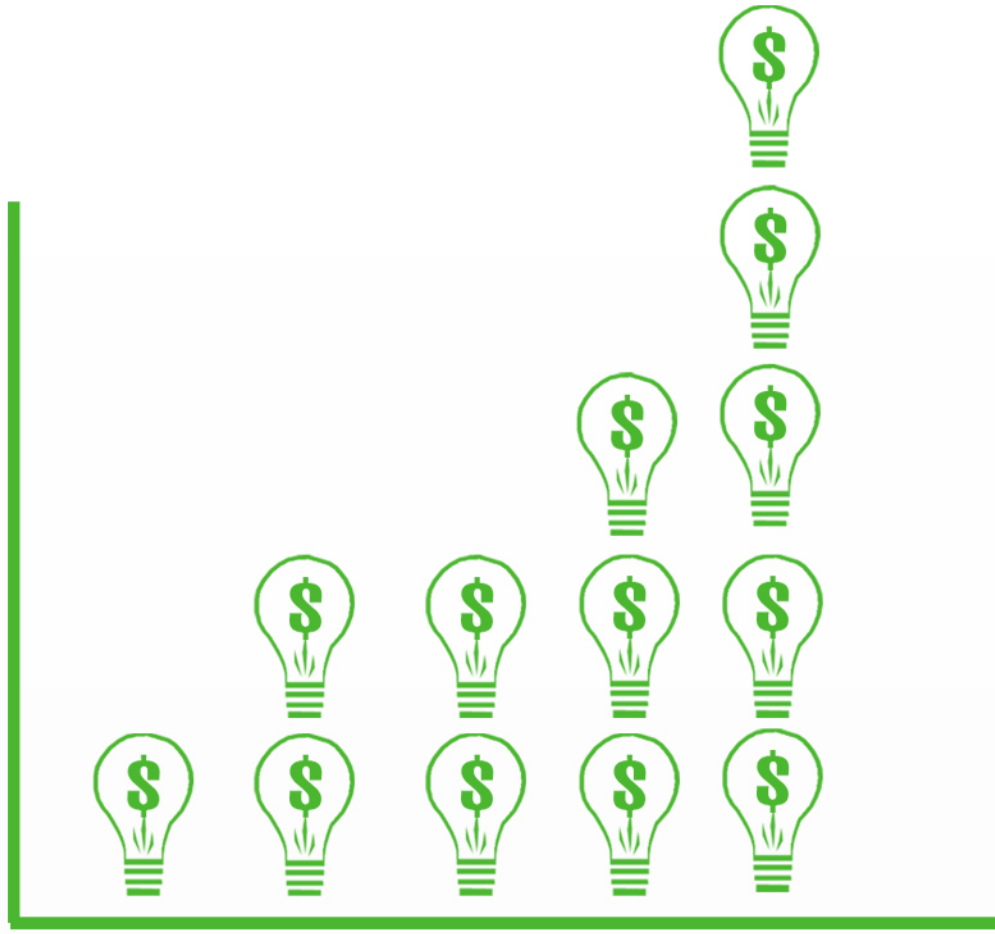


RISING ENERGY COSTS?



WE CAN HELP



902-300-5060

HOW DO I KNOW WHAT INSULATION IS RIGHT?



FACTORS IN CHOOSING THE RIGHT INSULATION

With so many materials available to consumers, making an informed choice can be difficult. Rising energy costs make selecting the right method for long-term savings even more important.

IN THE FOLLOWING PAGES WE WILL:

- BRIEFLY EXPLAIN THE TYPES OF INSULATION
- COMPARE FEATURES AND BENEFITS
- HELP YOU **MAKE THE RIGHT CHOICE**

COMMON INSULATION METHODS



CELLULOSE

Derived mostly from recycled newspapers and treated with flame retardants such as boric acid. Possibly more susceptible to mold than other types of insulation but considered more eco-friendly due to its recycled content.



