

1.- MATERIAIS	
1.1.- Concretos	
1.2.- Aços por elemento	
1.2.1.- Aços em barras	
1.2.2.- Aços em perfis	
2.- ARM.PILARES E PILARES PAREDES	
2.1.- Pilares.....	
3.- VERIFICAÇÃO DA RESISTÊNCIA AO ESFORÇO CORTANTE EM PILARES DE CONCRETO .	
4.- ESFORÇOS EM PILARES, PILARES-PAREDES E MUROS POR HIPÓTESE.....	
5.- ARRANQUES EM PILARES, PILARES-PAREDES E MUROS POR HIPÓTESE.....	
6.- DESFAV. PILARES, PILARES-PAREDES E CORTINAS.....	
6.1.- Pilares.....	
7.- RELATÓRIO QUANTITATIVOS PILARES	
8.- SOMATÓRIO DE ESFORÇOS EM PILARES, PAREDES E MUROS/CORTINAS POR AÇÕES E PISO	
8.1.- Resumido	



1.- MATERIAIS

1.1.- Concretos

C25, em geral; $f_{ck} = 255 \text{ kgf/cm}^2$; $\gamma_c = 1.40$

1.2.- Aços por elemento

1.2.1.- Aços em barras

Para todos os elementos estruturais da obra: CA-50-A e CA-60-B; $f_{yk} = 5097 \text{ a } 6116 \text{ kgf/cm}^2$; $\gamma_s = 1.15$

1.2.2.- Aços em perfis

Tipo de aço para perfis	Aço	Limite elástico(kgf/c)	Módulo de elasticidade(kgf/cm ²)
Aços dobrados	A-36	2548	2089704
Aços laminados	A-36	2548	2100000

2.- ARM.PILARES E PILARES PAREDES

2.1.- Pilares

- Tramo: Nível inicial / nível final do tramo entre pisos.
- Armaduras:
 - Primeira parcela: Armadura de canto.
 - Segunda parcela: Armadura da face X.
 - Terceira Parcela: Armadura da face Y.
- Estribos: Indica-se apenas o estribo perimetral disposto. Se existirem outros estribos e ramos, deve-se consultar o desenho do quadro de pilares. Podem existir distintos espaçamentos no topo, base e nó, que podem ser consultados em opções e detalhamento de pilares.
- H: Altura livre do tramo de pilar sem travamento intermediário.
- H_{px}: Comprimento de flambagem do tramo de pilar na direção 'X'.
- H_{py}: Comprimento de flambagem do tramo de pilar na direção 'Y'.
- Desfavoráveis: Esforços desfavoráveis (majorados), correspondentes à pior combinação que produz as maiores tensões e/ou deformações. Inclui a amplificação de esforços devidos aos efeitos de segunda ordem e excentricidade adicional por flambagem.
- Referência: Esforços desfavoráveis (majorados), correspondentes à pior combinação que produz as maiores tensões e/ou deformações. Inclui a amplificação de esforços devidos aos efeitos de segunda ordem (não inclui flambagem).
- Nota:
 - Esforços em relação aos eixos locais do pilar.



P324	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	71.71	2.04	4.54	71.71	0.52	0.83
	Piso 3	20x20	4.10/7.70	4Ø10	+2Ø10		1.20	Ø5c/12 cm	3.60	3.60	3.60	18.46	1.06	1.66	18.46	0.38	0.62
	Piso 2	30x20	0.00/3.60	4Ø16	+6Ø16		3.33	Ø6.3c/20 cm	3.60	3.60	3.60	65.59	2.22	4.64	65.59	0.76	1.14
P325	Piso 1	80x80	-0.80/-0.40	4Ø20	+4Ø16	+6Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	66.34	2.16	4.23	66.34	0.69	0.70
	Piso 3	20x20	4.10/7.70	4Ø10	+2Ø10		1.20	Ø5c/12 cm	3.60	3.60	3.60	18.54	0.81	1.84	18.54	0.13	0.78
	Piso 2	40x20	0.00/3.60	4Ø16	+6Ø16		2.50	Ø6.3c/20 cm	3.60	3.60	3.60	77.08	0.92	6.22	77.08	0.92	1.92
P326	Piso 1	80x80	-0.80/-0.40	4Ø20	+4Ø16	+6Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	78.09	0.06	5.52	78.09	0.06	1.18
	Piso 3	20x20	4.10/7.70	4Ø12.5			1.25	Ø5c/15 cm	3.60	3.60	3.60	16.74	1.83	1.08	16.74	0.88	0.46
	Piso 2	20x30	0.00/3.60	4Ø16	+ ...	+6Ø16	3.33	Ø6.3c/20 cm	3.60	3.60	3.60	49.94	4.62	2.69	49.94	1.79	1.47
P327	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	50.70	4.03	2.22	50.70	1.15	0.98
	Piso 3	20x20	7.70/7.98	4Ø10			0.80	Ø5c/12 cm	0.28	0.28	0.28	19.11	0.21	1.90	19.11	0.21	1.52
			4.10/7.30	4Ø20	+ ...	+2Ø12.5	3.77	Ø6.3c/15 cm	3.20	3.20	3.20	27.91	2.59	1.96	27.91	1.22	1.15
P328	Piso 2	20x30	3.60/3.98	4Ø20	+ ...	+2Ø12.5	2.52	Ø6.3c/15 cm	0.38	0.38	0.38	28.36	2.45	1.42	28.36	1.06	0.60
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	51.18	3.86	0.23	51.18	1.44	0.23
	Piso 3	20x20	4.10/7.70	4Ø12.5	+2Ø10	+4Ø10	2.45	Ø5c/12 cm	3.60	3.60	3.60	27.68	2.15	1.44	27.68	0.58	0.42
P329	Piso 2	40x20	0.00/3.60	4Ø16	+8Ø16	+4Ø12.5	3.62	Ø6.3c/15 cm	3.60	3.60	3.60	77.36	2.92	6.74	77.36	2.92	2.43
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	78.37	2.31	5.74	78.37	2.31	1.39
	Piso 3	20x20	4.10/7.70	4Ø10	+4Ø10		1.60	Ø5c/12 cm	3.60	3.60	3.60	24.35	1.19	1.88	24.35	0.29	0.50
P330	Piso 2	40x20	0.00/3.60	4Ø16	+6Ø16		2.50	Ø6.3c/20 cm	3.60	3.60	3.60	70.45	0.59	6.70	70.45	0.59	2.70
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	71.46	0.98	5.60	71.46	0.98	1.54
	Piso 3	20x20	4.10/7.70	4Ø12.5			1.25	Ø5c/15 cm	3.60	3.60	3.60	24.33	1.08	1.88	24.33	0.19	0.49
P331	Piso 2	40x20	0.00/3.60	4Ø16	+6Ø16		2.50	Ø6.3c/20 cm	3.60	3.60	3.60	78.93	1.52	6.21	78.93	1.52	1.84
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	79.85	1.54	5.42	79.85	1.54	1.02
	Piso 3	20x20	4.10/7.70	4Ø10	+4Ø10		1.60	Ø5c/12 cm	3.60	3.60	3.60	25.66	1.13	1.87	25.66	0.19	0.42
P332	Piso 2	40x20	0.00/3.60	4Ø20	+6Ø16		3.08	Ø6.3c/20 cm	3.60	3.60	3.60	77.48	0.55	7.01	77.48	0.55	2.70
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16	+4Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	78.49	0.33	5.85	78.49	0.33	1.51
	Piso 3	20x20	4.10/7.70	4Ø10	+ ...	+4Ø10	1.60	Ø5c/12 cm	3.60	3.60	3.60	21.08	2.08	0.93	21.08	0.88	0.16
P332	Piso 2	20x30	0.00/3.60	4Ø20	+ ...	+4Ø16	3.43	Ø6.3c/20 cm	3.60	3.60	3.60	45.52	4.49	3.33	45.52	1.90	2.21
	Piso 1	80x80	-0.80/-0.40	4Ø20	+4Ø16	+6Ø16	0.51	Ø6.3c/20 cm	0.40	0.40	0.40	46.27	3.86	2.29	46.27	1.23	1.16

3.- VERIFICAÇÃO DA RESISTÊNCIA AO ESFORÇO CORTANTE EM PILARES DE CONCRETO

- Tramo: Nível inicial / nível final do tramo entre pisos.
- Armaduras:
 - Primeira parcela: Armadura de canto.
 - Segunda parcela: Armadura da face X.
 - Terceira Parcela: Armadura da face Y.
- Estribos: Indica-se apenas o estribo perimetral disposto. Se existirem outros estribos e ramos, deve-se consultar o desenho do quadro de pilares. Podem existir distintos espaçamentos no topo, base e nó, que podem ser consultados em opções e detalhamento de pilares.
- Desfavoráveis: Esforços cortantes (majorados) correspondentes à combinação que produz o estado de tensões tangenciais mais desfavorável.
 - Nsd: Força Normal de cálculo [(+) compressão, (-) tração]
 - Vsd_x, Vsd_y: Esforço cortante de cálculo em cada direção
 - Vrd1_x, Vrd1_y: Esforço cortante de ruptura por compressão oblíqua na alma (em cada direção)
 - Vrd2_x, Vrd2_y: Esforço cortante de ruptura por tração na alma (em cada direção)
 - Verificação da interação nas duas direções (VCI):



- Origem dos esforços desfavoráveis:

G: Verticais

GV: Verticais + vento

GSis: Verticais + sismo

GVSis: Verticais + vento + sismo

- Passa:

Sim: Indica que o valor de $V_{Ci} \leq 1$ para as duas verificações

Não: Indica que o valor de $V_{Ci} > 1$ para alguma das duas verificações ou que o espaçamento de estribos é maior que o exigido pela norma

- Nota:

Esforços em relação aos eixos locais do pilar.

