

 SAP listed

 Suitable for all dwellings

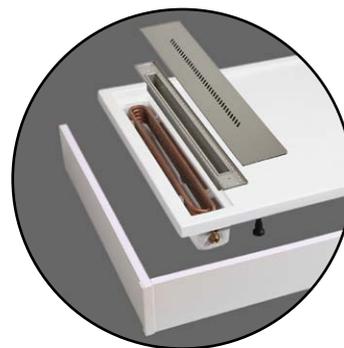
 WRAS Approved

 High efficiency

 No maintenance

 Easy installation

 Low cost



WASTE WATER HEAT RECOVERY FOR SHOWERS

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WHAT IS WWHRS?

WWHRS is the abbreviation of Waste Water Heat Recovery System. In the simplest terms a system or technology that uses the residual heat from the waste shower water to preheat the incoming cold feed that refills the system. Therefore, less energy is used to heat that water to the required temperature.

WATER HEATER

The building's water heater (Combi boiler, Cylinder, Thermal store or HIU) produces hot water for the shower



HOT WATER

Hot water reaches the shower and mixes with cold water, leaving the shower head at around 40°C.



SHOWER DRAIN WATER

Waste water goes down the shower drain at around 35°C to 38°C and enters into the waste water heat recovery system (WWHRS).



SOIL WASTE WATER

After loosing its heat energy the waste water passes out of the waste water heat recovery system (WWHRS) and into the buildings main drainage.



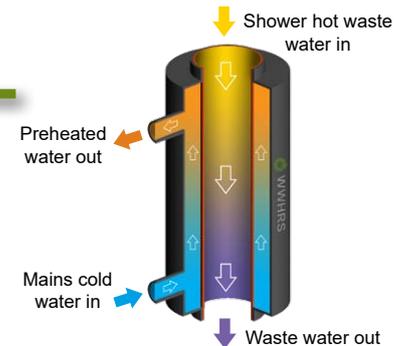
ENERGY SAVING

The preheated water feeds back to the water heater and/or the shower. The preheated temperature means the water heater does not need as much energy to heat the water to hot and the shower demands less hot water from the water heater, saving energy and cost.



COLD MAINS TO PREHEATED

Incoming cold mains water at around 10°C receives heat from the shower drain water via the WWHRS to become preheated water at around 25°C.



WHY USE WWHRS?

WWHRS has been proven to provide a vital role in saving energy within both commercial and domestic properties. Compared to space heating that has many energy saving technologies in place, hot water has been an area where it has proven difficult to make substantial improvements. There are many significant benefits to using and running waste water heat recovery systems (WWHRS) in a building. Select your appropriate interest area from the sectors below to further answer “Why use WWHRS?”.

HOUSEBUILDERS & DEVELOPERS

Recoup's WWHRS provides the perfect solution in any new build dwelling. The systems help to achieve code cheaply and easily... even if that extra boost is needed after construction has commenced. The systems provide...

- Incredibly high SAP points for low system cost
- A must for simple 2013 Part L compliance
- Allows more expensive, awkward measures to be omitted
- Widely accepted as an extra ‘renewable’ solution by planners
- Easy to design into homes – both houses & apartments
- Quick install with no commissioning
- No moving or mechanical parts
- Virtually undetectable once installed – no unsightly technology on show!
- No planned maintenance required
- A major reduction in load for any centralised plant
- No end-user interaction required

We are specified by some of the largest House Builders in the UK, not to mention the many regional and smaller developers that use our systems to help them achieve compliance cheaply and easily... even if that extra boost is needed after construction has commenced.

More information on SAP can be found on [page 6](#).



'BEST NEW PRODUCT' WINNERS - BARRATT DEVELOPMENT PLC SUPPLIER EXCELLENCE AWARD

HOUSING ASSOCIATIONS, LANDLORDS & HOME OWNERS

We have been working with several Housing Associations to help them gain the benefits of our WWHRS in their existing housing stocks. How can Housing Associations, Landlords & Home Owners benefit?

- A variety of systems to suit nearly all applications
- Short ROI
- Instant and understandable savings
- An easy option for hard to treat homes – no extensive works required
- Improve energy efficiency of the property
- Can help with MEES & EPC targets
- Helping reduce bills in one of the most used areas of the home – hot water
- The perfect partner to boiler, bathroom and/or kitchen upgrades
- Simple, cost effective and no interaction or planned maintenance required
- Can be used with any energy source



For a savings & CO2 reduction calculator and proposal writing assistance, please [contact us](#).

COMMERCIAL & LEISURE BUILDINGS

Recoup's range of WWHRS can make a dramatic impact on the showers used in Commercial & Leisure Buildings. We are involved with some of the following building types:

- Offices – more and more people cycle and run before or during their working day, meaning shower usage is very high
- Hotels – clearly a high user of hot water through showering every day of the year
- Student accommodation – with all-inclusive bills, saving on hot water is a must
- Leisure/sports clubs – high traffic with virtually users showering – helps with capacity and costs
- WWHRS can also be used towards compliance ratings with SBEM & BREEAM



We work with some of the largest M&E designers and consultants helping to advise how our WWHRS can benefit their buildings both through code and through use. See [page 7](#) for more information on SBEM and [page 9](#) for BREEAM.

WHAT IS SAP?

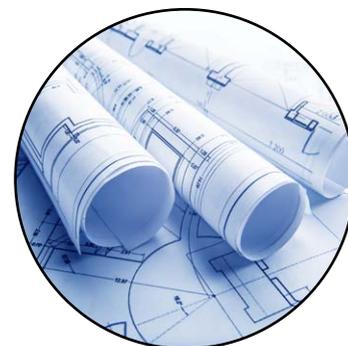
The Standard Assessment Procedure (SAP) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings. It was developed by the Building Research Establishment in 1992 and its purpose is to provide accurate and reliable assessments of dwelling energy performances.

Part L of the building regulations uses SAP (Since 1994) to assess a buildings energy performance and a reduced data SAP (rdSAP) was introduced in 2005 as a lower cost method to assess the performance of existing dwellings.



HOW SAP WORKS

SAP assess how much energy a dwelling will use while delivering a defined level of comfort and service provision. The assessment is based on standardised assumptions for occupancy and behaviour and enables a like-for-like comparison of dwelling performance, with factors such as fuel costs and emissions of carbon dioxide (CO₂) determined from the assessment. SAP quantifies a dwelling's performance in terms of: energy use per unit floor area, a fuel-cost-based energy efficiency rating (the SAP Rating) and emissions of CO₂ (the Environmental Impact Rating).



SAP 2012

SAP 2012 is the latest revision of the SAP document and was published to underpin the 2013 Amendment to Part L of the Building Regulations for England and Wales, which is expected to deliver a 6% improvement in new dwelling performance

WWHRS & SAP

WWHRS is a listed technology on the Products Characteristics Database (PCDB), and this database holds product information for a range of technologies used within different National Calculation Methodologies (NCM's) of which SAP and rdSAP are two.

CONTINUED...

WWHRS is a technology that targets specifically heat hot water, WWHRS has one of the highest cost vs SAP impact ratios within the software.

