Prestressed Concrete Spandrel Panel 9SP78

-(2) 1/2" DIA P/S STRANDS

(2) #5 X FULL LENGTH

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WITH 1½" COVER
(2) #5 X FULL LENGTH

#5 HAIRPINS @ ENDS =

#4 STIRRUPS (G60) @ 24" O.C.

-(2) 1/2" DIA P/S STRANDS

DEBOND (4) STRANDS FOR 2'-0" AT BOTH ENDS

EXAMPLE OF 2-2-2-0 PATTERN

PHYSICAL PROPERTIES

 $\begin{array}{lll} \text{A= 702 in.}^2 & \text{S}_b = 9,126 \text{ in.}^3 \\ \text{I = 355,914 in.}^4 & \text{S}_t = 9,126 \text{ in.}^3 \\ \text{Y}_b = 39.00 \text{ in.} & \text{Wt.= 731 PLF} \\ \text{Y}_t = 39.00 \text{ in.} & \end{array}$

DESIGN DATA

- 1. Precast Strength @ 28 days = 6,000 PSI
- 2. Precast Strength @ release = 3,500 PSI.
- 3. Precast Density = 150 PCF
- 4. Strand = 1/2"Ø 270K Lo-Relaxation.
- 5. Ultimate moment capacity shown below is for full strand development & tension controlled section.
- 6. Maximum bottom tensile stress is $12\sqrt{fc} = 930 \text{ PSI}$
- 7. Flexural strength capacity is based on stress/strain strand relationships and is slightly variable.
- 8. Deflection limits were not considered when determining allowable loads in this table.
- 9. All superimposed live loads listed are controlled by ultimate flexural strength, not allowable stresses.
- 10. 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...

11. If the above conversion is used then allowable stress limits must be checked so they are not exceeded.

ALLOWABLE SUPERIMPOSED LIVE LOADS (KLF)											
Bottom Strands	Middle Strands	Top Strands	Longitudinal Bars	Strand Debonding	Moment Capacity	SPAN					
						20'	24'	30'	36'	40'	48'
2-2-0-0-0	2	2	6 - #5	None	14,435 " k	14.28	9.89	6.13	4.09	3.21	2.06
2-2-2-0-0	2	2	6 - #5	2 Strands For 2'-0" At Ends	18,930 " k	17.04	12.54	7.98	5.53	4.38	2.87
2-2-2-0	2	2	6 - #5	4 Strands For 2'-0" At Ends	23,065 " k	19.61	14.96	9.67	6.80	5.45	3.62
2-2-2-2	2	2	6 - #5	6 Strands For 2'-0" At Ends	26,973 "k	21.91	16.95	11.29	7.97	6.47	4.32



This load table is for general information only for preliminary design. It is not intended for final design without competent professional examination and verification of its accuracy, suitability, and applicability by a licensed professional engineer, designer, or architect. It 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.