

Save energy by tightening your home envelope

Your home envelope

The materials of a house that separate the outside from the inside are considered the home's envelope. It is the barrier that keeps us from experiencing the extremes of the outside environment and keeps the inside of our home comfortable, dry and energy-efficient. The home envelope includes windows, doors, walls, ceiling and foundation. Air leaks through these areas are significant sources of heating and cooling losses in a home. Stopping air leaks is one of the best ways to conserve energy, save money and increase comfort.

How do I find the leaks?

You may already know where some air leakage occurs in your home, such as an under-the-door draft, but you'll need to find the less obvious gaps to properly seal your home. For an accurate measurement, hire a qualified technician to conduct an energy assessment that includes a blower door test. A blower door test measures the air tightness of a home by pulling air out using a special fan called a blower door, which lowers the air pressure inside. When the inside air pressure is lowered, the higher outside air pressure flows into the home through unsealed cracks and openings, showing where your home is in need of weatherization.

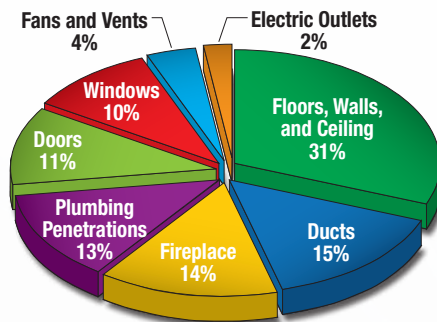


A blower door test can show where your home is in need of weatherization.

Did you know?

Air sealing is one of the most significant energy efficiency improvements you can make to your home.

How does air escape?



Source: U.S. Department of Energy

Do it yourself

As mentioned above, the best way to find leaks in your home is to have a professional energy audit conducted. However, if you are unable to do so, there are additional things you can do to find some leaks.

First, look at areas where different materials meet, such as between brick and wood siding, between foundation and walls, and between the chimney and siding. Also inspect around the following areas for any cracks and gaps that could cause air leaks: door and window frames, electrical and gas service entrances, cable TV and phone lines, outdoor water faucets, dryer vents, foundations, air conditioners, vents and fans.

Seal it up!

Once you find where your home is leaking air, you must seal up those leaks to reap the benefits.

- Caulk and weather-strip doors and windows that leak air.
- Caulk and seal air leaks where plumbing, ducting or electrical wiring penetrates through walls, floors, ceilings and soffits over cabinets.
- Install foam gaskets behind outlets and switch plates on walls.
- Look for dirty spots in your insulation, which often indicate holes where air leaks into and out of your house. You can seal the holes with low-expansion spray foam made for this purpose.
- Look for dirty spots on your ceiling paint and carpet, which may indicate air leaks at interior wall/ceiling joints and wall/floor joists. These joints can be caulked.
- Install storm windows over single-pane windows.
- Use foam sealant for larger gaps around windows, baseboards and other places where warm air may be leaking out.

Caulking 101

Laying a consistent bead of caulk can take some practice. Follow these steps to provide a good seal:

1. Insert the tube into the gun.
2. Cut the tip at a 45 degree angle at the desired thickness; use wire or a nail to break the seal at the base of the spout.
3. Squeeze trigger while moving tip steadily along joint to be filled.
4. Smooth bead with your finger, making sure both edges are covered.

Ventilation

When creating an energy-efficient, airtight home through air sealing techniques, it's very important to consider ventilation. Unless properly ventilated, an airtight home can seal in indoor air pollutants. Ventilation also helps control moisture, another important consideration for a healthy, energy-efficient home. To find out more about how to properly ventilate your home, visit the U.S. Department of Energy's website at www.energysavers.org

Take Control & Save!

By stopping air leaks at their source, you'll stay warmer in the winter and cooler in the summer, use less fuel and reduce your utility bills.

To learn more about how to save energy and money in your home, contact the energy advisor at your local electric cooperative or visit www.TakeControlAndSave.coop.



Finding leaks

Using a professional energy auditor is the best way to find leaks in your home. But if you are unable to have an audit, try this to find some of the leaks on your own.

- * Turn off your furnace on a cool, very windy day.
- * Shut all windows and doors.
- * Turn on all exhaust fans, such as bathroom fans or stove vents.
- * Light an incense stick and pass it around the edges of common leak sites. Wherever the smoke is sucked out of or blown into the room, there is a draft.

Or try this:

- * Shine a flashlight at night over all potential gaps while a partner observes the house from outside. Large cracks will show up as rays of light, but small cracks will not.
- * Shut a door or window on a piece of paper and try pulling it out. If it doesn't tear, you are losing energy.

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