

Seal Air Leaks, Insulate for High Efficiency



Turn off the circuit breaker and use a nonconducting item to check for a leaky gap.



Use expanding insulating foam to seal wiring holes and gaps where the sill plate rests on the foundation.



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Q: My home has blown-in attic insulation and good windows, but I want to further cut my utility bills. What inefficient spots should I check?

A: Proper insulation and good-quality windows and doors are the most important efficiency factors. There are many other areas where small insulation voids and air leakage contribute to high utility bills. These areas often are equivalent to leaving a 2-foot-by-3-foot window open year-round.

Before checking these areas, ensure your ceiling is adequately insulated by looking for gaps and checking insulation depth. Depending on how it was blown in, insulation may have settled and no longer be the required depth and R-value for your climate. Wind coming in the attic vents can blow it around, creating high and low spots. Use a rake to level it.

Any break in the insulation envelope of your house is a possible location for energy loss.

One common leakage spot is electrical wall outlets and switches on outside walls. They often are not insulated, and the vapor/air barrier is not taped tightly to them. A 1% insulation void can lose 10 times more energy than complete insulation.

To check outlets and switches, turn off the circuit breaker to the outlet or switch. Remove the faceplate and probe around the conduit box with a nonconducting piece of wood or plastic. Look for gaps and insulation voids around it. Insert the tube from a can of expanding foam insulation in the gaps and fill them. Do not fill the inside of the conduit box or large cavities inside the wall.

If you need to make the gap bigger with a screwdriver to see better or to insert the foam insulation tube, first switch off the main circuit breaker to the entire house. Even if the breaker to that outlet is switched off, there may be

other hot wires nearby inside the wall.

Install foam draft sealers behind faceplates on outside walls. Choose sealers that are at least 1/8-inch thick so they get compressed. They add only a slight amount of insulation, but improve the overall seal.

Ceiling paddle fans are another place to check. If you installed them yourself after the house was built and added support blocking, the insulation level will be less there. There may also be air leaks where the hole was cut to run the conduit box and wiring. Push the insulation away and caulk the attic floor hole, then cover it with additional insulation.

When painting the trim around doors and windows, pry off the decorative molding. There could be a large, uninsulated gap between the rough opening and the door or window frame. Use low-expansion foam in the gap. Use it sparingly because it can deform the frame as it expands. Recaulk the trim to the window and wall.

A lot of energy is lost at the sill plate and rim joist. The sill plate is the piece of lumber that rests on top of the foundation. The rim joist rests on top of the sill plate, and your house walls rest on the rim joist. The rim joist often is not insulated.

Buy some craft paper-faced fiberglass batt insulation and cut it into short lengths to fit against the rim joist between the floor joists. Standard wall insulation batts are effective. With their short length and the floor joists, they should stay in place without stapling.

When looking at the rim joist and sill plate, you may see a gap between the top of the foundation and the sill plate in spots. The top of a concrete foundation wall is seldom perfectly level and smooth. Squirt urethane foam insulation along the sill plate/foundation wall interface. This blocks outdoor air leakage and adds some insulation value to that area. ■