STREBEL
WATER & ENERGY SYSTEMS

EcoFlow^3

Highly efficient greywater recovery

HEAT RECOVERY & MULTIPLE REUSE IN BUILDINGS

Sustainable solutions for modern buildings – conserving resources, reducing operating costs, securing the future.

USE INSTEAD OF WASTE.

- Conserve resources.
- Reduce operating costs.
- Increase property value in the long term.

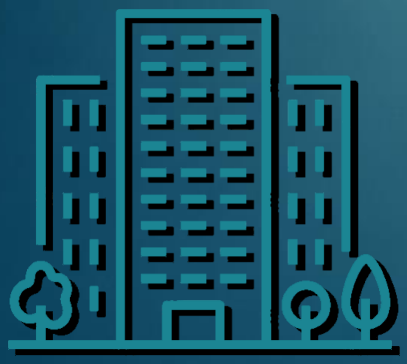
Abstract

STREBEL EcoFlow³

Water and Heat Recovery in Residential Buildings

A multi-storey residential building has a waste heat potential equivalent to approximately 10,000 hot bathtubs per year (42,000 kWh), which would normally be discharged unused into the sewer system in the form of 1,800,000 liters of greywater (see table). Both this valuable thermal energy and the water resource itself are recovered through our EcoFlow³ recovery systems. The recovered energy is used to heat domestic hot water, while the recycled water replaces drinking water wherever appropriate (toilet flushing, irrigation). This reduces operating costs for tenants, increases the attractiveness of the property, and helps secure the long-term value of the building. STREBEL combines state-of-the-art building technology with climate protection and residential comfort in a low-maintenance concept that operates discreetly in the basement.

Every residential building can be a power plant.



Let's use it wisely!

EcoFlow³ triple benefit

1) **Reduced energy consumption for domestic hot water preparation (30-50%)**
2) **Reduction in fresh water consumption and associated charges (25-50%)**
3) **Continuous water source for irrigation and partial building cooling**

Potential Calculation (Residential building with 100 occupants)

Recoverable Water Volume	1,800,000 L/year	• Average payback period: 5–10 years • Maintenance and monitoring included
Recoverable Heat Energy	42,000 kWh_{th}/year	
Recoverable Cooling Energy	4,000 kWh_{el} (3 months; EER=3)	

Calculation Basis 2026 (Vienna): Electricity: €0.30/kWh; Fresh Water: €1.818/m³; Wastewater: €1.998/m³; District Heating: €0.15/kWh

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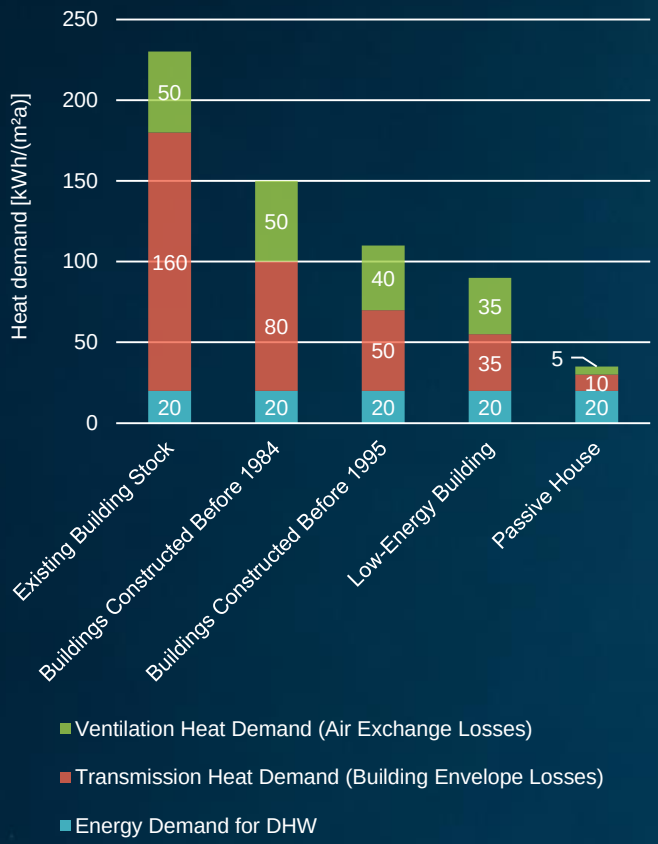
The Last Major Energy Leak

