

R-Value Recommendations!

Summary: Use U.S. Dept. of Energy R-value guidelines to determine the minimum requirements for insulation in your home. R-value, established by the U.S. Dept. of Energy for walls, ceilings, floors, and other areas of your home are provided in the form provided below or the table at the end of this document. Increased insulation R-value in your ceilings and wall insulation will save extra energy dollars!

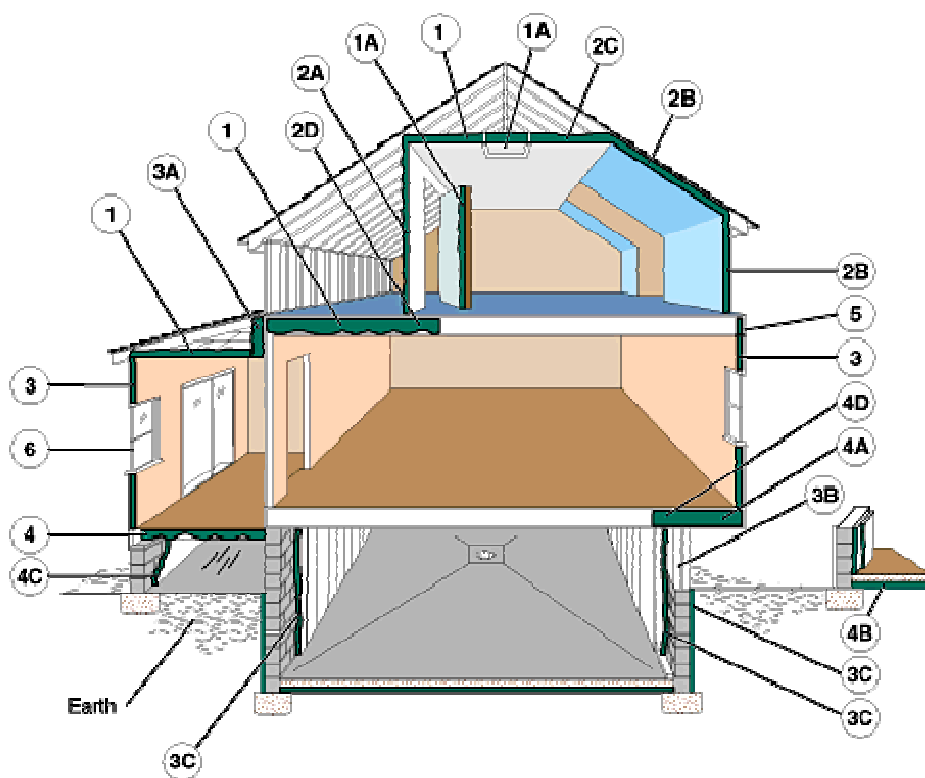
Follow the link below to get R-value recommendations for your location. If you need to determine the ZIP code for a city **click here**. Click your browser's back button twice to return to this page after you have the ZIP code.

R-Value Recommendations (<http://www.ornl.gov/~roofs/Zip/ZipHome.html>)

Remember to buy the insulation based on this R-value, and to check the product label to determine the insulation's proper thickness. Specialty insulation products are available to provide higher insulation values in confined spaces in new homes, such as in wall cavities and cathedral ceilings.

Figure 1 below shows examples of which building spaces should be insulated.

Fig 1. Examples of Where to Insulate



In unfinished attic spaces, insulate between and over the floor joists to seal off living spaces below.*

- 1A attic access door

In finished attic rooms with or without dormer, insulate ...

- 2A between the studs of "knee" walls;
- 2B between the studs and rafters of exterior walls and roof;
- 2C ceilings with cold spaces above;
- 2D extend insulation into joist space to reduce air flows.

All exterior walls, including ...

- 3A walls between living spaces and unheated garages, shed roofs, or storage areas;
- 3B foundation walls above ground level; 3C foundation walls in heated basements, full wall either interior or exterior.

Floors above cold spaces, such as vented crawl spaces and unheated garages. Also insulate ...

- 4A any portion of the floor in a room that is cantilevered beyond the exterior wall below;
- 4B slab floors built directly on the ground;**
- 4C as an alternative to floor insulation, foundation walls of unvented crawl spaces;
- 4D extend insulation into joist space to reduce air flows.

Band joists.

Replacement or storm windows and caulk and seal around all windows and doors.

**Well-insulated attics, crawl spaces, storage areas, and other enclosed cavities should be ventilated to prevent excess moisture build-up.*

***For new construction, slab on grade insulation should be installed to the extent required by building codes, or greater.*

Recommended Levels of Insulation

Insulation levels are specified by R-Value. R-Value is a measure of insulation's ability to resist heat traveling through it. The higher the R-Value the better the thermal performance the insulation will provide. The table below shows what levels of insulation are cost-effective for different climates and locations in the home.

Cost-effective Insulation R-Values for Existing Homes ^a

If you live in a climate that is...	Heating System... ^b	Insulate to these Levels in the...			
		Ceiling	Wood-Frame Wall	Floor	Basement/Crawl Space Walls ^d
Warm with cooling and minimal heating requirements (i.e., FL & HI; coastal CA; southeast TX; southern LA, AR, MS, AL & GA).	Gas/Oil or Heat Pump	R-22 to R-38	R-11 to R-13	R-11 to R-13	R-11 to R-19
	Electric Resistance	R-38 to R-49	R-13 to R-25	R-13 to R-19	R-11 to R-19
Mixed with moderate heating and cooling requirements (i.e., VA, WV, KY, MO, NE, OK, OR, WA & ID; southern IN, KS, NM & AZ; northern LA, AR, MS, AL & GA; inland CA & western NV).	Gas/Oil or Heat Pump	R-38	R-11 to R-22 ^c	R-13 TO R-25	R-11 to R-19
	Electric Resistance	R-49	R-11 to R-26 ^c	R-25	R-11 to R-19
Cold (i.e., PA, NY, New England, northern Midwest, Great Lakes area, mountainous area (e.g., CO, WV, UT, etc.)).	Gas/Oil				
	Heat Pump or Electric Resistance	R-38 to R-49	R-11 to R-22 ^c	R-25	R-11 to R-19
		R-49	R-11 to R-28 ^c	R-25	R-13 to R-19

a. Adapted from the U.S. Department of Energy 1997 Insulation Fact Sheet.

b. Insulation is also effective at reducing cooling bills. These levels assume your house has electric air-conditioning.

c. R-values may be achieved through a combination of cavity insulation and rigid board insulation and are for insulation only (not whole wall).

d. Do not insulate crawl space walls if crawl space is wet or ventilated with outdoor air.