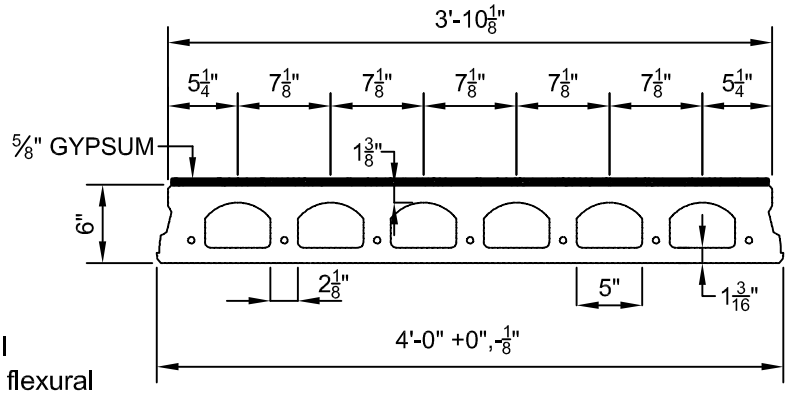
Prestressed Concrete
6"x4'-0" NiCore Plank

2 Hour Fire Resistance Rating (Gypsum Topping)

PHYSICAL PROPERTIES Precast	
$A = 187$ in.^{2}	$b_w = 16.13$ in.
$I = 757$ in.^{4}	$S_b = 245$ in.^{3}
$Y_b = 3.09$ in.	$S_t = 260$ in.^{3}
$Y_t = 2.91$ in.	Wt.= 195 PLF
$e = 1.34$ in.	Wt.= 48.75 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 270K Lo-Relaxation.
5. Strand Height = 1.75 in.
6. Ultimate moment capacity (when fully developed)..
   - 7-3/8"Ø, 270K = 46.4 k-ft at 60% jacking force
   - 6-1/2"Ø, 270K = 67.2 k-ft at 60% jacking force
   - 7-1/2"Ø, 270K = 75.5 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. Load values to the left of the solid line are controlled by ultimate shear strength.
13. Load values to the right are controlled by ultimate flexural strength or allowable service stresses.
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.
15. The safe superimposed service loads listed below are on top of the gypsum. The weight of the gypsum has already been taken into account with the hollow core slab weight.
16. At 2 hours the calculated strand temperature is 790 degrees Farenheit @ 49% of yield strength

SAFE SUPERIMPOSED SERVICE LOADS

Strand Pattern		SPAN (FEET) 16																		
		12	13	14	15		17	18	19	20	21	22	23	24	25	26	27	28	29	30
6 - 1/2"ø	LOAD (PSF)	353	322	295	273	244	215	189	165	143	125	110	96	84	73	64	55	48	41	35
7 - 1/2"ø	LOAD (PSF)	407	372	341	303	269	244	225	197	172	152	133	118	104	92	81	71	63	55	48

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

11/2020

6F2.0GT