Assignment 1. FTorresPerez

sábado, 5 de octubre de 2019 07:31 p. m.

Conductive heat transfer refers to the way heat is transfered through a specific material.

In the case of a building heat transfer trough one of its walls can be modelled as steady and one-dimensional.

Heat transfer is proportional to its area, to the difference of temperature and to the conductivity, which refers to the willingness of a material to transfer heat. It is also proportional to the thickness of a material. As an example, the thicker the walll, the less heat goes through it.

Exercise:
A= 20 m²
ΔT= 25
K= 0,78 W/mK
L= 0,4 m

*Note: I could´t find the way to put the point over the letter Q

Simple method:

.Q = K · A · (ΔT / L)

.Q = 0,78 · 20 · (25 / 0,4)

.Q = 0,78 · 20 · 62,5

.Q = 15,6 · 62,5

.Q = 975 Watts

Resistance Concept:

RWall = L/(K·A) .Q = (ΔT / RWall)

RWall= 0,4 / (0,78 · 20)

RWall= 0,4 / (15.6)

RWall= 0,02564103

.Q = (ΔT / RWall)

.Q = (25 / 0,02564103)

.Q = 974,999 Watts