Savings are applied to a room with a shower that has WWHRS associated with it through the SAP modelling software. The level of impact in SAP will be determined by a few key factors: –

- The number of occupants SAP has calculated for the dwelling
- The total number of rooms for showering/bathing
- The number of rooms with WWHRS attached
- If the room has only a shower or a bath and shower.
- The System (A/B/C) installation method used during installation

Recoup offer support to specifiers / SAP assessors to help ensure that the impact of WWHRS is optimised for a dwelling, [Contact us](#) for any further information.

SBEM

WHAT IS SBEM?

Simplified Building Energy Model (SBEM) is one of the National Calculation Methodologies (*NCM's) developed by BRE to define the energy consumption and CO₂ emissions of non-domestic buildings. It is used to compare the designed building performance to the target standards. SBEM is an efficient and straightforward energy modelling tool to use and incorporates a wide range of building energy features.



WHY IS SBEM NEEDED?

Any building that is not considered a dwelling (hotels, leisure facilities, commercial properties) will require an SBEM calculation to be produced as part of the design process. Compliance with Part L of the Building Regulations requires energy modelling of building designs in order to demonstrate low carbon performance.

CONTINUED...

SBEM COMPARED TO SAP

Essentially SBEM and SAP (Standard Assessment Procedure) have the same aim, to assess the design of a property against defined standards at. However SAP more accurately reflects the carbon emissions of our homes and SBEM of non-domestic properties.

WWHRS & SBEM

Calculations can be made as part of an SBEM model to assess the impact of Waste Water Heat Recovery for Showers (WWHRS) reducing the CO₂ produced by a building. The calculation focusses on the hot water (DHW) usage for showers within the building to indicate the CO₂ reduction that could be made through WWHRS introduction.

A Dynamic Simulation Model (**DSM) is produced to provide statistics for Domestic Hot Water (DHW) based on one of the National Calculation Methodologies (*NCM's). The calculation uses these figures along with the total hot water energy demand for Showers, the energy recovered from the shower and the efficiency of the WWHRS to calculate the CO₂ reduction due to the waste water heat recovery system. The WWHRS recovery efficiency will then be applied to the total DHW heating demand as deemed by the SBEM calculation.

Designing in waste water heat recovery as part of a hotel, leisure facility or other commercial building with showers can provide a significant CO₂ reduction through SBEM modelling. Particularly when compared to other more expensive measures such as Solar thermal, ASHP, PV or triple glazing.

*NCM – (National Calculation Methodology) is standard usage profiles used for energy compliance studies and therefore NCM DHW Energy Consumption is the consumption of energy for Domestic Hot Water based upon standardised usage profiles.

**DSM – (Dynamic Simulation Model) employs dynamic thermal techniques that model the building's thermal performance over time and on an hourly basis. This methodology is better able to model the relationship between the building and the local external environment. Particular strengths include detailing the effect of natural air movements, air temperature and ventilation strategies; overheating analysis and solar shading; HVAC plant sizing and selection; renewable energy feasibility studies; and fabric design.

At Recoup we have a wealth of experience assisting designers, developers, consultants and specifiers incorporating WWHRS into both commercial and residential developments, [Contact us](#) for any further information.



WHAT IS BREEAM?

BREEAM stands for Building Research Establishment Environmental Assessment Method, the longest established and most widely used 3rd party certification scheme. It is a sustainability assessment method from BRE (Building Research Establishment) for planning projects, infrastructure and buildings. It recognises and reflects the value in using higher performing assets across the buildings life cycle, from new construction to in-use and refurbishment.

Designed by BRE to drive innovation and standards above the regulatory minimum. Most modern BREEAM projects are typically designed to achieve 'Very Good' and 'Excellent' ratings, although increasingly more new-build designs are aspiring to the challenge of achieving the BREEAM 'Outstanding' rating.



HOW DOES BREEAM WORK?

BREEAM uses third party certification of the assessment of an asset's environmental, social and economic sustainability performance, using standards developed by BRE. Which means that BREEAM rated developments are more sustainable environments. The benefit being that they enhance the lives and well-being of the people who live and work in them, help protect natural resources, and make for more attractive property investments.

The assessment process comprises two stages: The Design Stage (interim) and the Post-Construction Stage (Final). Within these stages there are assessment sections. The Energy Section aims to encourage the design and operation of energy efficiency buildings, driving energy efficiency, and sustainable energy use to ultimately reduce CO₂ emissions.

BREEAM & WWHRS

For projects where there is to be significant shower use, such as residential developments or apartments, hotels or student accommodation, or sports and leisure facilities. Waste water heat recovery (WWHRS) can contribute towards BREEAM credits within the Energy section. Particularly credits for ENE04: Low or Zero Carbon technologies (LZC), where a 'meaningful reduction in regulated carbon dioxide' must be demonstrated to contribute towards a BREEAM credit. While the amount of energy or CO₂ emissions reduction is not specified in Ene 04, it should not be a trivial amount. As a guide, the installation should contribute at least 5% of overall building energy demand and/or CO₂ emissions.

CONTINUED...

Unlike the Ene 01 – Reduction of energy use and carbon emissions (which is focused on demonstrable and robust performance improvement), Ene 04 – Low carbon design aims to encourage project teams to consider a design approach to minimise the reliance on active building services systems.

Using passive WWHRS technology will reduce the production of hot water in a building and in turn assist in reducing a buildings CO₂ emission. The incorporation of WWHRS has been proven to contribute to achieving BREEAM status on projects.

Contact us for any further information or for assistance incorporating WWHRS into your BREEAM project.



WWHRS FOR PASSIVE HOUSES

WHAT IS PASSIVE HOUSE?

Passive House (or Passivhaus) is one of the Worlds' most rigorous design standards for both residential and commercial buildings. Enhanced air tightness and exceptional levels of fabric insulation underpin the Passive house design ethos, which can ultimately bring the space heating requirements in Passive house dwellings down to around 90% of that of typical building stock, and in many cases down to zero.

HOT WATER IN A PASSIVE HOUSE

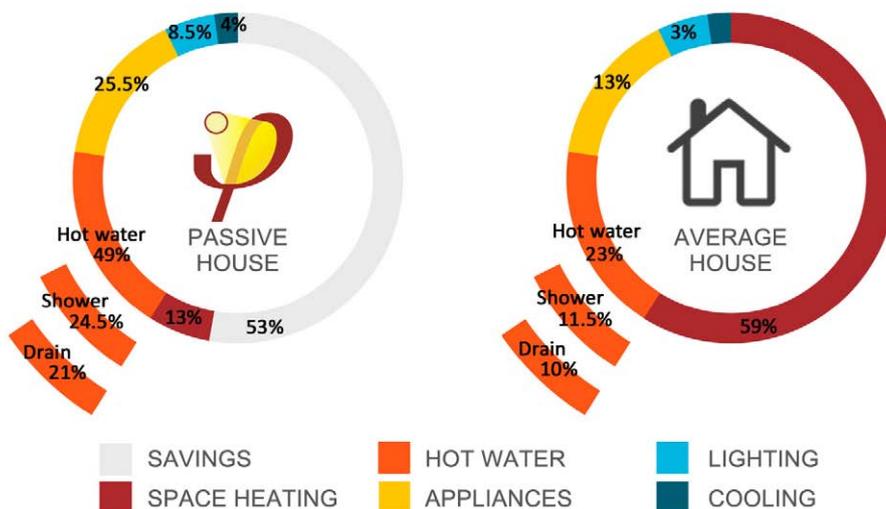
A Passive House dwelling can save significant levels of energy through insulation and airtightness but the requirements for Domestic Hot Water (DHW) are roughly the same as they are in equivalent regular houses. Just because your house is super insulated, doesn't mean you necessarily bathe more or take shorter showers. Therefore, the hot water generation in a Passive House (and many other super insulated homes) can form the largest part of the household energy budget, with the DHW energy requirement commonly being 3-4 times larger than the energy requirement for space heating.



