RECOUP.CO.UK

WWHRS OVERVIEW

Make sure you can see the whole screen

Please click the three dots next to my name in the bottom left of this screen and select. Fit to frame

Please note this session may be recorded for Recoup publication use.

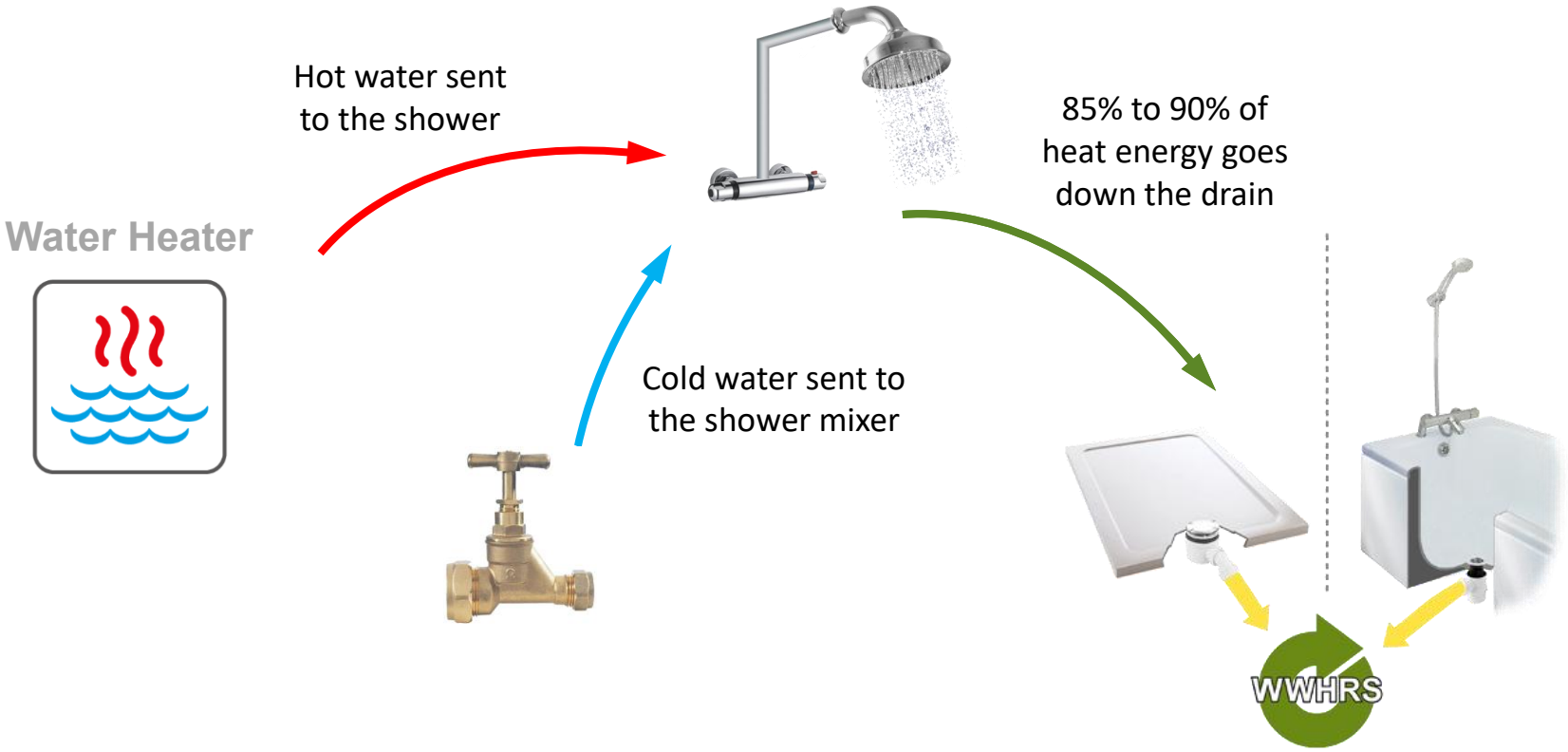
WASTE WATER HEAT RECOVERY FOR SHOWERS

Recoup is now part of Kohler Mira

OVERVIEW FOCUS

- How does WWHRS Work
- Who uses WWHRS
- Why is it important for new build
- New build products & their Impact for new build (Part-L compliance)
- Why is it important for existing homes / direction of travel
- Key products for retrofit, refurb & bathroom upgrades
- Merchant engagement & supply chain
- Discussion & Questions

HOW DOES WWHRS WORK?



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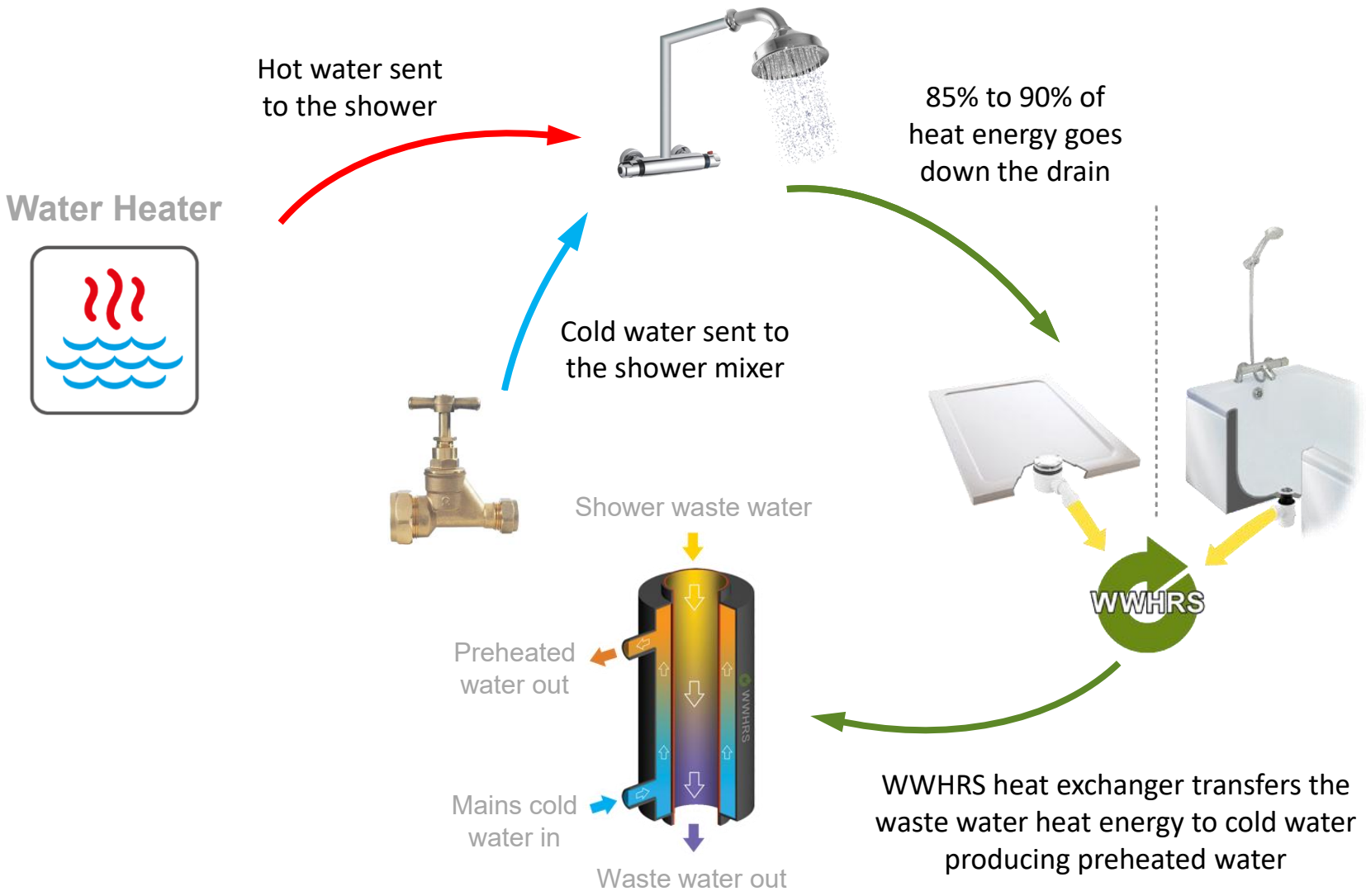


HOW DOES WWHRS WORK?

Hot water sent to the shower

85% to 90% of heat energy goes down the drain

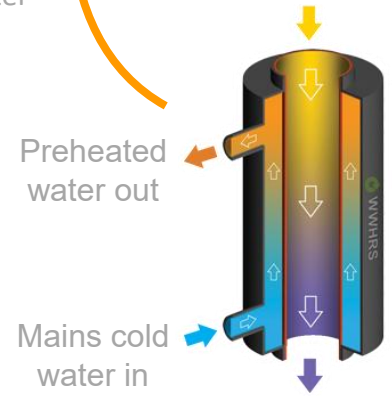
Water Heater

SYSTEM B
Preheated water to shower only

SYSTEM C
Preheated water to water heater only

SYSTEM A
Preheated water to water heater & shower

Shower waste water



Preheated water is sent to water heater and / or shower where recovered energy is used reducing energy demand

WWHRS heat exchanger transfers the waste water heat energy to cold water producing preheated water

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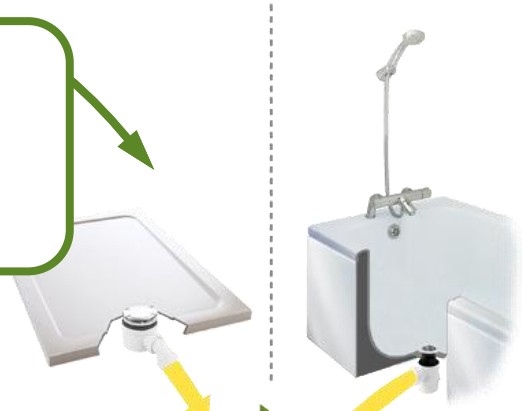
WWHRS
Reduces energy demand for showers by c. 30-60%



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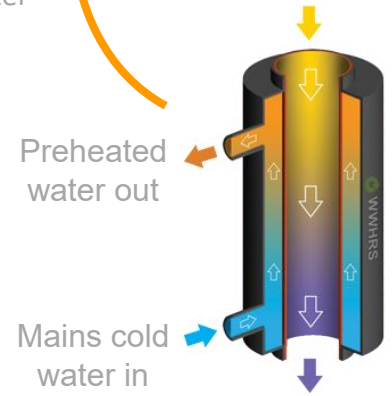

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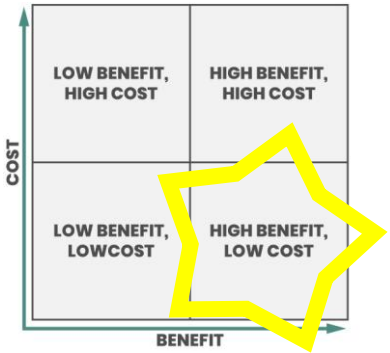
WHO USES WWHRS?

- **House Builders**

  WWHRS is a cost-effective route to Part-L compliance. House builders and developers have been using WWHRS in the UK since 2012.

  - WWHRS is suitable for Houses, Apartments, Bungalows, Passivhaus etc…



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- **Hotel & Student Accommodation**

  As part of a suite of measures for cost-effective building compliance & future operator DHW cost reduction

WHO USES WWHRS?

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- **Housing Stock Upgrades & Domestic Retrofit:**
  As part of a planned maintenance regime or for deep energy efficiency overhauls.
  - WWHRS is a low-cost, low-disruption measure
  - Can be rolled out with existing upgrades & budgets (eg SHDF)
  - Works for ‘Hard to Treat’ dwellings & older housing where fabric upgrades are problematic
  - Private homeowners / Able-to-pay

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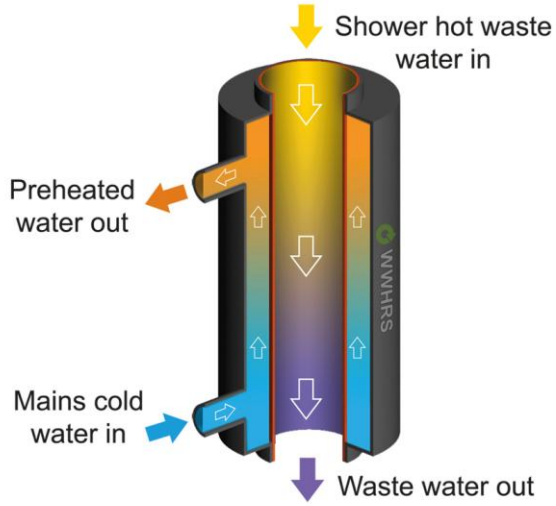

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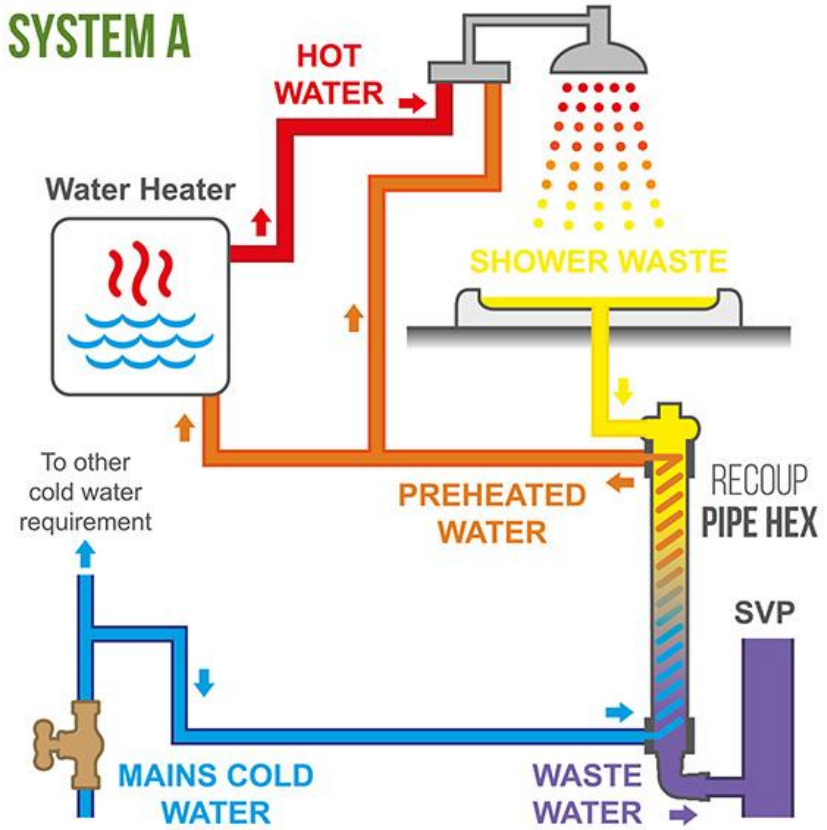
- A simple heat exchanger technology that utilises outgoing heat energy (warm shower waste) and exchanges this to incoming main cold (Preheated CWM)
- WWHRS can reduce the energy required per shower use by 40-60% in new build…. Passively without user interaction



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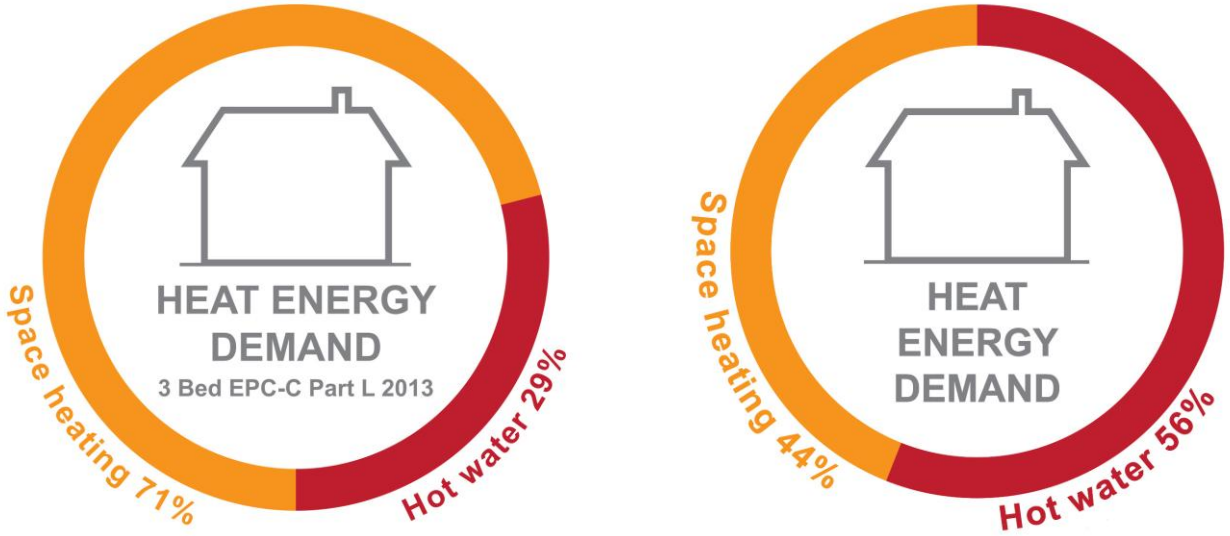

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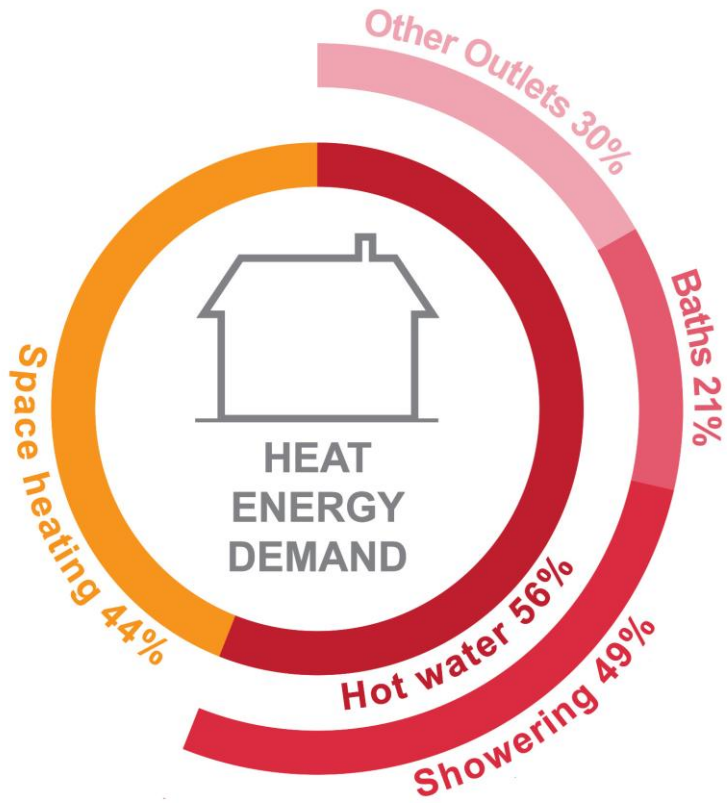

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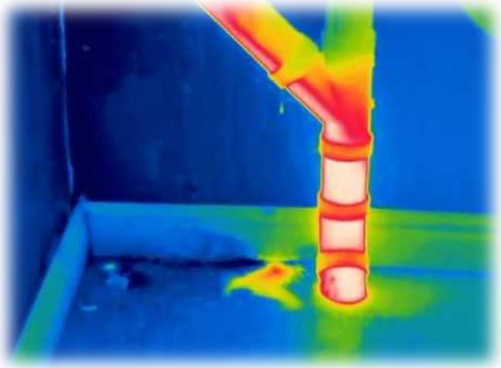
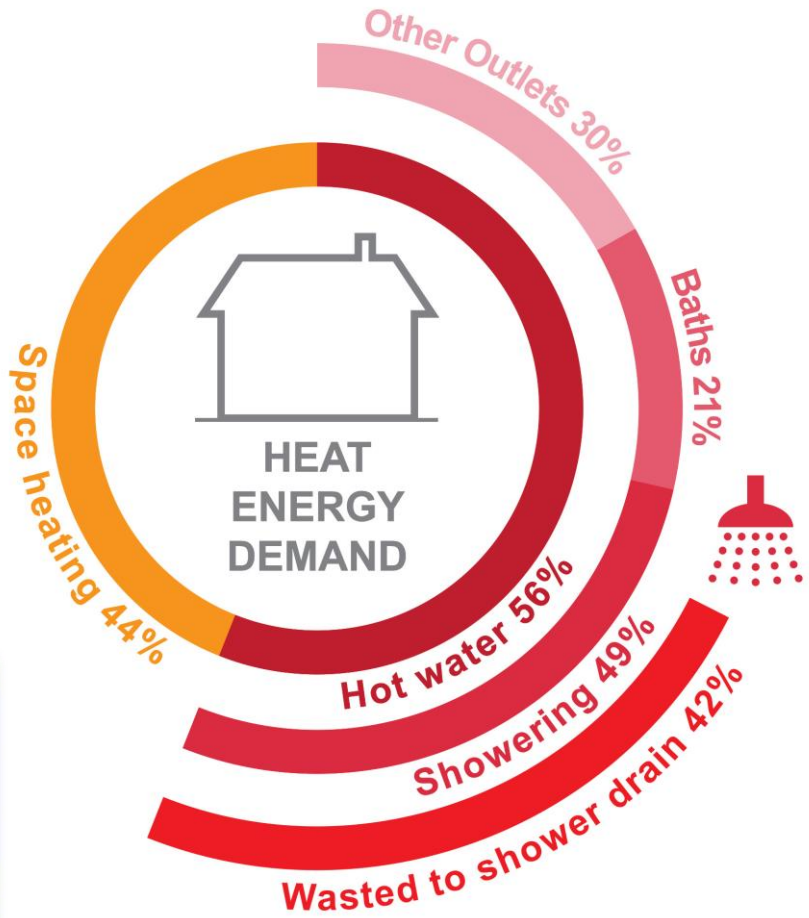
- But showering is wasteful, with c. 85% of that heat energy from the showerhead leaving the envelope via the shower drain





WWHRS: WHY USE IT IN YOUR PROJECT?

