



R-VALUES AND INSULATION: INFORMATION AND TIPS FOR HOME OWNERS/BUYERS

Facts about insulation

- Did you know insulation is essential to a comfortable, energy-efficient home? Insulation must be properly installed to control heat gain during the summer and heat loss in the winter and allow heating and cooling systems to work efficiently.^[9]
- Insulation provides resistance against heat flow from warmer to cooler spaces. Insulation will decrease heat flow in your home. The more resistance to heat flow insulation provides, the lower your home heating and cooling costs will be.^[6]
- According to the results of [The Harris Poll](#), 25% of Americans have added insulation to their attic, crawl, space, or any accessible exterior walls.
- Insulation provides a number of benefits! Most importantly, properly installed insulation will:
 - provide homeowners with enhanced comfort,
 - lower utility bills,
 - improve durability, and
 - enhance the resale position of your home.^[9]

What is an R-value?

- An R-value is an indication of the insulation's resistance to heat flow and depends on the type of insulation. The R-values of individual layers of insulation can be summed to determine the overall R-value of a specific location in your home.^[8]
- The more insulation added to your home, the greater the R-value.^[8]
- A greater insulation R-value means better resistance to heat flow and increased energy efficiency in your home!

R-value guidelines

- Wall R-values typically range from R-11 to R-23. Increase the R-value even more by simply adding a layer of foam sheathing and using higher density insulation between the wall studs.^[3]
- R-values for the floors generally range from R-11 to R-25, and in the ceiling from R-19 to R-50.^[3]
- The North American Insulation Manufacturers Association provides [recommended levels](#) of insulation depending on your home's geographic location.





National Home Performance Council

Types of insulation

- There are four major types of insulation that can be energy-effective in your home if properly installed. These insulation materials are rated by their resistance to heat flow or R-value.
 - Batt Insulation
 - Blown-in Insulation
 - Sprayed or Injected Foam Products
 - Rigid Insulation ^[9]

Buying insulation for your home

- When purchasing insulation for your home, find the R-value labeled directly on the insulation's packaging.
- Look for products with no VOCs. There are many formaldehyde-free fiberglass insulation products now available. ^[4]
- Having Injected Foam insulation installed by a professional? Ask for no-VOC polyurethane spray foam. ^[4]

Installing insulation in your home

- When replacing or adding insulation to your home, the first step is to conduct a home energy audit. Find out how [here](#).
- There are several other questions to ask yourself before adding insulation to your home:
 - where your home is, isn't, and/or should be insulated,
 - what type of insulation you have now, and
 - what is the R-value and thickness/depth (in inches) of the insulation you have now? ^[5]

Key areas in your home to add insulation

- A home's *outer shell* and *attic* represent two critical areas that need insulation.
- Did you know insulation of your home's outer shell or enclosure is one of the most cost effective ways to improve the overall energy efficiency and comfort of your home? The enclosure of your home includes its outer walls, ceiling, windows, doors, and floors. ^[9]
- Your home's attic is a great place to start a DIY insulation project because it is an easily accessible area. An attic's hatch or door should also be insulated using insulation or a pre-made attic cover. ^[9]

*Note: The Department of Energy provides [information](#) on how to calculate the payback period of adding insulation to your home.

Home buyers and insulation

- Whether you are purchasing an existing home or constructing/purchasing a new home, always remember that the higher the R-value, the more insulated the home. An insulated home will be more energy efficient when regulating indoor air temperature!

1620 Eye Street NW, Suite 501, Washington D.C. 20006 | 202.463.2005 | www.nhcpi.org

National Home Performance Council Inc. is a 501 (c)(3) non-profit organization.





National Home Performance Council

Existing homes

- Buyers should check for the appropriate amount of insulation in the walls, roof assembly, and floor, depending on climate. Wall insulation is more important in northern climates where heating needs are driven by the large difference between indoor and outdoor temperatures.^[3]

*Note: Many old homes have NO wall insulation.

- Assess the amount of insulation that will need to be added to achieve the proper level of insulation and energy efficiency.
- Did you know about 65% of U.S. homes lack the proper level of insulation?^[2]

Constructing/purchasing a new home

- State and local building codes generally provide minimum insulation requirements for new constructions. However, energy efficient homes will usually exceed these standards. Proper interaction between insulation and building components will help to achieve maximum energy efficiency.^[7]
- ENERGY STAR constructed homes contain insulation that meets or exceeds the latest national code requirements. This will provide year-round comfort while reducing utility bills.^[9]

Finding an insulation contractor

- Finding a good contractor is essential to the success of your home energy efficiency projects! A detailed guide and tips to consider can be found [here](#).
- To find listings of certified professionals and accredited contracting companies, visit the [Building Performance Institute](#) or the [Residential Energy Services Network](#).

Insulation tax incentives/credits

- Want assistance covering the costs of your home energy efficiency projects? There are tax incentives available for energy-efficient home improvements for 2011. The [Tax Incentives Assistance Project](#) will help you discover which of your projects qualify.
- The [Department of Energy](#) also provides necessary forms and information regarding energy efficiency tax credits.





National Home
Performance Council

REFERENCES

1. Conservation Services Group, "Save Quick", *Take Action*.
<http://www.csgrp.com/consumer/takeaction/savequick.html>.
2. Jonathan II. Levy, Yurika Nishioka and John D. Spengler, "The public health benefits of insulation retrofits in existing housing in the United States," *Environmental Health: A Global Access Science Source*, April 2003. pp1-16.
3. National Association of Home Builders Research Center, "Energy Conservation and Energy Efficiency Tips for New and Existing Homes", *Remodeling and Retrofits*. <http://www.toolbase.org/Home-Building-Topics/Remodeling/energy-efficiency-tips>.
4. Natural Resources Defense Council, "CO2 Smackdown, Step 2: Sealing and Insulating", *Smarter Living*.
<http://www.simplesteps.org/home-garden/energy/step-2-sealing-insulating>.
5. U.S. Department of Energy, "Adding Insulation to an Existing Home", *Energy Savers*.
http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11350.
6. U.S. Department of Energy, "How Insulation Works", *Energy Savers*.
http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11330.
7. U.S. Department of Energy, "Selecting Insulation for New Construction", *Energy Savers*.
http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11370.
8. U.S. Department of Energy, "The R-Value of Insulation", *Energy Savers*.
http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11340.
9. U.S. Environmental Protection Agency, "Properly Installed Insulation Improves Comfort While Saving Energy", *ENERGY STAR*. http://www.energystar.gov/ia/new_homes/features/Insulation_062906.pdf.

1620 Eye Street NW, Suite 501, Washington D.C. 20006 | 202.463.2005 | www.nhpci.org

National Home Performance Council Inc. is a 501 (c)(3) non-profit organization.