CONTINUED...

PASSIVE HOUSE AND WWHRS

In the average UK home showering accounts for 50% of the generated hot water cost. However, around 85-90% of this heat energy goes straight down the drain (42% of the total dwelling DHW budget).*



In a Passive House with a similar energy usage profile DHW generation accounts for 48.9% of the overall energy budget. Assuming the showering habits of those in Passive Houses do not differ from the average home, a staggering 20.8% of the energy used in passive houses could be pouring out of the building envelope via the shower drain.

Waste water heat recovery (WWHRS) is designed specifically to capture this wasted heat energy and recycle it back into the building hot water system, and the good news is, it can be designed into Passive House as cheaply and efficiently as it can for any other newbuild dwelling. As an example the Recoup Pipe+ HE with efficiency of up to 67% could recover a significant proportion of this wasted heat energy.

WWHRS is a much simpler solution than some more common Passive House applications such as mechanical ventilation heat recovery (MVHR). There are no moving or mechanical parts; no planned maintenance; and no end-user interaction. It is a fit and forget passive technology that simply offers on-demand energy savings with every shower.

Recoup WWHRS products are listed on the Passivhaus Institute Certified Component Database, so can be used directly to contribute towards Passivhaus certification or PHPP (Passive House Planning Package) calculations. Additionally, the Recoup Easyfit+ is the ideal product solution for Passive House retrofits through 'EnerPhit' and 'deep-green' too. [Contact us](#) for any further information.

*Data gathered by the Energy Saving Trust from over 86,000 households.

PRODUCT INTRODUCTION

We are proud to present our product range, providing high performing and high quality systems for any application from residential to commercial. Vertical and horizontal systems allowing for single and multi-levelled buildings. Our Easyfit+ also provides a simpleretrofit solution that can be installed under a bath or shower tray. A unique high performance system, ideal for housing associations, housing managers and homeowners looking to save energy and money within existing buildings.

SPECIFICATION CONSIDERATIONS

It is important to ensure the correct product is considered for each project. In turn which system is specified and how it installed has implications when modelling in SAP. Using the application key below the product pages will indicate suitable project types that the product can be applied to. Please contact us if you are unsure which system is best suited for your project or which will provide you with the greatest results.

We are happy to advise you on all aspects of our WWHRS so you can ensure your project gains the optimum benefit from using a Recoup system, please [Contact Us](#).



PRODUCT APPLICATION KEY

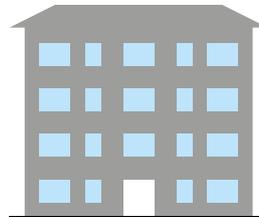
Each Recoup WWHRS are suitable for some but not all building applications. The symbols below will be used against each product type to illustrate the building application that the system is suitable for.



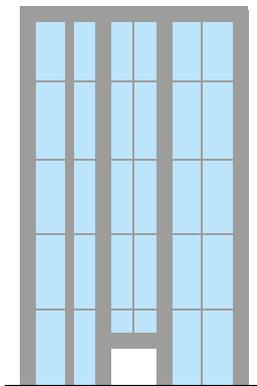
HOUSES



**BUNGALOWS OR
GROUND FLOOR**

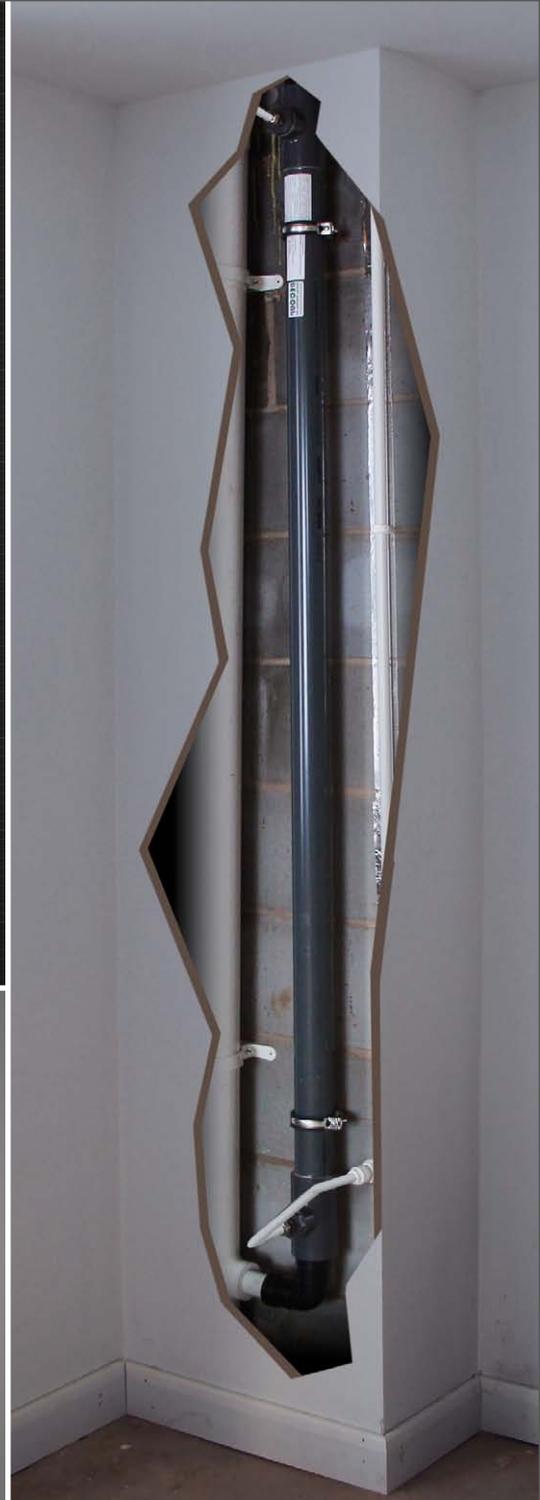
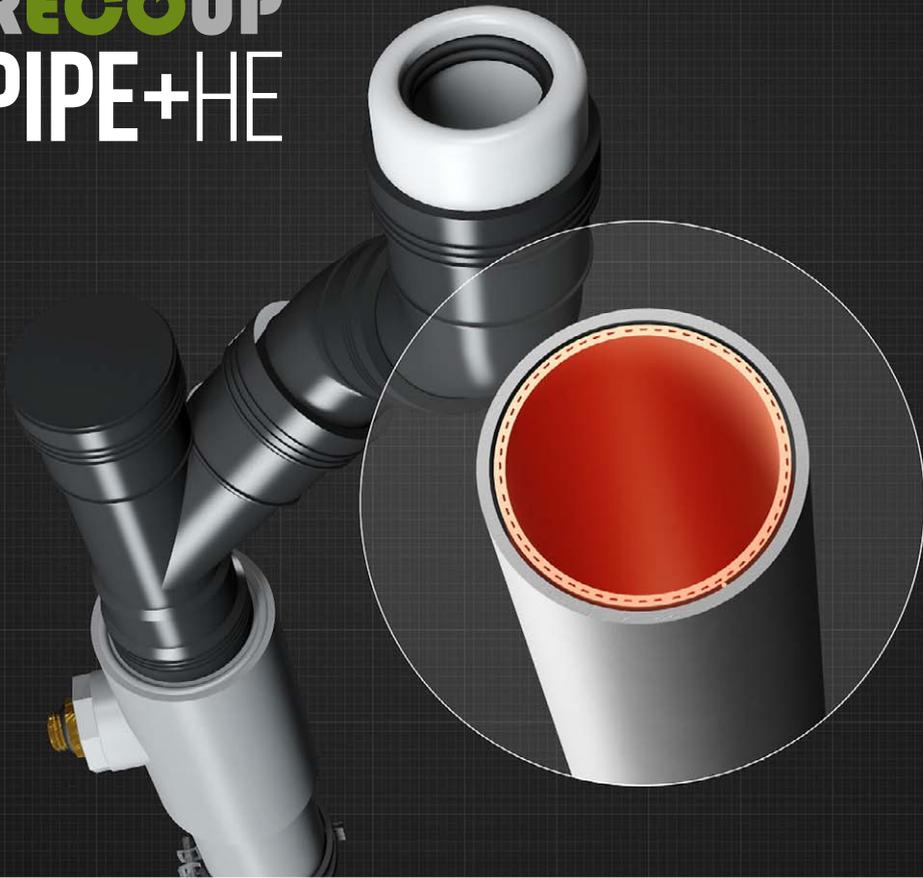


