

Technical drawing of a bridge structure, showing a plan view and a cross-section A-A.

**Plan View:**

- Span (a): 14x50
- Span (b): 14x50
- Span (c): 14x50
- Supports: P121, P90, P88, P76
- Dimensions: 521, 180, 367, 40, 474, 166, 346, 14
- Structural details: 21x IN305d23, 3x IN305 C=1083, 16x IN305d23, 45N305 C=118

**Corte A (Cross-section A-A):**

- Scale: 1:20
- Dimensions: 50, 14, 40, 9

Technical drawing of a staircase (Escala) showing a plan view and a section view (Corte A).

**Plan View:**

- Overall width: 254
- Overall depth: 269
- Central opening: 14x40
- Dimensions: 2N900 C=269

**Section View (Corte A):**

- Overall height: 40
- Base width: 14
- Dimensions: 13N905 C=90

Technical drawing of a steel beam cross-section and its details.

**Main Section:**

- Top flange:  $2N110 \text{ } \varnothing 8 \text{ C}=194$
- Web:  $9N1205 \text{ C}=96$
- Bottom flange:  $2N110 \text{ } \varnothing 8 \text{ C}=194$
- Overall width: 150
- Overall height: 152
- Section cut: Corte A

**Detail 'a' (Reinforcement Plate):**

- Plate dimensions:  $14 \times 40$
- Plate thickness: 4
- Plate width: 14
- Plate height: 40
- Section cut: Corte A

**Detail 'b' (Reinforcement Plate):**

- Plate dimensions:  $25 \times 9$
- Plate thickness: 4
- Plate width: 25
- Plate height: 9
- Section cut: Corte A

Technical drawing of a staircase showing a front elevation and a side section.

**Front Elevation:**

- Top landing width: 2N11408 C=201
- Bottom landing width: 2N1308 C=201
- Section line A-A
- Detail callout 'a' for 14x40 element

**Side Section (Corte A):**

- Section line A-A
- Detail callout '9' for 9N1505 C=96 element

Technical drawing of a reinforced concrete slab (V10) showing top and bottom views, dimensions, and reinforcement details. The top view shows a rectangular slab with dimensions 260m by 504m. It includes reinforcement bars (2N19Ø10 C=675, 2N18Ø10 C=750, 1N17Ø8 C=715, 2N16Ø10 C=1200) and stirrups (13x1N20Ø5cl1Ø, 1Øx1N20Ø5cl1Ø, 21x1N20Ø5cl1Ø, 6x1N20Ø5cl1Ø). The bottom view shows the same slab with reinforcement bars (1N17Ø8 C=715, 1N17Ø8 C=715 2ª camada) and stirrups (6x1N20Ø5cl1Ø, 21x1N20Ø5cl1Ø). A cross-section 'Corte A' is shown on the right, indicating a height of 40cm and a width of 14cm. The drawing is labeled 'V10' and 'Escala 1:20'.

The drawing shows a reinforced concrete slab with the following details:

- Reinforcement:**
  - Top reinforcement: 2N23Ø8 C=945 (continuous), 1N25Ø8 C=135 (2ª camada) and 1N25Ø8 C=135 (70-60).
  - Bottom reinforcement: 13x1N26Ø5c/1Ø (226), 2N21Ø8 C=915 (320), 15x1N26Ø5c/1Ø (267), 2N22Ø8 C=265 (213), and 5ØN26Ø5 C=98.
- Dimensions:**
  - Span lengths: 247, 347, 297, 237.
  - Section A-A width: 14.
  - Section A-A height: 40 (total), 14 (effective depth), 26 (clear height).
- Labels:** V 10, P123, P99, P89, V 3, a, b, c, d, A, B, C, D, E.

Technical drawing of a door assembly, showing a side elevation and a cross-section A-A.

**Side Elevation:**

- Top left: P124
- Top right: P100
- Top center dimension: 374
- Door height dimension: 2N3200 C=389
- Door handle/lock dimension: 14x40
- Section line A-A
- Bottom left: 2N3106 C=389
- Bottom center dimension: 18x1N3305/18

**Cross-section A-A:**

- Section title: Corte A
- Scale: Escala 1:20
- Top dimension: 40
- Right side dimension: 14
- Bottom dimension: 35
- Bottom right dimension: 9
- Bottom right label: 18N3305 C=98

Technical drawing of a staircase showing a side elevation and a section A-A.

**Side Elevation:**

- Top left: P86
- Top right: P75
- Center: 2N35Ø8 C=449
- Bottom left: 2N34Ø10 C=453
- Bottom center: 17x1N36Ø5d23
- Bottom right: 14
- Dimensions: 40, 380, 453

**Section A-A:**

- Top left: 1736
- Top right: 14
- Center: 1736Ø5 C=118
- Dimensions: 1736, 14

Technical drawing of a staircase (Escalera 1:20) showing a plan view and a cross-section (Corte A-A).

