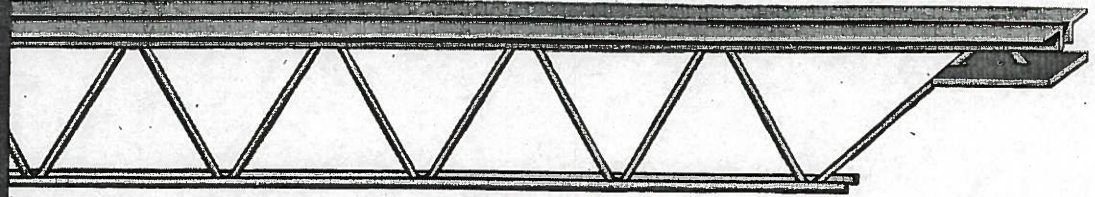


# SHEFFIELD

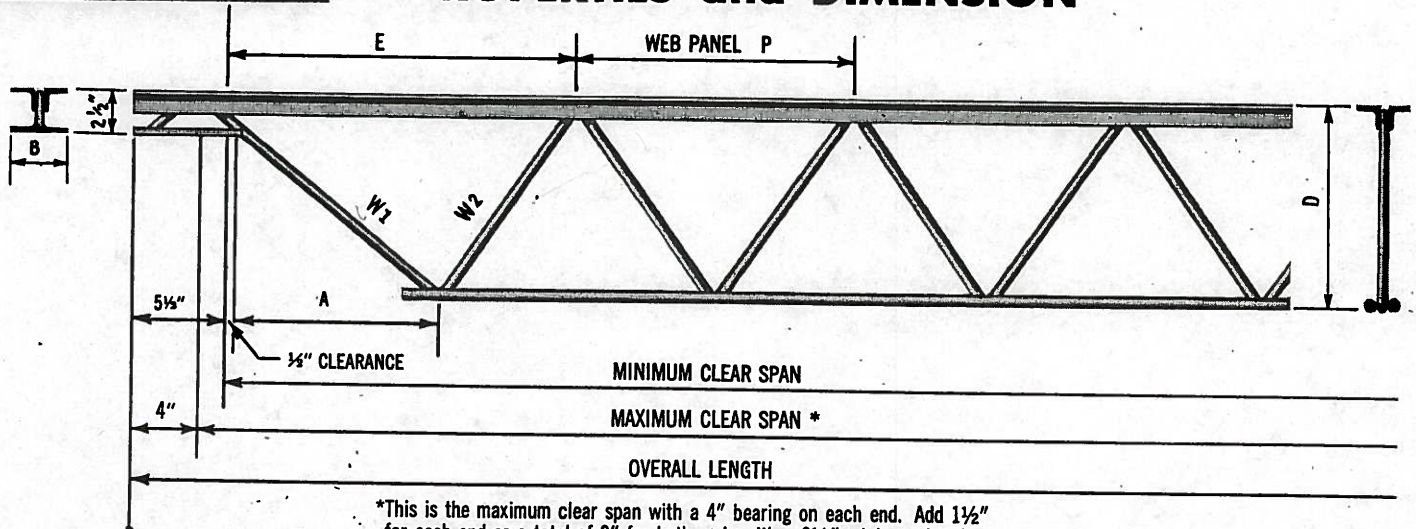


# STEEL JOISTS

JUNE 1957



## PROPERTIES and DIMENSION

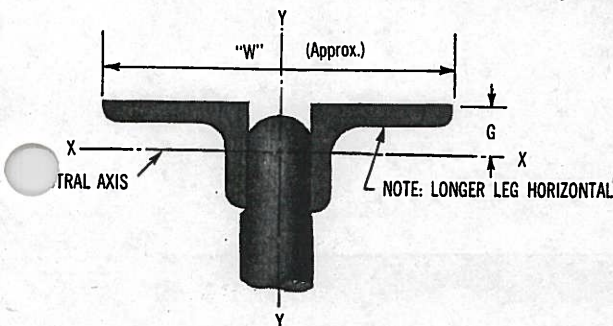


\*This is the maximum clear span with a 4" bearing on each end. Add 1 1/2" for each end or a total of 3" for both ends with a 2 1/2" minimum bearing.

