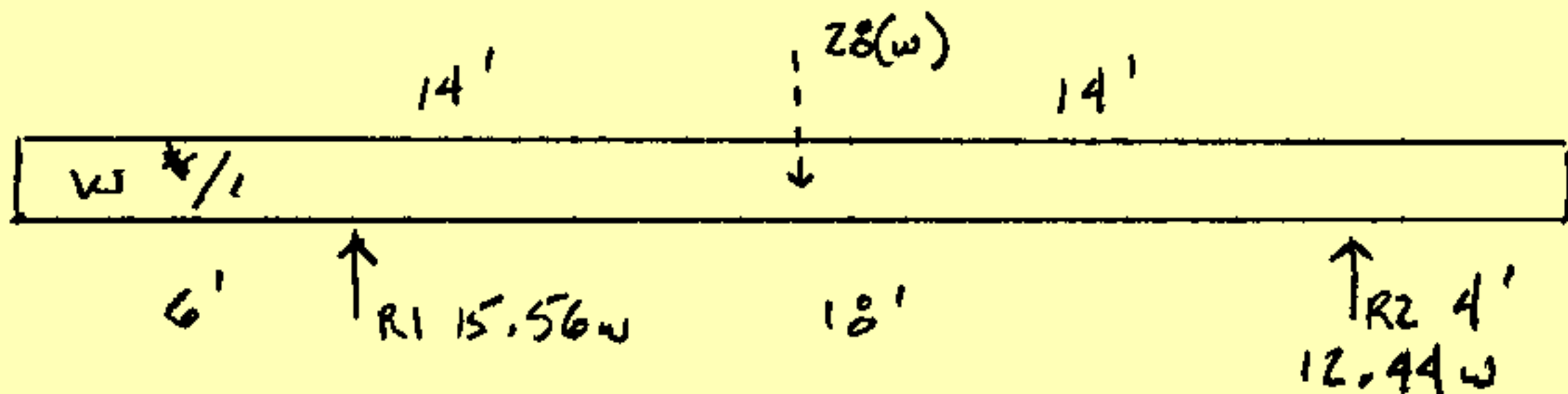


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REACTIONS:

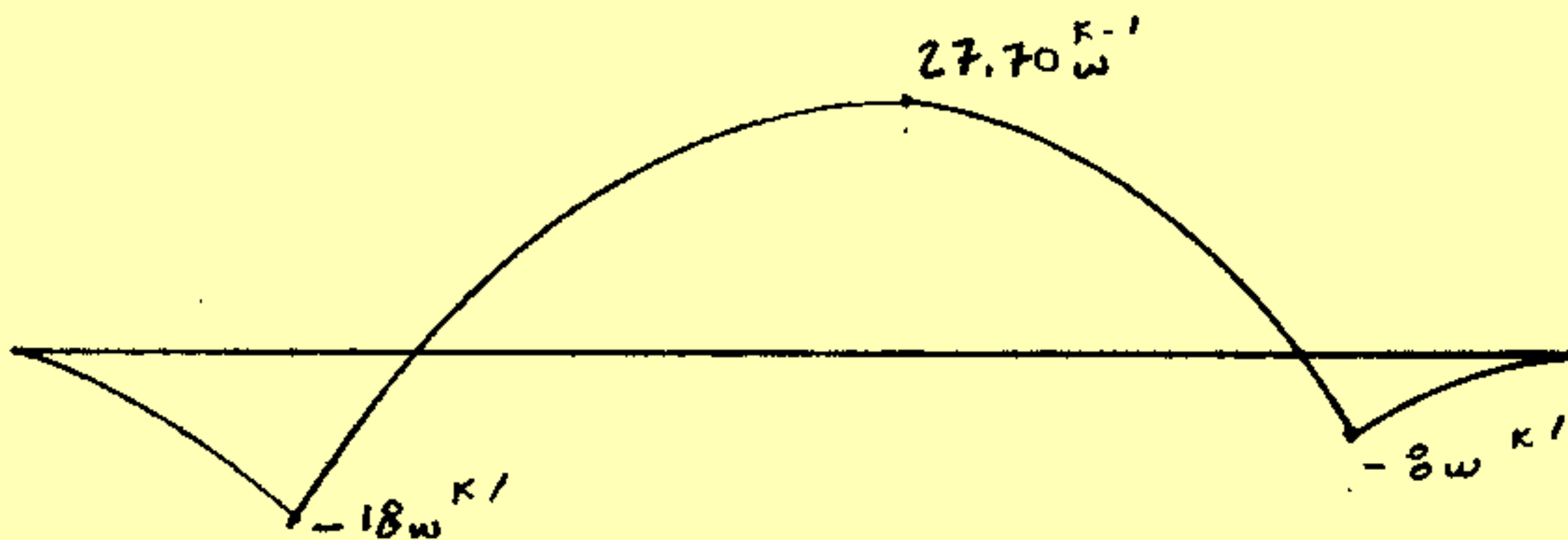
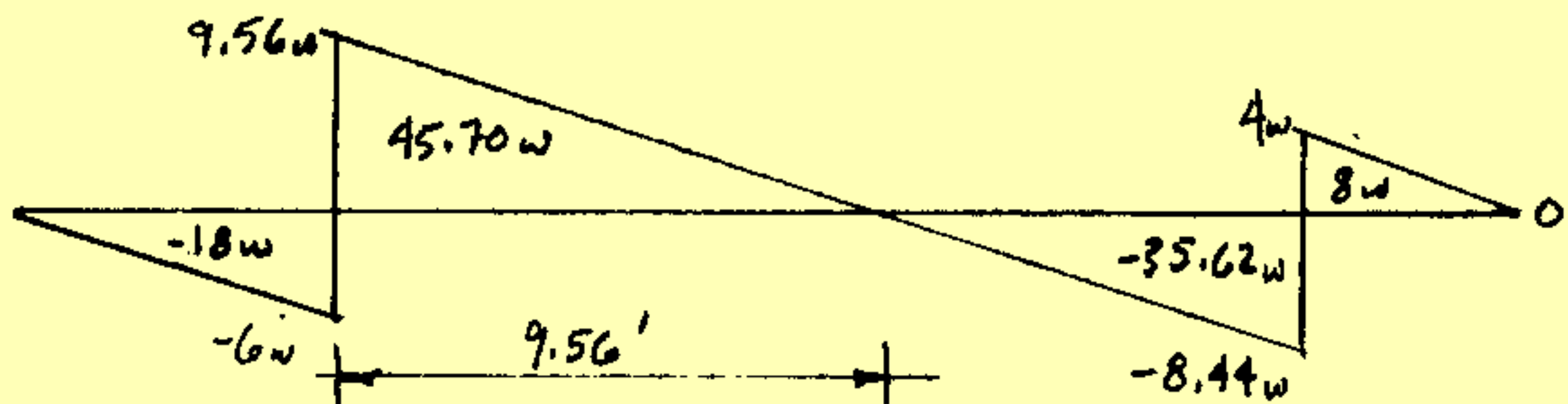
$$\sum M_{R_1} = 0 = 28w(8) - R_2(18)$$

