2019年10月22日 星期二

WEEK 3

QUESTION 1

Rparallel = 1/(2/Rp2+1/Rb)

Rair1=1/(hair1*A)=0.4 °C/w

Rair2=1/(hair2*A)=0.1 °C/w

Rfoam=1/(hf*A)=4.615 °C/w

Rplaster1=1/(hp1*A)≈0.37 °C/w

Rplaster2=1/(hp2*A)≈96.97 °C/w

Rbrick=1/(hb*A)=0.1 °C/w

so Rparallel≈1.94 °C/w

Rtot=Rair1+Rfoam+Rplaster2+Rbrick+Rparallel+Rair2≈7.78 °C/w

Q=△T/Rtot=1.29w

when thickness of brick =16 cm,

Rtot≈6.81 °C/w

Q=△T/Rtot=1.47w

overall, we can get the conclusion, increasing the thickness of the brick cannot help efficiently to increase the thermal resistance of the wall.

QUESTION 1

1: Rair1=0.03 °C/w

2: Rwood bevel(13mm-200mm)=0.14 °C/w

3: Rplywood(13mm)=0.11 °C/w

when with insulation:

4: Rurethane rigid foam= 0.98/25*90=3.53 °C/w

when with wood:

4: Rwood studs=0.63 °C/w

5: gypsum board=0.079 °C/w

6: Rair2=0.12 °C/w

Rins=4.01 °C/w

Rwood=1.11 °C/w