



DATA SHEET

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Sheet #:	D6c.9
Title:	STEEL BRIDGES: THROUGH TRUSS, RIVETED, MODELING DIMENSIONS
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Source Material:	Railroad blueprints
Reference:	Reports of Modjeski and Masters
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INTRODUCTION

The tabulated dimensions are adapted from the prototype without compromising sound engineering principles. They are especially suited to model railroad limitations of space and to model builders' needs and preferences. Before applying these tables to a modeling project, the builder should study sheets D6c.6, D6c.7 and D6c.8, and parts of D6c.4 and D6c.5, and observe prototype bridges.

KEY TO TABLES

No.	Line or reference number
Tr	Number of tracks
NP	Number of panels
PL	Panel length, center to center of verticals
L	Span length, center to center of end pins.
cw	Core width
cv	Cover plate width
f	Flange
d	Depth of core and channels
dp	Depth of vertical posts
dh	Depth of vertical hangers, nominal verticals and sub-members

TOP AND BOTTOM CHORDS

For easy modeling and greater rigidity, it is suggested that top chords be built around wooden cores having grooved lower edges as shown in the illustrations. Bottom chords should be the same depth as top chords and have spacers at panel points only.

CURVED TOP CHORDS

In Warren trusses, "break" the chord only at hangers. In Pratt trusses, "break" only at main panel points. For a parabolic curve, deduct from the maximum truss depth in the order of 1-4-9-16, giving a depth difference of 1-3-5-7. For a quasi-parabola, deduct in the order of 1-3-6-10, giving a depth difference of 1-2-3-4. Prototypes follow these formulae with slight deviations as shown in the tables.

PANEL LENGTHS given are the minima for good appearance. For a **SPAN LENGTH** between any two given in the tables, use the same number of panels as the shorter span in the tables and an intermediate truss depth. If the desired span length is more than half way from the shorter to the longer of two tabulated lengths, use the minor dimensions given for the longer span. If less than half-way, use the minor dimensions given for the shorter span. **WIDTH OF BRIDGE** must be sufficient for through clearance; see Standards Sheet S8. Widen a bridge built on a curve to



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WIDTH OF BRIDGE - continued

provide for clearance of an 85 foot car on 60-foot track centers and with a 14-foot height. Allow for six inches of superelevation. Distance between the centers of the two trusses may not be less than 1/20 of the span length, according to American Railway Engineering Association specifications.

FIGURE 1: Top chord from line 18 is of table on reverse side. Note core, gussets, rolled channels and cover plate. This chord may be used with any truss type.

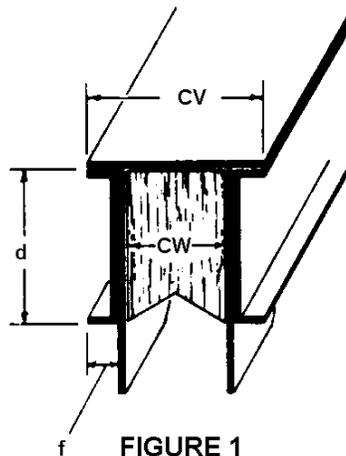


FIGURE 2: Top chord from line 20 of table on reverse side. Note core, gussets, built-up channels and cover plate. May be used with any truss type.

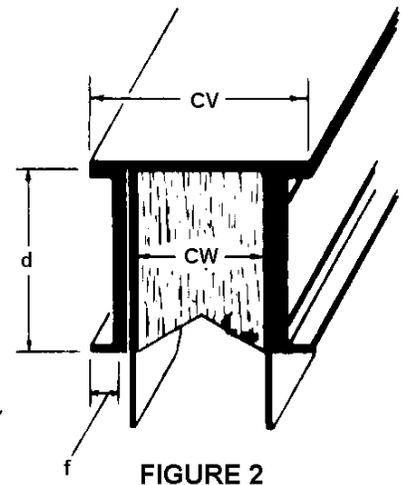


FIGURE 3: Top chord for streamlined truss, line 8 of table on reverse side. This typifies post-1930 construction. In prototype, perforations are 18"x12" ovals, 3½' center to center. In modeling, holes drilled in solid members will serve the purpose. Modeled after Ohio River bridge on Illinois Central R.R. at Cairo, Ill.

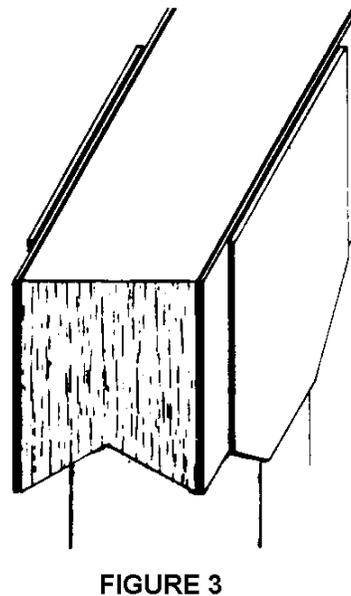


FIGURE 4: Bottom chord from line 4 of table on reverse side. Sketch indicates vertical post, a channel box with single, 60° lacing. Note use of stripwood to simulate channels with flanges turned in. Spacer block is sketched in position between "channels." Such blocks employed only at panel points in model building.

