

THE HOMEOWNERS JOURNAL

HEATING SYSTEM MAINTENANCE

By JAMES QUARELLO

Your heating system is probably the one most important component in your home, but unfortunately it is often neglected. Usually our furnace is not thought about much because it's tucked away somewhere out of sight. That is until there is a problem. Then we become all too aware of our heating system or lack of one, when we are without heat in the middle of a cold winter night.

What can you do to help prevent problems from happening in the middle of a cold snap? In a word, maintenance. Depending on what type of system you have and the fuel used to run it, there will be varying maintenance

schedules. Let's examine some of the most common.

Forced Air Heat

Your forced air heating system requires comprehensive annual maintenance by a professional heating contractor at the beginning of each heating season. In addition, you should follow the simple maintenance suggestions discussed below to keep your system operating at peak performance.

Air Filters

Dirty air filters restrict airflow and reduce the heating system's efficiency. Inspect your air filters once a month when the system is in use for heating or cooling. Clean or replace dirty air filters as necessary. Regular inspection, cleaning and replacement of your furnace filters will reduce your heating bills and prolong the life of your heating unit.

Balancing the Heat

If some rooms seem too hot or too cold, you can "balance" the heat distribution throughout your home. Open and close supply registers and duct dampers as necessary to control the flow of heated air.

Professional Maintenance

Your heating contractor should do the following during a scheduled service call:

1. Inspect and service the heat source. Follow maintenance suggestions discussed later under Gas & Oil Burner sections.
2. Blower Blades. Clean the furnace's blower blades.
3. Fan belts. Check fan belt tensions and adjust as necessary. Worn or faulty fan belts should be replaced.
4. Motors. The blower motor and any other motors should be oiled. Do not oil permanently lubricated motors.
5. Humidifier. Examine humidifier for water leaks and flush mineral deposits from unit.
6. Ducts. Examine supply ducts for gaps or leaks and repair as necessary.

Homeowner Maintenance

Between maintenance calls, you should do the following once each month when your forced air system is in use for heating or cooling:

1. Inspect air filters and clean or replace as necessary.
2. Registers. Reduce dust in your home by vacuuming heat registers and the cold air return as part of your regular cleaning.
3. Obstructions. Remove any drapes, furniture or other objects blocking registers, interrupting airflow and lowering your system's efficiency.

Hot Water Heat

Hot water heat is a common heating system. First, oil, gas, electricity or another fuel heats water in a boiler. Next, the heated water travels through pipes to radiators, convectors or radiant piping concealed in floors, walls or ceilings. Heat from the water then radiates throughout the living space. After giving up some of its heat, cooler water returns to the boiler to be heated again.

Water circulates through the system by circulating pumps. Distribution piping can be laid out in a variety of arrangements. Some systems divide the home into separate heating areas or "zones." Your heating contractor or gas or oil supply representative can identify and explain the particular features of your hot water system.

Your system must be inspected and serviced by a professional heating contractor annually. Careful operation and periodic homeowner maintenance are also required for safe, trouble free operation.

Radiators & Convectors

Radiators and convectors are the most common radiating devices. Radiators are large cast iron tubes. Convectors are smaller copper or steel tubes surrounded by metal fins housed in grilled cabinets or baseboard units. The fins increase the convectors heated area.

Dirt, dust and obstructions interfere with the heat transfer from the radiators or convectors to the room air. Clean the radiators or convectors with a vacuum brush attachment regularly. Remove any drapes, furnishings or other objects obstructing

IN THIS ISSUE:

Heating System Maintenance.	1-2
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airflow around your radiators or convectors. Do not place anything directly on top or in front of your radiators or convectors.

Air trapped inside a radiator or convector, can interfere with heat distribution. Some radiators and convectors have automatic air valves that bleed air from the units. If yours do not, they should be bled manually at the beginning of the heating season and after adding or removing water from the system. If a radiator or convector will not heat properly, bleeding the unit may solve the problem.

