Conductive heat transfer is the transfer of heat energy through a material when there is a difference in temperature and represented by $\dot{Q}$

-It takes place in all phases of solid, liquid, and gas.

-Heat transfer through a wall is proportional to its area. It is also proportional to the difference in temperature and the conductivity. However, it is inversely proportional to thickness of the wall.

#Task2

L= 0.4 m, A= 20 m2, DeltaT= 25, and k=0.78 W/m K

Simple Method

$$\dot{Q} = kA\frac{\Delta T}{L} = 0.78\frac{W}{mk} * 20m^2 * \frac{25k}{0.4m} = 975W$$

Resistance Method

$$Rwall = \frac{L}{kA} = \frac{0.4m}{0.78\frac{W}{mK}} * 20m^2 \approx 0.02564\frac{K}{W}$$

$$\dot{Q} = \frac{\Delta T}{Rwall} = \frac{25K}{0.02564\frac{K}{W}} \approx 976.6W$$