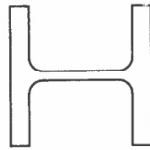


TABLE 3.2-4(B)  
**UNIVERSAL COLUMNS**  
**FIRE ENGINEERING DESIGN**  
**exposed surface area to mass ratio (m<sup>2</sup>/tonne)**



- 1 = TOTAL PERIMETER, PROFILE-PROTECTED
- 2 = TOTAL PERIMETER, BOX-PROTECTED, NO GAP
- 3 = TOTAL PERIMETER, BOX-PROTECTED, 25 mm GAP
- 4 = TOP FLANGE EXCLUDED, PROFILE-PROTECTED
- 5 = TOP FLANGE EXCLUDED, BOX-PROTECTED, NO GAP
- 6 = TOP FLANGE EXCLUDED, BOX-PROTECTED, 25mm GAP

TABLE 3.2-4(A)  
**UNIVERSAL COLUMNS**  
**SURFACE AREAS**

Designation	Profile Distance	Profile Surface Area	Profile Surface Area	Profile Distance Less 1 Flange Face	Profile Surface Area Less 1 Flange Face	Profile Surface Area Less 1 Flange Face
	mm	m <sup>2</sup> /m	m <sup>2</sup> /tonne	mm	m <sup>2</sup> /m	m <sup>2</sup> /tonne
310UC158	1840	1.84	11.6	1530	1.53	9.66
	137	1.82	13.3	1510	1.51	11.0
	118	1.81	15.3	1500	1.50	12.7
250UC 89.5	1790	1.79	18.4	1480	1.48	15.3
	96.8	1.79	18.4	1480	1.48	15.3
	1500	1.50	16.8	1240	1.24	13.9
200UC 59.5	1480	1.48	20.3	1230	1.23	16.8
	72.9	1.48	20.3	1230	1.23	16.8
	1200	1.20	20.1	996	0.996	16.7
150UC 37.2	1190	1.19	22.8	989	0.989	18.9
	52.2	1.19	22.8	989	0.989	18.9
	46.2	1.18	25.6	982	0.982	21.2
100UC 14.8	908	0.908	24.4	754	0.754	20.3
	30.0	0.899	29.7	746	0.746	24.6
	23.4	0.885	37.8	733	0.733	31.3
100UC 14.8	563	0.563	38.0	464	0.464	31.3

Designation	1	2	3	4	5	6
310UC158	11.6	8.08	9.34	9.66	6.11	6.74
	13.3	9.18	10.6	11.0	6.93	7.66
	15.3	10.5	12.2	12.7	7.94	8.79
250UC 89.5	18.4	12.6	14.7	15.3	9.48	10.5
	16.8	11.5	13.8	13.9	8.68	9.80
	20.3	13.9	16.6	16.8	10.4	11.8
200UC 59.5	20.1	13.9	17.2	16.7	10.4	12.1
	22.8	15.7	19.5	18.9	11.8	13.7
	25.6	17.5	21.9	21.2	13.2	15.3
150UC 37.2	24.4	17.0	22.4	20.3	12.9	15.5
	29.7	20.5	27.1	24.6	15.4	18.7
	37.8	26.0	34.6	31.3	19.5	23.8
100UC 14.8	38.0	26.5	40.0	31.3	19.8	26.5

Note: See Section 3.3 for details on cases of fire exposure considered.