

Be a Smart and Engaged Homeowner

What You Need to Know When Considering Home Energy Improvements

Before getting started, you need to be an informed consumer. Follow these important guidelines to help ensure your energy efficiency investments pay off – not only by lowering your utility bills, but also by improving your comfort, enhancing indoor air quality and ensuring safety.

- ▶ Use a qualified contractor who can conduct diagnostic tests before and after the work has been completed.
- ▶ When possible, make energy improvements in a logical order because they can affect one another. The information below offers some guidelines for sequencing work.
- ▶ Make sure your contractor has a plan for addressing combustion safety, indoor air quality, and moisture when making energy improvements.
- ▶ The quality of the installation is at least as important as the quality of the equipment and materials. Make sure your contractor is committed to following all manufacturer installation guidelines for insulation, heating and cooling equipment, and other components.
- ▶ After you've made improvements, make sure to follow the maintenance requirements suggested by your contractor and the equipment manufacturer.

Specific Guidelines

The following information will help you talk to your contractor if you make any of these specific energy efficiency improvements.

Seal Cracks, Gaps, and Holes in Your Home

- ▶ Before you tighten a home by sealing gaps and installing insulation, you need to address any moisture problems. Otherwise, you can end up with indoor air quality problems, rot, and mold.
- ▶ The most important air leaks to address occur at the highest and lowest points of your home (e.g., attic, basement, crawlspace).
- ▶ Before and after sealing, ask your contractor to perform a blower door test to make sure that sealing has been done properly.

- ▶ If you use gas, oil, or propane to heat your home or water, your contractor should also perform tests to verify the equipment is working safely now that air flow conditions in the home may have changed.

Insulate Your Attic, Basement and Crawlspace

- ▶ If you have an unconditioned basement or crawlspace, your contractor should fully install insulation between the floor joists and against the floor above. This can be very difficult with batt insulation. Insulation will work better if it is not compressed any more than necessary. Improper installation can significantly reduce the effectiveness of the insulation.
- ▶ Before installing attic insulation, make sure to seal holes, cracks, and gaps between your top story ceiling and the attic floor. If these gaps are not sealed properly, insulation will not pay off. Moreover, moisture from the house can migrate into the attic and lead to mold, rot, or ice dams on your roof.

Foundation Insulation

- ▶ Where there is a conditioned basement or crawlspace, the foundation wall should be insulated. This can be done using spray foam, foam board or batt insulation. If there are vents in the crawlspace wall, these must be sealed as part of the insulation work.

Seal and Insulate Your Ducts

- ▶ Most ducts leak conditioned air and these leaks are often the largest source of energy loss in a home. Ducts that run through attics, crawlspaces or unconditioned basements should be sealed. Use mastic or the appropriate foil tape—not duct tape. After sealing the ducts, the contractor should conduct combustion safety tests for homes with any non-electric heating and cooling systems.
- ▶ If ducts are located in unconditioned areas, they need to be insulated. Often the best option is burying them inside insulation in the attic or crawlspace. Alternatively, you can have insulation wrapped around the ducts.

Replace Inefficient Equipment with ENERGY STAR Equipment

- ▶ When possible, air sealing and insulation should be performed before replacing the heating or air conditioning equipment. This will reduce the size of the equipment needed and installation costs. Your contractor should calculate your home's heating/cooling requirements in order to select appropriately sized equipment.

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- ▶ After installing gas, oil, or propane equipment, the contractor should conduct combustion safety tests to ensure that the equipment works safely. The best practice is to select direct-vent equipment.
 - ▶ Keep in mind that even the most efficient heating or cooling system will not perform efficiently unless it's properly installed and maintained.

Insulate Your Roofs and Walls

- ▶ Roof insulation needs to be installed correctly to avoid condensation from forming and causing rot; this typically is not a problem with spray foam-type insulation. In cold climates, contractors need to install an airtight barrier between the house and the insulation. In hot climates, they need to install an airtight barrier between the roof and the insulation.
- ▶ When adding wall insulation, have the work verified with an infrared scan of all treated walls.

Install ENERGY STAR Windows and Skylights Correctly

- ▶ Replacing windows generally is not cost-effective given their high upfront cost. If you plan to replace windows or skylights for other reasons (e.g., ease of maintenance and operation, appearance, etc.), make sure your contractor properly installs ENERGY STAR windows including air sealing the opening around the window, and providing pan flashing at the sill.

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