

Lesson 7b, Screen 8: Composite Wall R-Values

Example 11

What is the R-value of a wall that is made up of wood siding ($R= 0.81$), 5" of fiberglass ($R=3.70$ per inch), and a layer of .5" drywall ($R=0.45$)?

Here we have, again a wall made up of three different layers. The first layer is wood siding which is outside, obviously, and its R-value is given as 0.81, whatever the thickness might be of that wood siding. And we have a second layer of fiberglass. And this fiberglass thickness is given as 5" and its R-value is given as 3.7 per inch. So we are using 5 inches so 5 times 3.7 would be 18.50. And we have a third layer of a drywall and this drywall has an R-value of 0.45, half inch drywall.

Wood siding		0.81	
5" fiberglass	3.7/inch	18.50	(5 x 3.7) = 18.50
Drywall		<u>0.45</u>	
Total R-value		19.76	

When you add all these three layers up, you get a total R-value of 19.76.

So the answer is 19.76 degrees F, foot squared, hour over BTUs. This is the composite R-value.

$$\text{Composite R-value} = 19.76 \frac{\text{°F ft}^2 \text{ h}}{\text{BTU}}$$

$$\begin{array}{r} \text{Wood Siding} \quad 0.81 \\ 5'' \text{ Fiber glass } 3.7'' \quad 18.50 \\ \text{Drywall} \quad 0.45 \\ \hline 19.76 \end{array} \frac{\text{Ft}^2 \cdot \text{h}}{\text{Btu}}$$

Click PLAY to view the solution.



REPLAY

