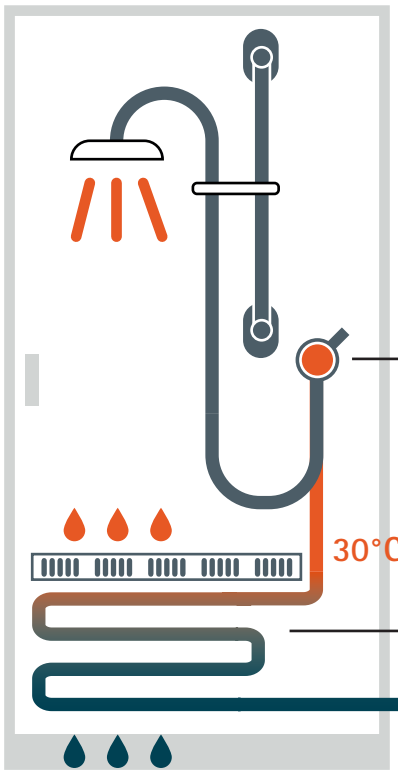
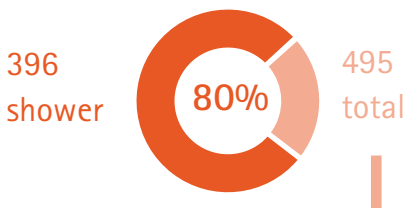
Waste Water Heat Recovery (WWHR) systems

Low hanging fruit for energy efficiency and decarbonisation of buildings

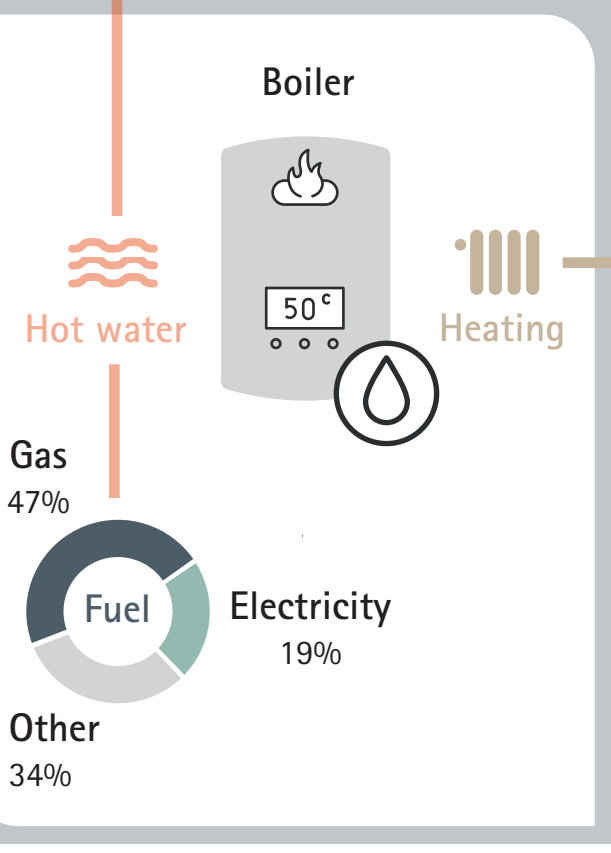


Working principle
Shower water

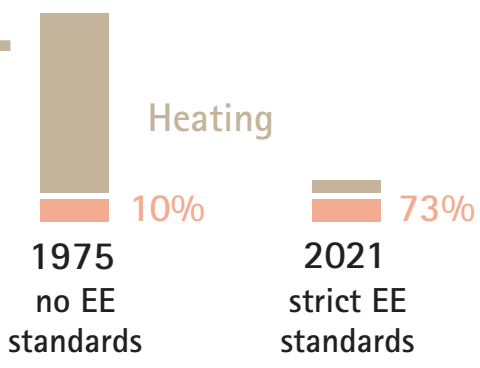
Energy demand for domestic hot water preparation in the EU (TWh/y)



A heat exchanger transfers heat from the waste hot shower water to the incoming fresh water supply, warming it up from around 10°C to 30°C.



Share of energy demand for hot water in highly energy efficient buildings



Most energy efficiency efforts focus on space heating and the energy needed for residential water heating is proportionally soaring.

Energy and CO_2 emission savings potential for shower water

Household level with WWHR / savings

EU level with WWHR / savings

	Energy demand	CO_2 emission Gas	CO_2 emission Electricity
Household level with WWHR / savings	2,260 (kWh/y) 1,430 / 830	414 (kg/y) 262 / 152	770 (kg/y) 486 / 284
EU level with WWHR / savings	265 (TWh/y) 167 / 98	35 (mt/y) 22 / 13	25 (mt/y) 16 / 9

Assuming average efficiency of WWHR systems, 98 TWh of energy could be avoided annually in the EU. Assuming electricity and gas as energy sources, it represents 22 million tonnes CO_2 emissions.

37% savings

Energy demand for shower water
51 (TWh/y)

with WWHR
33

savings
18

Renovation Wave 2030

44 700 000 renovated and new households

50% with WWHR: 22 350 000

WWHR systems could make a significant contribution to the 2030 Renovation Wave targets by contributing around 3 percent (18 TWh/y) towards the final energy savings target.

3% contribution

THE ISSUE: heat recovery is not systematically considered into NZEB and EPC calculations

OUR PROPOSAL: amend EPBD Annex 1 to include heat recovery into calculation methods

Further information: ROLE OF WASTE WATER HEAT RECOVERY IN DECARBONISING EUROPEAN BUILDINGS
White Paper, ECI, November 2020

Cu European Copper Institute
Copper Alliance

Copper is a key element for decarbonisation of the building stock due to its inherent properties, particularly its excellent electrical and **thermal conductivity**, making it the material of choice for low carbon, efficient and smart building technologies.