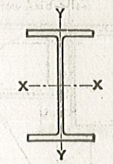
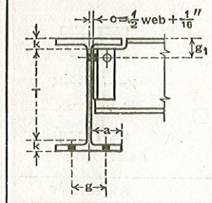
WF SHAPES MISCELLANEOUS (B) COLUMNS AND BEAMS

PROPERTIES FOR DESIGNING



Nominal Size	Weight per Foot	Area	Depth	Flange		Web Thickness	AXIS X-X			AXIS Y-Y		
				Width	Thickness		I	S	r	I	S	r
In.	Lb.	In.²	In.	In.	In.	In.	In.⁴	In.³	In.	In.⁴	In.³	In.
WF SHAPES AND LIGHT COLUMNS												
6 WF	25	7.37	6.37	6.080	.456	.320	53.5	16.8	2.69	17.1	5.6	1.52
6 x 6	20	5.90	6.20	6.018	.367	.258	41.7	13.4	2.66	13.3	4.4	1.50
	15.5	4.62	6.00	6.000	.269	.240	30.3	10.1	2.56	9.69	3.2	1.45
5 WF	18.5	5.45	5.12	5.025	.420	.265	25.4	9.94	2.16	8.89	3.54	1.28
5 x 5	16	4.70	5.00	5.000	.360	.240	21.3	8.53	2.13	7.51	3.00	1.26
4 WF	13	3.82	4.16	4.060	.345	.280	11.3	5.45	1.72	3.76	1.85	.99
LIGHT BEAMS												
12 x 4	22	6.47	12.31	4.030	.424	.260	155.7	25.3	4.91	4.55	2.26	.84
	19	5.62	12.16	4.010	.349	.240	130.1	21.4	4.81	3.67	1.83	.81
	16½	4.86	12.00	4.000	.269	.230	105.3	17.5	4.65	2.79	1.39	.76
10 x 4	19	5.61	10.25	4.020	.394	.250	96.2	18.8	4.14	4.19	2.08	.86
	17	4.98	10.12	4.010	.329	.240	81.8	16.2	4.05	3.45	1.72	.83
	15	4.40	10.00	4.000	.269	.230	68.8	13.8	3.95	2.79	1.39	.80
8 x 4	15	4.43	8.12	4.015	.314	.245	48.0	11.8	3.29	3.30	1.65	.86
	13	3.83	8.00	4.000	.254	.230	39.5	9.88	3.21	2.62	1.31	.83
6 x 4	16	4.72	6.25	4.030	.404	.260	31.7	10.1	2.59	4.32	2.14	.96
	12	3.53	6.00	4.000	.279	.230	21.7	7.24	2.48	2.89	1.44	.90
JOISTS												
12 x 4	14	4.14	11.91	3.970	.224	.200	88.2	14.8	4.61	2.25	1.13	.74
10 x 4	11½	3.39	9.87	3.950	.204	.180	51.9	10.5	3.92	2.01	1.02	.77
8 x 4	10	2.95	7.90	3.940	.204	.170	30.8	7.79	3.23	1.99	1.01	.82
6 x 4	8½	2.50	5.83	3.940	.194	.170	14.8	5.07	2.43	1.89	.96	.87

Above shapes all rolled by Bethlehem Steel Co. and Carnegie-Illinois Steel Corp., except 4 WF 13 by Bethlehem Steel Co. only.
See page 10 for method of designation



