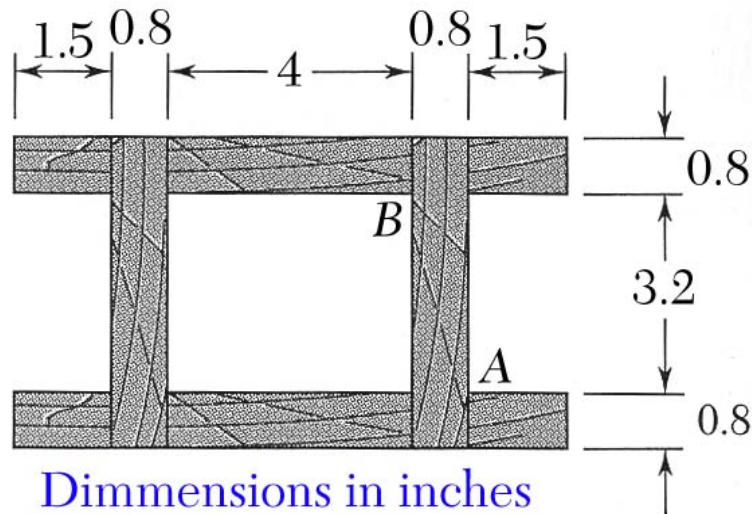


## MEEG 3013 Quiz #6.m17.082

The built-up beam shown was made by gluing together several wooden planks. Knowing that the beam is subjected to a 1500-lb vertical shear, determine the *average* shearing stresses  $\tau_A$  and  $\tau_B$  in the glued joints at A and B, respectively.



$$I = \frac{1}{12}(8.6)(4.8)^3 - \frac{1}{12}(7)(3.2)^3 \quad I = 60.1429 \text{ in}^4 \quad \textcircled{2}$$

(a)

$$\tau_A = \frac{q}{t} = \frac{VQ}{It} = \frac{1500[2(1.5)(0.8)]}{60.1429(0.8)} = 74.82 \quad \tau_A = 74.8 \text{ psi} \quad \textcircled{4}$$

(b)

$$\tau_B = \frac{q}{t} = \frac{VQ}{It} = \frac{1500[2(4)(0.8)]}{60.1429(1.6)} = 99.76 \quad \tau_B = 99.8 \text{ psi} \quad \textcircled{4}$$