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Department for Business, Energy & Industrial Strategy

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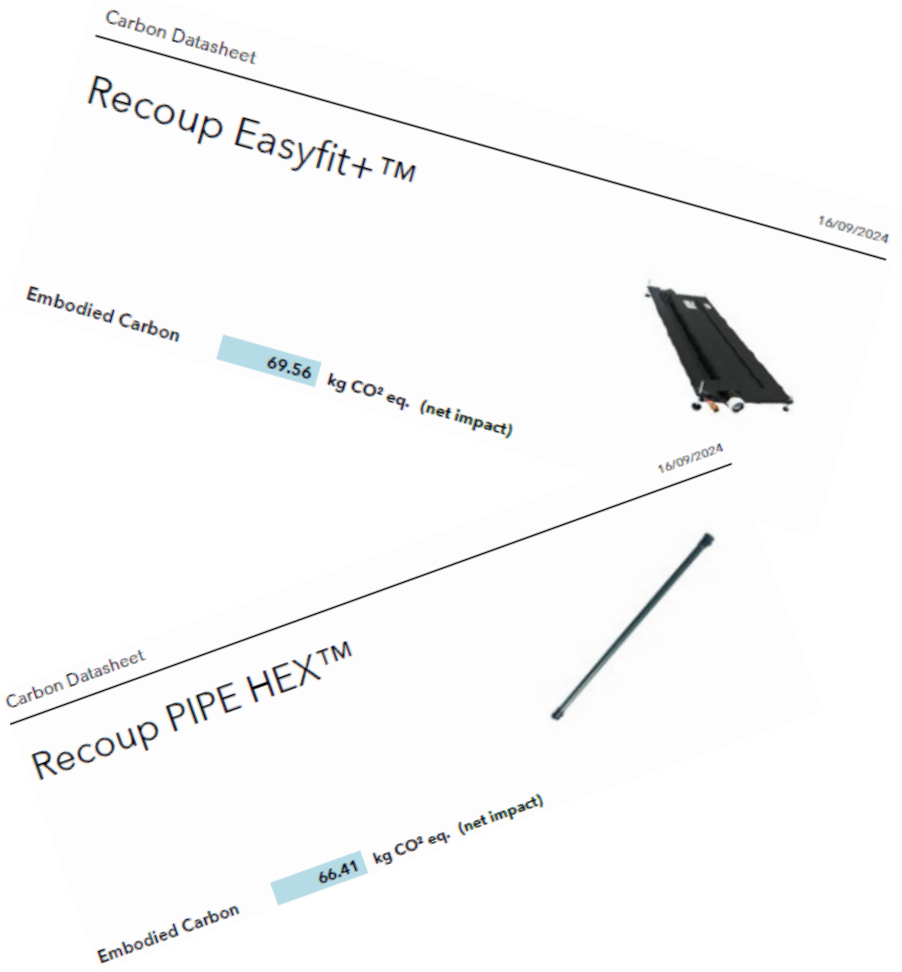

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- **Low Embodied Carbon:** Cradle to Cradle manufacturing = incredibly low embodied carbon product.
- **Certification:** SAP, SBEM, BREEAM, PhPP, WRAS

INSTALLATION & OPERATION

WWHRS WHAT DOES IT WORK WITH?

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- WWHRS works with a Mira Heatloop™ electric shower

A WWHRS PRODUCT FOR EVERY SHOWER SPACE

RECOUP PIPE HEX
Vertical Pipes

Vertical WWHRS, highest efficiency, installed on the floor below the shower they connect to. Fast & easy installation with no planned maintenance

RECOUP EASYFIT+
Under Bath

Horizontal WWHRS. Installed under bath or shower. Ideal for apartments, ground floor showers & retrofit

RECOUP HEATDECK
Integrated Tray

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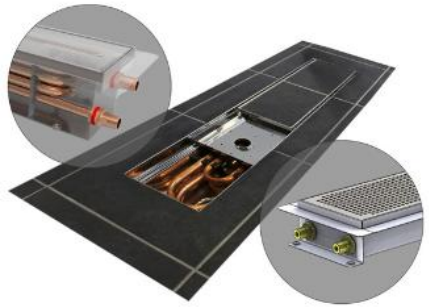

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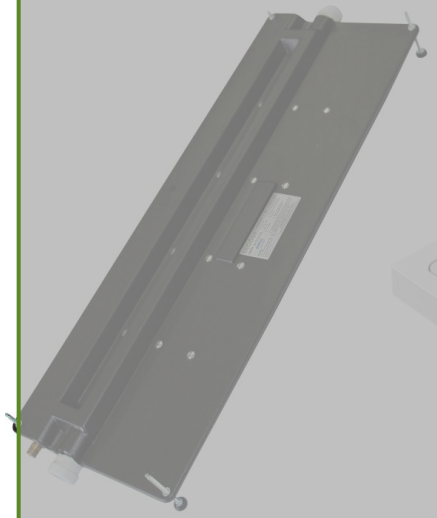

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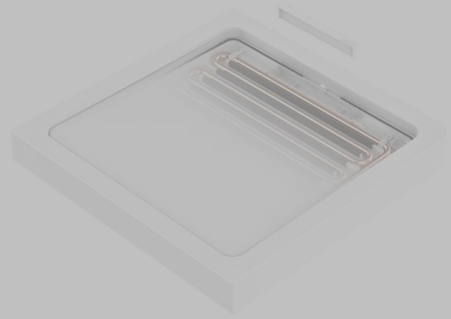

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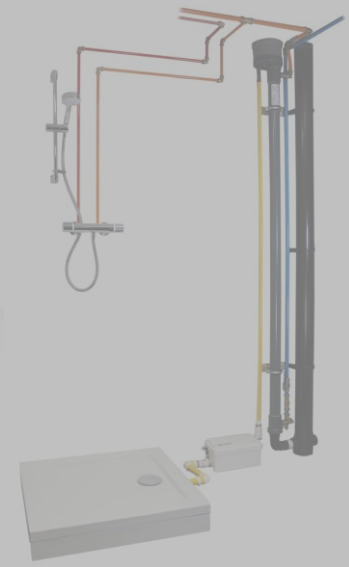

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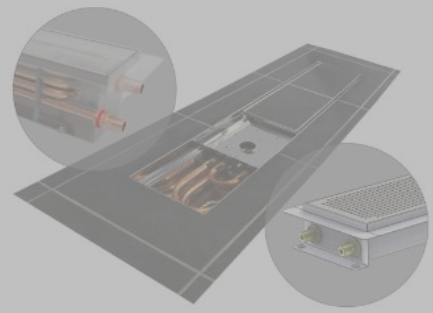

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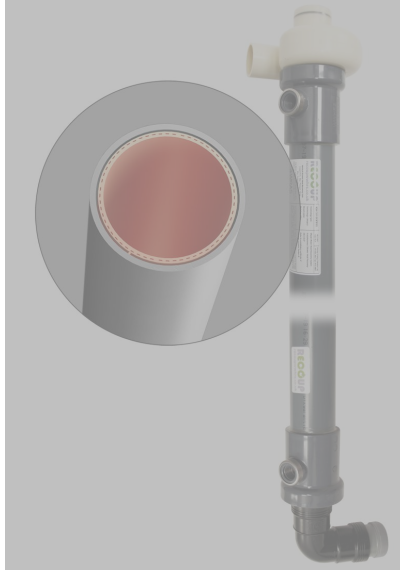

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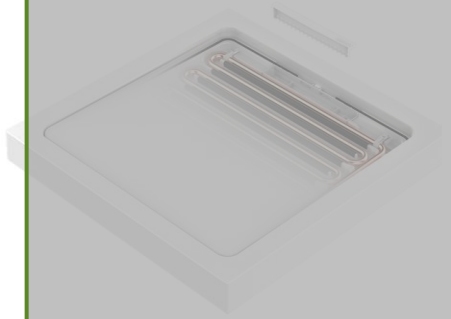

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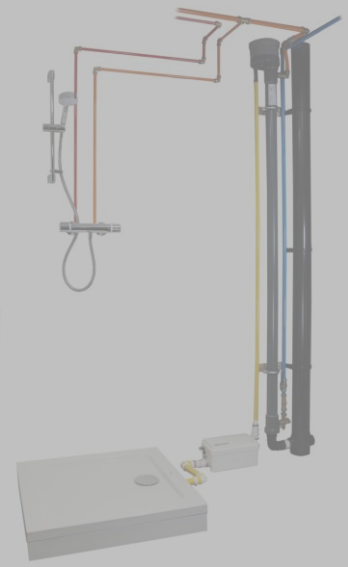

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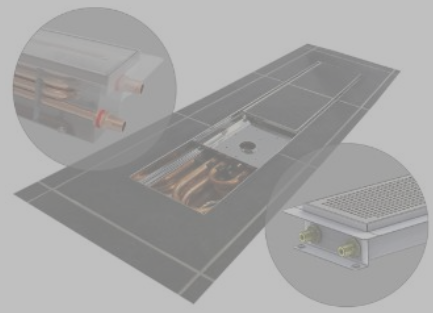

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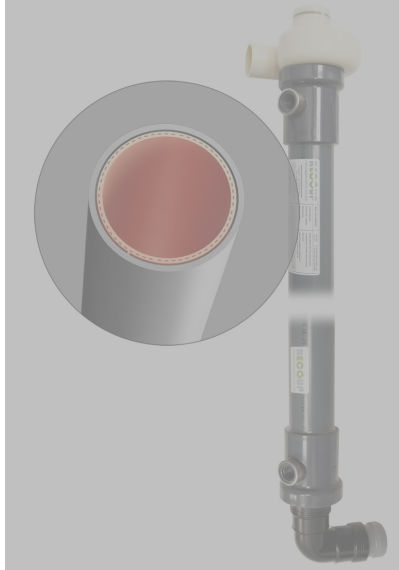

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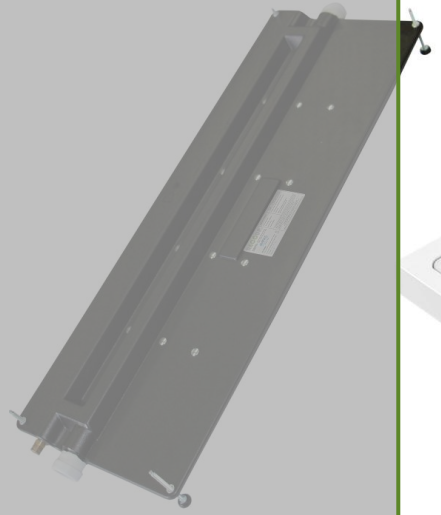

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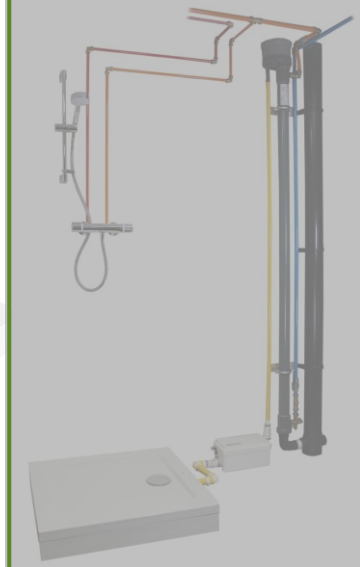

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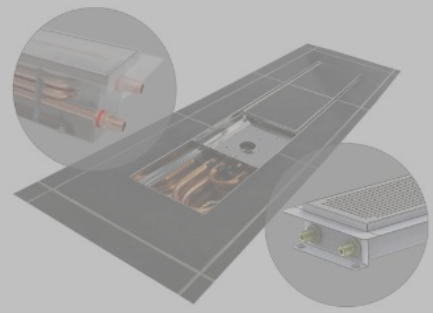

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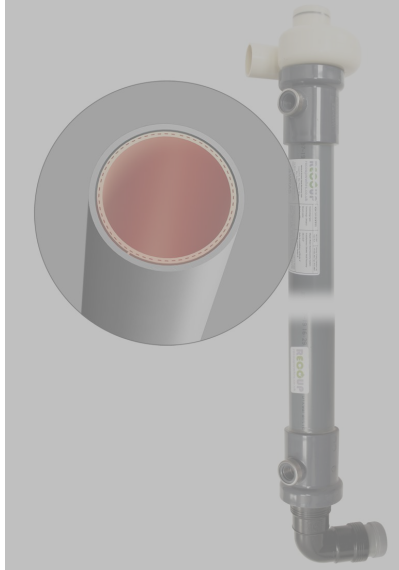

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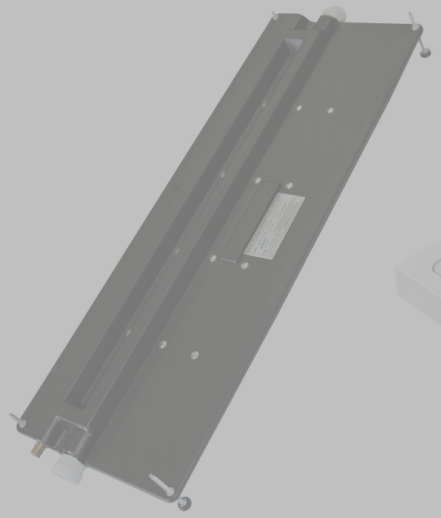

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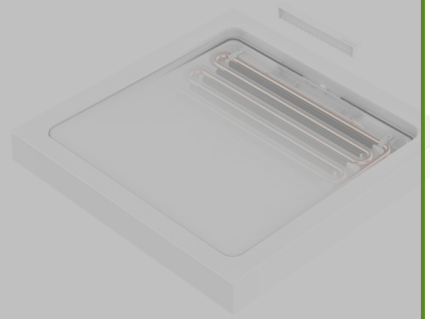

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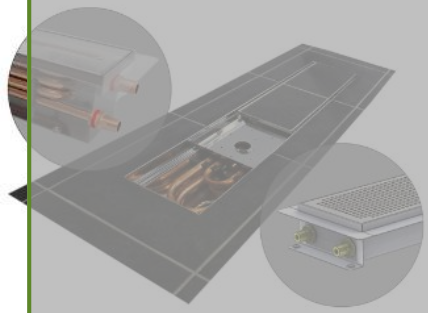

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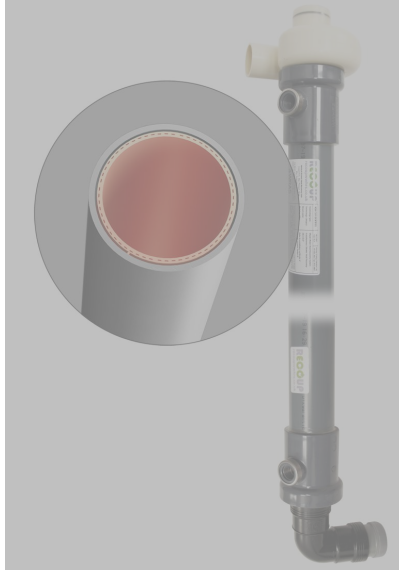

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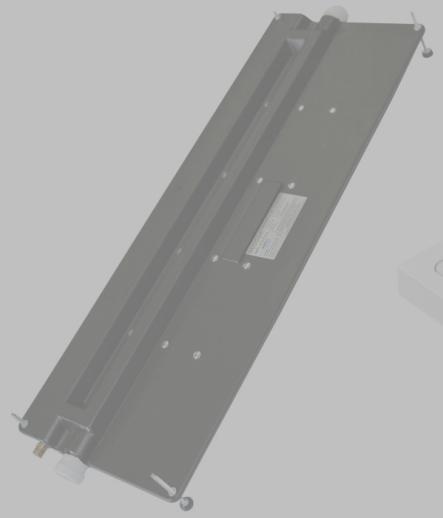

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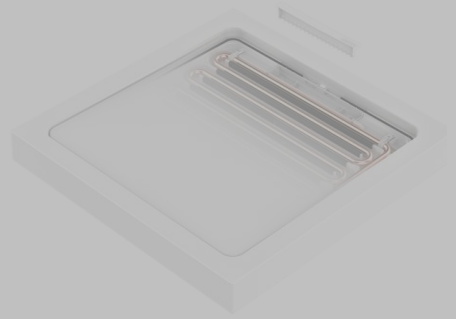

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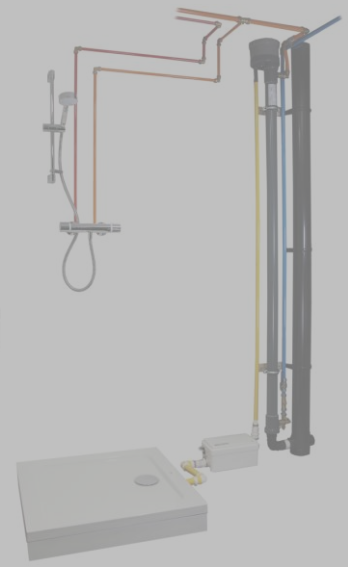

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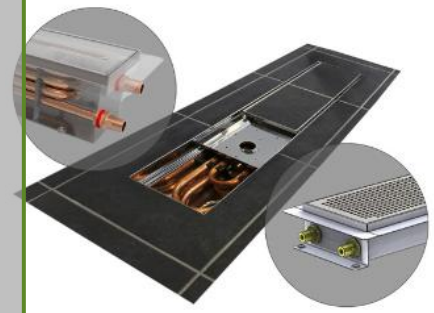

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RECOUP PIPE HEX

BARRATT DEVELOPMENTS PLC
Taylor Wimpey
AVANT homes
Bellway
LOVELL HOMES
BUILDERS SISK CONTRACTORS Established 1859
REDROW HOMES
DAVID WILSON HOMES
CREST NICHOLSON
Places for People
miller homes
SHANLY HOMES
ALLISON HOMES
MORRIS

