

Short summary about the conductive heat transfer

Conduction as heat transfer takes place if there is a temperature gradient in a solid or stationary fluid medium. With conduction energy transfers from more energetic to less energetic molecules when neighboring molecules collide. Heat flows in direction of decreasing temperatures since higher temperatures are associated with higher molecular energy.

$$\dot{Q} = kA \frac{\Delta T}{L} = 0.78 * 20 * \frac{25}{0.4} = 975 \text{ W}$$

$$R_{wall} = \frac{L}{kA} = \frac{0.4}{0.78 * 20} = 0.0256 \text{ } ^\circ\text{C/W}$$

$$\dot{Q} = \frac{\Delta T}{R_{wall}} = \frac{25}{0.02564} = 975.03 \text{ W}$$