

Buyer's Guide Natural Gas Heating System



In most parts of the country, a home's heating and cooling system is its largest energy user, so it's important to have an efficient, economical and reliable system. That's why more Americans use natural gas heating systems than any other kind.

Natural gas can heat your home by creating warm air, hot water or steam. The most common type of system in the United States is a "forced-air" central heating system that uses a natural gas burner to heat air. The air is then circulated through duct work in the home by a blower or fan.

Hydronic or hot water systems have a gas boiler that creates steam or hot water, which is then circulated through the home through pipes or tubes. These systems can use baseboard components, radiators or pipes built into the floor.

The energy efficiency of any heating system is measured in its "Annual Fuel Utilization Efficiency" (AFUE). This is the ratio between the amount of energy that goes into the system and the amount of energy that comes out as usable heat. It takes into consideration heat losses during start-up and cool-down, as well as the unit's efficiency while it's running.

Most older natural gas furnaces or boilers have efficiencies lower than 65 percent, but today's natural gas systems have AFUE ratings that range from 78 to 97 percent.

Natural gas heating systems come in many different sizes, types, configurations and efficiency ratings. This guide will help you choose the right heating system for your home and family.

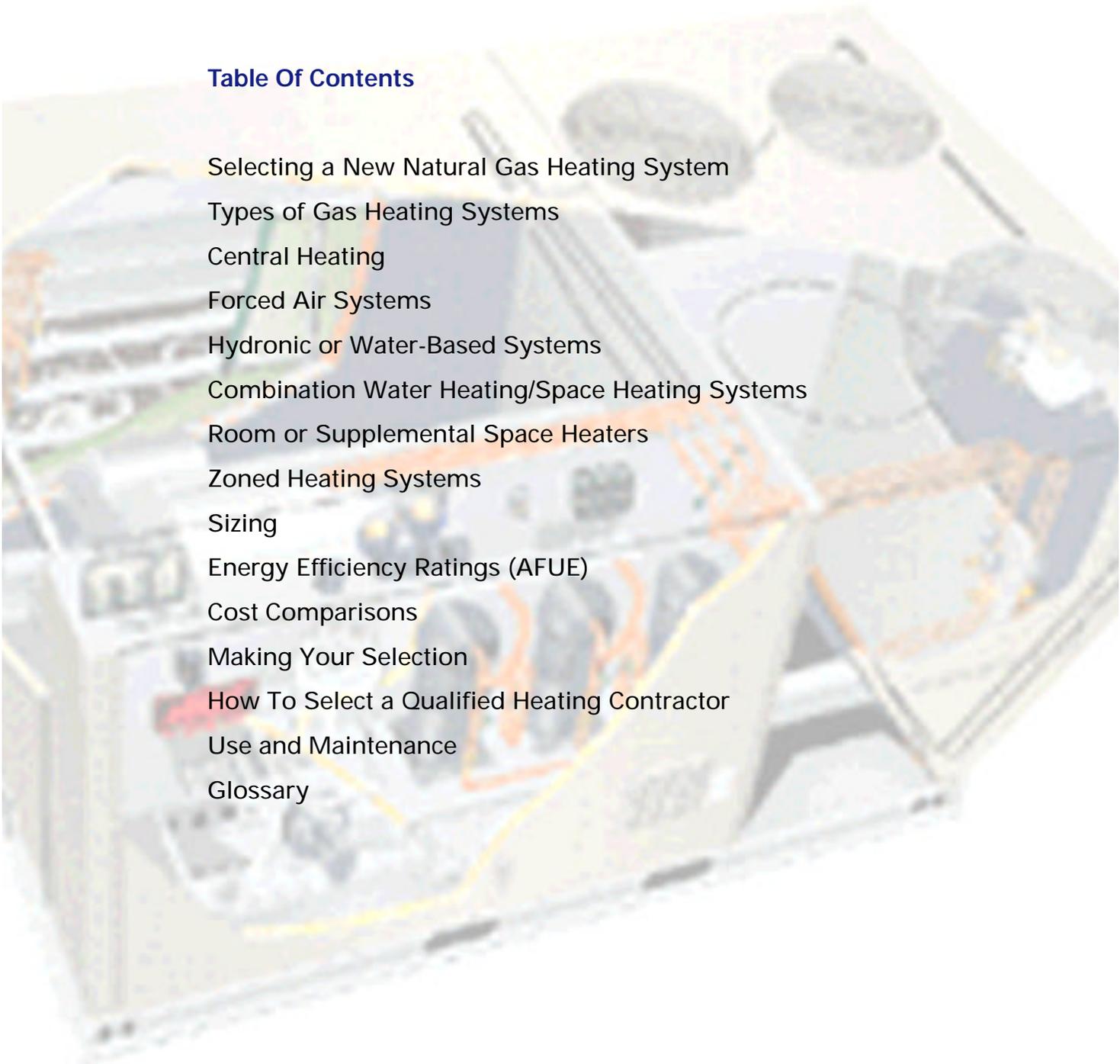


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Selecting A Natural Gas Heating System

Before you start shopping, it's helpful to understand some basics: warm air is lighter than cold air, so it rises while cold air falls. In large areas, such as a home, the air is constantly moving. The bigger the difference between cold and warm, the faster the air moves. This can create drafts, so maintaining a relatively even temperature in your home will make you more comfortable.

Heating can take place in three different ways: convection, conduction or radiant heating. Convection takes advantage of warm air's tendency to rise -- the warm air warms surfaces as it moves. Radiant heating doesn't warm air. Like the sun's rays, it warms objects in its direct path. The heated objects -- like people or walls -- can also give off radiant heat to cooler materials. Conventional fireplaces, for example, give off radiant heat, while warm air heating systems use convection heating. Conduction carries heat through a material, like a door, rather than through air. The heat could come from warm air or from radiant heat. The more dense the material, the more easily it conducts heat. Less dense materials, like insulation batting, slow down the heat going through a home's walls and roof.

When you're ready to shop, here's how to get started:

- Decide which type of natural gas heating system is best for your home, with guidance from the descriptions below.
- With help from a professional, determine the size unit you need.
