

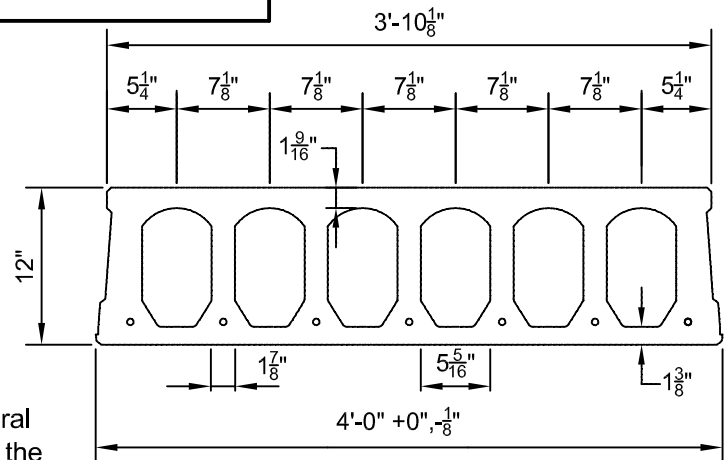
Prestressed Concrete 12"x4'-0" NiCore Plank

2 Hour Fire Resistance Rating (Untopped)

PHYSICAL PROPERTIES Precast	
A = 296 in. ²	b _w = 14.25 in.
I = 5191 in. ⁴	S _b = 867 in. ³
Y _b = 5.99 in.	S _t = 863 in. ³
Y _t = 6.01 in.	Wt. = 308 PLF
e = 4.24 in.	Wt. = 77.00 PSF

DESIGN DATA

- Precast Strength @ 28 days = 6000 PSI
- Precast Strength @ release = 3800 PSI
- Precast Density = 150 PCF
- Strand = 1/2"Ø and 0.6"Ø 270K Lo-Relaxation.
- Strand Height = 1.75 in.
- Ultimate moment capacity (when fully developed)..
6-1/2"Ø, 270K = 180.4 k-ft at 60% jacking force
7-1/2"Ø, 270K = 207.5 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.
- All 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.
- At 2 hours the calculated strand temperature is 790 degrees Farenheit @ 49% of yield strength

Strand Pattern		SPAN (FEET)																		
		29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
6 - 1/2"Ø	LOAD (PSF)	160	144	130	117	106	95	85	76	68	61	54	47	41	36	30	X			
7 - 1/2"Ø	LOAD (PSF)	197	179	163	148	135	122	111	101	91	83	74	67	60	54	48	42	37	32	27