APARTMENTS



**COMMERCIAL PROPERTIES
(OFFICES / LEISURE CLUBS)**

RECOUP PIPE+HE



Our most popular waste water heat recovery system due to its efficiency of up to 67%, low price and superb all round performance. Providing incredible pounds to points ratio in SAP, the double walled (EN1717) Copper heat exchanger is mechanically pulled together giving consistent production. Ideal for new build applications, this product is sure to deliver results, whatever your criteria. Our unique PVC outer provides unrivaled benefits, including cost reduction, manufacturing consistency, theft deterrent and a lower product weight.

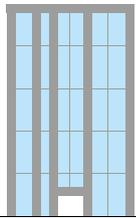
DIAGRAM



APPLICATION



Houses



Commercial properties
(Offices / Leisure clubs)

GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Overall height required for installation	2400	mm
Outside diameter of external tube	63	mm
Material - Internal tube	Copper	
Material - External tube	PVC	
Shower flow rate range	5 - 15	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	11	kg
Water volume - mains water	0.3	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	PIPE+HE EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
9.0	64.2% (12.1)	49.4% (9.3)	55.5% (10.4)
9.2	63.7% (12.3)		
11.0	61.5% (14.1)	48.4% (11.1)	52.6% (12.1)
12.5	60.0% (15.7)		

PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	PIPE+HE PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
9.2	0.34	0.21	0.14
12.5	0.45	0.28	0.18

RECOUP EASYFIT+



The Recoup Easyfit+ is a stand-alone horizontal WWHR system designed to slide directly under a standard bath or a walk-in shower tray. A very exciting product for the residential retrofit, new-build apartment & social housing markets. SAP listed, easy to retrofit onto an existing system, legionella control risk assessed and virtually maintenance free. The Recoup Easyfit+ offers a combination of price point, efficiency, and ease of installation that has not previously been possible.

DIAGRAM



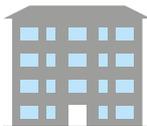
APPLICATION



Houses



Bungalows or
Ground Floor



Apartments

GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Height required for installation	95	mm
Length required for installation	1100	mm
Width required for installation	372	mm
Material - Heat exchanger	Copper	
Shower flow rate range	5 - 20	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	9.7	kg
Water volume - mains water	0.87	Litres

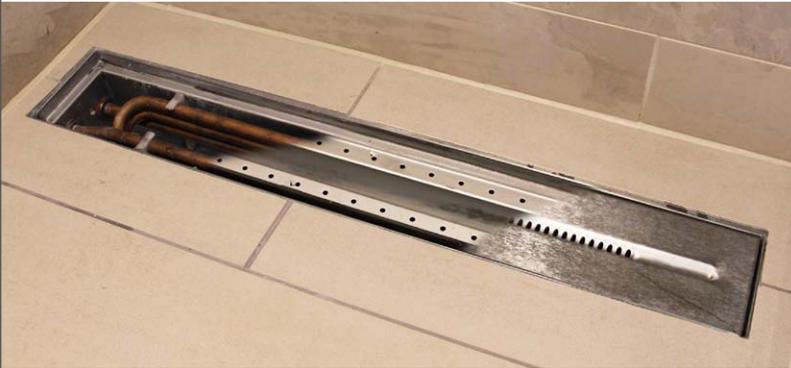
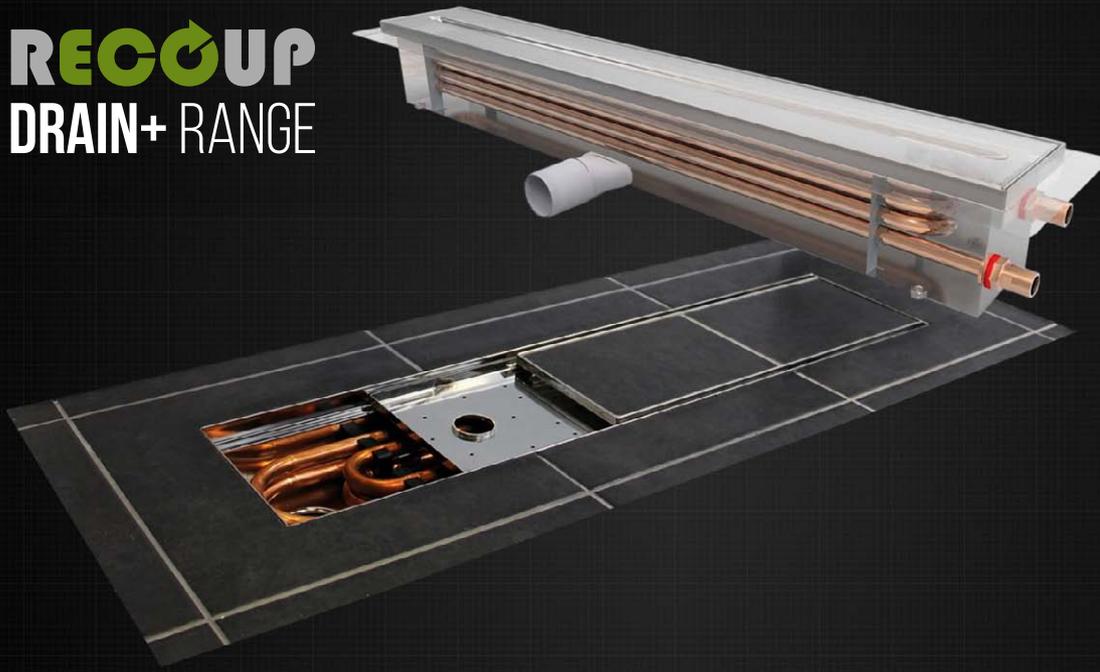
PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	EASYFIT+ EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	47.6% (5.78)		
9.2	46.4% (8.93)		
11.0	44.2% (10.04)	35.2% (8.10)	39.2% (9.03)
12.5	41.8% (10.94)		

