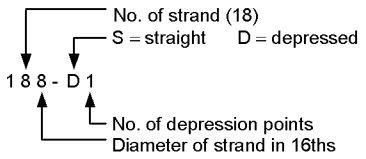
Strand Pattern Designation



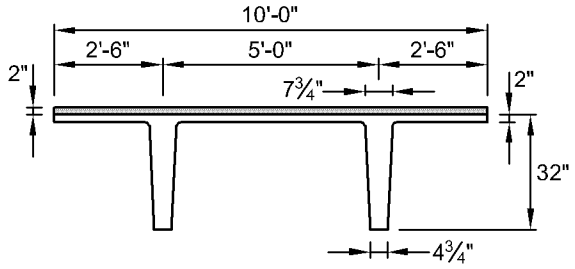
Safe loads shown include dead load of 10 psf for untopped members and 15 psf for topped members. Remainder is live load. Long-time cambers include superimposed dead load but do not include live load.

Key
180 – Safe superimposed service load, psf
1.7 – Estimated camber at erection, in.
2.2 – Estimated long-time camber, in.

DOUBLE TEE

10′-0″ x 32″

Lightweight Concrete



f'_c = 5,000 psi

f_{pu} = 270,000 psi

Section Properties

		Untopped		Topped	
A	=	615	in.^{2}	–	
I	=	59,720	in.^{4}	83,019	in.^{4}
y_b	=	21.98	in.	25.40	in.
y_t	=	10.02	in.	8.60	in.
S_b	=	2,717	in.^{3}	3,269	in.^{3}
S_t	=	5,960	in.^{3}	9,653	in.^{3}
wt	=	491	plf	741	plf
DL	=	49	psf	74	psf
V/S	=	1.69	in.		

10LDT32

Table of safe superimposed service load (psf) and cambers (in.) — No Topping

Strand Pattern	y_s(end) in. y_s(center) in.	Span, ft																													
		46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102
128-S	7.00 7.00	180 1.7 2.2	163 1.8 2.2	147 1.9 2.3	134 2.0 2.4	122 2.1 2.4	111 2.1 2.5	101 2.2 2.5	92 2.2 2.5	84 2.2 2.4	77 2.3 2.4	70 2.2 2.3	64 2.2 2.1	58 2.2 2.0	53 2.1 1.8	49 2.0 1.5	44 1.9 1.2	40 1.7 0.8	37 1.5 0.4	33 1.3 –0.2	30 1.0 –0.7	27 0.7 –1.4								
148-S	8.00 8.00		186 2.1 2.6	168 2.2 2.6	153 2.3 2.7	139 2.3 2.8	127 2.4 2.8	116 2.5 2.9	106 2.6 2.9	97 2.6 2.9	89 2.6 2.8	82 2.7 2.8	75 2.7 2.7	69 2.6 2.6	63 2.6 2.4	58 2.5 2.2	53 2.4 1.9	49 2.3 1.6	45 2.2 1.3	41 2.0 0.8	37 1.7 0.3	33 1.4 –0.3	29 1.1 –1.0	26 0.8 –1.8						
168-S	9.00 9.00			186 2.3 2.9	170 2.4 3.0	155 2.5 3.1	142 2.6 3.1	130 2.7 3.2	118 2.8 3.2	107 2.9 3.2	99 2.9 3.2	90 3.0 3.2	83 3.0 3.1	76 3.0 3.0	70 2.9 2.8	65 2.9 2.6	59 2.8 2.4	54 2.7 2.1	50 2.6 1.8	46 2.4 1.4	42 2.2 1.0	38 2.0 0.5	34 1.7 –0.2	30 1.4 –0.9	27 1.0 –1.7					
188-S	10.00 10.00				183 2.5 3.1	166 2.6 3.2	151 2.7 3.3	138 2.8 3.4	125 2.9 3.4	114 3.0 3.4	104 3.1 3.4	95 3.1 3.4	88 3.2 3.3	81 3.2 3.2	74 3.2 3.1	68 3.1 2.9	63 3.1 2.7	58 3.0 2.5	53 2.9 2.1	49 2.7 1.8	45 2.6 1.4	41 2.4 0.9	38 2.1 0.4	34 1.8 –0.3	30 1.4 –1.1	27 1.0 –1.9				
188-D1	14.39 4.00									152 3.9 4.7	139 4.0 4.8	128 4.2 4.8	118 4.3 4.9	108 4.4 4.9	100 4.5 4.8	92 4.6 4.8	85 4.69 4.7	78 4.6 4.5	72 4.6 4.3	66 4.5 3.9	60 4.4 3.6	55 4.3 3.1	51 4.1 2.6	46 3.9 2.0	43 3.7 1.5	40 3.4 0.9	37 3.1 0.2	34 2.7 –0.5	32 2.3 –1.3	30 1.9 –2.2
208-D1	15.50 4.25														110 4.9 5.4	102 5.0 5.4	94 5.0 5.3	87 5.1 5.2	80 5.1 5.0	74 5.1 0.8	68 5.1 4.6	63 5.1 4.2	58 5.0 3.8	53 4.8 3.3	48 4.6 2.7	44 4.3 2.0	41 4.0 1.2	38 3.7 0.5	35 3.3 –0.3	32 2.9 –1.2

