2019年10月16日 星期三

WEEK 2

Convection heat transfer

Heat propagation for convection implies a macroscopic “mass displacement”.
Convection is a characteristic form of heat exchange between a wall and a fluid (liquid or gas).
As a matter of fact, it is the process of heat exchange between a wall and the air.
Convection implies:
• thermal conduction between the wall and the first layer of fluid, which is in contact with the wall;
• heat storage within the fluid particles;
• movement and mix of fluid particles at different temperature.

Mistake

I wrote the wrong units of Q.

Question

$Q = \triangle T / R_{tot} = \triangle T / (1/h_1A + L_{glass}/k_{glass}A *2 + L_{air}/k_{air}A + 1/h_2A) = 56.9\ W$

$Q = (T_e - T_i) / R_{tot} = (T_i - T_{inner}) * h_2$

$T_{inner} = T_i - Q/h_2 = 15.26\ °C$