REFLECTIVE

Metal surface, typically made from aluminum. Reflects radiant heat. Requires a sandwich of air between reflective surface and structural surface or will serve as a conductor of both heat and electricity. Not very suitable for cold weather.



STRUCTURED INSULATED PANELS

Made from rigid foam plastic sandwiched between two pieces of wood or similar material. Used mainly as pre-insulated structural components (for walls, etc.) rather than as a pure insulation solution, making it less flexible to use



NATURAL FIBER OR MINERAL

This category includes compressed hay, cotton, rock wool and others. Each type has varying degrees of effectiveness and safety issues depending on the chemicals added for flame retardation.

TWO OTHER WIDELY-USED INSULATION METHODS:

FIBERGLASS

SPRAY FOAM

FIBERGLASS INSULATION

Fiberglass insulation has been a mainstay of the building industry since it was first introduced in 1938 by the Owens Corning Company. It is manufactured by forcing pressurized air through molten glass to produce long filaments of varying thicknesses. The fibers are then matted together and generally cut into large blankets or standard-sized “batts,” although loose-fill fiberglass insulation is used in some structures. Dyes are often added to the product, as might resins, oils and other additives to bind the fibers together.

Fiberglass is widely used because it is cheap and relatively easy to install. It is simply unrolled, cut to desired length and width, and put into place. Its rating ranges from around R-3 to R-4.3 per inch when properly installed. In the quest to obtain a higher R-value, medium- and high-density fiberglass have been developed which have a rating up to R-5.



CHEAP & EASY

Fiberglass is non-flammable, with the exception of the facing which may be made out of paper in some cases. Fiberglass with metallic facing is generally non-flammable. No special equipment besides gloves and a dust mask are required to install fiberglass, although some contractors will use full body protection to avoid contact with the fibers.

IMPROPER INSTALLATION

=

LOST VALUE!

One major problem with fiberglass insulation is that its true R value rating is often hindered by improper installation. If the batts are cut too short, air will seep

through the gaps and reduce efficiency. Likewise, batts that are cut too long tend to get roughly “stuffed” between studs or joist cavities by contractors desiring to complete a job as quickly as possible. This compresses the fiberglass and prevents it from making adequate contact with the drywall, further reducing efficiency. One study by the California Energy Commission found that a full 30 out of the 30 homes it examined had improperly installed batts, demonstrating that the problem is not isolated to a small percentage of structures.

Odd-shaped framing details are also difficult to insulate with fiberglass batts because very few contractors take the time to cut them into the exact correct shape to fit into irregular crevices in the ceiling or around electrical junction boxes, as they are usually paid by the square foot rather than the quality of the finished job. More often than not, leftover pieces of fiberglass are simply jammed into crevices, or batts are bent around protuberances instead of being precisely cut to fit.

TAKEAWAY

TO SUM UP, WHILE FIBERGLASS IS INEXPENSIVE TO BUY, IT CAN CAUSE HEALTH ISSUES DURING INSTALLATION AND FOR OCCUPANTS LATER ON. IMPROPER INSTALLATION, WHICH IS COMMONPLACE, WILL REDUCE ITS EFFECTIVENESS AS AN INSULATOR AND COST CONSUMERS MONEY IN THE LONG RUN.

