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Insulating Side Walls

Unless they're insulated, the exterior walls of your home provide an ideal escape route for precious heat in the winter and absorb the sun's energy during the summer. During the winter, without insulation, heat travels right through your walls in its natural quest to join the cold outside. Insulation slows down this migration of heat and saves you money on your utility bill. For Tennessee's mixed-humid climate, the U.S. Department of Energy recommends insulating existing house exterior walls to an R-value of at least 13. R-value is the measure of an insulation material's ability to resist heat flow. It's measured per inch of the material's thickness, and the higher the R-value, the better the insulating ability. For example, glass-fiber batt or blanket insulation has an R-value of around 3.2 per inch; the R-value of loose-fill cellulose is about 3.7 per inch, and rigid polystyrene board has an R-value of 4.5 to 5.5 per inch. All of these insulation types are commonly used to insulate walls. Which type works best depends on what kind of walls your home has.

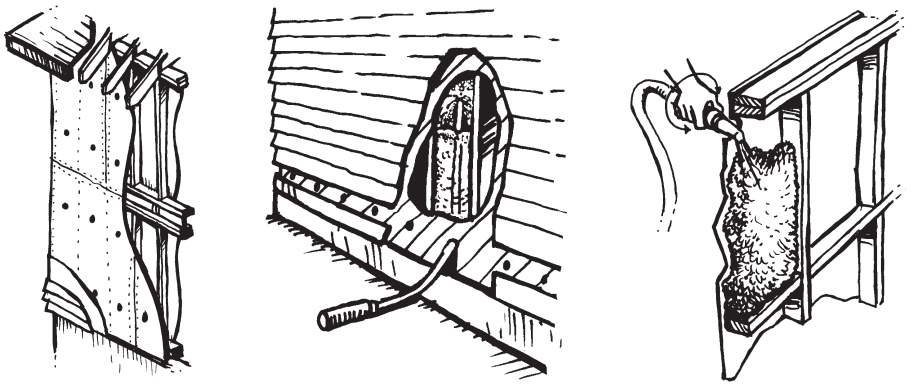
Wall Insulation Strategies

There are three ways to insulate the exterior walls of an existing home:

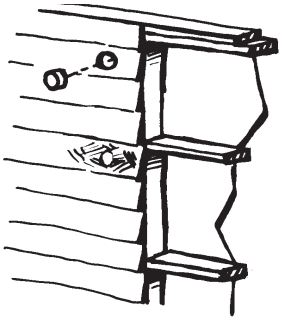
1. Fill existing above ground wall cavities with insulation.
2. Apply insulation to the exterior of the walls before re-siding.
3. Add insulation to the interior surface of the walls and refinish with sheetrock. This option is generally used for unfinished basement walls.

When it comes to insulating walls, above ground walls should be your first priority. To do this, the most economical, as well as the least disruptive method that doesn't require that you refinish your inside walls or put new siding on your home's exterior is to blow insulation into the wall cavities. Of course, it can only work if your home's walls have cavities, and some brick or cement walls do not.

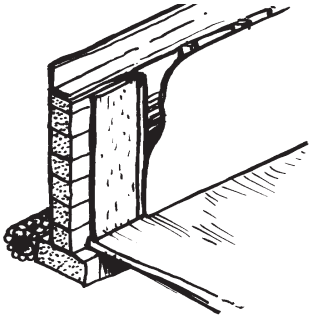
To find out what kind of walls your home has and if insulation can be added, first remove a light switch or an electrical outlet coverplate (after shutting off power to it) and peek inside your wall from there. If the outlet provides no clues, check in the attic, if it's accessible. The tops of exterior walls are sometimes left exposed up there. Wooden stud walls are usually covered with a wood 2x4; brick or stone walls are often left exposed.



Existing above ground sidewalls are most commonly insulated by removing siding or drilling holes into the sidewall and blowing loose-fill into cavities.



After insulating, the contractors will plug the holes and/or remount the siding.



To insulate an interior solid masonary wall, you can install rigid board insulation between studs or furring strips and cover with gypsum board.

Wooden stud walls are the most common. If the cavities between the studs already have insulation in them, it may be too difficult or may not be cost effective to add more. If they are empty, however, your house is a good candidate for wall insulation.

If you are on a limited income, you may qualify for a free wall insulation job and other weatherization assistance. Contact your local utility and your local Community or Economic Development Council for details. This service is particularly valuable for wall insulation projects since they should be done by experienced contractors rather than do-it-yourselfers.

What to Expect

Before insulating your above-ground, wood stud walls, the contractor or weatherization crew will first inspect them to make sure the interior walls will support the pressure of adding insulation and are free of moisture damage. Once your walls are approved for insulation, weatherization crews can start preparations for adding insulation into the wall cavities using special blowing equipment. The work typically takes place outside, so it doesn't disrupt your living space and interior walls. To get insulation into the walls, crews may remove part of the exterior siding and then drill two-inch holes through the wall sheathing. Depending on the insulation used, one or two holes per cavity will be drilled. The blowing nozzle, which is fitted to a long hose and insulation blowing machine, is then inserted into the holes and fills the cavities with either cellulose, glass-fiber or mineral wool loose-fill insulation. The crews make sure the insulation is blown to just the right density inside the walls and that the entire wall cavity is filled and the insulation will not settle.

Once the insulation is installed, the crews plug the holes and remount the siding. Your walls look just like they did before – only now they are insulated. If the siding is too difficult to remove, holes will be drilled directly into the siding and later plugged. This operation is best for siding that needs a new paint job anyway.

Wall Variations

Other types of walls require different insulating techniques. Below are some variations you may encounter:

Brick or stone walls. Some of these wall types also have an open wood frame cavity within the wall. If yours does, it may be possible for a contractor to add loose-fill insulation down into the cavities from the attic or other opening. Cellulose or glass-fiber insulation works well in these cases. Again, it's important to make sure the cavities are fully filled.

Solid walls. Brick or stone walls and walls made of poured concrete or concrete block contain no cavities. In these cases, a layer of insulation must be added to either the interior or exterior of the walls. On the inside, your options include putting up wooden studs and filling the cavities with fiberglass batts or installing rigid board insulation such as extruded or expanded polystyrene. Rigid board insulation can also be adhered to existing wall surfaces.

Regardless of the route you choose, make sure the insulation is placed on the outside (on the cold side) of all pipes to prevent them from freezing. A vapor barrier such as polyethylene plastic is generally NOT recommended on a wall located below ground level. Rigid board insulation must be covered with a fire resistant material like half-inch sheetrock board. If you want to put the insulation on the outdoor side of a concrete wall, rigid board insulations work well because they can be installed right over the concrete or existing siding and then covered with new siding or with stucco-like finish. Because rigid board insulations will not readily allow water vapor to pass through them, they are not recommended to be added to poorly insulated wood-cavity walls – you can create a major moisture problem in the wall. Adding insulation to solid walls is a difficult job no matter where the insulation is placed. It often involves readjusting door and window frames and extending electrical outlets and switches to accommodate the added insulation. It also requires careful attention to air-sealing and moisture control. These projects require the skills of a professional as well, and they may not be cost-effective unless you need new exterior siding or you're considering an interior remodeling project that involves some wall modifications.

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