



Technical drawing of a 29 P34 beam. The drawing shows a side view of the beam with dimensions and part numbers. The top dimension is 414, with a note P31 81 #8 C/15 C = 435. The beam is labeled 29 P34. The bottom dimension is 29 P32, with a note P33 121 #10 C/10 C = 436. The drawing includes a cross-section of the beam at the bottom, showing a rectangular profile with a central slot and two circular holes on each side.

Technical drawing of a vertical wall section showing dimensions and reinforcement details.

Dimensions:

- Total height: 1.12
- Base height: 0.90
- Base width: 90

Reinforcement details:

- Top section: $P22 = P23 - (4X) 30 \text{ } \varnothing 12.5\text{mm}$ C/10 - 384 cm
- Base section: $P20 = P21 (4x) 18 \text{ } \varnothing 12.5\text{mm}$ C/20 - 320 cm

2.5mm

329 cm

4.63

3.12

0.90

P21 = P22
(4X) 30 Ø 12.5mm - 384cm

P19 + P20
(4x) 18 Ø 12.5mm C/20 - 329 cm

307

22

22

307

P23
(4x) 18 Ø 12.5mm C/20 - 110 cm

22

44

44


 P7 = P8
 (X4) 24 Ø 12.5mm C/15 - 155 cm
 ARMADURA DE COROAMENTO

P1 = P2
(4X) 24 Ø 10mm C/15 - 240 cm



80

80

80

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

Cross-section (Left):

- Overall width: 1.20 m
- Core width: 1.00 m

Elevation (Right):

- Overall height: 3.50 m
- Top section height: 0.80 m
- Core height: 2.50 m

Reinforcement Details:

- P30 (2X) 32 Ø 12.5 mm C/13 - 254 cm:** Reinforcement for the top section.
- P24+P25 - (2X) 32 Ø 16 mm C/13 - 310 cm:** Reinforcement for the main section.

226

84

84

230

120

120

14

14

P24=P25 - (2X) 32 Ø 16 mm C/13 - 310 cm

P30 - (2X) 32 Ø 12.5 mm C/13 - 254 cm

P28 (2X) 8

mm / cm

P28 (2X) Ø 12.5 mm C/10 - 438 cm

410

14

14

P29 (2X) Ø 12.5 mm C/10 - 438 cm

410

14

14

P13 = P14 - (2X) 9 Ø 12,5 mm C/9 - 570 cm

P11 = P12 -(2X) 9 Ø 16 mm C/13 - 570 cm

P9 = P10 -(2X) 42 Ø 12,5mm C/10 - 270 cm

The technical drawing shows two rectangular panels, P26 and P27, with their dimensions and internal structure.

P26 (2X) 24 Ø 12.5 mm C/10 - 570 cm

Dimensions: 410 (width) x 80 (height). The panel has a solid outer frame and a dashed inner rectangle.

P27 (2X) 24 Ø 12.5 mm C/10 - 570 cm

Dimensions: 410 (width) x 80 (height). The panel has a solid outer frame and a dashed inner rectangle.

$P17 = P18 - (2x) 9 \varnothing 16,0 \text{ mm C/11} - 176 \text{ cm}$

CONCRETO ESTRUTURA $f_{ck}=30MPa$
COMBRIMENTO MÍNIMO DA ARMADURA DE 5,0 CM PARA INFRAESTRUTURA
4 CM PARA MESO E SUPERESTRUTURA