Pilar	Planta	Dimensão(cm)	Tramo(m)	Armaduras	Estribos	Desfavoráveis										Passa
						Nsd(t)	Vsdx(t)	Vrd1x(t)	Vrd2x(t)	Vsdy(t)	Vrd1y(t)	Vrd2y(t)	VC1	VC2	Origem	
P301	Piso 3	20x20	3.60/7.30	4Ø10	Ø5c/12 cm	15.60	0.00	8.09	7.89	0.00	8.09	7.89	0.00	0.00	G	Sim
	Piso 2	20x20	0.00/3.10	4Ø10	Ø5c/12 cm	18.60	0.00	8.09	7.45	-0.00	8.09	7.89	0.00	0.00	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20	+6Ø16 +4Ø16	Ø6.3c/20 cm	25.14	-2.89	274.76	104.52	-0.32	274.83	109.37	0.01	0.03	G
P302	Piso 3	20x20	4.10/7.70	4Ø10 +2Ø10	Ø5c/12 cm	4.48	0.19	8.09	6.03	-0.52	8.09	5.53	0.07	0.10	G	Sim
	Piso 2	20x20	0.00/3.60	4Ø12.5 +4Ø10 +2Ø10	Ø5c/12 cm	16.56	0.25	8.05	7.89	-0.70	8.06	6.16	0.09	0.12	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	21.98	-0.25	274.83	109.37	1.68	274.76	104.52	0.01	0.02	G	Sim
P303	Piso 3	20x30	4.10/7.70	4Ø12.5	Ø5c/15 cm	34.57	0.07	12.04	10.03	-0.90	15.70	10.36	0.06	0.09	G	Sim
	Piso 2	20x40	0.00/3.60	4Ø20 + ... +2Ø16	Ø6.3c/20 cm	64.47	0.33	15.61	14.28	-2.37	25.04	14.18	0.10	0.17	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	78.08	2.91	274.83	109.37	0.93	274.76	104.52	0.01	0.03	G	Sim
P304	Piso 3	20x20	4.10/7.70	4Ø10 +2Ø10 +2Ø10	Ø5c/12 cm	15.25	-0.08	8.09	7.89	-0.35	8.09	6.39	0.04	0.06	G	Sim
	Piso 2	40x20	0.00/3.60	4Ø16 +6Ø16	Ø6.3c/20 cm	41.73	-1.11	25.18	15.41	-1.68	15.75	10.91	0.12	0.17	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	56.20	2.87	274.83	109.37	1.33	274.76	104.52	0.01	0.03	G	Sim
P305	Piso 3	20x20	4.10/7.70	4Ø12.5	Ø5c/15 cm	17.62	0.10	8.03	7.37	-0.25	8.03	6.42	0.03	0.04	G	Sim
	Piso 2	30x20	0.00/3.60	4Ø16 +6Ø16	Ø6.3c/20 cm	50.14	0.31	15.52	11.62	-1.06	11.81	10.42	0.09	0.10	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	63.95	-4.71	274.83	109.37	1.13	274.76	104.52	0.02	0.04	G	Sim
P306	Piso 3	20x20	4.10/7.70	4Ø10 +2Ø10	Ø5c/12 cm	16.96	0.08	8.09	7.89	-0.25	8.09	6.89	0.03	0.04	G	Sim
	Piso 2	30x20	0.00/3.60	4Ø20 +4Ø12.5	Ø6.3c/15 cm	46.56	0.25	15.39	12.83	-1.01	11.80	14.45	0.09	0.07	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	65.81	0.87	274.83	109.37	1.88	274.76	104.52	0.01	0.02	G	Sim
P307	Piso 3	20x20	4.10/7.70	4Ø10 +2Ø10	Ø5c/12 cm	17.71	0.03	8.09	7.89	-0.24	8.09	7.03	0.03	0.03	G	Sim
	Piso 2	30x20	0.00/3.60	4Ø20 +4Ø12.5	Ø6.3c/15 cm	49.06	-0.01	15.39	12.83	-0.96	11.80	13.51	0.08	0.07	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	64.70	4.27	274.83	109.37	0.58	274.76	104.52	0.02	0.04	G	Sim
P308	Piso 3	20x20	4.10/7.70	4Ø10	Ø5c/12 cm	14.53	0.14	8.09	7.54	-0.10	8.09	7.89	0.02	0.02	G	Sim
	Piso 2	20x20	0.00/3.60	4Ø20	Ø6.3c/20 cm	27.93	0.41	7.77	7.75	-0.36	7.77	7.75	0.07	0.07	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	31.33	3.26	274.83	109.37	-4.39	274.76	104.52	0.02	0.05	G	Sim
P309	Piso 3	Diâmetro:40	4.10/7.70	8Ø10	Ø5c/12 cm	60.16	-2.17	27.41	15.47	0.26	27.41	17.44	0.08	0.14	G	Sim
	Piso 2	Diâmetro:40	0.00/3.60	8Ø10	Ø5c/12 cm	88.12	-1.93	27.41	17.26	0.54	27.41	17.44	0.07	0.12	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	100.84	1.56	274.83	109.37	0.34	274.76	104.52	0.01	0.01	G	Sim
P310	Piso 3	20x20	4.10/7.70	4Ø12.5 +2Ø10 +4Ø10	Ø5c/12 cm	30.45	0.21	8.06	7.89	0.08	8.05	7.89	0.03	0.03	G	Sim
	Piso 2	40x20	0.00/3.60	4Ø16 +6Ø16	Ø6.3c/20 cm	92.55	0.84	25.18	15.49	0.44	15.75	14.28	0.04	0.06	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +6Ø16 +4Ø16	Ø6.3c/20 cm	97.90	-1.82	274.76	104.52	0.24	274.83	109.37	0.01	0.02	G	Sim
P311	Piso 3	Diâmetro:40	4.10/7.70	8Ø10	Ø5c/12 cm	20.51	0.65	27.41	14.95	0.83	27.41	13.57	0.04	0.07	G	Sim
	Piso 2	Diâmetro:40	0.00/3.60	8Ø10	Ø5c/12 cm	74.88	0.53	27.41	17.44	1.49	27.41	17.44	0.06	0.09	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	81.42	-4.46	274.83	109.37	-1.53	274.76	104.52	0.02	0.04	G	Sim
P312	Piso 3	Diâmetro:40	4.10/7.70	8Ø10	Ø5c/12 cm	21.88	0.80	27.41	14.76	0.73	27.41	13.97	0.04	0.08	G	Sim
	Piso 2	Diâmetro:40	0.00/3.60	8Ø10	Ø5c/12 cm	77.48	0.50	27.41	17.44	1.59	27.41	17.44	0.06	0.10	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	107.28	-5.70	274.83	109.37	3.91	274.76	104.52	0.03	0.06	G	Sim
P313	Piso 3	Diâmetro:40	4.10/7.70	8Ø10	Ø5c/12 cm	22.38	0.42	27.41	17.44	0.47	27.41	15.53	0.02	0.04	G	Sim
	Piso 2	Diâmetro:40	0.00/3.60	8Ø10	Ø5c/12 cm	80.85	0.00	27.41	17.44	1.28	27.41	17.44	0.05	0.07	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	97.54	15.79	274.83	109.37	-1.55	274.76	104.52	0.06	0.15	G	Sim
P314	Piso 3	20x20	4.10/7.70	4Ø10 + ... +2Ø10	Ø5c/12 cm	18.33	0.19	8.09	7.61	-0.05	8.09	7.89	0.02	0.03	G	Sim
	Piso 2	20x30	0.00/3.60	4Ø20 + ... +2Ø12.5	Ø6.3c/15 cm	52.69	0.68	11.75	12.83	-0.08	15.39	12.83	0.06	0.05	G	Sim
	Piso 1	80x80	-0.80/-0.40	4Ø20 +4Ø16 +6Ø16	Ø6.3c/20 cm	65.61	-2.87	274.83	109.37	0.35	274.76	104.52	0.01	0.03	G	Sim