PRESSURE DROP ON MAIN WATER CIRCUIT

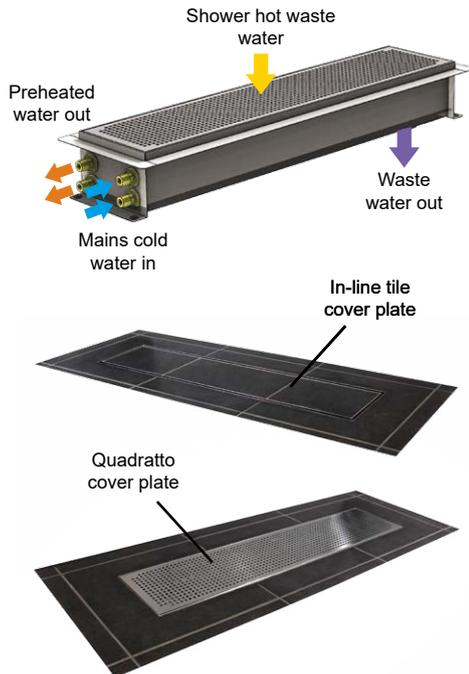
SHOWER FLOW RATE @ 40°C (LITRES/MIN)	EASYFIT+ PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	0.09	0.06	0.04
9.2	0.26	0.16	0.10
12.5	0.45	0.28	0.18

RECOUP DRAIN+ RANGE



The Recoup Drain+ Duo HE integrated wet-room drain offers the highest horizontal WWHRS system efficiency, up to 57%. A double-walled heat exchanger, no moving parts, no exchanger maintenance or end-user interaction. Ideal for residential self build and renovation projects, leisure clubs, gyms, nursing homes, holiday parks, hotels, student accommodation, ground floor or any walk-in shower installations. Available with either the contemporary brushed stainless steel 'Quadratto' cover plate, or the minimalistic 'in-line' tile cover plate.

DIAGRAM



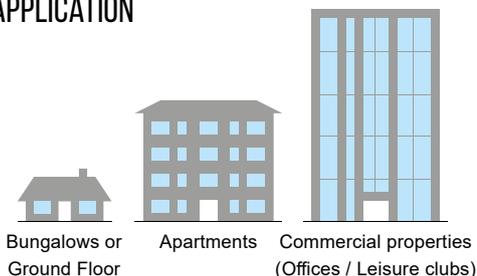
GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Minimum depth for installation	180	mm
Overall width required for installation	866	mm
Material - Heat exchanger	Copper	
Shower flow rate	5 - 12.5	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	21	kg
Water volume - mains water	1.42	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ DUO HE EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	57.4% (6.97)		
9.2	57.3% (9.4)		
11.0	56.7% (13.05)	44.9% (10.34)	49.2% (11.33)
12.5	56.4% (14.76)		

APPLICATION

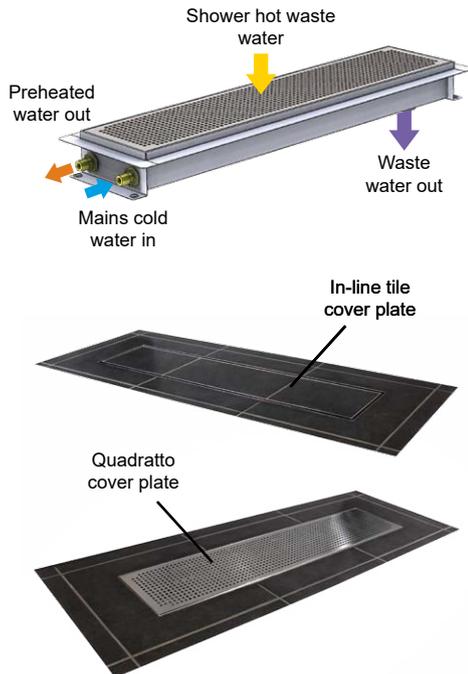


PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ DUO HE PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	0.14	0.08	0.06
9.2	0.32	0.20	0.13
12.5	0.54	0.34	0.22

The Recoup Drain+ Duo is the lower efficiency version of the Drain+ Duo HE that requires a shallower installation depth. A double-walled heat exchanger, no moving parts, no exchanger maintenance or end-user interaction. Ideal for residential self build and renovation projects, leisure clubs, gyms, nursing homes, holiday parks, hotels, student accommodation, ground floor or any walk-in shower installations. Available with either the contemporary brushed stainless steel 'Quadratto' cover plate, or the minimalistic 'in-line' tile cover plate.

DIAGRAM



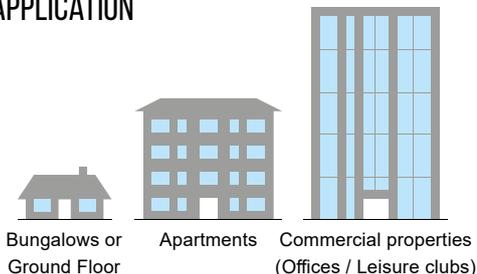
GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Minimum depth for installation	140	mm
Overall width required for installation	866	mm
Material - Heat exchanger	Copper	
Shower flow rate	5 - 12.5	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	15	kg
Water volume - mains water	0.71	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ DUO EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	41.9% (5.09)		
9.2	41.6% (8.01)		
11.0	40.4% (9.3)	32.9% (7.57)	36.6% (8.43)
12.5	39.7% (11.39)		

APPLICATION

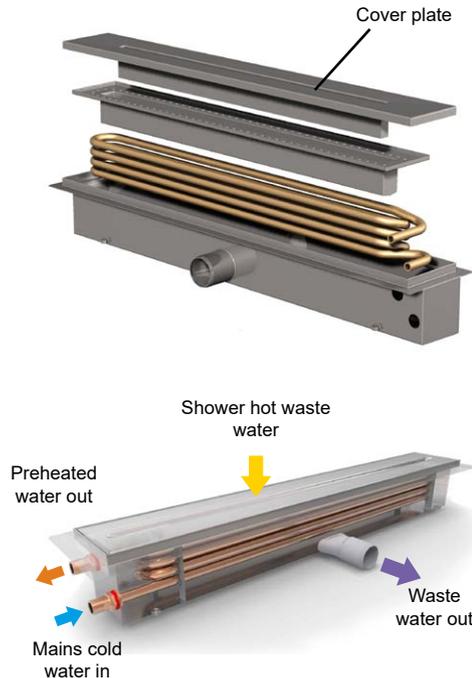


PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ DUO PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	0.07	0.04	0.03
9.2	0.17	0.11	0.07
12.5	0.27	0.17	0.11

For walk-in showers, ground floor properties and specific access requirements, the Recoup Drain+ with efficiencies of up to 50% provides an excellent WWHRS solution. Finished with a stainless steel cover, a “double walled” exchanger, which is easily accessible for cleaning but requires minimal maintenance. This horizontal exchanger is an ideal system for self build & renovation wet rooms, apartments, offices, leisure clubs and nursing homes.

