

When Replacing your Old Furnace, Heat Pump, or Air Conditioner...



## Don't Ignore Your Ducts

An investment in a new high efficiency heating and cooling system should save significantly on your utility bills. However, you won't save much if your existing ductwork is in bad shape.

A typical poor duct system really drags down the performance of new high efficiency equipment. Many buyers of new equipment have ended up with *little or no savings*.

Compared to before, many also find:

- Their home is *less comfortable*,
- There is *more* dust and summer humidity,
- Their new system is *noisier*.

Don't let your old ducts keep you from getting the high performance you are paying for.

To ensure your new equipment saves money and works properly, slow down and become an informed consumer. Have your duct system tested for leakage, correct sizing, and correct insulation levels.

### Duct Systems Waste Money

"Typical duct systems lose 25 to 40 percent of the heating or cooling energy put out by the central furnace, heat pump or air conditioner. Duct repairs could be the most important energy improvement measure you can do."

**US Department of Energy Consumer Report**

"Studies have shown that an average duct system loses 10 to 40 percent of the cool air through gaps in the duct joints. While sealing ducts is a common practice now, few homes have had this done."

**Readers Digest's Family Handyman magazine**

"We have done a lot of work in looking at how ducts impact air conditioning systems. Typically a leaky duct system can lose 20% to 40 % of the energy that you pay for to heat and cool your house."

**Dr. Max Sherman, Department of Energy, Lawrence Berkeley National Lab**

"The ducts that are part of central heating and cooling systems offer one of the best opportunities to increase your energy efficiency and your comfort. Studies indicate that up to 30% of the heated or cooled air is lost—along with the money spent to heat or cool that air—through leaky ducts."

**Pacific Gas and Electric Utility**

"For an average home, leaky ducts can waste hundreds of dollars each year. Duct leakage also lowers the heating and cooling capacity, and can lessen equipment life."

**Southface Energy Institute**

## Modern High Efficiency HVAC Equipment is Much More Sensitive To Bad Ducts

A weak duct system will lower the performance of new high efficiency equipment even more than it hurt the old unit. The main reason is the modern air-circulating blowers are more powerful. If your old duct system is leaky, the new higher pressures will accelerate the duct leakage. If your old ducts are restricted or undersized, the new blower motor will strain to overcome this and greatly increase electrical consumption and noise.

Many new units also achieve higher efficiency by having both a low and a high speed. Unfortunately, much of the efficiency gain is lost when connected to a bad duct system, as the longer run times lead to greater duct leakage, as well as greater energy loss through the duct insulation. This wastes money, and also increases indoor dust, summertime humidity, and wintertime dryness.

Buying new high efficiency heating and cooling equipment, and then hooking it up to the typical inefficient duct system, is like buying a super-fuel efficient hybrid car and then driving it with a leak in the gas tank.

**“It does not make sense to install a new, energy-efficient heating and/or air conditioning unit unless the duct system is also energy efficient.”**  
*Pacific Gas and Electric Utility*

**“Even if you have the most efficient furnace and air conditioner known to man, if the ducts that funnel that precious hot air or cold air around your house are in bad shape, you’ll still lose way too much energy.”**  
*Money Magazine*

**“Both DOE and EPA have done a lot of studies on the efficiency of heating and cooling systems and we have found that over 70% are installed incorrectly to some degree or another ... reducing the efficiency of that system dramatically.**

**They may think they are buying a high efficiency EnergyStar SEER 14 cooling system and in fact, the operating efficiency may be closer to 10 ... and consequently the homeowner is not getting what they paid for.”**  
*Chandler Von Schrader, US EPA EnergyStar, Washington DC*

## Think you Need Bigger HVAC Equipment?

Does your current system seem to run non-stop, or do you have rooms that are too hot or too cold? Don't just assume you need bigger equipment. The real cause may be a bad duct system. Refer to Comfort Institute's *“Bigger Is Not Better”* Factsheet and Consumer Education Video for more information.



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## How to Find Out if Your Ducts Need Upgrading

**“Ask your contractor to inspect your ducts for leaks, incomplete connections and compatability with the rest of your system. Ideally, your contractor should use diagnostic equipment.”**

*US EPA EnergyStar Fact Sheet*

The Comfort Institute and countless authorities nationwide recommend that you have your ducts tested as part of a comprehensive *Home & Duct Performance Assessment*.

In fact, in some states such as California, testing is now required by law when buying new equipment. While not mandatory everywhere, testing and upgrading the ducts is a smart move if you will be in the home long term.

If needed, having a duct renovation when you install a new unit will ensure you get the energy efficiency you are paying for, and really save energy and money. In addition, a duct renovation usually evens out temperatures, improves humidity control, reduces dust, and makes the indoor air healthier.

Immediately disqualify any contractor who dismisses the importance of testing and repairing ductwork. He either isn't aware of the latest research, or he chooses to ignore it - aiming for just the quicker and easier metal box sale.

A new heating and cooling system is a big investment with long term implications. **Start by testing, not guessing.** Do it right the first time and you will have a system you will enjoy for years to come.

**Visit your CI Member's website to watch CI Videos “Test, Don't Guess” & “Duct Opportunities”**

**KEEPING YOUR HOME  
HEALTHY, COMFORTABLE &  
ENERGY EFFICIENT.**

