



# HEATING 101



**HVAC**.com  
Heat • Air • Experts who care

As a homeowner, you want to ensure that you get best HVAC heating system you can get that fits both the comfort of your needs and is at an affordable price. There are multiple options for heating a home, such as furnaces that are fueled by gas and electricity, heat pumps that can heat and cool year round, and hybrid dual fuel heating systems that can switch between a heat pump and a furnace. Investing in the best option to heat your home is an important decision and one that shouldn't be made lightly.

## Types of Heating Systems

There are many options for heating systems and knowing the pros and cons for each can help you decide which would be the best fit for your home and family. The most common systems are furnaces, heat pumps, and hybrid fuel heating systems. Below lists all the information you will need to make an informed decision.

### Furnaces

Furnaces run on new gas, propane, or oil and fall under three different categories.

- “Base Model” – which operate with minimum efficiency and are best for milder climates. They are also the most cost-effective option.
- Mid-Efficiency – these are slightly higher than the “base model” in terms of efficiency. They have more efficient heat exchangers and utilize more precise control of combustion air and venting. Mid-efficiency oil furnaces operate at a higher percentage than gas or propane, as well.
- High-Efficiency – these furnaces use a second heat exchanger to recover some of the heat that is adrift in water vapor. This water vapor is turned into useable heat and is vented outdoors using a plastic pipe. It is more expensive but is the most cost-effective in extreme climates or larger homes.

### Heat Pumps

The next option for heating is a heat pump, which uses the same refrigerant system as an air conditioner. The difference is that during the heating season it reverses the rotation to deliver heat instead of cool air. These are much more energy efficient than other electric heating systems. The operating costs equal to or less than a gas furnace. You will want to find a heat pump that has a high seasonal efficiency rating, or HSPF. The higher the HSPF, the lower the cost of your annual heating.

### Hybrid Dual Fuel Heating Systems

A hybrid dual fuel heating system uses both a heat pump and a furnace to provide heating for a home. It uses the heat pump for the primary heating and cooling. The furnace then provides another stage of heating. The homeowner has the ability to switch the fuel source from the electric heat pump to the furnace.

## Selecting the Right Heating System for Your Home

Choosing the right system for you doesn't have to be complicated. There are specific factors involved that can help you discover what exactly you need. These factors are:

- Fuel or Energy:
  - Which type of source do you need power from? Do you need fuel or is it just energy? Many families all over the country use natural gas but that's not always available. Others use propane or LP gas if it is more readily available in their area. Fuel oil is not as common but is still used when it's available. Electric heat pumps are more popular in less severe climate areas, as well. First, you must figure out which fuel type is accessible for your home and then move on from there.
- Distribution System:
  - Forced Air – This is the most popular in the United States and allows the heat to be dispersed throughout the home by air ducts and registers. One main advantage for forced air systems is that the ducts can be used for central air conditioning, can filter and humidify the air, and circulate ventilation throughout the home at the same time.
  - Hot Water – Also known as a hydronic system utilizes a boiler to heat water, the water is then distributed through the house either in copper or plastic piping. Baseboard radiators are typically used for hydronic systems. The advantages for using this system allow for more even temperatures and you can use the same boiler for regular hot water use.
- Efficiency:
  - The higher the efficiency, the less cost involved to operate the system.
- The End Cost:
  - You should always consider the cost of not just the heating system but also the cost of operating and maintaining your system over the years

## Carbon Monoxide and Heating Systems

Many heating systems that use fuel produce carbon monoxide, which is considered a silent killer. The gas is odorless and there are no warning properties of its existence when present. There are some symptoms that might be present if you have carbon monoxide poisoning, such as:

- Trouble breathing
- Nausea
- Headaches
- Onset of fatigue
- Dizziness

Proper maintenance, installation, and use of your furnace can prevent carbon monoxide poisoning in your home. You should have your furnace inspected regularly and use a carbon monoxide detector in your home.

## Heating System Trouble Signs

The most frequent signs that your heating system needs maintenance or replaced are simple enough to detect on your own.

- Age – if your furnace is between the age of 15 and 20 years old, it might be time to call a qualified technician to inspect its performance and conduct a diagnostic for any preventable problems.
- Cold Air – if the furnace isn't producing sufficient heat, then that typically is a tell-tell sign that something is wrong. Typically this could just be the motor in the blower fan but have a technician inspect the furnace might provide more information for it producing cold air.
- Strange Noises – check for pops or squeaks, which could indicate something is loose or needs repaired.
- Increased Heating Bill – furnaces that are constantly running and the heating bill keeps increasing shows that the furnace isn't able to keep the temperature at a set climate. If it can't keep a specific temperature then the furnace keeps running and decreasing its efficiency.
- Yellow Pilot Light – if you have a natural gas furnace, your light should always be blue. The yellow light not only means something is very wrong with your furnace but that carbon monoxide is possibly leaking.
  - Along with the yellow light, check for condensation, a rotten egg smell, or rust. If any of these occur, turn the furnace off immediately and call a specialized HVAC contractor.
- Dust – dust is always present on furnaces; however, if there is an unusually large amount of dust formulating, it could be a sign that your furnace is going out.

## Does My Heating System Need Replaced?

Typically you should replace your heating system if it is older than 15 years. More efficient heating systems may last longer but it is not always guaranteed, especially if annual maintenance wasn't kept up on for it. Aside from the age, your system may need replaced if it keeps having frequent repairs and if your energy bill keeps increasing. A great option is to have a certified HVAC contractor come and assess your heating system to see if it is time to replace your system.

## Preventing Heat Loss and Improving Heating Efficiency

There are affordable and easy ways to prevent heat loss in your home and improve the efficiency of your heating system. Try these quick tips to see if they help:

- Contact a trained professional to assess your current heating system prior to the cold months to ensure your system is operating at the most efficient level.
- Replace your furnace filter once a month or long if needed.
- Make sure your vents are clear of obstructions, which might prevent proper ventilation.
- Also make sure your windows and doors are weatherized either with weatherizing strips or caulking.
- Check for leaks around pipes, chimneys, recessed lighting, and in closets and cabinets.
- You can even help keep the heat in your home by purchasing curtains or shades that are insulated.