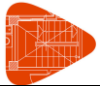


P309	Permanente	63.39	0.45	0.47	-0.22	0.16	-0.00
	Sobrecarga	8.64	0.04	0.10	-0.89	0.08	-0.00
P310	Permanente	46.89	0.36	0.36	0.91	0.13	-0.00
	Sobrecarga	23.04	-0.06	0.09	0.39	0.04	-0.00
P311	Permanente	36.48	0.21	0.33	2.86	-0.95	-0.00
	Sobrecarga	21.68	-0.06	0.09	0.33	-0.14	-0.00
P312	Permanente	55.32	0.15	-0.07	3.61	2.72	-0.00
	Sobrecarga	21.95	-0.07	0.06	0.47	0.07	-0.00
P313	Permanente	45.59	1.26	0.11	-10.60	-0.98	-0.00
	Sobrecarga	24.08	0.02	0.06	-0.68	-0.13	-0.00
P314	Permanente	34.20	0.31	-0.09	1.60	0.08	-0.00
	Sobrecarga	13.30	-0.07	0.02	0.45	0.17	-0.00
P315	Permanente	54.10	0.33	0.20	-0.13	3.59	-0.00
	Sobrecarga	6.78	0.02	0.10	-0.80	-0.03	-0.00
P316	Permanente	38.45	0.07	0.32	3.18	0.66	-0.00
	Sobrecarga	16.12	-0.06	0.09	0.19	0.04	-0.00
P317	Permanente	25.91	0.44	0.22	-1.58	0.52	-0.00
	Sobrecarga	14.63	-0.05	0.09	0.09	-0.24	-0.00
P318	Permanente	27.22	0.12	-0.25	2.54	5.06	-0.00
	Sobrecarga	15.29	-0.08	0.07	0.45	-0.13	-0.00
P319	Permanente	25.63	0.50	0.02	-2.35	0.21	-0.00
	Sobrecarga	16.96	-0.03	0.07	-0.19	-0.22	-0.00
P320	Permanente	27.82	0.19	-0.16	1.68	1.03	-0.00
	Sobrecarga	10.56	-0.07	0.03	0.34	0.08	-0.00
P321	Permanente	50.41	0.31	0.85	-1.02	-4.66	-0.00
	Sobrecarga	9.01	0.02	0.07	-0.94	0.44	-0.00
P322	Permanente	41.85	0.20	0.53	0.31	-2.03	-0.00
	Sobrecarga	21.98	-0.06	0.01	0.04	0.99	-0.00
P323	Permanente	35.88	0.19	0.48	0.54	-2.88	-0.00
	Sobrecarga	20.52	-0.06	0.06	0.07	0.13	-0.00
P324	Permanente	30.85	0.18	0.15	0.60	-0.04	-0.00
	Sobrecarga	20.16	-0.07	0.04	0.16	0.26	-0.00
P325	Permanente	36.89	0.20	0.02	0.31	0.12	-0.00
	Sobrecarga	22.51	-0.05	0.02	-0.07	0.36	-0.00
P326	Permanente	33.59	0.17	0.08	0.73	-2.09	-0.00
	Sobrecarga	11.40	-0.08	0.02	0.30	0.21	-0.00
P327	Permanente	38.59	0.07	0.58	0.29	-1.27	-0.00
	Sobrecarga	7.23	-0.04	0.12	-0.43	-0.17	-0.00
P328	Permanente	52.16	0.00	0.08	1.16	3.69	-0.00
	Sobrecarga	20.84	-0.13	0.14	0.71	-0.67	-0.00
P329	Permanente	48.32	0.14	-0.04	-0.59	3.89	-0.00
	Sobrecarga	18.61	-0.09	0.13	0.20	-0.67	-0.00
P330	Permanente	48.93	0.03	0.33	0.82	-2.35	-0.00
	Sobrecarga	18.49	-0.11	0.13	0.44	-0.89	-0.00
P331	Permanente	46.04	0.07	0.29	0.34	-3.27	-0.00
	Sobrecarga	20.67	-0.07	0.12	-0.06	-0.98	-0.00
P332	Permanente	34.26	0.30	-0.17	-2.61	1.13	-0.00
	Sobrecarga	9.55	-0.09	0.06	0.19	-0.38	-0.00

6.- DESFAV. PILARES, PILARES-PAREDES E CORTINAS

6.1.- Pilares

- Tramo: Nível inicial / nível final do tramo entre pisos.
- Piso superior: É a seção correspondente à base do tramo superior até o tramo anterior.



- Desfavoráveis: Esforços mais desfavoráveis, correspondentes às combinações atendidas pela armadura atual, mas não atendidas pela armadura anterior da tabela. Inclui a majoração de esforços devida a efeitos de segunda ordem e excentricidade adicional por flambagem. As colunas de esf. desfavoráveis vazias indicam que a seção do pilar é insuficiente.
- Referência: Esforços desfavoráveis, correspondentes às combinações atendidas pela armadura atual, mas não atendidas pela armadura anterior da tabela. Inclui a majoração de esforços devida a efeitos de segunda ordem (mas não inclui flambagem).
- Nota:

Esforços em relação aos eixos locais do pilar.

Pilar	Planta	Dimensão(c m)	Tramo(m)	Desfavoráveis			Referência			
				N(t)	Mx(t· m)	My(t· m)	N(t)	Mx(t· m)	My(t· m)	
P301	Piso 3	20x20	3.60/7.30	15.60	1.14	0.61	15.60	0.22	0.00	
				9.73	0.72	0.38	9.73	0.15	0.00	
	Piso 2	20x20	0.00/3.10	18.60	1.62	0.51	18.60	0.74	0.00	
				12.16	1.10	0.33	12.16	0.52	0.00	
				Piso superior	15.60	0.96	0.43	15.60	0.22	0.00
	Piso 1	80x80	-0.80/-0.40	25.14	0.60	1.52	25.14	0.60	0.85	
				24.40	0.63	1.36	24.40	0.63	0.71	
				24.21	0.57	1.62	24.21	0.57	0.97	
				15.85	0.39	1.08	15.85	0.39	0.66	
				Piso superior	18.60	1.12	0.00	18.60	0.74	0.00
			12.16	0.77	0.00	12.16	0.52	0.00		
P302	Piso 3	20x20	4.10/7.70	4.48	0.66	1.56	4.48	0.50	1.30	
				3.80	0.52	1.17	3.80	0.38	0.95	
				3.12	0.47	1.14	3.12	0.36	0.96	
	Piso 2	20x20	0.00/3.60	17.06	1.00	1.90	17.06	0.37	0.94	
				16.56	1.15	2.53	16.56	0.54	1.59	
				11.94	0.83	1.86	11.94	0.39	1.18	
	Piso 1	80x80	-0.80/-0.40	Piso superior	4.48	0.66	1.56	4.48	0.50	1.30
					3.80	0.52	1.17	3.80	0.38	0.95
					3.12	0.47	1.14	3.12	0.36	0.96
					21.98	1.39	0.58	21.98	0.80	0.58
			18.21	1.31	0.48	18.21	0.83	0.48		
			15.48	0.92	0.41	15.48	0.51	0.41		
	Piso superior		17.06	0.37	1.28	17.06	0.37	0.94		
			12.26	0.26	0.94	12.26	0.26	0.69		
P303	Piso 3	20x30	4.10/7.70	34.57	2.20	2.95	34.57	0.24	2.10	
				22.88	1.48	2.12	22.88	0.18	1.56	
	Piso 2	20x40	0.00/3.60	65.48	4.17	2.82	65.48	0.45	2.82	
				64.47	4.40	5.70	64.47	0.74	5.70	
				44.84	3.06	4.22	44.84	0.52	4.22	
	Piso 1	80x80	-0.80/-0.40	Piso superior	34.57	2.20	2.95	34.57	0.24	2.10
					22.88	1.48	2.12	22.88	0.18	1.56
					78.08	3.13	0.81	78.08	1.05	0.81
			77.18	4.27	1.18	77.18	2.21	1.18		