SPRAY FOAM INSULATION

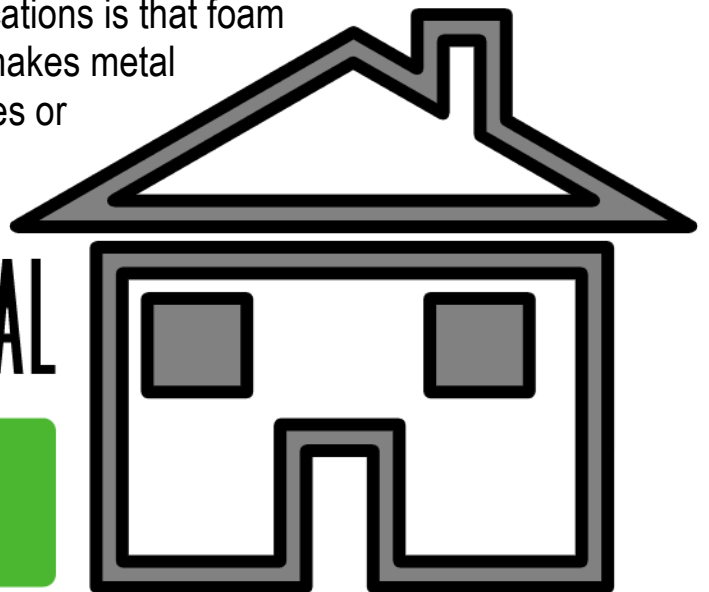
Spray foams were originally introduced by Dupont in the 1960s, originally made with polyurethane but now incorporating other chemicals such as polystyrene and isocyanate. The foam is produced by combining two chemicals at the head of a spray nozzle which is powered by compressed air or gas. A chemical reaction is immediately produced, which causes gas bubbles to form and become trapped as the foam solidifies. The trapped gas has excellent insulating properties, giving spray foam insulation a higher R value than many other materials, including fiberglass. R values for some foams reach as high as R-8 per inch, about double what normal fiberglass can offer.

In addition to its natural superiority as an insulator, spray foam is an excellent sealant, guarding against one of the most common complaints in other insulation methods: air leakage. An air-tight seal results from spray foam, especially useful when sealing gaps around pipes and ductwork, hose bibs, etc.

The air-tight seal also creates a moisture and vapor barrier, as well as an effective sound barrier. This is useful for large structures, such as pole barns, which tend to amplify exterior sounds such as rain, wind and hail. Another benefit in industrial and agricultural applications is that foam insulation adds structural strength. This makes metal warehouses or barns converted into offices or workshops much more wind resistant and leak-proof.

AIR TIGHT SEAL

BEST VALUE



TYPES OF SPRAY FOAM

OPEN CELL

also known as “½ lb foam,” is not as rigid as closed cell. It resembles the soft, spongy foam used in packing material. The bubbles are larger, and it has a lower R value than closed cell foam. Compared with closed cell foam, open cell allows for much greater water and vapor penetration as well as trimming and waste disposal issues from foam over-expansion. Nonetheless, its lower cost makes it very useful for soundproofing or for insulating areas where water and vapor penetration is not a concern.

CLOSED CELL

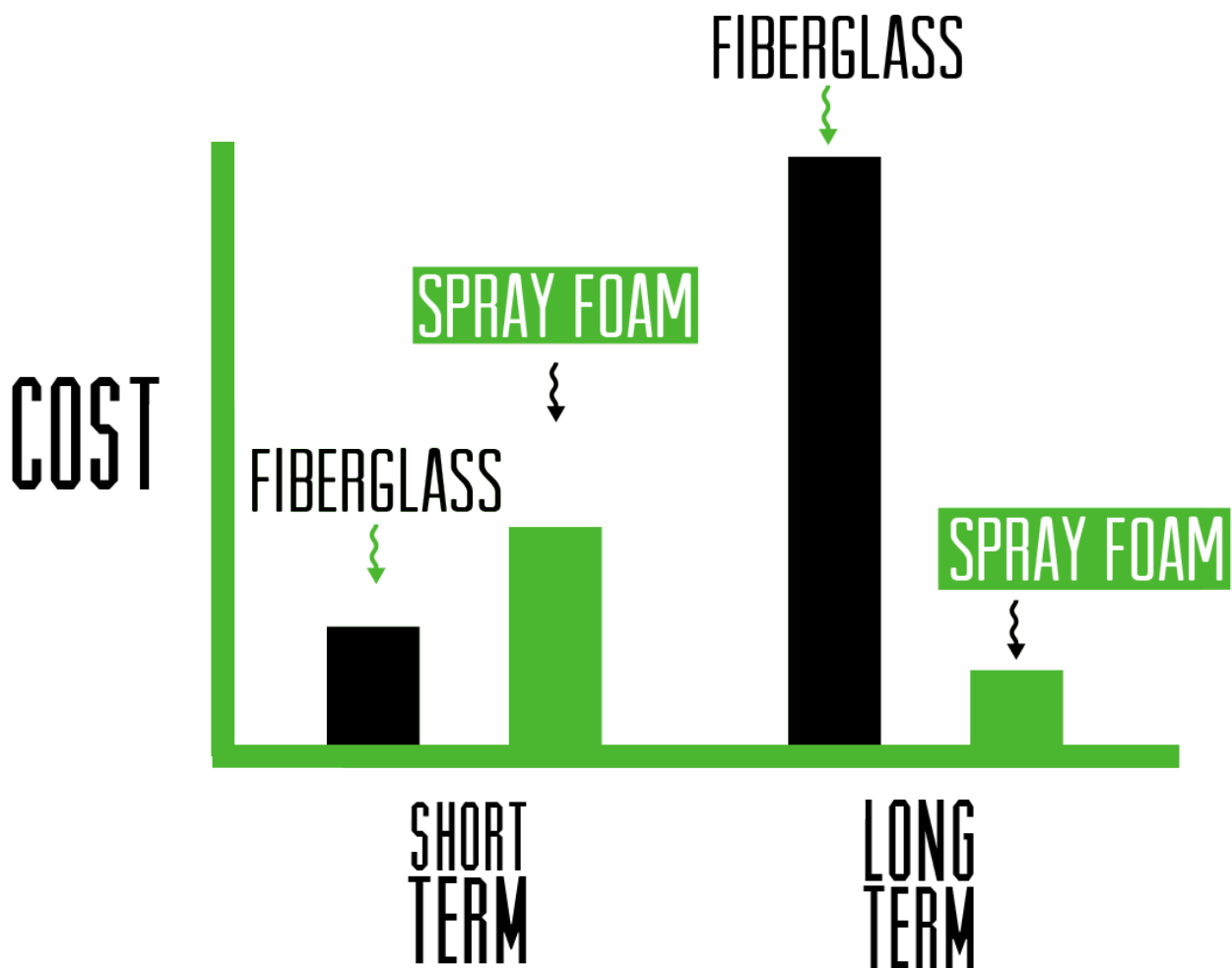
also known as “2 lb foam,” has much smaller bubbles and is a much more rigid, dense and insulative material than open cell. It is an excellent water and vapor barrier, and its higher R value allows a thinner application, useful in tight spaces. It also does not expand much after application, eliminating the need for trimming and waste disposal.

Raising the roof line of a structure from the ceiling to the actual roof can be accomplished easier with spray foam insulation than with traditional fiberglass, especially when the roof slope is shallow and getting to the top plates at the eaves is nearly impossible. Raising the roof line is beneficial when your HVAC ductwork is located in an enclosed attic which can get extremely hot in the summer or is meant to be finished at some point in the future.



As you can see, spray foam has other benefits beyond its superior insulation properties, including soundproofing, air leak prevention, ability to be applied in tight spaces, and allowing roof lines to be easily raised for better attic insulation.

THE COST QUESTION





If you knew an energy enhancement would add \$10 per month to your mortgage, but you would save \$50 per month on utilities, would you use it? The average return on investment for spray foam is 2-5 years. This means after this length of time you have recovered all the extra cost of installing spray foam over fiberglass. From here out spray continues to pay for itself while fiberglass continues to lose performance increasing energy usage.

WHAT YOU GET WITH SPRAY FOAM'S VALUE

- Reduces dust and pollen infiltration, improving air quality for those with allergies or other upper-respiratory sensitivities.
- Reduces noise levels in homes and businesses.
- Helps stop the spread of flam in a fire.
- Retards the growth of mold.
- Will not pack down, split or sag over time.
- Can withstand flooding.
- Expands to seal off leaks and gaps.
- Increases structural stability.