- Determine what your venting options are, especially if you are converting from another energy to natural gas or are relocating the heating system within the house.
- Compare purchase prices and operating costs of different systems. (A higher efficiency system may cost a little more initially, but may pay for itself in operating costs savings in a short time.)
- Obtain bids from two or more contractors on the unit you choose. Some contractors may have very similar equipment, but from different manufacturers.
- Compare warranties on both the equipment and the installation.
- Be sure the models you are considering are design-certified by a nationally recognized laboratory that tests to national standards.
- Follow the manufacturer's recommendations for use and maintenance, including an annual inspection of the heating and venting system.

Types Of Natural Gas Heating Systems

Natural gas heating options range from large central heating units to small wall units or gas fireplaces. If you are replacing an existing forced-air or boiler central heating system, it probably will be more economical to install the same type of system. Some steam systems, however, can be converted to hot water heat.

If you are adding on a room, a space heater or fireplace-style heating unit may be the better choice. This is especially true if your current furnace is sized properly for the existing house and might be too small to heat any additional space.

If you are building a new home, you might consider radiant floor heating, which uses hot water circulated through piping built into the floor, or a combination space heating and water heating system, which uses one gas burner to do two jobs. Read the descriptions below to determine what type would be best for you, and consult a qualified contractor to help you.

Central Heating

Basically, central home-heating equipment consists of three separate systems: a unit where heat is created, a distribution system for the heat produced, and a control system that regulates when the heating and distribution systems are turned on and off.

The heating unit is composed of a cabinet containing a natural gas burner and a heat exchanger that transfers heat from the gas burner to either an air, steam or water delivery system. The burner is turned on by either a standing pilot light or an electronic or spark ignition. The heated air, steam or water is then moved to the location where it is needed by a device like a blower fan or water pump. The burner and delivery system are controlled by a thermostat, which turns the heating system on and off to maintain a comfortable temperature in the home.

Other controls, such as dampers and vents, can also be used to control delivery. Some natural gas heating systems offer zoned heat -- different temperatures for different parts of the home, or a modulating system that raises and lowers the burner and/or the fan or pump to maintain a perfect comfort level.

Because natural gas combustion produces some byproducts, all natural gas central heating systems have venting that exhausts these byproducts to the outdoors. The specifics for each type of system are discussed below.

