

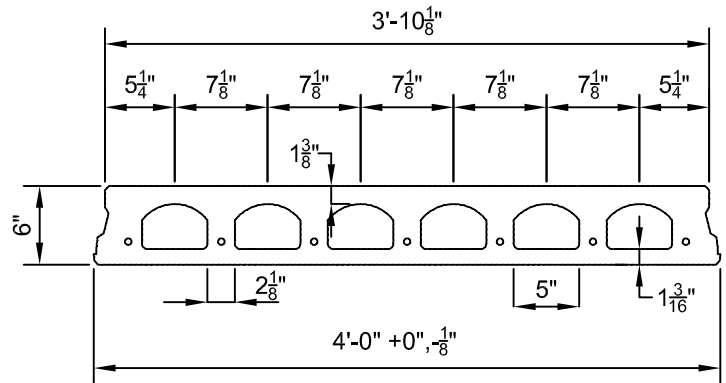
Prestressed Concrete 6"x4'-0" NiCore Plank

1.5 Hour Fire Resistance Rating (Untopped)

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

- Precast Strength @ 28 days = 6000 PSI
- Precast Strength @ release = 3800 PSI
- Precast Density = 150 PCF
- Strand = 1/2"Ø 270K Lo-Relaxation.
- Strand Height = 1.75 in.
- 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
- Maximum bottom tensile stress is $10\sqrt{f'_c} = 775$ PSI
- 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...



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

- If the above conversion is used then allowable stress limits must be checked so they are not exceeded.
- Flexural strength capacity is based on stress/strain strand relationships.
- Deflection limits were not considered when determining allowable loads in this table.
- Load values to the left of the solid line are controlled by ultimate shear strength.
- Load values to the right are controlled by ultimate flexural strength or allowable service stresses.
- 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.
- At 1.5 hours the calculated strand temperature is 790 degrees Fahrenheit @ 49% of yield strength

SAFE SUPERIMPOSED SERVICE LOADS		SPAN (FEET)																		
Strand Pattern		12	13	14	15	16	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	197	175	155	149	132	118	104	92	81	73	64	57	50
7 - 1/2"Ø	LOAD (PSF)	407	372	341	303	269	244	226	202	183	166	149	133	118	105	94	83	74	66	59