

Energy and the Environment

Energy Efficiency

According to a 2002 US Department of Energy report, heating and cooling costs amount to 50-70% of the energy used in the average American home. With the costs of heating and cooling going up, this is a concern of most home and building owners. Most of us know to turn off the lights to conserve energy but don't think to look to insulate our homes/buildings to more efficiently heat and cool them.

Builders and architects are now turning to spray polyurethane foam (SPF) to curb these problems. SPF is one of the most efficient insulation materials on the market today for roof and wall insulation, insulated windows and doors, and air barrier sealants.

Why is SPF Energy Efficient?

- Polyurethane foams have one of the highest insulating R-values per inch of all the available products on the market today. With typical values ranging from 3.5 to 6.0 per inch, it is possible to maximize efficiency, increase space utilization and reduce operating costs, while having thinner walls and a lower profile roofs.
- Studies show that increasing the thickness of your roof insulation by 1+ or more about the ASHRAE required thickness significantly reduces your energy costs.
- SPF sealants that are applied to cracks around window frames expand to fill energy-wasting (escaping) gaps around the window, which increases your buildings energy efficiency.
- Energy studies performed by Texas A & M on their own roofs show the energy cost reductions obtained by applying SPF to more than 8 million square feet of roofing paid for the cost of the retrofit in a little over three years.
- Cool roofs (using reflective plastic coverings over SPF insulated roofs) bounce sunlight and radiant heat away from a building, helping the structure stay cool and reducing energy use for cooling.

Energy Calculators:

- <http://www.eere.energy.gov/consumer/calculators/>
- <http://www.specright.net/>

Green Building Programs

The Green Building Initiative (GBI)

GBI was formed to bring green building into the mainstream by helping local home builder associations develop their own green building programs based on the National Association Home Builders (NAHB) Model Green Home Building Guidelines. Soon after development of this residential program, GBI introduced the successful Canadian based commercial building program known as Green Globes to U.S. commercial builders.

Residential

The GBI supports NAHB's Model Green Home Building Guidelines. These guidelines are an aid to local home builder associations (HBA's) and communities who want to create their own voluntary green building programs. These guidelines can be a resource for home builders and for other communities wishing to create their own green building program. More information and the guidelines themselves can be found on the residential section of GBI's website [here](#).

Commercial

Green Globes is a performance based green building rating system. Much like LEED, this system awards a building owner a rating based on the %greenness+ of a building decided by the Green Globes program. It is a web based program which makes it easier and less costly to use than LEED according to GBI. It is an additional tool used to judge the greenness of a commercial building and give credit to the builder and building owner for going above and beyond what is required by code. Look here on GBI's commercial section for more information on Green Globes.

LEED

Energy Star

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping home and building owners save money and protect the environment through energy efficient products and practices. In the home, energy efficient choices can help families save about a third on their energy bill with similar savings of greenhouse gas emissions, without sacrificing features, style or comfort.

Homes that earn the ENERGY STAR must meet guidelines for energy efficiency set by the EPA. ENERGY STAR qualified homes are at least 15% more energy efficient than homes built to the 2004 International Residential Code. ENERGY STAR qualified homes can include a variety of energy-efficient features, such as effective insulation, high performance windows, tight construction and ducts, efficient heating and cooling equipment and ENERGY STAR qualified lighting and appliances.

For more information, log on to energystar.gov.

Federal Tax Incentives

Spray Polyurethane Foam (SPF) will enable homeowners, commercial building owners, and builders and manufacturers of new homes to take advantage of tax credits available as part of the Energy Policy Act of 2005. A tax credit is different from a tax deduction in that it reduces the amount of income tax you have to pay versus reducing the amount of income subject to tax.

Homeowners

Under the Energy Policy Act of 2005, homeowners can take a credit of 10% of the cost up to \$500 for installing spray polyurethane foam as an insulation material. This tax credit only applies to the cost of the insulation materials and not the labor costs associated with the installation of these materials. Installations must be done after December 31, 2005, and before January 1, 2008 to qualify for the tax credit.

For more information on this tax incentive for homeowners, consult the following helpful links:

- [Tax Incentives Assistance Project \(TIAP\)](#)
- [IRS Notice 2006-26](#)
- [IRS](#)
- [Energy Star](#)

Commercial Building Owners

A business owner or tenet of a new or existing commercial building that is constructed or re-constructed to save at least 50% of the heating, cooling, ventilation, water heating, and interior lighting energy costs over a building that meets ASHRAE Standard 90.1-2001 is eligible for a tax deduction of up to \$1.80 per square foot. Partial deductions of \$0.60 per square foot are available for improvements to the building envelope, lighting, or heating and cooling systems that reduce the total heating, cooling, ventilation, water heating, and interior lighting energy use by 16 2/3%.

For more information on this tax incentive, consult the following helpful links:

- [Tax Incentives Assistance Project \(TIAP\)](#)
- [Energy Star](#)

Builders and Manufactures

Builders or manufacturers of homes are able to receive a \$2000 tax credit if they build homes projected to save at least 50% of the heating and cooling energy over a comparable home. A comparable home is one that meets the standards of the 2003 International Energy Conservation Code. Manufactured home producers are able to receive a \$1000 credit if they produce homes that save 30% of the heating and cooling costs or that qualify for the Energy Star Homes program. These credits are available for homes placed in service and ready for use from January 1, 2006 through December 31, 2008.

Sustainability / Life Cycle Costing

Adverse Weather Performance

SPF roofing systems have exceptional sustainability characteristics. They save energy, are resistant to high winds, protect the substrate against damage from hail and wind driven missiles, and are renewable. SPF has proven durable during recent hurricanes, during hail storms, and other adverse weather conditions.

RICOWI

RICOWI (Roofing Industry Committee on Weather Issues) is a non-profit organization that works to identify and address important technical issues related to the cause of wind and hail damage.

SPFA is a member of this committee and has done work in the past to help coordinate and execute research after such weather-related incidents such as Hurricanes Hugo, Charley, and Francis.

RICOWI's research and investigation after these events has shed light on the durability of spray foam roofing during these catastrophic events.