Forced Air Systems

The most common type of natural gas central-heating system is forced air, which uses a natural gas burner to create warm air. These units have AFUEs ranging from 78 percent, which is the minimum efficiency now allowed under federal regulation for these systems, up to 97 percent.

In forced-air systems, the furnace draws in cool air and moves it into a heat exchanger, a metal box, where it's warmed by the gas burner. An electric fan or blower then pushes the warmed air through a filter and into ducts or registers throughout the home. (In very old "gravity" systems, the warm air rises naturally without any mechanical assistance.) A forced-air heating system can also include electronic air filters, electric cooling equipment, and a humidifier or dehumidifier.

Forced-air systems use air in two ways: air to mix with the gas in the combustion chamber, and air to be heated and moved through the home. Conventional furnaces have combustion chambers that mix natural gas with air from inside the home, which comes from the area surrounding the furnace. The cool air to be heated comes into the furnace from air intake ducts or registers; the heated air is recirculated through a separate duct system.

In some other systems, called "sealed combustion" furnaces, air is brought into the furnace from the outdoors, so inside air is not involved in the combustion process. This reduces the loss of air in the house that has already been warmed.

The combustion of natural gas produces some byproducts, primarily water vapor and carbon dioxide, the same elements we exhale when we breathe. In all central heating systems, these "flue gases" must be vented to the outdoors. Conventional furnaces or "natural draft" furnaces use atmospheric venting -- because warm air is lighter than cold air, the flue gases rise naturally through a vertical vent or chimney to the outdoors.

More efficient furnaces get additional heat from the combustion byproducts by using a second heat exchanger to extract more heat. Because this process cools the flue gases to a temperature where they might not rise naturally, a mechanical fan pushes them up the flue or through a horizontal duct through an outside wall. These are called "induced draft" furnaces. In sealed combustion units, the air used for combustion comes in from the outdoors and the combustion byproducts are vented through a companion duct back to the outdoors.

Condensing Furnaces

Some high-efficiency furnaces take so much heat out of the flue gases that the temperature of the gases is reduced to a point where the water vapor condenses and turns back into a liquid. They are vented using plastic vent materials specified by the manufacturer. These units usually have AFUEs of over 90 percent, and are called condensing furnaces.

Other Efficiency Enhancements

One feature of high-efficiency heating systems is the automatic ignition device. Sometimes called an intermittent ignition device (IID), this component replaces the constantly burning pilot light used in older models. When the thermostat calls for heat, the IID produces a spark to light the pilot, which in turn lights the heating system's main burner. By not using any gas between ignition cycles, this component conserves the fuel that would be used by a constantly burning pilot light.

Some high-efficiency furnaces also offer blowers that have a range of speed levels, which allows them to maintain a more consistent temperature level and to save energy. A "fully modulating" furnace means that both the blower and the burner -- the heating and delivery components -- have variable levels.

Installation of Forced Air Systems

Forced-air heating systems can be placed above, below or on the same level as the area to be heated, depending on their configuration. For example, an attic furnace would be called a "downflow" unit -- it takes in cool air at the top and pushes warm air out at the bottom. The "upflow" units do the reverse and are placed in basements. Horizontal-flow furnaces take in cool air on one side and push it out the other side. Some furnaces are built so that a variety of installations are possible; others are designed for one type of flow direction only. Some models are also weatherized so that they can be installed outdoors.

As discussed above, a variety of venting options are available, depending on where you wish to install the furnace. You can use an existing chimney or vertical flue vent, or you can select a model that vents through an outside wall. Some models now can use the same vent as an existing natural gas water heater.

Water-Based Or Hydronic Heating Systems

While a furnace heats air for warmth, a boiler or hydronic system heats water. The resulting hot air or steam is circulated through a system of pipes or tubing to a heating device in each room. Older steam systems use radiators, which give off radiant heat. As the steam moves through the loops of the radiator it loses its heat and condenses back to water. The liquid then drains back to the boiler where it's reheated.

Some hot water systems send hot water through piping in the floor. The piping, which produces radiant heat, is either embedded in a slab floor or attached underneath a plywood sub-floor.

Other hydronic systems use baseboard units, which produce both radiant and convection heat. A convector inside the baseboard warms up while the hot water running through it also creates radiant heat. At the same time, warm air rises off the convector to warm the air in the room. As in the steam system, the water is returned to the boiler after it has given off its heat.