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

P304	Piso 3	20x20	4.10/7.70	67.19	3.83	0.83	67.19	2.04	0.83	
				53.19	2.90	0.88	53.19	1.49	0.88	
				Piso superior	65.48	1.76	2.82	65.48	0.45	2.82
				45.46	1.22	2.08	45.46	0.31	2.08	
				15.25	0.78	2.03	15.25	0.22	1.16	
				11.43	0.58	1.42	11.43	0.16	0.77	
	Piso 2	40x20	0.00/3.60	11.17	0.57	1.52	11.17	0.16	0.89	
				42.74	1.16	4.67	42.74	1.16	2.24	
				41.73	2.82	6.17	41.73	2.82	3.80	
				30.35	2.02	4.34	30.35	2.02	2.61	
				Piso superior	15.25	0.78	2.03	15.25	0.22	1.16
				11.43	0.58	1.42	11.43	0.16	0.77	
Piso 1	80x80	-0.80/-0.40	11.17	0.57	1.52	11.17	0.16	0.89		
			56.20	2.46	0.54	56.20	0.96	0.54		
			43.98	2.11	0.46	43.98	0.94	0.46		
			55.30	3.58	0.00	55.30	2.10	0.00		
			43.08	3.01	0.13	43.08	1.86	0.13		
			Piso superior	42.74	1.16	3.10	42.74	1.16	2.24	
P305	Piso 3	20x20	4.10/7.70	31.36	0.86	2.17	31.36	0.86	1.55	
				17.62	0.90	1.92	17.62	0.25	0.92	
				12.81	0.65	1.44	12.81	0.18	0.71	
				Piso 2	50.90	1.77	4.31	50.90	0.53	1.42
				50.14	1.81	5.23	50.14	0.58	2.39	
				36.96	1.36	3.91	36.96	0.46	1.81	
	Piso 1	80x80	-0.80/-0.40	Piso superior	17.62	0.90	1.92	17.62	0.25	0.92
				12.81	0.65	1.44	12.81	0.18	0.71	
				63.95	0.37	2.09	63.95	0.37	0.38	
				50.11	1.76	0.30	50.11	0.42	0.30	
				63.05	3.20	0.07	63.05	1.52	0.07	
				49.21	2.64	0.00	49.21	1.33	0.00	
P306	Piso 3	20x20	4.10/7.70	Piso superior	50.90	0.53	2.44	50.90	0.53	1.42
				16.96	0.83	1.87	16.96	0.21	0.90	
				12.32	0.61	1.41	12.32	0.15	0.71	
				Piso 2	46.56	1.59	4.01	46.56	0.45	1.36
				45.81	1.57	4.87	45.81	0.45	2.27	
				33.84	1.16	3.67	33.84	0.33	1.74	
	Piso 1	80x80	-0.80/-0.40	Piso superior	16.96	0.83	1.87	16.96	0.21	0.90
				12.32	0.61	1.41	12.32	0.15	0.71	
				65.81	2.56	0.14	65.81	0.80	0.14	
				64.92	2.88	0.61	64.92	1.15	0.61	
				51.91	2.59	0.39	51.91	1.20	0.39	
				46.36	1.97	0.47	46.36	0.73	0.47	
P307	Piso 3	20x20	4.10/7.70	Piso superior	46.56	0.45	2.29	46.56	0.45	1.36
				17.71	0.72	1.88	17.71	0.07	0.87	
				13.45	0.56	1.25	13.45	0.07	0.49	
				12.90	0.53	1.43	12.90	0.05	0.70	
				Piso 2	49.82	1.33	4.13	49.82	0.11	1.30
				49.06	1.36	4.93	49.06	0.16	2.14	
	Piso 1	30x20	0.00/3.60	Piso superior	36.54	1.01	3.75	36.54	0.12	1.68
				49.82	1.33	4.13	49.82	0.11	1.30	
				49.06	1.36	4.93	49.06	0.16	2.14	
				36.54	1.01	3.75	36.54	0.12	1.68	
				17.71	0.72	1.88	17.71	0.07	0.87	
				13.45	0.56	1.25	13.45	0.07	0.49	

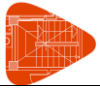


Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

			Piso superior	17.71	0.72	1.88	17.71	0.07	0.87
				13.45	0.56	1.25	13.45	0.07	0.49
				12.90	0.53	1.43	12.90	0.05	0.70
	Piso 1	80x80	-0.80/-0.40	64.70	2.79	0.07	64.70	1.07	0.07
				63.80	4.48	0.16	63.80	2.78	0.16
				49.11	3.99	0.05	49.11	2.68	0.05
				46.26	3.05	0.15	46.26	1.82	0.15
			Piso superior	49.82	0.11	2.29	49.82	0.11	1.30
				37.02	0.08	1.76	37.02	0.08	1.02
				35.83	0.09	1.51	35.83	0.09	0.79
P308	Piso 3	20x20	4.10/7.70	14.53	1.38	0.99	14.53	0.56	0.45
				10.45	1.03	0.75	10.45	0.43	0.36
	Piso 2	20x20	0.00/3.60	27.93	2.17	1.54	27.93	0.58	0.51
				27.43	2.46	1.81	27.43	0.90	0.80
				20.02	1.82	1.35	20.02	0.69	0.61
			Piso superior	14.53	1.38	0.99	14.53	0.56	0.45
				10.45	1.03	0.75	10.45	0.43	0.36
	Piso 1	80x80	-0.80/-0.40	38.37	2.02	0.28	38.37	0.99	0.28
				37.48	3.31	2.02	37.48	2.31	2.02
				30.43	3.13	1.99	30.43	2.32	1.99
			Piso superior	27.93	1.14	0.51	27.93	0.58	0.51
				20.34	0.85	0.39	20.34	0.44	0.39
P309	Piso 3	Diâmetro:40	4.10/7.70	60.16	5.68	1.47	60.16	4.51	1.17
				39.51	4.25	1.03	39.51	3.48	0.85
	Piso 2	Diâmetro:40	0.00/3.60	89.71	3.89	1.20	89.71	2.17	0.67
				88.12	6.49	1.73	88.12	4.79	1.28
				76.53	3.89	1.81	76.53	2.50	1.17
				60.76	5.08	1.15	60.76	3.90	0.88
			Piso superior	60.16	5.68	1.47	60.16	4.51	1.17
				39.51	4.25	1.03	39.51	3.48	0.85
	Piso 1	80x80	-0.80/-0.40	100.84	0.68	3.48	100.84	0.68	0.80
				99.94	3.97	0.66	99.94	1.30	0.66
				68.57	2.86	0.45	68.57	1.03	0.45
			Piso superior	89.71	3.89	1.20	89.71	2.17	0.67
				78.11	2.44	1.36	78.11	1.07	0.60
				61.80	2.99	0.77	61.80	1.79	0.46
P310	Piso 3	20x20	4.10/7.70	30.45	2.16	1.45	30.45	0.43	0.33
	Piso 2	40x20	0.00/3.60	92.55	1.41	5.42	92.55	1.41	0.57
				91.54	1.59	5.84	91.54	1.59	1.02
				70.10	1.29	4.70	70.10	1.29	0.72
				60.04	0.85	4.26	60.04	0.85	0.85
			Piso superior	30.45	2.16	1.45	30.45	0.43	0.33
	Piso 1	80x80	-0.80/-0.40	97.90	0.42	3.24	97.90	0.42	0.63
				65.64	0.50	2.26	65.64	0.50	0.51
			Piso superior	92.55	1.41	2.42	92.55	1.41	0.57
				61.05	0.80	1.69	61.05	0.80	0.47
P311	Piso 3	Diâmetro:40	4.10/7.70	20.51	1.96	2.91	20.51	1.73	2.57
				15.17	1.47	2.05	15.17	1.29	1.81
				14.95	1.36	2.41	14.95	1.22	2.15