Controls

Your system heats water under pressure. An automatic pressure relief valve guards against excessive pressure. This safety control device will open, if needed, to release pressure and prevent serious damage. If you every see water coming out of this valve **call a heating professional immediately! Do not lift the lever on the valve! Serious injury can result due to the release of super heated steam.**

Professional Maintenance

Call a professional heating contractor or your local oil or gas distributor to schedule an annual inspection and service before the start of the heating season. The contractor should do the following:

1. Inspect and service the heat source. Follow maintenance suggestions discussed later under Gas & Oil Burner sections.
2. Controls. Inspect all aquastats, relays and other controls.
3. Temperature Pressure Relief Valve. Check the temperature pressure relief valve by lifting the valve lever and allowing a small amount of water to flow into a bucket. Replace if no water flows from the valve.
4. Water Temperature. Inspect the water temperature gauge and adjust water temperature as necessary.
5. Water Pressure. Inspect the pressure temperature gauge, showing boiler water level, and make any necessary adjustments. Some systems have a pressure-reducing valve that maintains the proper water level automatically.
6. Pumps & Motors. Oil all pumps and motors unless they have permanently lubricated bearings. Unlubricated pumps are expensive to replace.
7. Radiators & Convectors. Bleed radiators and convectors if there is no automatic air valve.
8. Pipes. Inspect pipes for rust and leaks.

Homeowner Maintenance

Between maintenance calls, you should do the following once each month during the heating season:

1. Radiators & Convectors. Clean radiators or convectors with a vacuum brush attachment.
2. Obstructions. Remove any drapes, furniture or other objects blocking radiators or convectors. These obstructions interrupt airflow and lower your system's efficiency.
3. Temperature Pressure Relief Valve. Examine the temperature pressure relief valve. Call your contractor **immediately** if you see signs of leaking or discharged water.
4. Pipes. Check exposed pipes for rust and leaks. If you discover a problem, contact a heating professional immediately, before the problem worsens and extensive repairs become necessary.

Steam Heat

Steam heat systems are similar to hot water systems. Boilers, pipes and radiators or convectors generate, distribute and radiate heat. The boiler heats cool water until it turns to steam. The steam then rises through the pipes to radiators or convectors. After the steam gives up its heat, it condenses back to water and runs back to the boiler to be heated again.

You should maintain your steam heat system similar to the hot water system discussed above. A professional heating contractor must service steam systems. There are some differences between the two systems. The steam boiler's water level should be monitored monthly when system is in operation. In addition the low-water cutoff should be flushed once a month to prevent buildup of sediment. Ask your contractor how to maintain your system throughout the heating season.

Gas Burner

Gas burners are common in forced air, hot water and steam systems. The burners can be fueled by natural gas, manufactured gas or bottled liquid propane gas. Gas burners are generally reliable and require little maintenance.

In a gas system, an automatic gas valve opens when the thermostat calls for heat.

A thermocouple next to the pilot light closes the gas valve if the pilot light goes out. If the thermocouple is faulty, the pilot will not light.

Pilot lights can be electric or gas pilots. If you have problems with an electric pilot,

call your professional heating contractor. You can clean and re-light a gas pilot by following the instructions printed on the front of the boiler or furnace.

Professional Maintenance

Your heating contractor should do the following during a scheduled service call:

1. Pilot. Clean the pilot orifice and adjust the pilot flame as needed.
2. Burners. Clean the burners and adjust as necessary.
3. Heat Exchanger. Clean heat exchanger surfaces. Inspect to ensure there is no deterioration allowing poisonous exhaust gases to mix with indoor air.
4. Flue. Clean flue passages and inspect for exhaust gas leaks.

Oil Burner

The gun-type, high-pressure burner is the most common. When the thermostat calls for heat, a high pressure or gun-type oil burner pumps oil through a nozzle, producing an oil mist. A high-voltage spark created by two electrodes then ignites the air-oil mixture.

If the oil does not ignite in the burner, a safety control cuts off the flow of oil to the burner. Without this safety device, the boiler or furnace could flood with flammable oil and put your home in danger.

A proper draft over the firebox is important for efficient operation of the oil burner. Most oil burners have a draft regulator mounted in the exhaust stack near the boiler or furnace. The regulator contains a small damper that opens and closes automatically to maintain the proper draft.

Professional Maintenance

All oil burners require an annual inspection by a professional heating contractor. A burner that is out of adjustment can waste up to 50% of your fuel dollars. Your heating contractor should do the following:

1. Burners. Clean the burners and adjust as necessary.
2. Heat Exchanger. Clean heat exchanger surfaces. Inspect to ensure there is no deterioration allowing poisonous exhaust gases to mix with indoor air.
3. Flue. Clean flue passages to remove soot buildup and inspect for exhaust gas leaks.
4. Efficiency Testing. Test burner efficiency and adjust as necessary.