

“Don't be put off by the scare stories that heat pumps don't work in older homes



Clockwise from left: Louise Sunderland; John Taylor; Ben Bolland has recently moved into a new Somerset home with a heat pump



source heat pumps in British homes, 12 per cent are in flats, according to MCS.

One solution for flats and small homes is air-to-air heat pumps. Instead of transferring heat from the air outside to water in radiators (air-to-water), they warm air that is then blown into your home. Often called air-conditioning units, they can also cool indoor air. Although they are “quite unusual” in Britain, air-to-air systems dominate recent heat-pump sales in France, “predominantly because it's cheaper to install”, Beanland says. They cannot supply hot water so are often paired with immersion water heaters in flats.

Should I replace any pipes?

Probably not, Bohan says. Most homes have suitable 15-22mm copper pipes. Large, newly built homes with very small “microbore” plastic pipes may need to be replaced, however.

How much does it cost?

The average installation cost for an air source heat pump in 2022 (including the cylinder, radiator and pipe upgrades) is £11,083, MCS data shows. They can last for 20 years. About 3,200 ground source heat pumps have been fitted so far this year, at an average installation cost of £17,583.

The £450 million boiler upgrade scheme will refund £5,000 of these costs for an air source heat pump, or £6,000 for a ground source heat pump – if it replaces a fossil fuel system. Custom and self-builders also qualify. By the end of last month almost 9,000 homes had applied.

On Tuesday Barclays announced £2,000 cash rewards for new and existing mortgage customers who

fit heat pumps in their homes. It also offers £1,000 cashback on solar panels and £500 on insulation or double glazing. No additional lending is required. In a separate scheme,

Halifax mortgage borrowers who fit heat pumps via Octopus Energy can get £1,000 cashback.

How loud is a pump?

Many are now Quiet Mark certified. “They are generally between 45 and 65 decibels – 42 is the background noise of a library, 47 is your fridge firing up,” Bohan says.

Sunderland was pleasantly surprised at how quiet her new heat pump is. “It makes a similar amount of noise to the boiler flue.”

Nibe heat pumps exhibit at the Homebuilding & Renovating Show. Get free tickets at homebuildingshow.co.uk/pr-thetimes

pump the difference can be £2,000 to £3,000, she adds. “And it's going to be working harder and costing you more.”

What else can I do?

For some homes it may be cheaper to fit a “weather compensated” heat pump system, Beanland says. New air source heat pumps, like the Taylors' Vaillant, can heat radiators to 75C. But keeping it that high pushes up your electricity bill. Instead, you can fit a temperature sensor outside the home to automatically run the radiators that hot only on very cold days. For the rest of the winter lower water temperatures will provide enough heat (and save on bills).

“You can also start with a high-temperature heat pump, gradually replace radiators and run the system cooler and cooler,” Beanland says.

Do I need a hot water cylinder?

Unlike a combi boiler, a pump cannot heat water quickly on demand, so you will need a separate device to supply hot water. In most cases this is an indoor hot water cylinder – about the size of a tall fridge – designed to work with the heat pump.

If you lack space, consider a heat battery from Sunamp, which can store the same amount of heat as a water cylinder but in a quarter of the space. Like the gel in a pocket hand-warmer, the phase-change material inside the battery absorbs, stores and releases thermal energy when changing between solid and liquid. Or you could keep a combi boiler solely to provide hot water.

Where should I put the pump?

You can fit one air source heat pump without planning permission, as long as it is at least one metre within the boundary of your property. The pump is about the size of an outdoor air-conditioning unit. Its back should be at least 60cm from the outside wall so you don't “throttle the air supply”, Beanland says. Leave enough space in front of it for colder air to disperse freely.

Could I fit one in a flat?

It's possible. Of the 144,509 air

600K

The number of heat pumps the government aims to have installed annually in Britain by 2028

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radiators, you will get better efficiency.” A good installer will assess your home and calculate what size radiator you need in each room for the optimum flow temperature. Find a registered installer at mcs-certified.com.

“Because gas has been cheap, you've not really had to worry about the gas boiler not running efficiently,” Rippin says. “With heat pumps, it's more important that you choose the right size. If you've undersized or oversized, you risk having either a cold home or high electricity bills.”

At her Victorian terrace, Sunderland had already fitted underfloor heating as part of a

ground-floor kitchen extension. But she did not have to replace any of the upstairs radiators to add a heat pump. “We have been surprised at how warm the upstairs has been. We spent the first few days being, if I'm honest, a bit too hot. We adjusted the system to deliver less heat and are comfortable now, but it's good to know that when it gets colder we will likely be fine,” she says. Her system included a controller, hot water storage tank and a back-up electric boiler.

Should I insulate first?

Last year Sunderland insulated her end-of-terrace external wall, funded by the short-lived Green Homes

Grant. A thermal imaging survey by her local co-operative, South East London Community Energy (selce.org.uk), showed the wall leaked heat like a “massive reverse radiator”, she says. “It was so helpful. They go around every nook and cranny of your house and tell you where the cold spots are.” The roof insulation was upgraded as part of a mansard extension in 2012. “It was not one big renovation. We did bits as we had money.”

While upgrading insulation first “is a very good approach, it is not a prerequisite to installing a heat pump successfully,” says Bean Beanland of the Heat Pump Federation. However – as with a gas boiler – poor insulation will mean you are likely to need a bigger heat pump, Bohan says. The next size up of gas boiler typically costs £500 more, but with a heat

£17,583

Average installation cost of a ground source heat pump. So far this year 3,200 have been installed