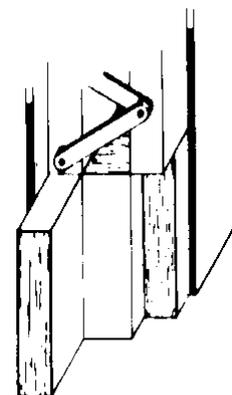


FIGURE 4



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WARREN RIVETED TRUSSES - E72 LOADING

#	Tr	NP	MAJOR DIMENSIONS - Given in feet					MINOR DIMENSIONS - Given in inches													* #	
			PL	L	Truss depth at panel points					Top Chord				Depth of diagonals in panels								dh
					Hip	2	3	5	7	cw	cv	f	d	2	3	4	5	6	7			
1	1	4	20	80	24	24				12	20	3	12	12						12		1
2	1	6	18	108	28	28	28			12	22	4	15	15	15					12		2
3	1	7	17	119	28	28	28			14	24	4	18	15	15	12			12		3	
4	1	8	17	136	30	30	30			14	26	4x4	20	18	15	15			12		4	
5	1	8	22	176	28		33			18	30	4x4	24	20	18	15			14		5	
6	1	10	20	200	30		34	36		18	30	6x4	28	20	18	18	15		14		6	
7	1	12	20	240	30		37	40		24			28	24	20	20	20	18	14		7	
8	1	14	28	392	40		53	61	64	24			36	28	24	24	24	24	20	18	8	
9	2	4	20	80	24	24				14	24	4	18	15					14		9	
10	2	6	20	120	31	31	31			18	30	6x4	28	24	20				16		10	
11	2	7	18	126	31	31	31			18	30	6x4	28	24	20	18			16		11	
12	2	8	18	144	32	32	32			18	30	6x4	28	24	24	20			16		12	
13	2	8	22	176	32		38			20	36	6x6	32	28	24	20			18		13	
14	2	10	22	220	36		42	44		20	40	6x6	32	28	24	24	20		18	*	14	
15	2	12	22	264	38		46	50		24	48	8x8	36	32	28	28	28	24	18	*	15	
16	2	12	33	396	51		67	75		24	48	8x8	48	36	32	32	32	28	24	*	16	

PRATT RIVETED TRUSSES - E72 LOADING

#	Tr	NP	MAJOR DIMENSIONS - Given in feet					MINOR DIMENSIONS - Given in inches													* #			
			PL	L	Truss depth at panel points					Top Chord				Depth of diagonals in panels								dp	dh	
					Hip	2	3	4	5	6	cw	cv	f	d	2	3	4	5	6	7				
17	1	5	20	100	28	28				12	22	4	15	15	12					12	12	17		
18	1	6	20	120	28	28	28			14	24	4	18	18	15					15	12	18		
19	1	7	20	140	28	29	30			14	26	4x4	20	18	15	12			15	12	19			
20	1	8	22	176	28	31	33	33		18	30	4x4	24	20	18	15			18	12	20			
21	1	9	20	180	28	31	33	34		18	30	4x4	24	20	18	18	15		18	12	21			
22	1	11	22	242	29	34	37	39	40	20	36	6x6	28	24	20	20	20	15	20	14	22			
23	1	13	30	390	38	48	56	61	64	65	20	40	6x6	36	28	24	24	24	24	20	24	18	*	23
24	2	5	20	100	30	30				18	30	4x4	24	20	16				18	16	24			
25	2	6	20	120	31	31	31			18	30	6x4	28	24	20				24	16	25			
26	2	7	20	140	28	31	32			18	30	6x4	28	24	24	20			24	16	26			
27	2	8	22	176	32	36	38	38		20	36	6x6	32	28	24	20			24	18	27			
28	2	9	22	198	32	38	41	42		20	40	6x6	32	28	24	24	20		24	18	*	28		
29	2	11	23	253	35	41	45	47	48	24	48	8x8	36	32	28	28	28	24	28	18	*	29		
30	2	11	36	396	49	61	69	73	75	24	48	8x8	48	36	32	32	32	28	32	24	*	30		
"Castleton" Trusses					Hip	1	2	3	4															
31	1	7	26	182	27	30	34	36		18	30	4x4	24	20	18	14			18	12		31		
32	1	9	30	270	32	36	41	44	45	20	36	6x6	30	24	20	20	16		20	14		32		
33	1	9	44	396	38	45	57	63	65	20	40	6x6	36	28	24	24	20		24	16	*	33		
34	2	7	26	182	30	35	41	43		20	36	6x6	32	28	24	20			24	16		34		
35	2	9	30	270	35	40	47	52	54	24	48	8x8	36	32	28	28	24		28	18	*	35		
36	2	9	44	396	42	52	65	72	75	24	48	8x8	48	36	32	32	28		32	24	*	36		

Bold type face indicates dimensions in feet, light face type indicates dimensions in inches. All plates, webs, flanges, gussets, etc. 1" thick except on bridges marked (*) where thickness is 2". Truss depth given is vertical distance between chord centers.

