

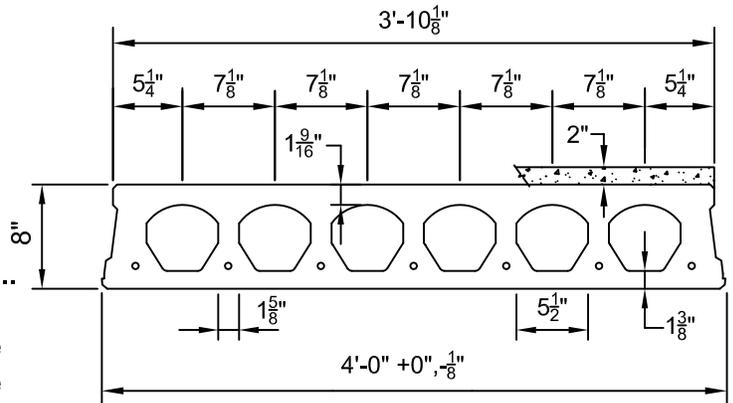
Prestressed Concrete 8"x4'-0" NiCore Plank

2 Hour Fire Resistance Rating With 2" Topping

PHYSICAL PROPERTIES Composite Section	
$A_c = 301 \text{ in.}^2$	Precast $b_w = 13.13 \text{ in.}$
$I_c = 3134 \text{ in.}^4$	Precast $S_{bcp} = 616 \text{ in.}^3$
$Y_{bcp} = 5.09 \text{ in.}$	Topping $S_{tct} = 902 \text{ in.}^3$
$Y_{tcp} = 2.91 \text{ in.}$	Precast $S_{tcp} = 1076 \text{ in.}^3$
$Y_{tct} = 4.91 \text{ in.}$	Precast Wt. = 245 PLF
	Precast 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 = 90.1 k-ft at 60% jacking force
 - 6-1/2"Ø, 270K = 130.6 k-ft at 60% jacking force
 - 7-1/2"Ø, 270K = 147.8 k-ft at 60% jacking force
- Maximum bottom tensile stress is $10\sqrt{f'_c} = 775 \text{ PSI}$
- All superimposed load is treated as live load in the strength analysis of flexure and shear.
- Flexural strength capacity is based on stress/strain strand relationships.
- Deflection limits were not considered when determining allowable loads in this table.
- Topping Strength @ 28 days = 3000 PSI. Topping Weight = 25 PSF.
- These tables are based upon the topping having a uniform 2" thickness over the entire span. A lesser thickness might occur if camber is not taken into account during design, thus reducing the load capacity.
- 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 fire endurance limits.
- 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 2 hours the calculated strand temperature is 790 degrees Fahrenheit @ 49% of yield strength.



SAFE SUPERIMPOSED SERVICE LOADS		IBC 2012 & ACI 318-11 (1.2 D + 1.6 L)																		
Strand Pattern		SPAN (FEET)																		
		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)	366	341	318	293	258	227	201	177	156	138	122	107	94	82	71	62	53	45	37
7 - 1/2"Ø	LOAD (PSF)	367	342	320	300	282	265	243	216	193	171	153	136	121	107	95	84	74	64	56



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This table 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. The allowable loads shown in this table reflect a 2 Hour & 0 Minute fire resistance rating.