TAKEAWAY

TAKING THE ABOVE FACTS INTO ACCOUNT, FIBERGLASS DOES NOT SEEM TO BE MUCH OF A BARGAIN IN THE LONG RUN DUE TO HIDDEN OR UNEXPECTED COSTS. THESE EXPENSES COME IN THE FORM OF HEALTH PROBLEMS RELATED TO MOLD AND OTHER ALLERGENS, REPLACEMENT COST IF ANY FIBERGLASS GETS WET, AND HIGHER MONTHLY ENERGY COSTS.

SAFETY ISSUES



FOR

FIBERGLASS & SPRAY FOAM

FIBERGLASS

The jury is still out in regards to the health issues surrounding fiberglass. The American Lung Association states that fiberglass insulation is safe as long as it is properly installed. On the other hand, it acknowledges that physical contact with the material or its airborne fibers might cause itching and irritation in the skin, eyes, nasal passages and the rest of the respiratory system. In addition to the problems presented by fibers themselves, the resins and dyes used in fiberglass can outgas irritating or toxic chemicals, such as formaldehyde, for years. This can cause indoor air pollution problems including allergies and asthma attacks in sensitive persons.

Fiberglass batts usually come with warning labels cautioning against the risk of cancer from exposure to the material, but the scientific data is inconclusive with different agencies from the World Health Organization to the International Agency for Research on Cancer having varying opinions throughout the years.

RESULTS:

HAZARDOUS IF IMPROPERLY INSTALLED

TOXIC AIR POLLUTION FOR YEARS



SPRAY FOAM

Spray foam often uses hazardous chemicals in the application stage. Therefore, installation should be performed by certified specialists using protective safety measures including masks, goggles, protective suits, and proper ventilation of the area being sprayed.

Once set, however, the product becomes chemically inert, causing no indoor air pollution issues. Also, new formulations of spray foam have been developed which use less toxic chemicals derived from renewable plant sources, reducing the concern of toxic exposure during the application stage and the use of petrochemicals.

RESULTS:



LESS TOXIC CHEMICALS IN APPLICATION

NO INDOOR AIR POLLUTION!

TAKEAWAY

COMPARING THE SAFETY ISSUES OF BOTH FIBERGLASS AND SPRAY FOAM INSULATION DEMONSTRATES THAT SPRAY FOAM HAS LESS LONG-TERM HEALTH RISKS. IT AVOIDS THE INDOOR AIR POLLUTION PROBLEMS THAT OCCUR WHEN FIBERGLASS RELEASES TINY GLASS PARTICLES OR FORMALDEHYDE GAS INTO THE AIR.

SUMMARY

SPRAY FOAM INSULATION CAN PREVENT MANY PROBLEMS THAT WOULD BE PRODUCED BY DOING THE SAME JOB WITH INFERIOR INSULATING MATERIALS, ESPECIALLY FIBERGLASS. IN RISING ENERGY-COST ENVIRONMENTS, SUCH AS THE ONE WE ARE IN NOW, THE INITIAL HIGHER INSTALLATION COST OF SPRAY FOAM INSULATION WILL BE OFFSET BY THE LARGE POTENTIAL SAVINGS IN COOLING AND HEATING BILLS AS WELL AS LEAK PREVENTION, SOUNDPROOFING, MOLD INHIBITION, AND IMPROVED INDOOR AIR QUALITY COMPARED WITH FIBERGLASS.

IF YOU ARE CONSIDERING SPRAY FOAM INSULATION, CONTACT A REPUTABLE, CERTIFIED INSTALLER WHO TAKES THE TIME TO PERFORM A COST-BENEFIT ANALYSIS AND DISCUSSES YOUR OPTIONS WITH YOU.