WASTE WATER HEAT RECOVERY FOR SHOWERS

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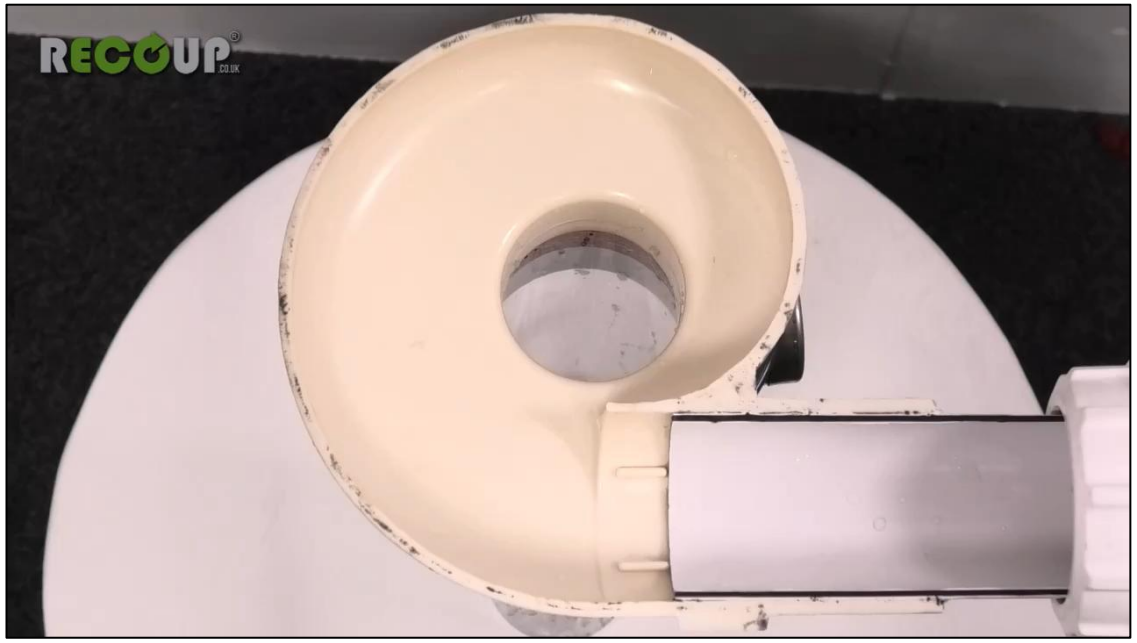

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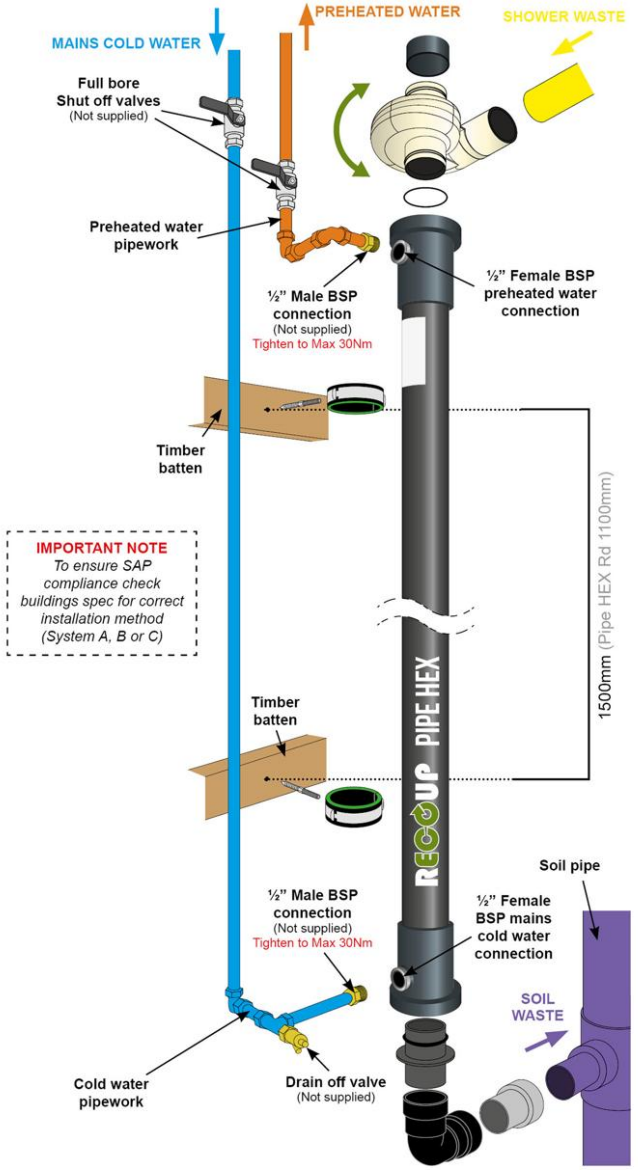
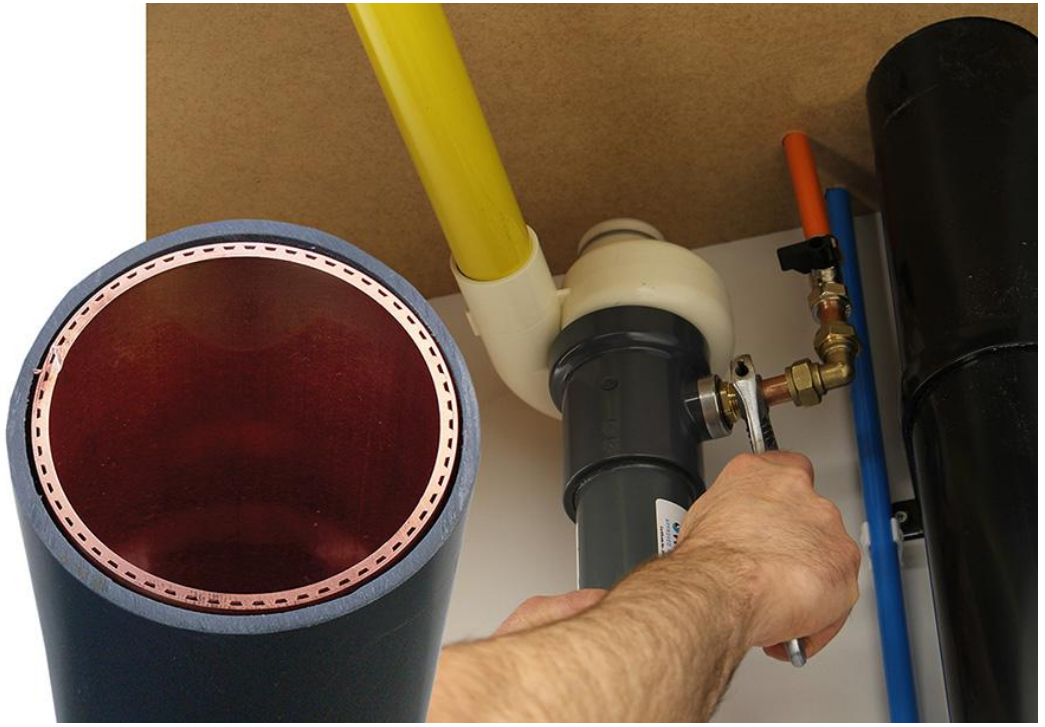
- Simple first fix installation



RECOUP PIPE HEX

- 2.1m vertical pipe system
- Very high heat recovery efficiency
  63.6% @11l/min
  68.1% @9l/min
- This can reduce Energy used per shower by up to 60%
- Simple first fix installation
- Double-walled heat exchanger structure for direct UK water regulations compliance



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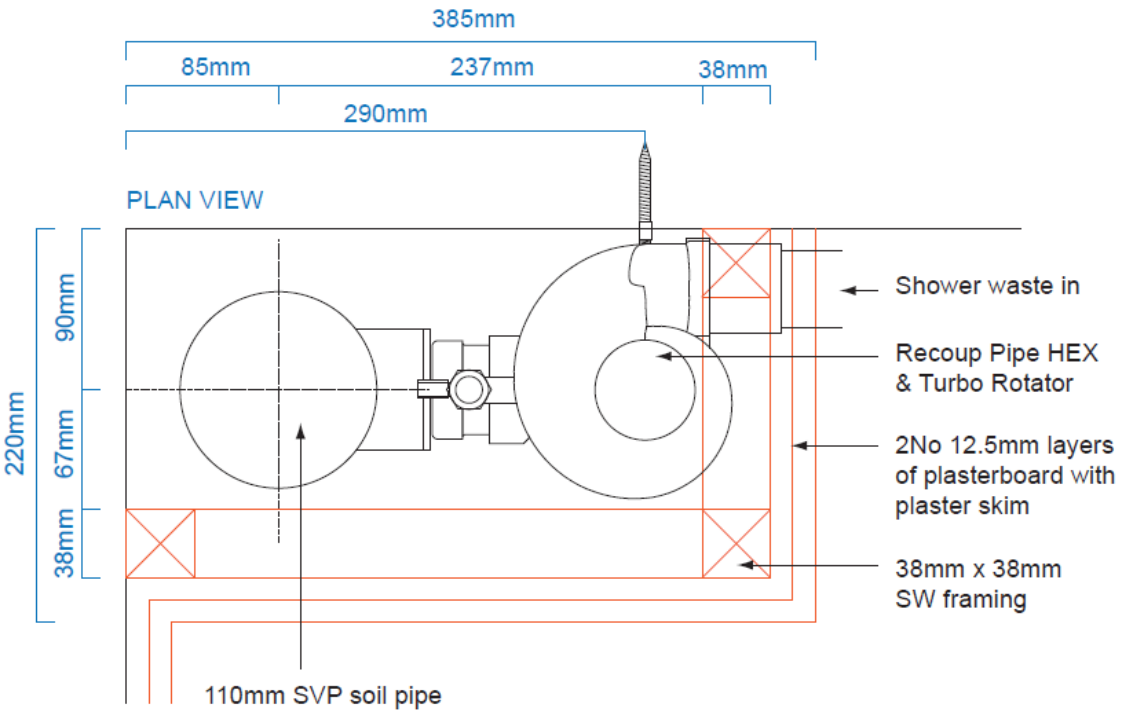

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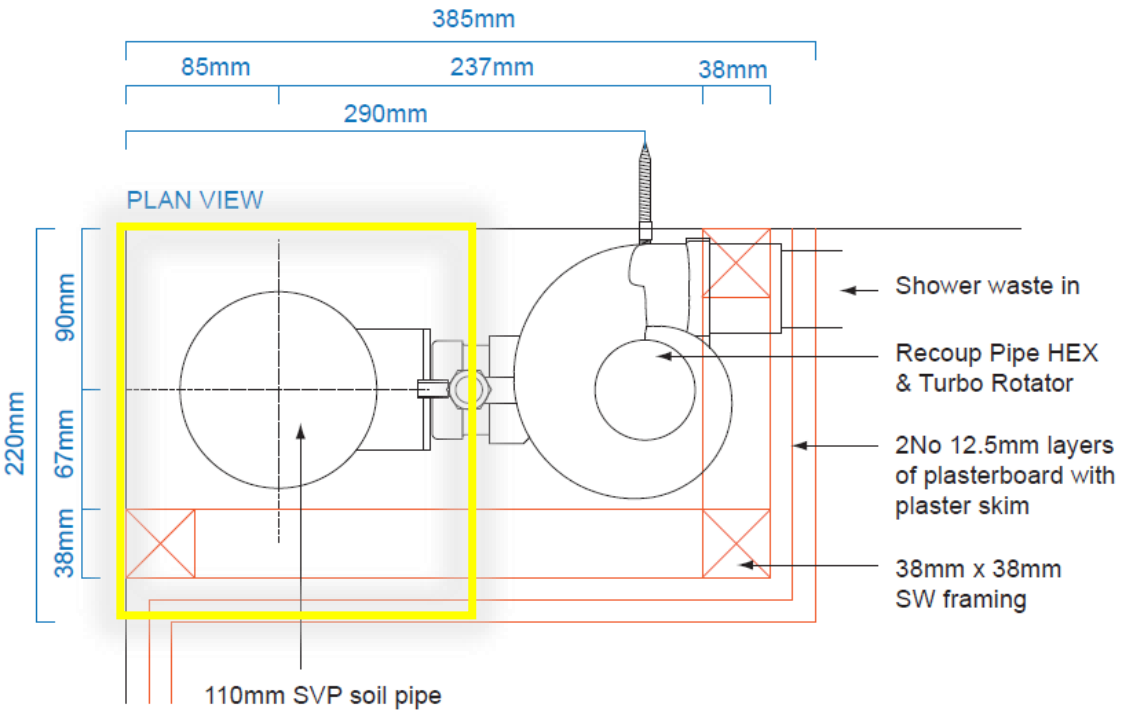

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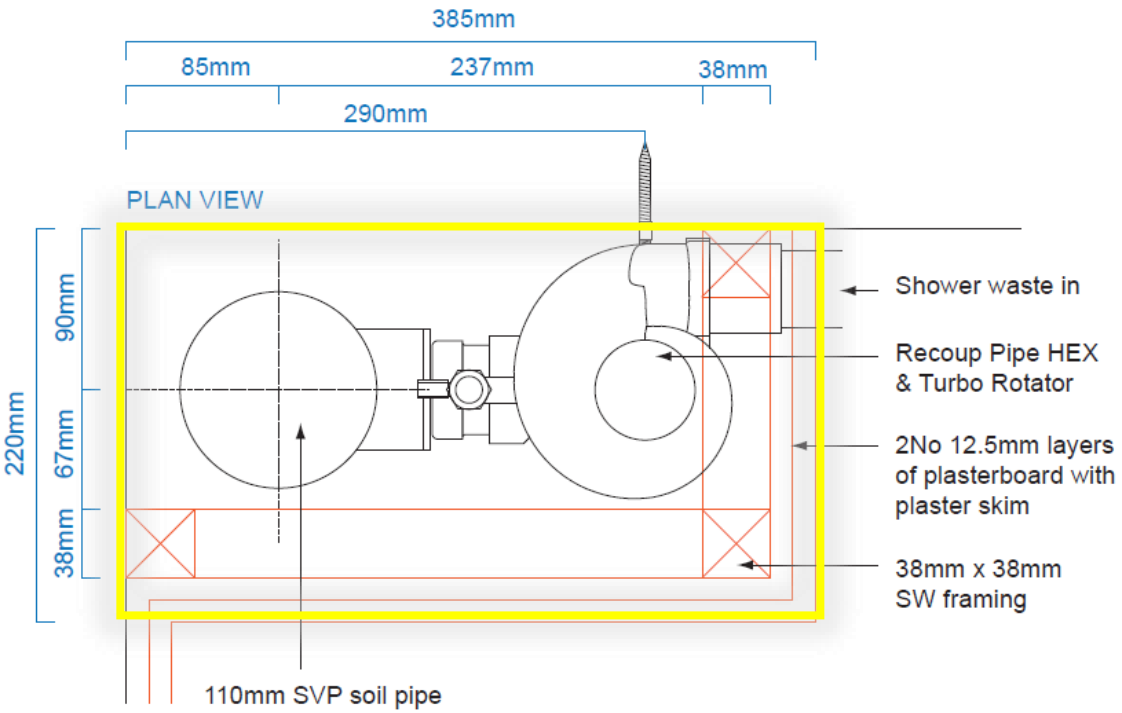
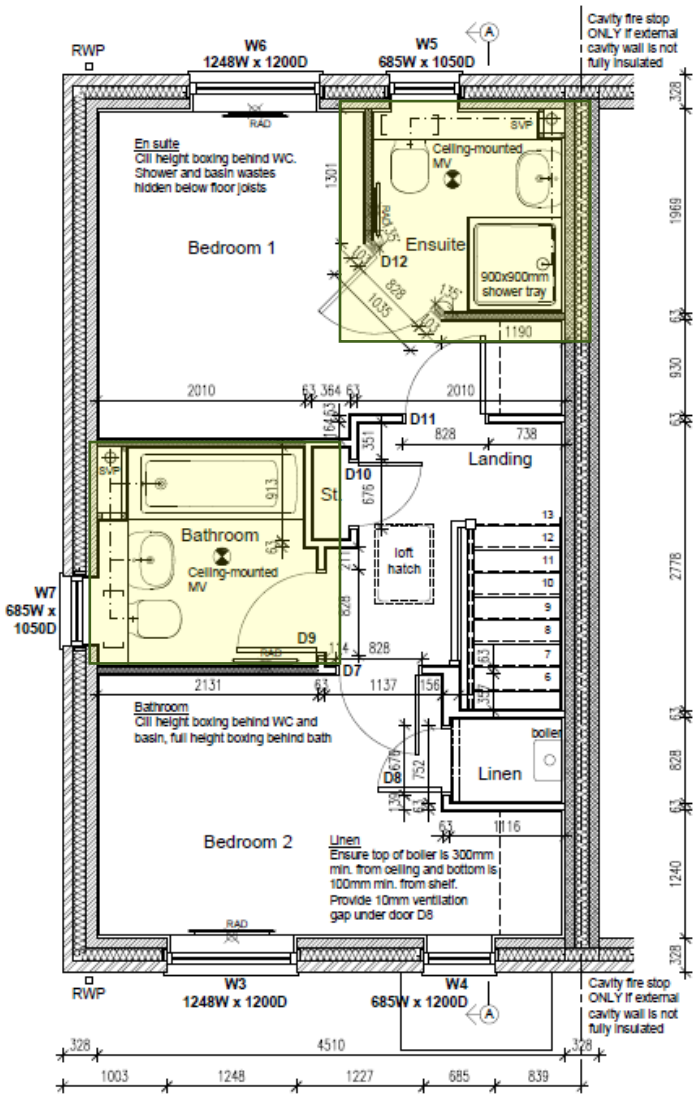


WWHRS: PART-L IMPACT

- Typical 3-bed | 2 Bathroom dwelling | 73 sqm
  - Master ensuite – Shower only (8l/min)
  - Family Bathroom – Bath only (no shower)
  - Gas Boiler / DHW Cylinder (210l tribune XE)
  - 4.5kW PV (max coverage @400w per panel)

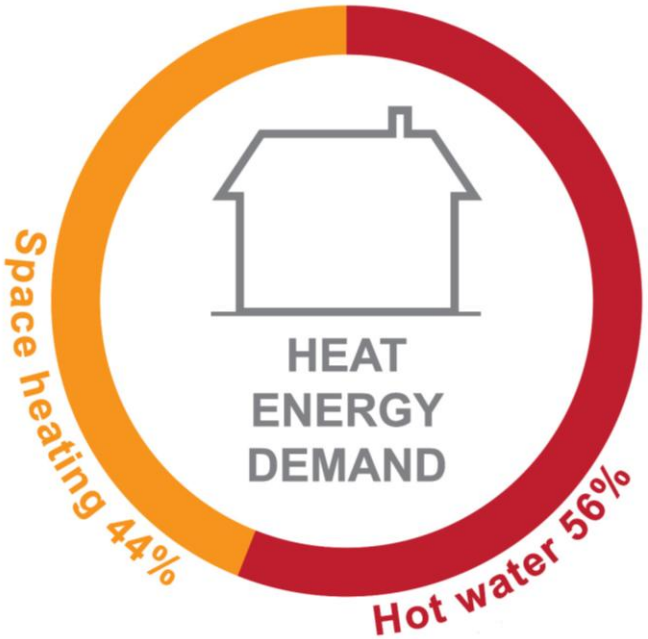


FIRST FLOOR PLAN

WWHRS: PART-L IMPACT

- Typical 3-bed | 2 Bathroom dwelling | 73 sqm
  - Master ensuite – Shower only (8l/min)
  - Family Bathroom – Bath only (no shower)
  - Gas Boiler / DHW Cylinder (210l tribune XE)
  - 4.5kW PV (max coverage @400w per panel)

- SAP calculates:
  - Space Heating Demand = 2215 kWh/year (44%)
  - Water Heating Demand = 2846 kWh/year (56%)



