Remarks: See §5.4.1, pages 311 till 322

Answer:

a. $\tau_{avg} = 4 \text{ N/mm}^2$

b. $\tau_{\max} = 6 \text{ N/mm}^2$

c. $\tau = 4,5 \text{ N/mm}^2$

d. $\tau_{\max}$ Does not change.

Explanation:

c. The static moment at quarter-height is:

$S_z^a = \frac{1}{4}bh \cdot \frac{3}{8}h = \frac{3}{32}bh^2$

And the shear force is:

$$\tau = \frac{V_z \cdot \frac{3}{32}bh^2}{b \cdot \frac{1}{12}bh^3} = \frac{9}{8}\frac{V_z}{bh}$$

d. $\tau_{\max} = \frac{3}{2}\frac{V_z}{A}$

Because V_z and A do not change, $\tau_{\max}$ also does not change.