Prestressed Concrete
LEDGER BEAM 32LB42

PHYSICAL PROPERTIES

A = 1124 in.^{2} $\qquad$ S_b = 8,676 in.^{3}
I = 169,876 in.^{4} $\qquad$ S_t = 7,577 in.^{3}
Y_b = 19.58 in. $\qquad$ Wt.= 1,171 PLF
Y_t = 22.42 in.

- TOP BARS X FULL LENGTH
- LONGITUDINAL STEEL AS REQUIRED
- #4 STIRRUPS AS REQUIRED
- (1) #4 X FULL LENGTH
- 4-0.60" DIA STRANDS
- 13-0.60" DIA STRANDS
- EXAMPLE OF 13-4-0 PATTERN
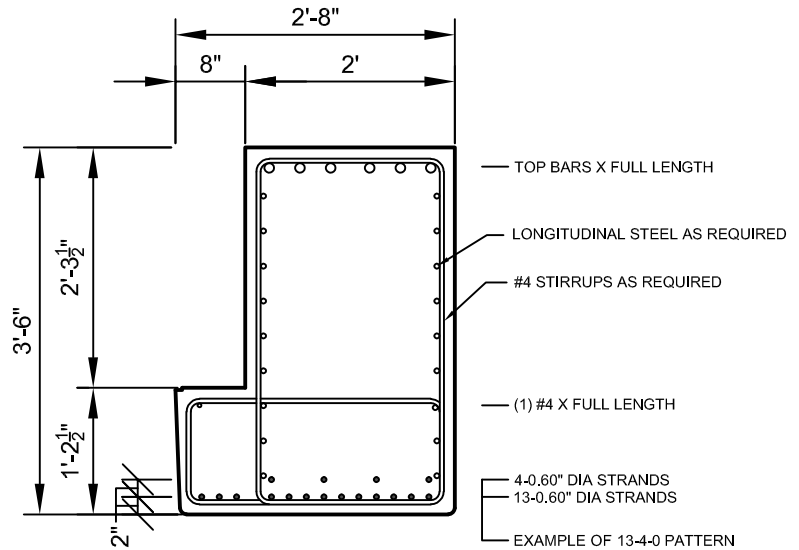
DESIGN DATA

1. Precast Strength @ 28 days = 6,000 PSI.
2. 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.
6. Maximum bottom tensile stress is $12\sqrt{f'c}$ = 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 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...

$$\text{Allowable Live Load} = \frac{(1.6)(\text{Load Table Value}) - (1.2)(\text{Superimposed Dead Load})}{1.6}$$

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 4,500 psi for more than 24 strands.
13. The concrete strength at release of prestress force increases to 5,000 psi for more than 28 strands.
14. Load values to the left of the solid line are controlled by torsional section property limits.
15. Load values to the right of the solid line are controlled by ultimate moment capacity.

ALLOWABLE SUPERIMPOSED LIVE LOADS (KLF)

Strand Pattern	Top Bars	Moment Capacity	SPAN													
			30'	32'	34'	36'	38'	40'	42'	44'	46'	48'	50'	52'	54'	56'
13 - 0 - 0	4 - #9	25,781 "k	11.0	9.6	8.4	7.4	6.5	5.8	5.2	4.6	4.1	3.7	3.4	3.0	2.8	2.5
13 - 4 - 0	6 - #9	32,875 "k	14.3	12.4	10.9	9.6	8.6	7.6	6.8	6.1	5.5	5.0	4.6	4.1	3.8	3.4
13 - 8 - 0	6 - #9	39,287 "k	15.2	14.1	13.1	11.7	10.4	9.3	8.4	7.5	6.8	6.2	5.6	5.1	4.7	4.3
13 - 13 - 0	6 - #9	46,588 "k	15.3	14.2	13.2	12.4	11.7	11.0	10.1	9.1	8.2	7.5	6.8	6.3	5.7	5.3
13 - 13 - 4	8 - #9	52,216 "k	15.3	14.2	13.3	12.4	11.7	11.0	10.5	9.9	9.4	8.5	7.8	7.1	6.5	6.0

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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.

11/2020

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