

BUYING AN ENERGY-EFFICIENT HOME



When you are buying a new or previously owned home, you should consider not only the price of the home, but also the operating costs of owning the home. Energy consumption comprises a large portion of home operating costs. Determining the energy efficiency of a home can be difficult, but it is possible. Read further to understand what you can do to determine if your new house will be an energy saver or an energy waster.

BUYING A NEW CERTIFIED ENERGY-EFFICIENT HOUSE

It's easy for builders, homeowners, or real estate agents to claim that a home is energy efficient. Proving it, however, takes work and expertise. You should consider shopping for a house that was or will be built to Energy Star® or EarthCraft™ standards.

- ENERGY STAR qualified homes are independently verified to be at least 30% more energy-efficient than homes built according to the 1993 national Model Energy Code or 15% more efficient than homes built according to the state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through:
 - building envelope upgrades
 - high performance windows
 - controlled air infiltration
 - upgraded heating and air conditioning systems
 - tight duct systems
 - upgraded water-heating equipment

For more information go to www.energystar.gov.

- You can also consider purchasing an **EarthCraft House™**. EarthCraft House is a voluntary building program of the Greater Atlanta Home Builders Association that promotes healthy, comfortable homes that reduce utility bills and protect the environment. An existing home can also be renovated to meet EarthCraft standards. For more information, visit www.earthcrafthouse.org.

HOW DO I KNOW IF THE HOUSE I WANT TO BUY WILL BE ENERGY-EFFICIENT?

- First, ask the seller for copies of the monthly utility bills as indicators of how efficiently the home operates. Low bills may indicate energy efficiency; however, they may merely reflect the owners' infrequent use of heating and cooling.
- If you are seriously considering buying the house, you should also consider having a blower door test (*see illustration on page-2*) and a duct blaster test performed. These tests, which cost around \$250, measure house and duct system air leakage and identify the places that need repairs to reduce the leakage. Once these tests are completed it is possible to have a Home Energy Rating System (HERS) analysis performed; which can help you if you want to apply for an Energy Efficiency Mortgage (EEM, discussed in more detail later).

BLOWER DOOR TEST

A blower door test measures house and duct system air leakage. This test enables you to have a Home Energy Rating System (HERS) analysis performed which can help if you want to apply for an Energy Efficiency Mortgage (EEM).



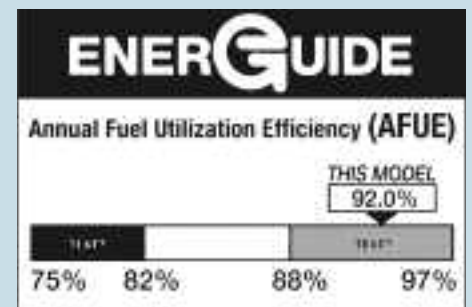
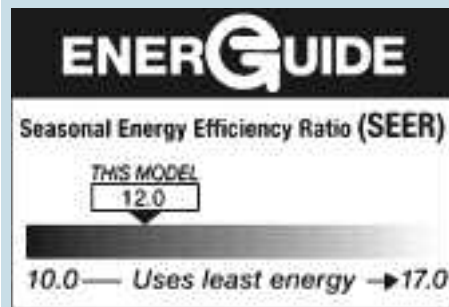
- Heating and cooling (HVAC) typically consume forty-five percent of the energy that a house uses. You should gather information on the furnace and air conditioner for any house that you may purchase. Be sure to have the following questions about the heating and cooling systems answered:

1. What are the HVAC efficiencies?

For air conditioning you are interested in the seasonal energy efficiency rating (SEER) and for gas furnaces you are interested in the Annual Fuel Utilization Ratio (AFUE).

2. How old are the systems?

If the equipment is 10-15 years old with a SEER of 8 or less, the time may be approaching to replace the system. You should consider this before making an offer for the house.

**3. What is the condition of the systems?**

You may need a professional, such as the energy rater mentioned earlier, to assist in determining the condition of the systems.

- Also consider the age and condition of the home's appliances. For example, a refrigerator that is over ten years old is probably not energy-efficient and will need to be replaced. You should not pay a premium for a house with inefficient appliances that will need to be replaced.
- Inspect the insulation in the attic. Insulation coverage should be continuous and thick enough to cover all the studs. An energy rater can also help you assess this critical area.

UPGRADING INEFFICIENT HEATING AND COOLING EQUIPMENT

- If you plan to replace both the heating and cooling equipment, consider replacing them with an efficient Energy Star® unit with a Seasonal Energy Efficiency Ratio (SEER) of at least 14 and for heat pumps a Heating Seasonal Performance Factor (HSPF) of at least 8.2. A SEER of 14 is also recommended when you are only replacing the air conditioner and coil.
- Installing properly sized equipment is critical and can be estimated by running a model called ACCA/ANSI Manual J® or an equivalent model. Contractors frequently oversize the equipment. The Department of Energy now requires the contractor to perform documented sizing calculations based on Manual J® procedures. If you install an over-sized unit, it will never reach its rated efficiency, and humidity control will not work properly. Both initial and operating costs will be higher, and the unit will actually cool your home less effectively than a properly sized unit.
- If you choose a gas furnace, choose one with an AFUE greater than 90 percent with a variable speed fan. This type of unit improves filtration, decreases temperature swings, is quieter, and controls humidity better.
- It is crucial that you have new systems installed properly. Ideally, choose service technicians who are certified by North American Technician Excellence (NATE) to install and service heating and cooling systems. To find a contractor in your area that employs NATE-certified technicians, visit www.natex.org. A duct blaster test after equipment replacement and duct repair can confirm the duct leakage reductions.
- Install an Energy Star® programmable thermostat so that you can control energy use by scheduling appropriate temperatures for different times of the day. An Energy Star® programmable thermostat can save you \$100 each year in energy costs; it will pay for itself within a year.

PAYING FOR AN ENERGY-EFFICIENT HOME OR EFFICIENCY UPGRADES WITH AN ENERGY EFFICIENCY MORTGAGE (EEM)

Obtaining an EEM allows you to finance the cost of energy efficiency improvements while reducing your monthly expenses for mortgage and utilities. EEM's are available through FNMA (Fannie Mae), Freddie Mac, HUD and FHA. www.hud.gov

Sources:

Consumer's Guide: Air Conditioning." U.S. Department of Energy, http://www.eere.energy.gov/consumer/your_home/space_heating_cooling/index.cfm/mytopic=12370

"Energy-Efficient Appliances." U.S. Department of Energy, http://www.eere.energy.gov/EE/buildings_appliances.html

"Financing an Energy-Efficient Home," U.S. Department of Energy, http://www.eere.energy.gov/consumer/your_home/designing_remodeling/index.cfm/mytopic=10380

"Insulation Fact Sheet," U.S. Department of Energy, <http://www.ornl.gov/sci/roofs+walls/insulation>.

"Energy Efficient Mortgages Program," U.S. Dept of Housing and Urban Development, <http://www.hud.gov/offices/hsg/sfh/eem/energy-r.cfm>.

"Right-Size Heating and Cooling Equipment," Department of Energy, http://www.southface.org/web/resources&services/publications/technical_bulletins/RS-Right-size_HVAC%2002-1490.pdf
<http://www.energystar.gov>

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For more household energy savings information please visit the **UGA COOPERATIVE EXTENSION** website at www.fcs.uga.edu/Housing.

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