10LDT32 + 2

Table of safe superimposed service load (psf) and cambers (in.) — 2 in. Normal Weight Topping

Strand Pattern	y_s(end) in. y_s(center) in.	Span, ft																											
		44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92			
128-S	7.00 7.00	199 1.6 1.6	177 1.7 1.6	159 1.8 1.6	142 1.9 1.6	128 2.0 1.6	114 2.1 1.5	103 2.1 1.4	92 2.2 1.3	83 2.2 1.2	74 2.2 1.0	67 2.3 0.8	60 2.2 0.5	53 2.2 0.2	47 2.2 –0.2	41 2.1 –0.6	35 2.0 –1.1	28 1.9 –1.7											
148-S	8.00 8.00			183 2.1 1.9	165 2.2 1.9	148 2.3 1.9	134 2.3 1.9	121 2.4 1.8	109 2.5 1.7	98 2.6 1.6	89 2.6 1.4	80 2.6 1.2	72 2.7 1.0	64 2.7 0.7	56 2.6 0.3	49 2.6 –0.1	42 2.5 –0.5	36 2.4 –1.0	31 2.3 –1.6									
168-S	9.00 9.00				184 2.3 2.1	166 2.4 2.1	150 2.5 2.1	136 2.6 2.1	123 2.7 2.0	112 2.8 1.9	100 2.9 1.7	89 2.9 1.6	79 3.0 1.3	71 3.0 1.1	62 3.0 0.7	55 3.0 0.4	48 2.9 –0.1	42 2.8 –0.6	36 2.7 –1.1	31 2.6 –1.8	26 2.5 –2.5							
188-S	10.00 10.00					182 2.5 2.3	165 2.6 2.3	149 2.7 2.2	135 2.8 2.2	121 2.9 2.1	107 3.0 1.9	95 3.1 1.7	85 3.1 1.5	76 3.2 1.3	68 3.2 1.0	60 3.2 0.6	53 3.2 0.2	46 3.1 –0.3	40 3.0 –0.8	34 2.9 –1.5	29 2.8 –2.1							
188-D1	14.39 4.00										149 3.9 3.1	136 4.0 3.0	124 4.2 2.9	112 4.3 2.7	100 4.4 2.5	90 4.5 2.2	80 4.6 1.9	72 4.6 1.5	64 4.6 1.1	56 4.6 0.5	49 4.5 –0.1	42 4.4 –0.9	36 4.3 –1.7	31 4.1 –2.6	26 3.9 –3.6			
208-D1	15.50 4.25															103 4.9 2.8	92 5.0 2.5	83 5.0 2.1	74 5.1 1.7	66 5.1 1.2	59 5.1 0.7	52 5.1 0.0	45 5.1 –0.7	39 5.0 –1.5	34 4.8 –2.5	28 4.6 –3.5			

Strength is based on strain compatibility; bottom tension is limited to $12\sqrt{f'_c}$; see pages 2–7 through 2–10 for explanation.
Shaded values require release strengths higher than 3500 psi.