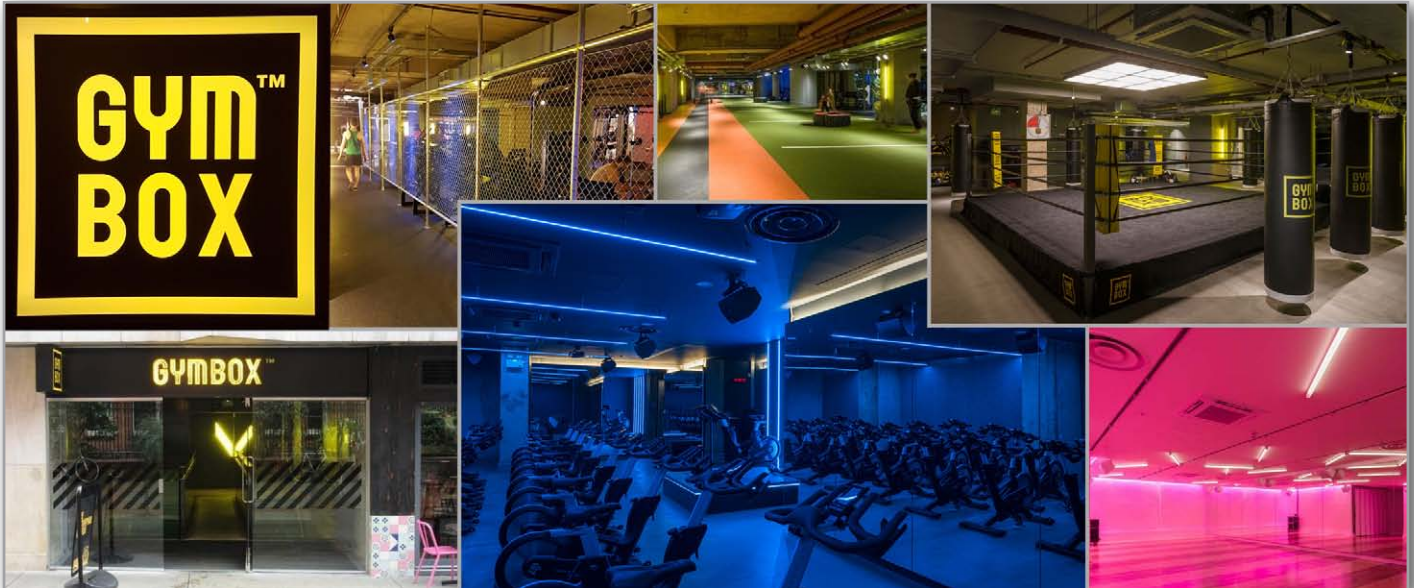


RECOUP DRAIN+ INSTALLATION AT GYMBOX FARRINGDON, PAID FOR ITSELF & NOW REDUCING FACILITY COSTS



Gymbox Farringdon London

Nineteen Recoup Drain+ waste water heat recovery (WWHRS) units installed at Gymbox Farringdon have recouped enough energy and reduced costs so that they have effectively paid for themselves. The saving continues and the facility benefits from significantly reduced operational costs due to the incorporation of the waste water heat recovery systems.