Like a forced air system, a boiler system needs venting for its combustion byproducts and comes in a wide range of sizes and efficiencies. Residential gas boilers range in size from 17,000 Btu/hour to over 196,000 Btu/hour. AFUE ratings for today's hot water systems range from 80 to 95 percent. The venting options are the same as with a forced-air system: atmospheric venting for the lower efficiency models, and induced draft or sealed combustion for the higher-efficiency units.

The higher-efficiency boiler units also use secondary heat exchangers to extract more heat out of the combustion byproducts, just like high-efficiency forced air systems. These high-efficiency systems are called condensing systems, because the extra heat extraction turns water vapor back into water, requiring special piping and a drain.

Boiler or hydronic systems are usually installed in a basement or utility room. There also are some models of hydronic systems that are weatherized for outdoor installation. A disadvantage of hydronic systems is that they cannot be combined with a cooling system because there is no air delivery system.

Combination Water Heating & Space Heating Systems

These energy-efficient systems are designed primarily for use as a forced-air heating system, but they also can be adapted for some hydronic baseboard systems. A natural gas burner heats water to be used in the home and stores it in a tank, just like a regular water heater. Then, to provide space heating, a pump sends some of the hot water through a metal coil, which heats up. A fan blows air over the heated coil and through the ducts in the house.

Properly sized, these systems can provide adequate space and water heating for homes in any part of the country. Like other heating systems, the heating component of this "combo-heater" is controlled by a thermostat.

Room Or Supplemental Space Heaters

Individual room space heaters are a good choice for rooms that aren't used often, for areas of the home that need a heating boost, and for room additions. A radiant room heater has a glowing panel that warms people and surfaces in its direct path. Convection systems warm the room air. Some use natural air circulation to move heat; others have a small fan or blower.

Room heaters vary in size, appearance, installation requirements and venting, and can be operated with manual, automatic or thermostatic controls. They can be mounted on walls, contained in baseboard units or look like a fireplace or "stove" equipment. Most units require venting, although some unvented models are available. Like other heating systems, their energy efficiency is rated by their Annual Fuel Utilization Efficiency (AFUE). Federal standards require minimum AFUEs from 56 percent to 74 percent, depending on the type of equipment. Products are available with AFUE as high as 80 percent. As with other heating systems, a qualified contractor is a good source of information on a system that is the right size and efficiency for your needs.

Venting Options

Vented room heaters can use conventional chimney or flue vents, or they can be directly vented through a wall. Some room heaters are built to be installed as part of an outside wall, usually between two wall studs, and some may also include a cooling system. The heating capabilities range from 10,000 Btu per hour to 65,000 Btu per hour.

Unvented gas space heaters do not require venting to the outside, because they have small burners that do not create combustion byproducts at a level that could be hazardous. They use air inside the room for combustion. These unvented models contain an oxygen-depletion sensor (ODS) that will automatically shut off the gas supply to the heater if the oxygen in the room drops below a specified level. The unit will not operate again until the space is properly ventilated and the appliance is manually restarted.

While most states allow the installation of unvented gas heating appliances, some areas do not permit their use. You should check with a contractor, your local gas utility or building code officials to see if there are any restrictions on the kind of equipment you can use in your home.

Zoned Heating

"Zoned" heating systems can save energy, and can be installed using forced-air, hydronic or combo-heater equipment. They provide warm air to the living areas of the home, while allowing the temperature in the sleeping areas to drop when the rooms are not being used. A properly zoned system can save 20 to 30 percent on energy costs, compared with a similar non-zoned system.

There are three ways a home can be zoned for heating and cooling. Some furnaces or hydronic systems offer a system of electrically controlled dampers, which can open or close depending on the heating needs of different parts of the home. You can also get the same type of energy savings by installing two separate furnaces or boilers and two thermostats for the sleeping and living areas of the home. Or you can use a combination of both -- two different systems, with each "sub-zoned" for different rooms in the house.

If you are interested in zoned heating, your contractor can help you evaluate which system will work best for your home.