DIAGRAM



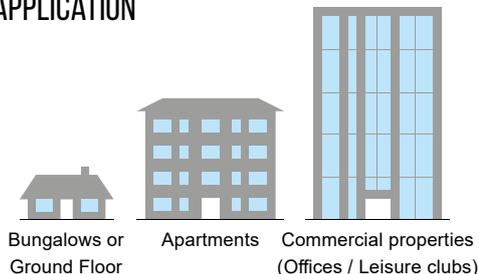
GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Minimum depth for installation	120	mm
Overall width required for installation	960	mm
Material - Heat exchanger	Copper	
Shower flow rate	5 - 12.5	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	10	kg
Water volume - mains water	0.72	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
9.0	49.6% (9.3)	38.9% (7.3)	44.5% (8.4)
9.2	49.1% (9.4)		
11.0	48.2% (11.1)	38.6% (8.9)	42.8% (9.6)
12.5	47.7% (12.5)		

APPLICATION

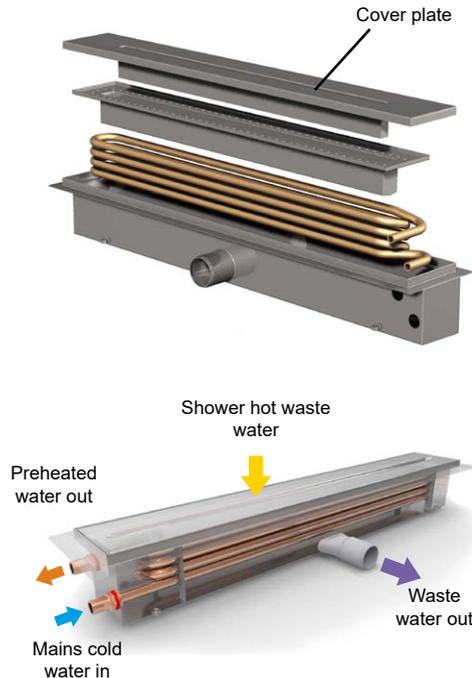


PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.5	0.14	<0.08	
7.5	0.20	<0.12	
9.2	0.24	0.15	0.10
12.5	0.40	0.25	0.16

The Recoup Drain+ Compact is a reduced width version of the Recoup Drain+ for walk-in showers and ground floor properties that have a restricted installation space. The Recoup Drain+ Compact will produce efficiencies of up to 40% with a “double walled” horizontal exchanger that has easy access for cleaning & requires minimal maintenance. Ideal for self build & renovation wet rooms, apartments, offices, leisure clubs and nursing homes.

DIAGRAM



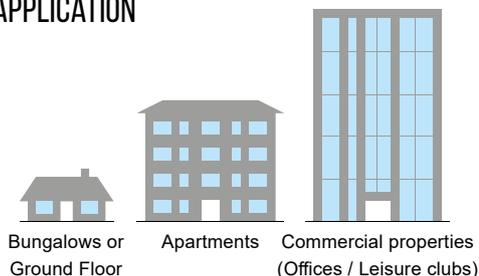
GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Minimum depth for installation	111	mm
Overall width required for installation	860	mm
Material - Heat exchanger	Copper	
Shower flow rate	5 - 12.5	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	8.5	kg
Water volume - mains water	0.48	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ COMPACT EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	39.5% (4.8)		
9.0	38.6% (7.3)	31% (5.8)	35.5% (6.7)
9.2	38.1% (7.3)		
11.0	37.0% (8.5)	30.4% (7.0)	33.8% (7.8)
12.5	36.4% (9.5)		

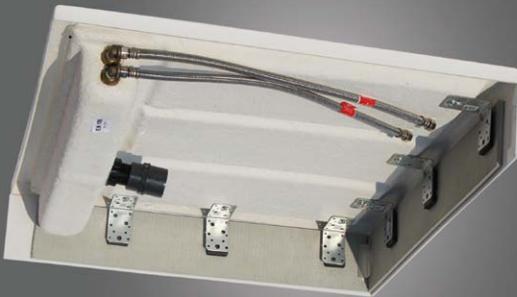
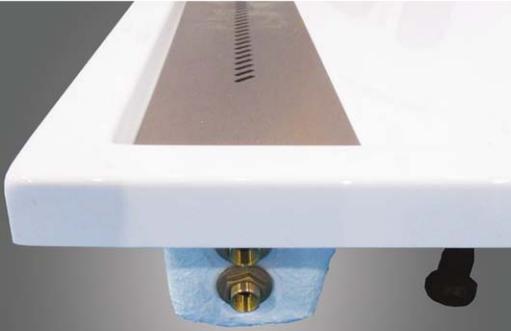
APPLICATION



PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ COMPACT PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	0.07	<0.05	
9.2	0.16	0.10	0.06
12.5	0.25	0.16	0.10

RECOUP
TRAY+ DSS-S2



The Recoup Tray+ DSS-S2 WWHRS provides efficiencies of up to 50% and is the perfect solution for bungalows, apartments or ground floor en-suites along with commercial properties and leisure clubs. A horizontal exchanger that is easily installed into a variety of environments and easily accessible once in place. Achieving code in city apartments without renewable products is notoriously difficult; this shower heat recovery system with its two tray sizes (900mm x 900mm & 1200mm x 900mm) is the answer that doesn't heavily impact upon budgets.

DIAGRAM



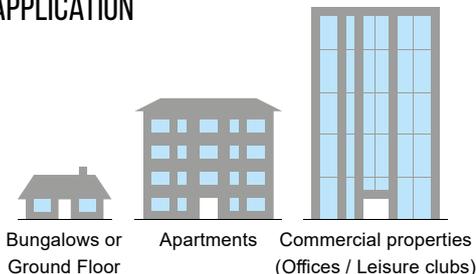
GENERAL INFORMATION

DESCRIPTION	VALUE	UNIT
Minimum depth for installation	150	mm
Overall width required for installation	900	mm
Material - Heat exchanger	Copper	
Shower flow rate	5 - 12.5	Litres/min
Max. Mains water inlet pressure	10	bar
Min. Mains water inlet pressure	1	bar
Max. Mains water working temp	85	°C
Mains water connection	½" male	BSP
Waste water connection	40 - 43	mm
Weight (Boxed)	34	kg
Water volume - mains water	0.67	Litres

PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	TRAY+ DSS-S2 EFFICIENCY (RECOVERED ENERGY KWH)		
	SYSTEM A	SYSTEM B	SYSTEM C
9.0	46.3% (8.7)	36.5% (6.9)	41.9% (7.9)
9.2	45.8% (8.8)		
11.0	45.4% (10.4)	36.5% (8.4)	40.6% (9.3)
12.5	45.2% (11.8)		

