



HOME INSULATION

Inadequate insulation and air leakage are leading causes of energy waste in most homes. Added insulation can make your house more comfortable by helping to maintain a uniform temperature. Insulation can also act as a sound barrier.

Check the insulation in your attic, ceilings, exterior and basement walls, floors and crawl spaces to see if it meets the levels recommended for your area. Insulation is measured in R-values—the higher the R-value, the better your walls and roofs will resist heat transfer.

The easiest and most cost-effective way to insulate your home is to add insulation in the attic. To find out if you have enough attic insulation, measure its thickness. If there is less than R-19 (6 inches of fiberglass or rock wool or 5 inches of cellulose) you could probably benefit by adding more.

Insulation usually comes in four types—batts, rolls, loose-fill and rigid foam boards. Each type is made to fit in a different part of your home.

Insulation priorities

- Insulate your attic to the recommended level, including the attic door or hatch cover.
- Provide the recommended level of insulation under floors, above unheated spaces, around walls in a heated basement or unventilated crawl space, and on the edges of slab-on-grade foundations.

Insulation tips

- Consider factors such as your climate, building design and budget when selecting insulation R-value.
- Use higher density insulation, such as rigid foam boards in cathedral ceilings and on exterior walls.
- Ventilation plays a large role in providing moisture control and reducing summer cooling bills. Install attic vents to help make sure that there is 1 inch of ventilation space between the insulation and roof shingles. Attic vents can be installed along the entire ceiling cavity to help ensure proper airflow from the soffit to the attic.
- Do not block vents with insulation, and keep insulation at least 3 inches away from recessed lighting fixtures or other heat-producing equipment unless it is marked “I.C.”—designed for direct insulation contact.

R-value

A wall's R-value is a measurement of its thermal resistance.

Many homes are still built using the traditional standard of 2-by-4 walls and R-11 fiberglass batt insulation. But most builders don't consider this old standard to be adequate. Insulation dealers now sell enhanced batts for 2-by-4 walls that are rated at R-13 or R-15.

Insulation effectiveness is measured in R-value per inch. The total R-value of your insulation depends both on its type and its depth. To determine the total R-value of your insulation, decide what type of insulation is installed, and multiply the



R-value per inch times the number of inches installed. Cellulose loose-fill insulation, for example, is rated at about R-3.5 per inch. If your attic has 4 inches of cellulose, that's $3.5 \times 4 = R-14$. Your attic insulation should be R-30.

Batts

Batts have a heavy paper backing on one side and a pink, fibrous material—usually made of either fiber glass or rock wool—on the other. Batts are simply blankets pre-cut into 4 or 8-foot lengths. Standard widths are 16 or 24-inch. Batts are made to fit between the studs in your walls or between the joists of your ceilings or floors.

Rolls

Rolls or blankets are usually made of fiberglass and can be laid over the floor in the attic.

Loose-fill

Loose-fill insulation, usually made of fiberglass, rock wool or cellulose, is blown into the attic or walls.

Rigid foam boards

Rigid foam boards are often made of polystyrene. These light-weight boards provide structural support and generally have an R-value of 4–7 per inch. Rigid board insulation is used in confined spaces such as exterior walls, basements, foundation and stem walls, concrete slabs and cathedral ceilings.

Sources

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John Krigger, *Saturn Resource Management*. www.srmi.biz. Author of numerous energy efficiency books including *Surviving the Seasons* and *Residential Energy: Cost Savings and Comfort for Existing Buildings*