

### Cálculo dos Pilares – trecho 4

pav3      fck = 250.00 kgf/cm<sup>2</sup>      E = 241500 kgf/cm<sup>2</sup>      Peso Espec = 2500.00 kgf/m<sup>3</sup>  
 Lance 4      cobr = 2.00 cm

Dados					Resultados			
Pilar	Seção (cm)	lib vínc esb B	Nd máx Nd mín (tf) ni Zr	MBd topo MBd base  MHd topo MHd base (kgf.m)	MBsdtopo MBsdcentro MBsdbase  MHsdtopo MHsdcentro MHsdbase (kgf.m)	Madtopo Madcentro Madbase  MB2d MBcd  MH2d MHcd (kgf.m)	Processo de Cálculo	As b(cm <sup>2</sup> )  As h  % armad
P23	19.00 X 40.00	315.00 RR 57.36 315.00 RR 27.25	32.95 7.60 0.24 0.00 0.00	237 293 388 415	237 117 293  388 166 415	519 565 519 527 15 144 4	(*) Msd(x) = 1224 kgf.m Msd(y) = 166 kgf.m  Mrd(x) = 6140 kgf.m Mrd(y) = 834 kgf.m Mrd/Msd=5.02	4.02 2 ø 16.0 8.04 4 ø 16.0  2.1
P24	19.00 X 40.00	315.00 RR 57.36 315.00 RR 27.25	62.41 12.08 0.46 0.00 0.00	1 0 336 224	1 0 0  336 135 224	1291 1292 1292 998 30 272 8	(*) Msd(x) = 2320 kgf.m Msd(y) = 135 kgf.m  Mrd(x) = 6291 kgf.m Mrd(y) = 365 kgf.m Mrd/Msd=2.71	4.02 2 ø 16.0 8.04 4 ø 16.0  2.1
P25	19.00 X 40.00	315.00 RR 57.36 315.00 RR 27.25	32.92 7.49 0.24 0.00 0.00	236 293 287 309	236 117 293  287 124 309	519 564 519 527 14 143 3	(*) Msd(x) = 1223 kgf.m Msd(y) = 124 kgf.m  Mrd(x) = 6222 kgf.m Mrd(y) = 629 kgf.m Mrd/Msd=5.09	4.02 2 ø 16.0 8.04 4 ø 16.0  2.1
P27	19.00 X 40.00	315.00 RR 57.36 315.00 RR 27.25	44.36 13.83 0.33 0.00 0.00	256 345 26 134	129 79 198  9 84 134	790 839 720 710 30 193 7	(*) Msd(x) = 1658 kgf.m Msd(y) = 84 kgf.m  Mrd(x) = 6732 kgf.m Mrd(y) = 340 kgf.m Mrd/Msd=4.06	4.02 2 ø 16.0 8.04 4 ø 16.0  2.1
P28	19.00 X 40.00	315.00 RR 57.36 315.00 RR 27.25	60.03 9.63 0.44 0.00 0.00	10 9 465 403	10 4 9  465 186 403	1232 1239 1234 960 23 261 7	(*) Msd(x) = 2226 kgf.m Msd(y) = 186 kgf.m  Mrd(x) = 6311 kgf.m Mrd(y) = 527 kgf.m Mrd/Msd=2.84	4.02 2 ø 16.0 8.04 4 ø 16.0  2.1
P29		315.00 RR	37.63	242	99	680	(*)	4.02

Dados					Resultados			
Pilar	Seção (cm)	lib vínc esb B	Nd máx Nd mín (tf) ni Zr	MBd topo MBd base  MHd topo MHd base  (kgf.m)	MBsdtopo MBsdcentro MBsdbase  MHsdtopo MHsdcentro MHsdbase (kgf.m)	Madtopo Madcentro Madbase  MB2d MBcd  MH2d MHcd (kgf.m)	Processo de Cálculo	As b(cm²)  As h  % armad
	19.00 X 40.00	57.36  315.00 RR 27.25	11.40  0.28 0.00 0.00	315  56 36	58 146  56 48 36	721 633 602 20 164 4	Msd(x) = 1401 kgf.m Msd(y) = 48 kgf.m  Mrd(x) = 6589 kgf.m Mrd(y) = 225 kgf.m Mrd/Msd=4.70	2 ø 16.0 8.04 4 ø 16.0  2.1
P30	Circ 0.00 X 40.00 0.00	315.00 RR 31.50	50.52 26.75  0.23 0.00 0.00	1959 3373  13 22	1720 1349 3373  8 8 19	796 398 796 627 39 627 9	Msd(x) = 4169 kgf.m Msd(y) = 19 kgf.m  Mrd(x) = 15022 kgf.m Mrd(y) = 0 kgf.m Mrd/Msd=3.60	18.85 6 ø 20.0  1.5
P31	Circ 0.00 X 40.00 0.00	315.00 RR 31.50	49.10 26.17  0.22 0.00 0.00	1670 3127  220 90	1373 1327 3127  220 96 90	773 387 773 609 38 609 11	Msd(x) = 3901 kgf.m Msd(y) = 90 kgf.m  Mrd(x) = 14970 kgf.m Mrd(y) = 0 kgf.m Mrd/Msd=3.84	18.85 6 ø 20.0  1.5

(\*) Quantidade de barras alterada pelo usuário (para mais)