Prestressed Concrete
16"x4'-0" NiCore Plank (2 Solid Cells)

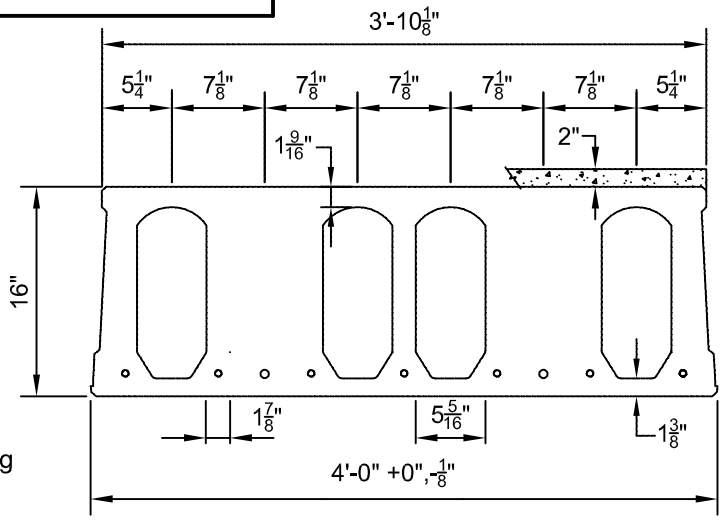
1 Hour Fire Resistance Rating With 2" Topping

PHYSICAL PROPERTIES
Composite Section

A_c = 544 in.^{2}	Precast b_w = 24.88 in.
I_c = 17169 in.^{4}	Precast S_{bcp} = 1907 in.^{3}
Y_{bcp} = 9.00 in.	Topping S_{tct} = 1908 in.^{3}
Y_{tcp} = 7.00 in.	Precast S_{tcp} = 2454 in.^{3}
Y_{tct} = 9.00 in.	Precast Wt. = 501 PLF
	Precast Wt. = 125.25 PSF

DESIGN DATA

1. Precast Strength @ 28 days = 6000 PSI
2. Precast Strength @ release = 3800 PSI
3. Precast Density = 150 PCF
4. Strand = 1/2"Ø and 0.6""Ø 270K Lo-Relaxation.
5. Strand Height = 1.75 in.
6. Two (2) #8 rebars added at 1.875 in.
7. Ultimate moment capacity (when fully developed)..
   7-1/2"Ø, 270K = 417.7 k-ft at 60% jacking force
   7-0.6"Ø, 270K = 530.8 k-ft at 60% jacking force
8. Maximum bottom tensile stress is $10\sqrt{f'c}$ = 775 PSI
9. 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...



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

10. If the above conversion is used then allowable stress limits must be checked so they are not exceeded.
11. Flexural strength capacity is based on stress/strain strand relationships.
12. Deflection limits were not considered when determining allowable loads in this table.
13. Topping Strength @ 28 days = 3000 PSI. Topping Weight = 25 PSF.
14. These tables are based upon the topping having a uniform 2" thickness over the entire span. A lesser thickness might occur if camber is taken into account during design, thus reducing the load capacity.
15. Some span/strand combinations require some 3/8"Ø top strands.
16. Some load values are controlled by ultimate web shear strength per ACI Equation 11-1 and Section 11.4.6.1(b). Load values to the left of the solid line are controlled by ultimate shear strength.
17. Load values to the right are controlled by ultimate flexural strength or allowable service stresses.
18. Camber is inherent in all prestressed hollow core slabs and is a function of the amount of eccentric prestressing force needed to carry the superimposed design loads along with a number of other variables. Because prediction of camber is based on empirical formulas it is at best an estimate, with the actual camber usually higher than calculated values.

SAFE SUPERIMPOSED SERVICE LOADS

Strand Pattern		SPAN (FEET)																		
		21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57
7 - 1/2"ø	LOAD (PSF)	590	520	470	420	380	350	320	290	258	214	177	145	117	92	71				
7 - 0.6"ø	LOAD (PSF)	598	532	476	430	391	357	327	301	277	257	238	212	178	149	123	100	80	62	45

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This load table is for general information only for preliminary design. It is not intended for final design without competent professional examination and verification of its accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect. It is for simple spans and uniform loads. Design data for any of these span-load conditions is available on request. Individual designs may be furnished to satisfy unusual conditions of heavy loads, concentrated loads, cantilevers, flange or stem openings and narrow widths.

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