



## **Exposing the Myth of R-Value as the Only Way to Evaluate Insulation**

For years, the performance of insulation has been gauged by its R-value. The general rule of thumb has been the higher the R-value, the more effective the insulation. The truth is, higher R-value doesn't mean better consumer value.

R-value is the numeric value given to an insulation material that is measured in a controlled laboratory setting. So, how can we consider R-value as the be-all and end-all of an insulation's ability to control airflow, energy loss and condensation in a real world situation? While it is a way of measuring heat transfer from one material to another (conductive heat flow), it is not a true measure of an insulation material's performance.

### **Is There a Better Way to Evaluate Insulation?**

There are three components to consider when measuring the effectiveness of insulation.

#### **1. R-Value**

Contrary to popular belief, all insulation material of equal R-value will not perform equally in your walls and ceilings. While insulations of equal R-value perform the same in the controlled conditions of a laboratory, they do not all maintain the same R-Value in the walls and ceilings of a building. Some off-gas over time, diminishing in thickness and efficiency. If there are gaps between the insulation and other building materials (as is often the case with batts), the effective R-value of the insulation can be reduced by as much as 50 percent from the maximum R-value rated on a product. A high performance insulation like Icynene does not off-gas, sag or settle. Therefore, its ability to totally seal a home and create a complete air barrier has greater consumer value. Icynene's R-value will not diminish over time.

#### **2. Vapor Permeance (perm rating)**

Vapor permeance measures the rate at which the insulation material diffuses moisture. The lower the perm rating, the better. Ideally, insulation should allow low rates of moisture diffusion to occur, just enough to let adjacent building materials breathe in order to prevent moisture entrapment. Icynene insulates and air-seals to significantly reduce heat and moisture flow through the building envelope. This is an important factor in combating condensation and mold growth within the walls and ceilings.

#### **3. Air Permeance**

An insulation material that doesn't completely fill the entire cavity results in air pockets, which permit air movement within the cavity. Condensation inside walls, ceilings, floors and attics occurs when warm, moist air is allowed to pass through or around insulation and contacts a cold surface. Icynene is proven to deliver optimal airtightness to minimize airflow through the building envelope. It fills every crevice and acts as an air barrier to restrict air leakage, removing up to 99 percent of airborne moisture movement in a structure. Icynene is both an insulation and air barrier system that provides advanced moisture management to significantly reduce the potential for mold and mildew growth. By minimizing air movement and introducing mechanical ventilation, your home can be healthier, quieter, and more energy efficient.

This all-encompassing triad provides a realistic, more accurate reading of how insulation performs in a real world situation. And no other insulation material delivers the full proven solution like The Icynene Insulation System.