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

	Piso 2	Diâmetro:40	0.00/3.60	74.88	1.82	3.14	74.88	1.07	1.84		
				45.30	1.09	2.38	45.30	0.71	1.55		
				73.30	1.19	4.93	73.30	0.85	3.51		
				43.69	0.80	3.77	43.69	0.62	2.91		
				Piso superior		20.51	1.96	2.91	20.51	1.73	2.57
						15.17	1.47	2.05	15.17	1.29	1.81
	Piso 1	80x80	-0.80/-0.40	81.42	0.21	2.76	81.42	0.21	0.59		
				80.52	3.72	1.20	80.52	1.58	1.20		
				50.17	2.65	1.00	50.17	1.31	1.00		
				Piso superior		74.88	1.82	3.14	74.88	1.07	1.84
						45.30	1.09	2.38	45.30	0.71	1.55
P312	Piso 3	Diâmetro:40	4.10/7.70	21.88	2.21	2.74	21.88	1.93	2.40		
				16.34	1.46	2.36	16.34	1.29	2.08		
				16.04	1.68	1.90	16.04	1.47	1.66		
	Piso 2	Diâmetro:40	0.00/3.60	77.48	1.74	3.33	77.48	1.02	1.95		
				60.22	1.45	2.37	60.22	0.82	1.35		
				48.33	0.86	2.62	48.33	0.56	1.70		
				75.89	1.08	5.25	75.89	0.77	3.77		
				59.16	0.98	3.77	59.16	0.68	2.63		
				46.75	0.44	4.12	46.75	0.34	3.19		
	Piso superior		21.88	2.21	2.74	21.88	1.93	2.40			
			16.34	1.46	2.36	16.34	1.29	2.08			
			16.04	1.68	1.90	16.04	1.47	1.66			
Piso 1	80x80	-0.80/-0.40	108.18	0.00	2.88	108.18	0.00	0.00			
			107.28	5.03	1.58	107.28	2.17	1.58			
			76.55	3.85	1.62	76.55	1.81	1.62			
			Piso superior		77.48	1.74	3.33	77.48	1.02	1.95	
					60.22	1.45	2.37	60.22	0.82	1.35	
					48.33	0.86	2.62	48.33	0.56	1.70	
P313	Piso 3	Diâmetro:40	4.10/7.70	22.38	1.14	2.05	22.38	0.92	1.66		
				16.43	1.19	1.68	16.43	1.00	1.41		
				Piso superior		22.38	1.14	2.05	22.38	0.92	1.66
	Piso 2	Diâmetro:40	0.00/3.60	80.85	0.84	3.06	80.85	0.41	1.50		
				48.37	0.87	2.17	48.37	0.51	1.27		
				79.26	0.61	4.68	79.26	0.40	3.11		
				46.77	0.23	3.44	46.77	0.17	2.51		
				Piso superior		22.38	1.14	2.05	22.38	0.92	1.66
						16.43	1.19	1.68	16.43	1.00	1.41
	Piso 1	80x80	-0.80/-0.40	97.54	4.39	0.24	97.54	1.79	0.24		
				96.65	10.69	0.85	96.65	8.11	0.85		
				62.93	9.38	0.70	62.93	7.70	0.70		
Piso superior				80.85	0.84	3.06	80.85	0.41	1.50		
				48.37	0.87	2.17	48.37	0.51	1.27		
P314	Piso 3	20x20	4.10/7.70	18.33	1.72	0.78	18.33	0.68	0.11		
				13.36	1.33	0.58	13.36	0.57	0.09		
				Piso superior		18.33	1.72	0.78	18.33	0.68	0.11
	Piso 2	20x30	0.00/3.60	52.69	3.95	1.47	52.69	0.96	0.18		
				51.94	4.43	1.35	51.94	1.48	0.07		
				39.70	3.49	1.11	39.70	1.24	0.14		
Piso superior		18.33	1.72	0.78	18.33	0.68	0.11				



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

				13.36	1.33	0.58	13.36	0.57	0.09
	Piso 1	80x80	-0.80/-0.40	66.51	2.11	0.09	66.51	0.33	0.09
				65.61	2.57	0.23	65.61	0.82	0.23
				46.99	1.72	0.17	46.99	0.47	0.17
			Piso superior	52.69	2.01	0.18	52.69	0.96	0.18
				40.20	1.60	0.14	40.20	0.79	0.14
P315	Piso 3	Diâmetro:40	4.10/7.70	55.68	4.67	2.20	55.68	3.66	1.72
				36.45	3.52	1.59	36.45	2.85	1.29
	Piso 2	Diâmetro:40	0.00/3.60	77.89	3.32	0.27	77.89	1.77	0.14
				76.31	5.71	0.46	76.31	4.19	0.34
				52.29	4.49	0.48	52.29	3.45	0.37
			Piso superior	55.68	4.67	2.20	55.68	3.66	1.72
				36.45	3.52	1.59	36.45	2.85	1.29
	Piso 1	80x80	-0.80/-0.40	85.23	2.76	0.43	85.23	0.48	0.43
				84.33	1.00	3.81	84.33	1.00	1.56
				74.84	0.53	3.72	74.84	0.53	1.72
				57.61	0.81	2.48	57.61	0.81	0.94
			Piso superior	77.89	3.32	0.27	77.89	1.77	0.14
				53.31	2.54	0.32	53.31	1.48	0.18
P316	Piso 3	20x20	4.10/7.70	25.82	1.99	1.26	25.82	0.52	0.31
				18.24	1.43	0.92	18.24	0.39	0.25
	Piso 2	30x20	0.00/3.60	67.82	2.27	3.72	67.82	0.79	0.14
				67.06	2.45	3.83	67.06	0.97	0.27
				50.92	2.05	3.15	50.92	0.80	0.26
			Piso superior	25.82	1.99	1.26	25.82	0.52	0.31
				18.24	1.43	0.92	18.24	0.39	0.25
	Piso 1	80x80	-0.80/-0.40	76.40	0.00	2.61	76.40	0.00	0.57
				53.83	0.10	1.88	53.83	0.10	0.45
				75.51	3.89	0.17	75.51	1.87	0.17
				52.94	3.09	0.08	52.94	1.68	0.08
			Piso superior	67.82	0.79	1.49	67.82	0.79	0.14
P317	Piso 3	Diâmetro:40	4.10/7.70	17.58	2.30	1.41	17.58	2.00	1.22
				13.12	1.90	0.62	13.12	1.65	0.54
				12.89	1.62	1.18	12.89	1.42	1.03
	Piso 2	Diâmetro:40	0.00/3.60	48.38	2.00	0.87	48.38	1.12	0.48
				38.18	1.43	0.88	38.18	0.78	0.48
				28.56	1.51	0.00	28.56	0.94	0.00
				46.80	1.34	1.92	46.80	0.80	1.15
				37.17	0.77	1.74	37.17	0.47	1.06
				26.98	1.44	0.37	26.98	0.92	0.23
			Piso superior	17.58	2.30	1.41	17.58	2.00	1.22
				13.12	1.90	0.62	13.12	1.65	0.54
				12.89	1.62	1.18	12.89	1.42	1.03
	Piso 1	80x80	-0.80/-0.40	56.76	2.06	0.44	56.76	0.54	0.44
				36.28	1.59	0.31	36.28	0.62	0.31
				55.87	2.87	0.28	55.87	1.38	0.28
				35.38	2.45	0.00	35.38	1.51	0.00
			Piso superior	48.38	2.00	0.87	48.38	1.12	0.48
				38.18	1.43	0.88	38.18	0.78	0.48

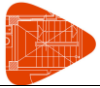


Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

				28.56	1.51	0.00	28.56	0.94	0.00			
P318	Piso 3	Diâmetro:40	4.10/7.70	18.85	2.72	0.83	18.85	2.36	0.72			
				13.70	2.05	0.77	13.70	1.79	0.67			
	Piso 2	Diâmetro:40	0.00/3.60	47.89	2.11	0.48	47.89	1.18	0.27			
				38.16	1.66	0.58	38.16	0.94	0.33			
				46.30	1.63	1.45	46.30	0.94	0.83			
				37.12	1.28	1.40	37.12	0.78	0.85			
				Piso superior			18.85	2.72	0.83	18.85	2.36	0.72
							13.70	2.05	0.77	13.70	1.79	0.67
	Piso 1	80x80	-0.80/-0.40	59.51	0.05	1.84	59.51	0.05	0.25			
				58.62	1.62	4.57	58.62	1.62	3.01			
37.21				1.25	4.18	37.21	1.25	3.18				
Piso superior				47.89	2.11	0.48	47.89	1.18	0.27			
			38.16	1.66	0.58	38.16	0.94	0.33				
P319	Piso 3	Diâmetro:40	4.10/7.70	19.38	1.46	0.95	19.38	1.13	0.74			
				14.59	1.31	0.28	14.59	1.03	0.22			
				14.17	0.98	0.84	14.17	0.77	0.66			
	Piso 2	Diâmetro:40	0.00/3.60	51.73	0.95	1.29	51.73	0.34	0.46			
				50.15	0.95	2.22	50.15	0.56	1.30			
				40.43	0.82	1.91	40.43	0.50	1.17			
				Piso superior			19.38	1.46	0.95	19.38	1.13	0.74
							14.59	1.31	0.28	14.59	1.03	0.22
							14.17	0.98	0.84	14.17	0.77	0.66
	Piso 1	80x80	-0.80/-0.40	59.63	2.25	0.12	59.63	0.66	0.12			
46.81				1.66	0.11	46.81	0.41	0.11				
58.73				3.65	0.11	58.73	2.08	0.11				
46.24				2.59	0.15	46.24	1.36	0.15				
34.98				2.95	0.10	34.98	2.02	0.10				
Piso superior				51.73	0.95	1.29	51.73	0.34	0.46			
						41.45	0.59	1.18	41.45	0.22	0.44	
						28.79	0.89	0.12	28.79	0.32	0.04	
P320	Piso 3	20x20	4.10/7.70	14.62	1.44	0.61	14.62	0.61	0.08			
				10.58	1.12	0.44	10.58	0.52	0.06			
	Piso 2	20x20	0.00/3.60	40.30	2.76	1.46	40.30	0.55	0.06			
				39.80	3.02	1.56	39.80	0.83	0.16			
				30.52	2.43	1.25	30.52	0.70	0.12			
				Piso superior			14.62	1.44	0.61	14.62	0.61	0.08
							10.58	1.12	0.44	10.58	0.52	0.06
				Piso 1	80x80	-0.80/-0.40	53.72	0.16	1.62	53.72	0.16	0.18
	52.82	2.38	0.80				52.82	0.97	0.80			
	39.24	1.78	0.52				39.24	0.73	0.52			
38.01	0.70	1.81	38.01				0.70	0.80				
Piso superior			40.30				1.36	0.06	40.30	0.55	0.06	
			30.84				1.08	0.04	30.84	0.46	0.04	
P321	Piso 3	Diâmetro:40	4.10/7.70	41.43	4.47	1.93	41.43	3.71	1.60			
				27.41	3.44	1.51	27.41	2.94	1.29			
	Piso 2	Diâmetro:40	0.00/3.60	73.75	4.15	2.59	73.75	2.90	1.81			
				72.17	7.53	3.60	72.17	6.23	2.98			
			50.71	5.79	2.77	50.71	4.87	2.34				