Sizing

The capacity of a heating system is measured by its heating output in British thermal units (Btu) per hour, rather than its physical dimensions. The correct size for a furnace or boiler depends on the size of your home, its construction and insulation, the way you use the house and the most severe winter temperatures in your area. To determine what size heating system you need, a qualified gas heating contractor or gas utility heating system specialist will estimate the heat loss of your home by measuring the amount of wall, roof and floor space exposed to the outside, and the amount of insulation in the home.

Then, by using a mathematical formula that includes the desired indoor temperature and the local outdoor temperature ranges, the contractor can determine the amount of heat your system will need to create during the peak hour on the coldest day of the year. This is expressed in the number of Btu per hour or Btu/h your unit will need to produce. For maximum efficiency, a new heating system should not be more than 25 percent larger than your peak-hour heating needs. For example, if your peak heating demand is 80,000 Btu per hour, your system should be no larger than 100,000 Btu per hour.

Don't assume that the system you are replacing is the right size for your home. Many existing furnaces and boilers aren't properly sized, or are so inefficient that a smaller, more efficient unit would be advisable. A unit that is too large for your home can be very inefficient; a unit that's too small may lower your comfort level. A properly sized system will run almost constantly on the coldest day in your area to keep the home at approximately 70 degrees F.

Once you determine the size you need, you can then determine the efficiency of the unit you choose.
Energy Efficiency Ratings (AFUE)

A heating system's energy efficiency rating or Annual Fuel Utilization Efficiency (AFUE) is the ratio between the amount of energy that goes into the system and the amount of energy that comes out as heat. It takes into consideration heat losses during start-up and cool-down, as well as the unit's efficiency while it's running. The higher the AFUE, the more efficient the furnace or boiler.

An older, conventional natural gas furnace or boiler usually has an energy efficiency lower than 65 percent. Today's natural gas heating systems have AFUE ratings that range from 78 to 97 percent for forced air systems and from 80 to 95 percent for gas hot water systems. Federal standards require that all forced-air central heating systems sold today have a minimum AFUE of 78 percent. The minimum standards for hot water boiler systems is 80 percent.

Be sure to ask your local gas company, heating contractor or dealer for an EnergyGuide fact sheet about the products you are considering. The Federal Trade Commission requires dealers to have such fact sheets for each natural gas furnace and boiler they sell. Each sheet gives the AFUE rating for a heating unit and the ratings for the most and least efficient heating units of the same size and fuel type.

Cost Comparisons

To determine which model is the best buy for your needs, you should compare both the initial cost to buy and install the system, and its average annual operating costs. The EnergyGuide fact sheet will show you the average annual operating cost for each model, based on national average energy costs and average climate conditions. You can determine more specific costs by using your local gas rate to do the calculation. Ask your contractor or call your local gas utility for the average price in your area. Natural gas for residential customers is usually priced in "therms." One therm is the equivalent of 100,000 Btu.

In cold climates, the extra money spent for a high-efficiency model will pay you back in energy savings in a short time. In milder climates, a lower-efficiency model may be your best choice.

You should figure out this "payback" before you decide. As an example, let's say you are choosing between a unit with an AFUE of 78 percent and a unit with a 93 percent AFUE. The higher-efficiency system will cost \$500 more, but will save you an average of \$137 each year in operating costs. That means you will recover the \$500 additional up-front cost in less than five years through operating cost savings. If the payback period is much longer in your area or if you are not planning to stay in the home long enough to reach the payback point, you may wish to choose the lower priced model. (Remember, however, that a high-efficiency heating system can be a good selling point for your home, particularly in a cold region of the country.)

Choose A Qualified Contractor

To find a qualified gas contractor, call your local natural gas utility, ask your neighbors or friends for recommendations or look in the phone directory. Ask contractors for their references or check with the Better Business Bureau. You also should check to see if the contractor is properly licensed and/or a member of a recognized trade group.

Your contractor should be familiar with all local building and equipment installation codes and regulations, and should be fully bonded and insured. He should do a heat-loss survey of your home and calculate the peak heating demand for your home in Btu per hour. Ask to see the estimate and make sure it's been done properly. A good contractor should also be up-to-date on the newest natural gas technology and installation procedures.

You should get a written estimate of all work to be performed, including labor and materials, and you should thoroughly check out the warranties for both the product and the installation.

The contractor should show you how to use and maintain your new heating system properly. For example, changing or cleaning air filters and registers regularly will help keep your system operating at its most efficient.