$$R_2 = 12.44w$$

$$\sum M_{R_2} = 0 = R_1(18) - 28w(10)$$

$$R_1 = 15.56w$$

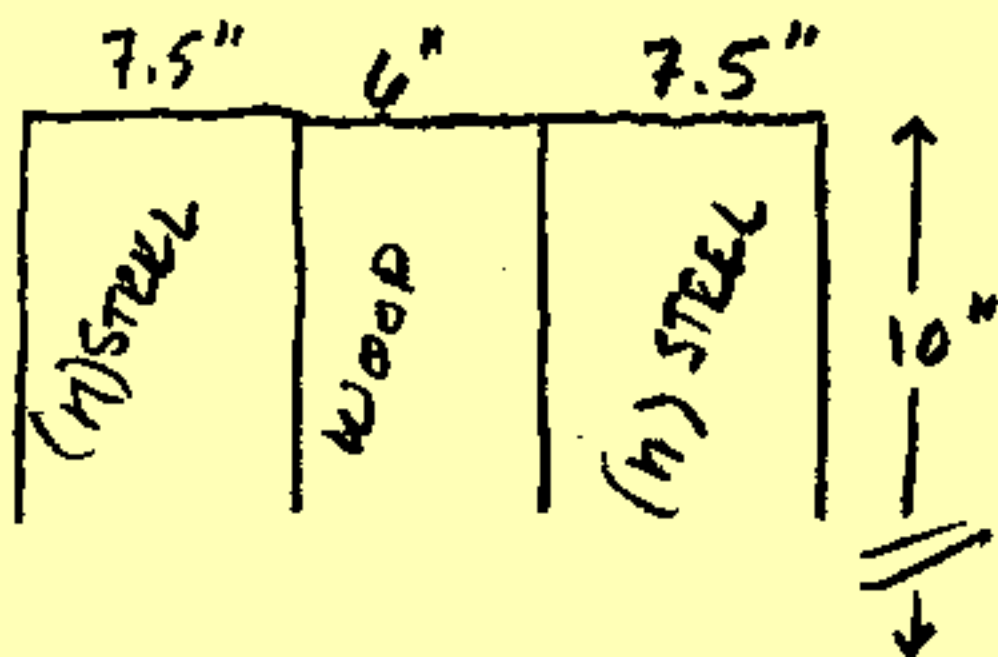
$$\sum F_v = 0 \quad \checkmark$$



TRANSFORMED SECTION:

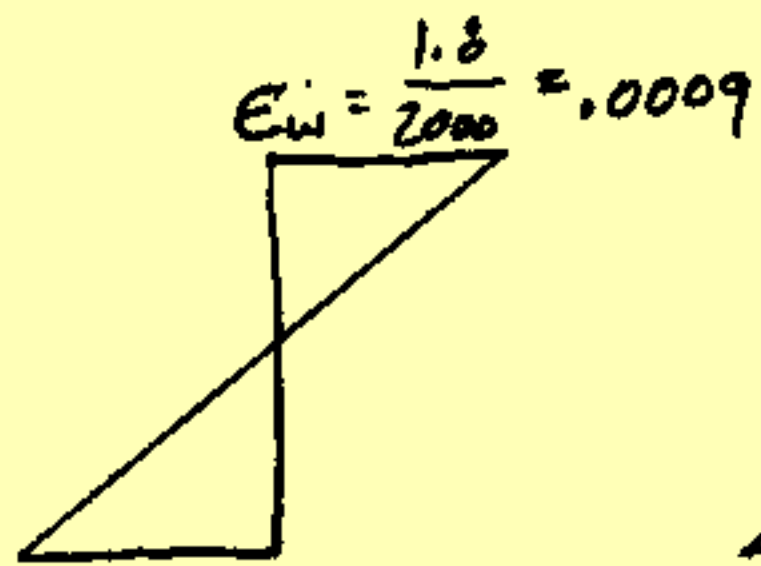
$$n = \frac{E_s}{E_w} = \frac{30}{2} = 15$$

$$I_{PR} = \frac{21(10)^3}{12} = 1750 \text{ in}^4$$

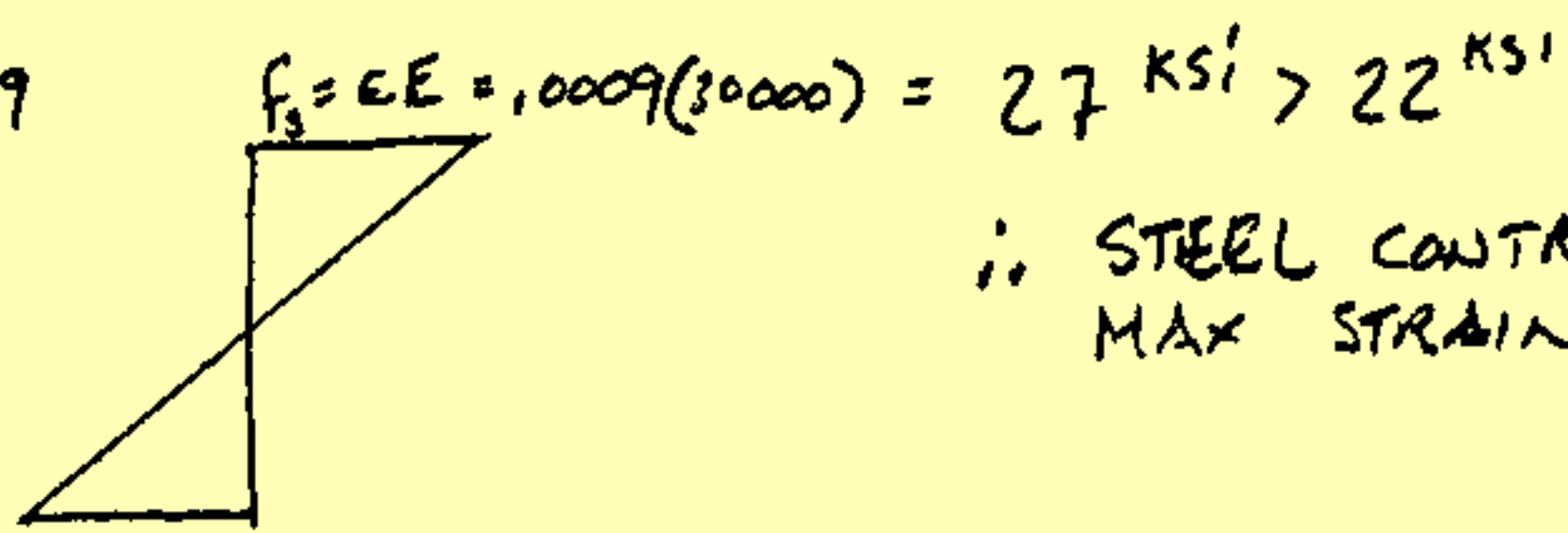


STRAIN COMPATIBILITY:

