

## High Efficiency Furnaces and Heating



### Overview

To upgrade your furnace in a way that will save you money and reduce your environmental impact, you need to work with a knowledgeable contractor. This specialist can help you select a high-efficiency furnace or heat pump that is the right size for your home and insulate and air seal your ducts and house so your new heater doesn't have to work too hard.

### Choosing the Right Heating System for Your Home

When considering home heating systems – the “H” in Heating, Ventilation and Air Conditioning (HVAC) – it's important to consider three factors: the efficiency of the heater, the efficiency of your home's exterior shell and the efficiency of your ductwork.

It's important to choose an energy-efficient, ENERGY STAR® rated heating system with a high annual fuel utilization efficiency (AFUE) rating. The higher the AFUE, the more efficient your new heater will be.

If you live in a relatively mild climate, a heat pump could be an efficient option for you. You may want to consider an air-source or geothermal heat pump. These are especially efficient where outside temperatures rarely drop below 40 degrees.

If you live in a state where it's normal for the temperatures to drop below 40 degrees in the winter, you probably need to consider a more conventional heating system powered by electricity, natural gas or oil. Cost and availability of energy sources vary from state to state.

### Is Your Furnace Working Too Hard?

Of course, what's the point of having a high-efficiency furnace if the heat it produces is seeping out of the leaky areas around your windows, doors and walls? Anything that makes up the exterior of your home is considered the exterior shell, and may be leaking warm air outside. Before you invest in a new furnace, you should consider a home energy audit, which will identify the leaks in your home, the level of insulation and other issues that can be cost-effectively fixed before introducing a new furnace.

An energy audit also will test your ductwork's efficiency. Ask your professional energy retrofit contractor if she or he does pressurized duct tests because duct leakage can be responsible for wasting up to 30 percent of the energy used by a furnace! Many older duct systems were originally sealed off with duct tape, which degrades with time. To get your ducts up to par, a professional contractor can seal and insulate them for you.

By insulating, air sealing and duct sealing, you may be able to buy a smaller heater than you had before since it won't have to work so hard. This option will save you money on the heater itself, improve your overall energy efficiency, lower your utility bills, help increase the nation's energy independence and ultimately reduce your environmental impact.