

Physics 10154 - Quiz 13A

One side of a house contains a large flat wall with a surface area of 23.0 square meters. An additional 1.3 square meters of the wall is taken up by a single-pane glass window. Assume a difference between inside and outside temperature of 25° C.

The wall consists of three layers:

6.0 cm thick layer of brick ($k = 0.15 \text{ W/m K}$)

15 cm thick insulation ($k = 0.055 \text{ W/m K}$)

2.0 cm thick drywall ($k = 0.40 \text{ W/m K}$)

The window is a single layer of glass ($k = 0.80 \text{ W/m K}$), 0.65 cm thick.

Determine what percentage of heat is lost through the window compared to the wall.