Price should not be your only consideration when choosing a contractor -- there may be valid reasons for varying price estimates. For example, one bid may include something the other does not, such as correcting venting or ductwork problems. Good installation is critical to the efficient operation of your system. Good contractors may charge a little more, but they'll probably provide you with better value and satisfaction in the long run.

Always check with your local gas utility to see if financing assistance is available for your new gas heating system. Many gas companies will offer a very competitive rate to finance gas appliances and energy efficiency measures added to your home. The monthly payments can be added to your monthly utility payment.

Money-Saving Tips

There are some simple and inexpensive ways to reduce your heating costs. One is to lower your thermostat. Energy experts say that you will save 2 percent on your energy bill for every 1 degree you turn down the thermostat. So going from 75 degrees to 70 degrees would reduce your bill by about 10 percent.

If your home maintains a good level of humidity -- usually between 35 to 45 percent -- you will be more comfortable at lower temperatures. For this reason, you may wish to include a humidifier in your forced-air heating system or buy a stand-alone unit.

Here are some other small steps that will help you save money on your heating bills:

- Caulk or add weather-stripping around window and door frames.
- Insulate switch plates and electrical outlet plates on outside walls.
- Adjust register openings to keep the rooms of your home at the desired temperature. If some rooms aren't used much, close the registers and the doors.
- Close upper floor registers in the winter to allow hot air to rise; and open them in the summer to allow cool air to descend to lower floors.
- Repair any cracks in the chimney or foundation of your home.
- Install adequate ceiling insulation -- your contractor can tell you what's appropriate for your area.

- Install insulation in exterior walls wherever possible.
- Keep doors to all unheated areas, such as the attic or garage, tightly closed.
- Check your ductwork for air leaks. Seal cracks or holes with duct tape.
- Insulate your ductwork or piping if it goes through an unheated area.
- Install storm windows and storm doors, and be sure to keep them closed tightly.
- Install a thermostat that automatically lowers the temperature setting at night.
- When your thermostat is installed, make sure it's protected from drafts.
- Close blinds or drapes over windows at night.

For other energy-saving ideas, contact your local gas utility. Many gas companies offer home energy audits at a very reasonable price or for no fee at all.

Proper Use And Maintenance

Heating specialists recommend that you have your heating system inspected every year to ensure top performance and safety. Many contractors and gas utilities offer this service on a yearly contract basis.

Between inspections, homeowners should do a regular visual inspection of their equipment to look for signs of problems, such as soot or water collecting near a burner or vent. Natural gas burners should show a clear blue flame -- a yellow or orange flame may indicated a problem.

Keep vents and chimneys clear of debris or other blockages, such as bird nests or leaves. Never attempt to bypass safety devices, and don't store aerosol cans, containers of combustible materials or flammable liquids like gasoline or paint thinner near gas equipment.

With a forced-air system, clean or replace the air filters regularly. During the heating season, once a month is a good schedule. Remove dust and lint from the heating unit, vents and registers or baseboard heaters. Make sure that registers, radiators or baseboards are kept clear -- don't let furniture or drapes block them.

Always read and follow the manufacturer's instruction manual when using your equipment.

GLOSSARY

AFUE: Annual Fuel Utilization Efficiency, a rating method developed by the U.S. Department of Energy to measure energy efficiency. The AFUE indicates what percent of the energy going into the heating system is converted to useable heat.

atmospheric venting: venting of combustion byproducts using the heat they contain to make them rise naturally with no mechanical help

boiler: a self-contained gas-burning appliance for supplying steam or hot water

Btu: (British thermal unit) the amount of energy needed to raise the temperature of one pound of water 1 degree Fahrenheit

Btu/h: Btu per hour, a measurement of energy input and output

chimney: one or more passageways, vertical or nearly so, for moving flue or vent gases to the outdoors

combo-heater: a single gas appliance that provides both space heating and hot water

combustion air: air drawn into the appliance to mix with fuel and support combustion

combustion byproducts: the gases produced by natural gas combustion, primarily water vapor and carbon dioxide

condensate: water formed from water vapor when its temperature is reduced to a certain level

configuration: the direction in which a furnace is designed to produce warmed air, i.e., upflow, downflow, horizontal flow

damper: a device located in a heating system's ductwork that controls the movement of air. Dampers can be operated manually or by a motor.