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

			Piso superior	41.43	4.47	1.93	41.43	3.71	1.60			
				27.41	3.44	1.51	27.41	2.94	1.29			
			Piso 1	80x80	-0.80/-0.40	83.18	0.45	3.50	83.18	0.45	1.28	
						82.29	1.55	5.84	82.29	1.55	3.65	
						69.67	1.00	5.66	69.67	1.00	3.80	
						57.40	1.20	3.82	57.40	1.20	2.29	
					Piso superior	73.75	4.15	2.59	73.75	2.90	1.81	
						51.73	3.15	1.95	51.73	2.27	1.40	
			P322	Piso 3	20x20	4.10/7.70	19.21	1.58	1.15	19.21	0.49	0.44
							14.35	1.18	0.89	14.35	0.37	0.36
			Piso 2	20x40	0.00/3.60	81.91	5.03	2.78	81.91	0.56	2.78	
						80.90	5.14	4.64	80.90	0.71	4.64	
						62.70	4.11	3.85	62.70	0.55	3.85	
						50.95	3.33	2.21	50.95	0.44	2.21	
					Piso superior	19.21	1.58	1.15	19.21	0.49	0.44	
						14.35	1.18	0.89	14.35	0.37	0.36	
			Piso 1	80x80	-0.80/-0.40	89.37	0.20	3.14	89.37	0.20	0.76	
						58.60	0.29	2.31	58.60	0.29	0.74	
						88.48	0.00	3.70	88.48	0.00	1.34	
						67.87	0.04	2.48	67.87	0.04	0.67	
			57.70	0.13	3.42	57.70	0.13	1.88				
		Piso superior	81.91	2.20	2.78	81.91	0.56	2.78				
			63.35	1.70	2.29	63.35	0.43	2.29				
			Piso 3	20x20	4.10/7.70	17.92	0.96	1.70	17.92	0.30	0.68	
						13.28	0.71	1.30	13.28	0.22	0.55	
						12.98	0.69	1.12	12.98	0.22	0.38	
			Piso 2	30x20	0.00/3.60	71.71	2.04	4.54	71.71	0.52	0.83	
						70.92	2.02	5.05	70.92	0.51	1.37	
						Piso superior	17.92	0.96	1.70	17.92	0.30	0.68
						13.28	0.71	1.30	13.28	0.22	0.55	
						12.98	0.69	1.12	12.98	0.22	0.38	
			Piso 1	80x80	-0.80/-0.40	78.97	0.17	2.88	78.97	0.17	0.77	
						50.24	0.26	2.02	50.24	0.26	0.68	
78.07	0.17	4.39				78.07	0.17	2.31				
49.34	0.06	3.61				49.34	0.06	2.29				
		Piso superior	71.71	0.52	2.26	71.71	0.52	0.83				
			Piso 3	20x20	4.10/7.70	18.46	1.06	1.66	18.46	0.38	0.62	
						13.67	0.78	1.29	13.67	0.28	0.51	
			Piso 2	30x20	0.00/3.60	66.34	2.16	4.23	66.34	0.69	0.70	
						65.59	2.22	4.64	65.59	0.76	1.14	
						38.07	1.38	2.67	38.07	0.44	0.51	
						Piso superior	18.46	1.06	1.66	18.46	0.38	0.62
						13.67	0.78	1.29	13.67	0.28	0.51	
			Piso 1	80x80	-0.80/-0.40	71.41	0.16	2.17	71.41	0.16	0.27	
						43.19	1.41	0.21	43.19	0.25	0.21	
						70.51	2.15	0.14	70.51	0.27	0.14	
42.29	0.09	1.36				42.29	0.09	0.23				
Piso superior	66.34	0.69				2.03	66.34	0.69	0.70			
			38.83	0.41	1.10	38.83	0.41	0.32				



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

P325	Piso 3	20x20	4.10/7.70	18.54	0.81	1.84	18.54	0.13	0.78		
				13.80	0.60	1.41	13.80	0.10	0.63		
				13.26	0.60	1.19	13.26	0.11	0.44		
	Piso 2	40x20	0.00/3.60	78.09	0.06	5.52	78.09	0.06	1.18		
				77.08	0.92	6.22	77.08	0.92	1.92		
				Piso superior	18.54	0.81	1.84	18.54	0.13	0.78	
	Piso 1	80x80	-0.80/-0.40	13.80	0.60	1.41	13.80	0.10	0.63		
				13.26	0.60	1.19	13.26	0.11	0.44		
				Piso superior	83.16	2.43	0.06	83.16	0.21	0.06	
	P326	Piso 3	20x20	4.10/7.70	51.65	1.66	0.00	51.65	0.29	0.00	
					82.26	0.08	2.40	82.26	0.08	0.21	
					Piso superior	78.09	0.06	2.75	78.09	0.06	1.18
Piso 3		20x20	4.10/7.70	4.10/7.70	16.74	1.83	1.08	16.74	0.88	0.46	
					12.22	1.40	0.80	12.22	0.71	0.35	
					Piso superior	50.70	4.03	2.22	50.70	1.15	0.98
Piso 2		20x30	0.00/3.60	0.00/3.60	49.94	4.62	2.69	49.94	1.79	1.47	
					37.56	3.58	2.05	37.56	1.44	1.13	
					Piso superior	16.74	1.83	1.08	16.74	0.88	0.46
Piso 1		80x80	-0.80/-0.40	-0.80/-0.40	12.22	1.40	0.80	12.22	0.71	0.35	
					Piso superior	62.99	0.13	1.82	62.99	0.13	0.14
					Piso superior	62.09	0.45	2.86	62.09	0.45	1.20
P327	Piso 3	20x20	7.70/7.98	46.13	0.17	2.52	46.13	0.17	1.29		
				45.62	0.39	1.96	45.62	0.39	0.74		
				Piso superior	50.70	2.17	0.98	50.70	1.15	0.98	
	Piso 3	20x20	4.10/7.30	4.10/7.30	38.09	1.69	0.73	38.09	0.93	0.73	
					Piso superior	19.15	0.41	1.75	19.15	0.41	1.37
					Piso superior	12.45	0.29	1.22	12.45	0.29	0.97
	Piso 3	20x20	4.10/7.30	4.10/7.30	19.11	0.21	1.90	19.11	0.21	1.52	
					12.42	0.15	1.32	12.42	0.15	1.08	
					Piso superior	28.36	2.45	1.42	28.36	1.06	0.60
	Piso 2	20x30	3.60/3.98	3.60/3.98	27.91	2.59	1.96	27.91	1.22	1.15	
					18.84	1.82	1.36	18.84	0.89	0.81	
					Piso superior	19.15	0.96	2.31	19.15	0.41	1.37
Piso 2	20x30	0.00/3.10	0.00/3.10	12.45	0.66	1.58	12.45	0.29	0.97		
				Piso superior	28.81	2.25	0.48	28.81	1.68	0.48	
				Piso superior	19.42	1.65	0.34	19.42	1.26	0.34	
Piso 2	20x30	0.00/3.10	0.00/3.10	28.73	1.78	0.56	28.73	1.20	0.56		
				19.37	1.29	0.40	19.37	0.90	0.40		
				Piso superior	28.36	1.63	0.60	28.36	1.06	0.60	
Piso 1	80x80	-0.80/-0.40	-0.80/-0.40	19.12	1.17	0.42	19.12	0.79	0.42		
				Piso superior	51.18	3.86	0.23	51.18	1.44	0.23	
				Piso superior	50.53	4.83	0.38	50.53	2.45	0.38	
Piso 1	80x80	-0.80/-0.40	-0.80/-0.40	40.97	3.56	0.31	40.97	1.62	0.31		
				35.89	3.56	0.27	35.89	1.87	0.27		
				Piso superior	28.81	3.04	0.48	28.81	1.68	0.48	
Piso 1	80x80	-0.80/-0.40	-0.80/-0.40	19.42	2.18	0.34	19.42	1.26	0.34		
				Piso superior	64.15	0.00	2.69	64.15	0.00	0.98	
				Piso superior	54.02	0.10	2.26	54.02	0.10	0.82	
Piso 1	80x80	-0.80/-0.40	-0.80/-0.40	63.25	0.12	3.47	63.25	0.12	1.78		
				Piso superior	63.25	0.12	3.47	63.25	0.12	1.78	
				Piso superior	63.25	0.12	3.47	63.25	0.12	1.78	



