Case Study: The Waterfront

Chalmor
Experts in Energy Saving Lighting and Heating

The Challenge: Chalmor eTRV Innovation Gateway Trial Elstree 'The Waterfront'

The primary heating system in The Waterfront is Gas fired boilers feeding a VT circuit. Use of eTRV+ technology would reduce the load on the boilers and enable individual control of floors and offices thereby realising energy savings.

The Chalmor eTRV+ fits directly to radiators in place of traditional TRV's, enabling automatic room by room heating control. It is designed to cut energy bills by heating only the rooms that are in use and preventing overheating. Control is regulated by Time and Temperature.

The Chalmor Approach

The eTRV+ installation was carried out over two days. 100 radiator valve heads were replaced with the eTRV+ electronic thermostatic radiator valves. The set point was programmed to 22 degrees, 7am to 7pm, weekdays, with a 'boost' function set to increase by 1 degree for 1 hour after being pressed.

The eTRV is designed to reduce energy consumption and deliver higher levels of comfort by:

- More accurate measurement of ambient temperature and set point than a traditional TRV and thereby reducing overheating.
- Once set, it is tamper proof so that occupants cannot randomly change settings.
- The eTRV+ has a 'boost' button that increases the temperature set point for 1 hour so that staff have the flexibility for a little extra heat on the coldest of days.
- Containing individual schedules, the eTRV ensures that the radiator is off outside of occupancy hours.
- Once a week the eTRV conducts a full open and close cycle to reduce valves sticking open or shut.

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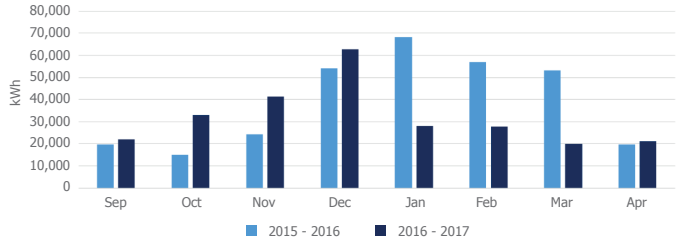
The Solution

The Waterfront has Half Hourly electricity supply and a Gas supply that has actual reads at the end of each month. Care was taken to check that the data used for both Electricity and Gas measurements was based on actual reads rather than estimated, so that the assessment of performance was accurate.

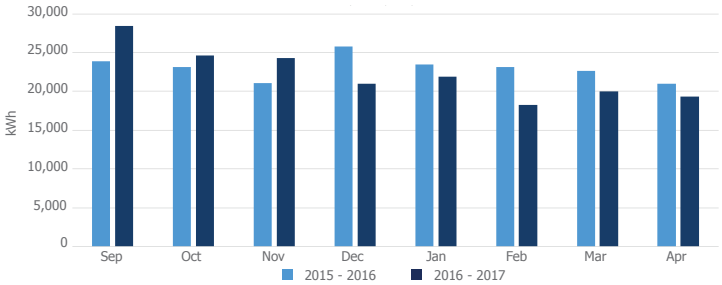
- **Heating controlled by sensors and eTRVs,** to allow radiators to be switched off for periods when windows were opened or areas were not in use, ensuring effective and efficient heat distribution throughout the buildings.

- **Gas and electricity consumption decreased.** The Gas consumption saving over the first 4 months was 101,684 kWh worth £1,450, with electricity consumption decreasing by 12%.

Gas consumption



Electricity consumption



The first 4 months of the "after" year were slightly warmer than the same period in the "before" year and normalising the data using local Heating Degree Days (HDD), there was a 10% variance from 2016 to 2017 which would favour slightly reduced Gas consumption but would not explain the 51% reduction.

The Results

Annual Savings £

Estimated annual reduction in gas consumption 30%-40%

51% gas savings

The Gas consumption saving over 4 months was 101,684 kWh worth £1,450

Electricity consumption also decreased by 12%

Improved working environment, optimised comfort

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"The valves look better than we had previously and feel robust. The temperature was consistent per radiator upgraded, so will certainly help regulate the temperature"

RBS Senior Facilities Manager

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