CertainTeed

Retrofitting & Weatherizing

Fiber Glass Insulation

CertainTeed
SAINT-GOBAIN

Did you know?

In its first year in place, a typical pound of fiber glass insulation saves 12 times as much energy as is used to produce it – then continues to save for the life of the structure.

sustainable insulation®

Weatherizing with Fiber Glass Insulation.

CertainTeed Insulation products improve building energy efficiency and reduce building energy consumption for the life of the structure. As a result, they help conserve nonrenewable energy sources, decrease dependence on foreign oil and lower greenhouse gas emissions. Fiber glass and mineral wool insulations save more than 400 trillion BTUs annually – a twelve-fold savings over the energy needed to produce these products.

Sand — an inert, abundant and rapidly renewable resource — is the primary raw material used to make fiber glass. Even still, recycled glass has become a significant component of our fiber glass insulation products which nationally average 35% recycled glass content (pre- and post-consumer), well exceeding the 20-25% EPA Recovered Material Guideline.

CertainTeed insulation products have been certified by the GREENGUARD® Environmental Institute for superior indoor air quality and meet GREENGUARD Children & Schools Certified℠ standards for low or no emissions of Volatile Organic Compound (VOC), including formaldehyde.

Fiber glass batt insulation can be removed easily and actually put back in place – making it one of the rare reusable forms of insulation. When buildings are renovated, batts and rolls can easily be removed and reused, protecting your investment for the life of the building.

In addition to the Energy Efficiency benefits of weatherizing with fiber glass insulation, there are many other performance-based attributes that make it a safe and preferred choice for retrofitting or weatherization.

The benefits of properly installed Fiber Glass Insulation:

- Reduces energy costs, lowers heating and air conditioning bills.
- Provides more comfort, room to room and floor to ceiling.
- Acts as a fire retardant and is fire resistant.
- Controls noise, both inside and from outside.
- Contributes to cleaner indoor air.
- Helps use less of the earth's nonrenewable energy resources.
- Helps manage moisture.
- Can help prevent mold.
- Can increase the value of homes.

Retrofitting & Weatherizing with Fiber Glass Insulation

Building is indeed a science.

With more than 50 years of research, fiber glass is one of the most examined building products in the world. Scientists agree that fiber glass insulation is safe to manufacture, install and perform in living environments. Building scientists also agree that the right fiber glass insulation and correct installation can have significant positive effects on a home's performance.

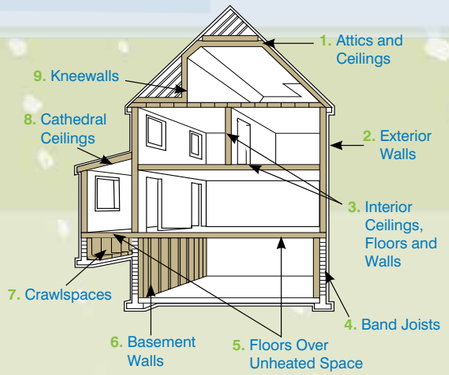
CertainTeed Building Science is all about understanding how different building products used to construct walls, ceilings, roofs and other components interact with each other, as well as the home's occupants. The right conditions make homes more energy-efficient and more comfortable to live in — safer and healthier, too.

CertainTeed's Building Science department continues to help develop the latest innovations in fiber glass insulation that deliver optimum performance.
For more information, see www.certainteed.com/buildingscience.

The value of R-value.

Insulation's effectiveness is measured in R-Value. R stands for the insulation's resistance to heat flow; heat escapes from houses in the winter and heat enters houses in the summer. The higher the R-Value, the greater the resistance to heat flow and the greater potential for saving energy, natural resources and money. Insulation rated as R-19 will provide greater resistance to heat flow than insulation rated as R-13. Many different R-Values are used in homes today based on the needs of the application. For example, walls may contain R-21 insulation and an attic could have R-49 material.

Areas in your home to insulate



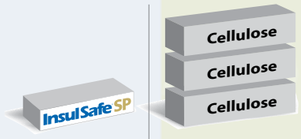
The following list refers to locations shown in the diagram above.

1. Attics, the most important area of a home to insulate. Ceilings with cold spaces above; this includes dormer ceilings.
2. Exterior walls. Sections that are sometimes overlooked are walls between living spaces and unheated garages or storage rooms, dormer walls, and the portions of walls above ceilings of adjacent lower sections of split-level homes.
3. Interior walls, ceilings and floors where sound control is desired.
4. Band or header joists, the wall section between floor levels.
5. Floors over unheated or open spaces such as garages and porches. Floors over unheated basements. The cantilevered portions of floors and under windows.
6. Basement walls.
7. Floors above vented crawlspaces. Insulation may also be placed on crawlspace floors and walls.
8. Sloped walls and ceilings (cathedral ceilings) of attic spaces finished as living quarters.
9. Kneewalls of attic spaces finished as living quarters.