**Plan View Dimensions:**

- Total width: 520
- Total length: 460
- Top nosing: 1N40ØØ C=135 2ªcamada
- Second nosing: 1N40ØØ C=135
- Main tread: 2N390Ø C=543
- Bottom nosing: 1N40ØØ C=135
- Bottom tread: 2N370Ø C=543
- Bottom nosing: 21x1N4105d23
- Central hole: Ø14x50
- Supports: 1N380Ø C=330

**Corte A-A Dimensions:**

- Width: 14
- Height: 10
- Label: Corte A
- Label: Escalera 1:20

Elemento	Pos.	Diam.	Q.	Comp. (cm)	Total (cm)	CA-50-A (kg)	CA-60-B (kg)
V 11	1	Ø8	3	1083	3249	12.8	
	2	Ø8	3	1083	3249	12.8	
	3	Ø5	45	118	5310		8.3
				Total + 10%:	28.2	9.1	
V 12=V 18	4	Ø8	2	269	538	2.1	
	5	Ø8	2	269	538	2.1	
	6	Ø5	13	98	1274		2.0
				Total + 10%:	4.6	2.2	4.4
				(x2):	9.2		
V 13	7	Ø8	2	269	538	2.1	
	8	Ø8	2	269	538	2.1	
	9	Ø5	13	98	1274		2.0
				Total + 10%:	4.6	2.2	
V 14	10	Ø8	2	194	388	1.5	
	11	Ø8	2	194	388	1.5	
	12	Ø5	9	98	882		1.4
				Total + 10%:	3.3	1.5	
V 15	13	Ø8	2	201	402	1.6	
	14	Ø8	2	201	402	1.6	
	15	Ø5	9	98	882		1.4
				Total + 10%:	3.5	1.5	
V 16	16	Ø10	2	1200	2400	15.1	
	17	Ø8	2	715	1430	5.6	
	18	Ø10	2	750	1500	9.4	
	19	Ø10	2	675	1350	8.5	
	20	Ø5	66	98	6468		10.2
				Total + 10%:	42.5	11.2	
V 17	21	Ø8	2	915	1830	7.2	
	22	Ø8	2	265	530	2.1	
	23	Ø8	2	945	1890	7.4	
	24	Ø8	2	230	560	2.3	
	25	Ø8	2	135	270	1.1	
	26	Ø5	58	98	5684		8.9
				Total + 10%:	22.1	9.8	
V 19	27	Ø6.3	6	104	624	1.5	
	28	Ø10	5	561	2805	17.6	
	29	Ø10	2	547	1094	6.9	
	30	Ø5	22	118	2596		4.1
				Total + 10%:	28.6	4.5	
V 20	31	Ø8	2	389	778	3.1	
	32	Ø8	2	389	778	3.1	
	33	Ø5	18	98	1764		2.8
				Total + 10%:	6.8	3.1	
V 21	34	Ø10	2	453	906	5.7	
	35	Ø8	2	449	898	3.5	
	36	Ø5	17	118	2006		3.1
				Total + 10%:	10.1	3.4	
V 22	37	Ø8	2	543	1086	4.3	
	38	Ø8	1	330	330	1.3	
	39	Ø8	2	543	1086	4.3	
	40	Ø8	4	135	540	2.1	
	41	Ø5	21	118	2478		3.9
				Total + 10%:	13.2	4.3	
				Ø5:	0.0	55.0	
				Ø6.3:	1.7	0.0	
				Ø8:	100.9	0.0	
				Ø10:	69.5	0.0	
				Total:	172.1	55.0	

Escala 1:50

REVISÃO:	03		
REVISÃO:	02		
REVISÃO:	01		
EMIÇÃO INICIAL:	*	24/05/2013	1º ENTREGA PARA A PREFEITURA

	PREFEITURA MUNICIPAL DE JOINVILLE END.: Av. Herman August Lepper, nº10, Centro TEL.: (47)3431-3233 – Joinville – Santa Catarina CNPJ: 83.169.623/0001-10	 <b>COORDENAÇÃO DE PROJETOS:</b> <b>SOLAR</b> ENGENHARIA SOLAR CONSTRUÇÕES, PROJETOS E CONSULTORIA LTDA. CNPJ: 13.411.864/0001-48 TEL.: (31)3568-2814 BH/MG eken@solarengharia.eng.br	
	CEI LOT. CATTONI		
PREFEITURA MUNICIPAL DE JOINVILLE CNPJ: 83.169.623/0001-10 CONTRATANTE	EDUARDO KEN MIZUTA CREA: 139067/D RESPONSÁVEL TÉCNICO	ÁREA DO TERRENO: 7.925,95 M <sup>2</sup>	
		ÁREA CONSTRUÍDA:	
		ÁREA PERMEÁVEL:	
ENDEREÇO: RUA INAMBU, 215, COSTA E SILVA – CEP 89220-002 – JOINVILLE		ARQUIVO: 001-005-2013-EXE-EST-15	
DETALHES:	PROJETO: <b>ESTRUTURAL</b>	DATA: MAIO/2013	FOLHA:
DETALHAMENTO VIGAS BALDRAME	DESENHISTA:	ESCALA:	15 / 15
PORTE 2	ISABELLA TEOTONIO DIAS	INDICADA	