Prestressed Concrete Rectangular Beam 12RB36

PHYSICAL PROPERTIES

 $A = 432 \text{ in}^2$ $S_b = 2,592 \text{ in.}^3$ $I = 46,656 \text{ in.}^4$ Wt.= 450 PLF $Y_b = 18.00 \text{ in.}$ $Y_f = 18.00 \text{ in.}$

-2 (#9) X FULL LENGTH $S_t = 2,592 \text{ in.}^3$ #4 STIRRUPS @ 10" O.C. (#9) X FULL LENGTH

DESIGN DATA

- 1. Precast Strength @ 28 days = 6,000 PSI
- Precast Strength @ release = 4,000 PSI.
- 3. Precast Density = 150 PCF
- 4. Strand = 0.60"Ø 270K Lo-Relaxation.
- 5. Ultimate moment capacity shown below is for full strand development & tension controlled section.
- Maximum bottom tensile stress is 12√fc = 930 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 right of the solid line are controlled by 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.
- 12. The concrete strength at release of prestress force increases to 5,000 psi for more than 8 strands.

ALLOW	ALLOWABLE SUPERIMPOSED LIVE LOADS (KLF)																
Strand Pattern	Bottom Bars	Top Bars	Moment Capacity	SPAN													
				16'	18'	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	42'
4 - 0 - 0	2 - #9	2 - #9	9,903 "k	11.0	9.7	8.7	7.7	6.4	5.4	4.6	3.9	3.4	3.0	2.6	2.3	2.0	1.8
4 - 4- 0	2 - #9	2 - #9	15,011 "k	17.8	15.7	13.8	11.4	9.6	8.1	6.9	5.9	5.2	4.5	4.0	3.5	3.1	2.8
4 - 4 - 2	2 - #9	4 - #9	17,557 "k	20.9	18.5	16.2	13.3	11.1	9.4	8.1	7.0	6.1	5.3	4.7	4.2	3.8	3.3



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.

EXAMPLE OF 4-4-0 PATTERN