

Wonderfully **Simple**



**Why shower waste water
heat recovery**

is crucial for heat pump
efficiency and Future
Homes compliance



2025 Future Homes and Buildings Standard



The Future Homes Standard (FHS) 2025 is a significant step in the UK's drive towards sustainability, requiring all new homes to meet higher energy efficiency standards as part of our efforts to reach net-zero carbon emissions by 2050.

However, it poses a serious challenge to housebuilders; the requirement that all new builds must install zero carbon ready systems for space heating and hot water generation.

The trajectory of travel indicates the vast majority of these systems will be air source heat pumps (ASHP).

While heat pumps are highly efficient for space heating, they are far less efficient

at meeting hot water demands – particularly in larger households. If heat pumps are oversized to compensate, this leads to system inefficiency and as a result, cost increases.

As a result, with ASHPs becoming the main source of space heating, housebuilders could face challenges from residents regarding hot water supply; especially when showering is undertaken in relatively quick succession at peak times. To alleviate this, larger hot water cylinders and immersion back ups are frequently used; thereby creating overall system inefficiencies which will increase household energy costs.

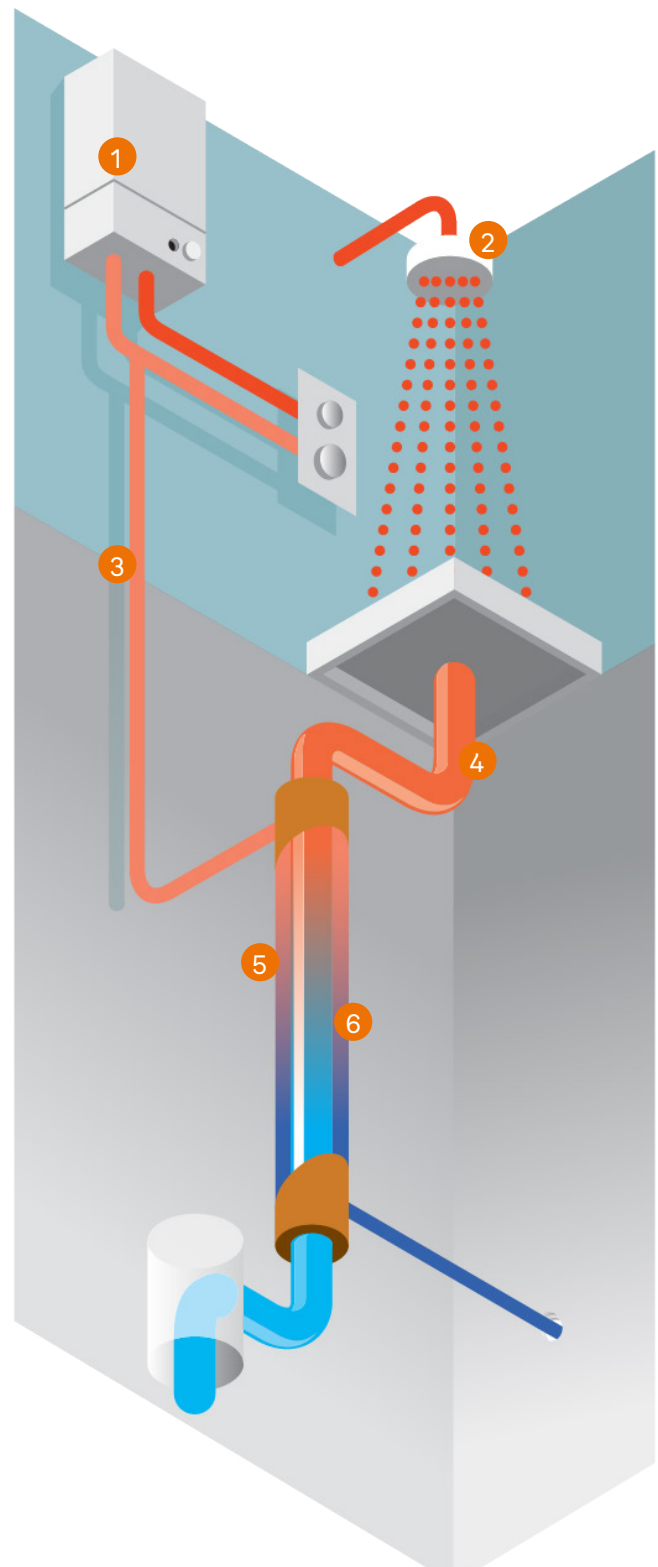
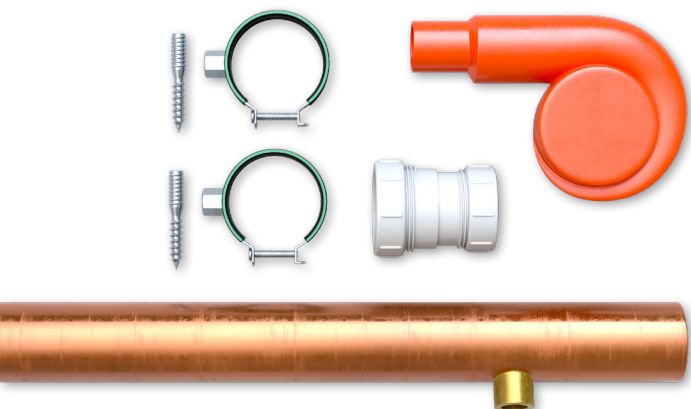
A significant part of the solution lies in a simple, cost-effective technology: waste water heat recovery systems (WWHRs).

