

Insulating Your Home

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It seems like no one gave much thought to insulating their home before the energy crisis of the '70s. Seemingly infinite energy reserves and low prices made insulation a luxury of sorts. But, as the cost of energy began to rise, builders and homeowners began to realize the importance of proper insulation. Adding insulation to your home is a simple task requiring no special tools or skills. Depending on the size of your home, it should take between one and two days to insulate. Lowe's is happy to provide this information as a service to you.

Why Insulate?

There are several advantages to insulating your home:

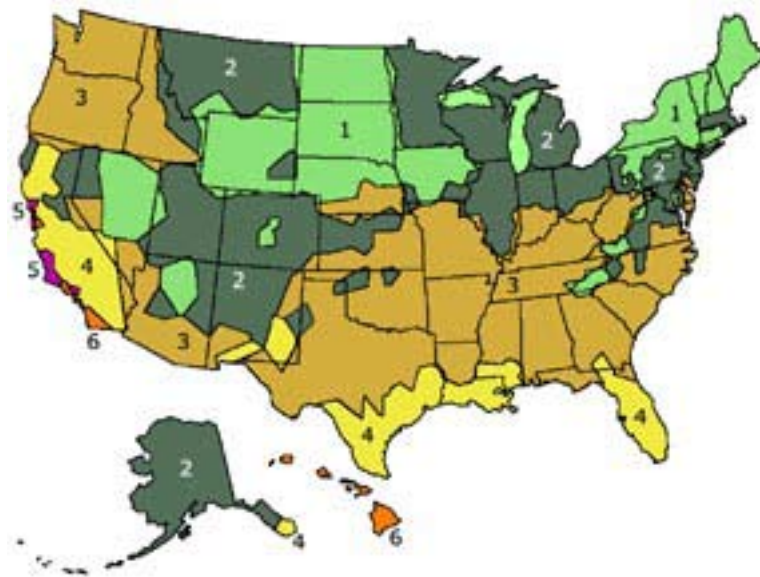
- Proper insulation reduces energy costs.
- A well-insulated structure does not gain or lose heat as quickly as a poorly-insulated one, so it is easier to maintain a comfortable temperature.
- The retention of conditioned air lowers the demand on the heating and cooling systems. This reduces operating costs and extends the life of the system.



Adding insulation is a simple task that saves energy.

R-Value

R-value is the measure of a material's ability to resist heat conduction. The greater the material's R-value, the better it performs as an insulator. All values assigned to insulation are based on specific thicknesses and are usually noted on the packaging. Compressing or otherwise reducing the thickness of insulation reduces its ability to resist conduction and its R-value.



Zone	Roofs	Walls	Floors
1	R49	R28	R25
2	R49	R22	R25
3	R49	R18	R25
4	R49	R18	R25
5	R49	R18	R25
6	R49	R18	R25

R-Value Recommendations

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Insulation Materials

The materials you will use to insulate your home will depend on the type of installation. Listed below are the basic materials and their areas of use.

Cellulose insulation is a recycled, organic, loose-fill insulation blown into walls and attics. It is usually composed of recycled newspaper which has been treated with a flame retardant.



Fiberglass roll insulation is a manufactured fibrous insulation. Roll insulation is available in short batts for use in tight spaces and lengths up to 25' to quickly cover open spaces. Roll insulation is also available with a vapor barrier (faced insulation), without a vapor barrier (unfaced insulation) or completely wrapped in plastic sheathing for itch-free installation.



Attic rafter vents/baffles are designed to fit between rafters either 24" or 16" on center (OC) to prevent insulation from blocking the airflow from soffit vents.



Insulation supports are wire supports precut to fit between framing members, either 24" or 16" OC, to hold insulation in place.



Polyethylene sheeting is often used as a vapor barrier, in conjunction with blown cellulose or unfaced roll insulation. Most manufacturers suggest using 4 or 6 mil sheeting to resist tearing.



Good idea: Faced insulation should always be installed with the face toward the inside of the structure.

Areas to Insulate

Four major areas in a home require insulation — the attic, exterior walls, crawlspace and the garage.