Calculated on SAP 10.2

WWHRS: PART-L IMPACT

- Without WWHRS: Part-L fails on %DER<TER

No WWHRS

SAP Rating:	96 A	CO2 Emission:	0.96 t/yr
DER:	14.94 kgCO2/yr/m2	TER:	13.01 kgCO2/yr/m2
% DER<TER:	-14.83%	Compliance:	See BREL
DPER:	65.81 kWh/m2/yr	TPER:	68.18 kWh/m2/yr
DPER<TPER:	3.48 %	DFEE:	41.01 kWh/m2/yr
TFEE:	41.39 kWh/m2/yr	DFEE<TFEE:	0.91 %

WWHRS: PART-L IMPACT

- Without WWHRS: Part-L fails on %DER<TER

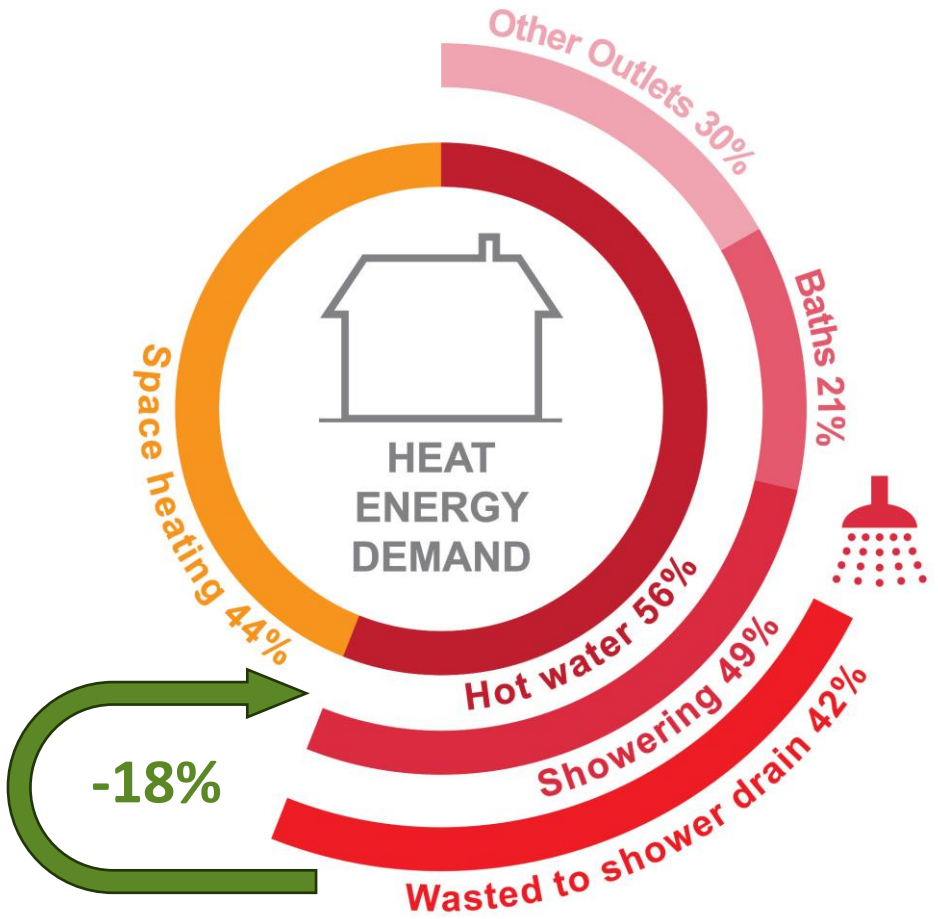
- With WWHRS: Vertical Pipe | Ensuite | System A:
  - PASS
  - EPC increases to 97 A

Pipe HEX System A

SAP Rating:	97 A	CO2 Emission:	0.81 t/yr
DER:	12.94 kgCO2/yr/m2	TER:	13.01 kgCO2/yr/m2
% DER<TER:	0.54%	Compliance:	See BREL
DPER:	55.06 kWh/m2/yr	TPER:	68.18 kWh/m2/yr
DPER<TPER:	19.24 %	DFEE:	41.01 kWh/m2/yr
TFEE:	41.39 kWh/m2/yr	DFEE<TFEE:	0.91 %

WWHRS: PART-L IMPACT

- Without WWHRS: Part-L fails on %DER<TER
- With WWHRS: Vertical Pipe | Ensuite | System A:
  - PASS
  - EPC increases to 97 A
- Actual SAP calculated Energy Demand Reduction is -522 kWh/yr (-18%)

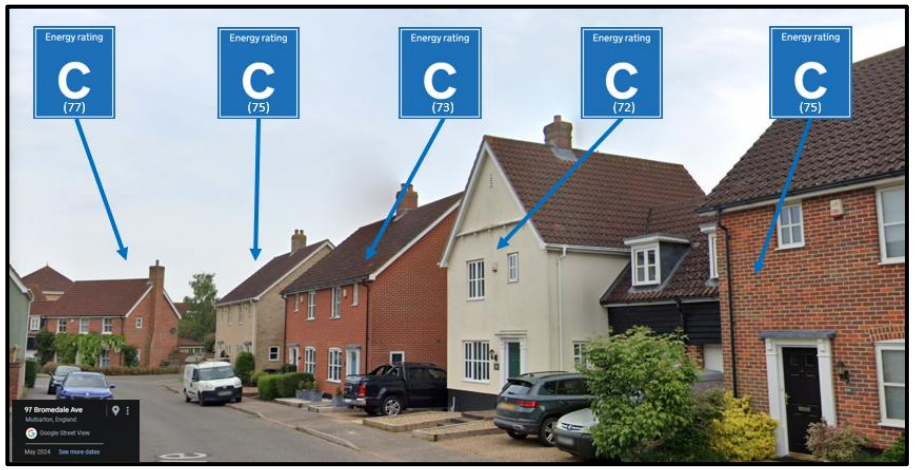


WWHRS: PART-L IMPACT

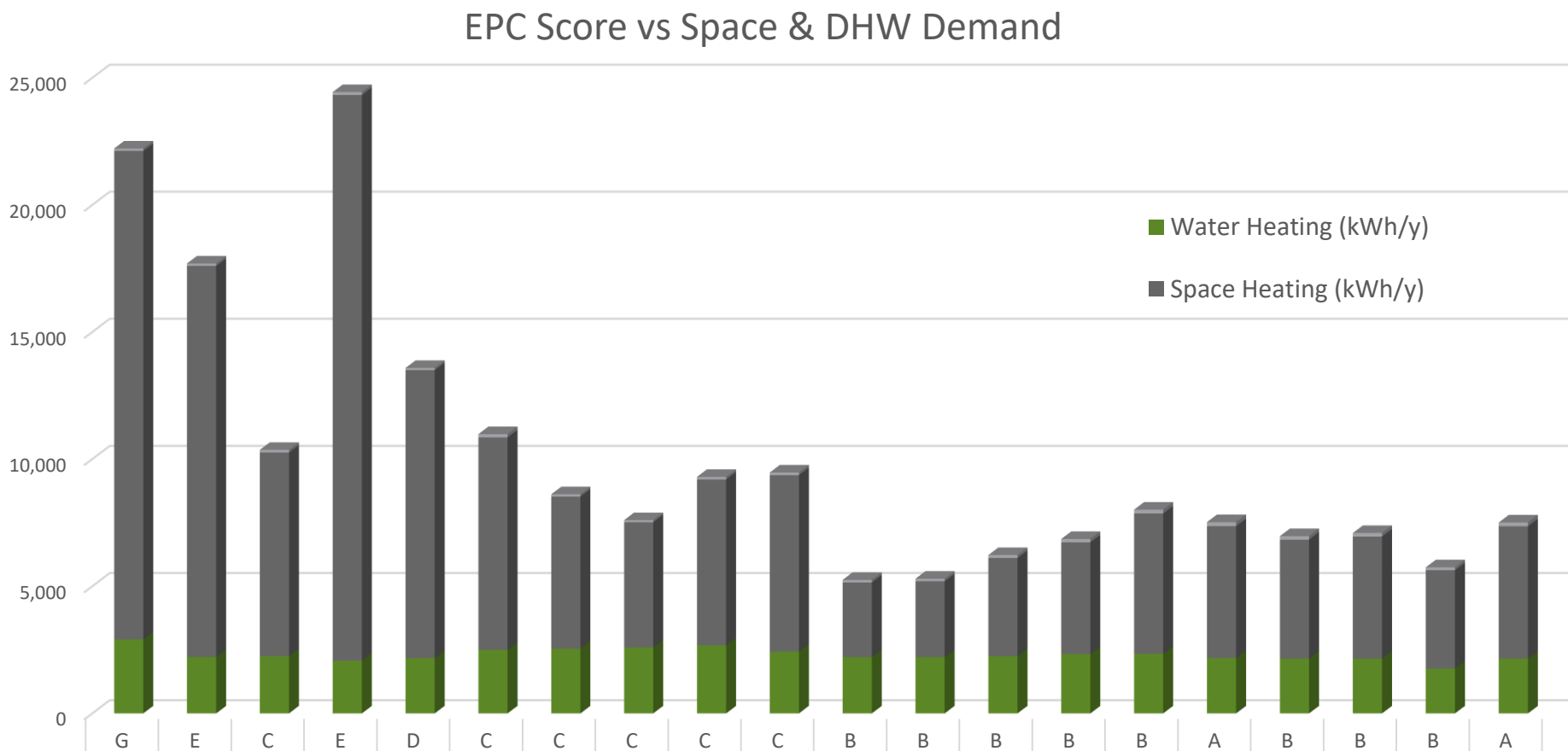
- SAP Impact is…..
  - -17.79% Reduction in Primary Energy
  - -14.35% reduction on CO2 Emissions

Primary Energy	CO_2 Emissions
Without WWHRS	
DPER kWh/sqm/yr	DER CO_2/sqm/yr
55.06	12.94
With WWHRS	
DPER kWh/sqm/yr	DER CO_2/sqm/yr
65.81	14.94
WWHRS Impact	
Primary Energy	CO_2 Emissions
-17.79%	-14.35%

WWHRS: IMPORTANCE FOR EXISTING HOMES

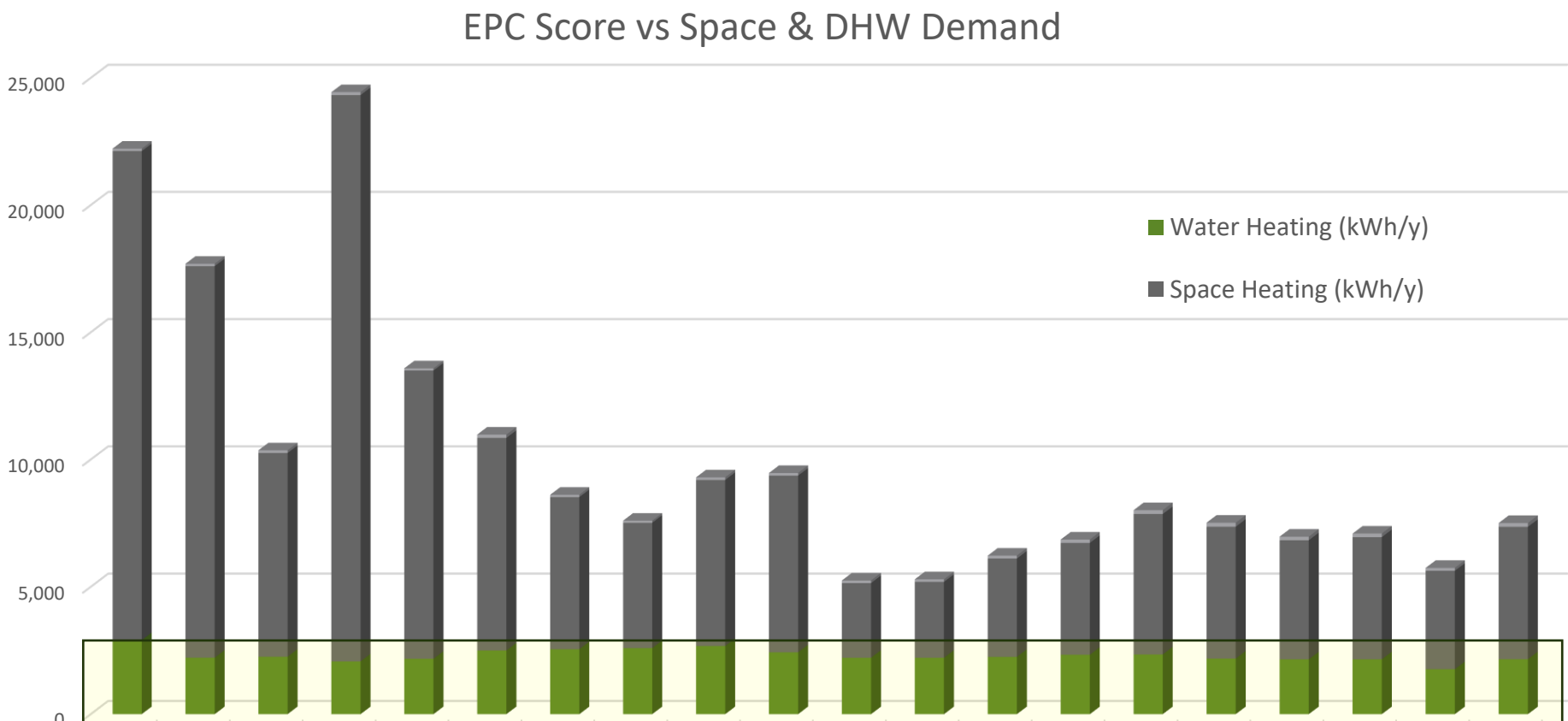


EXISTING HOMES: HOT WATER DEMAND



	G	E	C	E	D	C	C	C	C	C	B	B	B	B	B	A	B	B	B	A
Floor (m3)	96	96	106	114	88	130	91	82	101	105	101	101	116	131	150	158	143	143	115	151
Space Heating (kWh/y)	19,215	15,380	7,999	22,257	11,323	8,350	5,974	4,922	6,520	6,938	2,934	2,980	3,861	4,394	5,516	5,179	4,676	4,798	3,864	5,198
Water Heating (kWh/y)	2,909	2,219	2,258	2,070	2,174	2,501	2,552	2,596	2,679	2,430	2,216	2,216	2,251	2,333	2,346	2,183	2,154	2,154	1,767	2,159

EXISTING HOMES: HOT WATER DEMAND



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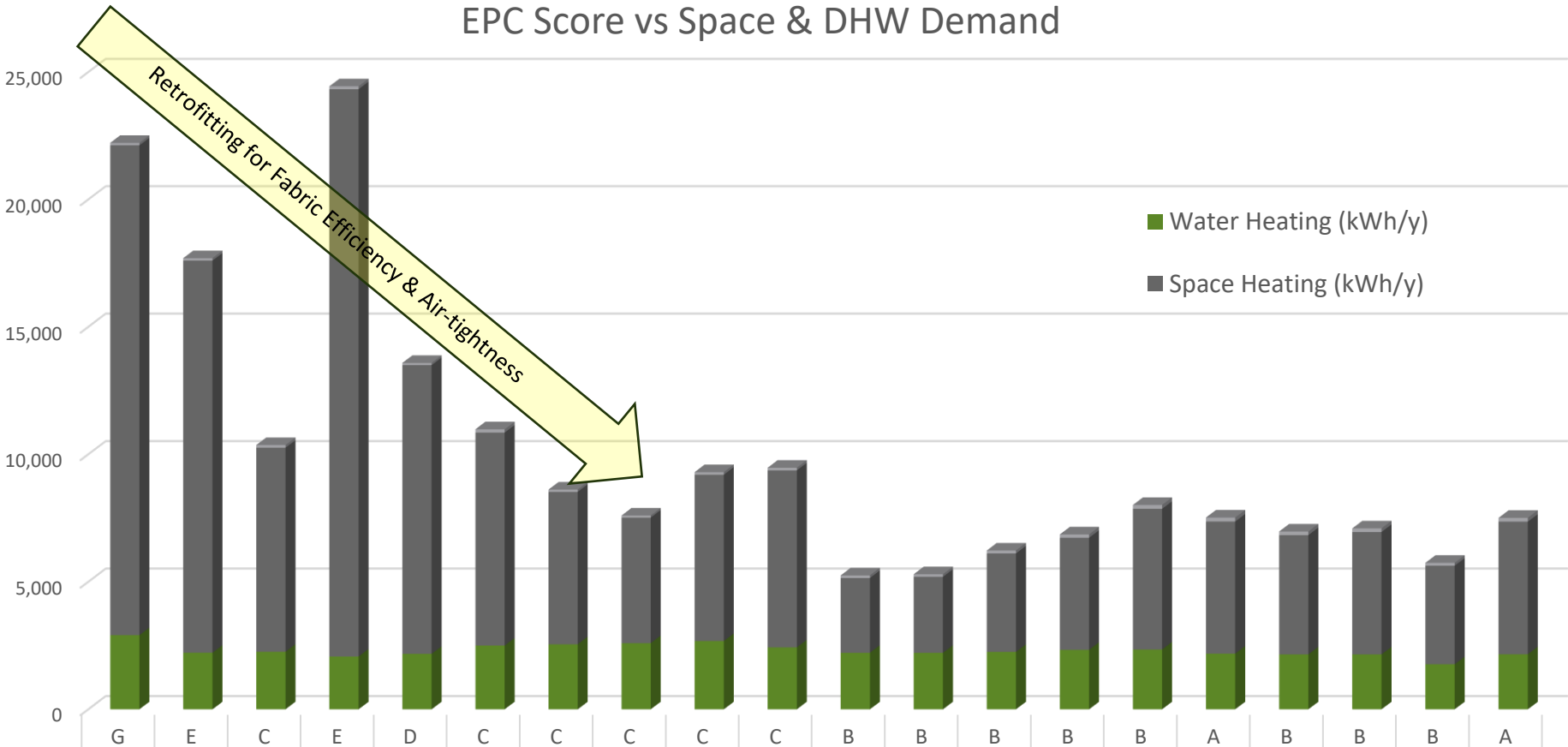

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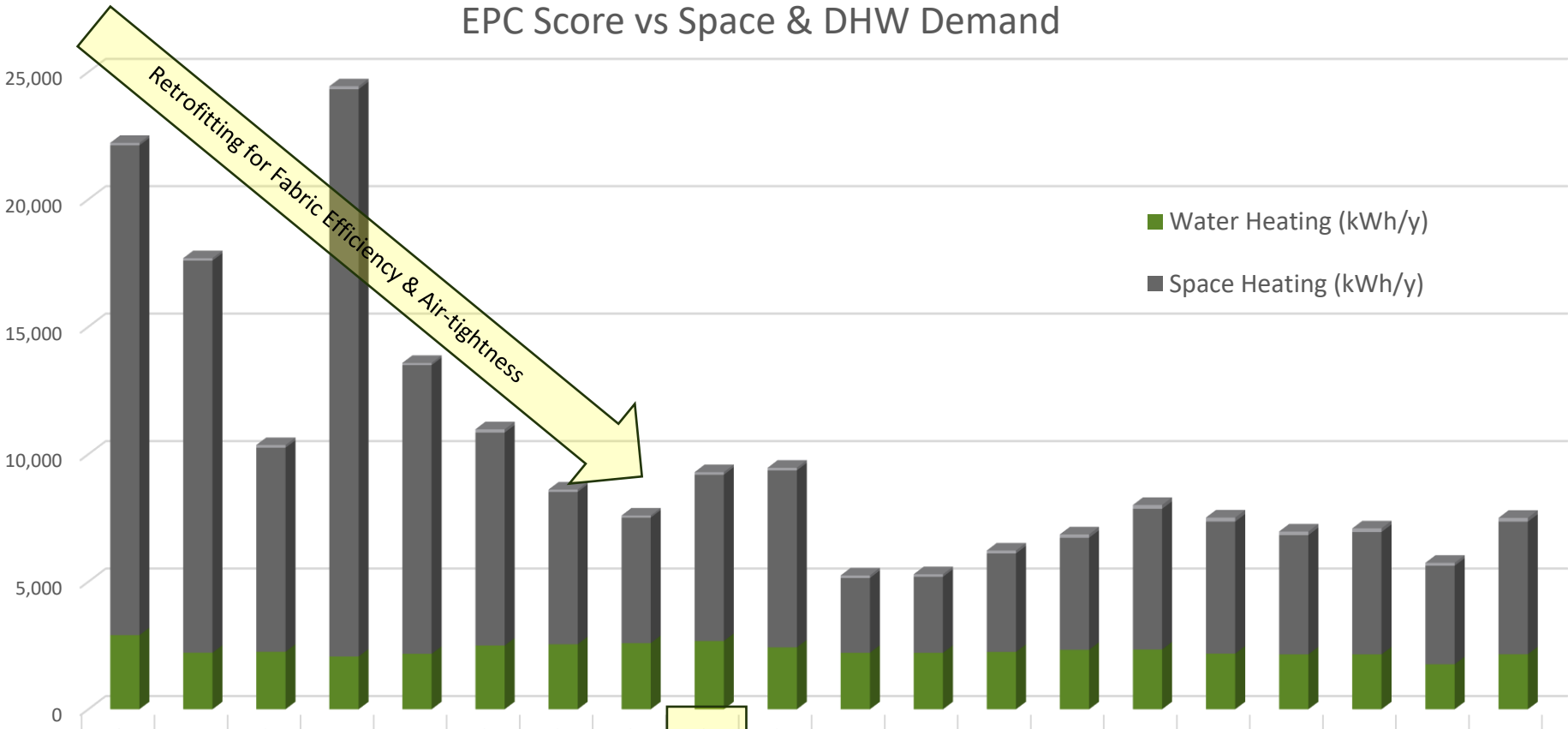

