WEEKLY SUBMISSIONS #1

(1) A short summary about the conductive heat transfer.

(2) Solve the exercise with $L = 0,4\,m$; $A = 20\,m^2$; $\Delta T = 25$; $K = 0,78\ W/mK$ using simple method and resistance concept.

(1) Definition: conductive heat transfer is the transfer of heat internal energy through invisible collisions of particles and movement of electrons within a body. In this case we especially speak about walls, windows and other elements related to architecture. The heat transfer to a wall is proportional to its area and to the difference of temperature and conductivity.

(2) simple method: $\dot{Q} = KA \times \frac{\Delta T}{L}\ (W)$

$$\dot{Q} = 0,78\ \frac{W}{mK} \cdot 20\,m^2 \times \frac{25\,K}{0,4\,m} = 975\,W$$

resistance concept: $\dot{Q} = KA \cdot \frac{T_1 - T_2}{L}\ (W)$

$$\dot{Q} = 0,78\ \frac{W}{mK} \cdot 20\,m^2 \times \frac{298,15\,K - 273,15\,K}{0,4\,m} = 975\,W$$

$$\dot{Q} = \frac{T_1 - T_2}{R_{wall}}\ (W) \qquad \dot{Q} = \frac{298,15\,K - 273,15\,K}{\frac{1}{39}\ \frac{W}{K}} = R_{wall} = \frac{L}{KA}$$