A WWHRs reduces electricity consumption for domestic hot water by **31-36 per cent.** With immersion enabled, this rises to **41-47 per cent**

Waste water heat recovery for showers

WWHR is a simple heat exchanger system that recycles heat energy from shower waste water to preheat incoming cold water, reducing the energy required to heat water for showering by about 40-50 per cent.

- 1**
Energy cost saving and reduce CO₂ emissions.
- 2**
Shower is turned on and draws hot water from the boiler.
- 3**
Warmed mains water flows back up into the boiler and/or cylinder and the shower's mixer.
- 4**
Hot waste water runs down and through the Showersave unit.
- 5**
Showersave unit.
- 6**
Cold mains water is warmed via heat transferred from hot waste water.





The benefits of WWHRS for heat pump installations

Showersave engaged Chris Martin – formerly of the Energy Monitoring Company – in collaboration with the Centre for Sustainable Technologies at Ulster University, to conduct laboratory tests to evaluate how WWHRS contribute to the performance of domestic air source heat pumps.

Professionals from the Centre joined Chris Martin to design the trial parameters and goals to establish what issues may lie ahead for housebuilders as heat pump installations become more prevalent – and provide measured evidence of the contributions that a WWHRS can make.

The results showed significant benefits across various areas:



1 More consecutive showers without cold water interruptions

Without WWHRS: After three showers, the fourth would often be cold.

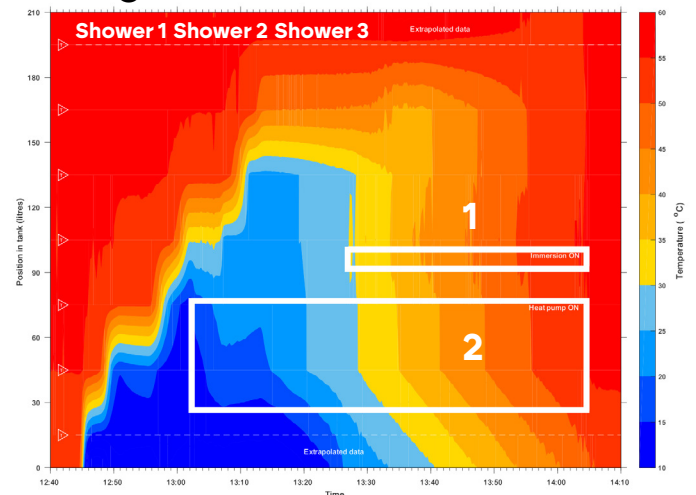
With WWHRS: Less hot water is drawn, reducing heat pump and immersion operation, while ensuring greater supply of hot water.



Result: Fewer complaints about hot water shortages.

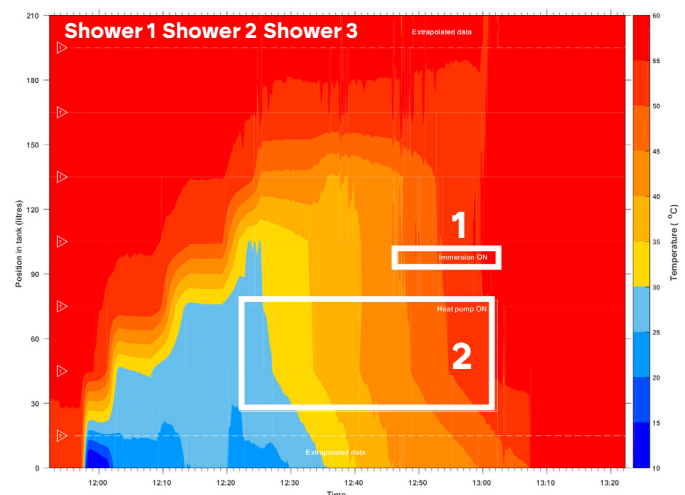
Data from 'The performance of WWHRS in domestic heat pump installations' report - carried out for Showersave at the Ulster University Centre for Sustainable Technologies (CST).