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

				44.25	0.14	2.43	44.25	0.14	1.25	
			Piso superior	51.18	2.47	0.23	51.18	1.44	0.23	
				36.31	1.82	0.17	36.31	1.10	0.17	
P328	Piso 3	20x20	4.10/7.70	27.68	2.15	1.44	27.68	0.58	0.42	
				20.25	1.59	1.12	20.25	0.44	0.38	
				27.17	1.29	2.01	27.17	0.29	0.47	
				20.28	0.96	1.56	20.28	0.21	0.41	
	Piso 2	40x20	0.00/3.60	78.37	2.31	5.74	78.37	2.31	1.39	
				77.36	2.92	6.74	77.36	2.92	2.43	
				59.65	2.33	5.36	59.65	2.33	1.97	
				Piso superior	27.68	2.15	1.44	27.68	0.58	0.42
					20.25	1.59	1.12	20.25	0.44	0.38
	Piso 1	80x80	-0.80/-0.40	102.21	0.18	3.04	102.21	0.18	0.31	
				101.31	1.23	4.08	101.31	1.23	1.38	
				75.55	3.01	0.68	75.55	1.00	0.68	
72.13				0.65	3.88	72.13	0.65	1.95		
Piso superior				78.37	2.31	2.96	78.37	2.31	1.39	
						60.30	1.84	2.34	60.30	1.84
P329	Piso 3	20x20	4.10/7.70	24.35	1.19	1.88	24.35	0.29	0.50	
				17.85	0.87	1.45	17.85	0.21	0.44	
	Piso 2	40x20	0.00/3.60	71.46	0.98	5.60	71.46	0.98	1.54	
				54.82	0.76	4.36	54.82	0.76	1.25	
				70.45	0.59	6.70	70.45	0.59	2.70	
				54.15	0.45	5.26	54.15	0.45	2.19	
	Piso superior			24.35	1.19	1.88	24.35	0.29	0.50	
				17.85	0.87	1.45	17.85	0.21	0.44	
	Piso 1	80x80	-0.80/-0.40	93.70	0.07	2.61	93.70	0.07	0.12	
				67.64	2.00	0.08	67.64	0.20	0.08	
				92.81	0.27	4.16	92.81	0.27	1.69	
				66.75	0.53	4.02	66.75	0.53	2.24	
Piso superior			71.46	0.98	2.97	71.46	0.98	1.54		
			54.82	0.76	2.35	54.82	0.76	1.25		
P330	Piso 3	20x20	4.10/7.70	24.84	1.81	1.09	24.84	0.40	0.18	
				18.63	1.33	0.84	18.63	0.27	0.15	
				18.20	1.33	0.90	18.20	0.29	0.24	
				24.33	1.08	1.88	24.33	0.19	0.49	
				18.12	0.79	1.47	18.12	0.13	0.44	
	Piso 2	40x20	0.00/3.60	79.85	1.54	5.42	79.85	1.54	1.02	
				60.19	1.22	4.33	60.19	1.22	0.91	
				78.93	1.52	6.21	78.93	1.52	1.84	
				59.62	1.21	5.02	59.62	1.21	1.64	
				Piso superior	24.84	1.81	1.09	24.84	0.40	0.18
					18.63	1.33	0.84	18.63	0.27	0.15
					18.20	1.33	0.90	18.20	0.29	0.24
	Piso 1	80x80	-0.80/-0.40	94.38	0.11	3.16	94.38	0.11	0.65	
				93.49	0.82	4.95	93.49	0.82	2.46	
				67.60	0.42	3.58	67.60	0.42	1.78	
				Piso superior	79.85	1.54	2.62	79.85	1.54	1.02
				60.19	1.22	2.12	60.19	1.22	0.91	



P331	Piso 3	20x20	4.10/7.70	25.66	1.13	1.87	25.66	0.19	0.42	
				19.10	1.25	0.80	19.10	0.16	0.09	
				18.83	0.83	1.45	18.83	0.14	0.38	
				25.15	1.04	1.92	25.15	0.12	0.49	
				18.60	0.77	1.48	18.60	0.09	0.43	
	Piso 2	40x20	0.00/3.60	78.49	0.33	5.85	78.49	0.33	1.51	
				77.48	0.55	7.01	77.48	0.55	2.70	
				59.74	0.49	5.58	59.74	0.49	2.19	
				Piso superior	25.66	1.13	1.87	25.66	0.19	0.42
				19.10	1.25	0.80	19.10	0.16	0.09	
	Piso 1	80x80	-0.80/-0.40	93.39	0.00	3.07	93.39	0.00	0.58	
				64.46	0.09	2.12	64.46	0.09	0.40	
				92.50	0.13	5.43	92.50	0.13	2.96	
				63.56	0.09	3.93	63.56	0.09	2.24	
				Piso superior	78.49	0.33	3.08	78.49	0.33	1.51
P332	Piso 3	20x20	4.10/7.70	21.08	2.08	0.93	21.08	0.88	0.16	
				16.31	1.39	0.80	16.31	0.47	0.20	
				15.25	1.58	0.65	15.25	0.71	0.09	
				20.57	0.78	1.85	20.57	0.03	0.69	
				15.80	0.67	1.46	15.80	0.09	0.56	
	Piso 2	20x30	0.00/3.60	46.27	3.86	2.29	46.27	1.23	1.16	
				45.52	4.49	3.33	45.52	1.90	2.21	
				33.80	3.44	2.54	33.80	1.52	1.72	
				Piso superior	21.08	2.08	0.93	21.08	0.88	0.16
				16.31	1.39	0.80	16.31	0.47	0.20	
	Piso 1	80x80	-0.80/-0.40	61.33	1.93	0.15	61.33	0.29	0.15	
				60.44	3.26	0.57	60.44	1.65	0.57	
				47.06	3.14	0.87	47.06	1.88	0.87	
				Piso superior	46.27	2.16	1.16	46.27	1.23	1.16
				34.28	1.67	0.90	34.28	0.99	0.90	

7.- RELATÓRIO QUANTITATIVOS PILARES

Aço em barras e estribos:CA-50-A e CA-60-B

Piso 1:Piso 1 Concreto:C25, em geral

Referência	Dimensões m	Formas m2	Concreto m3	Diam.	Nº	Comprimento cm.	Total cm.	A.barras Kg.	A.estribos Kg.
P301 P310	0.80x0.80	1.3	0.26	Ø20	4	120	480	11.87	
P315				Ø20	4	195	780	19.29	
P318 P321				Ø16	10	105	1050	16.49	
P322				Ø16	4	165	660	10.36	
P323 P326				Ø6.3	9	90	810		2.00
P327				Ø6.3	6	274	1644		4.07
P328 P329			3.38				754.13	78.91	



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

P302 P304	0.80x0.80	1.3	0.26	Ø20	4	120	480	11.87	2.00
P305				Ø20	4	195	780	19.29	
P306 P307				Ø16	10	105	1050	16.49	
P308				Ø16	4	165	660	10.36	
P309 P311				Ø6.3	9	90	810		
P312				Ø6.3	6	274	1644		
P313 P314				4.68				1044.18	
P303	0.80x0.80	1.3	0.26	Ø20	4	120	480	11.87	2.00
				Ø20	4	195	780	19.29	
				Ø16	10	105	1050	16.49	
				Ø16	8	165	1320	20.72	
				Ø6.3	9	90	810		
				Ø6.3	6	274	1644		
				4.68				1044.18	
Total piso 1			8.32				1866.70	194.20	

