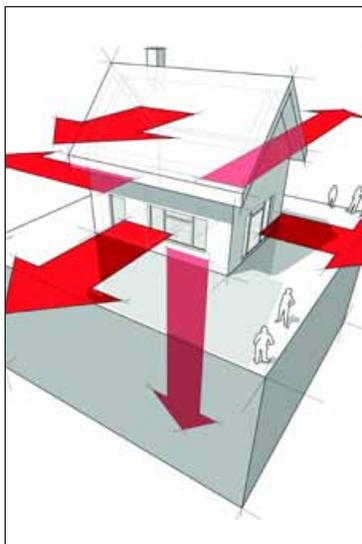


# Conservation *Wise*

*Energy Conservation: You CAN Make a Difference!*

## Saving Energy in Your Home: Air Leaks

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### Introduction

The cost of unused heated or cooled air due to leaks in your home can be high. Hot air that leaks from heating ducts before it reaches living spaces or leaks outside is wasted. Similarly, if warm air leaks during the winter, then cool, air-conditioned air will leak during the summer. Common places for air leakages include:

- ducts for heating and cooling
- old windows (or windows without proper insulation)
- old doors (or doors without proper insulation)
- plumbing penetrations (through floors and ceilings)
- chimney penetrations (along the sill plate and band joist at the top of foundation walls)
- fireplace dampers
- attic access hatches
- tops of interior partition walls (intersection with an attic)
- recessed lights
- installed fans

Areas where smaller leaks commonly occur include electrical outlets and switches, exterior walls, baseboard moldings, dropped ceilings above bathtubs and cabinets, access doors, built-in cabinets, attic entrances, sill plates, water and furnace flues, and missing plaster.



### How Can I Save Money?

- ENERGY STAR estimates show that sealing and insulating your home can save up to 20% on heating and cooling costs. This can account for up to 10% of your total annual energy bill.

- Floors, walls, and ceilings account for the biggest air leaks with ducts, fireplaces, plumbing penetrations, doors, and windows also allowing significant energy losses. Average loss values are:

– floors, walls, and ceiling	31%
– ducts (heating and cooling)	15%
– fireplace	14%
– plumbing penetrations	13%
– doors	11%
– windows	10%
– fans and vents	4%
– electric outlets	2%

*These publications were developed with assistance from the Purdue Extension Energy Conservation Team*

## What Should I Do?

### Caulk

- **Test your home for leaks** by holding a lit incense stick or a smoke pen next to your windows, doors, electrical boxes, plumbing fixtures, electrical outlets, ceiling fixtures, and attic hatches. Caulk or use weather stripping when air leakage is detected.
- **Caulk and seal air leaks** where plumbing, ducting, or electrical wiring penetrates through walls, floors, ceilings, and soffits over cabinets.
  - Read caulk labels carefully to make sure that the caulk is suitable for your application.
  - Look for long-lasting caulks that remain flexible for twenty years.
- **Reduce exterior wall leaks** in new construction by installing house wraps, taping the joints of exterior sheathing, and caulking and sealing the exterior walls to prevent air leakage.

### Chimneys

- **Seal chimney cracks** to prevent escape of air-conditioned or heated air.

### Fireplaces

- **Keep the fireplace flue damper tightly closed** when not in use.
- **Install fireplace doors that can be closed** when not in use.

### Purchases

- **Replace inefficient windows** with new energy-saving models or install storm windows.
- **Use a foam sealant** around larger gaps and windows, baseboards, and other places where warm air could be leaking.

## Where Can I Learn More?

- *Saving Energy in Your Home: Insulation* (Purdue Extension publication ID-436)
- U.S. Department of Energy *Consumer Guide to Energy Efficiency and Renewable Energy*, [www.eere.energy.gov](http://www.eere.energy.gov)



- U.S. Department of Energy, Energy Efficiency and Renewable Energy, [www.energysavers.gov/your\\_home/insulation\\_airsealing](http://www.energysavers.gov/your_home/insulation_airsealing)
- Energy Savers website, U.S. Department of Energy, [www.energysavers.gov/](http://www.energysavers.gov/)

## References

2001 ASHRAE Handbook: Fundamentals (I-P edition), 2001. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

*A Do-It-Yourself Guide to Sealing and Insulating with ENERGY STAR®: Sealing Air Leaks and Adding Attic Insulation* (May 2008 version), [www.energystar.gov/](http://www.energystar.gov/) (accessed 07/13/2010).

*Energy Savers Booklet: Tips on Saving Energy and Money at Home*, U.S. Department of Energy, [www1.eere.energy.gov/consumer/tips/](http://www1.eere.energy.gov/consumer/tips/) (accessed 07/01/2010).

Insulation and Air Sealing, Energy Savers website, U.S. Department of Energy, [www.energysavers.gov/your\\_home/insulation\\_airsealing](http://www.energysavers.gov/your_home/insulation_airsealing) (accessed 07/14/2011).

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Wilson, Alex et al., *Consumer Guide to Home Energy Savings*, 9th ed. 2007. Washington, D.C.: American Council for an Energy-Efficient Economy.