

Reducing Duct Leakage

To weather Arizona's hot climate, you need to keep your home cool during the summer months. Obviously, you wouldn't pay to cool the outdoors or your attic with your air conditioning system, yet that is exactly what many homeowners are doing unknowingly. An APS study of new homes in the Phoenix area showed that the majority had excessive duct leakage. Through cracks and poorly fitting or loose duct connections, cool air is lost to your attic or outdoors. In addition to increasing your utility bills, excessive duct leakage may expose you to indoor air quality problems.

Out-of-Sight, Out-of-Mind

This old axiom applies to most aspects of an air conditioning system and especially to the duct system. If you are like most homeowners, as long as your system is keeping you cool, you don't usually give it much thought. But what you don't see could be costing you a lot of money each year. Most duct systems are installed in attics or building cavities where they are rarely seen or inspected. They may have been poorly sealed when installed, fittings may have come loose, and duct runs may have become disconnected. All of this leads to a lot of lost air – air that you pay to cool.



Duct Leakage Reduces Cooling Capacity and Wastes Energy and Money

The results of an APS study on duct leakage found:

- As much as a third of an air conditioning system's airflow could be leaking through the ducts, causing a loss of comfort and cooling capacity.
- The impact is most severe in ducts installed in attics where temperatures can exceed 140 degrees in the summer.
- On average, almost 15% of cooling energy is wasted due to duct leakage. While there will always be some duct leakage, homes with properly sealed ducts can have leakage reduced to 3 to 5%.

Hot air can be drawn into your air conditioning system through improperly sealed ductwork. By sealing leaks, you'll use energy more efficiently, save money every month and make your home more comfortable. Using energy more efficiently also helps preserve natural resources.

Air Quality in Your Home

Your air conditioning system continually recirculates air throughout your home. Leaks in the duct system can draw air from surrounding areas such as attics, garages

and storage areas. As a result of duct leaks, dust, car fumes, pollen and other contaminants can be drawn directly into your system and distributed through your home. By sealing duct leaks, you keep these contaminants out of your system.

Duct Leaks Can Be Prevented and Corrected

Correcting problems is one of the most important steps you can take to keep cooling costs down and the air in your home healthy. Here are ways to prevent and correct duct leakage:

- Make sure duct connections are securely fastened.
- Seal duct joints with a mastic sealant.
- Seal around poorly fitting or unsealed grills.
- Hire a trained, qualified air conditioning contractor to conduct an analysis of your system.

APS offers contractor referrals to help consumers find trained, qualified heating and cooling contractors. An **APS Qualified Contractor** has the skills to analyze your system, determine if you have excessive duct leakage and give you an estimate on what it would cost to reduce leakage to an acceptable level. This analysis may also help identify ways to correct other duct system problems such as hot or cold rooms, dust and noise.

Annual Energy Cost of Duct Leakage For a Typical 3 Ton Heat Pump System

Duct Leakage (% of System Airflow)	Annual Energy Cost
Low (3 to 5%)	\$27 - \$45
Average (15%)	\$ 135
High (30%)	\$ 270

Note: The figures above are based on energy calculations by APS using the APS Standard Plan. Your actual energy costs may vary.

How Much Do Leaky Ducts Cost You Each Year?

About 50% of your annual electric bill is spent on running your heating and cooling system. The chart at the left provides an estimate of the amount of money you may be spending each year as a result of duct leakage.

If You Have Fireplaces or Fuel-Burning Appliances

Improper sealing of duct leaks can cause air pressure imbalances in your home. If you have a fireplace or a fuel-burning appliance, ask your contractor to make

sure the duct sealing will not cause “backdrafting” problems, which could draw combustion gases and by-products into your home.

For More Information or a Referral to an APS Qualified Contractor

For more information on home energy efficiency, or a referral to an **APS Qualified Contractor**, call the **APS Energy Answer Line in Phoenix at (602) 371-3636 or toll-free 1 (888) 890-9730** or visit our web site at www.apsc.com. Be sure to ask for a contractor who specializes in duct system testing and repair.