

























































Element	Pos. (a.u.)		En. (a.u.)		Coul. (a.u.)		Total
	(a)	(b)	(a)	(b)	(a)	(b)	
Z = 14	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 16	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 18	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 20	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 22	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 24	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 26	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 28	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 30	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 32	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 34	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 36	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 38	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 40	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 42	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 44	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 46	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0.00	15.6	15.6	15.6
Z = 48	1.34	1.34	0.00	0.00	15.6	15.6	15.6
	2.25	2.25	0.00	0.00	15.6	15.6	15.6
	3.16	3.16	0.00	0.00	15.6	15.6	15.6
	4.08	4.08	0.00	0.00	15.6	15.6	15.6
	5.00	5.00	0.00	0.00	15.6	15.6	15.6
	5.92	5.92	0.00	0.00	15.6	15.6	15.6
	6.84	6.84	0.00	0.00	15.6	15.6	15.6
	7.76	7.76	0.00	0.00	15.6	15.6	15.6
	8.68	8.68	0.00	0.00	15.6	15.6	15.6
	9.60	9.60	0.00	0			

TERREO	
Desenho de vigas	
Concreto: C30, em geral	
Aço das barras: CA-50 e CA-60	
Aço dos estribos: CA-50 e CA-60	
Escala vigas 1:50	
Escala seções 1:20	
Escala aberturas 1:20	

F 1	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	7	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	8	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	9	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	10	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
F 2	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	7	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	8	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	9	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	10	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
F 3	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
F 4	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	7	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	8	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	9	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	10	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
F 5	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	7	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	8	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	9	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	10	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
F 6	1	98	4		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	2	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	3	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	4	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	5	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	6	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	7	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	8	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	9	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2
	10	95	2		128	300	2.2	0.3	6.6	22.2	0.2	1000/100	8.4	4.2