META	ATIVIDADE	POSICÃO	BÍBLICA	QUADRO DE AÇO				
				QUANTIDADE DE PEÇAS	COMPRIMENTO (m)	COMPRIMENTO TOTAL (m)	PESO (kg/m)	PESO TOTAL (kg)
INFRAESTRUTURA	ALÇA	1	10,00	96,00	2,40	230,40	0,817	142,16
		2	10,00	96,00	2,40	230,40	0,817	142,16
		3	12,50	40,00	5,00	200,00	0,963	190,60
		4	12,50	40,00	5,00	200,00	0,963	190,60
		5	12,50	40,00	5,00	200,00	0,963	190,60
		6	12,50	40,00	5,00	200,00	0,963	190,60
	PESÃO	7	12,50	86,00	1,55	148,80	0,963	143,29
		8	12,50	86,00	1,55	148,80	0,963	143,29
		9	12,50	84,00	2,70	226,80	0,963	216,41
		10	12,50	84,00	2,70	226,80	0,963	216,41
		11	18,00	18,00	5,70	102,60	1,578	161,90
		12	18,00	18,00	5,70	102,60	1,578	161,90
ALÇA	13	18,00	18,00	5,70	102,60	0,963	96,80	
	14	12,50	18,00	5,70	102,60	0,963	96,80	
	15	18,00	84,00	2,00	168,00	1,578	265,10	
	16	18,00	84,00	2,00	168,00	1,578	265,10	
	17	18,00	84,00	1,78	157,80	1,578	49,89	
	18	18,00	18,00	1,78	31,68	1,578	49,89	
PESÃO	19	12,50	72,00	3,29	236,98	0,963	228,12	
	20	12,50	72,00	3,29	236,98	0,963	228,12	
	21	12,50	120,00	3,84	460,80	0,963	443,75	
	22	12,50	120,00	3,84	460,80	0,963	443,75	
	23	12,50	72,00	1,10	70,20	0,963	74,27	
	24	18,00	64,00	3,10	198,40	1,578	313,08	
ALÇA	25	18,00	64,00	3,10	198,40	1,578	313,08	
	26	12,50	48,00	5,70	273,60	0,963	263,48	
	27	12,50	48,00	5,70	273,60	0,963	263,48	
	28	12,50	16	4,38	70,08	0,963	67,49	
	29	12,50	16	4,38	70,08	0,963	67,49	
	30	12,50	64,00	2,54	162,56	0,963	156,55	
PESÃO	31	8,00	81,00	3,35	302,35	0,963	136,18	
	32	8,00	29,00	10,20	348,00	0,396	137,46	
	33	12,50	12,00	1,10	66,00	0,617	67,49	
	34	8,00	29,00	12,00	348,00	0,396	137,46	
	35	12,50	164,00	1,90	311,60	0,963	300,07	
	36	12,50	164,00	1,90	311,60	0,963	300,07	
PESÃO	37	6,30	44,00	5,93	296,92	0,250	65,23	
	38	6,30	44,00	5,93	296,92	0,250	65,23	

BITOLA	PESO (KG/M)	COMPRIMENTO	PESO TOTAL (KG)
6.3	0.25	280.90	65.23
8	0.395	1048.35	414.1
10	0.617	1340.36	827
12.5	0.963	4362.46	4229.97
16	1.578	1001.36	1580.14
PESO TOTAL ACO CA 50			7116.44

Technical drawing of a trapezoidal roof structure. The top horizontal edge is labeled $P17 = P18 - (2x) \varnothing 9 \varnothing 16.0 \text{ mm C11} - 176 \text{ cm}$. The drawing shows a perspective view of a roof with a central horizontal beam and two sloped sides.



P3 = P4
(4X) 10 Ø 12.5mm C/9 - 500 cm

P5 = P6
(4X) 10 Ø 12.5mm C/9 - 500 cm

[illegible]

PROJETO	CÓDIGO	PONTE DO GRAMADO, CARIUS - PMS COORDENADA GEOGRÁFICA: 17.335274° - 45.438830° CARIUS - PMS	RESP. TEC.:	MIGUEL SILVA BRAVIM-04441871627	Assinada de forma digital por MIGUEL SILVA Assinatura: 2026.08.21 13:46:47 - 0700	IDENTIFIC.	CONSTRUÇÃO DE PONTE DO GRAMADO EM ESTRUTURA MISTA DE CONCRETO ARMADO E VIGAS METÁLICAS - 12,00 x 4,20 m	FORMA	02/03	DOCUMENTO ENTREGUE PARA:
			RESP. LEGAL:				CONTEÚDO	PROJETO DE ARMAÇÃO	DATA	ANEXO 0001