1. **Write a summary about the convective heat transfer and explain why increasing the thickness of a single pane glass does not increase the total resistance.**

   Convective heat transfer is the transfer of heat from one place to another by fluids. Liquid and gases are considered as fluids, and the molecular movement is the responsible of heat transfer in a natural way. A gas or a fluid can be less dense when are heated. So, fluids tend to elevate over cold regions which are denser.
   Convective heat transfer allows, for example, to heat a room using a radiator or boiling water by only heating the base.

   There´s two kinds of convection, natural convection and forced convection.

   In natural convection, the fluid motion occurs by natural means such as buoyancy. In this case heat transfer is usually slow. On the other hand, in forced convection fluids are forced to move, in order to increase the heat transfer.

   Regarding why increasing the thickness of a single pane glass does not increase the total resistance, is because the thermal conductivity is very low and increasing the thickness doesn't make a significant difference. Besides is an expensive option and there is the chance it could break easily.

2. **About the mistakes I made trying to solve the equations**, mostly was because I didn't convert the units, for example in the problem some units where in mm and I didn't convert them in meters.

3. **Solve the same problem as that of double pane window with the air gap thickness of 13mm and glass thickness of 6mm, comment on your results and explain why we have an optional range for the air gaps distance.**

RT = Rconv1 + Rwall + Rwall2 + Rconv2 =

= 1/(10)(1.2) + 0.004/(0.78) (1.2) + 0.010/(0.026)(1.2) + 1/(40)(1.2) =

= 0.0833 + 0.0042(2) + 0.3205 + 0.0208 = **0.4332** $^{\circ}\frac{C}{W}$

$$\dot{Q} = \frac{\Delta T}{R_{Total}} = \frac{30}{0.4322} = \mathbf{69.41\ W}$$

Student: Sofia Lopez Mendoza