Efficient Wastewater Utilization Is Becoming Essential

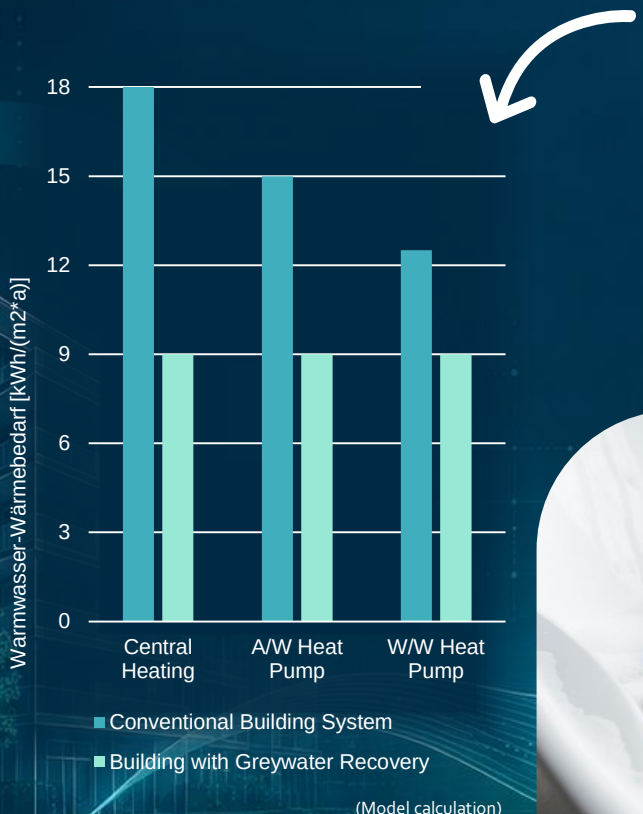


The Last Major Energy Leak in Modern Residential Construction

Technical measures to reduce the heating demand of buildings have advanced significantly. However, one major factor has long been overlooked: the energy required for domestic hot water (DHW). In modern buildings, hot water preparation consumes nearly as much energy as space heating itself. Recovering this valuable energy before it is lost is the next logical step toward efficient and future-oriented residential construction.

Our Goals:

- 50% energy consumption for domestic hot water
- 50% water consumption

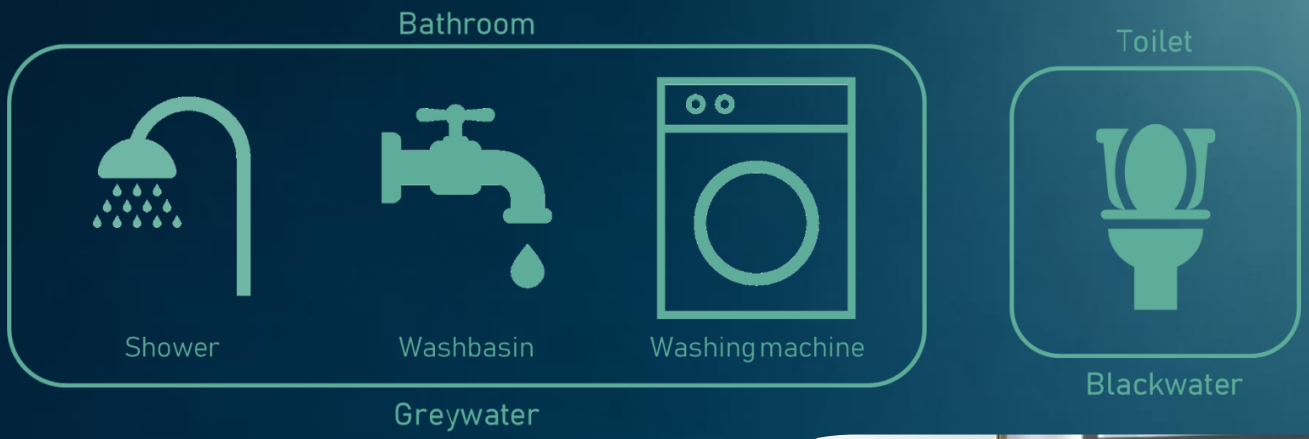


Together, we reduce operating costs and make housing more sustainable.

This keeps your property attractive, future-proof, and environmentally responsible through innovative greywater management.

Wastewater Becomes a Resource

Heat, Water, and Added Value — All from One System



Greywater is domestic wastewater excluding toilet discharge, meaning wastewater free of fecal contamination. Experience shows that approximately 50–60 liters are generated per person per day, corresponding to roughly 50% of total freshwater consumption.

At the treatment point (typically in the basement level), greywater usually has a temperature of around 30°C. Due to both its temperature and volume, greywater offers significant potential for heat recovery instead of being discharged unused into the sewer system. This contributes to efficient energy use, reduced operating costs, and a circular economy approach.

Both material and thermal recovery are technically proven and highly reliable. From an economic perspective, the solution becomes particularly viable for buildings with 60 residents or more. An example project using our proven technology can be found in the "Reference Projects" section.

Potential Calculation (Residential building with 100 occupants)

Recoverable Water Volume	1,800,000 L/year	6,900 €/ year
Recoverable Heat Energy	42,000 kWh_{th}/ year	Variable, depending on energy source: 6,300€/ year
Recoverable Cooling Energy	4,000 kWh_{el} (3 months; EER=3)	2,250 €/ year

Calculation Basis 2026 (Vienna): Electricity: €0.30/kWh; Fresh Water: €1.818/m³; Wastewater: €1.998/m³; District Heating: €0.15/kWh

The Triple Benefit of EcoFlow³

Conserving Resources. Reducing Operating Costs.

Water Saving

Savings:
25-50% Water Consumption
25-50% Water Costs

Treated greywater ("green water") can be reused as hygienically safe service water for toilet flushing and irrigation. Toilet flushing accounts for ~25% of total water savings, and depending on how much of the remaining treated greywater is used for other purposes, total savings can reach up to 50%.

Heat Recovery

Savings:
30-50% DHW energy

The treated water leaves the recovery system at approximately 30°C and can be heated to 60°C using efficient heat exchangers and a water-to-water heat pump. This reduces heating energy demand by up to 50% compared to combustion-based systems and by approximately 30% and 40% compared to water-to-water and air-to-water heat pumps respectively.