## DIMENSIONS AND SECTIONS

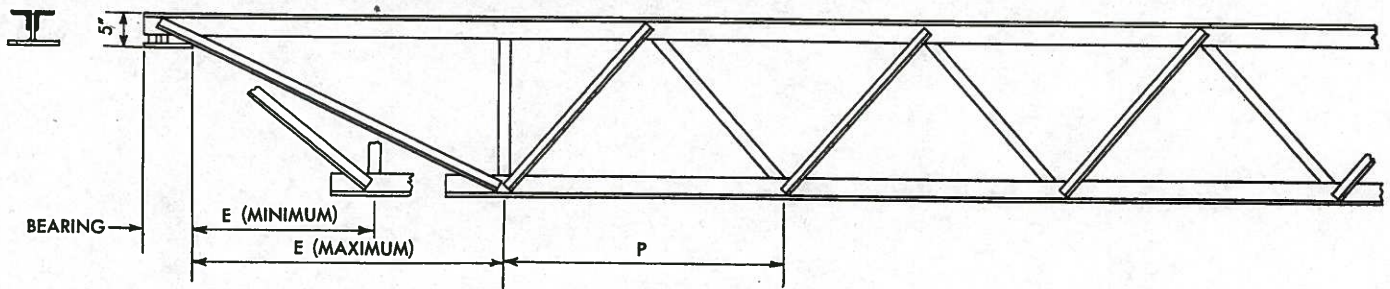
Joist Designation SJ-	D Nominal Depth	Effective Depth	Top Chord Sec. No.	Bottom Chord Two Rd. Bars		Web W1	Web W2	Other Webs	A	B	E Varies with Span		P	* Approx. Weight Per Ft.	STEEL JOIST INST. DESIGN PROPERTIES		Joist Designation SJ-			
				Diam.	Area						Diam.	Diam.			Diam.	Min.		Max.	Resisting Moment	Designed End Reaction
81	8	7.512	1	.375	.221	.438	.438	.375	7.0	3.5	8.5	14.0	12	3.31	29,500	1,600	81			
82	8	7.450	2	.500	.393	.500	.500	.438	7.0	3.5	8.5	14.0	12	4.08	52,500	1,900	82			
102	10	9.450	1	.500	.393	.500	.500	.438	9.5	3.5	11.0	16.5	12	4.02	63,000	1,900	102			
103	10	9.358	3	.563	.497	.500	.500	.438	9.5	3.5	11.0	16.5	12	4.74	82,000	1,950	103			
104	10	9.267	4	.625	.614	.500	.500	.500	9.5	3.5	11.0	16.5	12	5.78	100,000	2,200	104			
123	12	11.358	3	.563	.497	.563	.563	.500	12.0	3.5	13.5	21.0	16	4.94	92,000	2,200	123			
124	12	11.267	4	.625	.614	.563	.563	.500	12.0	3.5	13.5	21.0	16	5.73	115,000	2,300	124			
125	12	11.276	5	.688	.742	.563	.563	.563	12.0	3.5	13.5	21.0	16	6.85	142,000	2,500	125			
126	12	11.185	6	.750	.884	.563	.563	.563	12.0	3.5	13.5	21.0	16	7.92	175,000	2,700	126			
145	14	13.276	5	.688	.742	.625	.625	.625	14.5	4.5	16.0	24.5	18	6.97	156,000	2,900	145			
146	14	13.185	6	.750	.884	.625	.625	.625	14.5	4.5	16.0	24.5	18	8.32	205,000	3,100	146			
147	14	13.203	7	.813	1.037	.688	.688	.625	14.5	4.5	16.0	24.5	18	9.43	246,000	3,400	147			
166	16	15.185	6	.750	.884	.688	.688	.625	17.0	4.5	18.5	28.0	20	8.42	232,000	3,200	166			
167	16	15.203	7	.813	1.037	.688	.688	.688	17.0	4.5	18.5	28.0	20	9.85	281,000	3,600	167			
186	18	17.185	6	.750	.884	.688	.688	.688	19.5	4.5	21.0	31.5	22	8.80	255,000	3,600	186			
187	18	17.203	7	.813	1.037	.750	.750	.688	19.5	4.5	21.0	31.5	22	9.90	310,000	3,800	187			
207	20	19.203	7	.813	1.037	.750	.750	.688	22.0	4.5	23.5	35.0	24	9.90	340,000	3,900	207			

