

## “Nothing Insulates Like Insulation”

### A Key Ingredient of A High Performance Home

Guest Column,

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In previous articles, we defined a High Performance Home and talked of the significance of energy saving windows and doors. Today we will explore insulation and its importance. As more evidence pours in to indicate the damage done by global warming, the need to build High Performance Homes becomes even greater.

First a definition from Wikipedia on the internet: “Insulation resists the flow of heat. Heat is a form of energy - it always travels from hot to cold - flowing outward in winter and inward in summer. By reducing heat flow, a properly insulated home uses less energy in winter for heating and less in the summer for cooling.” Here the operative term is “properly insulated”. There are several good products out there and they must be correctly installed to meet their potential.

Some of the different insulation materials common to our area are: Fiberglass, Cellulose, Rockwool, and Foam. Exotics like earth berms, hay bales, used tires have yet to make their way into the mainstream of construction. For most applications they are not the best method to insulate your new home. For the insulation to function as it should, it needs to fill the voids in the wall cavity and provide coverage overhead as well.

Fiberglass may be installed stuffed into the wall cavity as a batt, either faced or unfaced. Imagine a thick blanket of spun glass fibers encapsulated in a paper bag that has a vapor retardant. Alternatively it could be that same thick blanket without the paper. Either way it is typically manually placed in the cavity by the installer, making sure to not crush the insulation, leaving it as fluffy as possible to maximize the dead air space that it contains. Another method of installing fiberglass is to blow it into the wall cavity with a glue to hold it together or placing a net over the studs in the wall to hold it in place until the wall receives sheetrock. Cellulose, made

from recycled paper and treated with chemicals to retard burning and Rockwool made from fumed ceramic are similarly installed.

Foam is applied as a wet ingredient and expands to fill the cavity. It is interesting to watch the application as it looks as though the installer is spraying the wall cavity with paint and then it starts to grow several inches thick filling all cracks and voids in an extremely efficient manner. As you might guess it is my favorite type of insulation. Its only drawback is the cost which is considerably higher than the other types, but has impressive results and a quick payback due to lower utility bills.

The next consideration is how to insulate the area overhead. We can blow any of the above mentioned types of insulation on the top of the sheetrock that forms the ceiling. Or better yet, the latest method is to insulate the underside of the roof to make the entire attic space sealed from the environment and keeping the typically attic installed HVAC system in an insulated space. I have measured temperatures in the attic many times during the summer to try to get some idea of what is happening up there. The range during the hottest part of the day is around 160 degrees f. in an attic where the ceiling has been insulated. Surprisingly it is only 85f where the underside of the roof has been insulated. With a sealed attic space the HVAC systems just works better.

Now it's time for the myth busting. Ventilating your attic will lower your utility bills, right? Wrong! You would need a ventilation hole big enough to fly a Cessna aircraft through to get any relief from the heat that builds up in the attic space. So why not just insulate the underside of the roof and make the entire attic cooler? I bet I get some emails on that one. And you can too. Just use the address below.

In the thirty years that I have been building there have been a lot of changes. I'm disheartened when I see people building them like we did 15 years ago because they have not kept up with the technology. Here are some helpful links if you would like to know more:

For Joe's Top Ten list of the dumb things that builders do in the south go to <http://www.eeba.org/resources/dumbsouth/index.html>

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For information about the Energy Star Program go to  
<http://www.energystar.gov/>

Demilec, a company that sells form insulation:  
<http://www.sealection500.com/dem/s500/index.php>

In my next article “What do I mean by building Green”.

For comments about this article contact Ronnie Godfrey at  
RGodfreyHomes.com or call 817 988 0149.

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