The Spray Polyurethane Foam (SPF) Advantage:

Understand why SPF is an excellent insulation choice for your home or building.

Insulating a new home or improving the comfort and energy performance of an existing one is a decision that will have a lasting impact. It's important that homeowners and building owners have the facts when selecting an insulation product for their project. Understand the **SPF Advantage** and learn why SPF products are an excellent insulation choice for your home or building.

Thermal Performance:

SPF can offer the highest R-value per inch, which means greater potential energy savings.[1] Typical R-values for SPF range from 3.5-7.0 per one inch of thickness. The higher R-value allows certain SPF products to provide the same energy savings in half the amount of space that may typically be required.[2]

There are 113 million single-family homes in the United States. If each of these homes used SPF, Americans could SAVE up to $33 billion in energy costs each year.[3]

Insulation + Air Sealing:

SPF helps minimize air leaks in walls and roofs, saving a typical homeowner up to 15 percent on heating and cooling costs alone.[5] SPF expands in place to insulate and seal the spaces seen and unseen. This unique application process allows SPF to create a layer of protection that provides a consistent air seal for any wall, roof, ceiling, or floor.[6]

Select the right SPF product for any project size and type.

- High-pressure two-component SPF is manufactured in open-cell and closed-cell, and can be used for larger projects. Higher-density SPF foam can be used for roofing projects as well.
- Low-pressure two-component SPF kits are offered in open-cell and closed-cell, which may be used for smaller jobs. The SPF kits can be used for insulation or air sealing, or both, depending on the product.
- One-component foams can offer a great solution for air sealing around windows and doors.

Consult an SPF professional or manufacturer to select the right option for your project.

As much as 40 percent of a building's energy is lost due to air infiltration.[4]

The **SPF Advantage** means that installing SPF in your home or building provides more than insulation

Indoor Comfort:

The **SPF Advantage** can improve the comfort of your living and work spaces:

- Sealing a building's air leaks prevents drafts, providing better indoor temperature control and creating a more comfortable indoor environment. In areas with extreme climates, good indoor temperature control can have a dramatic effect on household comfort.
- Sealing gaps with spray foam can provide a barrier against pollen, dust and insects. Reducing external allergens can be especially helpful in households with allergy sufferers.
- Spray foam helps minimize air-borne sound transmission. Open-cell foam can reduce high frequency noise, and closed-cell foam can reduce low-frequency noise. A combination of open- and closed-cell foams can help maximize noise reduction.[7]

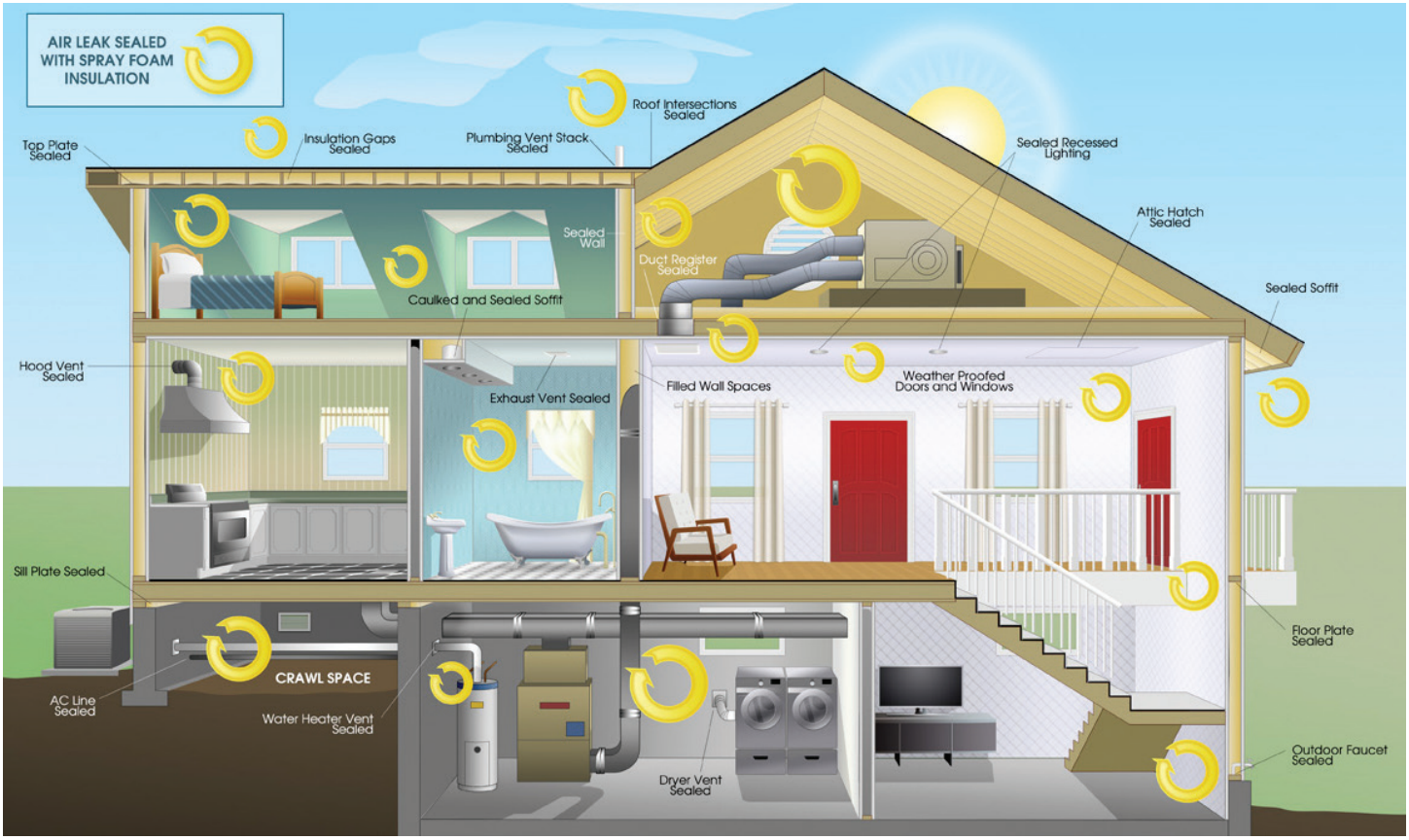
Quality that Lasts:

The unique application process and adhesion properties of SPF make it an attractive choice for many complex applications, such as cathedral ceilings or uniquely shaped spaces. SPF does not require labor-intensive wire supports, netting, or fasteners to remain in-place. In addition, the cellular structure of SPF does not sag or settle over time, delivering consistent high-performance results year after year.

In one study, a roof deck insulated with closed-cell SPF was demonstrated to withstand wind speeds found in category 4 hurricanes (130-156 mph).[10]

Single-Step Solution:

Selecting certain types of SPF products can help you meet multiple objectives like insulating, air sealing, and water proofing with one product installed by one contractor. This can help any project cut down on waste and inefficiencies created by having to hire two or more contractors to install multiple materials.



- **Closed-cell foam products are the only insulation recognized as Class 5 flood-damage resistant materials by the Federal Emergency Management Agency (FEMA).**[8] For this reason, FEMA recommends the use of closed-cell insulation where water contact is likely—like under floors, or on basement or crawlspace walls—to mitigate losses in a flood event and reduce the risk of mold growth.
- Closed-cell SPF products can also be used to create stronger walls and increase resistance against wind uplift in high wind events. **Testing has shown that two inches of closed-cell SPF can provide up to 300 percent increased racking resistance in typical wall construction**.[9] In addition, many products have been tested to show increased performance in high wind events when the SPF is installed in direct contact with the roof deck, helping to glue together the assembly and provide uplift resistance.[10]
- **Open-cell SPF allows for bi-directional drying.** For example, should a roof leak occur, the open-cell structure allows moisture to pass through the SPF. This can allow homeowners to address the roof leak properly without having to remove and replace the SPF. Once dry, the open-cell will continue to provide thermal performance.

Ask your local professional which SPF product is right for your job.

Professional Installation:

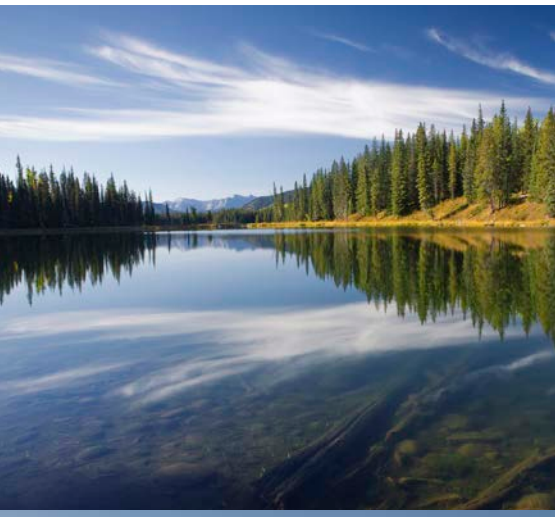
Trained, professional SPF installers can help you select the right product and communicate the necessary safety precautions. The SPF industry supports training professionals on the proper installation techniques and third-party organizations like the Spray Polyurethane Foam Alliance offer installer certification programs.[11] When professional installation is needed, ask your SPF contractor about their training and certification credentials.