APPLICATION

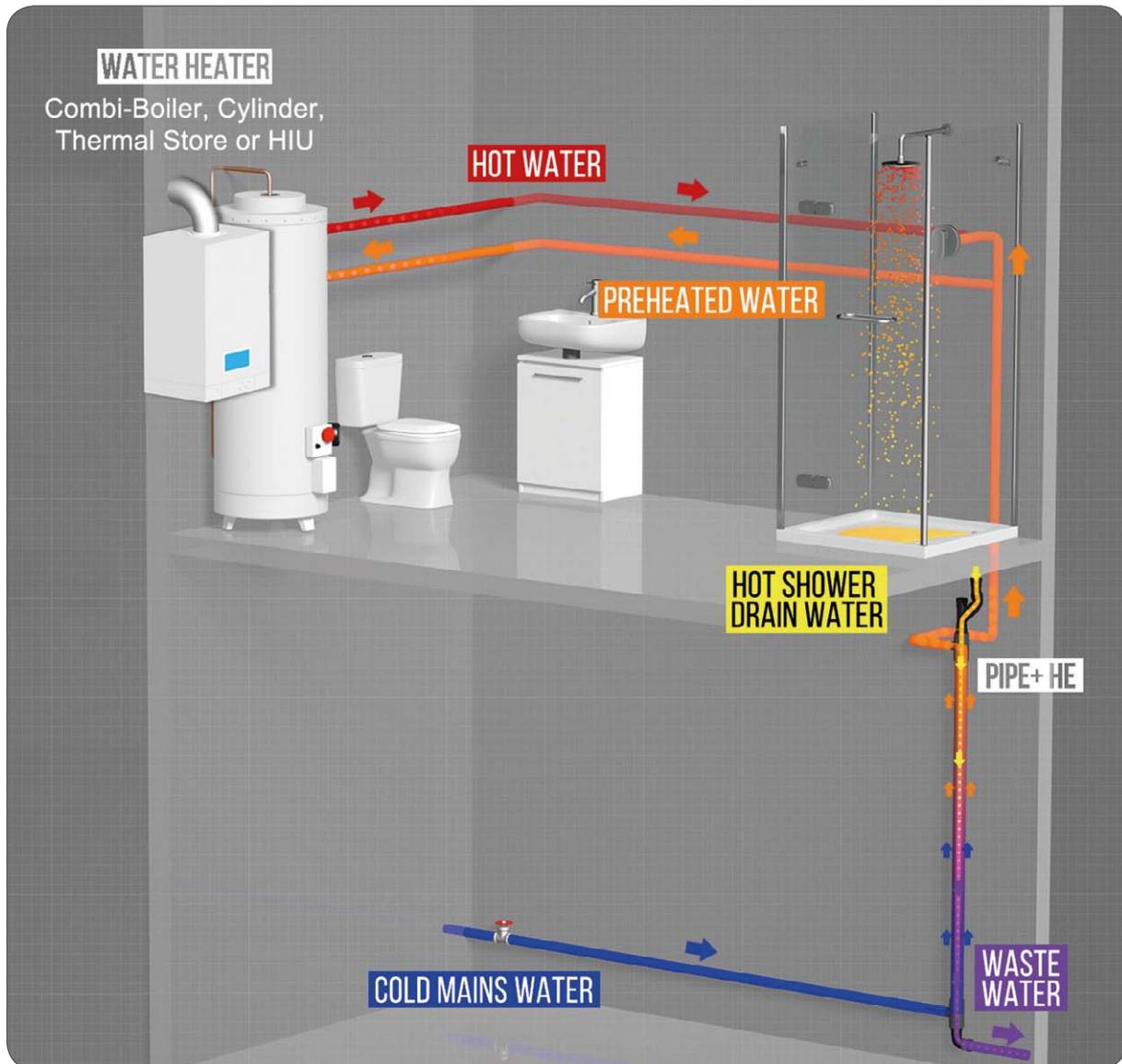


PRESSURE DROP ON MAIN WATER CIRCUIT

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	TRAY+ DSS-S2 PRESSURE DROP (BAR)		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	0.18	0.11	0.07
9.2	0.39	0.24	0.16
12.5	0.52	0.33	0.21

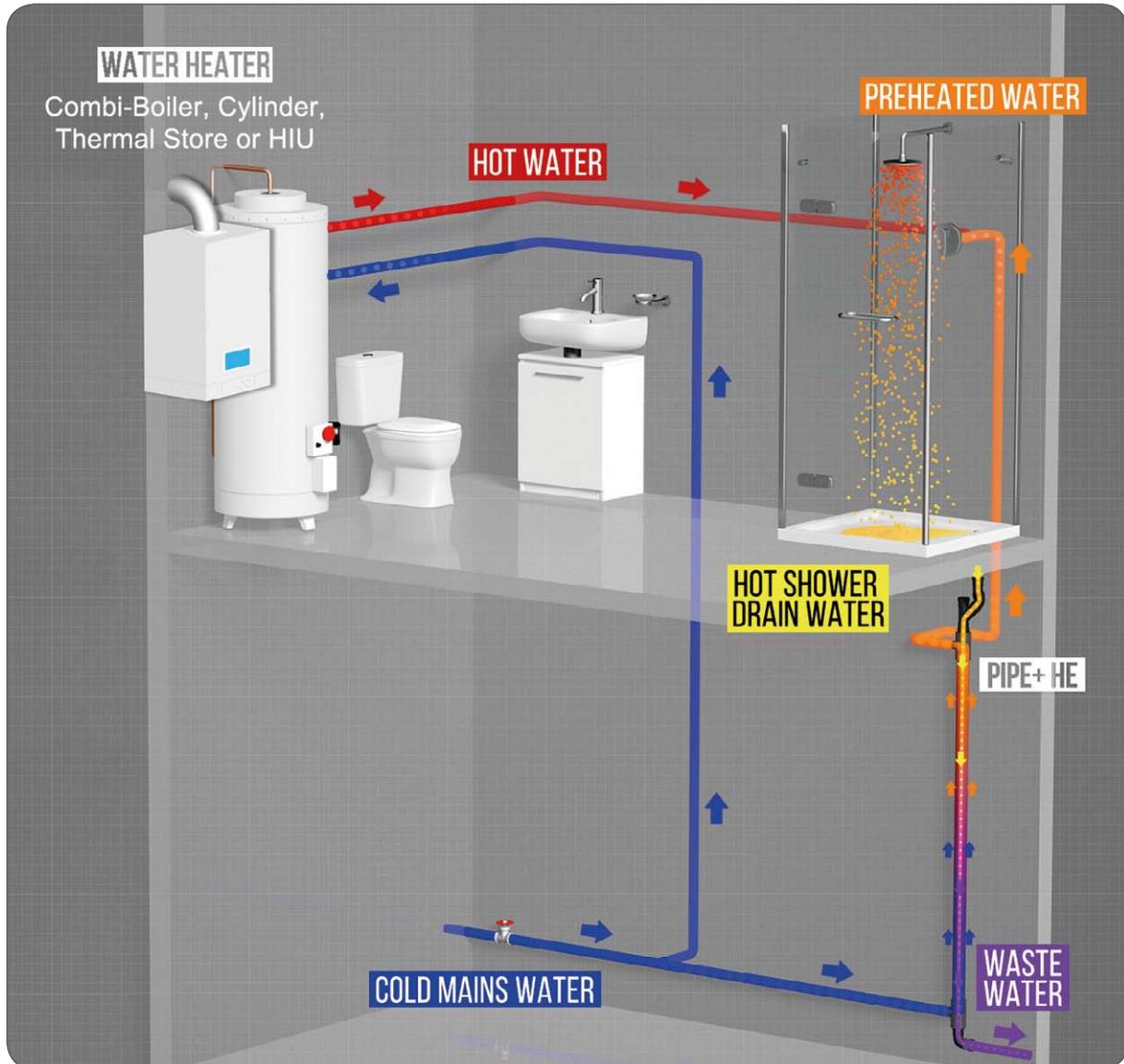
INSTALLATION - INSTALLATION METHOD SYSTEM A

There are three installation methods to choose from, each having an effect on the products performance and efficiency. The Recoup Pipe+ HE is shown below installed with installation method System A, the most efficient, where preheated water is supplied to the water heater and the shower.



