



## Seal Large Air Leaks

**Task:** Stop air leaks with caulking, foam and weatherstripping.

A house with thermal leakage is like a ship with a small hole in the bottom. Some might decide to ignore the hole and instead bail a little every morning, but the wise person realizes that laboring a little bit every day will eventually waste more energy than putting in one day of work. (<http://planetgreen.discovery.com/home-garden/sealing-thermal-envelope.html>)

**Advanced:** Improve insulation, windows, or other problem area in your home.

**Tips for sealing air leaks:** *Note: for comprehensive advice on sealing air leaks, please see [http://www.energysavers.gov/your\\_home/insulation\\_airsealing/index.cfm/mytopic=11240](http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11240) and follow the links for detecting air leaks, caulking, weatherstripping, etc. Also see [http://www1.eere.energy.gov/consumer/tips/air\\_leaks.html](http://www1.eere.energy.gov/consumer/tips/air_leaks.html)*

- The most common places for air leaks are around doors and windows, but leaks can also be found around chimneys, recessed lights and light fixtures, attic entrances, electric wires and boxes, vents and fans, plumbing utilities, water and furnace flues, and electrical outlets.
- Walk around the exterior and look closely at doors, windows, and places where pipes and wires enter your house. Large gaps can be filled with expanding foam (recommended: Great Stuff for Windows and Doors -- it won't expand quite as much as regular Great Stuff). Caulk is best for cracks and gaps less than ¼" wide. A bead of caulk will stop air flow, but does not insulate.
- Inside, use a stick of incense on a windy day to detect places where air is getting through. Check around windows and doors, and also around can lights in the ceiling. Caulk around windows. If doors are leaky, check to see if weather stripping is worn. Replace it with the same kind: note the make and model of the door, if possible, and/or take a sample of the existing weather stripping along with you to your local hardware store. Note that the press-on foam weather stripping available everywhere will wear out quickly and need to be replaced often.

### What else you can do:

- Make foam boxes to cover attic stairs, whole-house fans, and other large openings to the attic.
- Install a chimney pillow or other device to stop air flowing in and out of your chimney when fireplace is not in use. (<http://www.chimneyballoon.us/chimneyballoon.html>)

The U.S. Department of Energy estimates that air leakage can add 10 percent to your annual energy bill. This equates to about \$70 per year for the average home.

## NON-ENERGY BENEFITS OF SEALING HOME AIR LEAKS

<http://homeenergysaver.lbl.gov/consumer/help-popup/content/~consumer~nebs~nebs-air-leaks>

**Having a professional seal your home's air leaks can make your home more comfortable, reduce the risk of moisture damage, improve indoor air quality and fire safety, and help to prevent frozen water pipes.**

A properly -sealed and -ventilated home can:

- Improve comfort. Leaky homes are uncomfortable, both in winter and summer.
- Reduce drafts and moisture problems. Sealing leaks reduces infiltration into your home, which helps to reduce drafts and the frequently associated moisture problems.
- Reduce annoying phenomena such as mysterious door slamming. Well-sealed homes also can avoid "pressure imbalances", which are created when more air is being exhausted than resupplied, or vice versa.
- Improve indoor air quality and fire safety. Pressure imbalances can lead to more serious situations in which furnace or combustion appliance exhausts are not removed fully from the home, or in which combustion flames are pulled down and out of their safe containment areas, potentially leading to house fires. Pressure imbalances can also increase the rate of radon entry into a home, particularly in basements.
- Keep your home comfortable and habitable longer during power outages. A well sealed home can remain comfortable and habitable longer than the ordinary home during power outages.
- Help prevent damages caused by frozen water pipes by reducing the infiltration of cold air into the house.
- Reduce your heating and/or cooling needs so that you may be able to get by with smaller, less expensive, heating or cooling equipment.

### Detecting Air Leaks

- Hold a lit incense stick or piece of string near doors, windows, vents, and other seams or openings. Drafts will become apparent as the incense or string moves with the air current.
- Mark these points with chalk and determine if caulking(the sealing of spaces in non-moving surfaces, such as gaps in walls around ducts and electrical outlets) or weatherstripping (the sealing of the edges of moving surfaces like windows and doors) is required.
- For best results choose a cool, windy day and turn on exhaust fans, the furnace, and the clothes dryer. This will draw air out of the house and prompt outside air to come in at leakage points and replace it.
- Your local utility or building contractor might also offer a blower door test. This uses infrared technology to pinpoint air leakage locations while pressurizing your home with a blower door.