

## Air Sealing

Air sealing is one of the most cost-effective ways to improve a home's energy efficiency, comfort and building durability. Air sealing includes tightening the building envelope by using caulk, foam, weatherstripping and other materials to keep a house comfortable in summer and in winter. Based on a U.S. Department of Energy study, air sealing can lower space heating consumption around 18 to 30 percent.

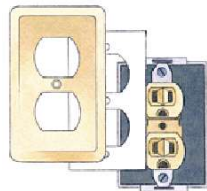
Most homeowners are aware that air leaks into their houses through what seem to be small openings around doors and window frames and through fireplaces and chimneys. Air also enters the living space from other unheated parts of the house, such as attics, basements, or crawl spaces.

To effectively reduce infiltration, the big holes should be sealed first, then the large cracks and penetrations, and finally the smaller cracks and seams. The attic is often the easiest and best place to stop the leaks by sealing the gaps prior to insulation installation.

### Where to look for air leaks

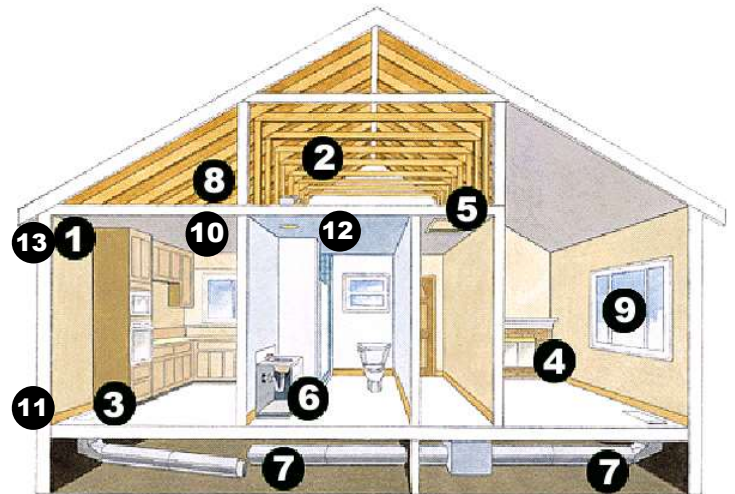
Air travels through openings in walls, floors, or ceilings, such as cracks where two walls meet and where the wall meets the ceiling, or near interior door frames. Other openings to look for are:

Gaps around and through electrical outlets, switch boxes and recessed lighting fixtures



Gaps around window and door openings

Gaps around plumbing connections through walls and in plumbing chases



- (1) Top openings of interior partition wall cavities
- (2) Openings at key junctures in the framing (such as at attic-to-kneewall transitions)
- (3) Around ducts penetrating a wall or floor
- (4) Around the chimney
- (5) Around the attic trap door or pull-down stair
- (6) Around piping penetrating a wall or floor
- (7) Ductwork joints
- (8) Between the attic and conditioned space
- (9) Window and door rough openings, and penetrations through the drywall and exterior sheathing
- (10) False ceilings such as kitchen or bathroom soffits behind bathtubs and shower stall units
- (11) Rim joists, sill plate, foundation, floor
- (12) Recessed lights, mechanical equipment
- (13) Wiring penetrations through the top plates of walls

For additional information and detailed how-to-drawings for air sealing see:  
 Building Science Corp., *"Building America Best Practices Series, Volume 10: A Guide for Contractors to Share with Homeowners"*  
 Pacific Northwest national Laboratory's *"Guide to Attic Sealing"*