

Prestressed Concrete 8"x4'-0" NiCore Plank

3 Hour Fire Resistance Rating (Gypsum Topping)

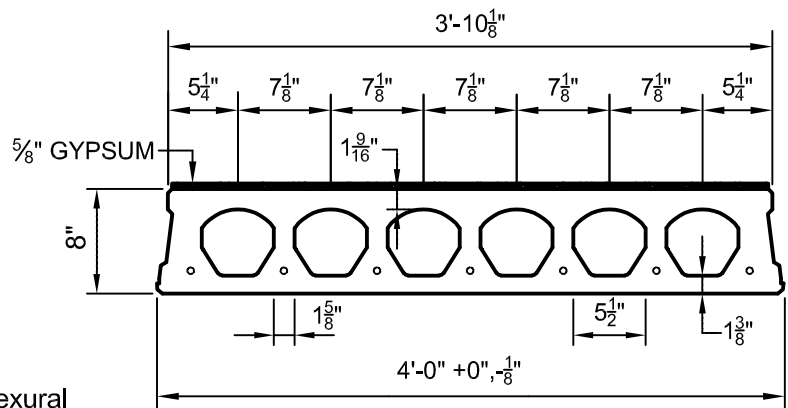
PHYSICAL PROPERTIES Precast	
A = 235 in. ²	b _w = 13.13 in.
I = 1838 in. ⁴	S _b = 459 in. ³
Y _b = 4.00 in.	S _t = 459 in. ³
Y _t = 4.00 in.	Wt. = 245 PLF
e = 2.25 in.	Wt. = 61.25 PSF

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 = 70.6 k-ft at 60% jacking force
 6-1/2"Ø, 270K = 104.7 k-ft at 60% jacking force
 7-1/2"Ø, 270K = 119.8 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 are controlled by ultimate flexural strength or structural fire endurance.
- 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.
- 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.
- At 3 hours the calculated strand temperature is 925 degrees Fahrenheit @ 32% of yield strength



SAFE SUPERIMPOSED SERVICE LOADS		SPAN (FEET)																		
Strand Pattern		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
6 - 1/2"Ø	LOAD (PSF)	212	183	158	136	118	102	88	76	65	55	47	39	32	26	21	16	X		
7 - 1/2"Ø	LOAD (PSF)	256	221	192	168	146	128	112	98	85	74	64	55	47	40	34	28	22	18	13