



BREEAM Excellent  
and EPC B rated

10%



10% below our  
construction CO<sub>2</sub> target



Waste diverted from landfill

## CASE STUDY: SEVERN TRENT CENTRE

The seven-storey 20,000m<sup>2</sup> Severn Trent Centre in Coventry's city centre is a landmark building, both in terms of appearance and environmental credentials and is the home of Severn Trent Water.

### SUSTAINABLE DESIGN

Creating a super-efficient building was one of Sever Trent Water's key drivers and we delivered a BREEAM Excellent and EPC B rated building. Through passive design we reduced heating and cooling demand and installed an intelligent building management system (BMS). Renewable technologies were installed to further reduce the carbon footprint of the building, as well as reducing running costs.

We used prefabrication of building elements to minimise waste, and water management features were integrated into the building to work alongside rainwater harvesting and an extraction well.

### TACKLING CLIMATE CHANGE

We maximised thermal mass by exposing the structural soffit, helping to regulate internal temperature and reduce energy consumption.

All windows at the new Centre have internal solar control blinds for glare and thermal control. The brise soleil tracks the path of the sun via a weather station on top of the building, in order to provide the most efficient solar shading. This also reduces energy demand and helps to keep occupants comfortable.

The efficient BMS ensures the correct amount of fresh air is circulated into the offices and utilises adiabatic cooling, which sprays water into the incoming fresh air when the temperature increases, to provide free cooling. If the temperature increases further and cannot be offset by the free cooling, then energy-efficient turbocore chillers are used to keep the internal environment comfortable. The system also monitors the outside temperature to ensure that the building adapts to weather variations.

Solar thermal panels on the roof supply domestic hot water for the building, and photovoltaic (PV) panels are mounted on the roof space and connect to the local electricity grid. Two biomass boilers and a fuel storage room have been installed and will provide all the heating for the building.

To minimise our emissions during construction we monitored and reviewed the use of temporary electrics on a monthly basis. This enabled the site to use fewer generators and therefore use less fuel.

'THIS IS ONE OF THE MOST SIGNIFICANT COMMERCIAL DEVELOPMENTS IN COVENTRY FOR OVER A DECADE. IT IS A HIGHLY-SOPHISTICATED ENERGY EFFICIENT BUILDING FEATURING THE LATEST TECHNOLOGY.'

Richard Dakin, Director for BAM Construction, Midlands



Completed: September 2010

Customer: Stoford Developments / Severn Trent Water

Architects: Webb Gray

Mechanical & Electrical consultants: Balfour Beatty Engineering Services

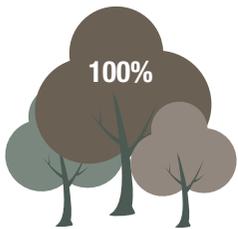
Structural Engineer: BWB Consulting

Project Manager: EC Harris

Quantity Surveyor: EC Harris



Building has rainwater harvesting system



Chain of custody timber



Easter Egg Collections and dress down days fundraising

## RESOURCE EFFICIENCY

Precast concrete cladding was used throughout the building, which reduced the amount of waste produced onsite and as a result decreased the number of lorry movements. Through this and other measures we managed to produce 30% less construction waste than targeted.

During the project a significant muck shift was undertaken on site to enable the underground car park to be built. All of the excavated material was reused on another construction site, rather than being sent to landfill.

## WATER MANAGEMENT

We installed 6/4l dual flush WCs, showers with a maximum flow of 9l/minute and independent flushing on urinals, to reduce water usage through the building's life. Hand basins have aerating taps with PIR sensors to ensure water is not wasted.

The building has its own rainwater harvesting system that captures water from the roof of the building, to be used for toilet-flushing, and also reduces excessive water run-off to local storm drains. This is backed up by a dedicated borehole which extracts water for non-potable use. There is even grey water recycling from the hand basins.

## SOURCING RESPONSIBLY

Where possible materials were sourced locally to ensure the building was aesthetically suited to the area. The cladding had a simulated stone finish which emulated the stonework at Coventry Cathedral.

## COMMUNITY ENGAGEMENT

We encourage our project teams to link with local schools and universities wherever possible. At the Severn Trent Centre our team wanted to develop a partnership that would last throughout the two-year project so they approached Coventry University's School of Engineering and Construction.

Members of our team organised site visits for students from various construction-related courses and also purchased full personal protective equipment (PPE) for each student, which they were allowed to keep.

Phil Poole our Assistant Planner and Coventry University graduate, spent a great deal of time with students, providing them with an insight into the activities that take place on a working construction site, highlighting the importance of BAM's health, safety and environmental approach and assisting by delivering guest lectures.

We ran a range of charity events with 'Suzie's Café', which was permanently located on site.

