

OVERVIEW

Between 50% and 70% of the energy consumed in the average American home is used for heating and cooling. Ensuring you have the proper type and amount of insulation in your home can have a direct and tangible effect on your heating and cooling costs.

Air leakage and insufficient insulation are among the leading causes of energy waste in homes. Adequate insulation can help conserve energy and save money on your heating and cooling bills, keep your house more comfortable, and absorb outside noise. It can also enable using smaller, more efficient heating systems.

Homeowners looking to boost the efficiency of an existing structure by adding insulation should consider where the insulation is needed. The most common types of insulation for existing homes are fiberglass and cellulose, installed in attics and wall cavities. Rigid board and foam insulation can also be used, particularly in basements and crawl spaces. Urethane foam is the most effective product for retrofitting existing walls, but it is expensive. In determining the places to insulate, it is highly recommended to get an energy audit by a qualified auditor, who can determine the energy efficiency of your home and recommend improvements.

UNINSULATED WALLS

- ☀ **Loose fill cellulose** insulation blown in at high density is very effective and can be professionally installed through several small “plugs” in the drywall or from the outside, creating minimal disruption to the existing structure.
- ☀ **Blown cellulose** is recommended over fiberglass or other types of loose-fill insulation for walls in terms of efficiency. In addition, while fiberglass insulation is a suspected carcinogen, cellulose insulation contains more than 75% recycled material, primarily newspaper, and its embodied energy is much lower per “R” of insulating value than other materials.

RECOMMENDED R-VALUES IN COLORADO

Insulation is rated in terms of its “**R-Value.**” This is a measurement of the insulation’s resistance to heat flow. A higher R-Value corresponds to more effective insulation. In Colorado, the following insulation R-Values are recommended.

	Code requires	Xcel Energy recommends
Attic/ceiling	R-38	R-50
Wall cavity	R-19 *wood-framed	R-25
Floor	R-20	R-25
Exterior Basement walls	R-5	R-15

ATTICS

In attics, either blown cellulose or fiberglass batts can provide the recommended R-value and can be added either by professional contractors or by resourceful do-it-yourselfers. Fiberglass batts are easier to install, but care must be taken to make sure that there are no gaps. Generally, blown cellulose insulation is more effective compared to blown fiberglass because it creates a seamless blanket.

Installing blown cellulose requires a special insulation blower, often supplied for free by insulation suppliers. Before you start, it is important to seal all bypasses, holes and cavities in the attic. Do not block attic vents with insulation. Installers should wear a respirator, safety goggles and a hard hat.

WHAT AREAS NEED INSULATION?

For proper energy-efficiency, your home should be insulated from top to bottom, including the foundation. Different areas require varying amounts of insulation.

- ☀ **Attic:** The attic is the most important space to insulate. Proper levels of insulation in an attic (both finished and unfinished) can make a big impact on energy costs and comfort.
- ☀ **Exterior Walls:** A house's exterior walls make up the largest surface area of a home that is exposed to the elements outside. Proper insulation between joists of exterior walls will help keep heat in during the winter and cool air in during the summer.
- ☀ **Floors:** Insulation should be installed under floors, especially above unheated spaces like a basement or crawlspace. If ducts or water pipes are in the crawl space or basement below, floor insulation is not recommended.
- ☀ **Foundation:** Proper air sealing around the perimeter and insulation in the foundation lowers energy waste.

HOW DO I CHOOSE A CONTRACTOR?

You should always request bids from more than one company for any service. You can evaluate bids in a number of ways – costs, warranties, customer service, experience, etc. The following are some general questions to ask that can help you decide between contractors.

Q: Is the Contractor experienced? Installing insulation in attics is not difficult, but blowing cellulose in sidewalls and other hard-to-get-to places where insulation plays a key role in air sealing as well as insulating is not a craft that has been mastered by all insulators.

Q: Is the Contractor adequately insured? The Contractor should carry appropriate workers' compensation, liability, and vehicle insurance that equals at least \$1,000,000 combined single limit coverage.

Q: What are the Contractor's warranty and after-sales service policies? Insulation, especially in walls, can settle leaving gaps that reduce the area's total R-value. Make sure the insulation's performance is covered for at least five years.

To find out more about energy audit and related rebates, contact the Center for ReSource Conservation: 303.999.3820 x224 or reap@conservationcenter.org

LEARN MORE

“Skinny” on “Air Sealing” and “Ducts”

<http://www.conservationcenter.org>

ENERGY STAR-Air Seal and Insulate

http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_sealing

DIY Home Energy Audit

<http://www.energyguide.com/ha/homeprofile.aspx?referrerid=164&sid=459&zipcode=80201> (Xcel Energy)

http://www.energystar.gov/index.cfm?fuseaction=home_energy_yardstick.showStep2 (ENERGY STAR)