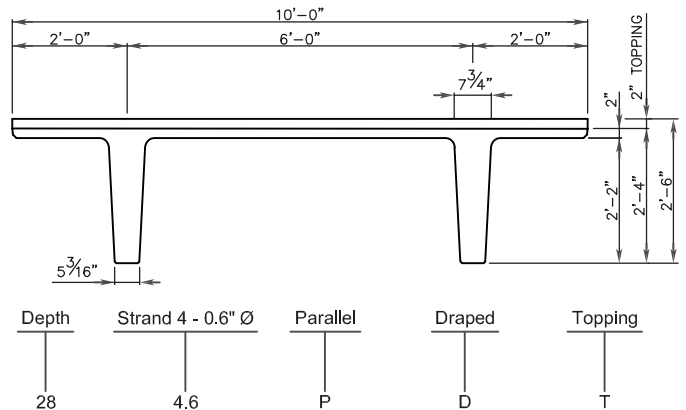


# Prestressed Concrete 28" x 10' DOUBLE TEE (2" TOPPING)

## PHYSICAL PROPERTIES

A = 576 in. <sup>2</sup>	S <sub>b</sub> = 2,223 in. <sup>3</sup>
I = 42,973 in. <sup>4</sup>	S <sub>t</sub> = 4,957 in. <sup>3</sup>
I' = 55,288 in. <sup>4</sup>	S <sub>tt</sub> ' = 9,231 in. <sup>3</sup>
Y <sub>b</sub> = 19.33 in.	Wt. = 600 PLF
Y <sub>t</sub> = 8.67 in.	Wt. = 60 PSF
Y <sub>bb</sub> ' = 21.53 in.	Wt.' = 850 PLF
Y <sub>tt</sub> ' = 8.47 in.	Wt.' = 85 PSF



## DESIGN DATA

1. Precast Strength @ release = 3,500 PSI.
2. Precast Strength @ release for draped tees = 4,500 PSI.
3. Precast Strength @ 28 days = 6,000 PSI.
4. Topping Strength @ 28 days = 3,000 PSI.
5. Precast / Topping Density = 150 PCF.
6. Strand = 0.6" Ø 270K Lo-Relaxation.
7. Maximum moment capacity is critical at midspan for parallel strands and is critical near 0.4 span for draped strands.
8. Maximum bottom tensile stress is  $12\sqrt{f'_c} = 930$  PSI.
9. Flexural capacity is based on stress/strain strand relationships.
10. All superimposed load is treated as live load in the flexural strength analysis. To determine the allowable live load if the amount of superimposed dead load is known use the following conversion method...

$$\text{Allowable Live Load} = \frac{(1.6)(\text{Load Table Value}) - (1.2)(\text{Superimposed Dead Load})}{1.6}$$

11. If the above conversion is used then allowable stress limits must be checked so they are not exceeded.
12. Deflection limits were not considered when determining allowable loads in this table.

### ALLOWABLE SUPERIMPOSED LIVE LOADS (psf)

Section	Ø Mn (in. Kips)	SPAN (FEET)																							
		40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86
28 - 4.6PT	5,614	82	68	57	46	37																			
28 - 6.6PT	8,044			109	94	81	70	60	51	43	35														
28 - 8.6PT	10,223						106	93	82	72	62	54	47	40	34										
28 - 10.6PT	12,150								109	97	86	76	67	57	48	40	33								
28 - 12.6PT	13,822									105	92	80	70	60	52	44	36								
28 - 14.6DT	18,365													100	89	79	70	62	55	48	41				
28 - 16.6DT	20,590														104	93	84	75	67	59	52	45	39		
28 - 18.6DT	22,690															105	95	86	77	69	62	55	48	42	