# WALL INSULATION

## Check out your walls

Generally speaking, homes built before 1960 do not have insulated walls, or are insulated with products that are inadequate by today's standards. Even some homes built after that were not carefully or completely insulated. The benefits of adding insulation to exterior walls can be very high, depending on the situation. There is a simple way to determine whether your walls contain insulation: Turn off the electricity and remove an electrical outlet or switch plate on an exterior wall; using a flashlight, look behind the electrical box for insulation. This will tell you only whether or not you have any insulation material in your walls; the integrity of the installation can only be determined through an energy assessment that includes infrared imaging.

### *When should you add wall insulation?*

Insulating your walls may be a good idea when there is less than one inch of insulation in the wall cavities (typically, walls have space for 3½ inches of insulation) or if infrared imaging reveals significant voids or gaps. If remodeling work is planned involving exterior walls, adding wall insulation (and proper air-sealing) is relatively easy and affordable.

### *Fiberglass batts*

If wall cavities are accessible from the inside (because plaster or gypsum has been removed), installing fiberglass batts is relatively straightforward. Careful cutting and fitting around wires, electrical boxes, pipes, and vents is very important. When fiberglass is compressed, it loses significant insulating value; when "bunched up" (around wires, for example) there can also be voids and gaps. Installing a vapor retarder over the fiberglass is also important; seal all seams with sheathing tape. Outlets and switches should have an air-tight box installed that is taped or caulked to the vapor retarder.

### *Dense-pack cellulose*

Drilling small holes (from the inside or outside) and adding dense-pack cellulose can provide good insulating value, and excellent air-sealing as well. Installed by an experienced contractor, dense-packing sidewalls also requires patching and finishing the access holes (which can be a challenge with exterior finishes).

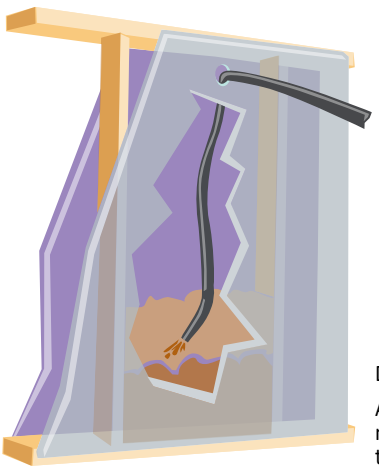
### *Other wall insulation options*

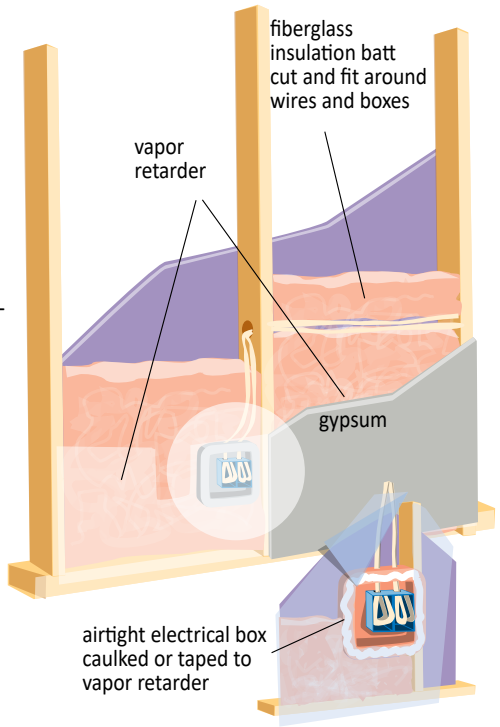
- Removing old siding and installing new siding provides several insulation options. Dense-pack cellulose can be blown into empty stud cavities through holes in the exterior sheathing before the new siding is installed. Another option is to install rigid foam beneath the siding to provide additional wall insulation and provide a thermal break for the wall framing. (Don't be fooled by claims that foam "backer-boards" placed behind aluminum or vinyl siding offer insulation value; they are designed to support the siding, not insulate the walls.)
- Polyurethane or polyicynene foams can be sprayed into open wall cavities, from either interior or exterior. These products provide a very high R-value and a good air barrier and vapor retarder as well. Because of the complexity of the equipment and application process, spray foams are only installed by experienced contractors.

**Wall insulation**

Fiberglass batts (below) can be applied if walls are opened to the interior. Care must be taken to not compress or leave voids in the insulation in order to maintain thermal performance. Penetrations (such as wires, electrical boxes, pipes) must be carefully sealed with caulking or spray foam to prevent air leakage.

Dense-pack cellulose (made from recycled newspapers) is an excellent choice for insulating and sealing walls (below left). Installed through holes drilled from either the outside or inside, it is often the most cost-effective way to insulate sidewalls in homes with no existing wall insulation.






Dense-pack cellulose

A good way to insulate and air seal existing walls without removing either interior or exterior surfaces is for a contractor to install highly condensed cellulose insulation into empty wall cavities.