

HOME ENERGY GUIDE

BASEMENT AIR LEAKS

Most basements have multiple air leakage locations. Because of the physics of the stack-effect (causing warm air to rise), basements are a common source of cooler air leaking in through cracks or penetrations in the foundation or unsealed joints where floor framing rests on the foundation wall. Air then rises through holes around chimneys, vents, wires, and plumbing into the rest of the house. Careful sealing will help to limit warm air entering the attic.



Sill plate and band or rim joist

Caulk cracks between the sill plate and foundation wall using a masonry caulk, and fill cracks between the sill plate and band or rim joist. Then insulate the band/rim joist area by spraying with expandable foam or by cutting foam board insulation to fit and then caulking in place. Do not use fiberglass, as it does not stop air infiltration and because moisture from the basement can get between the fiberglass and the rim joist, leading to mold and mildew.

Chase for plumbing vent stack(s)

Sealing the chase at the basement end, as well as the attic, will reduce the flow of air to the other floors in the house.

Chimney for furnace and water heater

As in the attic, close the gap between framing and chimneys with metal; seal the edges with red fire-stop caulk. Vents made of PVC (plastic) piping can be sealed directly with spray foam or regular caulking.

Hatch or door to crawl space

Weather-strip the edges and insulate the back of the hatch or door.

Openings through basement ceiling

Seal with caulk or foam the hole where the bathtub drain comes down and other holes for plumbing or electrical wiring in the basement ceiling. You may need to use filler material for larger holes.

Basement windows

Using a masonry caulk or spray foam, fill cracks where the frames of the windows are set

into the walls. Windows that are not used for ventilation or as fire exits can be caulked shut permanently.

Ducts

In homes with air ducts, there may be gaps where ducts pass through ceilings, floors, and walls. Caulk or foam where the metal duct and the ceiling, floor, or wall meet.

Other holes

Seal cracks or holes in the foundation with caulk, foam, or the appropriate patching material. Don't forget to check where the electrical, gas, water supply, telephone, and cable lines enter the house, and seal on the inside and outside.

DON'T SEAL COMBUSTION AIR SUPPLIES!

Water heaters or furnaces may have a flexible duct that supplies fresh air for combustion.

These must be kept open! A "J" loop near the duct end can reduce cold air in the basement.

Seal pipes, vents and ducts

There are many places that air can leak into a basement (above). Gas, electric or water lines and vents for dryers, exhaust fans, or high-efficiency water heaters or furnaces that exit through foundation walls or rim joists should be caulked or foamed to prevent air leakage (center). Furnace ducts that rise from basements through floors or walls should be sealed where the metal meets the wood framing (below).