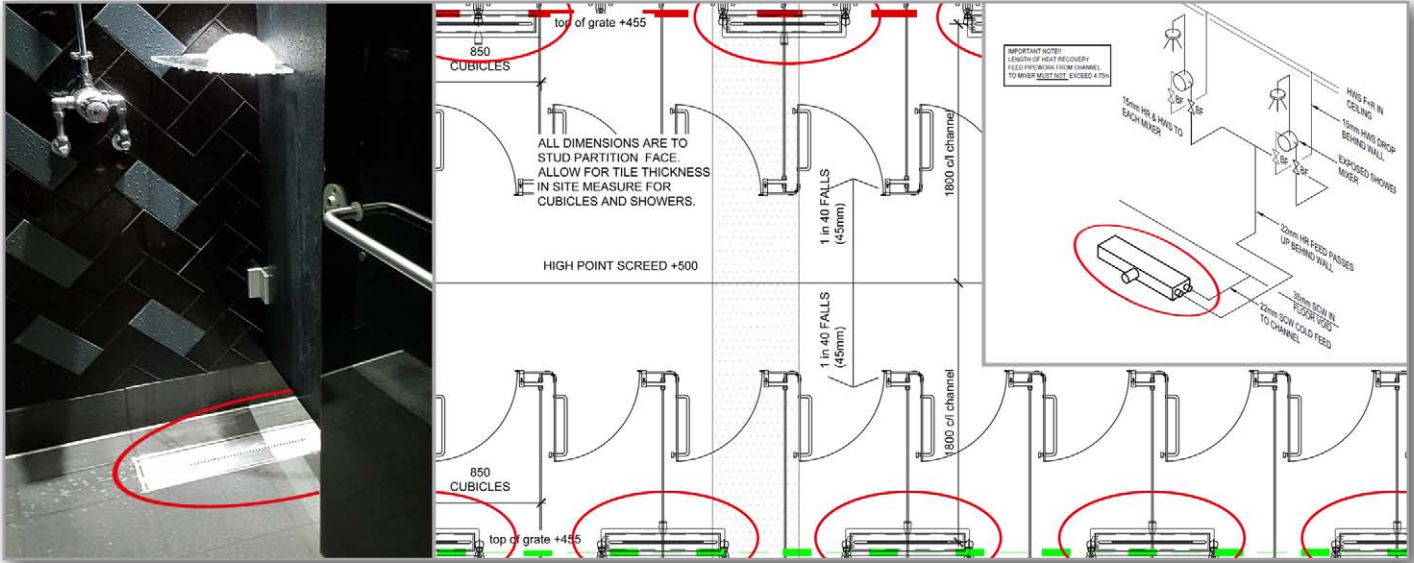
Gymbox in Farringdon London opened in 2016, it is a gym with a big difference, designed to stand out from others. Not only do they have the industrial style and less-conventional gym feel that is associated with the Gymbox brand, they also provide all their members and visitors with a highly efficient and energy saving shower. Using the Recoup WWHRS Drain+ waste water heat recovery system every shower recovers waste water heat energy to preheat incoming cold water and reduce the heating requirement for the buildings water heater, saving energy.

As the showering facilities in the Gymbox building are in the basement, from the beginning of the project the plans required some outside of the box thinking. Woodward & Co (Environmental) Ltd specialise in the design & installation of building services predominately within the retail & leisure sectors. They embrace new changes to HVAC principles and practices including associated plant and equipment to ensure they remain at the forefront of the industry and keep up to date with legislation changes. This ethos and approach brought Recoup Energy Solutions and the range of innovative waste water heat recovery systems to their attention.



Gymbox changing room and shower facilities

CASE STUDY: RECOUP DRAIN+ INSTALLATION, PAID FOR ITSELF & NOW REDUCING COSTS



Support from plan through to installation of the Recoup WWHRS Drain+ at Gymbox Farringdon servicing two showers per unit

The project planners with Woodward's directing the M&E for the building wanted to ensure that an energy efficient and sustainable approach was taken for the buildings services. Woodward's worked with the Recoup WWHRS team to implement the waste water heat recovery systems in a way that maximised recovery for the number of showers being incorporated. Also using an appropriate number of units for the facility and the investment required.

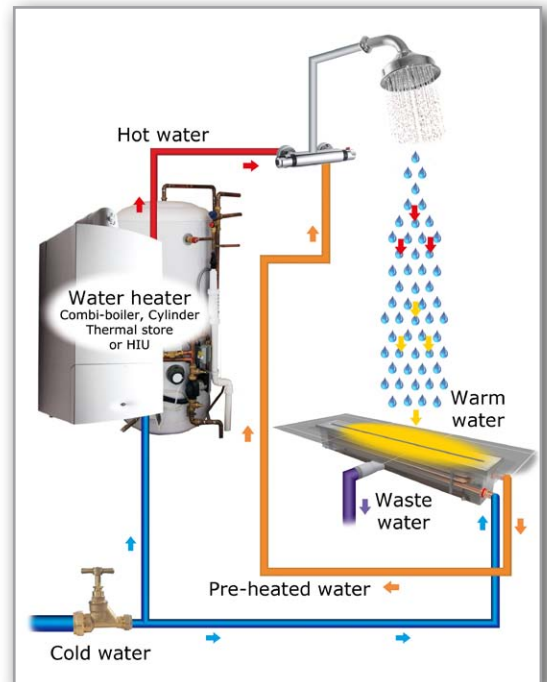
The Recoup Drain+ was selected as it provides a solution that is easily incorporated into the wet room shower areas with flush integration to floor levels. Heat carrying waste water from the shower runs into the slot of the stainless-steel drain cover and over copper exchangers transferring the heat to incoming mains cold water. The energy transfer creates pre-heated water which can then be fed back to the shower and/or the water heater for the building.



Recoup WWHRS Drain+ installed at Gymbox

The Drain+ is a horizontal waste water heat recovery system that achieves impressive efficiencies of up to 50% and recovering more than 12.5 kWh of energy depending upon flow rate and installation method. It has a patented heat exchanger and incorporates a built-in water trap that is easily accessible for cleaning.