Insulating Your Attic

In most homes, the attic is the hottest part of the house during the summer. Without adequate insulation, the extreme heat generated there transfers into the living space of the home and increases the demand on the air conditioning system. During the winter, inadequate insulation in the attic can cause heat loss and overwork the heating system. Properly insulating your attic with either roll or cellulose insulation reduces the rate of heat transfer and stretches your energy dollars.

Installing Roll Insulation

Tools

- Work gloves
- Goggles
- Utility knife
- Dust mask
- Staple gun
- Straight edge
- Broom handle
- Flashlight or work lights

Materials

- Faced insulation
- Unfaced insulation (If you are installing two layers of insulation)
- Staples
- Attic rafter vents/baffles
- Plywood or boards for temporary flooring

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Preparation and Installation

1. Determine the R-value required in your area by using the chart above or contacting your local contractor or building inspector.
2. If your local authorities require more than R-38 in your attic, install the insulation in two layers. Install the first layer of insulation between the rafters with the vapor barrier down. Install the second layer over and perpendicular to the first. The second layer should be unfaced.
3. Plan to install the insulation in the early morning hours before the attic heats up.
4. Measure the distance between ceiling joists to determine whether you need 15" or 23" wide insulation.
5. Use our rolled insulation calculator to determine how many square feet of insulation you need. If you're using two layers of insulation, double the square footage.
6. Determine how many rafter vents/baffles you need (use one for each soffit vent).
7. Use plywood to make a temporary walkway. Do this by resting a sheet of plywood across ceiling joists.
8. Install the rafter vents adjacent to the soffit vents. The rafter vents prevent insulation from blocking airflow from the soffit vents.
9. Start at one edge of the roof and lay insulation between the joists with the vapor barrier down. The insulation should fit snugly between the joists. If you need to cut the insulation, turn the faced side up, compress the insulation with a straight edge and cut along the edge with the utility knife. Staple the insulation every 2' to hold it in place.
10. Continue installing the insulation until the entire attic floor is covered.
11. Stuff small pieces of insulation into areas around obstructions. Use a broom handle to stuff the insulation into other hard-to-reach places.
12. If your attic requires two layers of insulation, install the second layer on top of and perpendicular to the first.

Installing Blown Cellulose Insulation

Tools

- Work gloves
- Goggles
- Staple gun
- Tape measure
- Dust mask
- Flashlight or work light
- Insulation blowing machine*

Materials

- Cellulose insulation
- Attic rafter vents/baffles
- Staples
- Polyethylene 4mm or 6mm
- Plywood or boards for temporary flooring

**You can rent the blower from your local Lowe's, or use it free for a day with a purchase of 25 or more bags of cellulose insulation.*

Preparation and Installation

1. Determine the R-value required in your area by using the chart above or contacting your local contractor or building inspector.
2. Use our blown cellulose calculator to determine how many pounds of insulation you need. The calculator also tells you how deep the insulation should be to obtain your R-value.
3. Determine how many rafter vent/baffles you need (use one for each soffit vent).
4. Plan to install the insulation in the early morning hours before the attic heats up.
5. Use plywood to make a temporary walkway by resting a sheet across the ceiling joists.

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6. Install the rafter vents adjacent to the soffit vents. The rafter vents prevent insulation from blocking airflow from the soffit vents.



Good idea: The project goes much more quickly if you have a helper filling the blowing machine while you blow the insulation.

7. Lay the polyethylene vapor barrier between the rafters and staple it in place. Ensure that the barrier is at least 3" away from recessed lights, chimneys, flues or other heat-producing devices.
8. Set up the blowing machine according to the manufacturer's instructions and begin blowing the insulation into the attic. Stop periodically to check the depth of the insulation.
9. Continue blowing insulation until the attic floor is covered to the correct depth.

Insulating Your Exterior Walls

Since the walls in most homes represent more exterior surface area than the floors or ceilings, they also present more opportunity to lose and gain heat. Protect yourself and your home from the cold of winter and the heat of summer with adequate insulation. Although cellulose insulation can be used to insulate exterior walls, it is best to leave that job to the professionals. However, installing roll insulation in interior walls is a simple project most homeowners can complete themselves.