## TOP CHORD - DIMENSIONS AND PROPERTIES



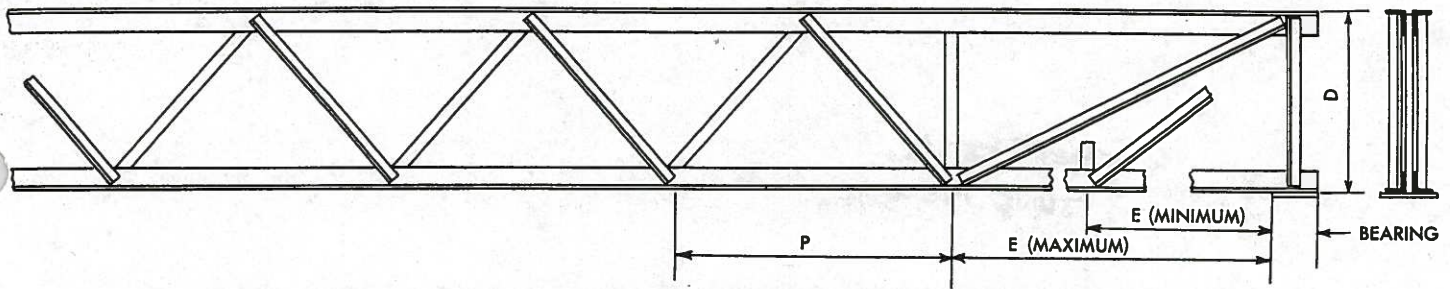
Sec. No.	Material Two Angles	Total Area	g	W Min.	About Axis X-X		About Axis Y-Y	
					l	r	l	r
					In. <sup>4</sup>	In.	In. <sup>4</sup>	In.
1	1 x 1 x .125	.46	.30	2.38	.04	.30	.15	.51
2	1 x 1 x .130	.48	.30	2.44	.04	.30	.17	.54
3	1 1/4 x 1 1/4 x .125	.60	.36	2.94	.08	.38	.28	.63
4	1 1/2 x 1 1/2 x .125	.72	.42	3.50	.16	.47	.48	.77
5	1 3/4 x 1 3/4 x .188	.86	.38	3.06	.12	.38	.50	.71
6	1 1/2 x 1 1/2 x .188	1.06	.44	3.56	.22	.46	.77	.80
7	2 x 1 1/2 x .188	1.24	.39	4.63	.24	.44	1.62	1.09

\*The weights per foot as shown in these tables are approximate only. Such weights are shown only for the convenience of the designer. They can not be used in figuring prices or determining shipping weights.



