

Insulation and Air Infiltration - How to Save Energy

Energy-Efficient Tips for Insulation and Air Infiltration

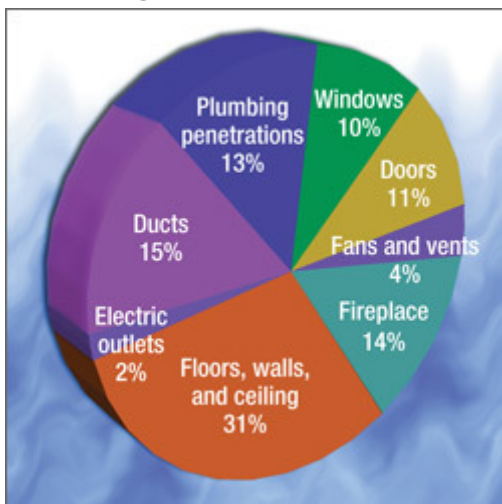
The single most important step in residential energy conservation is the installation of thermal insulation. To make sure your home is properly insulated, follow these tips:

- Check current insulation levels, and properly insulate a new or existing home. The Department of Energy's [Home Energy Saver](#) Web site* can help you find out how much insulation is needed in your region.
** (look under "Insulation and Air Sealing" and click on "Tips from Energy Savers")*
- Insulate ceilings, walls and floors over unconditioned crawl spaces.
- Find the obvious places where air can sneak into your home, then make repairs to plug the leaks by caulking, weatherstripping, and using plastic covers.
- Also check some of the other major air leakage areas, including: air ducts; window sashes and frames; plumbing utilities and wall penetrations; furnace flues; attic entrances; wall outlets; and recessed light fixtures.
- Fireplaces should have tightly fitting dampers that can be closed when the fireplace is not in use.

U.S. Department of Energy - Energy Efficiency and Renewable Energy

Energy Savers

Sealing Air Leaks



How Does the Air Escape?

Air infiltrates into and out of your home through every hole, nook, and cranny. About one-third of this air infiltrates through openings in your ceilings, walls, and floors.

Warm air leaking into your home during the summer and out of your home during the winter can waste a lot of your energy dollars. One of the quickest dollar-saving tasks you can do is caulk, seal, and weatherstrip all seams, cracks, and openings to the outside. You can save as much as 10% on your heating and cooling bill by reducing the air leaks in your home.

Tips for Sealing Air Leaks

- First, test your home for air tightness. On a windy day, hold a lit incense stick next to your windows, doors, electrical boxes, plumbing fixtures, electrical outlets, ceiling fixtures, attic hatches, and other locations where there is a possible air path to the outside. If the smoke stream travels horizontally, you have located an air leak that may need caulking, sealing, or weatherstripping.
- Caulk and weatherstrip doors and windows that leak air.
- Caulk and seal air leaks where plumbing, ducting, or electrical wiring penetrates through exterior walls, floors, ceilings, and soffits over cabinets.
- Install rubber gaskets behind outlet and switch plates on exterior 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 by stapling sheets of plastic over the holes and caulking the edges of the plastic.
- Install storm windows over single-pane windows or replace them with doublepane windows. See [Windows](#) for more information.
- When the fireplace is not in use, keep the flue damper tightly closed. A chimney is designed specifically for smoke to escape, so until you close it, warm air escapes—24 hours a day!
- For new construction, reduce exterior wall leaks by either installing house wrap, taping the joints of exterior sheathing, or comprehensively caulking and sealing the exterior walls.



Sources of Air Leaks in Your Home

Areas that leak air into and out of your home cost you lots of money. Check the areas listed below.

- | | | |
|-------------------|---------------------------|------------------------------------|
| 1 Dropped ceiling | 5 Water and furnace flues | 9 Window frames |
| 2 Recessed light | 6 All ducts | 10 Electrical outlets and switches |
| 3 Attic entrance | 7 Door frames | 11 Plumbing and utility access |
| 4 Sill plates | 8 Chimney flashing | |