

Lesson 7b, Screen 9: Composite Wall R-Values

Example 12

A wall is made up of 8" of stone, 3" of polyurethane board, and 0.75" of plywood. Calculate the composite R-value for the wall.

This is a problem where we have three layers for a wall and those three layers are made up of stone, polyurethane board and plywood. The first one is stone and its thickness is 8" and each inch of stone wall will provide an R-value of 0.08. Therefore, all these 8" together would provide 0.64. And the second layer is made up of 3" of polyurethane and each inch provides an R-value of 6.25, therefore, together, all 3" would provide an R-value of 18.75. The third layer is again three quarters inch plywood and it provides an R-value of 0.94. So all these three together would have an R-value of 20.33 or the composite R-value is 20.33 degree F, foot squared, hour over BTUs.

8" stone	0.08/inch	0.64
3" polyurethane	6.25/inch	18.75
0.75" plywood		<u>0.94</u>
		20.33

$$\text{Composite R-value} = 20.33 \frac{\text{°F ft}^2 \text{ h}}{\text{BTU}}$$

8" Stone	$0.08/\text{in}$	0.64
3" Polyurethane	$6.25/\text{in}$	18.75
0.75" Plywood		0.94
		20.33

$20.33 \frac{\text{°F ft}^2 \text{h}}{\text{BTU}}$

Click PLAY to view the solution.



REPLAY

