



# The Money Pit Guide to **INSULATION**

*Featuring Icynene Spray Foam Insulation*

**Insulation** is your home's year-round armor against high heating and cooling costs, while preserving comfort, moisture control, and an improved indoor environment.

It can contribute to soundproofing as well, between rooms and against outdoor noise.



A critical component of new builds, insulation is also one of the most important improvements you can make to an existing home.

What's more, the quality of your home's insulation impacts every other energy-saving improvement you'll tackle, and tending to common household air leaks is the finishing touch, because such cracks and gaps can add up to an air escape the size of a basketball. **Make smart insulation and sealing choices now for comprehensive, energy-saving results that will last for years to come.**

# All About Insulation: TYPES TO CONSIDER

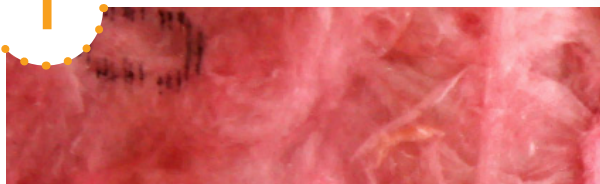


The type of insulation you choose depends on the location of the application within your home, the format needed, the age of your home, and the insulation R-values recommended for the area in which you live. R-value is a measure of thermal resistance—that is, resistance to heat flow—and the higher the R-value of the insulation, the more insulating power you'll get. As you assess your home's insulation needs, you'll find that varying R-values are required for different areas within your home, from attic to basement and crawlspace versus exterior walls.

Whether you're choosing insulation for new construction or upgrading the insulation in your current abode, get to know the following common insulation solutions. Some applications can be do-it-yourself projects with the right equipment and protective gear, while others require the help of a trained technician.



1



## FIBERGLASS

Fiberglass insulation is made from extremely fine glass fibers, which are composed into a blanket format—a.k.a. batts and rolls—or loose-fill material that can be blown into areas to be insulated. You can also find fiberglass insulation in the forms of rigid boards and duct insulation.

Fiberglass batts and rolls work well in the walls and ceilings of new construction, and can be used to improve attics and crawlspaces in existing homes. This fiberglass format is relatively easy to work with, and, as long as you're outfitted with the right protective gear and tools, makes for a great energy-saving DIY project. Blown-in and loose fiberglass (both sometimes contained in netting) fill is also an option for walls, attics and crawlspaces, but it typically requires professional installation with special equipment.

2



## CELLULOSE

Another option in loose-fill insulation is cellulose. High in overall recycled material content at 82-85 percent, it's mainly made from recycled paper products like newsprint. The shredded, fiberized result packs tightly into building cavities and around obstructions, greatly inhibiting airflow.

In existing homes, it can be applied in open attics and, via access through exterior siding, in wall cavities. With a new home, cellulose may either be installed dry behind netting stapled over building cavities, or damp-sprayed in a process that incorporates a small amount of moisture to activate natural starches that cause cellulose to adhere to surfaces. Either way, cellulose insulation must be professionally installed.

3



## MINERAL WOOL

Mineral wool insulation can be either man-made rock wool derived from natural minerals (like basalt or diabase), or slag wool derived from the blast furnace scum that forms on the surface of molten metal. Mineral wool insulation contains 75 percent post-industrial content, and requires no additives to make it fire-resistant.

Mineral wool is available in blanket and loose-fill formats. It's typically denser than fiberglass products, which makes it a bit more difficult to work with, but it can part of a solution that reduces sound transmission.. Apply DIY mineral wool batts and rolls in the walls and ceilings of new construction, and in the attics and crawlspaces of existing homes. Blown-in loose fill mineral wool can be professionally installed in attics and existing walls.

## SPRAY FOAM

Spray foam insulation can be sprayed, poured, injected or even foamed-in-place for lightweight but intensive coverage and high R-value results. It adheres to surfaces so it avoids many of the pitfalls of air-permeable insulation. It's usually available in two formulations, closed-cell and open-cell. Closed-cell foam insulation has high-density cells that are closed and filled with a gas that causes the foam to expand and fill spaces to be insulated. The blowing agent is then trapped, adding to R-value. Open-cell foam has a structure that allows air to diffuse into the cells making for a less dense, spongy texture; it has a somewhat lower R-value (comparable to batts and blankets). The key advantage of spray foam is that both open and closed cell foam creates an effective barrier to air leakage in both new and

existing homes, thereby, acting to both seal and insulate for sustained energy savings. Further, it won't sag or compress with age, isn't a source of food for nesting insects and rodents, and completely fills gaps around plumbing, vents and electrical openings. Spray foam insulation also helps to improve a home's indoor air quality by minimizing the entry of outdoor allergens and pollutants.

Installed by a certified pro, spray foam insulation is an especially effective choice for new builds. An all-in-one solution, it saves time and money that would otherwise be spent on a range of weatherizing steps that are typically less effective, and noticeably reduces a home's carbon footprint.



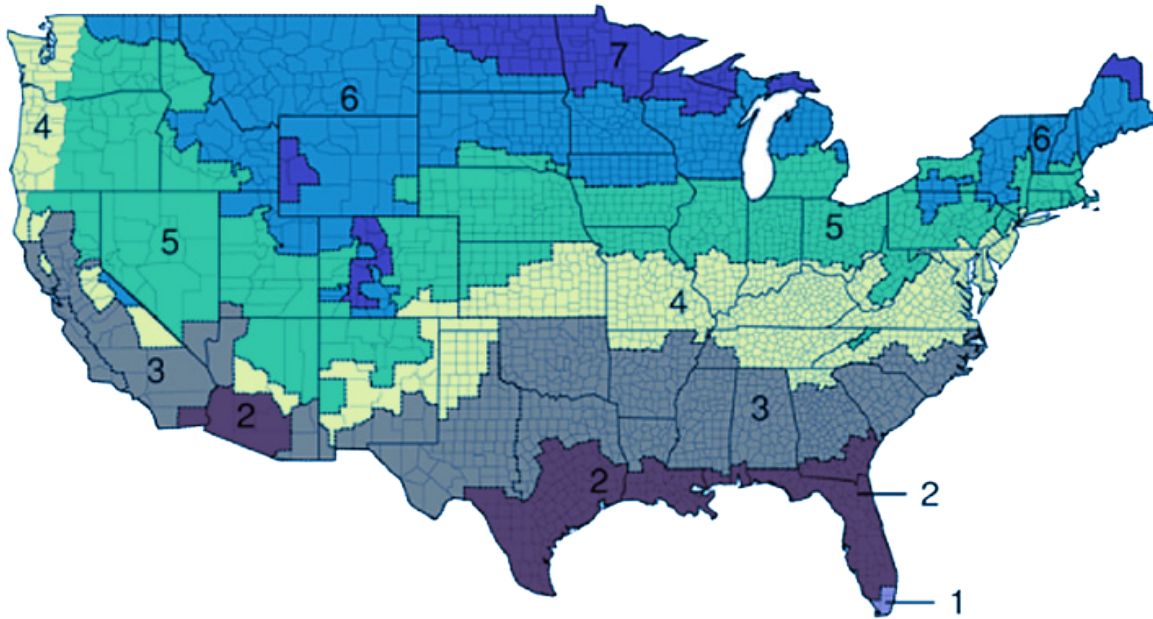
## Insulating with Icynene Spray Foam

Icynene spray foam is a one-step insulating solution, designed to help deliver optimal home comfort, while contributing to reduced heating and cooling costs each month. Installed by certified professionals, Icynene is formed through mixture of two components—ISO and resin—which react and expand to create a foam insulation that fills and insulates spaces, while also air sealing around home system components to help reduce drafts and increase comfort.

Icynene's ultra-low VOC spray foam insulation innovation means that families can be enjoying the comfort and benefits of Icynene spray foam just two hours after the installation is complete! Icynene Classic Max and Icynene ProSeal products are both GREENGUARD Gold certified, meeting some of the world's most rigorous and comprehensive standards for low emissions of volatile organic compounds (VOCs) into indoor air.

Insulating with Icynene delivers a high-performance solution that contributes to moisture management through an air seal that helps minimize air movement, and minimizes the risk of condensation and resulting mold growth, wood rot and buckling in finishes like hardwood floors. Icynene Classic Max is formulated to allow roof leaks to dry out and remains unaffected by minor wetting. For areas with higher humidity levels like crawlspaces, or where higher R-value per inch is required, Icynene ProSeal medium-density spray foam is an ideal solution.

## Recommended Insulation Levels



Zone	Add Insulation to Attic		Floor
	Uninsulated Attic	Existing 3-4 Inches of Insulation	
1	R30 to R49	R25 to R30	R13
2	R30 to R60	R25 to R38	R13 to R19
3	R30 to R60	R25 to R38	R19 to R25
4	R38 to R60	R38	R25 to R30
5 to 8	R49 to R60	R38 to R49	R25 to R30

For complete details visit [Energy Star.gov](https://www.energy.gov)

## How Much Insulation Do You Need?

It all depends—on where you live, the age of your home, what parts of the home need to be insulated, and even what kind of heating and cooling system you have. According to regional differences alone, a home in the Northeast calls for much higher insulation R-values than one in the Southeast or on the West Coast. So, start by knowing your zone, as set out by the Department of Energy. They've divided the United States into eight zones, mapped at [www.energystar.gov](https://www.energystar.gov). From there, you can find R-value guidance for every situation, including improvement of an under-insulated home. Insulation products themselves are labeled with R-values, making your choices easier when you're ready to shop.

## Tom's Solution for Solving a CENTURY-OLD HOME INSULATION PROBLEM



Tom Kraeutler, The Money Pit Host

In renovating their nearly 130-year-old family home, Money Pit host Tom Kraeutler and his wife, Sue, sought to add value while providing optimal comfort and performance for generations to come. Over its history, the home had undergone several improvements, including a 1901 addition now functioning as the kitchen. Fiberglass insulation was added throughout the home back in the 1980s, but over time, the material left the home drafty and cold, and the kitchen addition could be as much as 15 degrees cooler than the rest of the house.

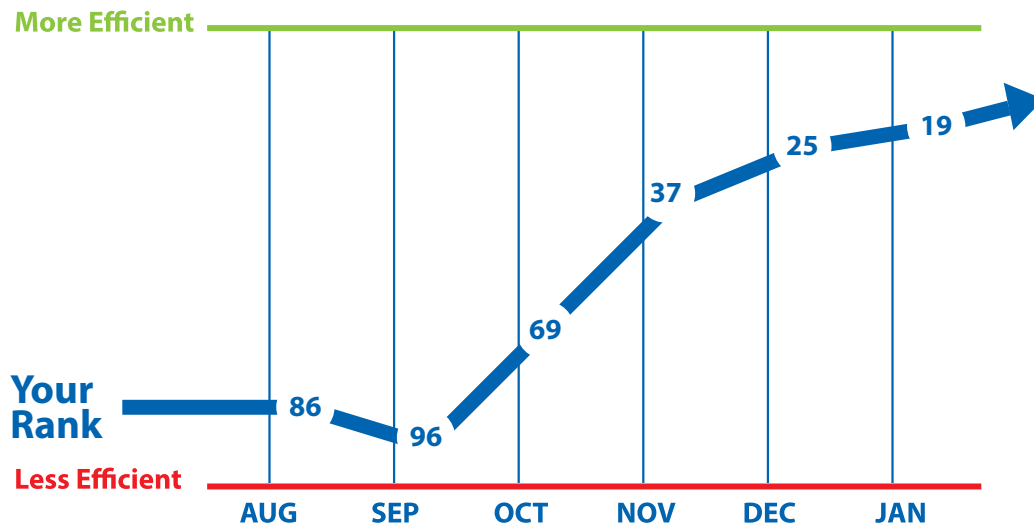
Seeking even, effective insulation and indoor comfort, the Kraeutlers chose to install Icynene in the addition, two flat roof spaces, a second-story attic, and box beams at the foundation perimeter. On the flat roofs, all existing insulation was removed, and Icynene Classic spray foam was applied, followed by re-sheathing and re-roofing. The roof of the addition was then cleared of sheathing and Icynene open-cell, light-density spray foam was installed into the open bays and across the ceiling of the kitchen area. Two weeks later, the insulation makeover was completed with Icynene in the upper attic and box beams.



## Tom's Solution for Solving a CENTURY-OLD HOME INSULATION PROBLEM



### Tom's House: Neighbor Efficiency Rank



Tom's utility company confirmed the dramatic impact Icynene Spray Foam Insulation had on his century-old home's energy efficiency, taking it from one of the least energy efficient to among the top 19% most energy efficient homes in his neighborhood.

## And the difference?

The Kraeutlers felt it immediately, the day after the kitchen roof application. The main living space and addition were equally comfortable and maintained the right temperature, and ever since, the home has remained comfortable and drafts have been eliminated. There's also continued proof in the family's monthly energy bill, with a notable reduction in heating and cooling costs thanks to the air sealing and insulating qualities of Icynene.



## TARGETING COMFORT AND ENERGY SAVINGS: Where to Insulate Within Your Home

For maximum comfort and minimal utility bills, focus on improving insulation in key areas around your home, including sneaky sources of leaks. Here are the top targets for improved insulation.



**Attics:** Your attic offers the greatest potential for home energy savings, and also happens to be the easiest area to improve. Whichever insulation material you choose for this space, make sure to maintain proper attic ventilation. It'll protect insulation from the dampness of wintertime condensation, which can cut insulating power by one third and introduce a host of structure-threatening moisture problems.



**Exterior walls:** Make the most of this insulation opportunity for even temperatures throughout indoor spaces, protection from air pollutants, and enhanced soundproofing for your home.



**Basements and Crawlspaces:** These areas too tend to be easily upgraded as many homes are uninsulated below grade. Care must be taken to provide a thermal barrier on the interior (typically ½" thick gypsum wall board is sufficient) to protect the insulation from fire and other damage.

## The Truth About R-Values

Having trouble keeping your home cool in the summer and warm in the winter? It's not surprising when you know how much air can escape or enter a home daily—enough, in fact, to fill two Goodyear blimps!

Air movement wastes energy and money, and simply adding more R-value or topping up insulation won't deliver energy savings, because R-value doesn't control air leakage. The performance of some insulation materials is further compromised by gaps and seams around framing, where air can get in and out.

R-value doesn't consider air movement through or around insulation once it's been installed in your home. Instead, what you really want is a solution like Icynene spray foam, which is both insulation and air barrier. It expands in cracks, crevices and gaps to reduce air leaks, and forms an air seal to minimize air movement and prevent condensation.

Of course, insulation R-value is important—the higher, the better—but it's probably more important to air seal. Without an air seal, fibrous materials typically don't insulate very well at all. With a two-in-one insulation and air barrier solution from Icynene, not only can you achieve up to 50% of energy savings, but you'll also limit the influx of outdoor allergens and pollutants, and enjoy increased sound control.



**Windows and doors:** Choosing windows and doors with built-in insulation is a great investment in your home's energy efficiency and comfort. But even if you delay such upgrades, you can make an immediate difference by caulking and sealing around windows and doors—inside and out—and tightening door hinges, upgrading door hardware, and adding weather stripping and a door sweep.



**Around outlets, switches and lighting fixtures:** Wall openings around outlets and switches can let in blasts of outdoor air, so fit them with specially designed foam gaskets, and attack bigger gaps with a quick application of expandable foam. Ceiling lighting is another well-disguised source of household drafts, so insulate fixtures by following manufacturer and National Electric Code guidelines, which typically require three inches of clearance to prevent overheating.



**Ducts:** In forced-air heating and cooling systems, the ductwork that distributes home comfort can lose about 20 percent of its payload through faulty connections and other leaks. Stop ductwork drafts with duct sealant (a.k.a. duct mastic) or UL 181 tape, which looks like silver foil but, unlike mis-named duct tape, doesn't degrade, crack or lose its bond with age.

All of these draft-deterring efforts make for easy weekend projects, enhancing overall insulation effectiveness and raising your home's energy efficiency profile in the process.

## Insulating for the Future

With the proper home insulation investment, you'll feel the difference indoors and see the difference in your home energy bills. Icynene can help you create a healthier and more comfortable living environment, insulating and sealing in one step. The results are immediate and lasting: fewer drafts, more even temperatures, quieter and more tranquil living spaces, and improved air quality year-round.

For more information and to plan improved home comfort and energy savings, visit [Icynene.com](http://Icynene.com) or call toll-free **1-800-758-7325**.