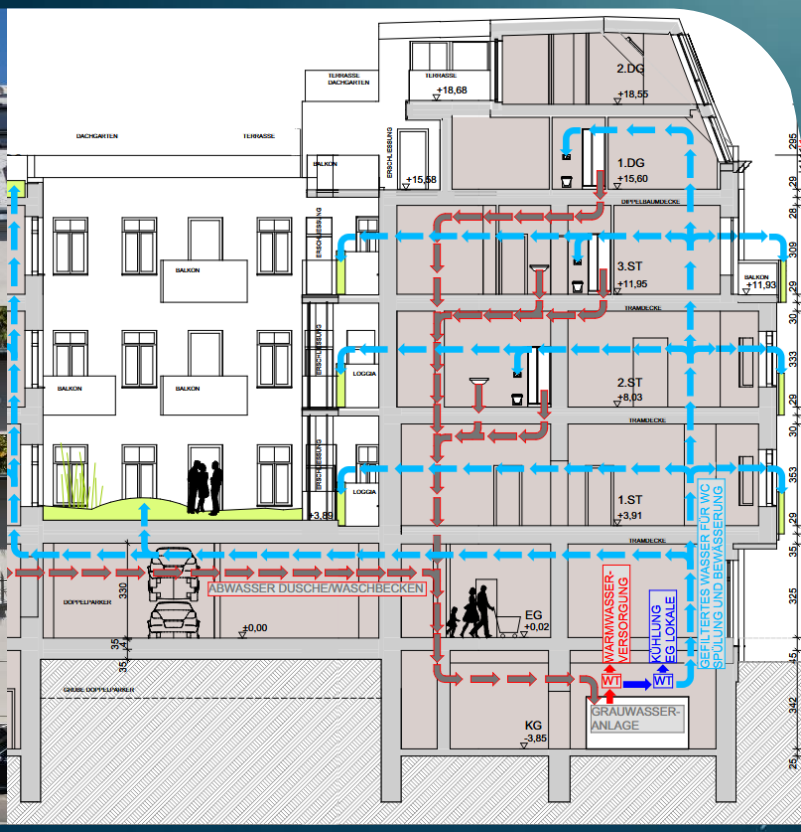
Cooling

Savings:
20% Cooling Energy

An additional benefit of greywater recovery is the provision of a cold water stream at approximately 8°C via the heat pump system. Assuming a cooling load of 10 W/m², around 20% of the residential floor area can be cooled. Possible heat transfer systems include fan coils, underfloor heating systems operated in cooling mode, or chilled ceilings.

Reference Project in Operation

Kauergasse 2, 1150 Vienna – 31 Residential Units



The Gründerzeit building at Kauergasse exemplifies how historic building structures can be upgraded to the latest standards of sustainable building technology.
Where individual gas boilers once operated inefficiently, a centralized energy system has been in place since May 2023, ensuring that domestic hot water is covered by up to 100% through heat recovery from greywater. The treated greywater is reused for toilet flushing as well as building greening. In addition, the cooling effect is utilized in the bakery located on the ground floor.

This project successfully demonstrates the triple benefit of EcoFlow³ technology:

The installed STREBEL greywater recovery system utilizes the residual heat and water resources from approximately 5,000 liters of greywater generated daily by 31 residential units. The recovered thermal energy is transferred to the fresh water supply.

Key Data (31 Residential Units)	
System sizing	5,000 L/day
Heat recovery	~ 40,000 kWh/y
Operating cost savings	~ 12,000€/year
Payback period	~ 10.9 years

Investment savings from eliminating conventional domestic hot water generation: ~€100,000

1) **Heat recovery and preheating of the domestic hot water system**
2) **Green water reuse for toilet flushing and building greening**
3) **Partial cooling of the ground-floor bakery**

Reliable, future-proof solutions for wastewater management

Product	Capacity (L/day)	Residents (Persons)	Footprint (Technical Room)	Price
GWV3000	3.000 L/day	60	from 18 m²	upon request
GWV5000	5.000 L/day	100	from 30 m²	upon request
GWV9000	9.000 L/day	180	from 45 m²	upon request
GWV15000	15.000 L/day	300	from 60 m²	upon request

The specifications in this sample performance specification are indicative values and may be optimized as required.

Three-Stage Greywater Recovery: Know-how that stands out

- Lower Austria Innovation Award 2023 – Category "Sustainable Innovation"
- Nomination for the Austrian State Prize for Innovation 2024 – Special Award "Econovius"
- Winner of the Energy Globe Award Austria 2024 – Category "Water"
- Nomination for the ÖGUT Environmental Award – Category "Climate-Neutral City"
- Nomination for the Austrian State Prize for Climate Change Adaptation 2026 – Category "Heat"
- **Winner of the Tilia Award 2026 (Berlin) – Category "Facade Greening"**

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