

Appendix B

Available Sections for the One-Bay Eight-Story Frame Problem

Table B Available sections for the one-bay eight-story frame problem

Item	Designation	Area (in. ²)	I _{xx} (in. ⁴)
1	W 44×285	83.8	24600
2	×248	72.8	21400
3	×224	65.8	19200
4	×198	58.0	16700
5	W 40×328	96.4	26800
6	×298	87.6	24200
7	×268	78.8	21500
8	×244	71.7	19200
9	×221	64.8	16600
10	×192	56.5	13500
11	W 40×655	192.0	56500
12	×593	174.0	50400
13	×531	156.0	44300
14	×480	140.0	39500
15	×436	128.0	35400
16	×397	116.0	32000
17	×362	106.0	28900
18	×324	95.3	25600
19	×297	87.4	23200
20	×277	81.3	21900
21	×249	73.3	19500
22	×215	63.3	16700
23	×199	58.4	14900
24	W 40×183	53.7	13300
25	×167	49.1	11600
26	×149	43.8	9780
27	W 36×848	249.0	67400
28	×798	234.0	62600
29	×720	211.0	55300
30	×650	190.0	48900
31	×588	172.0	43500
32	×527	154.0	38300
33	×485	142.0	34700
34	×439	128.0	31000
35	×393	115.0	27500
36	×359	105.0	24800
37	×328	96.4	22500
38	×300	88.3	20300
39	×280	82.4	18900
40	×260	76.5	17300
41	×245	72.1	16100
42	×230	67.6	15000
43	W 36×256	75.4	16800
44	×232	68.1	15000
45	×210	61.8	13200
46	×194	57.0	12100
47	×182	53.6	11300

Table B Available sections for the one-bay eight-story frame problem (continued)

Item	Designation	Area (in. ²)	I _{xx} (in. ⁴)
48	W 36 × 170	50.0	10500
49	× 160	47.0	9750
50	× 150	44.2	9040
51	× 135	39.7	7800
52	W 33 × 619	181.0	41800
53	× 567	166.0	37700
54	× 515	151.0	33700
55	× 468	137.0	30100
56	× 424	124.0	26900
57	× 387	113.0	24300
58	× 354	104.0	21900
59	× 318	93.5	19500
60	× 291	85.6	17700
61	× 263	77.4	15800
62	× 241	70.9	14200
63	× 221	65.0	12800
64	× 201	59.1	11500
65	W 33 × 169	49.5	9290
66	× 152	44.7	8160
67	× 141	41.6	7450
68	× 130	38.3	6710
69	× 118	34.7	5900
70	W 30 × 581	170.0	33000
71	× 526	154.0	29300
72	× 477	140.0	26100
73	× 433	127.0	23200
74	× 391	114.0	20700
75	× 357	104.0	18600
76	× 326	95.7	16800
77	× 292	85.7	14900
78	× 261	76.7	13100
79	× 235	69.0	11700
80	× 211	62.0	10300
81	× 191	56.1	9170
82	× 173	50.8	8200
83	W 30 × 148	43.5	6680
84	× 132	38.9	5770
85	× 124	36.5	5360
86	× 116	34.2	4930
87	× 108	31.7	4470
88	× 99	29.1	3990
89	× 90	26.4	3620
90	W 27 × 539	158.0	25500
91	× 494	145.0	22900
92	× 448	131.0	20400
93	× 407	119.0	18100
94	× 368	108.0	16100

Table B Available sections for the one-bay eight-story frame problem (continued)

Item	Designation	Area (in. ²)	I _{xx} (in. ⁴)
95	W 27× 336	98.7	14500
96	× 307	90.2	13100
97	× 281	82.6	11900
98	× 258	75.7	10800
99	× 235	69.1	9660
100	× 217	63.8	8870
101	× 194	57.0	7820
102	× 178	52.3	6990
103	× 161	47.4	6280
104	× 146	42.9	5630
105	W 27× 129	37.8	4760
106	× 114	33.5	4090
107	× 102	30.0	3620
108	× 94	27.7	3270
109	× 84	24.8	2850
110	W 24× 492	144.0	19100
111	× 450	132.0	17100
112	× 408	119.0	15100
113	× 370	108.0	13400
114	× 335	98.4	11900
115	× 306	89.8	10700
116	× 279	82.0	9600
117	× 250	73.5	8490
118	× 229	67.2	7650
119	× 207	60.7	6820
120	× 192	56.3	6260
121	× 176	51.7	5680
122	× 162	47.7	5170
123	× 146	43.0	4580
124	× 131	38.5	4020
125	× 117	34.4	3540
126	× 104	30.6	3100
127	W 24× 103	30.3	3000
128	× 94	27.7	2700
129	× 84	24.7	2370
130	× 76	22.4	2100
131	× 68	20.1	1830
132	W 24× 62	18.2	1550
133	× 55	16.2	1350
134	W 21× 402	118.0	12200
135	× 364	107.0	10800
136	× 333	97.9	9610
137	× 300	88.2	8480
138	× 275	80.8	7620
139	× 248	72.8	6760
140	× 223	65.4	5950
141	× 201	59.2	5310

