Steam vs Hot Water Radiator Comparison Guide

Radiators can be an efficient, cost-saving way of heating your house. Even after the furnace has finished its cycle and brought a room up to its thermostatically controlled temperature, the radiator continues to emanate heat. Their delivery pipes are a heat source, spreading the warmth out over a long, narrow area. The benefit of any radiator, whether it uses hot water or steam, is its efficiency. It does not deliver dry, heated air to the rooms, as does a [forced-air HVAC system](https://www.thespruce.com/types-of-home-heating-systems-1824772).

There are two basic types of water-based radiators: the hot water radiator and the [steam radiator](https://www.thespruce.com/steam-radiator-and-air-valve-repair-1824753).

[The 8 Best Baseboard Heaters of 2020](https://www.thespruce.com/best-baseboard-heaters-4172078)

## Hot Water vs Steam Radiator: Major Differences

Hot water radiators have water that is heated from a central boiler continually running through them. This water either runs in a loop (one-pipe system) or up and back down again (two-pipe system).

However, if your house was built pre-1950 and it has original radiators, they're most likely steam-based radiators. As the name indicates, the heating source that runs through the supply pipes and into the radiators is steam. This is created in a furnace located in an area separate from the living spaces, usually a basement.

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| --- | --- |
| **Hot Water Radiators** | **Steam Radiators** |
| One or two pipe systems | One or two pipe systems |
| Standing or baseboard | Standing |
| Low-maintenance | High-maintenance |
| No humidity | Adds humidity |
| Less noisy than steam radiators | Noisier than hot water radiators |
| More energy-efficient | Less energy-efficient |

## Key Features

### Hot Water Radiator

**One-Pipe System:** In the one-pipe system, hot water leaves the furnace and moves in a continuous loop, returning to the furnace as cooler water. This cooler water is re-heated and sent out on its journey again.

**Two-Pipe System:** The two-pipe system moves hot water to the radiators in one pipe and returns it to the boiler in another pipe.

### Steam Radiator

**One-Pipe System:**In the one-pipe radiator system, a single pipe runs from the furnace to each radiator. Steam is driven through it, fills the radiators, and then condenses and runs back down that same pipe in the form of water. The water is recycled and used again in the next cycle.

**Two-Pipe System:**In the two-pipe radiator system, one pipe delivers steam to the radiators and a second pipe separately returns condensed water to the furnace.

## Appearance

### Hot Water Radiator

Hot water radiators can look either like the conventional, freestanding "stand-up" or wall-mounted radiators or like the low-profile [baseboard heaters](https://www.thespruce.com/convection-vs-hydronic-electric-baseboard-heaters-1821911). Modern hot water radiators may have a flat, low-profile front panel cover and no visible fins.

### Steam Radiator

Most steam radiators are conventional, freestanding "stand-up" radiators with visible fins. A freestanding stand-up radiator is mounted on the floor and constructed of a set of vertical fins flanked by pipes. There are also wall-mounted steam radiators. The fins of either style become hot and distribute the heat into a room. Vintage cast iron steam radiators have ornate fins featuring scrollwork and floral motifs.

### Best for Appearance: Tied

You may prefer the modernized look of "stand-up" or baseboard hot water heaters; or, you may like the vintage appearance of older steam radiators.

## Repair and Maintenance

### Hot Water Radiator

The most common problem with hot water radiators is trapped air, which requires bleeding to remove the air bubbles. Bleeding is easily done by opening a tiny valve on each radiator in the home.

### Steam Radiator

Steam radiators can be messy thanks to escaping steam. Many older homes with steam radiators have warped floors around the radiator area, an almost unavoidable byproduct of having a pressurized steam unit inside your house. Furnaces generating steam do so under pressure, and while it's rare, these furnaces can explode.

### Best for Repair and Maintenance: Hot Water Radiator

Hot water radiators usually don't bring many problems, and they aren't under pressure like steam radiators.

## Humidity

### Hot Water Radiator

Hot water radiators don't have the added benefit of increasing humidity in the rooms. However, added humidity is often a necessity in a home during dry winter months.

### Steam Radiator

Steam radiators emit steam, which brings humidity into rooms. The humidity from the steam makes a home feel more comfortable in dry winter months.

### Best for Humidity: Steam Radiator

If your home has exceedingly dry air during colder months, keeping your steam radiators functioning for as long as possible can help add humidity into the atmosphere.

## Noise

### Hot Water Radiator

Air may become periodically trapped in the pipes of a hot water radiator. When that happens, you may hear a clanging or hammering sound as water is trying to pass through the blockage.

### Steam Radiator

A house with steam radiators is never a quiet house. While you can take measures to dampen the sounds, you will always experience some degree of pipes clanking and steam hissing as it escapes from the [valves](https://www.thespruce.com/steam-radiator-air-vents-1824733). This is usually considered the price–or benefit–of living in an older home if you can accept it.

### Best for Noise: Hot Water Radiator

Though you may be able to hear water trying to move through the pipes, you won't hear the intermittent and piercing sounds of escaping steam as you might from a steam radiator.

[How to Clean a Steam Radiator Air Valve](https://www.thespruce.com/clean-a-steam-radiator-air-valve-4125788)

## Energy Use

### Hot Water Radiator

Hot water heaters are considered to be more energy efficient than steam radiators. This is because hot water heaters move the water through the system using a pump, which allows the water to move at a predictable rate.

### Steam Radiator

Steam radiators are considered to be less energy efficient than hot water heaters because it takes longer to boil water and deliver the steam.

### Best for Energy Use: Hot Water Radiator

Hot water radiators deliver hot water faster and predictably compared to a steam radiator. However, both hot water and steam radiators are considered energy efficient in that they can be zoned; radiators can be turned on or off in individual rooms.

## The Verdict

Overall, hot water radiators are more common in newer homes, they're more efficient and easier to maintain than steam radiators. However, one reason both hot water and steam radiators have slowly been phased out is the potential for leakage. No matter how much effort you put into maintaining a centrally-based radiator system, leakage will occur at some point. It's also important to keep in mind that while delivery pipes can act as heaters within rooms, they also waste energy when they run through other areas of the house, such as between the floor and ceiling.

From: https://www.thespruce.com/hot-water-vs-steam-radiators-1821916