WF SHAPES MISCELLANEOUS (B) COLUMNS AND BEAMS

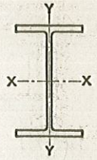
DIMENSIONS FOR DETAILING

Nominal Size	Weight per Foot	Depth	Flange		Web		Distance					Max. Flg. Rivet	Usual Gage g
			Width	Thickness	Thickness	Half Thickness	a	T	k	g₁	c		
In.	Lb.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
WF SHAPES AND LIGHT COLUMNS													
6 WF	25	6⅜	6	½	5/16	3/16	2⅞	4⅞	¾	2¼	¼	⅞	3½
6 x 6	20	6¼	6	3/8	¼	3/16	2⅞	4⅞	11/16	2	3/16	⅞	3½
	15.5	6	6	¼	¼	⅛	2⅞	4⅞	9/16	2	3/16	⅞	3½
5 WF	18.5	5⅛	5	7/16	¼	⅛	2⅜	3 11/16	¾	2	3/16	⅞	2¾
5 x 5	16	5	5	3/8	¼	⅛	2⅜	3 11/16	⅝	2	3/16	⅞	2¾
4 WF	13	4⅛	4	3/8	5/16	⅛	1⅞	2⅞	⅝	1¾	3/16	⅝	2¼
LIGHT BEAMS													
12 x 4	22	12¼	4	7/16	¼	⅛	1⅞	10¾	¾	2	3/16	¾	2¼
	19	12⅛	4	3/8	¼	⅛	1⅞	10¾	11/16	2	3/16	¾	2¼
	16½	12	4	¼	¼	⅛	1⅞	10¾	⅝	1¾	3/16	¾	2¼
10 x 4	19	10¼	4	3/8	¼	⅛	1⅞	8⅞	11/16	2	3/16	¾	2¼
	17	10⅛	4	5/16	¼	⅛	1⅞	8⅞	⅝	2	3/16	¾	2¼
	15	10	4	¼	¼	⅛	1⅞	8⅞	9/16	1¾	3/16	¾	2¼
8 x 4	15	8⅛	4	5/16	¼	⅛	1⅞	6⅞	⅝	2	3/16	¾	2¼
	13	8	4	¼	¼	⅛	1⅞	6⅞	9/16	1¾	3/16	¾	2¼
6 x 4	16	6¼	4	3/8	¼	⅛	1⅞	4⅞	11/16	2	3/16	¾	2¼
	12	6	4	¼	¼	⅛	1⅞	4⅞	9/16	1¾	3/16	¾	2¼
JOISTS													
12 x 4	14	11⅞	4	¼	3/16	⅛	1⅞	10¾	9/16	1¾	3/16	⅝	2¼
10 x 4	11½	9⅞	4	3/16	3/16	⅛	1⅞	8⅞	½	1¾	3/16	⅝	2¼
8 x 4	10	7⅞	4	3/16	3/16	⅛	1⅞	6⅞	½	1¾	3/16	⅝	2¼
6 x 4	8½	5⅞	4	3/16	3/16	⅛	1⅞	5	7/16	1¾	3/16	⅝	2¼

Above shapes all rolled by Bethlehem Steel Co. and Carnegie-Illinois Steel Corp., except 4 WF 13 by Bethlehem Steel Co. only.
Gage g₁ is based on k + 1¼", to nearest ¼"
Gage g is permissible near ends of beam; elsewhere Specification may require reduction in rivet size.

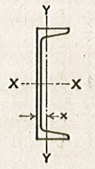
MISCELLANEOUS SHAPES

PROPERTIES FOR DESIGNING



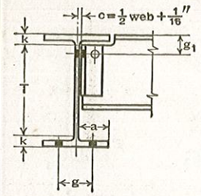
Nominal Size	Weight per Foot	Area	Depth	Width of Flange	Web Thickness	AXIS X-X			AXIS Y-Y		
						I	S	r	I	S	r
In.	Lb.	In.²	In.	In.	In.	In.⁴	In.³	In.	In.⁴	In.³	In.
LIGHT COLUMNS											
* 8 x 8	34.3	10.09	8.00	8.000	.375	115.5	28.9	3.40	35.1	8.8	1.87
* 6 x 6	25.0	7.35	6.00	5.938	.313	47.0	15.7	2.53	14.9	5.0	1.43
	20.0	5.88	6.00	5.938	.250	38.8	12.9	2.57	11.4	3.8	1.39
§ 5 x 5	18.9	5.56	5.00	5.000	.313	23.8	9.5	2.08	7.8	3.1	1.20
† 4 x 4	13.0	3.82	4.00	3.937	.250	10.4	5.2	1.65	3.4	1.7	.94
STANDARD MILL BEAMS											
‡10 x 5¾	25	7.35	9.90	5.86	.35	117.0	23.6	3.99	9.84	3.36	1.16
	21	6.18	9.90	5.74	.24	107.5	21.7	4.17	9.30	3.24	1.22
‡8 x 6½	28	8.23	8.00	6.65	.39	90.1	22.5	3.31	17.73	5.33	1.47
	24	7.06	8.00	6.50	.24	83.8	21.0	3.45	16.52	5.08	1.53
‡8 x 5¼	20	5.88	8.00	5.36	.35	60.7	15.2	3.22	6.60	2.46	1.06
	17	5.00	8.00	5.25	.24	56.0	14.0	3.35	6.16	2.35	1.11
JUNIOR BEAMS											
⊕12 x 3	11.8	3.45	12.00	3.063	.175	72.2	12.0	4.57	.98	.64	.53
⊕10 x 2¾	9.0	2.64	10.00	2.688	.155	39.0	7.8	3.85	.61	.45	.48
⊕ 8 x 2¼	6.5	1.92	8.00	2.281	.135	18.7	4.7	3.12	.34	.30	.42
⊕ 7 x 2⅛	5.5	1.61	7.00	2.078	.126	12.1	3.5	2.74	.25	.24	.39
⊕ 6 x 1⅞	4.4	1.30	6.00	1.844	.114	7.3	2.4	2.37	.17	.18	.36

[JUNIOR CHANNELS



Nominal Size	Weight per Foot	Area	Depth	Width of Flange	Web Thickness	AXIS X-X			AXIS Y-Y			
						I	S	r	I	S	r	x
In.	Lb.	In.²	In.	In.	In.	In.⁴	In.³	In.	In.⁴	In.³	In.	In.
⊕12 x 1½	10.6	3.12	12.00	1.500	.190	55.8	9.3	4.23	.39	.32	.35	.27
⊕10 x 1½	8.4	2.47	10.00	1.500	.170	32.3	6.5	3.61	.33	.28	.37	.29
⊕10 x 1⅛	6.5	1.91	10.00	1.125	.150	22.1	4.4	3.47	.12	.13	.25	.19