Table B Available sections for the one-bay eight-story frame problem (continued)

Item	Designation	Area (in. ²)	I _{xx} (in. ⁴)
142	W 21×182	53.6	4730
143	×166	48.8	4280
144	×147	43.2	3630
145	×132	38.8	3220
146	×122	35.9	2960
147	×111	32.7	2670
148	×101	29.8	2420
149	W 21×93	27.3	2070
150	×83	24.3	1830
151	×73	21.5	1600
152	×68	20.0	1480
153	×62	18.3	1330
154	W 21×57	16.7	1170
155	×50	14.7	984
156	×44	13.0	843
157	W 18×311	91.5	6960
158	×283	83.2	6160
159	×258	75.9	5510
160	×234	68.8	4900
161	×211	62.1	4330
162	×192	56.4	3870
163	×175	51.3	3450
164	×158	46.3	3060
165	×143	42.1	2750
166	×130	38.2	2460
167	W 18×119	35.1	2190
168	×106	31.1	1910
169	×97	28.5	1750
170	×86	25.3	1530
171	×76	22.3	1330
172	W 18×71	20.8	1170
173	×65	19.1	1070
174	×60	17.6	984
175	×55	16.2	890
176	×50	14.7	800
177	W 18×46	13.5	712
178	×40	11.8	612
179	×35	10.3	510
180	W 16×100	29.4	1490
181	×89	26.2	1300
182	×77	22.6	1110
183	×67	19.7	954
184	W 16×57	16.8	758
185	×50	14.7	659
186	×45	13.3	586
187	×40	11.8	518
188	×36	10.6	448

Table B Available sections for the one-bay eight-story frame problem (continued)

Item	Designation	Area (in. ²)	I_{xx} (in. ⁴)
189	W 16×31	9.12	375
190	×26	7.68	301
191	W 14×730	215.0	14300
192	×665	196.0	12400
193	×605	178.0	10800
194	×550	162.0	9430
195	×500	147.0	8210
196	×455	134.0	7190
197	W 14×426	125.0	6600
198	×398	117.0	6000
199	×370	109.0	5440
200	×342	101.0	4900
201	×311	91.4	4330
202	×283	83.3	3840
203	×257	75.6	3400
204	×233	68.5	3010
205	×211	62.0	2660
206	×193	56.8	2400
207	×176	51.8	2140
208	×159	46.7	1900
209	×145	42.7	1710
210	W 12×336	98.8	4060
211	×305	89.6	3550
212	×279	81.9	3110
213	×252	74.1	2720
214	×230	67.7	2420
215	×210	61.8	2140
216	×190	55.8	1890
217	×170	50.0	1650
218	×152	44.7	1430
219	×136	39.9	1240
220	×120	35.3	1070
221	×106	31.2	933
222	×96	28.2	833
223	×87	25.6	740
224	×79	23.2	662
225	×72	21.1	597
226	×65	19.1	533
227	W 12×58	17.0	475
228	×53	15.6	425
229	W 12×50	14.7	394
230	×45	13.2	350
231	×40	11.8	310
232	W 12×35	10.3	285
233	×30	8.79	238
234	×26	7.65	204
235	W 12×22	6.48	156

Table B Available sections for the one-bay eight-story frame problem (continued)

Item	Designation	Area (in. ²)	I _{xx} (in. ⁴)
236	W 12×19	5.57	130
237	×16	4.71	103
238	×14	4.16	88.6
239	W 10×112	32.9	716
240	×100	29.4	623
241	×88	25.9	534
242	×77	22.6	455
243	×68	20.0	394
244	×60	17.6	341
245	×54	15.8	303
246	×49	14.4	272
247	W 10×45	13.3	248
248	×39	11.5	209
249	×33	9.71	170
250	W 10×30	8.84	170
251	×26	7.61	144
252	×22	6.49	118
253	W 10×19	5.62	96.3
254	×17	4.99	81.9
255	×15	4.41	68.9
256	×12	3.54	53.8
257	W 8×67	19.7	272
258	×58	17.1	228
259	×48	14.1	184
260	×40	11.7	146
261	×35	10.3	127
262	×31	9.13	110
263	W 8×28	8.25	98
264	×24	7.08	82.8
265	W 8×21	6.16	75.3
266	×18	5.26	61.9
267	W 8×15	4.44	48
268	×13	3.84	39.6
269	×10	2.96	30.8
270	W 6×25	7.34	53.4
271	×20	5.87	41.4
272	×15	4.43	29.1
273	W 6×16	4.74	32.1
274	×12	3.55	22.1
275	×9	2.68	16.4
276	W 5×19	5.54	26.2
277	×16	4.68	21.3
278	W 4×13	3.83	11.3