



June 28, 2004

Dave Lall
Demilec USA LLC
2925 Galleria Drive
Arlington, TX 76011

RE: *The “R” Value Myth According to EnergyWise Structures*

Dear Mr. Lall,

Manufacturers of spray foam insulation have been noticing higher “effective” or “performing” thermal resistance when compared with traditional loose-fill insulations such as fiberglass and cellulose. There are a number of ASTM tests (C177, C518, C236, etc.) to determine “R” values; all of these tests are variations of a guarded hot box. On one side you have a hot plate, and on the other side a cold plate in which a sample of material is placed. Then the material in the chamber is allowed to reach “steady state” at 75°F mean temperature between the plates, which means that the sample is totally “saturated”. In this state basically all insulation materials (except for urethane foam) are going to test out at between and R-3 to an R-4 per inch. What these tests don’t tell you is the amount of time that it takes for the different materials to reach “steady state”. Materials with low air permeance properties have the ability to retard the conductive heat flow (such as SEALECTION™ 500) which takes much longer to reach steady state, because they have a higher thermal inertia (the ability to collect and store heat).

A real world comparison would be like when you go to a convenience store and purchase a cup of coffee—coffee that is between 180 to 200 degrees Fahrenheit that you pour into a foam cup that is approximately 1/8 inch thick, and you don’t burn your hand. And yet under current test procedures, that product has the same inch per inch R-value as one inch of fiberglass insulation. When you use products like SEALECTION™ 500 foam in the walls, floors and attic of a structure what you have is a very air-tight system that provides the structure with a complete monolithic seal. This type of efficient, air-tight thermal envelope cannot be accomplished with stick-frame and fiberglass construction.

We at EnergyWise have done over 400 blower door tests on different structures, and I can tell you that the average stick-built, fiberglass constructed building will normally average between 3½ to 7 ACH (air changes per hour) when tested at a pressure difference of 40 to 50 Pascals. The same type of structures insulated and caulked properly with SEALECTION™ 500 foam insulation under the same test conditions will average between 1 and 2½ ACH. So you see, R-values are just part of the equation.

That is why at EnergyWise, on structures insulated with SEALECTION™ 500 we use the following values for our engineering loads:

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| 1.) Attic Insulation | 6" SEALECTION™ 500 insulation in place of R-45 Fiberglass Insulation |
| 2.) Vaulted Ceilings | 5 ½" SEALECTION™ 500 insulation in place of R-41 Fiberglass Insulation |
| 3.) Underfloors | 5 ½" SEALECTION™ 500 insulation in place of R-41 Fiberglass Insulation |
| 4.) 2" x 4" Walls | 3 ½" SEALECTION™ 500 insulation in place of R-26 Fiberglass Insulation |
| 5.) 2" x 6" Walls | 5 ½" SEALECTION™ 500 insulation in place of R-41 Fiberglass Insulation |

We feel the secret to true energy efficiency is the proper selection and installation of materials, air infiltration control and HVAC sizing.

I look forward to hearing from you and working with you in the future. If I can be of any further help, please feel free to contact me.

Sincerely,

Richard L. Rue

President

EnergyWise Structures