

Calculating the U-Value for an element with two layers and resistance of surface internal and external. Resistance of surface

$$R_{se,1} = 0.04 \frac{m^2K}{W}$$

$$R_{si} = 0.13 \frac{m^2K}{W}$$

Parameters for elements

$$d_1 = 0.20 \text{ m}$$

$$\lambda_1 = 0.04 \frac{W}{mK}$$

$$d_2 = 0.10 \text{ m}$$

$$\lambda_2 = 0.50 \frac{W}{mK}$$

Calculate thermal resistance

$$R = R_{se,1} + \frac{d_1}{\lambda_1} + \frac{d_2}{\lambda_2} + R_{si} = 0.04 + \frac{0.20}{0.04} + \frac{0.10}{0.50} + 0.13 = 6.08 \text{ asd}$$

Calculate U-Value

$$U = \frac{1.00}{R} = \frac{1.00}{6.08} = 0.16 \frac{W}{m^2K}$$