

$$M = \frac{WL^2}{8} = \frac{0.157 \times (22')^2}{8} = 9.49 \text{ FT-K}$$

MAX SHEAR = IN THIS CASE, MAX SHEAR, OCCURS @ AND IS EQUAL TO THE REACTION

$$V = \frac{WL}{2} = 1727 \#$$

CHECK DEFLECTION $\Delta = \frac{L}{360} = \frac{22' \times 12''}{360} = 0.73''$

~~$$\Delta = \frac{5WL^4}{384EI} = \frac{5 \times 0.157 \times 18,399,744}{384 \times 29,000 \times 203} = \frac{1,444,3779}{22,606,080} = 0.006$$~~

~~$$0.006'' < 0.73'' \therefore \text{OK}$$~~

$$= \frac{5 \times 0.157 \times (22')^4 (12')^3}{384 \times 29,000 \times 203} = \frac{31,776,3579}{22,606,080} = 0.14 \text{ IN}$$

$$0.14 \text{ IN} < 0.73'' \therefore \text{OK}$$

$$S_x = \frac{M}{F_b} = \frac{(9.49 \text{ FT-K})(12'/\text{FT})}{30 \text{ KSI}} = 3.796$$

USE MC 12 x 31

CONSIDER HSS 12 x 4 x 3/8, $I_x = 178$, $S_x = 29.6$
 \rightarrow DOES THIS MAKE SENSE?