

DUCT LEAKAGE

SEALING RESIDENTIAL DUCT SYSTEMS

Reduces your utility bills

Leaking duct systems can account for as much as 50% of residential air infiltration

Properly applied duct sealant can reduce duct leakage by 98%

Heating and cooling costs for a typical home represent the greatest portion of the home's energy costs. Duct leakage robs a home of the energy expended to heat or cool the home, and causes pollutants to be drawn into a home.

When heating and/or cooling ducts leak into unoccupied spaces (wall cavities, attic spaces, basements, or crawl spaces), the energy that was paid for by the homeowner is wasted and can never be recovered. Data from the Sheet Metal and Air Conditioning Contractors Association shows that unsealed ducts (operating at typical residential air pressure and velocity) leak approximately 17%. Research conducted by the Florida Solar Energy Center indicates that this leakage can account for as much as 50% of a home total air infiltration. Here's how it works: When return ducts (ducts that carry used air from air conditioned spaces back to the heating/cooling unit) leak in unconditioned space, air from these spaces is drawn into the duct and is sent back to the unit, usually without passing through the filter, to be re-heated or re-cooled. The unconditioned air usually requires more energy to change temperature (think about hot attic air in the summer versus room air) and increased energy costs. Because this air bypasses the filter, it also contributes to poor indoor air quality (IAQ) and is a component of poor filtration. Since the return ducts are collecting air from outside the conditioned space, air pressure increases in the affected rooms, and circulation may be affected. The increased pressure definitely increases load on the unit fan, which increases energy consumption.

When supply ducts (ducts that carry conditioned air from the heating/cooling unit to the conditioned spaces) leak in unconditioned spaces, expensive conditioned and filtered air

is wasted according to the percent of leakage. Heating/cooling equipment operates longer as a result, and energy costs increase. Since the supply ducts are supplying less air than the return demand, air pressure within the conditioned space decreases, drawing outside air in through leaking window frames, door frames, wall, ceiling, and floor cavities, etc. The leaking outside air almost certainly brings pollutants with it, contributing to poor IAQ, and the outside, unconditioned air will require more energy to change its temperature when it is returned.

It's impossible to predict which section of an unsealed duct system (supply or return) is leaking more, so a home may have a combination of these problems. What's most important is the fact that none of the above conditions are desirable, and all of them can be prevented.

Duct sealing is one of the most cost-effective steps that can be taken to conserve energy (and cut homeowners' energy costs). Materials for duct sealing contribute almost nothing to the overall materials cost of home building, and labor to seal the duct is minimal. Retro-sealing of existing homes is somewhat more expensive due to the increased labor involved in getting to the duct, but usually has a relatively short payback.

Polymer Adhesive Sealant Systems, Inc. supplies high performance duct sealants and accessories engineered to meet and exceed the HVAC building code standards nation wide.

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