



An OCC Guide to

Heating Your Home Efficiently

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Updated October 2000

This publication is updated quarterly.

Americans invest nearly two-thirds of every dollar spent on home energy to heat and cool their homes. Such a significant investment requires consumers to choose and maintain their heating systems wisely in order to get the most for the money. By buying an energy-efficient heating system or upgrading an existing one, you can reduce your utility costs by 50 percent because efficient products cost less to operate.

Heating systems

Heating systems are composed of a boiler, furnace or heat pump fueled by an energy source such as natural gas, electricity, oil, propane or wood. The energy source uses either air (furnace, heat pump) or water (boiler) to create heat for your home. Various control devices, such as thermostats, allow consumers to regulate a home's temperature.

Most heating systems last approximately 25 years. Deciding whether to purchase a new system or upgrade an existing system is a decision which could require the aid of an energy auditor. Contact your gas or electric utility (whichever one supplies fuel for your heating system) and ask about an energy audit.

Purchasing a new system

If you purchase a home heating system, start by asking around to find a heating and air conditioning company with a solid reputation that will install your choice of heating equipment. Get at least three bids and be certain to ask for references. Remember to inquire about the heating system's warranty.

Because the choice of a heating system depends upon many factors, it is not possible to point to any one system as being the best for you. But there are several factors to help you choose.

The **Annual Fuel Utilization Efficiency (AFUE)** provides information about a system's efficiency. The AFUE rating determines the amount of heat used to heat the house and the amount of heat lost in the process. For example, a furnace with an AFUE of 80 percent uses 80 percent of its heat output to warm the house, but loses 20 percent along the way. Today, many furnace manufacturers offer systems that are 95 percent energy efficient.



Cost is a definite factor. In general, electricity tends to be a more expensive option than other heating system fuels. Central electric furnaces are typically the most expensive. Heat pumps are the more cost effective among electric heat sources. Ground source heat pumps are the most cost effective, saving customers who switch from central furnaces a potential 50 to 65 percent off of a typical bill.

Those who live in a warmer climate might benefit by purchasing an electric heat pump or furnace which can double as an air conditioner. Homes located in cooler climates require a high efficiency heating system (84 to 95 percent efficient).

The **size of your home** indicates what size of heating system to purchase. If a furnace is too large for your home, it will run inefficiently. The same runs true for a small furnace in a large home. An energy auditor can perform a heat loss analysis which will indicate the appropriate size for your next system.

Choose a system which uses the **same fuel** as your previous system, unless it makes more economic sense not to. For example, a furnace or boiler run by electricity is usually more expensive than one fueled by gas or oil. In this case it may make sense to replace the electric with another available fuel source.

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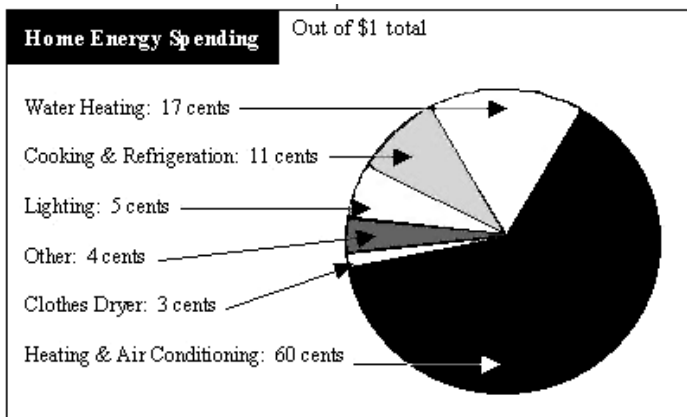
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Aside from choosing a fuel source, you must also choose either a **central forced air system** (furnace) or **hydronic (boiler) system**. One uses warm air to heat while the other sends warm water through pipes to warm each room. Choosing a furnace allows you to use the same system to provide central air conditioning although leaky ducts can lower your efficiency level. Hydronic systems are more expensive to install and can be slow to warm up although the same boiler can also be used to provide hot water.

Upgrading a system

There are a number of inexpensive ways to enhance your system and lower your heating bills as a result. The following weatherizing tips will prove useful not only if you are attempting to keep your existing system, but also if you are purchasing a new system. A well-weatherized home may require a less expensive system to maintain a comfortable level of heat.

- Clean out your air filters. This gets rid of the dust which causes your blower to work harder. Pick these up for \$1 at most hardware stores.
- Clean registers, baseboards and radiators and make sure they are free of obstructions.
- Insulate hot pipes with fiberglass pipe insulation.



- Seal joints and seams with duct tape or mastic (special paste) to alleviate leaks.
- Place a radiator reflector between the radiator and the wall. These are made of foil-covered cardboard and can be purchased from a building supply store.
- Schedule regular tune-ups to increase the life of your system and to cut pollutants. Schedule checks once a year for an oil-fueled system; every two years for gas systems; and every two to three years for heat pumps. System tune-ups can reduce your monthly bill by 3 to 10 percent.

Aside from weatherizing, keeping an eye on your system's controls is another way to cut costs and increase efficiency.

Thermostat

Turn down your thermostat 10 degrees for the eight hours that you sleep or work (if no one else is at home) and save seven percent off of your heating bill. A fool-proof way to adjust the temperature of your house is to purchase a thermostat controller. This device allows you to preset house temperatures at different times of the day. Your furnace can keep the temperature low during your work day and sleep hours, turning it back up 15 minutes before you arrive home or wake up.

Aquastat

This thermostat for hot water boilers is normally set between 160-180° F but can be adjusted to 120°-140° F during mild weather. The aquastat is located within a metal box on the side of the boiler.

Fan thermostat

This thermostat controls the fan which blows warm air through the ducts. Make sure it is set to come on at 100-110° F and to shut off at 80-90° F (if it has only one setting, set to 100-110° F). If cold air blows out of the ducts, raise the temperature.

Dampers

Ducts are usually covered by dampers which control the air flow to various rooms. Close the dampers on ducts which lead into unoccupied rooms to save heat.

The Ohio Consumers' Counsel is the legal representative and residential consumer utility advocate serving as a resource for individuals who have questions and concerns, or would like more information about the services provided by their publicly owned electric, natural gas, telephone and water companies.

For additional information from the Ohio Consumers' Counsel:

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