InsulSafe® SP vs. Cellulose

To insulate a 1,000 sq. ft. attic:
15 packages vs. 46 packages

Fiber Glass:
Less waste & easy to transport



1 package of CertainTeed InsulSafe® SP at R-30 covers 67.1 sq. ft.

It can take up to 3 packages of cellulose to cover 65.1 sq. ft. at R-30

Insulate locally. Save globally.

Under-insulated homes and buildings experience substantial heat loss in winter and heat gain in summer. This tremendous energy loss forces buildings' heating and cooling systems to work overtime and waste money, along with our planet's limited natural resources.

When you decrease the amount of energy used to heat and cool homes, fewer overall emissions of greenhouse gases and other pollutants are produced. Better insulated homes also require fewer power plants to produce the energy needed to heat and cool them, which also helps cut down on greenhouse gas emissions. To keep performing efficiently and comfortably, a home insulated with fiber glass uses less natural resources. And fewer financial resources. Taking care of homes and buildings is an important step in taking care of our world.

From molten glass to fiber glass.

Fiber glass insulation is made mostly from sand and recycled glass. These ingredients are melted and then spun into thin fibers and held together, much like cotton candy. Fiber glass is an extremely effective insulation material because it has millions of tiny air pockets, which provide the real insulating power. These air pockets help resist the flow of warm air, and determine the insulation's R-Value. CertainTeed fiber glass insulation lasts for the life of homes without losing its insulating value. It resists settling or deterioration over time, which means it also continues to save money and energy for years.

Keep families warmer...and cooler.

An uninsulated or under-insulated home can cost more than you think. With energy costs forever rising, investing in fiber glass insulation is well justified. You may not be able to influence the cost of a barrel of oil, but upgrading a home's insulation can maximize the energy once it's installed. CertainTeed has a number of solutions to help you gain control over energy use and costs. We offer a wide selection of products to insulate every area of a home. For attics and walls, we offer premium-grade CertainTeed rolls, batts or blow-in fiber glass insulation. InsulSafe® and OPTIMA® are manufactured specifically to provide complete and uniform blow-in coverage, with a low dust application that won't settle.

Children & Schools GREENGUARD® Indoor Air Quality Certified

Retrofitting & Weatherizing with Fiber Glass Insulation

Dedicated to Building Responsibly.

Sustainable insulation is made from a renewable, plant-based binder, and does not have any formaldehyde, harsh acrylics, dyes or unnecessary fire-retartdant chemicals added. What's more, the manufacturing process for sustainable insulation requires less water and consumes less energy than standard processes. Sustainable insulation will last for the lifetime of the building, as it won't settle, accumulate moisture or lose its R-value over time.

Fiber Glass vs. Cellulose.

While the most common types of insulation found in homes today are fiber glass and cellulose, fiber glass is by far the most commonly used. Fiber glass is naturally noncombustible and remains nonflammable over the life of a home.

Fiber glass is made from sand (a rapidly and naturally renewing resource) and recycled glass. Manufacturers of fiber glass and wool insulations have diverted more than 33 billion pounds of glass from America's solid waste stream since 1992 – recycling more material by weight than any other type of insulation used in the building and construction sector. The percent of recycled material in fiber glass varies by the plant in which it is produced. Currently CertainTeed is using an average of 35% recycled glass and is constantly working to responsibly increase that percentage. Most CertainTeed insulation products are GREENGUARD℠ Children & Schools Certified by the GREENGUARD® Environment Institute – the most stringent standard for very low volatile organic compound (VOC) emissions, including formaldehyde. Not one cellulose product is GREENGUARD certified.

Cellulose insulation is generally made up of about 80% recycled newspapers and 20% fire-retardant chemicals. On the surface, cellulose insulation may appear to be the more environmentally acceptable insulation choice as it is made from shredded newspaper. However, it takes up to three times more cellulose material by weight than fiber glass to insulate a typical home. This means that for the same installed performance, cellulose creates more packaging waste and a greater demand on transportation and warehousing requirements throughout the supply chain. In addition, an average 1200 square foot attic insulated to R-38 with cellulose insulation would introduce about 300 pounds of fire retardant chemicals into the home.

But even chemically treated cellulose is not a guarantee of fire resistance, especially as cellulose ages. According to tests done by the California Bureau of Home Furnishings and Thermal Insulations, the capability of cellulose to withstand combustion declines to levels below what is required for new material. Concerns about cellulose have been documented where a heat source, such as overheated recessed lighting, faulty wiring, chimneys and flues have caused the cellulose to smolder, ignite and re-ignite again and again.

Fire-Safety Testing Proves the Difference.

A heat source using a 60 watt bulb placed on cellulose insulation and InsulSafe® fiber glass blowing insulation.

After 5 minutes:

Smoldering combustion had begun in the cellulose side. There was no effect on the InsulSafe.

After 15 minutes:

The light was removed from the cellulose, but combustion continued. There was no effect on the InsulSafe.

After 30 minutes:

Combustion continued to spread in the cellulose. The light, inserted back into InsulSafe, still had no effect.

After 60 minutes:

Combustion had consumed most of the cellulose, causing significant damage to the wood. Again, no effect on the InsulSafe.

