

Thermal Bridging, it's just a walk through the woods!

Thermal bridging, thermal resistance, R-value, thermal envelope, and thermal energy (hot or cold) are terms that get used a lot when describing how long a home will stay at a desired temperature and how much money you're going to spend to keep it at that temp. I see eyes gloss over a lot when I'm talking about this, but it is very important!

So, let's go for a walk through the woods to go get some pizza and I'll explain!

The woods are a good example of a *thermal envelop*. It's between us and the pizza shop on the other side, but there are several paths we can use to get through the woods. The paths vary from really hard to fairly simple to use, this is an example of *thermal resistance* or *R-Value*. The paths that make it easiest for us to get from one side of the woods to the other is an example of *thermal bridging*. We are playing the part of *thermal energy* (*energy* for short).

We want to cross the woods as easily and quickly as possible to get to the pizza shop on the other side. Time to choose our path!

Our first choice is going straight through the woods right in front of us, but there is no path and the woods look really thick, we might not be able to get through here at all! This would be an example of a high *R-value* of R49 to R60, very little to no *energy* passes through this type of *R-value*.

Just to the left of us there is path, but it looks blocked and we can't see down it. It might take us a while to use this path depending on how much the path is blocked. This would be an example of an *R-value* of R13 to R30, *energy* can get through these ratings it just takes longer the higher the *R-value* number.

To our right there is another path and that path looks fairly clear, maybe a little overgrown but not bad and I swear I saw the pizza shop on the other side though the brush! This is an example of an *R-value* of R6 to R12. *Energy* will pass through these ratings but with varied resistance.

This is the path for us, let's go get some pizza! As we start down the path and get past the over growth we saw, we find out that the path is now paved and goes straight to the pizza shop that we can easily see! This is an example of a low *R-value* of R1 to R4, *energy* passes through with very little resistance. Let's put a sign up for all of our friends to use this path!

Energy is going to *thermally bridge* the *thermal envelope* by using the easiest and simplest path available to it, like us in the example above. Solid framing and window *R-values* range between R1 to R8 so there is lots of paths for *energy* to choose from in a standard home to go through and around the insulation.

Congratulations! Now you know the basics of *thermal bridging, R-value, and the thermal envelope* and how they relate to *thermal energy* getting from outside to inside your home. Now, let's put it to good use!