Across the male and female changing facilities a total of nineteen Recoup Drain+ systems have been installed servicing a total of thirty-nine shower cubicles with two showers per unit each. The Drain+ units at Gymbox Farringdon are all installed using the System B installation method. The pre-heated water produced by the waste water heat recovery system is sent back to the mains cold water side of each thermostatic mixer for the two showers supplying the unit. As the temperature of the pre-heated water increases during the use of the shower the amount of hot water required to keep a constant temperature reduces. This in turn decreases the demand of hot water from the water heater and therefore the energy that would have been used to create it.



System B installation method

CASE STUDY: RECOUP DRAIN+ INSTALLATION, PAID FOR ITSELF & NOW REDUCING COSTS

Based on usage data provided to Recoup Energy Solutions prior to installation the average shower usage would be 23.82 time every day, with 5.5 litre/min of water from each shower running for a duration of 5.25minutes per shower. These figures were put into the Recoup savings calculator combined with the Drain+ efficiency values. The calculations showed saving predictions of £11,010.75 per annum meaning the investment into all Recoup Drain+ units installed would be returned within 1.1 years. In addition, this energy reduction in turn reduces CO2 production by 43,000Kg per annum and along with reduced load on the facilities water heaters installed.

Duration (Minutes)	Flow rate (L/Min)	Total Water used	Total Energy (kWh)	Recoverable Energy (kWh)	Number of Shower Recovery Units Installed	19	
5.25	11	57.75	2.082	1.813	Cost per Shower Recovery Unit	£ 625.00	
Number of Showers						Recoup Unit Type	Drain
No. of Cubicles	39	Total Showers Per Day		928.98	Installation Method	B	
Occupancy Rate (%)	100	Total Showers Per Year		339077.7	Efficiency of unit	38.6%	
No. of Showers per Cubicle (per day)	23.82				Shower temperature	41	
		Total Energy consumed (kWh)	Recoverable Energy (kWh)			Incoming Mains Cold Water Temp.	10
Per Day	1933.8	1684.3					
Per Year	705845.5	614768.6					
Average Cost Per Year							
Fuel	Price per kWh*	Cost without WWHRS	Average Cost Per Year with Heat recovery	Saving	ROI (Years)		
Natural Gas	£0.0464	£32,839.15	£21,828.40	£11,010.75	1.1		
Oil	£0.0600	£42,350.73	£28,112.69	£14,238.04	0.8		
LPG	£0.0800	£56,467.64	£37,483.58	£18,984.06	0.6		
Electric	£0.1400	£98,888.34	£65,666.24	£33,222.10	0.4		
Fuel	kgCO2 per kWh*	kgCO2 per year (No WWHRS)	kgCO2 per year (With WWHRS)	kgCO2 Saving per year			
Natural Gas	0.1850	130581.41	86680.78	43900.63			
Oil	0.2460	173637.99	115262.02	58375.97			
LPG	0.2140	151050.93	100268.58	50782.35			
Electric	0.4900	345864.28	229586.94	116277.34			

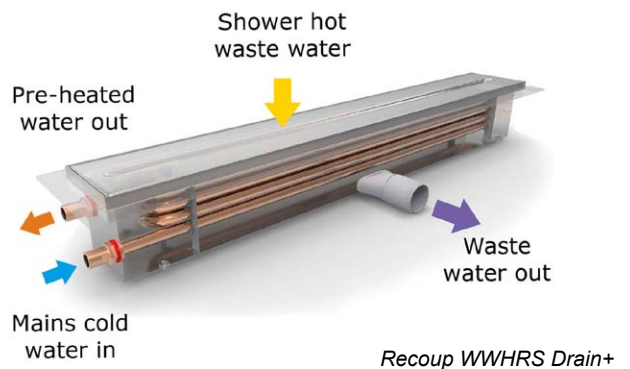
Recoup WWHRS - Energy Savings Calculation for Drain+ units

Now over eighteen months after Gymbox Farringdon has opened the facility will be spending over £11k less per year on their operational costs. As the Recoup Drain+ units require minimal maintenance, no more than any other shower, the savings will continue year upon year.

All calculations and figures used were correct at the time of calculation using values taken from the Energy Saving Trust Website - <http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Our-calculations>. Content also used from Gymbox and Woodward & Co websites. For more information on Gymbox (www.gymbox.com), or Woodward & Co (Environmental) Ltd (www.woodward.uk.com) visit their websites.

For more information on Recoup Energy Solutions and the Drain+ visit www.recoupwwhrs.co.uk or contact us on info@recoupwwhrs.co.uk or 01379 844010.

"The installation of the Recoup Drain+ into a facility like Gymbox goes to show how quickly and effectively the inclusion of waste water heat recovery can make a massive difference to a facilities operational costs"
Ellis Maginn, Recoup Energy Solutions Ltd



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