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A short summary about the conductive heat transfer and solving the same exercise with L= 0.4 m, A= 20 m2, DeltaT= 25, and k=0.78 W/m K using both simple method and using the resistance concept.

Heat Conduction Transfer is a process of how Heat transfers to a Solid Body or a Wall and how it affects its current temperature. The thicker the Walls are, the longer the travel of heat, therefore the lesser heat can be transfered to the other side of the wall.

SIMPLE METHOD

$$Q = kA \frac{\Delta T}{L} = \frac{(0.78\ W/m)(20m2)(25)}{0.4} = 975\ W$$

RESISTANCE CONCEPT

$$Rwall = \frac{L}{k\Delta} = \frac{0.4}{(0.78W/m)(20m2)} = 0.025641$$

$$Q = \frac{\Delta T}{Rwall} = \frac{25deg}{0.025641} = 975\ W$$