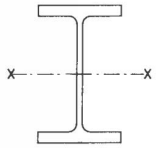
TABLE 5.3-5

UNIVERSAL BEAMS
GRADE 300

DESIGN MOMENT CAPACITIES FOR MEMBERS WITHOUT FULL LATERAL RESTRAINT

bending about x-axis



Designation	ϕM_{sx}	ϕV_v	Design Member Moment Capacities, ϕM_b (kNm) Effective Length (L_e) in metres													FLR
	kNm	kN	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10	11	12	14	16	m
610UB 125	927	1180	872	778	675	577	492	423	367	322	286	257	232	195	168	1.41
113	829	1100	777	689	593	502	424	361	310	270	238	212	192	160	137	1.38
101	782	1100	725	634	535	444	367	307	260	224	195	173	155	128	109	1.30
530UB 92.4	640	939	584	504	422	349	290	244	209	181	160	143	129	108	92.7	1.23
82.0	558	876	507	434	359	292	240	199	169	145	127	113	101	84.2	71.9	1.20
460UB 82.1	496	788	445	380	316	262	219	186	161	141	126	113	103	87.1	75.5	1.16
74.6	449	719	401	340	280	230	190	160	138	120	106	95.3	86.4	72.7	62.8	1.14
67.1	399	667	355	299	244	197	161	135	114	99.1	87.2	77.8	70.2	58.7	50.5	1.13
410UB 59.7	324	548	285	238	193	157	129	108	92.8	81.0	71.7	64.3	58.3	49.1	42.5	1.09
53.7	304	529	262	214	169	134	108	89.2	75.5	65.3	57.4	51.2	46.2	38.7	33.3	1.02
360UB 56.7	273	496	239	200	164	135	113	96.1	83.3	73.4	65.6	59.2	54.0	45.8	39.8	1.07
50.7	242	449	211	174	141	114	94.3	79.5	68.4	59.8	53.2	47.8	43.4	36.7	31.8	1.05
44.7	222	420	189	153	121	95.4	77.1	64.0	54.3	47.1	41.5	37.1	33.6	28.2	24.3	0.997
310UB 46.2	197	356	172	144	118	97.5	81.9	70.1	61.1	54.0	48.4	43.8	40.0	34.0	29.7	1.07
40.4	182	320	156	127	102	81.9	67.4	56.7	48.8	42.7	38.0	34.2	31.1	26.3	22.8	1.02
32.0	134	283	109	84.1	64.1	49.9	40.1	33.3	28.4	24.7	21.8	19.6	17.8	15.0	13.0	0.873
250UB 37.3	140	283	116	93.6	75.3	61.8	51.8	44.4	38.8	34.4	30.9	28.1	25.7	21.9	19.2	0.915
31.4	114	265	92.7	73.0	57.1	45.5	37.4	31.6	27.3	24.0	21.4	19.3	17.6	14.9	13.0	0.885
25.7	92.0	214	68.3	50.6	38.1	29.9	24.4	20.5	17.7	15.6	13.9	12.6	11.5	9.74	8.48	0.741
200UB 29.8	90.9	225	73.2	58.9	47.6	39.4	33.4	28.9	25.4	22.6	20.4	18.6	17.0	14.6	12.8	0.842
25.4	74.6	204	58.9	46.0	36.2	29.2	24.4	20.8	18.1	16.0	14.4	13.0	11.9	10.2	8.90	0.816
22.3	65.3	174	51.5	39.8	30.9	24.6	20.3	17.2	14.9	13.1	11.7	10.6	9.68	8.25	7.18	0.821
18.2	51.8	154	33.6	23.8	17.8	14.1	11.6	9.91	8.62	7.63	6.84	6.21	5.68	4.85	4.24	0.587
180UB 22.2	56.2	186	37.9	29.0	23.1	19.1	16.2	14.0	12.4	11.1	9.99	9.11	8.37	7.19	6.31	0.551
18.1	45.2	151	29.0	21.2	16.4	13.3	11.1	9.56	8.37	7.45	6.71	6.10	5.60	4.80	4.20	0.546
16.1	39.8	135	24.8	17.7	13.4	10.7	8.91	7.62	6.66	5.91	5.31	4.82	4.42	3.78	3.31	0.542
150UB 18.0	38.9	161	24.2	18.4	14.7	12.1	10.3	8.94	7.89	7.05	6.37	5.81	5.34	4.59	4.03	0.454
14.0	29.3	130	16.6	12.0	9.20	7.45	6.24	5.37	4.71	4.19	3.78	3.44	3.15	2.70	2.37	0.441

Notes: (1) Values of ϕM_b based on α_m=1 (uniform moment over entire segment).
For other moment distributions use the appropriate value of α_m obtained from AS 4100 Table 5.6.1 or 5.6.2 and use the minimum of $\alpha_m \phi M_b$ and ϕM_{sx} given above.
(2) FLR based on most conservative case (β_m = -1) as noted in Section 5.3.5. The plateau in the following graph is based on the value of L_e for which $\alpha_m \phi M_b = \phi M_s$, which is less than or equal to FLR.
(3) All references to Grade 300 refer to the specification of OneSteel 300PLUS™ Steel or AS/NZS 3679.1-300.