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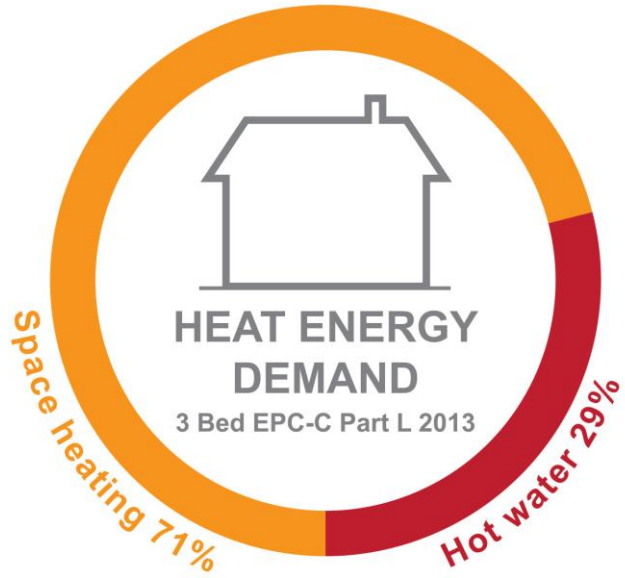
EXISTING HOMES: HOT WATER DEMAND

- 3 Bed – 101 Sqm – Part-L 2013 - EPC C
- Space Heating Demand = 6520 kWh
- **Water Heating Demand = 2675 kWh**
- Total Space & DHW demand = 9195 kWh



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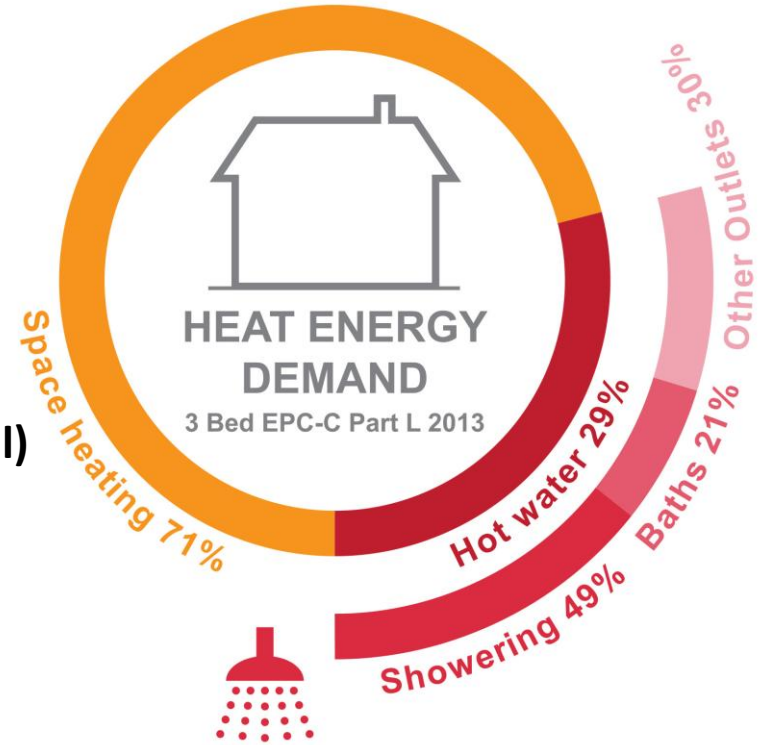

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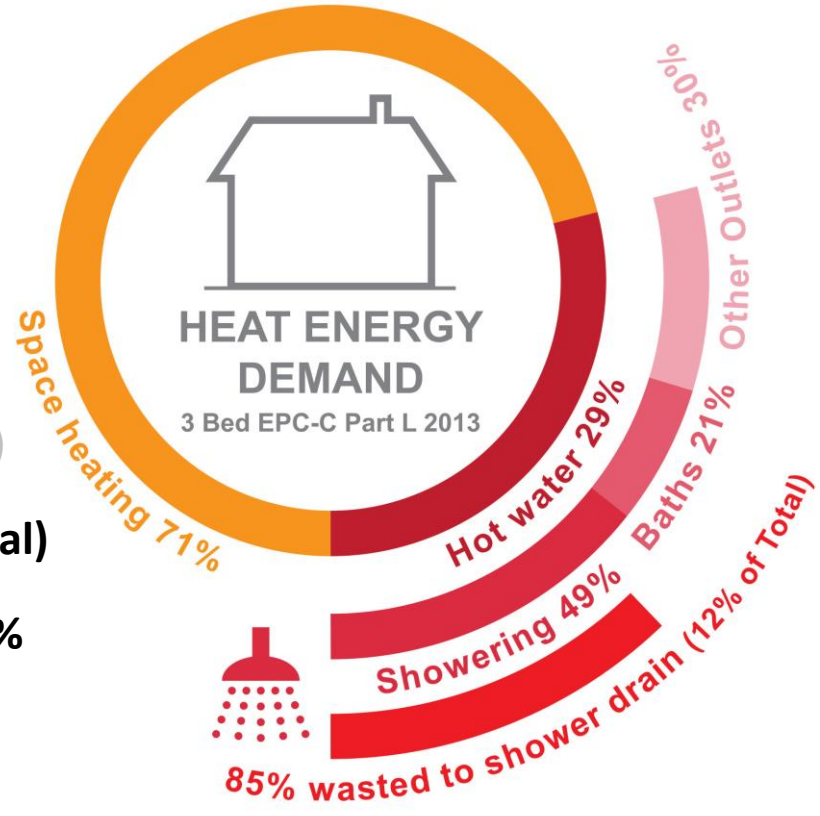
- **85% of shower heat goes down the drain (12% of total)**
- **WWHRS** can **reduce energy** use per shower by **30-60%**



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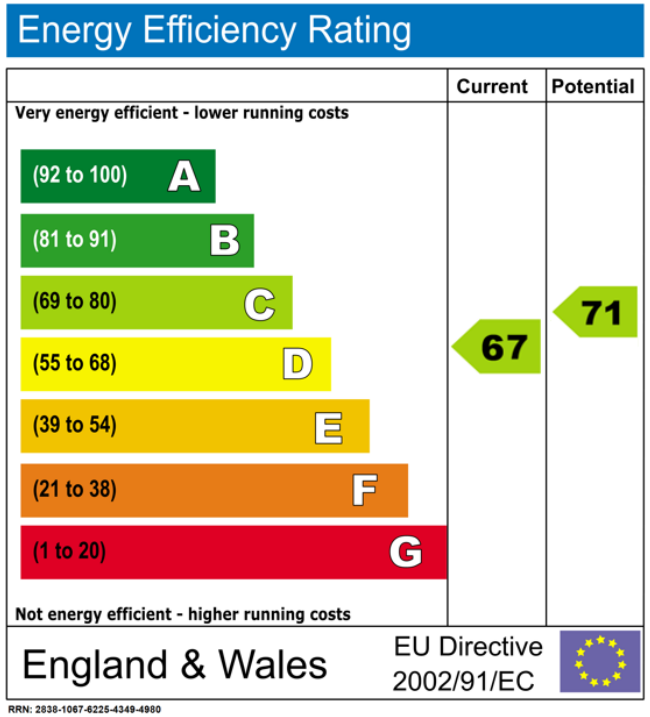
- 85% of shower heat goes down the drain (12% total)
- WWHRS can reduce energy use per shower by 30-60%
- **That's between 327 kWh – 786 kWh saved per year**

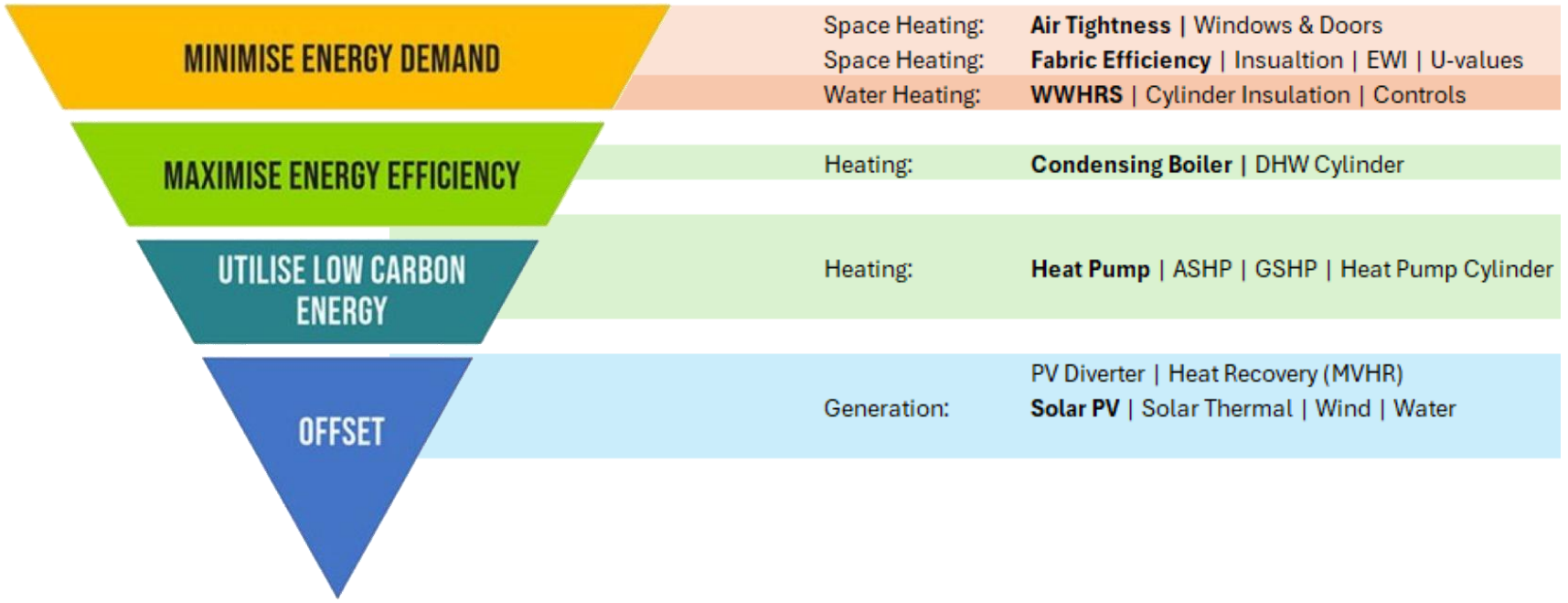
  (equivalent to 155 – 374 loads of washing)
- **Or 5% - 10% of this home's total heat demand**

  (Typically, 1 – 4 EPC points)



EXISTING HOMES: HOT WATER DEMAND

WWHRS is a **high impact, low installed cost** measure that **reduces primary energy demand** in a similar way to air tightness or fabric measures



WWHRS: A PRODUCT FOR EVERY RETROFIT SENARIO

RECOUP PIPE HEX
Vertical Pipes

Vertical WWHRS, highest efficiency, installed on the floor below the shower they connect to. Fast & easy installation with no planned maintenance

RECOUP EASYFIT+
Under Bath

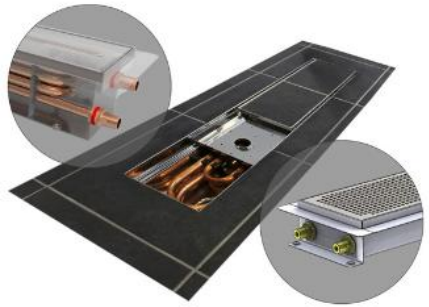
Horizontal WWHRS. Installed under bath or shower. Ideal for apartments, ground floor showers & retrofit

RECOUP HEATDECK
Integrated Tray

WWHRS integrated shower trays. Quick & easy installation. Ideal for apartments, ground floor showers & retrofit

RECOUP PIPE HEX ACTIVE
Pumped Vertical

Actively pumped WWHRS. Highest efficiency, same-floor shower option Apartments, refurbishments, adaptations & retrofit,



RECOUP DRAIN+ RANGE
Integrated Drain

WWHRS integrated wet-room drain channels.
High-end residential, DDA, commercial / communal showers

RECOUP EASYFIT+

SAVES up to
43%
of the energy
per shower use

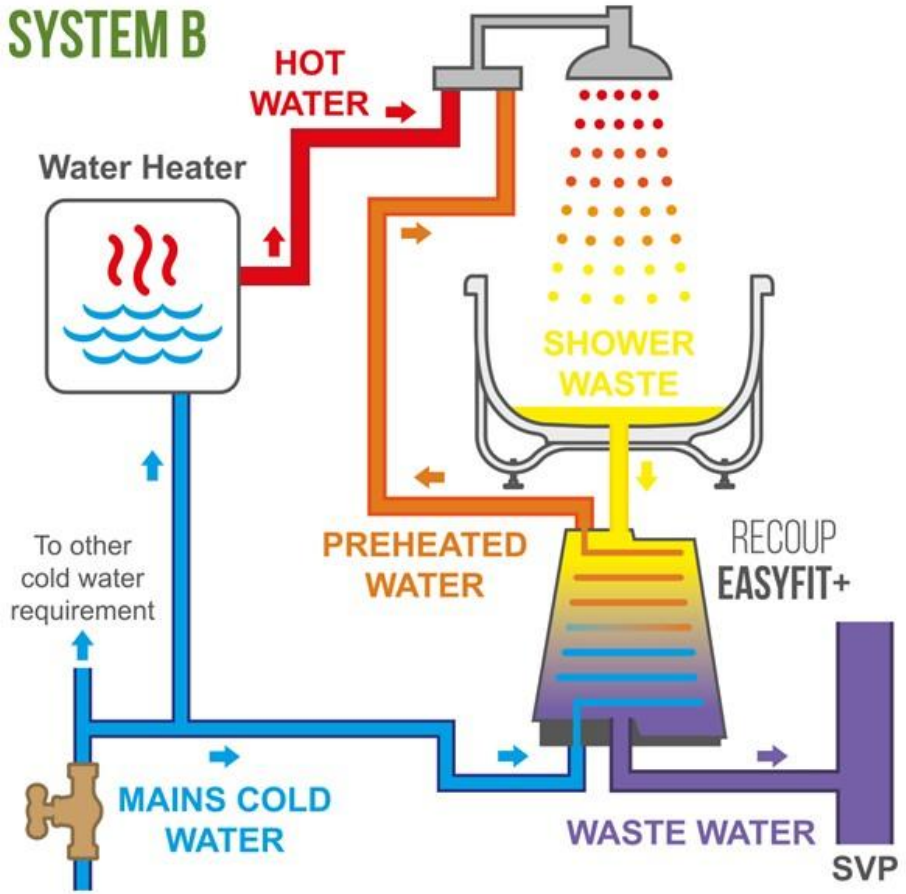
WASTE WATER HEAT RECOVERY FOR SHOWERS

RECOUP EASYFIT+

- ‘Under-bath’ system – unused void space

RECOUP EASYFIT+

- ‘Under-bath’ system – unused void space
- 43-47% efficient (5.5–11l/min)
- Offer’s up to a 43% reduction in energy used per shower



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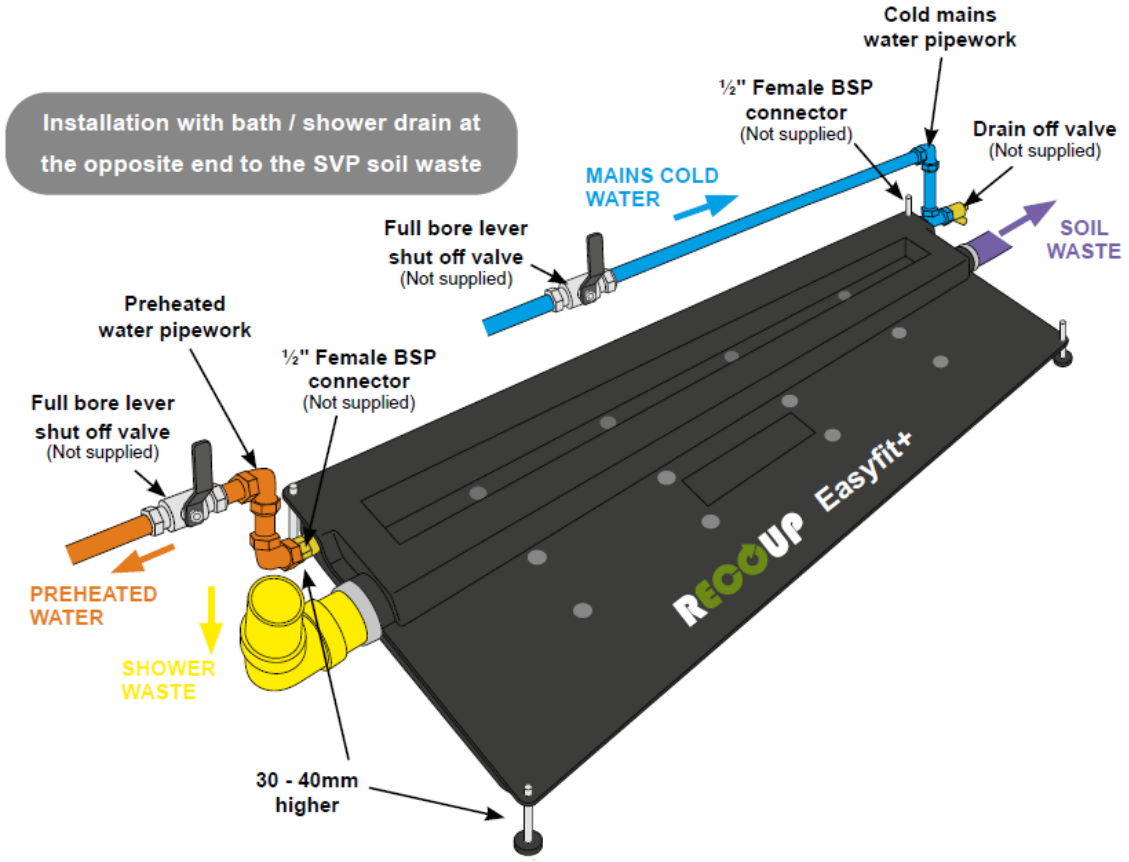

