



## Your heating system

A heating system converts fuel into heat which then flows through a house. The efficiency of a heating system depends on the amount of fuel consumed to meet heating needs. Using less fuel means your system has increased its energy efficiency.

## Check your heating system first

One way to maximize output using the least amount of fuel is to reduce air leakage. Before deciding to replace or upgrade your present heating system you will have to consider how much of your present system can be saved. Can the boiler or furnace be salvaged by tuning or retrofitting? Are the heating ducts or water distribution pipes in good condition? Heating system work can be very inexpensive or quite costly depending on how much efficiency you want to buy.

Oil and gas fired furnaces require a constant supply of air to operate, because fire needs oxygen to burn. Air is also needed to exhaust the products of combustion up the chimney. Sometimes a furnace may become starved for air because household air is being rapidly expelled from the house through other routes such as a roaring fireplace, an upper-level window left open, a clothes dryer or exhaust fan left operating continuously.

An air-starved furnace can cause carbon monoxide to buildup in quantities that can be dangerous.

Warning signs of inadequate ventilation are stuffy atmosphere, lingering odors from incomplete combustion, back drafts and smoking fireplaces.

Additional ventilation can sometimes be required in houses with heating systems that require little or no indoor air, electrically heated homes, homes with chimney-free condensing furnaces, or houses with a fuel burning furnace enclosed in a room with air for combustion from the outside. Furthermore, super energy-efficient houses usually require special ventilation.

## Improving heating efficiency

If you decide to change your system, you'll have to consider what type of fuel you want to use. Cost and availability of fuel is usually the deciding factor. If you're keeping your present system, here are a few ways you can improve its operation.

- Turning down the thermostat is a good way to save heat. There are several brands of programmable thermostats on the market today that will regulate your home's temperature.
- Hot air ducts are notorious wasters of heat and money. If your basement feels too warm, too much heat is probably seeping out of your ducts. You can seal all joints and seams in the ducting with vinyl duct tape. Some ducts registers empty into the basement and these should be sealed or closed if they are not needed.
- Ducts that run through unheated basements or attics should always be insulated. Fiberglass batting or commercial duct wrap can be used.

- Make sure both return air grills and supply registers are kept free from any obstruction, including drapes and furniture. With forced air-systems, the furnace filters should be changed regularly.
- With hot water systems, the exposed accessible heating pipes should be insulated with flexible foil-faced fiberglass at least 19mm thick. A rigid, foil-faced insulating board between the wall and the radiator will reflect much more heat into the room.
- Some old hot water systems rely on gravity to circulate the water, and adding a circulating pump to the system can lead to potential fuel savings of as much as 30 percent.
- If there is an aquastat on the boiler, (a water temperature control) the water temperature can be reduced to about 49 celsius of 120 fahrenheit during warmer parts of the heating season. This reduced setting will prevent overheating your house in the spring and fall.
- A more expensive option is to install an automatic aquastat to reduce water temperature as the outdoor temperature rises. (If your boiler is made of stainless steel, or if your main boiler also heats your domestic hot water, you shouldn't reduce the water.
- "Downsizing" your oil furnace can reduce fuel bills by seven to 10 per cent. Downsizing means reducing the firing rate by changing the burner nozzle to a smaller size.
- Retention head burners that can save as much as 20 to 25 per cent of your fuel can also be added to some furnace units. Retention head burners mix the air and oil spray very quickly which permits the combustion of oil with less air. Less air entering the burner means that less heat escapes out the chimney.

If you think you might be having problems with household air supply, contact a registered heating contractor for advice. If the problem turns out to be inadequate air supply, the contractor will be able to find ways to bring in outside air. There are specific requirements for this which depend on the type of system you have.