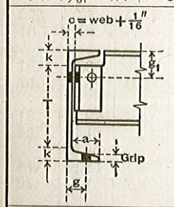
*Rolled by Carnegie-Illinois Steel Corp. and Inland Steel Co.
§Rolled by Carnegie-Illinois Steel Corp. and Bethlehem Steel Co.-M.
†Rolled by Carnegie-Illinois Steel Corp.-M.
‡Rolled by The Phoenix Iron Co.-M.
⊕Rolled by Jones & Laughlin Steel Corp.-Jr.
See page 10 for method of designation.



MISCELLANEOUS SHAPES

DIMENSIONS FOR DETAILING

Nominal Size	Weight per Foot	Depth	Flange		Web		Distance					Max. Fig. Rivet	Usual Gage g
			Width	Mean Thickness	Thickness	Half Thickness	a	T	k	g1	c		
In.	Lb.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
LIGHT COLUMNS													
* 8 x 8	34.3	8	8	7/16	3/8	3/16	3 7/8	6 1/4	7/8	2 1/2	1/4	7/8	5 1/2
* 6 x 6	25.0	6	6	1/2	5/16	3/16	2 7/8	4 1/4	7/8	2 1/2	1/4	7/8	3 1/2
	20.0	6	6	3/8	1/4	1/8	2 7/8	4 3/8	13/16	2 1/4	5/16	7/8	3 1/2
§ 5 x 5	18.9	5	5	7/16	5/16	3/16	2 3/8	3 3/8	13/16	2 1/4	1/4	3/4	2 3/4
† 4 x 4	13.0	4	4	3/8	1/4	1/8	1 7/8	2 1/2	3/4	2	3/16	5/8	2 1/4
STANDARD MILL BEAMS													
‡10 x 5¾	25	9 15/16	5 7/8	3/8	3/8	3/16	2 3/4	8 3/8	3/4	2	1/4	3/4	2 3/4
	21	9 15/16	5 3/4	3/8	1/4	1/8	2 3/4	8 3/8	3/4	2	5/16	3/4	2 3/4
‡ 8 x 6½	28	8	6 5/8	3/8	3/8	3/16	3 1/8	6 1/4	7/8	2 1/4	1/4	7/8	3 1/2
	24	8	6 1/2	3/8	1/4	1/8	3 1/8	6 1/4	7/8	2 1/4	5/16	7/8	3 1/2
‡ 8 x 5¼	20	8	5 3/8	5/16	3/8	3/16	2 1/2	6 5/8	11/16	2	1/4	7/8	2 3/4
	17	8	5 1/4	5/16	1/4	1/8	2 1/2	6 5/8	11/16	2	3/16	7/8	2 3/4
JUNIOR BEAMS													
⊳12 x 3	11.8	12	3	1/4	3/16	1/8	1 1/2	11	1/2	1 3/4	3/16		
⊳10 x 2¾	9.0	10	2 3/4	3/16	3/16	1/16	1 1/4	9 1/8	7/16	1 3/4	1/8		
⊳ 8 x 2¼	6.5	8	2 1/4	3/16	1/8	1/16	1 1/8	7 1/4	3/8	1 1/2	1/8		
⊳ 7 x 2⅛	5.5	7	2 1/8	3/16	1/8	1/16	1	6 1/4	3/8	1 1/2	1/8		
⊳ 6 x 1⅞	4.4	6	1 7/8	3/16	1/8	1/16	7/8	5 1/4	3/8	1 1/2	1/8		



[JUNIOR CHANNELS

Depth of Section	Weight per Foot	Flange		Web		Distance				
		Width	Mean Thickness	Thickness	Half Thickness	a	T	k	g1	c
In.	Lb.	In.	In.	In.	In.	In.	In.	In.	In.	In.
⊕12 x 1½	10.6	1½	5/16	3/16	1/8	1¼	10¾	5/8	2	1/4
⊕10 x 1½	8.4	1½	1/4	3/16	1/8	1 3/8	9	1/2	1 3/4	1/4
⊕10 x 1⅛	6.5	1⅛	5/16	5/32	3/32	1 3/32	9¼	3/8	1½	1/4

*Rolled by Carnegie-Illinois Steel Corp. and Inland Steel Co.
§Rolled by Carnegie-Illinois Steel Corp. and Bethlehem Steel Co.-M.
†Rolled by Carnegie-Illinois Steel Corp.-M.
‡Rolled by The Phoenix Iron Co.-M.
⊕Rolled by Jones & Laughlin Steel Corp.-Jr.
Gage g1 is based on k + 1¼", to nearest ¼".
Gage g is permissible near ends of beam; elsewhere Specification may require reduction in rivet size.