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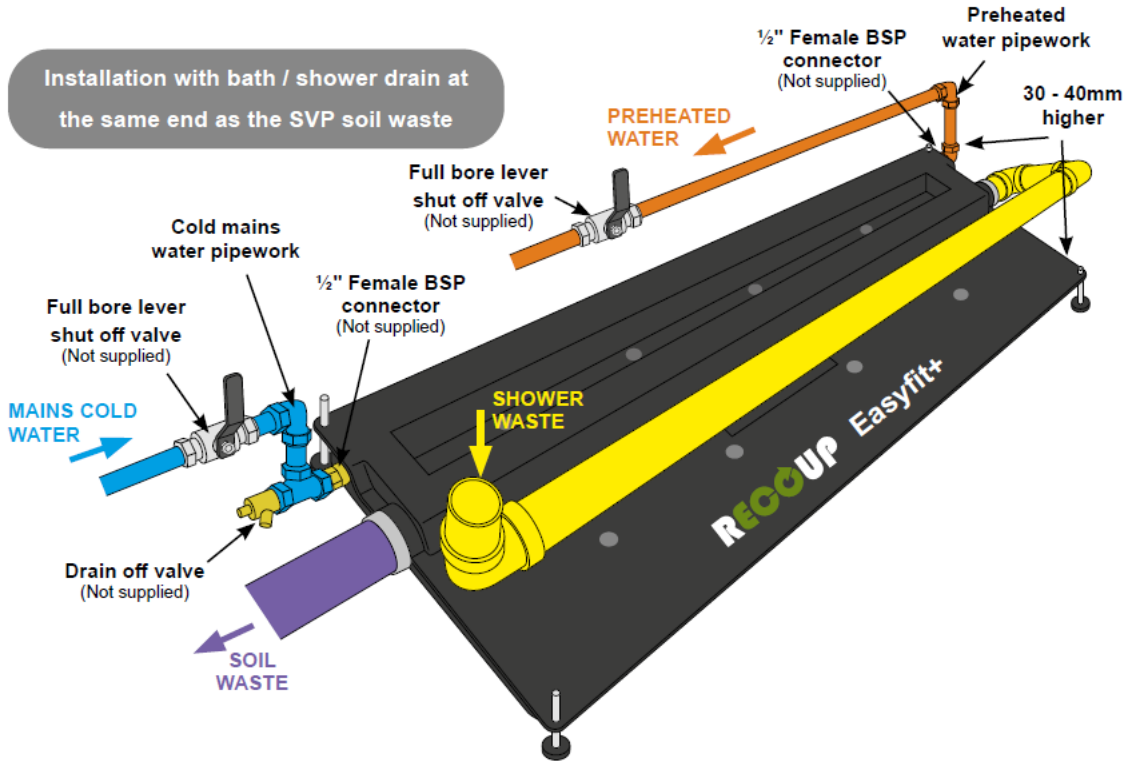
- Very simple to install



RECOUP EASYFIT+

- ‘Under-bath’ system – unused void space
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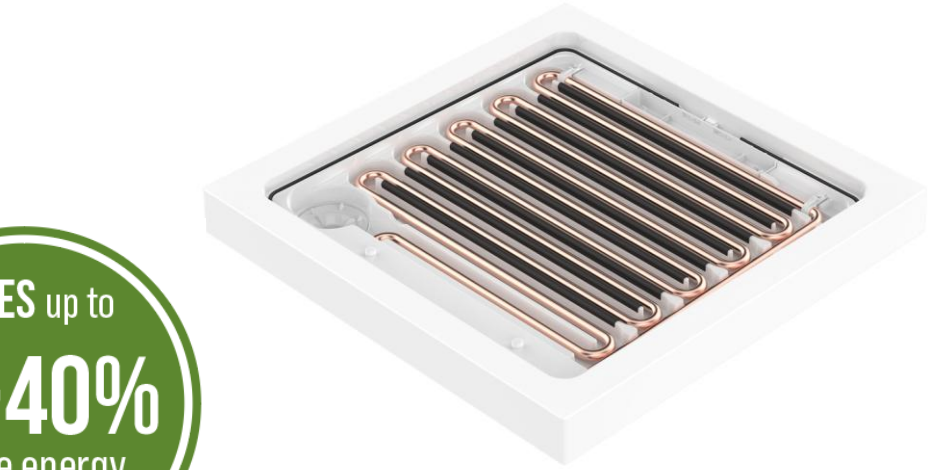
- Offer’s up to a 43% reduction in energy used per shower
- Apartments, retrofit, ground floor showers
- Very simple to install
- Impressive SAP score for Apartments with shower over bath or ensuite shower

RECOUP HEATDECK

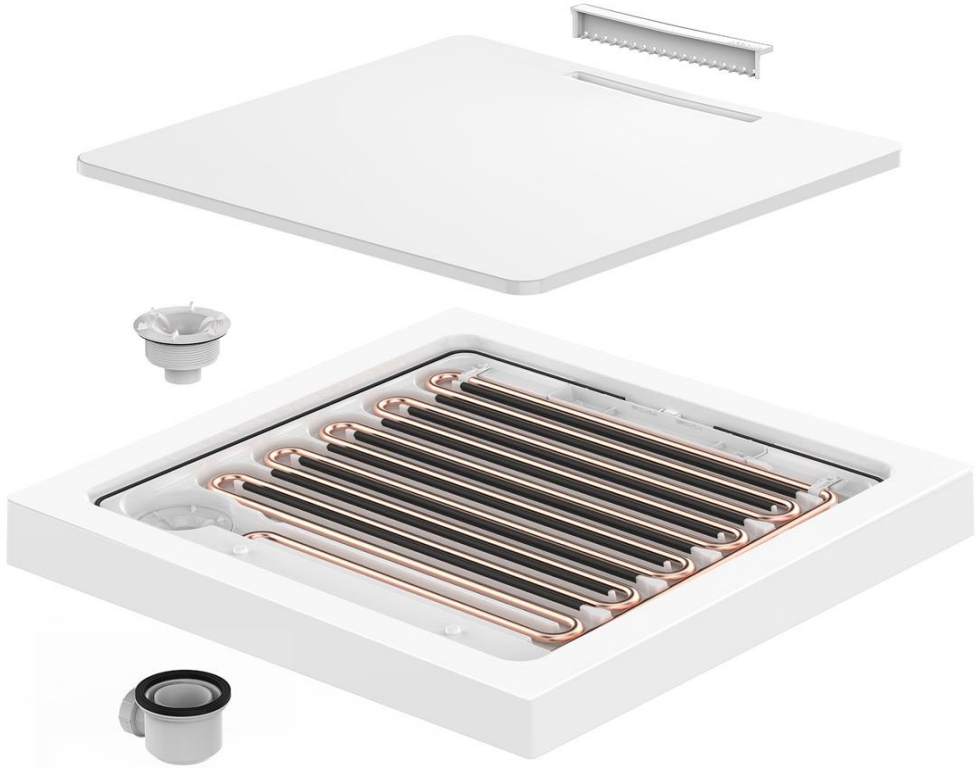
SAVES up to
35-40%
of the energy
per shower use



WASTE WATER HEAT RECOVERY FOR SHOWERS

RECOUP HEATDECK

- New-to-Market WWHRS integrated shower tray range



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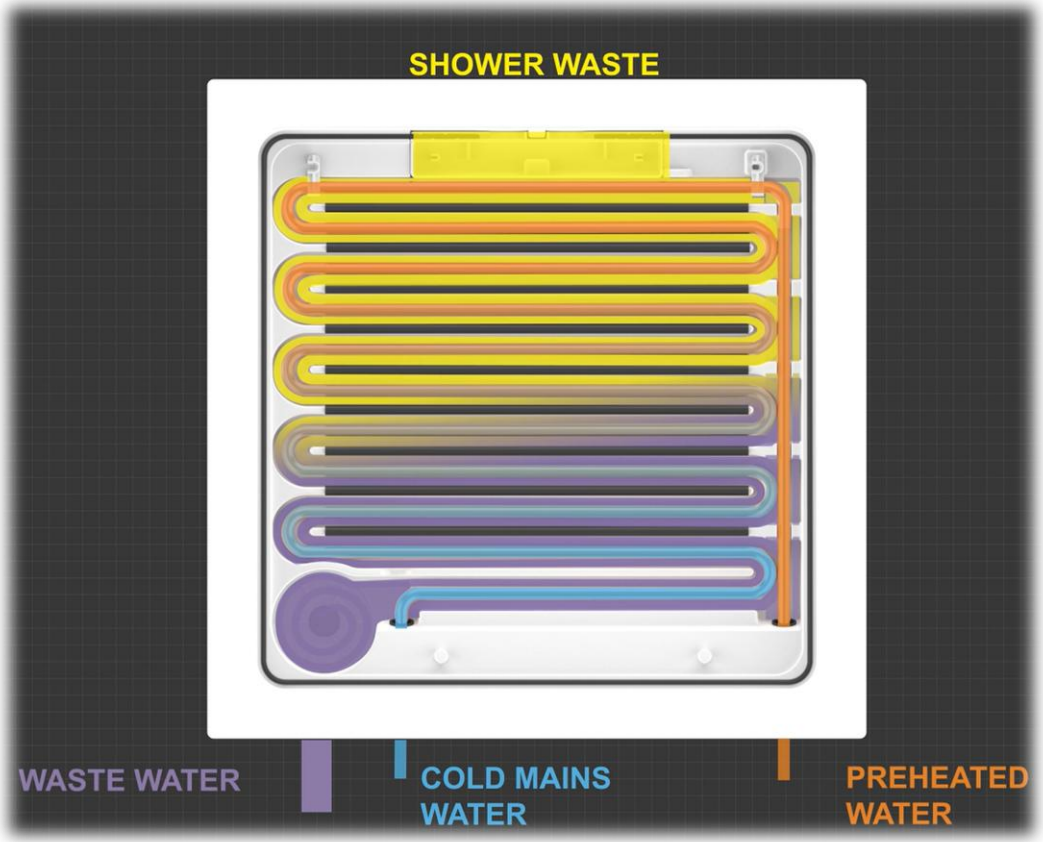
- Offer’s up to a 35-40% reduction in energy used per shower



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- Works in the same way as a ‘normal’ shower tray
- Size and upstand options available

No Upstands

Left Hand 2 Upstands

Right Hand 2 Upstands

3 Upstands

4 Upstands

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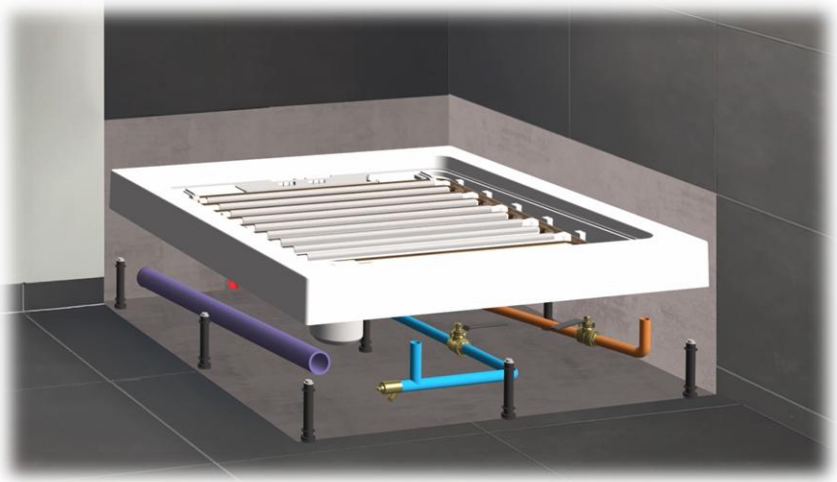
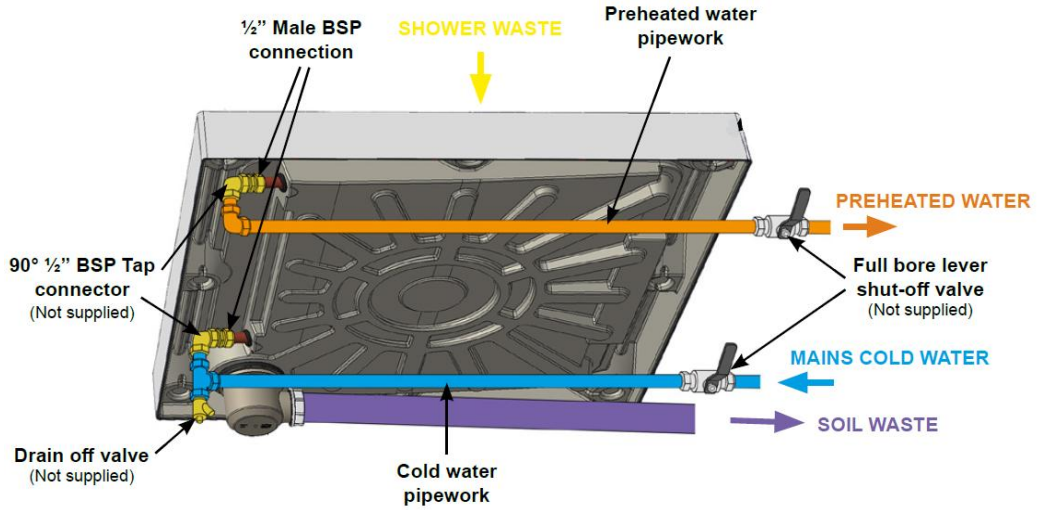
- Simple to install





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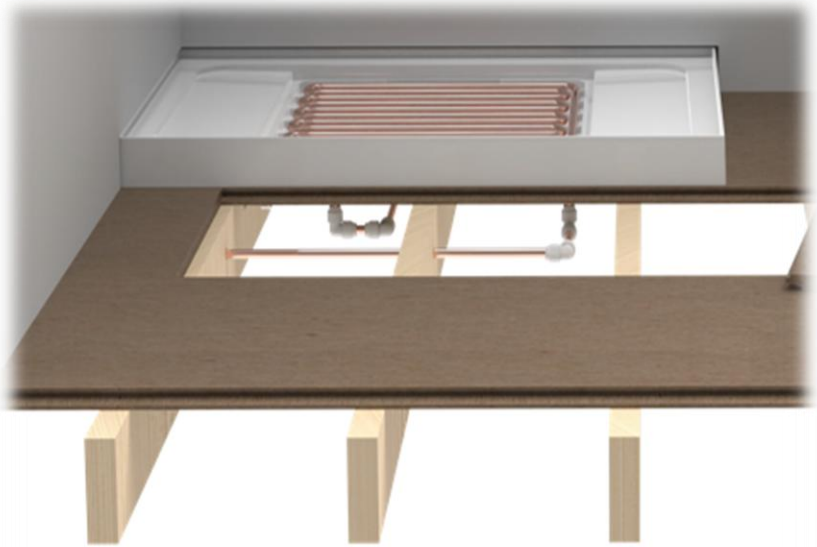
- Simple to install
- Adaptable installation options



RECOUP PIPE HEX ACTIVE

SAVES up to 60% of the energy per shower use

WASTE WATER HEAT RECOVERY FOR SHOWERS

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- Active pumped WWHRS pipe, located on the same floor as the shower

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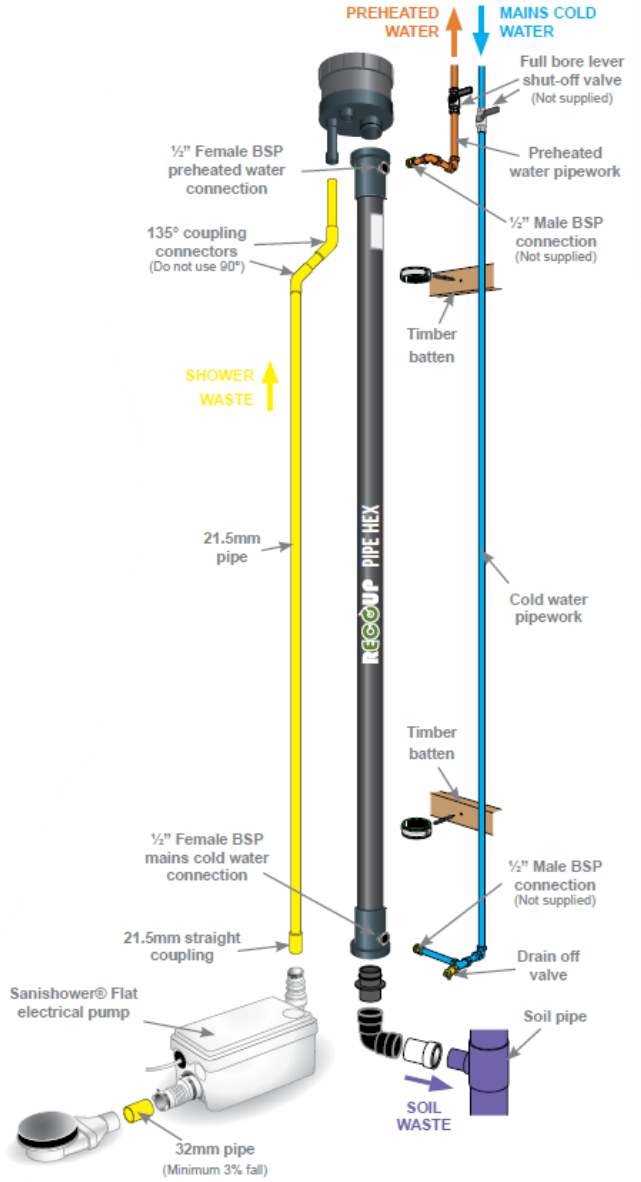
- Low power consumption mains-powered staged pump
- All the benefits and high efficiency of the passive Pipe HEX vertical WWHRS



RECOUP PIPE HEX ACTIVE

- Active pumped WWHRS pipe, located on the same floor as the shower
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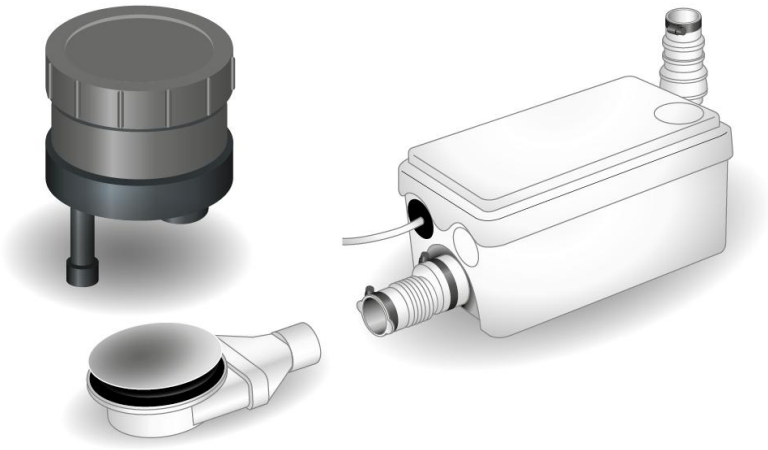

