What to Know About Heating Your Home with Oil

For many households in cooler climates, the decision about how to heat the house comes down to a few familiar options. Natural gas, electricity, propane, and oil each have their own advantages and trade-offs. Homes that rely on a tank and burner system have been using oil for generations, and the fuel remains a practical choice in areas where gas lines don't reach or where homeowners prefer the characteristics of an oil-fired system.

Understanding how a heating oil system works, what affects its efficiency, and how to manage costs can make a real difference in comfort and budgeting. This article covers the basics of oil heat, from how the fuel is stored and burned to what you can do to keep your system running smoothly through the winter.

How Oil Heating Works

A typical oil heating system has three main parts: the storage tank, the burner, and the controls. The tank holds the fuel, usually outside the house or in a basement. When the thermostat calls for heat, the burner draws oil from the tank, mixes it with air, and ignites the mixture inside a combustion chamber. The heat from the flame warms air or water, which is then circulated through the house via ducts or radiators.

Modern burners are far more efficient than older models. They use a nozzle to atomize the oil into a fine mist, which burns more completely and produces less soot. An electronic ignition replaces the old pilot light, saving fuel when the system is not running. Many newer systems also include a primary control that monitors the flame and shuts the burner down if something goes wrong, adding a layer of safety.

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The fuel itself is a type of distillate, similar to diesel. It is delivered by truck and pumped into the storage tank. The tank size varies, but a typical residential tank holds between 200 and 500 gallons. During the heating season, a full tank can last anywhere from a few weeks to a couple of months, depending on the weather and the size of the house.

Efficiency and Fuel Quality

Not all home heating oil is the same. The fuel you get can vary in quality, and that affects how well your system performs. Most oil sold for home heating is a blend that includes additives to prevent gelling in cold weather and to reduce the buildup of deposits inside the burner. If you live in a region with very low winter temperatures, a winterized blend is important. Without it, the oil can thicken and clog the filter or the fuel line, leaving you without heat.

Efficiency also depends on how well the system is maintained. A burner that is dirty or out of adjustment will burn more fuel to produce the same amount of heat. Soot buildup on the heat exchanger reduces heat transfer, and a clogged nozzle can lead to incomplete combustion. Annual service by a qualified technician is the standard recommendation. During a tune-up, the technician cleans the burner, replaces the nozzle and filter, checks the ignition and controls, and tests the flue for proper draft.

One factor that often surprises homeowners is that the efficiency of an oil system is not just about the burner itself. The distribution system matters too. If your ducts leak or your radiators are old and corroded, some of the heat you pay for never reaches the living space. Insulating ducts in unheated areas and bleeding air from hot water radiators can make a noticeable difference.

Managing Fuel Costs

Heating oil prices fluctuate with the global market for crude oil, and winter demand can push prices higher. There are a few strategies that homeowners use to manage these costs. The most straightforward is to fill the tank in the late summer or early fall, when demand is lower and prices tend to be more favorable. Many fuel suppliers offer budget plans that let you spread the cost of oil over the whole year, rather than paying a large amount all at once when you order a fill-up.

Another approach is to keep the tank from running dry. When the tank is near empty, the burner can draw sediment from the bottom of the tank into the fuel line, which can clog filters and damage the nozzle. Running out also forces the system to be primed again, which can introduce air into the line and cause problems. Keeping at least a quarter tank of oil in the tank during the heating season is a good practice.

Thermostat management plays a role too. Lowering the temperature at night or when the house is empty can reduce fuel use by several percent over the course of a winter. Programmable thermostats make this easier, and some newer models can be controlled from a phone. The key is to find a balance that keeps the house comfortable when people are home without wasting fuel when they are not.

One thing to watch out for is the condition of the tank itself. An older steel tank can rust from the inside, especially if water gets into it. Water in the tank can cause corrosion and promote the growth of microbes that turn the oil into a sludge-like substance. Regular inspection of the tank and the use of a fuel additive that disperses water can extend the life of the tank and prevent problems.

Comparing Oil to Other Heating Options

Every type of heating system has its own set of trade-offs. Oil heat is known for producing very warm air, which many people find more comfortable than the drier heat from a forced-air gas system. Oil burners also tend to be quieter than some other types, since the combustion is contained and the circulating fan is usually the loudest part.

On the downside, oil requires you to store the fuel on your property, which takes up space and carries the risk of a leak. Tanks need to be monitored and maintained. And because you have to order deliveries, you have to plan ahead to avoid running out, especially during a cold snap when suppliers are busy.

Natural gas is often cheaper per unit of heat, but it is not available everywhere. Electric heat pumps are efficient in moderate climates but can struggle in very cold weather, often requiring a backup heat source. Propane is similar to oil in many ways but is typically more expensive per gallon. The right choice depends on your location, the existing equipment in your home, and your personal priorities.

One factor that sometimes gets overlooked is the environmental side. Oil is a fossil fuel, and burning it produces carbon dioxide and other emissions. However, there are now blends of home heating oil that include biodiesel, which reduces the carbon footprint of the fuel. Some suppliers offer a blend that contains up to 20 percent biodiesel, and these can be used in standard oil burners without modification. If reducing your household's emissions is a priority, it is worth asking your supplier about their fuel blend.

Practical Tips for Oil Heat Users

- Schedule an annual tune-up before the heating season starts. A well-adjusted burner runs more efficiently and is less likely to break down on a cold night.
- Keep an eye on your fuel level. If you have a gauge that is hard to read, consider installing a wireless monitor that sends an alert when the level gets low.
- Check the area around your tank for signs of leaks, rust, or damage. If you smell oil indoors, call a professional right away. An oil leak can be expensive to clean up and can pose a health risk.
- Consider adding insulation to your attic and walls. Reducing the amount of heat that escapes cuts your fuel bill no matter what type of heating system you use.

These steps are not complicated, but they do require a little attention each year. The payoff is a more reliable system and fewer surprises when the bill arrives.

When to Call a Professional

Some maintenance tasks are safe for a homeowner to handle, like bleeding a radiator or checking the fuel gauge. But anything involving the burner, the electrical controls, or the fuel line should be left to a licensed technician. Oil burners involve high voltage, flammable fuel, and combustion gases. Mistakes can cause a fire, an explosion, or carbon monoxide poisoning.

If your system starts making unusual noises, produces smoke or soot, or fails to heat the house evenly, it is time to call for service. The same goes for any smell of oil inside the house. A good technician can diagnose the problem quickly and often fix it in a single visit.

For homeowners in the Boothwyn and Linwood area, American Energy Supply, Co. at 1704 Chichester Ave, Linwood, PA 19061, (610) 494-4874 provides residential and commercial heating oil, diesel fuel, gasoline, utilities, and HVAC-related services.