

Use of Hyclean Automation System
at Bauverein Halle & Leuna eG
(housing cooperative)

Successful
refurbishment
of the hot water
energy system

More technology, lower costs: Hycleen Automation system refurbishes energy system

With more than 7,500 apartments, Bauverein Halle & Leuna eG is one of the biggest housing cooperatives in the whole of Saxony-Anhalt, offering accommodation for diverse communities. The organization is aware of the responsibility it holds in this regard: "Proximity to our tenants is very important to us," explains Marcus Steinecke, project manager for building technology at the housing cooperative. "This also involves meeting the issue of sustainability head on. In doing so, we cut our CO₂ emissions by around 62% between 1990 and 2018. Yet we still see a huge potential in building technology." When the time came to refurbish a building in Halle (Saale), Marcus Steinecke's team seized the opportunity to launch a pilot project for a more sustainable water supply with the support of GF Piping Systems.

Successful refurbishment of the energy system

Essentially, the building in the west of Halle, built in 1976, is in very good condition - the hot water is supplied centrally via two parallel hot water tanks. In 1996, the refurbishment of a pipe section involved the installation of balancing valves to regulate the circulation pipes. Generally speaking, the building enjoys a good occupancy rate and has no hygiene problems. That said, the housing cooperative sees a need for action: Firstly, a hydraulic balancing of the water supply across the six floors is difficult to implement, and the circulation pipes are often over- or under-supplied. Secondly, every one of the 109 residential units has always had its own heat meter. This makes regulation and documentation a time-consuming and expensive business.

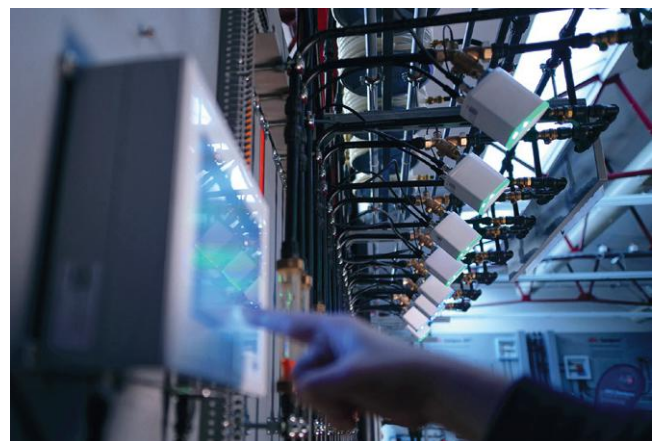
The focus of the refurbishment is the distribution of cold and hot water. First, the basement pipes and fittings are being insulated in accordance with ENEC (GEG) [German Energy Saving Regulation (German Energy Law)] just one hot water tank will be used (reduction from 1000 to 500 liters). The heart of the revamped building technology, however, is the Hycleen Automation System (Hycleen AS) from GF Piping Systems - an intelligent circulation control system for drinking water systems that the housing cooperative will commission in early 2020.

Improving technology while cutting costs – the optimum operating point of the hot water supply

With the Hycleen AS, however, the pipeline system specialist offers more than just a technical solution. The Swiss company can also draw on extensive experience to provide advice on how to optimize the water supply. Once the data obtained from the intelligent circulation control system has been analyzed, the energy consumption is successfully reduced in various areas. For example, the partners can reduce the temperature of the hot water tank from 62°C to 60°C while maintaining the same

high hygiene standards, thanks to the sound data basis. They can also decrease the output of the circulation pump and determine the optimal operating point of the hot water supply. The outcome (comparison between 2019 and 2020 "official statement"): following the refurbishment, the energy consumption for hot water decreases by 22.7% compared to the previous year. The energy system refurbishment, then, achieves a saving of just under €3,000 – despite a 163 m³ increase in hot water consumption for the year 2020. This shows that drinking water hygiene and efficient system operation can create a cohesive unit.

The Hycleen AS consists of a central control unit (master) and up to 50 electrical, networked valves, including temperature sensors. Volume flow sensors can also be integrated upon request. This allows the operation of drinking water systems to be automatically controlled, logged, evaluated and optimized on the basis of data.



The successful optimization of energy consumption in figures (Source: Bauverein Halle & Leuna eG).

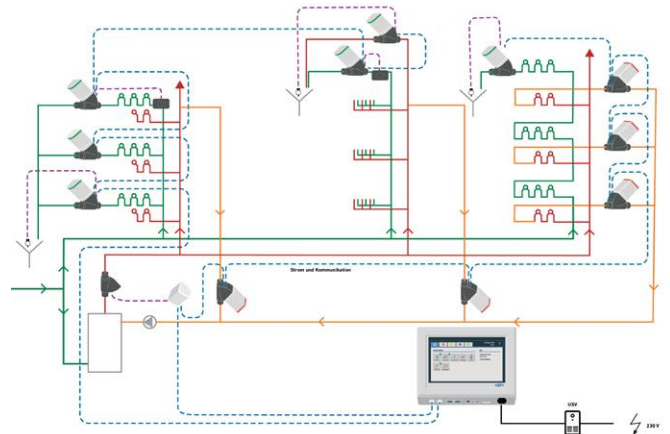
Cost of district heating 0.08 Euro / kWh (2020)

	Hot water consumption	Required heat quantity for hot water	Energy consumption for hot water cost statement	Energy consumption for hot water	Energy costs for hot water
2019	1,509 m ³	213,176 kWh	18,071 €	141 kWh/m ³	11.98 €/m ³
2020	1,673 m ³	182,726 kWh	15,234 €	109 kWh/m ³	9.11 €/m ³
Difference	164 m³	30,450 kWh	2,836 €	32 kWh/m³	2.87 €/m³
%	10.9%	-14.3%	-15.7%	-22.7%	-24.0%

For Bauverein Halle & Leuna eG, however, the refurbishment also means lower maintenance costs. With the cloud-based remote access solution "Hycleen Connect", multiple properties can be monitored, visualized and optimized from one control center. This solution also sends alerts via email and SMS, allowing problems to be solved quickly and efficiently. "We had to make just five or six visits in 2020, before the remote access solution had been set up, to verify the Hycleen Automation System data. The system takes care of the rest," says the building services project manager, summing up.



Given the complete success of the pilot project at Bauverein Halle & Leuna eG, work commenced on two further buildings in 2021. "We now want to make energy system refurbishments with the Hycleen AS a matter of routine whenever we renovate our buildings. The test run has once again clearly shown: Saving energy pays off - for everyone!". Further projects for 2022 are already in the pipeline.



Energy savings potential in the hot water supply easily calculated in the future

GF Piping Systems is currently developing and verifying an analysis tool, tailored to building operators, that allows them to measure the energy savings potential in the hot water supply without undue effort. When just a few, relevant parameters are entered, a digital image of the building hot water supply is generated and potentials for energy-related efficiency increases (including CO₂ and energy costs), as well as potentials for manning the system support, can be easily estimated. The calculation tool will be available from spring 2022.

About GF Piping Systems

GF Piping Systems is the global specialist for safe and reliable transportation of water, chemicals, and gas. The company specializes in plastic piping systems and system solutions with service in all phases of your project. GF Piping Systems is represented in 31 countries with its own sales companies in order to always be close to the customer and has production at 36 locations worldwide. In 2020, GF Piping Systems generated sales of CHF 1.7082 billion and employed 6,893 people. GF Piping Systems is a division of Georg Fischer Ltd, which was founded in 1802 and is based in Schaffhausen, Switzerland. More information at www.gfps.com

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