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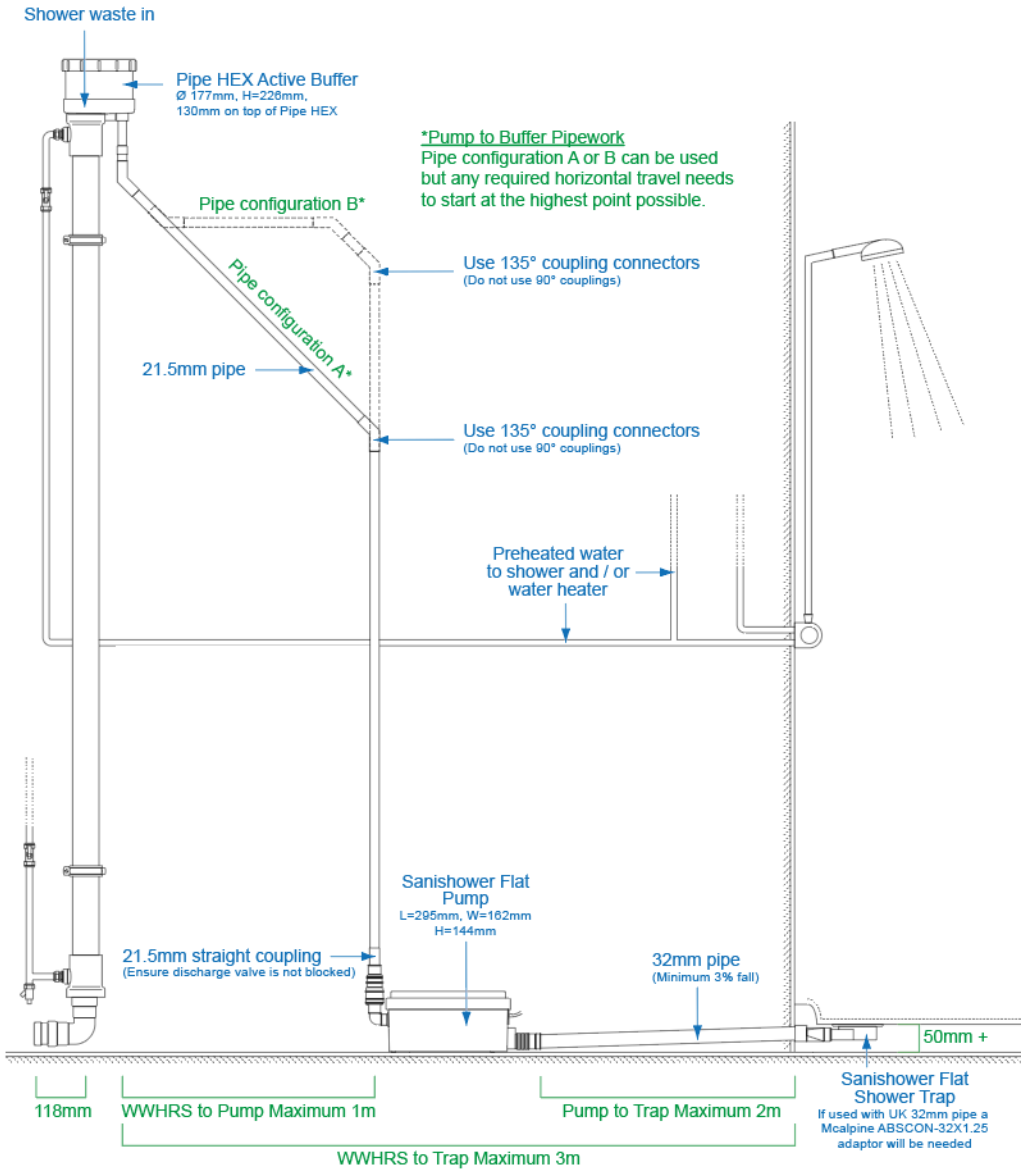
- Flexible application, ideal for showers in apartments, modular builds, or flatted developments with contained services



MIRA HEATLOOP™

WASTE WATER HEAT RECOVERY FOR SHOWERS

MIRA HEATLOOP™

- First-to-market Thermostatic Electric Shower optimised to work with WWHRS

Mira Advance Heatloop™

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- Can save 30-40% of electricity vs existing 8.7kW shower (50-60% vs equiv. 12kW)

Estimated Annual Savings

Advance Heatloop	% Energy saving	Estimated energy saving
+ Recoup Easyfit	29%	£94.27
+ Recoup Pipe HEX	40%	£135.24

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* Details TCB Q3 2025

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- Future EPC/SAP points*
- Aspirational electric shower design

Mira Vista Heatloop™ Dual Outlet

* Details TCB Q3 2025

MIRA HEATLOOP™

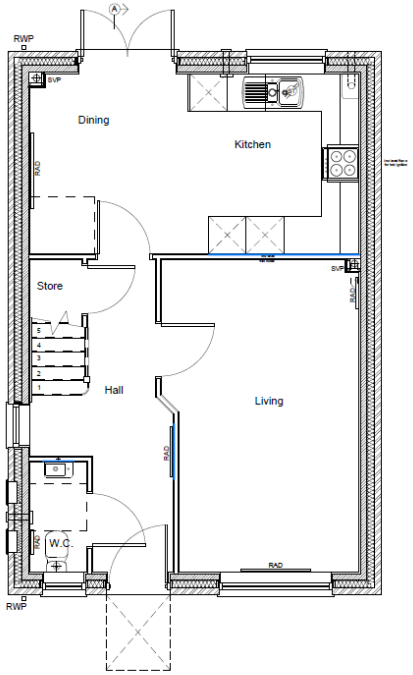
General Purpose Housing	New Build Market	
Mira Advance Heatloop™	**Mira Vista Heatloop™**	**Mira Vista Heatloop™ Dual Outlet**
8.7kW -1.1785.006	8.7kW – 35791W-WH 8.7kW – 35791W-BL	8.7kW -35792W-WH 8.7kW – 35792W-BL

HEATLOOP

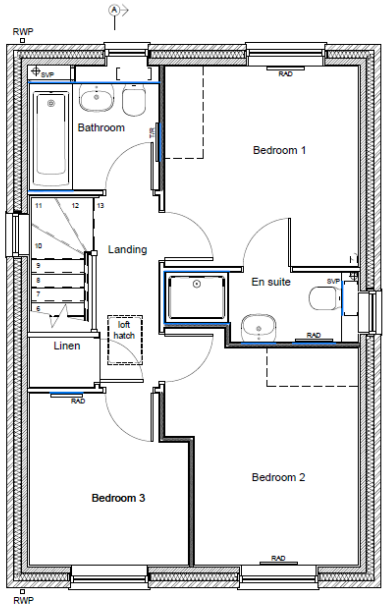
A WAY TO OFFER SHOWER UPGRADES WITHOUT COMPROMISING COMPLIANCE

WASTE WATER HEAT RECOVERY FOR SHOWERS

MIRA HEATLOOP & RECOUP WWHRS SAP IMPACT



GROUND FLOOR PLAN



FIRST FLOOR PLAN

Test case	Dwelling Type	Scenario	Scenario description	SAP Rating	SAP Band	Total energy used by building (kWh)	Primary energy (kWh/m²)	Heater Ouptut (Boiler)	IES	WWHRS SAVING	Cost (£/yr)	CO_2 (kg/yr)
3	Detached	Baseline	3-bedroom Ensuite (8l/m TMV shower) + 1 Bath - no WWHRS	85	B	6750	7840	2995	0	0	427	1382
3	Detached	Improvement 1	3-bedroom Ensuite (8l/m TMV shower) + 1 Bath - with WWHRS (Pipe HEX)	86	B	6150	7162	2395	0	600	405	1256
3	Detached	Improvement 2	3-bedroom Ensuite (8 l/m TMV shower) (En-suite having Pipe HEX) + Bathroom (IES shower + bath) with Heatloop & Easyfit+	86	B	6148	7103	2140	319	395	421	1227

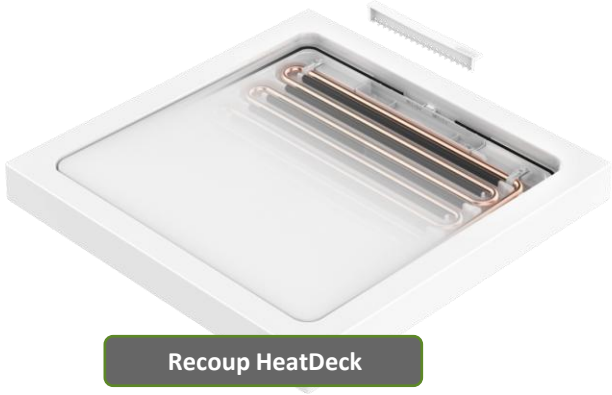
WWHRS: RETROFITTABLE FOR HOMEOWNERS AT SCALE

Mira Advance Heatloop

Mira Vista Heatloop

Any TMV Shower

Recoup Easyfit+



Recoup HeatDeck

WWHRS is now available for both TMV mixer & 'Heatloop' Electric showers
New WWHRS products are **ideal for retrofit and EPC/SHDF upgrades**

MIRA HEATLOOP & RECOUP WWHRS SAP IMPACT

Test case	Dwelling Type	Scenario	Scenario description	SAP Rating	SAP Band	Total energy used by building (kWh)	Primary energy (kWh/m²)	Heater Ouptut (Boiler)	IES	WWHRS SAVING	Cost (£/yr)	CO_2 (kg/yr)
7	Flat	Baseline	2-bedroom Single bathroom with IES	81	B	3436	4210	1672	526	0	351	663
7	Flat	Improvement 1	2-bedroom Single bathroom with IES + Healoop (easyfit+)	85	B	3279	3738	1672	526	157	291	620

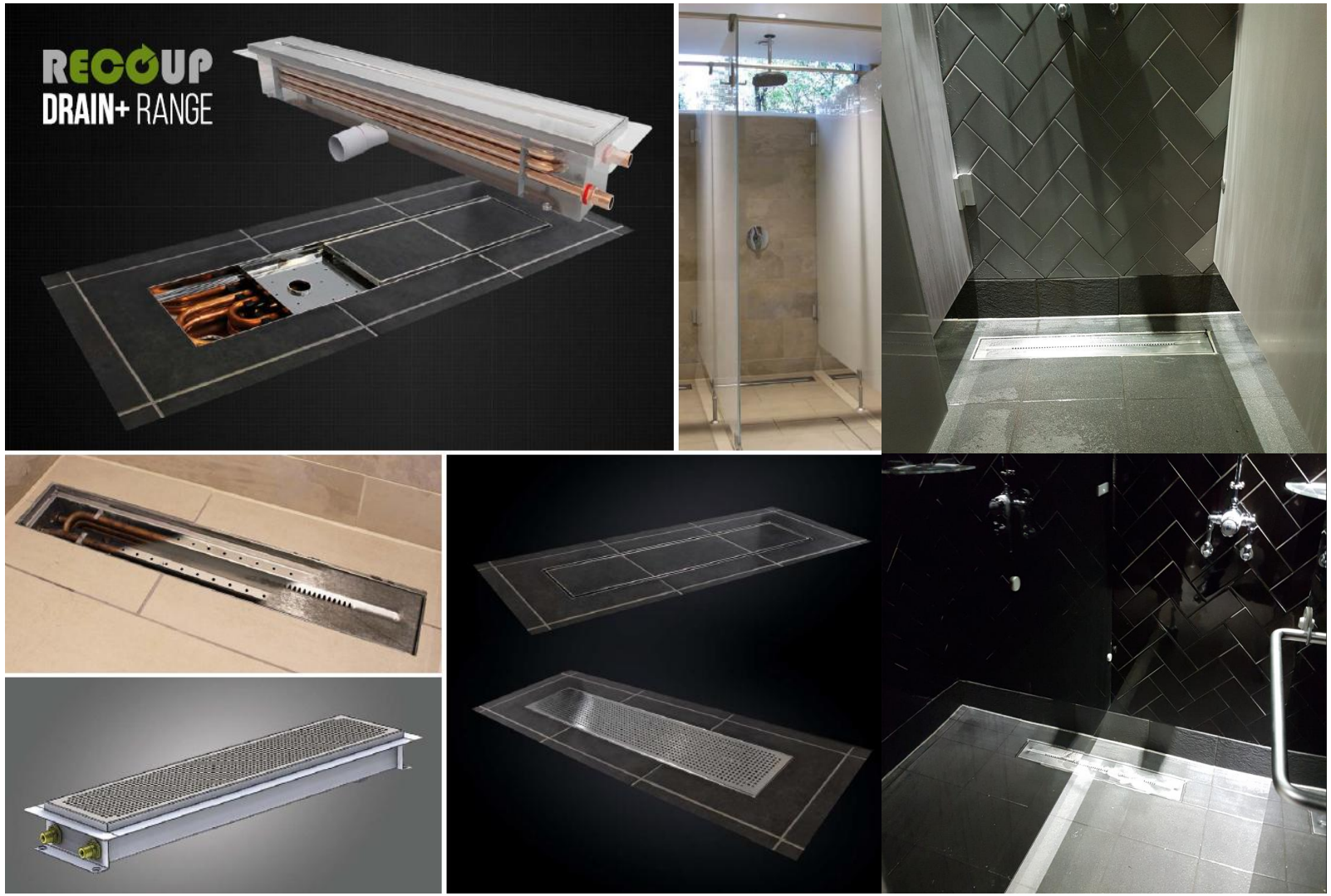
WWHRS: RETROFITTABLE FOR HOMEOWNERS AT SCALE

Mira Advance Heatloop™ & Recoup Easyfit+

- Simple, non-disruptive retrofit
- 30-40% annualised energy savings
- Consistent shower flow rate (5-6l/min)
- EPC / SAP points*

* Details TCB Q3 2025

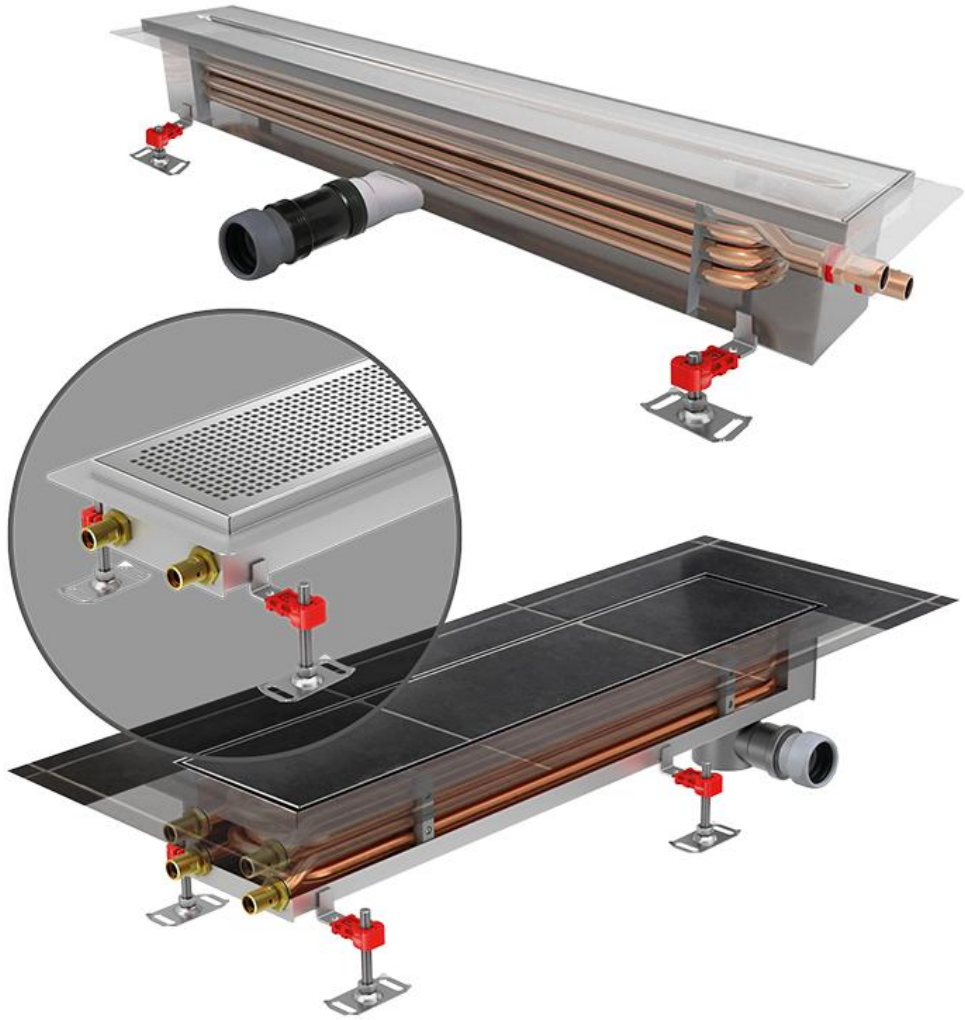
RECOUP DRAIN+ RANGE



WASTE WATER HEAT RECOVERY FOR SHOWERS

RECOUP DRAIN+ RANGE

- Wetroom drains with integrated WWHRS
- Efficiency range up to 57%



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- New build residential & commercial/leisure

RECOUP DRAIN+ RANGE

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- Efficiency range up to 57%
- New build residential & commercial/leisure
- Excellent savings with high traffic areas, Common 2-6 years ROI – gym/sports facility

GYM BOX EXAMPLE

Assumptions (from Customer):

23.82 shower uses per day

5.5l/min

5.25mins per shower

Savings predictions (2016):

£11,010.75 per annum saved

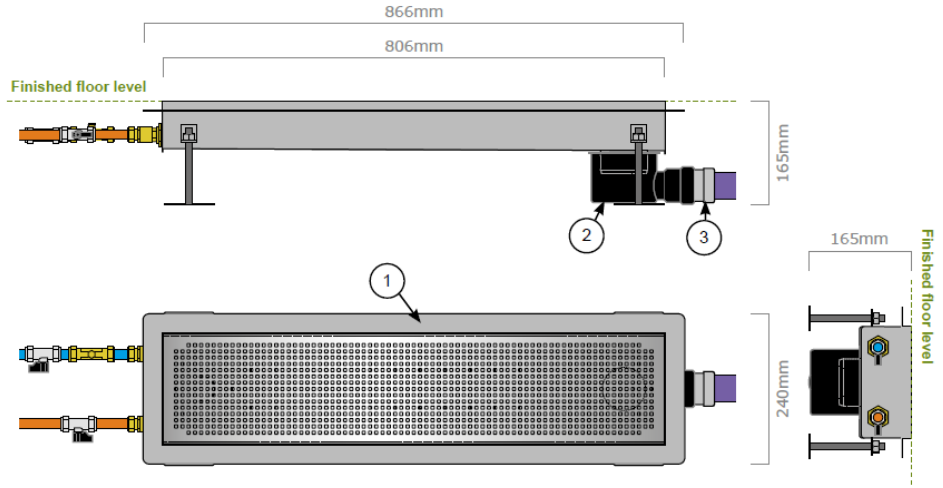
ROI of 1.1 years

43,000 KG CO_2 per annum saved

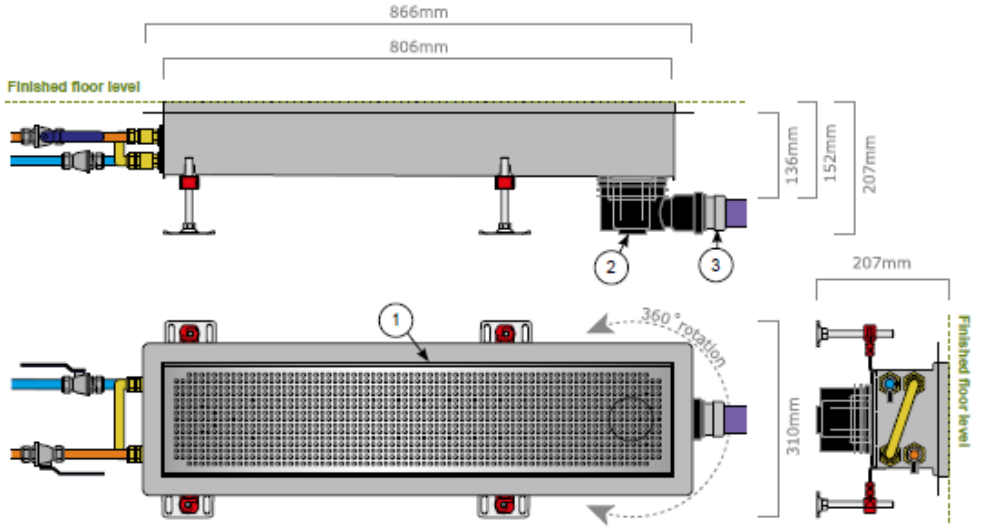
Load reduction

RECOUP DRAIN+ RANGE

RECOUP DRAIN+ DUO



RECOUP DRAIN+ DUO HE



RECOUP DRAIN+ DUO HE

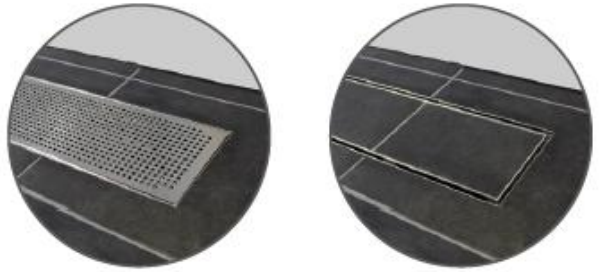
PERFORMANCE & EFFICIENCY

SHOWER FLOW RATE @ 40°C (LITRES/MIN)	DRAIN+ DUO HE EFFICIENCY (RECOVERED ENERGY KW)*		
	SYSTEM A	SYSTEM B	SYSTEM C
5.8	57.4% (6.04)		
9.2	57.3% (9.56)		
11.0	56.7% (11.31)	44.9% (8.96)	49.2% (9.82)
12.5	56.4% (12.79)		