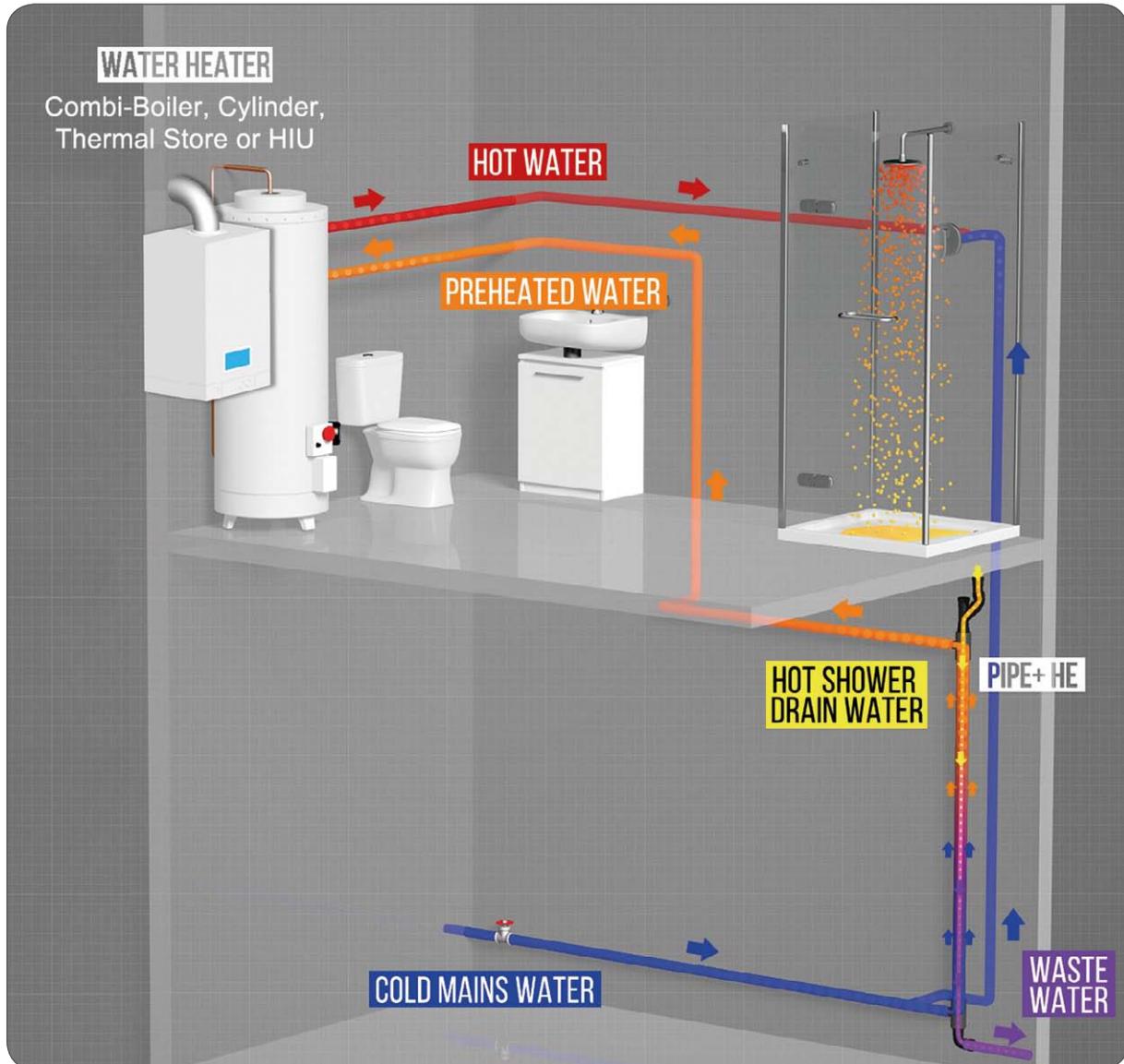
INSTALLATION - INSTALLATION METHOD SYSTEM B

The Recoup Pipe+ HE is shown below installed with the second installation method, System B. This method provides preheated water to just the shower. It produces lower efficiencies than System A or C, but it is the easiest method to install or retrofit.



INSTALLATION - INSTALLATION METHOD SYSTEM C

The Recoup Pipe+ HE is shown below installed with the third installation method, System C. This method provides preheated water to just the water heater. Greater efficiencies than System B are produced but lower than with System A. This installation method is often used when two showers are running into one WWHRs.



INSTALLATION REQUIREMENTS

- The Domestic Hot Water (DHW) heater must be a mains pressure system and be able to accept pre-heated cold water.
- The system must create a 'cycle' of water
- The pre-heated water will be installed to supply the mains cold feed to the shower and / or the cold feed on the Domestic Hot Water (DHW) heater
- Can be installed under a bath with a shower over
- The DHW heater could be and unvented hot water cylinder, combination boiler, mains fed thermal store or a Heat Interface Unit (HIU) on a district heating scheme
- Installations with an electric shower are not currently recognised in SAP

FURTHER INFORMATION & USEFUL LINKS



FAQ'S

recoupwwhrs.co.uk/wwhrs/faqs/
Answers to some of the most frequently asked questions about WWHRS.



DESIGN SUPPORT

recoupwwhrs.co.uk/technical/design-support/
Help to integrate Recoup WWHRS into you project plans.



DOWNLOADS

recoupwwhrs.co.uk/installation/downloads/
Copies of supporting information documents to download and print.



BIM

recoupwwhrs.co.uk/technical/bim/
Using WWHRS in Building Information Modelling (BIM)



STOCKISTS

recoupwwhrs.co.uk/wwhrs/faqs/
Recoup products available from UK merchants and distributors.



NEWS

recoupwwhrs.co.uk/news/
Our most recent news stories and access to our archive.



INSTALLATION VIDEOS

recoupwwhrs.co.uk/installation/install-videos/
Installation assistance for our main products.



INSTALLATION REGISTRATION

recoupwwhrs.co.uk/installation/registration/
WWHRS installation registration is a requirement as part of SAP.



'BEST NEW PRODUCT' WINNERS - BARRATT DEVELOPMENT PLC SUPPLIER EXCELLENCE AWARD

KIWA EFFICIENCY & WRAS CERTIFICATION

All our Waste Water Heat Recovery Systems are material & mechanical tested by KIWA and WRAS Approved.

LEGIONELLA GUIDANCE

Recoup WWHRs have been risk assessed by Legionella Control and are deemed low risk.

Please [contact us](#) for any further information

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V2.4

PASSIVELY RECOVERING WASTE HEAT ENERGY WITH EVERY SHOWER