



## Case Study

Building Performance Monitoring  
Building for 2050 project

Wireless telemetry and remote monitoring

Oct 2019

### BACKGROUND

Building for 2050, funded by the Department for Business, Energy and Industrial Strategy, highlights the need to construct housing which is low carbon through its design rather than through reliance on technology. AECOM have been appointed by the Government to run the Building for 2050 project.

The project will examine the drivers, attitudes, barriers and challenges relating to low cost, low carbon housing. It will consider both the pull and push factors from some developers in delivering housing fit for the future. Increasing the numbers of such homes being built will contribute to the ambitious targets within the Clean Growth Strategy and reduce energy use and bills for residents, while delivering attractive and comfortable homes.

Eltek Ltd. have supplied the monitoring equipment, specified and installed by Four Walls, Bristol based building performance experts.

### A New Way of Living

As the Marmalade Lane website states. *“Cohousing is a way of life in which residents not only get to know their neighbours and enjoy a real sense of community, but jointly manage their living environment together. As well as their own private home, each resident household benefits from shared spaces and facilities that enrich the living experience and encourage a more social way of life.”*

### Best Practice

As part of the building for 2050 project the properties at Marmalade Lane have been designed to be low carbon both in build and running.

Eltek products are being used to actively monitor a range of environmental parameters to establish how the buildings perform in a real-life situation.

The data can be accessed from anywhere.



Wirelessly monitoring how often windows are opened and closed.

## Wireless data sent to the Cloud

Monitoring is undertaken by wireless sensors in 120 locations spread across the housing development. The transmitters send data back to the Eltek SRV250 logger which in turn collates the data from the sensors and then sends it at frequent intervals to a Cloud Server via the mobile telephone data network (3G/4G). Four Walls then retrieve the data from any location and view it on Eltek Darca Heritage Software or process the data as a .CSV in an Excel Spreadsheet.

## A Complete picture



*Every electrical circuit in the house is monitored.*

The system installed at Marmalade Lane monitors Temperature, Humidity, CO<sub>2</sub> levels, electrical consumption, central heating and hot water temperatures and how often windows are opened for



*Monitoring the hot water system*

ventilation. The buildings use a sophisticated system of heat recovery to minimise heat loss and maintain a comfortable environment. In addition to this the system installed has external weather monitoring to provide the most complete picture possible.

## Specialist expertise

Ian Mawditt of Four Walls working with Eltek specified the monitoring system and identified optimum locations for the sensors. Four Walls will analyse the data and prepare reports on building performance and the real-life energy consumption of these properties. Similar projects also using Eltek monitoring equipment are being undertaken at several other locations across the UK to assess different building designs and different ways of living.

## Support

Eltek gives the customer the flexibility of letting them configure their transmitters and the Cloud server. Alternatively, Eltek is happy to provide the service to do this for the customer. Many



CO<sub>2</sub> Monitoring

## The Future

The system at Marmalade Lane will be used provide data on building performance. The building for 2050 project team will be able to compare performance data.

## System components



GD10  
Temperature and relative humidity



GD47B – CO<sub>2</sub> Sensor



GD32 Hot water pipe monitoring sensor



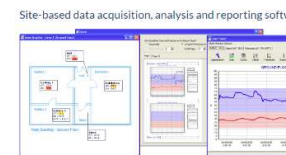
GC62  
Electricity consumption



OD13E – outdoor temperature



SRV250  
wireless data server



Darca Heritage Software

[www.eltekdataloggers.co.uk](http://www.eltekdataloggers.co.uk)

## Acknowledgements

Eltek Ltd would like to express its gratitude to Ian Mawditt or Four Walls

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## References:

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<https://marmaladelane.co.uk/>

<https://www.gov.uk/government/publications/building-for-2050>