Case Study

Barratt Z house, Salford

SDS rainwater recycling system supplies UK's first zero carbon home

SDS Products
SDS Intellistorm® Rainwater Recycling System and SDS SYMBiotIC™.

SDS Customer
Barratt Developments.

Client
Salford University student residents.

Project
To provide a live test bed for the adoption at scale of sustainable equipment and operating practices.

Purpose
To establish the capacity for a typical, average-size new build residential property to operate with a zero-carbon footprint.

Brief to SDS
To minimise the property's consumption of mains water with which to irrigate the property's green wall.

Timing
Installation in April 2022.

Project Background Information
This unique Zero Carbon concept home is located on the premises of Salford University and is the first house in the UK designed to showcase an "A to Z" of modern green home developments.

SDS is one of 40 partners chosen to feature forwardlooking sustainable technologies in the house, which is occupied and monitored to assess its performance.

Outside the house a biodiversity garden includes nests for bats and swifts, a wildlife pond, hedgehog highways and a green wall. Expertise from the RSPB has been sought to help promote wildlife and nature at the house, with the garden area achieving the organisation's gold rating.

The house has been constructed using the latest building methods incorporating Modern Methods of Construction (MMC) and features the latest sustainable housing technology, such as an air source heat pump, EV charging points, PV solar panels and battery

sdsinfrastructure.com

SDS Limited, Clearwater House, Castlemills, Biddisham, Somerset BS26 2RE

T: +44 (0)1934 751303
E: info@sdsinfrastructure.com

Part of SDS Water Group

Company Registered in England & Wales. Registered Number: 04433740

storage. Cutting-edge devices and materials, including overhead infrared panels, that provide instant zero-carbon heat and new, airpowered showers, that cut water and heating bills, have also been installed.

Project Objectives

To demonstrate how smart technology can significantly reduce potable water demand for irrigation of a green wall.

Project Requirements

To equip the house with a smart rainwater recycling system with which to keep alive the plants in the green wall.

SDS Product Features

Rainwater is channelled from the roof guttering and downpipe and collected in a tank via a leaf filter before being used to supply the green wall for as long as there is sufficient available. The system is programmed to deliver 4 litres of recycled rainwater to the wall every six hours when there has been no rain and there is no immediate prospect of rainfall above a predetermined threshold; without it, the green wall would be reliant on potable water for its irrigation. Any excess rainwater remains in the tank for use elsewhere in the garden or to wash the car.

Results

Like many parts of the UK, Greater Manchester is faced with both increasing periods of heavy rainfall and also dry spells, so a simple downpipe-to-green wall irrigation system would drown the plants sometimes and bake them at others. The smart system maximises the use of the captured rainwater for regular, controlled irrigation, at the same time as reducing localised discharge which has the potential to impact on flooding in the immediate area.

As well as ensuring the plants in the wall remain watered, the introduction of rainwater harvesting can help both reduce flooding in the immediate vicinity in extreme rain events and potable water demand during dry periods - a double win for the natural environment.

Barratt has produced a series of videos to promote the Z House which can be found under Episode three | Building eco-friendly homes fit for nature and the environment.

David Thomas, Chief Executive, Barratt Developments, said: *"We recognise the value of water saving in our homes and also in the unbreakable link with carbon reduction. The Z House has provided a realistic environment in which to trial digitally controlled and monitored water-saving technology."*

"We hope that this will be the beginning of an exploration, not just by Barratt, but by the UK housebuilding sector overall, of the potential for smart water collection and reuse technologies in residential developments. Whether the systems are on a plot-level or shared by a street or a whole community, the principles of smart, dual purpose water management help to protect against flooding as well as cut down on the use of mains water for non-drinking purposes."

"We are taking the lead to deliver a level of carbon reduction that is considerably more than the Future Homes Standard and intend for all our new homes to be zero carbon by 2030. It's clear that, in future, home buyers will simply expect to buy greener homes. Sustainable homes will also be more affordable and efficient to run."