

### THERMAL RESISTANCE CONCEPT:

$$L = 0.4\text{m} \quad A = 20\text{m}^2 \quad \Delta T = 25 \quad k = 0.78 \left(\frac{\text{W}}{\text{m}}\right)$$

Rate of the heat transfer through the wall:

$$\dot{Q} = k \times A \times \frac{\Delta T}{L} = 0.78 \times 20 \times \frac{25}{0.4} = 975\text{W}$$

Rate of the heat loss through the wall:

$$R_{\text{wall}} = \frac{L}{kA} = \frac{0.4}{0.78 \times 20} = 0.0256 \left(\frac{\text{C}^\circ}{\text{W}}\right)$$

$$\dot{Q} = \frac{\Delta T}{R_{\text{wall}}} = \frac{25}{0.0256} = 975\text{W}$$