## LONGSPAN DIMENSIONS and SECTIONS

Joist Designation	Depth "D"	Effective Depth	Top Chord	Bottom Chord Two Angles		E Varies with Span		P	
	Inches			Inches	Sec. No.	Section Inches	Area Inches <sup>2</sup>		Min. Inches
18L02	18	16.92	2		1½ x 1½ x 3/16	1.06	19	34	30
18L03	18	16.99	3		1½ x 1½ x 3/16	1.06	19	34	30
18L04	18	16.85	4		2 x 1½ x 3/16	1.24	19	34	30
18L05	18	16.84	5		2 x 2 x 3/16	1.42	19	34	30
18L06	18	16.70	6		2½ x 2 x 3/16	1.62	19	34	30
18L07	18	16.59	7		2½ x 2½ x 3/16	1.80	19	34	30
18L08	18	16.55	8		2½ x 2 x ¼	2.12	19	34	30
18L09	18	16.44	9		2½ x 2½ x ¼	2.38	19	34	30
18L10	18	16.30	10		3 x 2½ x ¼	2.62	19	34	30
18L11	18	16.29	11		3 x 3 x ¼	2.88	19	34	30
18L12	18	16.15	12		3½ x 3 x ¼	3.12	19	34	30
20L03	20	18.99	3		1½ x 1½ x 3/16	1.06	21¼	37¾	33
20L04	20	18.85	4		2 x 1½ x 3/16	1.24	21¼	37¾	33
20L05	20	18.84	5		2 x 2 x 3/16	1.42	21¼	37¾	33
20L06	20	18.70	6		2½ x 2 x 3/16	1.62	21¼	37¾	33
20L07	20	18.59	7		2½ x 2½ x 3/16	1.80	21¼	37¾	33
20L08	20	18.55	8		2½ x 2 x ¼	2.12	21¼	37¾	33
20L09	20	18.44	9		2½ x 2½ x ¼	2.38	21¼	37¾	33
20L10	20	18.30	10		3 x 2½ x ¼	2.62	21¼	37¾	33
20L11	20	18.29	11		3 x 3 x ¼	2.88	21¼	37¾	33
20L12	20	18.15	12		3½ x 3 x ¼	3.12	21¼	37¾	33
20L13	20	18.05	13		3 x 3 x 5/16	3.56	21¼	37¾	33
24L04	24	22.85	4		2 x 1½ x 3/16	1.24	25¾	45¼	39
24L05	24	22.84	5		2 x 2 x 3/16	1.42	25¾	45¼	39
24L06	24	22.70	6		2½ x 2 x 3/16	1.62	25¾	45¼	39
24L07	24	22.59	7		2½ x 2½ x 3/16	1.80	25¾	45¼	39
24L08	24	22.55	8		2½ x 2 x ¼	2.12	25¾	45¼	39
24L09	24	22.44	9		2½ x 2½ x ¼	2.38	25¾	45¼	39
24L10	24	22.30	10		3 x 2½ x ¼	2.62	25¾	45¼	39
24L11	24	22.29	11		3 x 3 x ¼	2.88	25¾	45¼	39
24L12	24	22.15	12		3½ x 3 x ¼	3.12	25¾	45¼	39
24L13	24	22.05	13		3 x 3 x 5/16	3.56	25¾	45¼	39
24L14	24	21.91	14		3½ x 3 x 5/16	3.86	25¾	45¼	39
28L06	28	26.70	6		2½ x 2 x 3/16	1.62	30¼	52¾	45
28L07	28	26.59	7		2½ x 2½ x 3/16	1.80	30¼	52¾	45
28L08	28	26.55	8		2½ x 2 x ¼	2.12	30¼	52¾	45
28L09	28	26.44	9		2½ x 2½ x ¼	2.38	30¼	52¾	45
28L10	28	26.30	10		3 x 2½ x ¼	2.62	30¼	52¾	45
28L11	28	26.29	11		3 x 3 x ¼	2.88	30¼	52¾	45
28L12	28	26.15	12		3½ x 3 x ¼	3.12	30¼	52¾	45
28L13	28	26.05	13		3 x 3 x 5/16	3.56	30¼	52¾	45
28L14	28	25.91	14		3½ x 3 x 5/16	3.86	30¼	52¾	45
28L15	28	25.87	15		3½ x 3½ x 5/16	4.18	30¼	52¾	45
32L07	32	30.59	7		2½ x 2½ x 3/16	1.80	34¾	60¼	51
32L08	32	30.55	8		2½ x 2 x ¼	2.12	34¾	60¼	51
32L09	32	30.44	9		2½ x 2½ x ¼	2.38	34¾	60¼	51
32L10	32	30.30	10		3 x 2½ x ¼	2.62	34¾	60¼	51
32L11	32	30.29	11		3 x 3 x ¼	2.88	34¾	60¼	51
32L12	32	30.15	12		3½ x 3 x ¼	3.12	34¾	60¼	51
32L13	32	30.05	13		3 x 3 x 5/16	3.56	34¾	60¼	51
32L14	32	29.91	14		3½ x 3 x 5/16	3.86	34¾	60¼	51
32L15	32	29.87	15		3½ x 3½ x 5/16	4.18	34¾	60¼	51
32L16	32	29.83	16		3½ x 3½ x ¾	4.96	34¾	60¼	51
36L08	36	34.55	8		2½ x 2 x ¼	2.12	39¾	67¾	57
36L09	36	34.44	9		2½ x 2½ x ¼	2.38	39¾	67¾	57
36L10	36	34.30	10		3 x 3½ x ¼	2.62	39¾	67¾	57
36L11	36	34.29	11		3 x 3 x ¼	2.88	39¾	67¾	57
36L12	36	34.15	12		3½ x 3 x ¼	3.12	39¾	67¾	57
36L13	36	34.05	13		3 x 3 x 5/16	3.56	39¾	67¾	57
36L14	36	33.91	14		3½ x 3 x 5/16	3.86	39¾	67¾	57
36L15	36	33.87	15		3½ x 3½ x 5/16	4.18	39¾	67¾	57
36L16	36	33.83	16		3½ x 3½ x ¾	4.96	39¾	67¾	57
36L17	36	33.68	17		4 x 4 x ¾	5.72	39¾	67¾	57



