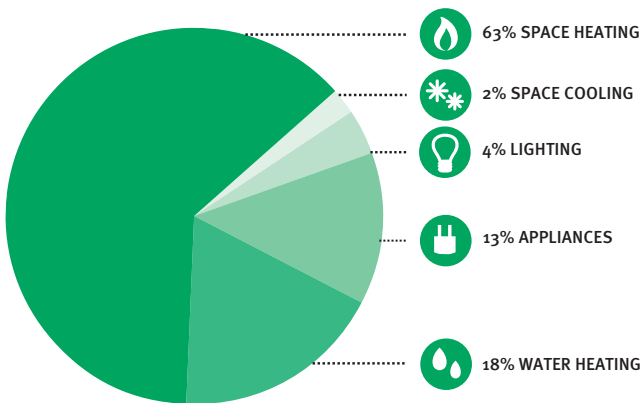


6 | HOME HEATING

The Heating System: Your Home's Biggest Energy User

Your home heating system is the biggest energy user in the home. On average, home heating accounts for about 2/3 of your home's energy use, so making the right choice is important.

Canada's Average Home Energy Usage (2007)



Source: NRCAN

Natural Gas Usage per Year for Edmonton Single-Family Home

The average single-family home in Edmonton uses about 160 gigajoules (GJ) of natural gas per year (about \$600 to \$750 at 2013 rates, not including fixed charges), which produces about 7.9 tonnes of greenhouse gas (GHG).

While a variety of home heating systems are available, a gas-fired heating appliance is the most typical in Edmonton. Alternatives to gas are generally electricity based, including air source and ground source (geothermal, geoexchange) heat pump systems that indirectly create GHG emissions because most of Edmonton's electricity comes from burning coal.

Gas-Fired Furnaces

Most homes in Edmonton are heated using a forced-air furnace in which natural gas combustion heats the air, which is then blown by a fan to living spaces through a network of ducts and vents.

For all gas-heating appliances, look for the EnerGuide or ENERGY STAR label (or both) to determine the energy efficiency of the appliance. Efficiency is measured by annual fuel utilization efficiency (AFUE). An AFUE of 90% means that 90% of the energy in the fuel becomes heat for the home, and the other 10% escapes up the chimney and elsewhere. Look for an efficiency above 95% as best practice. AFUE doesn't include heat losses from the duct system or piping, which can be as much as 35% of the appliance output energy when ducts are located in the attic, so ensuring they are sealed is important.

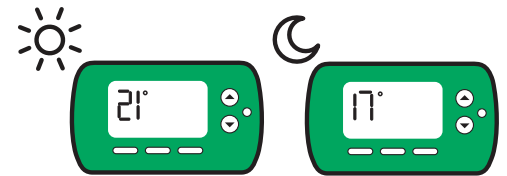
Condensing Furnaces and Boilers

A condensing furnace or boiler condenses the water vapour produced in the combustion process and uses the heat from this condensation. All new furnaces have an AFUE of 90%, but a lot of old ones are still in operation. A new furnace costs about \$4,000, but in an average home this cost can be fully recouped in energy savings in less than 10 years.

EDMONTON'S GREEN HOME GUIDE

High-Efficiency Furnace + Programmable Thermostat = Savings

Enjoy the warm feeling you get knowing that your heating system is keeping your home comfortable, saving you money and reducing your carbon footprint. Combining a high-efficiency furnace with a programmable thermostat that sets the temperature each night to decrease from 21 to 17 C can reduce yearly natural gas costs by 10 to 20%.



Don't Wait to Replace your Furnace

A high-efficiency furnace has an annual fuel utilization efficiency (AFUE) rating of 90 to 98%. This means that a furnace at the high end of this range will convert 98% of the combusted natural gas to usable energy, with the remaining 3% exhausted to the outside. By comparison, many older furnaces have an AFUE of only about 60%, meaning 40% of the fuel is wasted. So replacing your furnace starts to save you money right away!





Look for this symbol when you're shopping for new appliances or buying a new home.

EDMONTON'S GREEN HOME GUIDE

ENERGY STAR

ENERGY STAR is the international symbol of premium energy efficiency. Products that display the ENERGY STAR symbol have been tested according to prescribed procedures and have been found to meet or exceed higher energy efficiency levels without compromising performance.

The ENERGY STAR website, operated by Canada's Office of Energy Efficiency, lists all the different appliances and products that have the ENERGY STAR qualification. The site also highlights the most efficient products in a variety of different categories. You'll be surprised at the range of products there are for homes. To learn more, please visit: oee.nrcan.gc.ca/residential/10759



GREEN FACTS AND TIPS: HOME HEATING

Programmable Thermostats

Programmable thermostats allow you to program your furnace to different temperature settings at different times of the day and week to maximize energy savings without compromising your comfort. You can buy a simple ENERGY STAR-rated mercury-free programmable thermostat for about \$30 to \$80.

Are There Other Types of Heating Systems?

Yes. The most common alternative to a gas furnace is a gas boiler connected to a radiant heating system. Radiant heating systems are more comfortable and energy efficient than forced (moving) air systems, because they heat the home without excess air movement. A form of radiant heating that is becoming more common is underfloor heating. Radiant heating systems are also healthier than forced air systems, as there is minimal air re-circulation, which minimizes exposure to dust, pollen and other pollutants found in a home. The drawback of radiant heating systems are that they are more costly than forced air systems.

Alternatives to gas heating systems can include electricity based resistance heating as well as air-source and ground source (geothermal) heat pump systems. Heat pump systems move thermal energy (heat) from one area to another and have the advantage of providing both heating and cooling within one system. For additional details regarding these technologies, please read the **Other Green Innovations** section.

