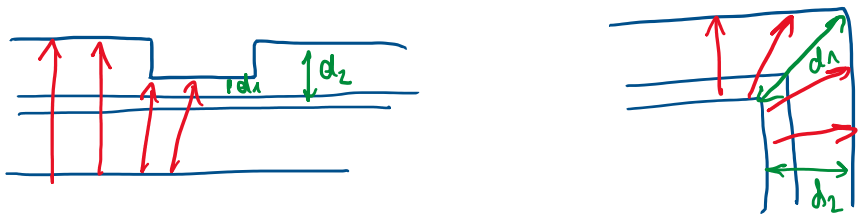
Série 12

Wednesday, 14 April 2021 10:02

Q1



$d_1 \neq d_2 \Rightarrow I_1 \neq I_2 \Rightarrow R_{tot} \neq R_1 + R_2 + R_3$

Q4 α Conductance thermique $\left[\frac{W}{m^2 K}\right]$

$\alpha = h_{conduction} + h_{convection} + h_{rayonnement}$

$\downarrow$

$d < 0{,}020\,m \quad \frac{54d - 0{,}22}{\sqrt[4]{H}}$

$d > 0{,}020\,m \quad \frac{2{,}66 + 1{,}07 \cdot \log d}{\sqrt[4]{H}}$

P1 $R_{tot} = R_{béton} + R_{crépi}$

$R = \frac{d}{\lambda}$

$d_1 = 0{,}1\,m \qquad \lambda_1 = 1{,}8\ \frac{W}{mK}$

$d_2 = 0{,}02\,m \qquad \lambda_2 = 0{,}7\ \frac{W}{mK}$

$R_{tot} = \frac{d_1}{\lambda_1} + \frac{d_2}{\lambda_2} = \frac{0{,}1\,m}{1{,}8\ \frac{W}{mK}} + \frac{0{,}02\,m}{0{,}7\ \frac{W}{mK}} = 0{,}085\ \frac{m^2 K}{W}$

Flux : $J = S \cdot \frac{\Delta\Theta}{R} = 10\,m^2 \cdot \frac{15\ °C/K\ !}{0.085\ \frac{m^2 K}{W}} \approx 1765\,W$

P2 "Sandwich" mur :

Densité de flux constant

$\Rightarrow I_1 = I_2 = I_{tot}$

$\frac{J}{S} = \frac{\Delta\Theta}{R} \Rightarrow \frac{\Delta\Theta_i}{R_i} = \frac{\Delta\Theta_{tot}}{R_{tot}}$

$\rightarrow \Delta\Theta_i = \frac{R_i}{R_{tot}} \cdot \Delta\Theta_{tot}$