## LONGSPAN DIMENSIONS and SECTIONS

(CONTINUED)

Joist Designation	Depth "D"	Effective Depth	Top Chord	Bottom Chord Two Angles		E		P
	Inches			Inches	Sec. No.	Section Inches	Area Inches <sup>2</sup>	
						Min. Inches	Max. Inches	Inches
40L09	40	38.44	9	2½ x 2½ x ¼	2.38	43¾	75¼	63
40L10	40	38.30	10	3 x 2½ x ¼	2.62	43¾	75¼	63
40L11	40	38.29	11	3 x 3 x ¼	2.88	43¾	75¼	63
40L12	40	38.15	12	3½ x 3 x ¼	3.12	43¾	75¼	63
40L13	40	38.05	13	3 x 3 x 5/16	3.56	43¾	75¼	63
40L14	40	37.91	14	3½ x 3 x 5/16	3.86	43¾	75¼	63
40L15	40	37.87	15	3½ x 3½ x 5/16	4.18	43¾	75¼	63
40L16	40	37.83	16	3½ x 3½ x ¾	4.96	43¾	75¼	63
40L17	40	37.68	17	4 x 4 x ¾	5.72	43¾	75¼	63
40L18	40	37.43	18	4 x 4 x 7/16	6.62	43¾	75¼	63
44L10	44	42.30	10	3 x 2½ x ¼	2.62	48¼	82¾	69
44L11	44	42.29	11	3 x 3 x ¼	2.88	48¼	82¾	69
44L12	44	42.15	12	3½ x 3 x ¼	3.12	48¼	82¾	69
44L13	44	42.05	13	3 x 3 x 5/16	3.56	48¼	82¾	69
44L14	44	41.91	14	3½ x 3 x 5/16	3.86	48¼	82¾	69
44L15	44	41.87	15	3½ x 3½ x 5/16	4.18	48¼	82¾	69
44L16	44	41.83	16	3½ x 3½ x ¾	4.96	48¼	82¾	69
44L17	44	41.68	17	4 x 4 x ¾	5.72	48¼	82¾	69
44L18	44	41.43	18	4 x 4 x 7/16	6.62	48¼	82¾	69
44L19	44	41.39	19	4 x 4 x ½	7.50	48¼	82¾	69
48L11	48	46.29	11	3 x 3 x ¼	2.88	52¾	90¼	75
48L12	48	46.15	12	3½ x 3 x ¼	3.12	52¾	90¼	75
48L13	48	46.05	13	3 x 3 x 5/16	3.56	52¾	90¼	75
48L14	48	45.91	14	3½ x 3 x 5/16	3.86	52¾	90¼	75
48L15	48	45.87	15	3½ x 3½ x 5/16	4.18	52¾	90¼	75
48L16	48	45.83	16	3½ x 3½ x ¾	4.96	52¾	90¼	75
48L17	48	45.68	17	4 x 4 x ¾	5.72	52¾	90¼	75
48L18	48	45.43	18	4 x 4 x 7/16	6.62	52¾	90¼	75
48L19	48	45.39	19	4 x 4 x ½	7.50	52¾	90¼	75

