

Tes

Sunday, 20 October 2019 23:04

$$R_{p_{c_1}} = R_{p_{c_2}} = \frac{L_{p_{c_1}}}{k_p \times A_{p_{c_1}}} = \frac{0.32}{0.22 * 0.015} = 96.97 \text{ }^{\circ}\text{C/W}$$

$$R_b = \frac{L_b}{k_b \times A_b} = \frac{0.32}{(0.72 * 0.22)} = 2.02 \text{ }^{\circ}\text{C/W}$$

$$\frac{1}{R_{tot_{parallel}}} = \frac{1}{R_b} + \frac{1}{R_{p_{c_1}}} + \frac{1}{R_{p_{c_2}}} = \frac{1}{2.02} + (2 * \left(\frac{1}{96.97}\right)) = 0.52 \text{ }^{\circ}\text{C/W}$$

$$\frac{1}{R_{tot_{parallel}}} = 0.52 \frac{^{\circ}\text{C}}{\text{W}} \rightarrow R_{tot_{parallel}} = \frac{1}{0.52} = 1.92^{\circ}\text{C/W}$$

$$R_{p_1} = R_{p_2} = \frac{L_{p_1}}{k_p \times A_{p_1}} = \frac{0.02}{(0.22 * 0.25)} = 0.363 \text{ }^{\circ}\text{C/W}$$

$$R_o = \frac{1}{h_o \times A} = \frac{1}{(40 * 0.25)} = 0.1 \text{ }^{\circ}\text{C/W}$$

$$R_{total} = R_i + R_o + 2 * R_{p_1} + R_{tot_{parallel}} + R_{foam}$$

	$= 0.4 + 0.1 + (2 * 0.363) + 1.92 + 4.615$
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$$R_{total} = 7.461 \text{ }^{\circ}\text{C/W}$$

Therefore the size of the bricks doesn't matter, but instead the insulation should be changed.