

Heating systems tips

The path to Net-Zero

The following information from the Chartered Institute of Plumbing and Heating Engineering (CIPHE) can be used in printed, digital and social communications to help consumers deal with common plumbing and heating issues. Emphasis should always be to employ a professional, appropriately registered engineer to rectify plumbing and heating problems.

The below information is free to use but please credit the Chartered Institute of Plumbing and Heating Engineering (CIPHE).

Efficient heating systems for existing homes

We are all spending more time at home and so our heating bills are rising. For many, rising bills are an inconvenience, that means pulling the purse strings a bit tighter, for others it is devastating. According to Government statistics approximately 11% (2.5 million households) are fuel poor. Lone parents with dependents make up 25.4% of the fuel poor, with fuel poverty being highest in the private rented sector.

The good news is that there are steps you can take to lower your bills. Homes across the UK have their heating and hot water provided by a plethora of different types of heating systems, powered by a range of fuel sources including gas, oil, electricity, biomass and solid fuel. Despite this, when discussing how to keep homes warmer and more efficient, there are a range of common steps households can take to get the most out of their heating systems.

1) Have your boiler serviced annually

Regular maintenance ensures boilers are working at their peak efficiency and should ensure they run effectively and safely for the year to come. Annual servicing also helps to expand the life of boilers and reduce the risk of an expensive break down.

Talk to a professional about the use of chemical inhibitors in your system to help maintain central heating systems efficiency. And while we are talking about professionals, don't forget to make sure your tradesperson has the correct registrations and accreditations to work on your type of heating system:

- If your boiler is gas fired, you will need a GasSafe registered engineer:
<https://www.gassaferegister.co.uk/>
- If your boiler is oil fired, you will need an OFTEC registered engineer:
<https://www.oftec.org.uk/>
- If you use a biomass or solid fuel boiler, you will need a HETAS registered engineer:
<https://www.hetas.co.uk/>

You can find CIPHE members who hold these accreditations:

- Online at <https://www.ciphe.org.uk/>
- By phoning 01708 472791
- By emailing info@ciphe.org.uk.

2) Replace your old inefficient boiler

Although initially costly, if your boiler is reaching the end of its working life, having it replaced with a newer, more efficient model can save £££'s on your heating bills. Modern day boilers are highly efficient, and with the introduction of Boiler Plus regulations in England, they are becoming even more so.

Boiler Plus:

Changes to Part L of the Building Regulations came into force in England on Friday 6th April 2018, in a bid to make home heating systems more energy efficient. These new rules state:

- All domestic gas boilers installed must have a minimum ErP efficiency of 92%
- Timers and room thermostats are an explicit requirement in ALL gas and oil system installations
- When a gas combination boiler is installed, an additional energy efficiency measure will be required. The energy saving technologies that can be used to comply are either:
 - Flue gas heat recovery systems
 - Weather Compensation
 - Load Compensation
 - Smart controls featuring automation and optimisation functions.

This legislation only applies to England and boilers installed after 6th April 2018.

3) Upgrade your controls

Controls allow you to heat your home when it is occupied and only the parts of your house that are in use. For instance, if your house is normally empty during the day while the family is at work and school, keeping the heating on full blast for your return will mean higher bills. However, if you have a timer, you can set the temperature to drop down while no one is in, and bring it back up to your ideal temperature for your arrival home.

With many of us now working from home, there is still steps you can take to lower your bills even if your home is occupied. If you have Thermostatic Radiator Valves (TRVs) fitted to your radiators, you can choose to turn off the heating in unoccupied spaces, such as spare bedrooms.

New 'smart' or intelligent controls go a step further. Not only can you pre-programme your heating, but you can talk to it while on the move via a mobile app. These systems can also actively monitor your home for movement, going into a lower temperature 'sleep' mode if it considers the property or specific rooms to be empty, or that the occupants are all asleep in bed. Many will also gain information from outside temperatures and weather forecasts, so they can adjust your heating requirements accordingly.

Energy companies are continuing to roll out smart meters, which can help you monitor and cut down energy use in your home. If you don't already have one installed, talk to your energy company to see if your property is suitable.

By using standard thermostatic controls effectively, householders can save significantly on their heating and hot water bills.

4) Insulate and draught proof your home

If your roof is uninsulated, you will be losing around a quarter of the heat from your home through the roof space. So making sure your attic is adequately insulated is a must. Not only that, but loft insulation lasts for around 40 years and will pay for itself many times over!

Draught-proofing improvements (i.e. blocking up unwanted gaps surrounding windows, doors and chimneys) in your home will also help you save on energy bills and keep your home warm.

5) Make sure you know how your system works

Different systems will attain higher efficiencies based on how you use them. For instance If you have a well insulated home and have a condensing boiler, it could be that leaving your heating on a low setting all day (but high enough for the boiler to be in condensing mode), may actually save energy compared to turning the system on and off as you require it.

If you don't understand how your heating works, or know how efficiently your home is insulated, it's safest to stick with only heating your home when you need to. If you need help, see the advice of a professional.

6) Ditch high energy consuming products

When it's getting chilly, it is tempting to try to save energy by heating fewer rooms in the home. If you are only using a couple of rooms, this does make a lot of sense. If your radiators are fitted with TRVs or if you have multi-room controls this is easy to do.