direct-vent: a natural gas appliance designed so that all combustion byproducts are vented horizontally through a wall to the outdoors. Outdoor air for combustion may also come through a companion vent.

draft: pressure created by the difference between the hot flue gases inside the venting system and the cool air surrounding the venting system

draft hood: a device that prevents flue gases from backing into the heating system

flue: a venting passageway for combustion byproducts

ductwork: a delivery system for a forced-air heating system, constructed of sheet metal, fiberglass or flexible plastic

heat exchanger: a device that transfers heat produced by combustion to air or water in a heating system
hydronic: a type of heating system that uses hot water or steam

input rating: the amount of energy that flows into a gas appliance, measured in Btu per hour.

masonry chimney: a horizontal venting passageway constructed of solid masonry units, such as brick or stone, usually lined with clay flue liners

oxygen depletion sensor (ODS): a device in unvented gas appliances that stops the flow of gas if oxygen in the room drops below a specified level

pilot: a small flame used to ignite gas in a burner. It may be standing (constantly burning) or intermittent (on demand).

sealed combustion: a self-contained system in which all combustion air is drawn from the outside and all combustion byproducts are returned to the outside

vent: a passageway used to move flue gases to the outdoors

Furnace Manufacturers' & Web Sites

Air Comfort

(Answer)

Air Star

Amana

www.amana.com

American Standard

Armstrong

(Air-Ease, American Aire, Concord)

Bard

www.bardhvac.com

Consolidated Industries

www.consolidatedfurnaces.com
(Quad Tech, Brentwood, Quatro, Tech-4)

Dayton

Ducane

www.ducane.com

Evcon Industries

www.evcon.com
(Coleman-Evcon, AirPro, Guardian, NCP, Red T)

Fraser Johnston

Goettl

Heat Controller

(Century, Comfortaire, Reclaimer)

International Comfort Products

www.icpusa.com
(Arcoaire, Comfortmaker, Air Quest, Heil, Tempstar)

Lennox

www.davelennox.com

Louisville Tin & Stove Co.

www.cozyheaters.com

Luxaire

Nordyne

www.nordyne.com
(Elect-Aire, Frigidaire, Intertherm, Miller, Philco, Tappan, Solitaire)

Olsen Technology

Oneida Royal

Pameco

Rheem

www.rheem.com
(Ruud, Corsair, Zephyr)

Sears Roebuck

(Kenmore)

Thermo-Products

www.thermopride.com

Thermo Pride

Trane

www.trane.com

Unitary Products Group

(Winchester, Moncrief, Home Air)

United Technology

www.carrier.com
(Carrier, Bryant, Day & Night, Payne)

Victa Hytemp industries

(Healthaire)

Weatherking

(Vista)

York International

www.york.com
(Air Pro, Guardian)

Boiler Manufacturers

Axeman-Anderson

Burnham

Carrier

Columbia Boiler

Crown Boiler

Dunkirk Radiator

GlowCore

www.glowcore.com

Hydrotherm

Lennox

www.davelennox.com

Lochinvar

Metzger Machine

(Milwaukee Thermoflow)

New York Boiler

Peerless Heater

Pennco

Raypak

Sears Roebuck

(Kenmore)

Slant-Fin

Smith Cast Iron Boilers

Teledyne-Laars

Thermo Dynamics Boiler

Thermal Solutions

Triano-Heatmaker

Unus Air

Utica Boilers

Weil-McLain

www.weil-mclain.com

Gas Room/Space Heater Manufacturers

Atlanta Stove

(Thermolair)

CFM-Majestic

www.majesticproducts.com
(Majestic, Northern Flame)

Desa International

www.desaint.com
(Vanguard)

Empire Comfort Systems

www.hearth.com/empire

Hunter Energy & Technologies

(Martin, Atlanta)

Louisville Tin & Stove

www.cozyheaters.com
(Cozy)

Martin Industries

www.martinindustries.com

Perfection-Schwank

www.psheat.com

Rinnai America

www.rinnaiamerica.com

Sears Roebuck

(Kenmore)

Williams Furnace

(Debonair, Forsaire, Monterey, Magnum Plus,
Chamberlain)

