

Insulation provides a winter-worthy overcoat for your home

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Cooler temperatures put our bodies on notice that we need to keep warm. While a sweater may be all we wear to stay comfortable in the fall, a goose down coat may be the prescription for the winter. It is the insulating value of the goose down that keeps us snug. Insulation in a home serves a very similar function in maintaining warmth. Our comfort and expense is significantly affected by the type and amount of insulation we choose, as well as its installation locations and processes.

Insulation's function is to create resistance to heat transfer. In the summer, heat wants to enter your home; in the winter, heat wants to escape. It is the job of insulation to slow that exchange of temperature. That resistance is measured in R-value.

Surrounding the conditioned space on all sides with insulation is how we most effectively keep our homes comfortable. The unique aspects of its different locations are worth examining in detail.

First-level floor

Most homes insulate the first story with material placed on the bottom side of the floor. Building code requires a minimum R-19, and this is most often accomplished with the placement of batts (rolled out lengths of fiberglass insulation) placed between the floor joists.

For older homes that lack any floor insulation, having this installed will greatly increase comfort as well as reduce energy consumption. I typically see homes that contain floor insulation in disrepair. Re-insulating areas where batts have fallen down or have been removed because of re-wiring, re-plumbing or a lack of support rods to hold them in place is a good idea. Keep in mind that the material should have contact with the bottom of the flooring but should not be compressed, as this will make it less effective. "Sealing" or "closing" a crawlspace is also an excellent way to insulate. The process yields exceptional results by improving moisture control and air quality and saving energy.

Exterior walls

Being encapsulated on all sides makes this the least accessible place to inspect and repair insulation. Most homes built within the past 40 years have insulation in the exterior walls. Homes without this insulation have wall cavities with temperatures that can be very similar to the outside. There are effective methods to insulate these homes, most often by blowing insulation into the wall cavities. I recommend consulting a qualified professional about options and costs.

There are several effective choices when insulating walls in a new home. Traditional batts are a good choice when properly installed. Be aware that hand-cut batts can create undesirable gaps and that the material should always have full contact with the interior drywall.

There are many blown and sprayed wall insulation options, and their attributes, applications and costs vary. What they all have in common is that they minimize the human error attributed to installation and give an even, consistent application that conforms nicely to the wall cavities, eliminating gaps and voids.

Attic

Warm air rises. In the winter, your home's conditioned air pushes against the ceiling, or the underside of the attic, and heat transfer can be significant there. A visual inspection of the attic insulation is worth the effort. Some issues can be detected easily. For instance, if you can see the tops of your ceiling joists, you probably have inadequate coverage.

As a rule of thumb, to achieve building code compliance of R-38, an attic should have approximately 15 inches of loose fill fiberglass or 11 inches of loose fill cellulose. Batts also are a common form of attic insulation. My experience has been that this application often contains numerous voids around electrical boxes and ducting, as well as beside each ceiling joist. Blown insulation can be applied to increase almost any attic's existing insulation, regardless of what has been previously installed. A relatively new process of applying spray foam insulation in the rafter system has proven to be very effective. One of its benefits, as many homes have their duct system in the attic, is that by insulating the rafters, the ducts then become located inside the insulated envelope. This keeps the attic temperature milder and provides minimal heat transfer with the duct work.

A well-insulated home is a more comfortable and a more energy-efficient home. So button up that overcoat around your home with some insulation this winter, and have a warm and joyous holiday season.