Week's submission 1

Monday, October 7, 2019 11:29 PM

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

- Conductivity is a willingness of a material to transfer the heat.

  The rate of the heat conduction through a plain wall is proportional to the average conductivity, the wall area and temperature difference, but it is opposite proportional to the wall thickness. (the ticker the wall is, the less heat can come)

  $\dot{Q} = kA \times \frac{\Delta T}{L}$ → → Fourier's law of heat conduction

- Simple metode:

  $\dot{Q} = kA \times \Delta T/L$

  $\dot{Q} = 0{,}78 \times \frac{25}{0{,}4} = 975W$

- Resistance concept:

  $R_{wall} = \frac{L}{kA} = \frac{0{,}4}{0{,}78 \times 20} = 0{,}025641\ C/W$

  $\dot{Q} = \frac{\Delta T}{R_{wall}} = \frac{25}{0{,}025641} = 975\ W$