



# Duct Sealing with ENERGY STAR®

The simple  
choice for  
energy  
efficiency



## Improve your Home's Duct System for Comfort and Savings

High utility bills? Stuffy rooms? Dusty house? It could be your duct system. In houses with forced-air heating and cooling systems, ducts are used to distribute conditioned air throughout the house.

A duct system that is properly sealed and insulated can make your home more comfortable, energy efficient, and safe—all while helping to reduce your energy bills. However, in typical homes, about 20 to 30 percent of the air that moves through the duct system is lost due to leaks, holes, and poorly installed ducts. The result is higher utility bills and difficulty keeping the house comfortable, no matter how the thermostat is set.

### Benefits of Properly Sealing and Insulating Your Duct System



**Improved Comfort:** Sealing and insulating ducts can help with common comfort problems, such as rooms that are too hot in the summer or too cold in the winter.



**Energy Saving:** Leaky ducts can reduce heating and cooling system efficiency by as much as 20 percent. Sealing and insulating ducts increases efficiency, lowers your energy bills, and can often pay for itself in energy savings.



**Air Quality:** Sealing ducts can also help improve the indoor air quality by reducing the risks of pollutants entering ducts from dusty attics or musty crawlspaces and circulating through your home. Dust from insulation particles or smells from damp spaces could aggravate asthma and allergy problems.

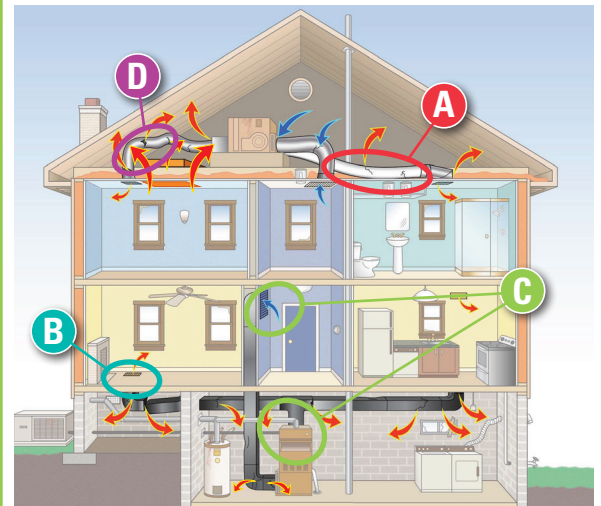


**Improved Safety:** During normal operation, gas appliances such as water heaters, clothes dryers, and furnaces release combustion gases (like carbon monoxide) through their ventilation systems. Leaky ductwork in your heating and cooling system may cause “backdrafting,” where these gases are drawn back into the living space, rather than expelled to the outdoors. Sealing leaks can minimize this risk.



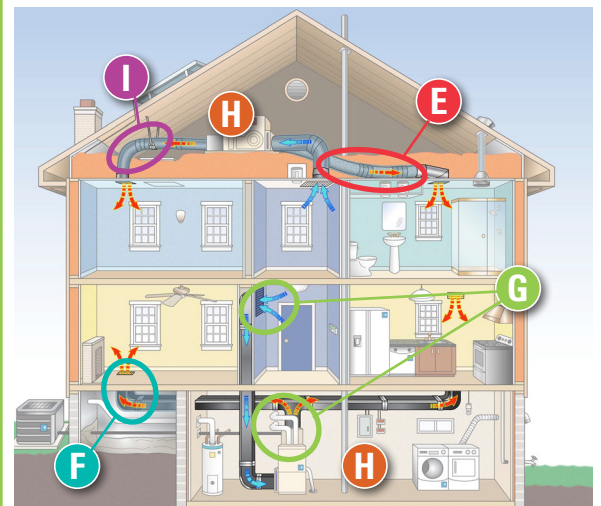
**Peace of Mind:** The less energy you use in your home, the less air pollution is produced. By sealing your ducts and reducing the amount of energy necessary to comfortably heat or cool your home, you can have the peace of mind that you've done the right thing for your family, home, and for the planet.

### Common Duct Problems and Solutions



#### Problems:

- A. Leaky, torn, and disconnected ducts
- B. Poorly sealed registers and grills
- C. Leaks at furnace and filter slot
- D. Kinks in flexible ductwork restricting airflow



#### Solutions:

- E. Properly sealed ducts
- F. Registers and grills tightly sealed to ducts
- G. Sealed furnace and filter slot
- H. Well-insulated ducts in unfinished areas
- I. Straightened flexible ducts with improved airflow

## Improving Duct Performance

Ducts are often concealed in walls, ceiling, attics, and basements or crawlspaces, and can be tricky to repair. However, there are things that you can do to improve the performance of your duct system.



### Take Action:

Here's a DIY approach to finding duct problems in your home:

1. Start by inspecting the ducts you can see (e.g. in the basement, attic, and garage), and ask yourself the following questions:

- Are there any obvious holes, gaps, or disconnections in the ducts?
- Are the connections at vents and registers well-sealed where they meet the floors, walls, and ceiling?
- Are flex ducts straight with only gentle curves and not ripped, torn, squashed (stepped-on), or disconnected?

2. Seal the leaks and holes you can access using duct sealant (mastic) or metal-backed (foil) tape.



**Tip:** Never use grey duct tape as it is not long-lasting.



**Tip:** Look for NATE or BPI Certified contractors to get the job done right.

3. Wrap any ducts that go through unconditioned space (attics, basements/crawlspaces, or garages) with duct insulation to keep them from getting hot in the summer or cold in the winter.

4. After sealing and insulating your ducts, have a professional check your system to ensure it's balanced.

Prefer a hands-off approach? Work with a qualified home energy professional to conduct a home energy audit to find and solve these problems. Your local utility may have pre-screened contractors to help you, as well as service discounts for their customers.

Many homeowners choose to work with a professional contractor for duct improvement projects. Most heating and cooling equipment contractors also repair ductwork.

### Look for a contractor that will:

- ✓ Inspect the whole duct system, including attic and basement or crawlspaces.
- ✓ Evaluate the system's supply and return air balance. Many systems have air return ducts that are too small.
- ✓ Repair damaged and disconnected ducts and straighten-out flexible ducts that are tangled or crushed.
- ✓ Seal all leaks and connections with mastic, metal tape, or an aerosol-based sealant.
- ✓ Seal all registers and grills tightly to the ducts.
- ✓ Insulate ducts in unconditioned areas (like attics, crawlspaces, and garages) with duct insulation that carries an R-value of 6 or higher.
- ✓ Include a new filter as part of any duct system improvement.
- ✓ The contractor should evaluate air flow after repairs are completed.
- ✓ Ensure there is no backdrafting of gas or oil-burning appliances, and conduct a combustion safety test after ducts are sealed.

For more in-depth information on how to make your home more comfortable and energy efficient, as well as save you money, visit [energystar.gov](https://www.energystar.gov) for more information.



ENERGY STAR® is the simple choice for energy efficiency. For 25 years, EPA's ENERGY STAR program has been America's resource for saving energy and protecting the environment. Join the millions already making a difference at [energystar.gov](https://www.energystar.gov).