Heat pump and immersion usage without WWHR



1 Immersion in use **2** Heat pump in use

Heat pump and immersion usage with WWHR





2

Lower electricity consumption

A WWHRS produces a significant saving in electricity use, because as well as the electricity supplied to the heat pump, it is displacing immersion electricity. Without immersion heating, a WWHRS reduces electricity consumption **by 31-36 per cent**. With the immersion enabled, this rises to a **41-47 per cent saving**.

In a four-person household, hot water that is **47 per cent cheaper** equates to a saving of around **£150-200 per year** – making it a win-win for both homeowners and housebuilders.



Result: As the UK Government heads towards net zero for 2050, the emphasis for buildings is on the electrification of heat and hot water. Along with the increased adoption of electric vehicles, we will see the grid infrastructure requirement **increase by upwards of 30 per cent**. WWHRS will reduce strain on the grid (often at peak load times), and based on 1st April 2025 price cap, using scenario L, a four-person house could save £169 per annum when using the heat pump with WWHR installed, as per tables below.

	Electricity use (kWh/shower) (Normalised - no immersion)
	8 litres/minute for 6 minute shower
No WWHRS	0.743
WWHRS	0.495
Change	-33%

	Electricity use (kWh/shower) (Normalised - immersion in use)
	8 litres/minute for 6 minute shower
No WWHRS	0.917
WWHRS	0.488
Change	-47%



3

Smaller hot water cylinders

The ability to halve the volume of hot water used for showering opens up the possibility of using a smaller cylinder.



Result: Lower material costs for housebuilders and space savings for developers and homeowners.



4

Recovery time is reduced

Without a WWHRS or an immersion heater, recovery time can be as much as 60-90 minutes. Using supplementary electric heating to speed recovery – which is often the preferred approach – is one possible solution to this. However, this dramatically increases energy costs.

By contrast, **a WWHRS reduces recovery time by twice as much**, while at the same time reducing energy costs.

	Cylinder recovery time (minutes) (normalised)
	8 litres/minute for 6 minute shower
With immersion No WWHRS	40
With immersion With WWHRS	30
Change	-16
	-35%



Result: Greater efficiency and improved customer satisfaction.

Domestic hot water and heat pumps

Unlike traditional heating systems, the introduction of heat pumps means space heating and domestic hot water are no longer mutually exclusive. A heat pump operates at maximum efficiency when accurately sized for space heating, considering the building's thermal performance. Proper sizing by the system designer ensures lower running costs and reduced CO₂ emissions. However, domestic hot water demands can disrupt this balance. Optimising for these requirements can improve the system's Seasonal Coefficient of Performance (SCoP), enhancing overall efficiency.



Why WWHRS are the best solution for housebuilders

Shower waste water heat recovery offers a cost-effective, compliant, and customer-friendly way to meet the challenges of the Future Homes Standard 2025

- ✓ Reduces homeowner hot water challenges, thanks to the more reliable hot water supply.
- ✓ WWHR is included as part of the notional house type for Option 1 in the Future Homes Standard.
- ✓ Cost-efficient compared to alternatives like MVHR, solar PV and triple glazing.
- ✓ Low maintenance, with no user interaction or maintenance required.
- ✓ Extremely low embodied carbon, while enabling energy efficiency.

Introducing Showersave

First into the UK market in 2008, Showersave is a leading WWHRS solution installed in more than 200,000 homes across the UK and Europe, all of which benefit from the recovery of the heat energy contained in their waste water.

Recognised in SAP by BRE and certified as a Passive House Component, the Showersave system is one of the most simple and sustainable means of achieving Part L. This is because it is proven to cut

running costs of domestic heat pumps and increase the overall efficiency of space heating and hot water production, as well as being easy to incorporate into current building designs.

Additionally, Showersave is extremely easy to install using standard plumbing skills and requires no maintenance. With a fantastic record of post-installation reliability, it comes with comprehensive customer support and is fully recyclable.

WWHRS offer housebuilders a cost-effective, compliant and customer-friendly way to meet the new regulations whilst reducing complaints about hot water availability. Act today by using them in your new build and retrofit projects to stay ahead, as ASHPs are now mandatory.

Learn more at showersave.com



QB1-21XE Multiple storey solution

Gravity fed, connects up to two showers



QB1-21XE



Blue QB1-21 Single storey solution

For use with shower over bath and shower tray



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Multivert Commercial developments

Connects multiple showers



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