Tools

- Work gloves
- Goggles
- Utility knife
- Dust mask
- Staple gun
- Straight edge
- Broom handle
- Flashlight or work light

Materials

- Faced insulation
- Staples

Preparation and Installation

1. Determine the R-value required in your area by using the chart above or contacting your local contractor or building inspector.
2. Measure the distance between wall studs to determine whether you need 15" or 23" wide insulation.
3. Use our insulation calculator to determine how many square feet of insulation you need.
4. Start at one end of the wall and place insulation between the studs with the vapor barrier facing the interior of the room. Staple the insulation every 6" to hold it in place. The insulation should fit snugly between the studs. If you need to cut the insulation, turn the faced side up, compress the insulation with a straight edge and cut along the edge with a utility knife. Faced insulation has extensions on the sides that allow you to staple the insulation to the edges of the wall studs.
5. Continue installing the insulation until the entire wall is covered.
6. Stuff small pieces of insulation into areas around obstructions. Use a broom handle to stuff the insulation into other hard-to-reach places.

Insulating Your Crawlspace

Have you ever walked barefoot across a tile or vinyl floor and noticed that it seemed very cold? If so, it may be time to insulate the crawlspace. Insulating the crawlspace increases the comfort level in your home and decreases the heating and cooling expense.

Tools

- Work gloves
- Goggles
- Utility knife
- Dust mask
- Wire insulation supports
- Straight edge
- Broom handle
- Flashlight or work light

Materials

- Faced insulation
- 4mm or 6mm Polyethylene
- Duct tape

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Preparation and Installation

1. Determine the R-value required in your area by using the chart above or contacting your local contractor or building inspector.
2. Measure the distance between floor joists to determine whether you need 15" or 23" wide insulation.
3. Use our insulation calculator to determine how many square feet of insulation you need.
4. Determine how many insulation supports you need. Divide the square footage of insulation required by 4 for 15" wide insulation and by 5 for 23" wide insulation.
5. Spread the polyethylene over the entire crawlspace floor. Overlap any seams by 16" to 24" and secure with duct tape. The polyethylene acts as a vapor barrier to prevent excess ground moisture from permeating the insulation.
6. Start at one edge of the crawlspace and install insulation between the joists with the vapor barrier up. The insulation should fit snugly between the joists. If you need to cut the insulation, turn the faced side up, compress the insulation with a straight edge and cut along the edge with a utility knife. Install wire insulation supports every 24" to 36" to hold the insulation in place.
7. Continue installing the insulation until the entire crawlspace ceiling is covered.
8. Stuff small pieces of insulation into areas around obstructions. Use a broom handle to stuff the insulation into hard-to-reach places.

Insulating Your Garage

More and more homeowners are using their garages as extensions of their living space, as children's play areas, workshops, hobby areas, laundry rooms and more. As the activity in the garage increases, so does the need to maintain a constant, comfortable temperature in this space. For the attic, walls and crawlspace you can use the same techniques outlined above to increase the comfort level in your extended living space. But, there is one more, often overlooked, space in your garage where you can increase insulation value and energy efficiency - the garage door. A quality garage door should have:

- Good insulating qualities. Look for a door with an R-value of at least 5 in moderate to temperate climates in harsher climates go up to an R-value of 10.
- Weather seal between the sections. The seal may be designed into the mating surfaces of the panels or it may be in the form of gasket material that compresses when the door is closed.
- A bottom seal/threshold. If the door doesn't come with a bottom seal standard, you can always add one to keep drafts and rain out.

By choosing ENERGY STAR for every application in your home, you can save up to 20 percent or about \$400 per year on your energy bills. ENERGY STAR recommends sealing the envelope that surrounds your living space: the ceiling, outer walls, windows and floors. Appliances account for about 20 percent of your household's energy consumption, with the refrigerator and clothes dryer being the biggest culprits. A typical household does nearly 400 loads of laundry per year, using about 40 gallons of water per full load with a conventional washer. An ENERGY STAR qualified clothes washer uses 18-25 gallons per load, saving you 7,000 gallons of water! An ENERGY STAR refrigerator uses less energy than a 75-watt bulb, saving you between \$30-\$70 a year.