If, however, you are tempted to turn off the central heating and heat rooms with small electric fan heaters this can be a false economy. Portable electric heaters are high energy consumers. Simply put, it will cost you several times the money to heat a room via a fan heater than it will a central heating system. Fan heaters can also be a fire hazard if left unattended, or too close to flammables such as curtains and furniture.

If you want to heat only of the rooms in use in your home, it is far cheaper and safer to invest in TRVs or flexible smart controls and use your central heating system. Don't forget to keep the doors closed in the areas you are heating!

Heating System Tips

- Over 50% of your energy usage is spent heating your home. Making efficiency savings is good for the environment as well as your bank balance.
- When you have your boiler's annual service, talk to your installer about ways you can increase your whole heating system's efficiency. Discuss how frequently the whole system should be serviced too.
- Even older systems can benefit from upgrading controls. Don't assume that there is nothing you can do just because you have an aging appliance.
- Remember, saving energy doesn't mean a colder home – it just means controlling energy use better and improving the way your existing heating system works.
- Boiler Plus only applies to heating systems installed after 6th April 2018. Older systems do not have to be replaced by law, but all new systems have to adhere to the new requirements. This will make new installations a little more expensive, but you will recoup savings on your running costs.

If you need to call in professional help, make sure your engineer is a member of the CIPHE. They have been vetted for qualifications and experience by the Industry's Chartered Professional body and abide by a Code of Professional Standards.

You can find accredited CIPHE members:

- Online at <https://www.ciphe.org.uk/>
- By phoning 01708 472791
- By emailing info@ciphe.org.uk.

Net Zero and low carbon heating systems

To tackle climate change, the UK has a legal commitment to be completely carbon free by 2050. That means the gas, oil and coal currently used to heat our buildings will need to be replaced with low carbon fuels or technologies. Around 90% of homes in England currently use fossil fuels for heating, cooking and hot water, so the step change to low carbon systems is a massive undertaking, with approximately 40 million buildings to de-carbonize.

Fossil fuels have been the mainstay of the heating industry for generations, so the practical implications of retraining an entire industry are also huge. Approximately 100,000 heating engineers will need to up-skill to design, install and maintain either hydrogen powered boilers or heat pump technology.

Additionally, to reach net zero, the UK's energy infrastructure will have to undergo a considerable upgrade. The gas network will need to be adapted to carry hydrogen, district heating systems will be rolled out via a Heat Network Transformation Programme - which will implement local authority zoning by 2025 - and there will need to be a widescale switch to electrically powered systems, such as those using heat pump technology.

The path to net zero is already underway. The hydrogen network is due to be trialled at scale (in limited areas) 2023. In the same year, testing will begin to allow for 20% blending of hydrogen into the existing gas distribution grid. By 2025 hydrogen heating will be trialled in a large village, with a pilot hydrogen town planned by the end of the 2020's.

Technology wise, heat pump production will need to increase significantly to reach demand. Heat pumps are already being used extensively in air conditioning applications, however their use in domestic heating systems is low. The industry is working to raise heat pump production to 600,000 units per year by 2028.

Net Zero and existing homes

In existing homes, at present, installers can still fit and indeed retrofit combi gas boilers to the current Boiler Plus Standard in England (and certain property types in Wales), with a minimum ERP efficiency of 92%.

Existing properties are expected to be able to use gas boilers for the foreseeable future. However, with the Government's commitment to Net Zero by 2050, it's true that natural gas fired boilers are on borrowed time.

With a rapid period of technological change ahead, consumers will need to become familiar with new regulations and technologies. Consumers will need to make informed decisions on their heating

and hot water systems on the path to net zero. In particular, the vulnerable, elderly, and disabled need protection from incompetent or rogue traders, and those who would mis-sell new systems.

New homes – The Future Home Standard

The Future Home Standard is due to come into play from 2025 - though the current government has said it may push for earlier - meaning that gas central heating appliances in all new build properties will be banned.

All new build houses will therefore require an alternative heating source such as a heat pump or hydrogen powered boiler. Gas will still be permitted for cooking only.

As we grow closer to the 2025 deadline, it vital that house builders, developers and their clients are aware of the new legislation. Engineers need to be trained to competently design, install and maintain the new technology.

Quotes

Kevin Wellman, CEO, CIPHE

“We can go a long way to fighting fuel poverty and carbon footprint in the UK by ensuring people’s heating systems are working as efficiently as possible.”

“By making upgrades to your system and changes to how you heat your home you can save hundreds on your energy bills each year.”

“No one gives a second thought about putting their car through a full service and MOT – doing the same for your heating system is just as important. Not only will this ensure your boiler is working safely and effectively, but it will also improve system efficiencies too.”

“We need approximately 100,000 engineers trained to competently install low carbon technology, such as hydrogen boilers and heat pumps. If we fail to adequately train engineers, the public and those working in the industry will be put at considerable risk.”

“The path to net zero is upon us and the industry is ready for the challenge. Make no mistake, there is much work to be done, but the environmental benefits are enormous.”

Jerry Whiteley, Technical Manager, CIPHE

“Next time you need to call in a professional to improve the efficiency of your heating system, it is important to choose someone who will carry out work, professionally, competently and responsibly. Rogue installers may promise to do the job cheaper, but in the long run it could prove to be very expensive if the work is non-compliant and remedial work is necessary.”

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