Fiber Glass safety tips.

- Never leave kraft or foil faced insulation exposed. Always cover with drywall (sheetrock) or paneling.
- In ceilings, walls and floors (over unheated spaces), be sure the insulation facing always faces the inside (conditioned or heated/cooled space) of a home.
- Do not insulate on top or within three inches of recessed light fixtures or use sealed light covers. This rule does not apply to type IC light fixtures or to fluorescent fixtures with thermally protected ballasts.
- When insulating around furnaces, chimneys or flues, use unfaced insulation or remove any kraft or foil covering that could come in contact with the heated area.
- For unfinished basements where insulation will be left exposed, install CertainTeed's basement wall fiber glass insulation, which is covered with a white or foil flame-resistant facing.

Must Weatherization Agencies use insulation with the highest recycled content?

No. The Weatherization funding program has no requirement, and requires no documentation, mandating the use of products with the highest recycled or recovered content. The only federal regulation relating to product selection in the insulation category is based on the EPA's Recovered Materials Advisory Notice (RMAN). This statement recommends practical minimum recycled-content levels for purchasing building insulation of each product type and does not recommend one product type over another. These minimum levels are recommendations based on practical and responsible use of recycled content that is specific to each industry and product type. Nearly all fiber glass and cellulose insulation products in the market exceed their respective levels. You are free to choose the insulation products that best serve and protect the homeowners you assist. Recycled material is an important factor, but there is more to consider with regards to environmental impact and responsible energy efficiency.

It's also about peace and quiet.

Sound control is greatly aided with fiber glass insulation. Insulating interior walls, exterior walls and between floors adds to living in a quieter home. With more of us spending more time inside our homes, a little peace and quiet offers a welcome respite from a noisy world. To enhance the acoustical environment of homes, we offer NoiseReducer™ fiber glass insulation for interior walls and ceilings. This product is designed to improve sound-absorption throughout a home's various living areas. You can even rid a home of unwanted crosstalk (the kind you hear through a home's ventilation ducts) and the air-rush noise from ductwork. Our ToughGard® Duct Board, ToughGard® Duct Liner and Duct Wrap not only keep things quiet, but also help maintain the desired temperature of the air coming from a furnace or air conditioner.

Help prevent moisture and mold.

Mold only grows under the right conditions — where it's dark, damp and has access to an available food source. These are the same conditions that can exist behind a home's walls. To be sure, mold in homes is one of the most litigated homeowner issues playing out in the courts today. And when you think of all the ways moisture can get behind walls — a leaking roof, poor window or door flashing, climatic changes, bathing, cooking, dishwashing, clothes washing, etc. — you can start to understand how mold can begin to grow. With serious health and property values at stake, choosing the solution really does matter.

MemBrain™

The Smart Vapor Retarder Protects...and Dries.

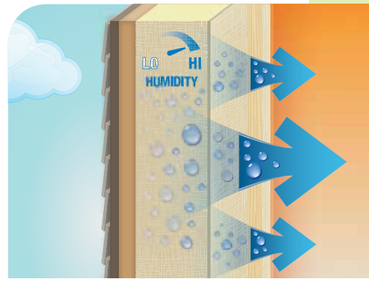
Designed to be applied on the interior over unfaced fiber glass insulation, loose-fill applications and spray foam, MemBrain looks similar to typical polyethylene sheeting, but is actually able to adapt its permeability depending on the climatic conditions. It uniquely provides high resistance to water vapor in winter or low humidity conditions and dramatically increases water vapor permeability during the summer or relatively high humidity conditions, which allows water vapor to easily escape wall and ceiling cavities.

Now you know how an unseen building product like insulation can have a dramatic impact on the energy efficiency of a home. You also know how CertainTeed fiber glass can dramatically enhance a family's year-round safety and health. And a home weatherized or retrofitted with CertainTeed solutions can have a positive impact on the environment, locally and globally.

How MemBrain™ Works

Blocks Moisture

When humidity levels in the wall are low, MemBrain prevents indoor moisture from entering.



Releases Moisture

When humidity levels in the wall increase, MemBrain becomes more porous to let excess moisture escape.

CertainTeed
SAINT-GOBAIN
Insulation

For every insulation challenge, there's a CertainTeed solution.

Residential Sustainable Insulation

Mold Prevention

CertaPro™ Commercial Insulation

Spray Foam Insulation

HVAC / Mechanical

Machine Works

Premium Blow-in Insulation

[Be Certain]™

You can **Be Certain**™ no other manufacturer offers the depth and breadth of interior and exterior building solutions, knowledge, innovation and sustainability that CertainTeed does. Our advanced, multi-product solutions optimize building efficiency, while creating beautiful, comfortable environments where people can thrive. We continue to shape the future of the building materials industry with a new generation of integrated building solutions.

That's confidence worth building on.™

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www.certainteed.com/insulation

CertainTeed Corporation
P.O. Box 860
Valley Forge, PA 19482

Professional: 800-233-8990
Consumer: 800-782-8777

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