A
- Reinforcement: 20 x 30
- Reinforcement: 35 N1 c/15
- Reinforcement: 1 N46 ø12.5 C=240 (1c)
- Reinforcement: 2 N47 ø12.5 C=559 (1c)

[illegible]

SEÇÃO A-A
ESC 1:25

2 N30 ø10.0 C=783 (1c)
764
1 N28 ø10.0 C=146 (1c)
145 75
(1c) 1 N29 ø10.0 C=122
112
P31 A P32 P33
20 330 30 360 30
20 x 30 20 x 30
330 360
22 N1 c/15 25 N1 c/15
764
2 N27 ø10.0 C=765 (1c)
14 47 N1 ø5.0 C=8

Top View:

- Top reinforcement: 2 N34 ϕ 10.0 C=594 (1c)
- Bottom reinforcement: 2 N32 ϕ 10.0 C=152 (1c)
- Right side reinforcement: (1c) 2 N33 ϕ 10.0 C=153
- Overall width: 559
- Overall height: 28
- Clear width: 142
- Clear height: 127
- Supports: P33 (left), P34 (right)
- Reinforcement labels: A (top), B (bottom)

Side View:

- Beam dimensions: 30 x 30
- Reinforcement: 35 N1 c/15
- Overall width: 559
- Overall height: 28
- Clear width: 515
- Clear height: 515
- Reinforcement label: A (top)

SECTION A-A ESC 1:25

30

20

24

14

35 N1 ϕ 5.0 C=60

[illegible]

	CONTEÚDO:	ESCALA	DATA
		INDICADA	FEV/2025
		FOLHA	PRANCHA:
		A-1	
		REVISÃO	18/2
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