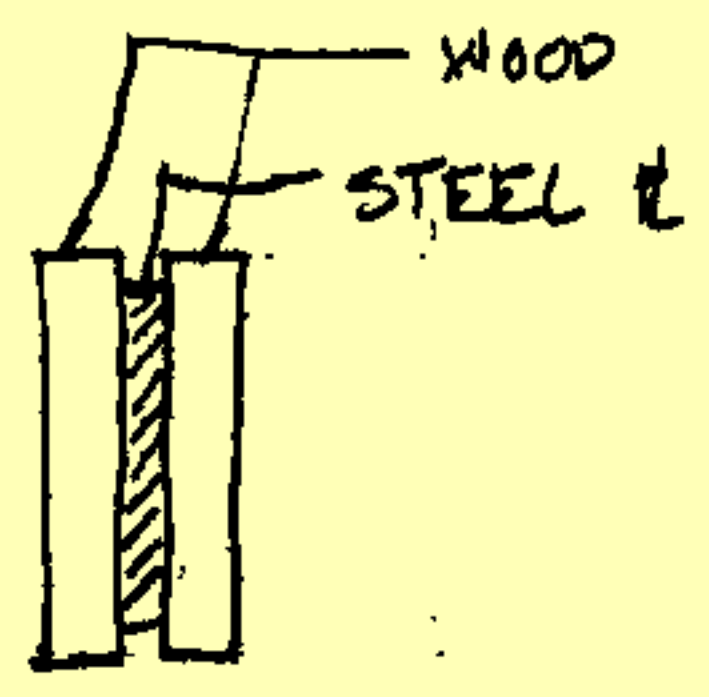
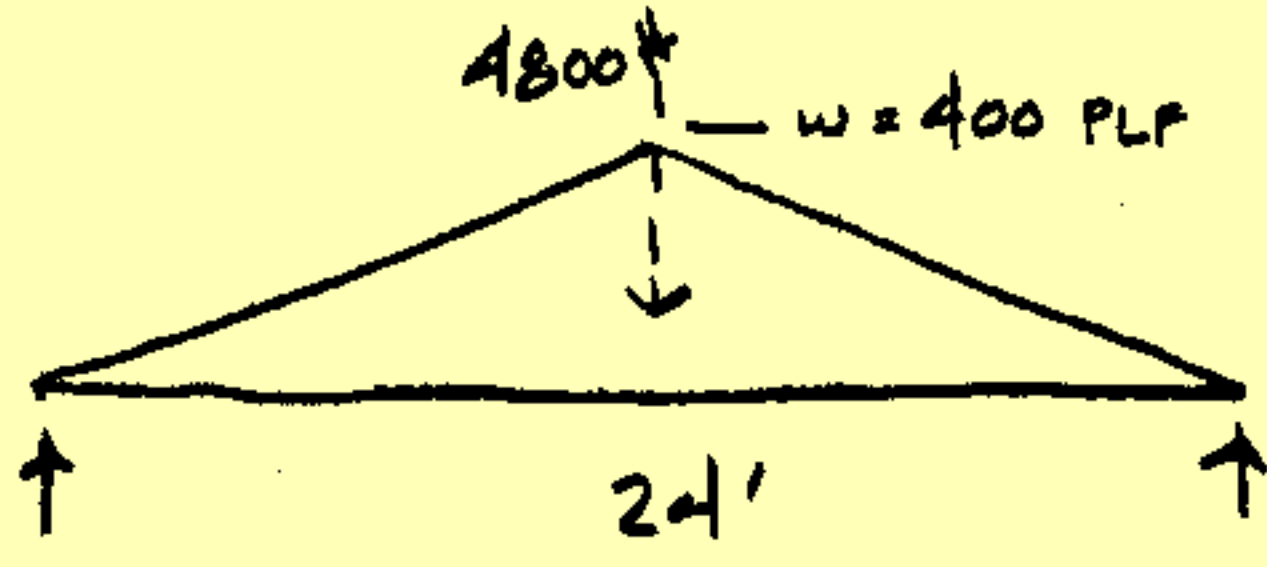


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E_{WOOD}	1800 KSI
E_{STEEL}	30000 KSI
$F_b WOOD$	1.4 KSI
$F_b STEEL$	20 KSI

DETERMINE THE SIZE OF THE STEEL I

MAX MOMENT @ C

$$\sum M_c = 0 = 2400(12) - 2400(4) - M_{max}$$

$$M_{max} = 19200 \text{ Lb-ft} = 19.2 \text{ K-ft}$$

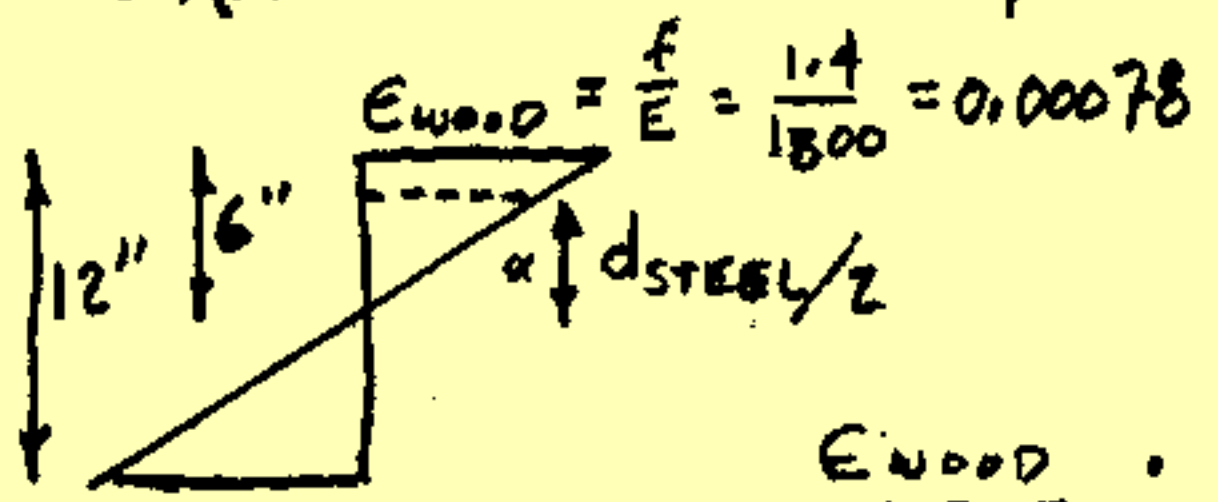
ASSUME WOOD CONTROLS STRAIN: $\cdot 576$

$$M_{WOOD} = \frac{f I}{c} = \frac{1.4 \left(\frac{4}{12} \right)^3}{6} = 134.4 \text{ K-in} = 11.2 \text{ K-ft}$$

PORTION OF MOMENT CARRIED BY STEEL:

$$M_{STEEL} = M_{TOTAL} - M_{WOOD} = 19.2 - 11.2 = 8.0 \text{ K-ft}$$

STRAIN COMPATIBILITY TO FIND d STEEL:



$$\frac{E_{WOOD}}{E_{STEEL}} = \frac{6}{\alpha}$$

STEEL:

$$\epsilon_{max} = \frac{f}{E} = \frac{20}{30000} = .00067$$

$$\alpha = 5.143''$$

$$d_{STEEL} = 10.29''$$

FIND b STEEL:

$$M_{STEEL} = 8 \times 12 = f_s S' = f_s \left(\frac{b d^2}{6} \right) = 20 \frac{b (10.29)^2}{6}$$

$$b = 0.272''$$

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMERICAN