Insulation Basics

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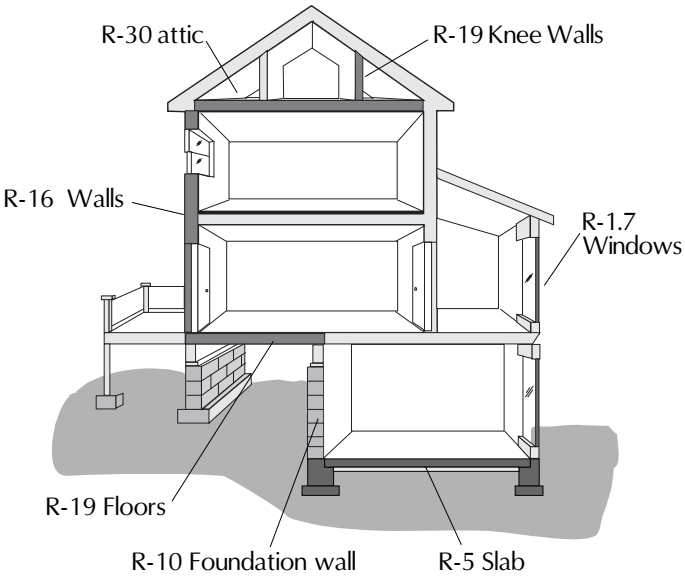
In buying insulation for your home, there are several points to consider. R-value measures how well a material insulates. The higher the R-value the greater the insulating value. Compare products based on their cost per R-value per inch thickness.

The R-value assumes no air is leaking through the insulation. Air leakage lowers the R-value of insulation. It is important to seal air leaks as well as install insulation. Standard density materials such as fiberglass batts and loose-fill materials do not seal effectively against air leaks. Some insulation materials, such as rigid foam and spray-in-place products, reduce or eliminate air leakage.

Proper installation is as important as how much insulation is installed. Gaps and compressed areas can lower the R-value over 30%.

The amount of insulation recommended for the ceiling, exterior walls, and floor of your home varies according to its design, the local climate, and cost of energy. Local building codes often set minimum standards; however, higher levels are usually a good investment and will improve comfort and decrease condensation problems.



Minimum R-values for the Southeast

For the Southeast, most energy experts **recommend** these minimum levels:

- ☑ **Attic: R-30**
- ☑ **Walls: R-13** *plus* **insulated sheathing: R-2 to 7**
- ☑ **Floor: R-19**

Types

Recycled materials are used in the manufacture of certain insulation materials. Cellulose is made from 100% recycled paper. Fiberglass products use up to 30% recycled glass. Other new products, such as cotton insulation, are manufactured from recycled materials.

Spray-in place foam insulation materials are manufactured with a blowing agent. Blowing agents are either HCFC's, carbon dioxide or pentane which do not damage the ozone layer.

☑ **Cellulose:** R-3.4 to R-3.8 per inch

Cellulose insulation is ground, recycled newsprint that's treated with a fire retardant chemical.

In attic installations, cellulose is blown in loose. As with any loose-fill material, follow manufacturer's guidelines for proper density and coverage.

For open framing cavities, especially walls, cellulose can be applied with a glue binder. Ensure the cellulose dries before the cavity is enclosed. There are also systems for blowing dry loose-fill cellulose behind a mesh support.

Cellulose can be used for retrofitting walls that have no insulation. Cellulose blown into walls at high densities (3-4lb/ft^3) has the added advantage of reducing air movement through walls.

Some building supply stores provide cellulose blowers for do-it-yourself applications. When working with any insulation, use respirators and other protective equipment.

☑ **Fiberglass:** R-3.1 to R- 4.2 per inch; loose-fill: R-2.2 to R-2.6 per inch

Fiberglass is spun glass and is available in either batts (faced or unfaced) or loose-fill. Batts can be installed by the do-it-yourselfer, while loose-fill must be professionally installed.

For the attic, either loose-fill or batts can be used. For floors and walls, batts are most common, although there is a blown-in system available. Fiberglass provides very little reduction of air leakage, so be sure to seal holes before insulating. Fiberglass also can be an irritant so wear gloves, a respirator and other protective gear.

☑ **Spray-in-place foams:** R-3.4 to R-6 per inch

Fairly new to the market in the Southeast, spray foam insulations are similar in composition to the foam that comes in canisters for home use. Foams have excellent air sealing properties and high R-values. However, they are only professionally installed and are more expensive.

☑ **Cotton:** R-3 per inch

Cotton batts are made from recycled textile scraps. Installation would be the same as for any batt material. However, sharp knives must be used as the material can be somewhat difficult to cut. The material is less of an irritant than fiberglass.

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by the Southface Energy Institute, for more information contact Southface Energy Institute, 241 Pine St., Atlanta, GA 30308, 404/872-3549, www.southface.org

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