



Air Sealing

Improves Energy Efficiency and Air Quality

In typical homes, air leaks are often found at cracks, small holes, and penetrations for plumbing, wiring, lighting, and ductwork. Together, these leaks can add up to as much air loss as having an open window! It's easy to imagine how this can increase a homeowner's utility bills and reduce comfort.

Sealing a home's envelope—its exterior walls, ceiling, and floors—is an important step in controlling the indoor environment and lowering energy bills. The goal is to reduce air leakage as much as possible, while providing ventilation as needed for fresh air. In other words, "build it tight and ventilate it right."

BENEFITS OF AIR SEALING

- **Improved Comfort.** Drafts felt during the winter are often the result of unsealed cracks and holes. Sealing homes tightly typically results in fewer drafts and less noise.
- **Lower Utility Bills.** Air leakage and improperly installed insulation can waste 20 percent or more of the energy used to heat or cool a home. With effective air sealing and insulation, heating and cooling systems will not need to work as hard.
- **Improved Indoor Air Quality.** A tighter home envelope reduces the amount of humidity, dust, pollen, and pests that can enter the home and helps improve indoor air quality.
- **Increased Durability.** When warm air leaks through a home's floors, walls, and attic, it can come in contact with cooler surfaces where condensation can occur. Moisture that occurs in these construction assemblies encourages mold growth, ruins insulation, and even compromises the structural elements of the home. Reducing air leakage helps minimize moisture problems and increase the home's durability.



Common air leaks in a standard home

LOCATION OF COMMON AIR LEAKS

While poorly sealed windows and doors can contribute to air leakage, the bigger sources are typically holes and penetrations through the home's envelope that are hidden from view. These include penetrations for piping, wiring, lighting, and duct work as well as seams where materials join. It is easiest to seal these areas during construction because access is much more limited afterwards.

Builders can use a variety of products to seal a home's envelope, such as caulks, foams, gaskets, weatherstripping, door sweeps, and house wraps. For homes that are sealed very tightly, mechanical ventilation systems are available to provide a controlled amount of fresh air.



Holes for wiring are sealed with expanding foam. These tiny penetrations can lead to significant air leaks if left unsealed.

A BETTER FUTURE

ENERGY STAR is a voluntary partnership between the government and more than 9,000 organizations, including more than 3,500 of the nation's home builders. Together with home buyers and their families, we are working to achieve a common goal—protecting the environment for future generations by changing to more energy-efficient practices and products today.

ENERGY STAR is the government-backed symbol for energy efficiency. It identifies new homes, buildings, and more than 50 types of products that are energy efficient and offer the features, quality, and performance that today's consumers expect. Products that can earn the ENERGY STAR include windows, heating and cooling equipment, lighting, and appliances. To learn more about ENERGY STAR, visit www.energystar.gov.