How oilheat systems work

The heat produced by an oilheat system is distributed through a home in one of three ways: warm air (registers or vents), hot water (baseboard, radiators or radiant) or steam.

While the system in your home may look a bit different from those in the diagrams below, it operates on the same principles.

Whatever the system, any emissions are safely vented to the outside and never mix with the indoor air.

The thermostat **(1)** has a sensor that measures room temperature. When the temperature drops below your thermostat setting (or when the setting is raised), the thermostat sends a signal to the controls **(2)** on the burner **(3)** to get into action.

A fuel pump **(4)** draws oil through a filter **(5)** to the burner. The nozzle on the burner turns this oil into a fine spray, mixes it with air and ignites it in the combustion chamber **(6)**, causing the chamber to get very hot.

What happens next depends on the type of heating system.

- In a warm air system (see diagram below), air absorbs heat in the furnace's heat exchanger **(7)**. A blower **(8)** sends this air through ducts **(9)** to heat the home.

diagram of warm air system

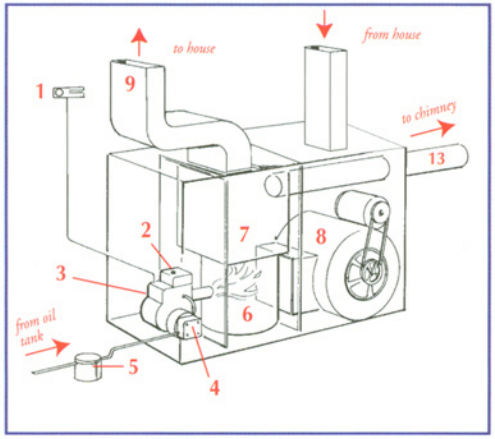
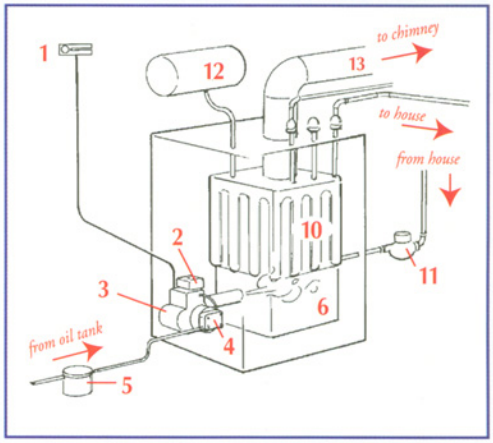


diagram of hot water (hydronic) system



- In a hot water, or hydronic, system (see diagram above), water circulates around the boiler's **(10)** combustion chamber **(6)**. A circulator **(11)** pumps the heated water through radiators or baseboards. An expansion tank **(12)** adjusts to varying water pressures. Eventually, the water returns to the heating unit to begin the cycle again.

- Steam systems are similar to hot water systems except that steam rather than hot water is generated. Steam rises up to radiators or baseboards; no circulators are needed. A low water cut-off shuts down the boiler if water levels drop, preventing boiler damage.

In all systems, combustion emissions go up the flue **(13)**, **never mixing with the air, water or steam being distributed through the house.**