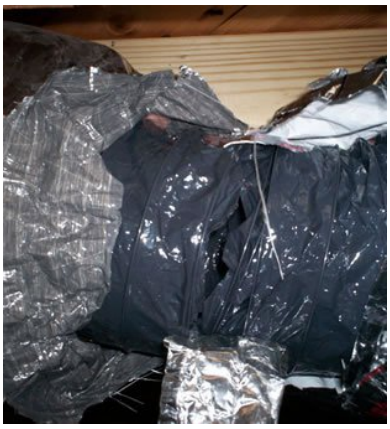
Smart Energy Living®
Solutions
Fact Sheet

Smart Energy Living Alliance®
Building a better energy future



Improperly installed heating and cooling systems can reduce system efficiency by 30 percent and can be dangerous

Energy Efficient Heating & Cooling Systems

Heating and cooling your home is the largest energy expense in a typical home, accounting for approximately half of the annual energy consumption.

Energy Savings
Replacing old heating and air conditioning equipment with more efficient models will save energy and money. For example, if your furnace is more than 20 years old, it is probably 60% efficient compared with new equipment that can be 90% or higher efficiency. Even furnaces less than 10 years old are usually only 80% efficient.

Today's air conditioners use 30 to 50% less energy than those made in the mid-1970s, and 20 to 40% less than even 10 year old air conditioners.

In order to gain the full energy savings benefits of any system, ductwork needs to be properly sealed, and it needs to be maintained, including cleaning or changing filters monthly. In addition, you can **recover the full cost of a programmable thermostat in just months** if you use it to consistently keep the thermostat lower at night and when you are not at home. The rule of thumb is that you will decrease your energy costs by 1% for every 1 degree you lower the thermostat.

Equipment
Natural gas furnaces are rated by Average Fuel Utilization Efficiency (AFUE). New high energy efficiency units are 90+% efficient and are closed combustion which eliminates any potential for carbon monoxide poisoning from the furnace.

Air conditioners are rated by a Seasonal Energy Efficiency Ratio (SEER). An old unit might have a SEER rating of 6 or 7 while the current federal standard is 13 SEER for units manufactured as of January 2006.

A well-designed duct system will distribute air properly throughout you home to keep all rooms at a comfortable temperature. Homes often suffer from design flaws such as too few return air registers or ductwork that is too long or has too many elbows.

In regions with low humidity, you might consider installing an evaporative cooling system rather than an air conditioner. Evaporative coolers cost about

Heating and Cooling Systems – Continued

one-half as much to install as central air conditioners and use about one-quarter as much energy. However, they require more frequent maintenance than air conditioners and continually use water which may be a concern in areas with limited water supplies.

Installation

Proper installation is the key to achieving the promised energy savings. In fact, improper installation can reduce efficiency by 30 percent.

The equipment needs to be right-sized as bigger is not better when it comes to heating and air conditioning units. Do not accept over-the-phone or internet estimates because a contractor cannot properly size and design your new heating system without an on-site inspection. The installer needs to make sure ducts are properly sealed, and should test for both leakage and optimizing air flow. You should look for contractors using North American Technical Excellence (NATE) certified installers.

Financial Incentives

ENERGY STAR central air conditioners and natural gas or propane furnaces meeting specific standards are eligible for a federal tax credit of 30% of cost up to $1,500. Additional government or manufacturer incentives may be available. Information on the federal tax credit can be found at http://www.energystar.gov/index.cfm?c=tax_credits.tx_index.

Go to www.SmartEnergyLiving.org for More Information About Energy Efficiency

Smart Energy Living Alliance® is a 501(c)(3) non-profit organization dedicated to helping consumers, like you, make smart energy decisions and ensuring qualified professionals are available to meet consumer needs. We provide unbiased information, tools and resources, including connecting you to local energy businesses.

The managing partners of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) created us in 1999. We publish an award-winning magazine, Smart Energy Living, in partnership with NREL.

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