

Attic Insulation

Insulating your attic is the most effective way to improve the efficiency of your home. Heating in the Winter time and cooling during the Summer time becomes easier for your heating/cooling system. I noticed on average a 30% to 40% reduction in the energy that my home used after installing attic insulation.

How Does Attic Insulation Work?

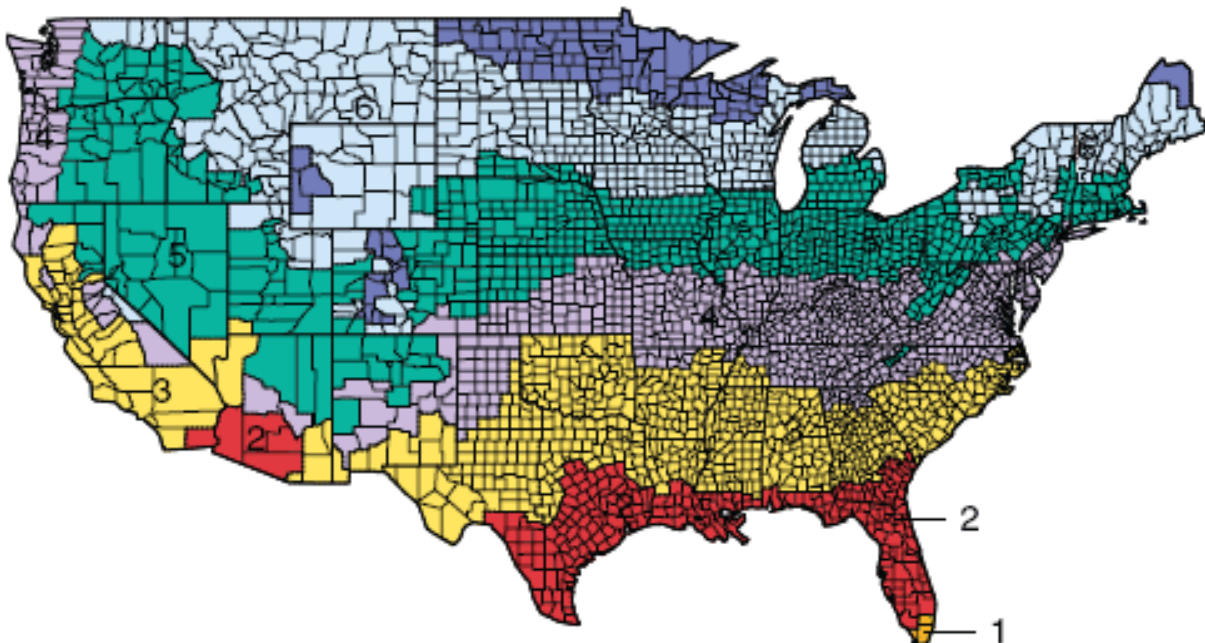
Heat flows naturally from warmer areas to cooler ones. It does this by one of three different methods: **conduction**, where heat is delivered directly from one mass to another; **convection**, the transfer of hot air from one space to another (hot air rises, cool air sinks); and **radiation**, which simply means that any warm mass passes off heat toward a cooler one.

The main function of insulation is to minimize the radiation and convection effect of heat and minimize conduction. This causes our home to stay warmer in cool weather and cooler in warm weather.

What is the Best Attic Insulation Type?

There are many different types of attic insulation, but the best type depends on your climate and needs. Two things that you will be looking for is the material used such as cellulose and the r value or “resistance to heat flow.” The more extreme the range of temperatures in your area the higher [insulation r value](#) you need. You can check your local energy commission, local power company, or local home center for the best R-value in your area or consult this map and chart courtesy of the EERE of the [Department of Energy](#).

**U.S. Department of Energy Recommended* Total R-Values
for New Wood-Framed Houses**



Zone	Gas	Heat Pump	Fuel Oil	Electric Furnace	Attic	Cathedral Ceiling	Wall		Floor
							Cavity	Insulation Sheathing	
1	✓	✓	✓	✓	R30 to R49	R22 to R38	R13 to R15	None	R13
2	✓	✓	✓		R30 to R60	R22 to R38	R13 to R15	None	R13
2				✓	R30 to R60	R22 to R38	R13 to R15	None	R19 - R25
3	✓	✓	✓		R30 to R60	R22 to R38	R13 to R15	None	R25
3				✓	R30 to R60	R22 to R38	R13 to R15	R2.5 to R5	R25
4	✓	✓	✓		R38 to R60	R30 to R38	R13 to R15	R2.5 to R6	R25 - R30
4				✓	R38 to R60	R30 to R38	R13 to R15	R5 to R6	R25 - R30
5	✓	✓	✓		R38 to R60	R30 to R38	R13 to R15	R2.5 to R6	R25 - R30
5				✓	R38 to R60	R30 to R60	R13 to R21	R5 to R6	R25 - R30
6	✓	✓	✓	✓	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 - R30
7	✓	✓	✓	✓	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 - R30
8	✓	✓	✓	✓	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 - R30

Blown in Attic Insulation

Blown in insulation, as opposed to batt insulation which uses fiberglass blankets, creates a seamless blanket of insulation in your attic. You could spend hours kneeling to achieve the same result with fiberglass batts in your attic. Once installed and expanded to the uniform thickness, batts offer a known, consistent R-value. However, blown-in insulation thickness can vary in an attic space which leads to non-uniform R-values. [Cellulose](#) is a common and advantageous type of blown in insulation. One of the main advantages is its fire retardant characteristics.

If you decide to use blown-in insulation, place scrap lumber depth gauges throughout the attic. These pieces of wood can be marked to the desired thickness of insulation. Tack them to the ceiling joists in various locations and use them as guides for desired depth.

Attic Insulation Installation

An installation of insulation in your attic shouldn't take more than a full day. The first step is determining how much insulation you already have in your attic. It may be none at all or just enough to fill in the floor between the

joists. Either case is an indication that you don't have enough insulation. The best way to find out if you have enough insulation is to measure. You need to have about 18" of loose fill insulation on the attic floor. That should give you about an R-60 value.

The next step is to prepare for your project. The first thing you need to calculate is how much additional insulation you are going to need to get to the desired depth. Some of the basic tools you will need are protective clothing, a dust respirator, gloves, goggles, full cover pants & shirt, lighting, and a ladder if necessary to access the attic. Obviously, you will also have to purchase all the insulation necessary to cover your attic. Sometimes if you get enough at stores like Home Depot or Lowes they will throw in the machine for free. Once you have everything prepared to install, you will be ready to get up in the attic.

It is recommended that you lay out some temporary flooring across the joists to provide safe and easy access to all the areas of your attic. The best method of blowing in the insulation is to start at the outer edge of the attic space and work your way back to your attic access. When working on the edges, you need to ensure that you fill far enough to cover the tops of the exterior walls, but not in the way of the flow of air from the eave vents. Make sure that you don't insulate over light fixtures that are not rated I.C. (insulated ceiling) because it could cause a fire. It is usually helpful to have two people for the job – one operating the gun and the other loading insulation in the machine. Make sure to load slowly into the machine to avoid clogging it up. Everything else is pretty straightforward. After you have a proper layer of insulation in your attic, you can expect to see your energy bill drop pretty substantially.