Aço em barras e estribos:CA-50-A e CA-60-B

Piso 2:Piso 2 Concreto:C25, em geral

Referência	Dimensões m	Formas m2	Concreto m3	Diam.	Nº	Comprimento cm.	Total cm.	A.barras Kg.	A.estribos Kg.
P301	0.20x0.20	2.5	0.12	Ø10	4	400	1600	10.05	2.88
				Ø5	27	68	1836		
P302	0.20x0.20	2.9	0.14	Ø12.5	4	460	1840	18.06	3.36
				Ø10	6	450	2700	16.96	
				Ø5	31	69	2139		
P303	0.20x0.40	4.3	0.29	Ø20	4	490	1960	48.47	5.17
				Ø16	2	475	950	14.92	
				Ø6.3	19	110	2090		
				Ø6.3	19	30	570		
P304 P310	0.40x0.20	4.3	0.29	Ø16	4	425	1700	26.69	5.12
P325				Ø16	4	175	700	10.99	
P329 P330				Ø16	6	475	2850	44.75	
				Ø6.3	19	109	2071		
				Ø6.3	19	30	570		
	21.5	1.45				412.15	32.65		
P305 P324	0.30x0.20	3.6	0.22	Ø16	10	475	4750	74.58	4.18
				Ø6.3	19	89	1691	1.41	
(x2)				Ø6.3	19	30	570	149.16	
P306 P307	0.30x0.20	3.6	0.22	Ø20	4	490	1960	48.47	9.40
				Ø12.5	4	460	1840	18.06	
(x2)				Ø6.3	50	76	3800	133.06	
P308	0.20x0.20	2.9	0.14	Ø20	4	490	1960	48.47	3.29
				Ø6.3	19	70	1330		
P309 P311	Diâm:0.40	4.5	0.45	Ø10	8	450	3600	22.61	5.69
P312				Ø5	31	117	3627		
P313 P315									
P314	0.20x0.30	3.6	0.22	Ø20	4	490	1960	48.47	5.56
				Ø12.5	2	460	920	9.03	
				Ø6.3	25	90	2250		
				Ø6.3	25	29	725		
P316	0.30x0.20	3.6	0.22	Ø20	4	490	1960	48.47	4.23
				Ø16	2	475	950	14.92	
				Ø6.3	19	90	1710		
				Ø6.3	19	30	570		



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

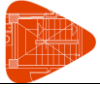
Data: 13/06/16

P320	0.20x0.20	2.9	0.14	Ø20	4	490	1960	48.47	
				Ø16	2	475	950	14.92	
				Ø6.3	19	70	1330		3.29
P322	0.20x0.40	4.3	0.29	Ø20	4	440	1760	43.52	
				Ø20	4	205	820	20.28	
				Ø16	4	475	1900	29.83	
				Ø6.3	38	90	3420		8.46
P323	0.30x0.20	3.6	0.22	Ø20	4	490	1960	48.47	
				Ø16	6	475	2850	44.75	
				Ø6.3	38	76	2888		7.14
P326	0.20x0.30	3.6	0.22	Ø16	10	475	4750	74.58	
				Ø6.3	19	89	1691		4.18
				Ø6.3	19	30	570		1.41
P327	0.20x0.30	3.5	0.21	Ø20	4	475	1900	46.98	
				Ø20	4	165	660	16.32	
				Ø12.5	2	460	920	9.03	
				Ø6.3	26	90	2340		5.79
				Ø6.3	26	29	754		1.86
P328	0.40x0.20	4.3	0.29	Ø16	4	425	1700	26.69	
				Ø16	4	175	700	10.99	
				Ø16	8	475	3800	59.66	
				Ø12.5	4	407	1628	15.97	
				Ø12.5	2	145	290	2.85	
				Ø6.3	50	85	4250		10.51
P331	0.40x0.20	4.3	0.29	Ø20	4	440	1760	43.52	
				Ø20	4	205	820	20.28	
				Ø16	6	475	2850	44.75	
				Ø6.3	19	110	2090		5.17
				Ø6.3	19	30	570		1.41
P332	0.20x0.30	3.6	0.22	Ø20	4	490	1960	48.47	
				Ø16	4	475	1900	29.83	
				Ø6.3	38	76	2888		7.14
Total piso 2			9.39					1875.90	199.30

Aço em barras e estribos:CA-50-A e CA-60-B

Piso 3:Piso 3 Concreto:C25, em geral

Referência	Dimensões m	Formas m2	Concreto m3	Diam.	Nº	Comprimento cm.	Total cm.	A.barras Kg.	A.estribos Kg.
P301	0.20x0.20	3.0	0.15	Ø10	4	407	1628	10.22	
				Ø5	32	68	2176		3.42
P302 P306 P307	0.20x0.20	2.9	0.14	Ø10	6	405	2430	15.26	
P323 P324		17.4	0.84	Ø5	31	68	2108		3.31
								91.56	19.86
P303	0.20x0.30	3.6	0.22	Ø12.5	4	410	1640	16.09	
				Ø5	25	89	2225		3.49
P304	0.20x0.20	2.9	0.14	Ø10	8	405	3240	20.35	
				Ø5	31	68	2108		3.31
P305 P326 P330	0.20x0.20	2.9	0.14	Ø12.5	4	410	1640	16.09	
		8.7	0.42	Ø5	25	69	1725		2.71
								48.27	8.13
P308 P320 (x2)	0.20x0.20	2.9	0.14	Ø10	4	405	1620	10.17	
		5.8	0.28	Ø5	31	68	2108		3.31
								20.34	6.62
P309 P311 P312	Diâm:0.40	4.5	0.45	Ø10	8	398	3184	20.00	
P313 P315 P317		40.5	4.05	Ø5	31	117	3627		5.69
								180.00	51.21



Esforços e armaduras de pilares, paredes, cortinas e muros

TRF-4 VARAS VERTICAL PARTE 3

Data: 13/06/16

P310 P328	0.20x0.20	2.9	0.14	Ø12.5	4	410	1640	16.09	
(x2)		5.8	0.28	Ø10	6	405	2430	15.26	3.36
				Ø5	31	69	2139	62.70	6.72
P314 P322	0.20x0.20	2.9	0.14	Ø10	6	398	2388	15.00	3.31
(x2)		5.8	0.28	Ø5	31	68	2108	30.00	6.62
P316	0.20x0.20	2.9	0.14	Ø12.5	6	405	2430	23.84	
				Ø5	25	69	1725		2.71
P327	0.20x0.20	2.6	0.13	Ø20	4	440	1760	43.52	
				Ø12.5	2	410	820	8.05	
				Ø6.3	23	70	1610		3.98
P327	0.20x0.20	0.2	0.01	Ø10	4	65	260	1.63	
				Ø5	4	68	272		0.43
P329 P331	0.20x0.20	2.9	0.14	Ø10	8	398	3184	20.00	3.31
(x2)		5.8	0.28	Ø5	31	68	2108	40.00	6.62
P332	0.20x0.20	2.9	0.14	Ø10	8	398	3184	20.00	3.31
				Ø5	31	68	2108		3.31
Total piso 3			7.36					616.50	126.50



Aço em barras e estribos:CA-50-A e CA-60-B

Resumo de quantitat.

Piso	Tipo aço	Diam.	Comprimento (m)	Peso (Kg)	Formas m2	Concreto m3
Piso 1	Aço em barras	Ø16	553.80	870		
		Ø20	403.20	997		
	Aço em estribos	Ø6.3	785.28	194		
	Total			2061	41.60	8.32
Piso 2	Aço em barras	Ø10	367.00	231		
		Ø12.5	92.78	91		
		Ø16	590.50	927		
		Ø20	253.60	627		
	Aço em estribos	Ø5	366.18	57		
		Ø6.3	573.63	142		
		Total			2075	126.30
Piso 3	Aço em barras	Ø10	707.92	445		
		Ø12.5	130.90	128		
		Ø20	17.60	44		
	Aço em estribos	Ø5	780.06	122		
		Ø6.3	16.10	4		
		Total			743	107.90
Totais	Aço em barras	Ø10	1074.92	676		
		Ø12.5	223.68	219		
		Ø16	1144.30	1797		
		Ø20	674.40	1668		
	Aço em estribos	Ø5	1146.24	179		
	Ø6.3	1375.01	340			
Total obra				4879	275.80	25.07

8.- SOMATÓRIO DE ESFORÇOS EM PILARES, PAREDES E MUROS/CORTINAS POR AÇÕES E PISO

- Somente são levados em conta os esforços de pilares, muros e paredes. Se a obra tem vigas com vinculação externa, vigas inclinadas, diagonais ou estruturas 3D integradas, os esforços dos referidos elementos não serão mostrados no relatório a seguir.
- Este relatório é útil para se conhecer as cargas atuantes no nível da cota da base dos pilares sobre um piso. Para casos tais como pilares apoiados tracionados, os esforços terão a influência não só das cargas atuantes provenientes dos pisos superiores, mas também das cargas que recebe de pisos inferiores.

8.1.- Resumido

Valores referidos à origem (X=0.00, Y=0.00)								
Planta	Cota(m)	Hipótese(s)	N(t)	Mx(t·m)	My(t·m)	Qx(t)	Qy(t)	T(t·m)
Piso 2	4.10	Permanente	436.67	19764	5863.3	0.00	0.00	-0.00
		Sobrecarga	96.61	4783.0	1200.1	0.00	0.00	0.00
Piso 1	0.00	Permanente	962.33	45119	12619	-0.00	-0.00	0.00
		Sobrecarga	430.08	21093	5300.6	-0.00	-0.00	-0.00
Fundação	-0.80	Permanente	1220.8	57755	16087	-0.00	-0.00	0.00
		Sobrecarga	447.81	21964	5522.5	-0.00	-0.00	-0.00