

Homeowner's Guide to Oil and Gas Heating

Heating with Oil

Oil is the most common home heating fuel in Nova Scotia. Modern high efficiency condensing oil and natural gas equipment can have combustion efficiencies as high as 93%.

Getting The Most From Your Burner

Annual Maintenance

Oil burners should be cleaned and adjusted annually by a qualified technician to maintain top performance. An annual efficiency tune-up can help you save up to 5 percent per year in heating costs. Basic servicing consists of:

- Cleaning the soot from the heat exchanger
- Replacing the burner nozzle and oil filter
- Lubricating motors and pumps
- Testing controls
- Measuring combustion efficiency
- Replacing and cleaning air filters (warm air only) and checking belt tension (if the furnace has one).

Nozzle Downsizing

If your furnace turns on and off frequently, downsizing your burner's oil nozzle can save you money. Smaller nozzles improve comfort by evening out interior temperatures. Longer run times, at lower heat output, allow the burner to operate at peak efficiency for longer periods, much like the improved gas mileage of highway driving compared to stop-and-go city driving. Speak to your service technician about installing a smaller fuel nozzle and adjusting the air/fuel mixture. These changes can save you as much as 10 percent per year in heating costs.

Efficiency Tests

Modern oil burners cannot be accurately adjusted 'by eye'. The only way your burner technician can be certain your oil burner is working at its best is to physically measure CO₂ or O₂ levels, smoke density, and stack temperatures to determine combustion efficiency. Draft should also be tested. A properly adjusted burner should be at least 81 percent efficient.

Today's ENERGY STAR® qualified systems can achieve combustion efficiencies of up to 85 percent. If your furnace or boiler is more than 20 years old, you may want to consider upgrading to a high-efficiency, ENERGY STAR® qualified oil-fired system. ENERGY STAR® qualified systems can save homeowners between 10 and 15 percent, or up to \$500, in annual heating costs.

Burner Replacement

If the heating system is still in good mechanical condition, but the burner's combustion efficiency is below 75 percent, replacing the burner may be a good investment. Burner upgrades have performed particularly well on the older cast-iron boilers still heating many older homes. With new burners, these rugged boilers can be surprisingly efficient and provide many more years of trouble-free service.

Furnace or Boiler Replacement

Generally, it is not a good investment to replace a furnace unless its combustion efficiency is very low, the heat exchanger develops a hole, or repairs become too expensive.

Owners of steel boilers that include tankless coil water heaters pay a large efficiency penalty during warmer months since the boiler reservoir must always be hot for the coil to function properly, even during periods when no hot water is actually being used. Many Nova Scotians have reduced their total oil use by 30 percent or more by converting to an indirect water heater tank and cast iron on demand boiler. This equipment dramatically reduces standing energy losses by only operating when heat is required or if hot water is actually used.

Your insurance company may also require replacement for safety reasons.

Oil-Fired Space Heaters

Natural draft oil-fired space heaters are available in attractive new designs, complete with glass fronts to view the flame. The best units have efficiencies as high as 80 percent and can heat a small home. Most oil space heaters can operate without electricity.

Venting Combustion Gases

Most new oil systems can be equipped with sidewall venting equipment instead of a chimney. This equipment must be certified for use with specific equipment /burner combinations. It may not be possible to find a location in every home for a sidewall vent that meets all required clearances.

The most common type of venting equipment available now is a direct-vent system. Combustion gases are exhausted by burner fan pressure. Since the exhaust system is pressurized, it must be carefully sealed to avoid combustion spillage into the home. Direct-vent systems with an outside combustion air feed increase efficiency and decouple the operation of the heating system from any air pressure imbalances that may exist in the home. Advantages of direct-vent exhaust systems over power-venting systems include lower cost, higher efficiency, simplified maintenance, quieter operation, and no impact on household air. Interior tanks are less likely to have problems and if they do, leakage is likely to be found much sooner.

Since efficient combustion is achieved by reducing the volume and temperature of hot gases leaving the boiler or furnace, when a new oil system's vented into an older masonry chimney, the chimney usually will require a stainless steel liner. The line is needed to reduce the chimney's diameter and ensure that combustion gases are exhausted from the boiler or furnace without acidic condensation occurring within in the chimney flue.

Oil Tank Safety

Fuel oil spillage can result in expensive environmental clean-up costs that may not be covered by some home insurance policies. Homeowners should inspect oil tanks regularly for leakage, damage, proper support, and openings that allow water to enter the tank, such as a missing fill or vent cap, or a broken fuel gauge. Older tanks should be replaced. Special tanks designed to minimize the chance of oil leakage include stainless steel tanks, fiberglass tanks, tanks with an outer shell designed to catch oil leakage, and tanks constructed of heavier-gauge metal. A metal pan or a low curb or dyke under the tank can help to contain small oil spills and simplify clean-up. Interior tanks are less likely to have problems and if they do, leakage is likely to be found much sooner.

Heating with Gas

Propane vs Natural Gas

Propane and natural gas are similar fuels, with important differences. Propane is delivered by truck and stored as a liquid in a pressurized tank on your property. Storage tanks are usually rented from and maintained by the propane supplier. Propane is sold by the litre, is heavier than air, and contains a third less energy per litre than heating oil. Natural gas is piped directly to the home with no on-site storage requirements, is sold by the amount of heat it can produce (varies with supply), and yields less greenhouse gas emissions than both propane and heating oil. Currently, natural gas is offered only in limited areas of Nova Scotia while propane is more widely available.

Propane Fireplaces

Propane fireplaces are popular in Nova Scotia, especially in new homes. They are clean burning, easy to ignite, and need little maintenance. Many models can be vented directly through an outside wall and electric blowers can help distribute heat. If you plan to use a gas fireplace as a space heater, be sure to purchase an energy efficient model and look for one that doesn't require a pilot light to be on all the time. Some less expensive units are intended only for occasional use and are not efficient enough to provide economical space heating.

Natural Gas In Nova Scotia

Nova Scotia's first residential natural gas service began in January 2004. In Nova Scotia, natural gas is supplied to residential customers as a low-pressure gas via underground polyethylene pipe. Customers are billed for the heating value, measured in gigajoules (GJ), of the gas consumed. Most gas equipment can be modified to burn either propane or natural gas. Residential uses for natural gas include home heating, domestic water heating, cooking, clothes drying, barbecuing, and even outdoor lighting.

Efficient Systems and Appliances

High efficiency condensing gas furnaces can have efficiencies of 93 percent or more. Exhaust gas temperatures from a condensing furnace are so low that they can be safely vented through a low-cost plastic sidewall venting system.

For optimum efficiency and safe performance, gas appliances should be cleaned and adjusted regularly (at least once per year) by a qualified technician. For fireplaces with a pilot light, turning off the appliance's pilot light when the unit is not in use (particularly in the summer) can help conserve fuel. Make sure to keep your furnace's air filters clean. Check your owner's manual for instructions and recommended replacement frequencies.

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