* Based on KIWA test data and PCDB figures for SAP 2012

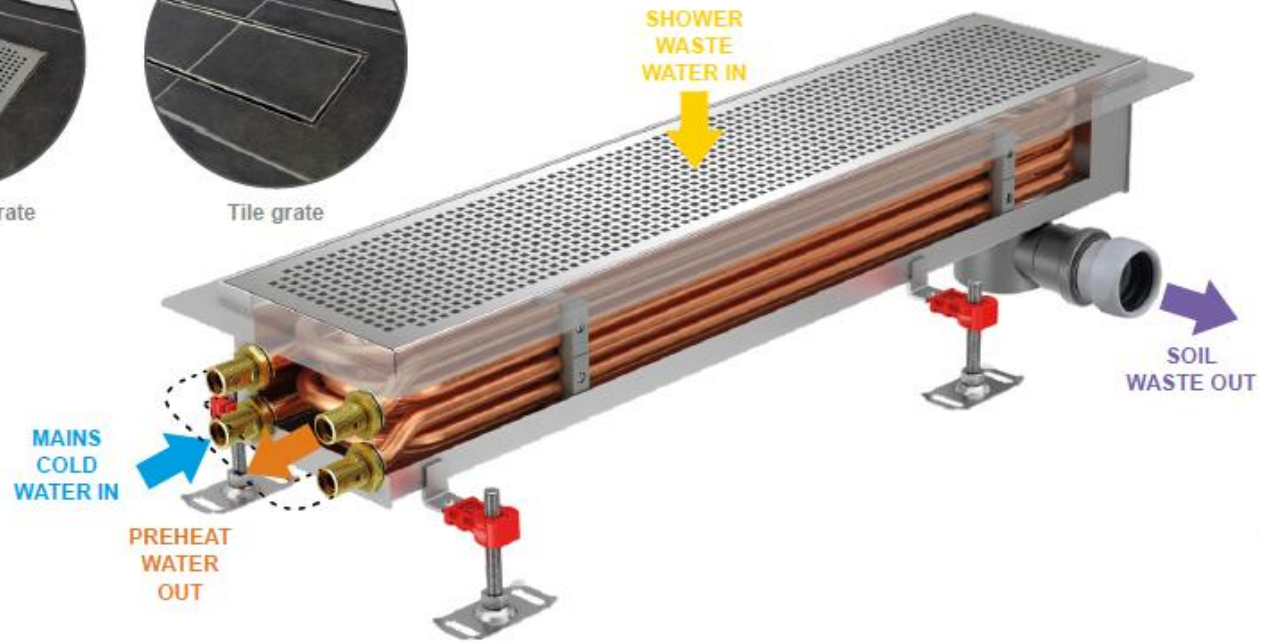
PRESSURE DROP ON THE MAIN WATER CIRCUIT

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



Quadratto grate

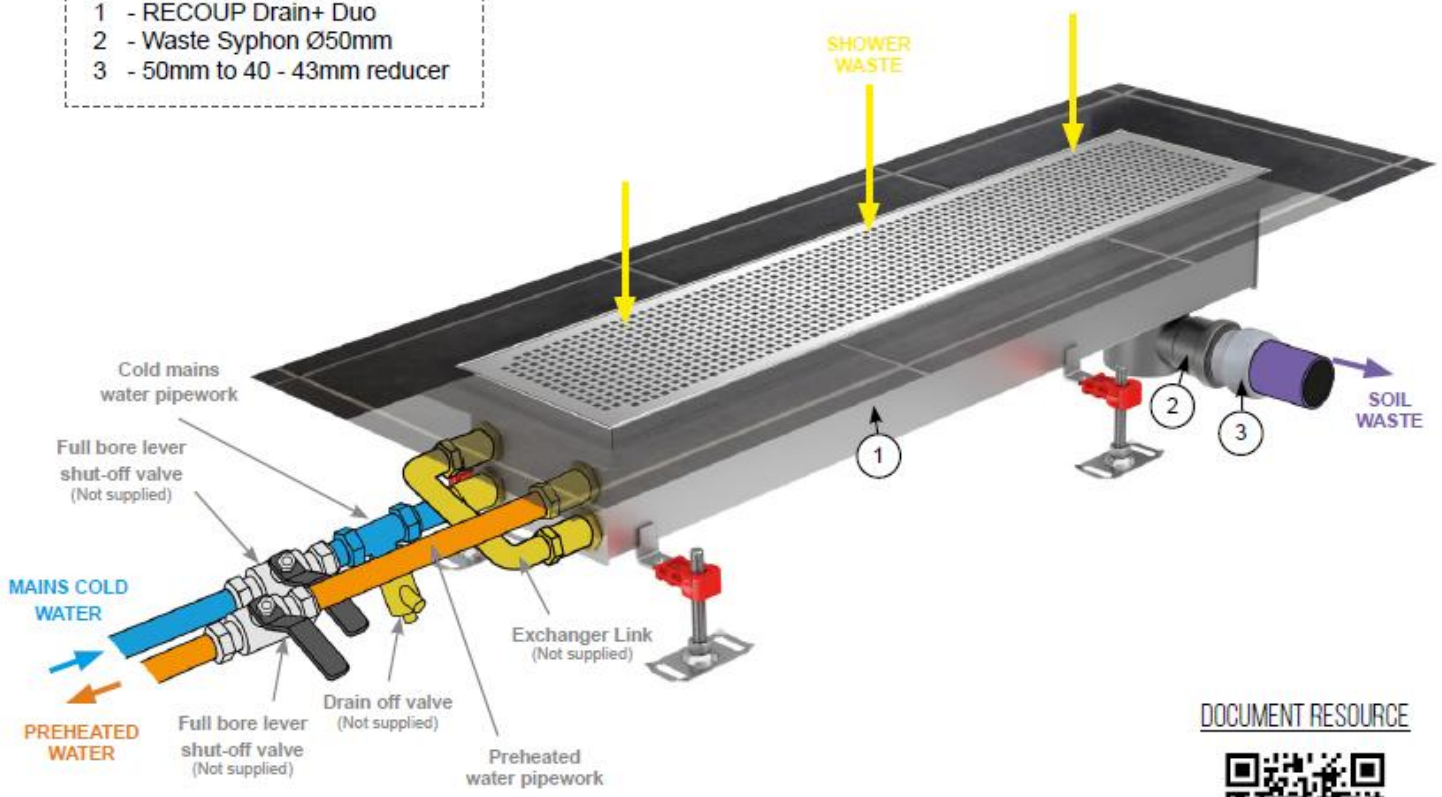
Tile grate



RECOUP DRAIN+ DUO HE

COMPONENT KEY

1 - RECOUP Drain+ Duo
2 - Waste Syphon Ø50mm
3 - 50mm to 40 - 43mm reducer

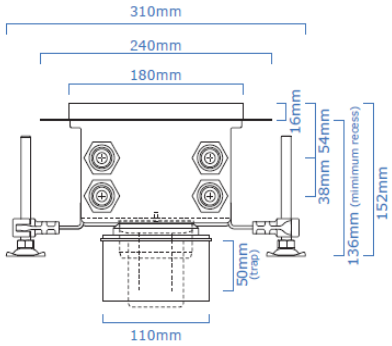


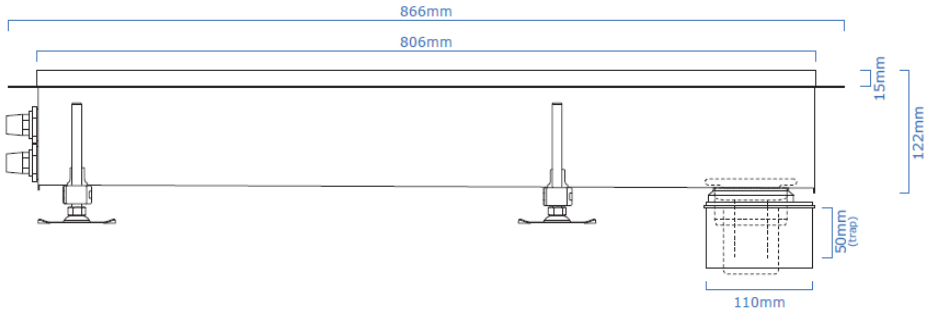
DOCUMENT RESOURCE

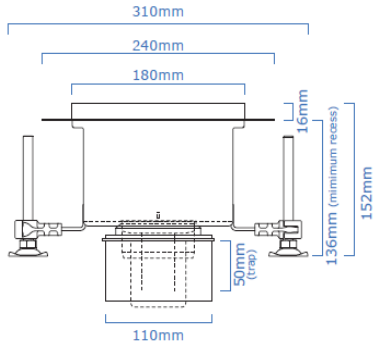
Click or scan to download our document resource

WASTE WATER HEAT RECOVERY FOR SHOWERS

RECOUP DRAIN+ DUO HE



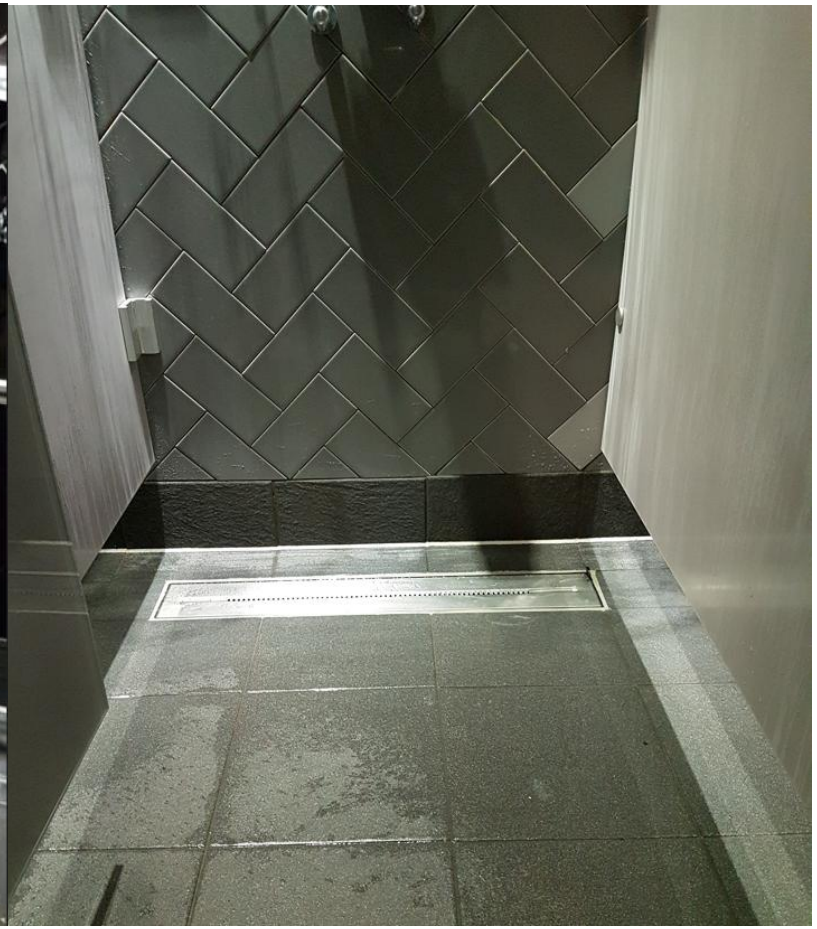




WASTE WATER HEAT RECOVERY FOR SHOWERS

RECOUP DRAIN+ RANGE

RECOUP DRAIN+ INSTALLATION AT GYMBOX FARRINGDON



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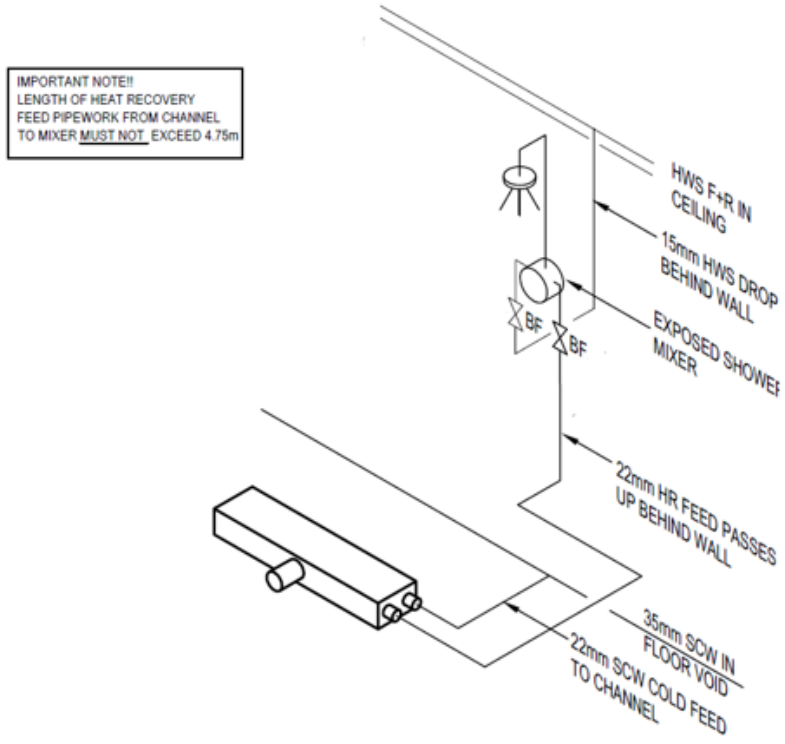
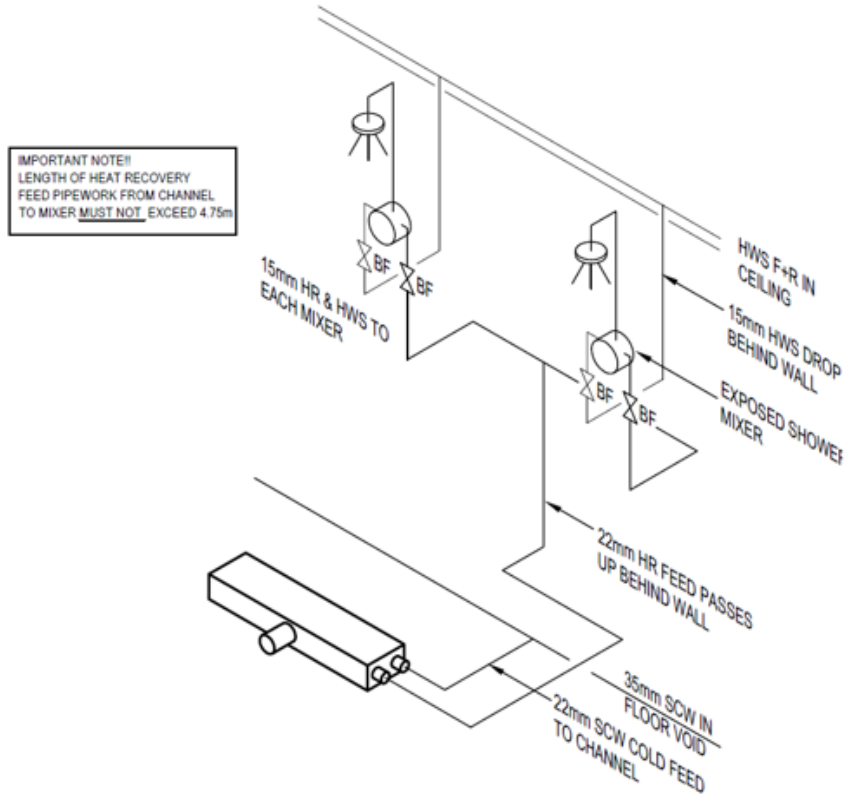


OUTLINE DETAIL FOR SWHRS CONNECTIONS TO SHOWERS



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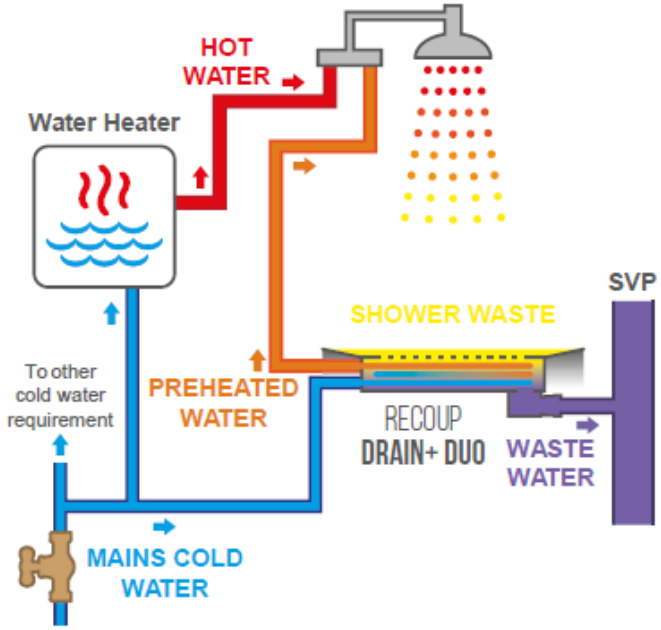

SYSTEM B

Preheated water supplied to shower mixer (cold inlet) on the shower only

The WWHRS efficiency of this installation method is not as high as System A or C but is the simplest and often the most cost-effective method to install or retrofit.

As preheated water is supplied to the cold side of the shower TMV only, there is no additional connection to the water heater. System B should be used for any secondary showers in a dwelling or where multiple showers are fed from centralised plant.

WWHRS: WHERE TO BUY

MERCHANT PRODUCT CODES

PTS / CITY PLUMBING

Find a PTS / City Plumbing branch here

Product	Code	Description
Recoup Pipe HEX	475633	Pack code for 2.1m vertical WWHRS pipe (475630) & installation pack (475638)
Recoup WWHRS Easyfit+	241111	Horizontal under bath WWHRS

WOLSELEY

Find a Wolseley branch here

Product	Code	Description
Recoup Pipe HEX	D04046	Pack code for 2.1m vertical WWHRS pipe (D03670) & installation pack (D03871)
Recoup Easyfit+	D00997	Horizontal under bath WWHRS

TRAVIS PERKINS

Find a Travis Perkins branch here

Product	Code	Description
Recoup Pipe HEX	207122 & 207123	2.1m vertical WWHRS pipe (207122) & installation pack (207123)
Recoup Easyfit+	207119	Horizontal under bath WWHRS

UKPS / GRAHAM PLUMBERS' MERCHANT

Find a UKPS branch here

Product	Code	Description
Recoup Pipe HEX	RHEX1PA2 or RP11.0010	Pack code for 2.1m vertical WWHRS pipe & installation pack
Recoup Easyfit+	R-EZ-01 or RP11.0020	Horizontal under bath WWHRS

JAMES HARGREAVES

Find a James Hargreaves branch here

Product	Code	Description
Recoup Pipe HEX	R-HEX-01	Pack code for 2.1m vertical WWHRS pipe & installation pack
Recoup Easyfit+	R-EZ-01	Horizontal under bath WWHRS

JEWSONS

Find a Jewsons branch here

Product	Code	Description
Recoup Pipe HEX	RHEX1PA2	Pack code for 2.1m vertical WWHRS pipe & installation pack
Recoup Easyfit+	RECREZ01	Horizontal under bath WWHRS

RECOUP.CO.UK

THANK YOU!

QUESTIONS?