Safety First:

Certain SPF products should be installed by a trained contractor. The versatility and unique performance attributes of SPF products are created on-site. SPF is applied as a liquid that quickly expands to form a fully-cured foam insulation.

The application process will require you to vacate your home or building during the application and, possibly, for up to 24 hours after installation.[12] Always consult with your SPF professional to understand responsible installation practices.[13]

Projects of all sizes and types can benefit from the **SPF Advantage**. Choose the right SPF product for your specific project and application needs – from high-pressure, low-pressure kits, or one-component foam cans. Installation practices and requirements can vary depending on the project type and SPF product used. Always consult manufacturer directions for safe handling and use instructions.



Sustainability:

The SPF industry has published full Life Cycle Assessments[14] and Environmental Product Declarations[15] to help you make an informed decision. **As an example, according to the industry Life Cycle Assessment report, installing open-cell SPF can save the equivalent greenhouse gases created during the manufacturing process through energy savings in less than six months in some climates**.

Looking for an insulation product that will help meet sustainability goals?

Energy-efficient products like SPF can help builders earn credits for green building certification programs and other sustainability standards. Consult your SPF professional or manufacturer for information on SPF products with unique properties like recycled content or bio-based components.

Quality = Savings:

Investing in a quality SPF product today can pay bigger dividends in the future. Talk to your SPF professional to learn how the **SPF Advantage** can help cut energy use, save you money on monthly utility bills and make your home more comfortable throughout the year.

Building a new home or starting a major renovation? Ask how SPF can help you "right-size" your heating and cooling system, since SPF will help your building or home operate more efficiently. In fact, the monthly energy savings on utilities may exceed the cost of financing the insulation within the mortgage of a new home. Energy efficiency tax credits or incentives may also be available for your project.

Questions?

To get the facts on safety, quality, and performance, speak with your local SPF professional today or visit **www.whysprayfoam.org** for more information on the benefits of insulating with SPF.

Savings vary. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

Endnotes

1. R-value is a term used to rate an insulation's ability to resist conductive heat transfer. The higher the R-value, the more effective the insulation is at reducing conductive heat flow.

2. See U.S. Department of Energy's website for a comparison of available insulation materials: http://www.energy.gov/energysaver/types-insulation.

3. Savings based on estimates from the American Chemistry Council Economic Department using 2013 industry data.

4. See U.S. Department of Energy's ENERGY STAR website: https://www.energystar.gov/index.cfm?c=new_homes_features.hm_f_reduced_air_infiltration

5. Visit the U.S. Department of Energy's website to learn more about the value of air sealing here: https://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_methodology.

6. Some assemblies may require caulking at framing seams and joints to create a complete air barrier system for the building enclosure.

7. https://www.whysprayfoam.org/wp-content/uploads/2014/08/Spray_Foam_Magazine_December_2009_Sound.pdf

8. Information on FEMA's designation of close-cell SPF as flood-resistant insulation is available at: https://www.fema.gov/media-library/assets/documents/2655.

9. Three separate studies were conducted on SPF racking strength: Testing and Adoption of Spray Polyurethane Foam for Wood Frame Building Construction (May 1992), prepared by National Association of Home Builders (NAHB) Research Center for The Society of the Plastics Industry/Polyurethane Foam Contractors Division; Test results reported by Bob Dewey, Mechanical Engineer, NAHB Research Center to Mason Knowles, The Society of the Plastics Industry/Spray Polyurethane Foam Division (November 1996); and Architectural Testing Inc., 2006 Racking Performance Tests.

10. A 2007 study conducted by Dr. David Prevatt at the University of Florida's Department of Civil and Coastal Engineering examined closed-cell SPF's ability to increase the structural integrity of roof assemblies in high wind events like hurricanes.

11. http://www.sprayfoam.org/certification

12. Always consult the product manufacturer to determine the recommended reoccupancy time for the particular job and SPF in use.

13. The SPF industry maintains an extensive library of products stewardship information and helpful practices for the safe handling and use of products. Visit www.spraypolyurethane.org for more information.

14. The SPF Industry's Life Cycle Assessment report for open-cell, closed-cell, and roofing foam is available at: http://www.sprayfoam.org/files/docs/SPFA%20LCA%20Long%20Summary%20New.pdf.

15. SPF Industry Environmental Product Declarations for open-cell, closed-cell, and roofing foam are available at: http://productguide.ulenvironment.com/SearchResults.aspx?BrandID=1807.

American® Chemistry Council | Spray Foam Coalition

The SFC Code of Conduct is annual commitment signed by systems house members. The Code of Conduct provides a framework to drive continuous improvement in health and safety and product stewardship.

For more information, visit:
https://polyurethane.americanchemistry.com/Spray-Foam-Coalition
www.whysprayfoam.org

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