ASSUME WOOD CONTROLS - CHECK STEEL

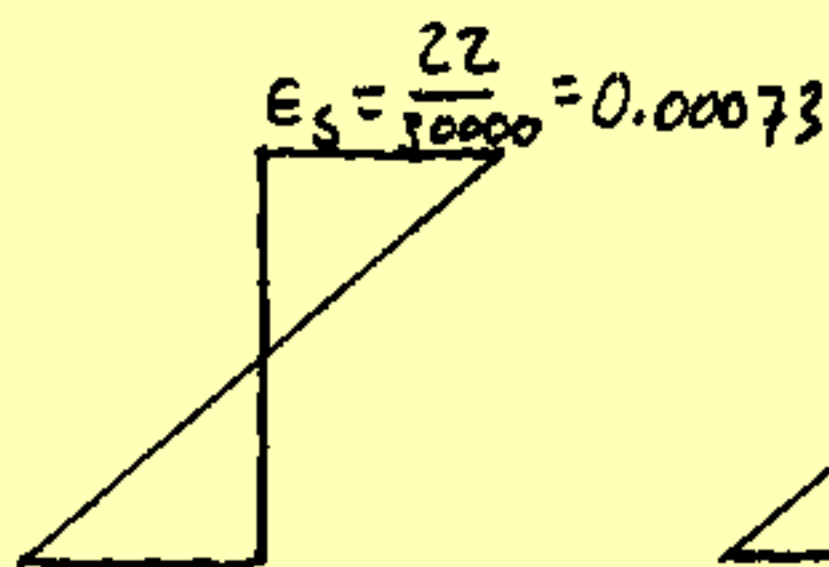


STRAIN WOOD

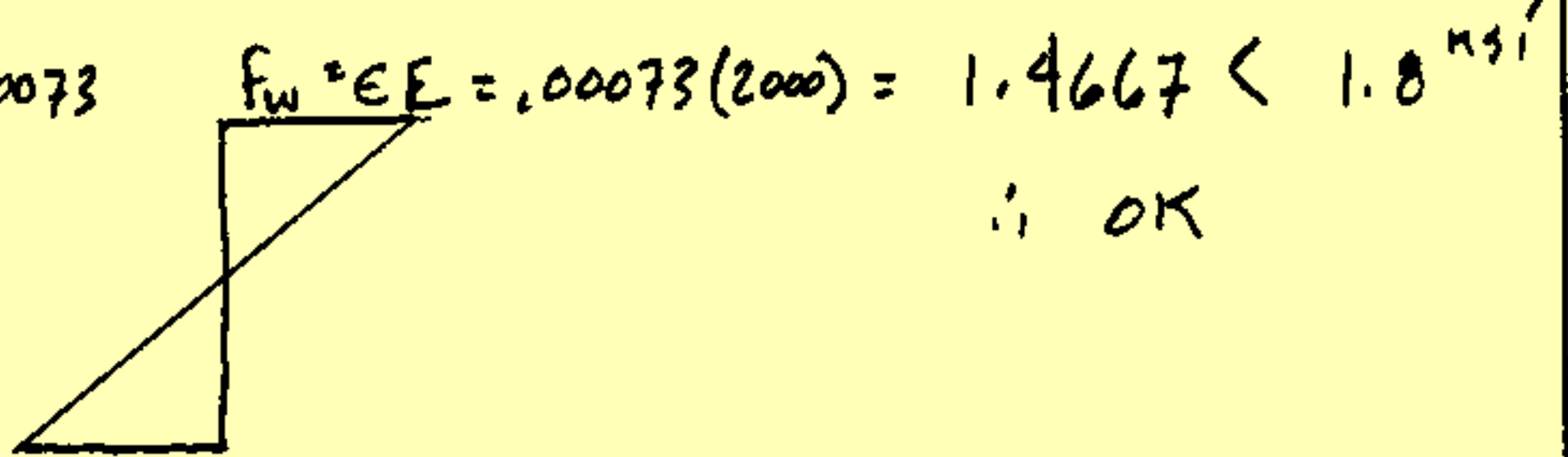


STRESS-STEEL

$\therefore$  STEEL CONTROLS  
MAX STRAIN



STRAIN-STEEL



STRESS-WOOD

$\therefore$  OK

FIND MAX ALLOWABLE MOMENTS FOR EACH

(FOR WOOD)

$$f = \frac{Mc}{I} \rightarrow M = f \frac{I}{c} = 1.467(1750)/5 = 513.3 \text{ K-ft}$$

$$= 42.78 \text{ K-ft}$$

(FOR STEEL)

$$= 22(1750)/(50) = 513.33 \text{ K-ft}$$

$$= 42.78 \text{ K-ft}$$

$\therefore$  MOMENTS AGREE

FIND  $w$ :

$$M = 42.78 = 27.70 w$$

$$w = 1.54 \text{ K/ft} = 43.25 \text{ K TOTAL}$$