

Residential Care Home

Project Name: Residential Care Home

Location: United Kingdom

Type: Healthcare

RESULTS

The data from the six-month trial period was conclusive: Hydromx drastically reduced the home's expected energy consumption.

The company's energy analysts used the HDD methodology to adjust the home's gas consumption for the weather conditions and concluded that Hydromx resulted in energy savings of 21%.

Over the six months, the boiler system consumed 45,000 fewer kWh than expected. **Using the HDD methodology, this points to an estimated annualized savings of 99,000 kWh** (resulting in the reduction of 18 tons of CO2 emissions.)



The company estimates the energy savings will deliver a return on investment for the installation of Hydromx in less than two years.

“Hydromx is a very cost-effective energy-saving opportunity,” the company reports. “We are now looking at where we can benefit from using Hydromx in other properties.”

Background

A blue-chip provider of residential care homes across the United Kingdom operates this two-floor, 45-bedroom location in the Midlands. The home features a multi-boiler cascade system comprising four Buderus GB162 boilers, providing domestic hot water for a busy

laundry and space heating for all bedrooms and communal areas. All bedrooms have a low water volume radiator with thermostatic radiator valves (TRV). Corridors and communal areas use a combination of classic steel panel radiators and low-level, space-saving radiators.

Challenge

This building has high energy demands – the boilers run 24 hours a day, 365 days per year. For energy savings and to reduce wear on their equipment, the company agreed to a six-month trial period with Hydromx. The installation process took just two days without any disruption to the residents or staff of the care home.

Their building management system (BMS) tracked external temperatures and the internal target space heating temperature of 23°C. The BMS sensors located in corridors on each floor and wing of the building, along with separate temperature data loggers deployed around the building, verified there were no cold spots or areas of overheating.

On-site maintenance also used handheld temperature sensors to verify that the rooms maintained a comfortable 23°C.

Solution

First, the company prepared an energy consumption baseline using data from the previous year. This data gave the company a clear correlation between external temperatures and gas consumption when using water in the boiler system alone.

The consumption data takes weather differences into account using Heating Degree Days Analysis, a methodology recommended by the Carbon Trust and the Chartered Institute of Building Services Engineers.

After installing Hydromx, the external temperatures during the testing period determined the number of Heating Degrees for each day (the heating demand). These, in turn, were used to calculate what the consumption would have been with just water in the heating system.