Prestressed Concrete
# 16"x4'-0" NiCore Plank

1 Hour Fire Resistance Rating (Untopped)

PHYSICAL PROPERTIES
Precast

A = 352 in.^{2} b_w = 14.25 in.
I = 10,985 in.^{4} S_b = 1,379 in.^{3}
Y_b = 7.97 in. S_t = 1,367 in.^{3}
Y_f = 8.03 in.   Wt.= 367 PLF
e = 6.19 in.   Wt.= 91.75 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. Ultimate moment capacity (when fully developed)..
   7-1/2"Ø, 270K = 295.8 k-ft at 60% jacking force
   7-0.6"Ø, 270K = 406.8 k-ft at 60% jacking force
7. Maximum bottom tensile stress is $10\sqrt{f'c}$ = 775 PSI
8. 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...
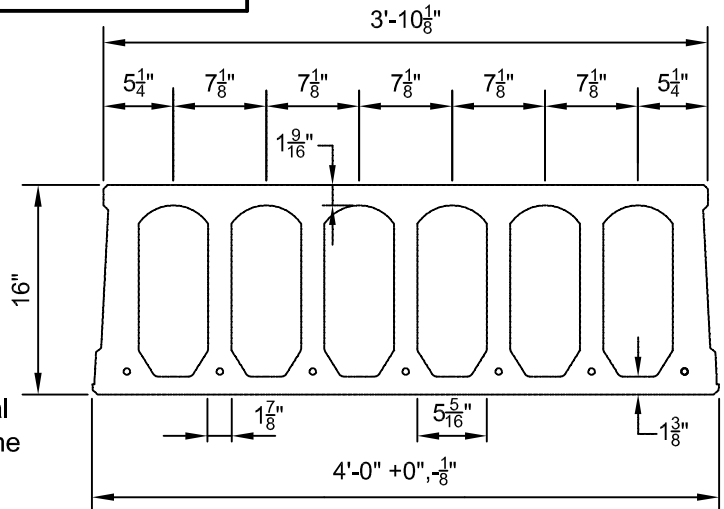
$$\text{Allowable Live Load} = \frac{(1.6)(\text{Load Table Value}) - (1.2)(\text{Superimposed Dead Load})}{1.6}$$

9. If the above conversion is used then allowable stress limits must be checked so they are not exceeded.
10. Flexural strength capacity is based on stress/strain strand relationships.
11. Deflection limits were not considered when determining allowable loads in this table.
12. Span/strand combinations to the left of and below the solid line require 3/8"Ø top strands.
13. Some load values are controlled by ultimate web shear strength per ACI Equation 11-1 and Section 11.4.6.1(b). Shear capacity can be increased by partially filling cores in order to achieve flexural capacity.
14. 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		IBC 2012 & ACI 318-11 (1.2 D + 1.6 L)																	
Strand Pattern		SPAN (FEET)																	
		24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
7 - 1/2"ø	LOAD (PSF)	251	225	203	196	179	163	150	138	127	117	109	101	91	79	67	57			
7 - 0.6"ø	LOAD (PSF)	254	227	205	186	169	154	141	130	119	121	112	104	96	90	83	77	72	67	62

NITTERHOUSE CONCRETE PRODUCTS
CHAMBERSBURG, PA 717-267-4505
WWW.NITTERHOUSECONCRETE.COM

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