

# The Performance Value of Spray Polyurethane Foam

Spray polyurethane foam (SPF) is more than just insulation: it can also be an air barrier and a vapor retarder. This multi-purpose building material has many performance properties. There are different types of spray foam, and each provides unique benefits. The chart below shows a few of the performance properties of each type of spray foam.

|   | Low Density or Open Cell SPF | Medium Density or Closed Cell SPF | Closed Cell Roofing SPF |
|---|------------------------------|-----------------------------------|-------------------------|
| Thermal Performance: R-Value <sup>1</sup> | 3.6-4.5 per inch             | 5.8-6.8 per inch                  | 5.8-6.8 per inch        |
| Air Barrier                               | ✓                            | ✓                                 | ✓                       |
| Vapor Retarder: Class II rating           |                              | ✓                                 | ✓                       |

## Thermal Performance & R-Value

R-value measures a material's resistance to heat transfer. Higher R-values mean that the material is more resistant to heat passing through it, making the material a better insulator. R-values are often listed at 1-inch depth for ease of comparing insulation products. To find out the R-value for a specific insulation, refer to the product's label or technical data sheets, often available online.

Open cell foam, closed cell foam and roofing foam can all provide high R-values and act as effective insulations.

<sup>1</sup> R means resistance to heat flow. The higher the R-value, the greater the insulating power. Ask your seller for the fact sheet on R-values.



## Air Barriers & Permeability

SPF is also an air barrier, meaning it resists airflow between conditioned and unconditioned spaces. Air barriers are important considerations in building science because they can improve insulation performance and indoor air quality.

Ever wonder why leaving the refrigerator door or the top of your ice chest open significantly decreases its performance? The refrigerator or ice chest materials have not changed, but now you have introduced air flow into the equation. As warm air moves into a cold refrigerator or ice chest, it has the same effect as warm air moving into an air-conditioned home or building. The air flow impacts the climate, both inside your refrigerator and inside a building.

Air barriers also help keep pollen, dust, insects and other undesirables from entering the home or building through cracks or crevices in the wall assemblies. Spray polyurethane foam adheres to the walls, boards and studs of your home, creating tight seal that limits potential intrusions.

## Vapor Retarder

Closed cell spray foam often qualifies as a Class II vapor retarder, as defined by the International Residential Code. A vapor retarder works to prevent moisture (water vapor) from easily passing through the building material. Good building design and practices include controlling the movement of moisture inside and outside of a home or building. Excessive moisture inside a building has the potential to facilitate mold growth and degrade building or home performance and building material service life.

## Spray Foam: More than Just Insulation

When you are considering different types of insulation, choose a product that offers more. Spray polyurethane foam can provide effective R-values, act as an air barrier, and prevent moisture infiltration. Learn more about the benefits of spray foam at [www.whysprayfoam.org](http://www.whysprayfoam.org)

Neither the ACC, Spray Foam Coalition, nor the individual member companies of the Center for the Polyurethanes Industry of the ACC, nor any of their respective directors, officers, employees, subcontractors, consultants, or other assigns, makes any warranty or representation, either express or implied, with respect to the accuracy or completeness of the information contained herein; nor do the ACC, SFC or any member companies assume any liability or responsibility for any use or misuse, or the results of such use or misuse, of any information, procedure, conclusion, opinion, product, or process disclosed in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

©2012 American Chemistry Council, Inc.