## TOP CHORD - DIMENSIONS AND PROPERTIES

The diagram shows a cross-section of a top chord. It consists of two angles connected by a gusset plate. The width of the gusset plate is labeled 'W (Minimum)'. The height of the gusset plate is labeled 'G'. The total height of the section is labeled 'H'. The X-X axis is horizontal, and the Y-Y axis is vertical. A note states: 'Note: For uneven leg top chord members the long leg is vertical'.

Sec. No.	Material Two Angles	Total Area	G	H	W (Min.)	About Axis X-X		About Axis Y-Y	
						I	r	I	r
	Inches	In. <sup>2</sup>	In.	In.	In.	In. <sup>4</sup>	In.	In. <sup>4</sup>	In.
2	2 x 1½ x 3/16	1.24	.64	2.0	3.69	.50	.63	0.91	0.86
3	2 x 2 x 3/16	1.42	.57	2.0	4.69	.54	.62	1.72	1.10
4	2½ x 2 x 3/16	1.62	.76	2.5	4.69	1.00	.79	1.75	1.04
5	2 x 2 x ¼	1.88	.59	2.0	4.69	.70	.61	2.33	1.11
6	2½ x 2 x ¼	2.12	.79	2.5	4.69	1.30	.78	2.38	1.06
7	2½ x 2½ x ¼	2.38	.72	2.5	5.69	1.40	.77	4.07	1.31
8	3 x 2½ x ¼	2.62	.91	3.0	5.69	2.30	.95	4.10	1.25
9	3 x 3 x ¼	2.88	.84	3.0	6.69	2.50	.93	6.41	1.49
10	3½ x 3 x ¼	3.12	1.04	3.5	6.69	3.80	1.11	6.58	1.45
11	3 x 3 x 5/16	3.56	.87	3.0	6.69	3.00	.92	8.21	1.52
12	3½ x 3 x 5/16	3.86	1.06	3.5	6.69	4.70	1.10	8.30	1.47
13	3½ x 3 x ¾	4.60	1.08	3.5	6.69	5.40	1.09	10.10	1.48
14	4 x 3 x ¾	4.96	1.28	4.0	6.75	7.90	1.26	10.47	1.45
15	4 x 4 x ¾	5.72	1.14	4.0	8.81	8.70	1.23	22.54	1.99
16	4 x 4 x 7/16	6.62	1.16	4.0	8.88	9.90	1.23	26.95	2.02
17	4 x 4 x ½	7.50	1.18	4.0	8.88	11.12	1.22	30.88	2.03
18	5 x 5 x 7/16	8.36	1.41	5.0	10.94	20.00	1.55	49.55	2.43
19	5 x 5 x ½	9.50	1.43	5.0	11.00	22.50	1.54	57.99	2.47