Money Isn't All You're Saving

Improve Energy Efficiency with ENERGY STAR Furnaces

Builder Guide

DESCRIPTION

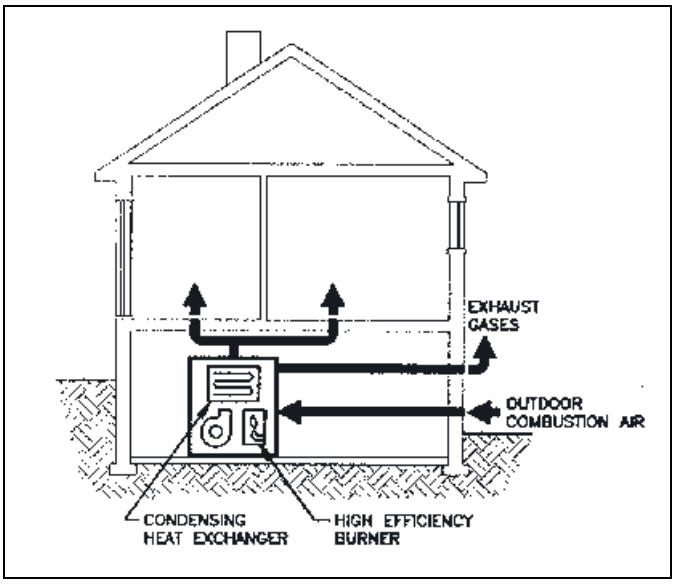
Furnaces are the most commonly used residential heating system in the United States. Approximately 43 million oil and gas furnaces are currently operating in U.S. homes.

Frequently home buyers do not carefully consider the performance of heating equipment in their new home purchase decision. But, heating costs are a major expense for many homeowners. Minimum efficiency furnaces can cost over $500 per year to operate. However, furnaces are available with the ENERGY STAR label (90%+ AFUE) that can reduce these costs by $100 or more.

High efficiency furnaces typically include several energy efficiency features. Electronic ignition (no pilot light) minimizes standby losses. High efficiency furnaces also capture additional heat from exhaust gases using a secondary condensing heat exchanger. Combustion gases are then exhausted at a lower temperature. They can be vented inexpensively with PVC (plastic) pipe directly through the wall, like a dryer vent. Direct venting also reduces chimney losses and can improve combustion efficiency further if assisted by a fan (power venting.) High efficiency furnaces often offer additional benefits such as improved comfort, quieter operation, longer life, extended warranties and safer operation.

BENEFITS

Providing energy efficient houses with comfortable high efficiency heating equipment can increase customer satisfaction, reduce callbacks, and increase referrals. These benefits can increase your business and profits.



❑ ENERGY STAR Furnaces save money.

A high efficiency ENERGY STAR Furnace can reduce heating bills by up to 15% compared to a minimum efficiency furnace. For a typical household this can mean over a hundred dollars savings per year.

❑ Installation of high efficiency furnaces is hassle-free.

Many HVAC contractors are already experienced in the installation of high efficiency Furnaces. Providing high efficiency furnaces in your houses usually requires minimal changes to your construction practices. Moreover, all manufacturers make ENERGY STAR models so it is not necessary to change suppliers.

❑ High efficiency furnaces feature higher quality components that last longer.

Look for quality construction, improved technology, and attention to detail in high efficiency furnaces that can usually result in longer equipment life and often longer warranties on key components, such as heat exchangers.

❑ Direct vented furnaces do not require a chimney.

Most high efficiency furnaces vent combustion gases directly through the wall and don't require a chimney stack. This improves efficiency and eliminates the risk of back-drafting combustion gases into the home. It also can add 2 to 4 square feet of living space normally used for the chimney chase.

❑ Direct vented furnaces are safer.

In less efficient atmospheric vented furnaces, combustion air is drawn from inside the house. However, a house can become depressurized due to exhaust fans, cooking range hoods or downdraft vents, clothes dryers, central vacuums, and operation of fireplaces. Duct leakage and even wind can create additional negative pressure. When a house becomes depressurized, combustion gases in a low efficiency furnace may be drawn back into the house. This is called "back-drafting" and can be a serious health hazard. Most high efficiency furnaces (direct vented) use a fan and vent pipes to control the flow of intake and exhaust gases, eliminating the risk of back-drafting.

INTEGRATION

❑ Installation of high efficiency furnaces requires coordination with subcontractors.

Direct vented combustion appliances are vented directly through walls because they don't need a chimney stack. This may save on materials and construction costs. Both masonry and framing crews should be coordinated with the installation of direct vented equipment.

❑ Properly sizing HVAC equipment will require special attention.

When combined with other home energy efficiency features such as increased insulation and tight construction, heating requirements may go down. Right-sizing furnaces using ACCA Manual S (and Manual J for loads) can save on first costs. See fact sheet on "Right Sizing HVAC Equipment and Duct Sealing" for more information. Typically smaller furnaces save less on first cost than compressor based air-conditioners and heat pumps. The exception is when loads get small enough to allow heating and hot water equipment to be integrated for significant savings (See "Energy Efficient Space Heating/Water Heating Equipment" fact sheet).

❑ Duct systems should also be properly sized and sealed to prevent system losses.

Duct losses can be responsible for reducing heating system efficiency by more than 20%. To get the most out of high efficiency furnaces, a properly-sized, tightly-sealed, and well-insulated duct system should be installed. See fact sheet on "More Efficient Duct Systems" for more information.

RESOURCES

- ❑ For more information on ENERGY STAR HVAC Program and qualifying equipment, call 1-888-STAR YES.
- ❑ *GAMA Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment*, Gas Appliance Manufacturers Association, 1996. Available at 703-525-9565.
- ❑ *Canadian Home Builder's Association Builder's Manual*, 1994. Available at 1-800-346-0104.
- ❑ *Moisture Control Handbook: Principles and Practices for Residential and Small Commercial Buildings* (Lstiburek and Carmody), 1993. Available at 1-800-346-0104.
- ❑ *ACCA Manual S,* Residential Equipment Selection, 1995. Available at 202-483-9370.