

WHY SEAL AND INSULATE?

Sealing and Insulating the "envelope" or "shell" of your home—its outer walls, ceiling, windows, doors, and floors—is often the most cost effective way to improve energy efficiency and comfort.

Sealing Leaks

Many air leaks and drafts are easy to find because they are easy to feel or detect with our blower door technology (like those around windows, doors, and improperly sealed fixtures and pipes inside the home). But holes hidden in attics, basements, and crawlspaces are usually bigger problems. Sealing these leaks with caulk, spray foam, or weather stripping will have a great impact on improving your comfort and reducing utility bills. The house diagram (provided by US EPA) on the front points out the most common air leak locations that you should aim to seal.

Homeowners are often concerned about sealing their house too tightly; however, this is very unlikely in most older homes. A certain amount of fresh air is needed for good indoor air quality and there are specifications that set the minimum amount of fresh air needed for a house. If you are concerned about how tight your home is, we can use diagnostic tools to measure your home's actual leakage. If your home is too tight, a fresh air ventilation system may be recommended.

Adding Insulation

Insulation keeps your home warm in the winter and cool in the summer. There are several common types of insulation. When correctly installed with air sealing, each type of insulation can deliver comfort and lower energy bills during the hottest and coldest times of the year. Insulation performance is measured by R-value — its ability to resist heat flow. Higher R-values mean more insulating power. Different R-values are recommended for walls, attics, basements and crawlspaces, depending on your area of the country. Insulation works best when air is not moving through or around it. So it is very important to seal air leaks before installing insulation to ensure that you get the best performance from the insulation. The recommended insulation level for most attics in Illinois is R-49 to R-60 (or about 12–15 inches, depending on the insulation type).

Sealing Ducts

In houses with forced-air heating and cooling systems, ducts are used to distribute conditioned air throughout the house. In a typical house, however, about 20 percent of the air that moves through the duct system is lost due to leaks and poorly sealed connections. The result is higher utility bills and difficulty keeping the house comfortable, no matter how the thermostat is set. Because some ducts are concealed in walls and between floors, repairing them can be difficult. However, exposed ducts in attics, basements, crawlspaces, and garages can be repaired by sealing the leaks with duct sealant. In addition, insulating ducts that run through spaces that get hot in summer or cold in winter (like attics, garages, or crawlspaces) can save significant energy. A quality installation will include a thorough inspection of your duct system, including proper sealing and balancing of ductwork, to help ensure that your new system delivers the most comfort and efficiency.

BENEFITS (Tightening a home through air leakage and duct work sealing can provide a number of benefits.)

- Fewer Drafts
- Less Chance of Mold Because of Trapped Moisture
- Enhanced Indoor Air Quality
- Better Performance of The Home's Ventilation System
- Possibility to Reduce Size of Heating and Cooling Equipment Capacities
- Lower utility bills
- Improved comfort, especially during summer and winter
- Reduced noise from outside
- Less pollen, dust, and insects entering your home
- Improved Durability
- Better humidity control

Reduced Air Leakage = Increased Energy Efficiency