

Building management system (BMS) technology from Priva is playing a central role in the success of Bicton EaRTH (Environmental and Renewable Technologies Hub), a recently constructed specialist training academy located in East Budleigh, Devon. Thanks to Priva overseeing a host of on-site renewable energy sources, the Bicton EaRTH building is as 'green' as the subjects it teaches.

Bicton EaRTH is a state-of-the-art learning facility that, with a number of national and regional commercial partners, offers a wide range of high quality entry level, NVQ, apprenticeship and industry courses for experienced workers and young people entering the trades sector. The academy delivers plumbing, heating and electrical training and specialises in industry-standard renewable technology installer training, centring on technologies that include biomass, PV (photovoltaic), solar-thermal, air-source heat pumps and rainwater harvesting systems.

Major renovation

The facility has been created through the renovation and refurbishment of two redundant agricultural buildings located on Bicton College's Home Farm. Designed to achieve BREEAM 'very good' standards, EaRTH incorporates innovative sustainable design and architectural features, while integrating a range of renewable technologies to create an exciting, interactive and functional visitor experience. Indeed, EaRTH is an important part of the teaching resource at Bicton College, ensuring that all of its students understand the importance of sustainability, whatever their future career choice.

"The story began in 2010 when a decision was taken to extend the curriculum into environmental technologies," explains Graham Waddell, Head of Energy and Environment at Bicton EaRTH.

"To facilitate the idea, a proposal was developed to bring back into use two redundant, largely derelict barns that were used previously as milking parlours. This would not only see them renovated, but turned into a highly energy efficient and modern teaching and conferencing facility."

Heartbeat of the hub

At the centre of the proposal were Priva Compri HX controls and Priva Top Integration, along with visual displays. All systems within the Compri HX range comprise of a main controller plus input and output modules. The system can be expanded to suit specific building management applications, with the Compri HX selected based on the total number of inputs and outputs, the computing capacity required and the communication options. Compri HX can communicate with and control all building systems, offering high processing speed, a sizeable memory, in-built security facilities and support for a range of field buses to facilitate easy integration with third party systems.

At Bicton EaRTH, the Compri HX solution was installed by Priva partner, TCS Controls, with the system overseeing technologies such as a 50 kW biomass boiler, a 10 kW solar array and an air source heat pump - all of which help feed a 1500 litre hot water store. This feeds the entire underfloor heating system which is controllable across three zones. There is also a 10 kW PV array to provide electricity, as well as a 3000 litre rainwater harvester to fulfil tasks such as lavatory flushing - only drinking water

comes from the mains feed.

Multi-purpose facility

"The objective is to furnish people interested in learning about renewable energies with the skills to install and maintain the various environmental systems that are becoming more commonplace in society," says Mr Waddell. "However, EaRTH also serves other functions, such as a demonstrator for communities and businesses with a wider interest in installing renewable technologies for their own premises."

Funded jointly by the Skills Funding Agency, Productive Skills for Devon and Somerset, the Making It Local scheme administered by Devon County Council and Bicton's own capital funds, the project took 12 months to complete. It was opened officially by Michael Gove, then Secretary of State for Education, in May 2012.

Multi-function BMS

"The Priva BMS functions on three different levels at Bicton EaRTH," says Mr Waddell. "Firstly it helps understand how the building is performing and how much energy is being generated by each renewable technology. Secondly, from an education perspective, when trying to demonstrate biomass or PV technology for example, it is possible to monitor system performance to demonstrate value for decision making. Finally, concerning estate management, it is extremely simple to adjust settings if the temperature inside is too warm or too cool - we can zone into three different areas as required."

According to TCS Controls' Peter Chart whose team was responsible for designing and commissioning the controls solution at Bicton EaRTH, there was a requirement to make the technology as 'interactive' and 'relevant' to the building's users as possible.

"This was at the heart of the brief - and it was critical that we delivered a solution which put the visibility of building performance data at the heart of our solution. As a result, the front end of the BMS at Bicton EaRTH features visual displays where performance can be viewed at a glance. The plan is to have a plasma screen in reception so that visitors can see immediately that the academy is extremely serious about its environmental credentials".

And there's already been plenty of witnesses to this fact. In a little more than two years since EaRTH opened, more than 10,000 people from a wide variety of businesses, organisations, communities and schools have passed through the doors. Furthermore, in the past 12 months, some 500 students have completed courses at the facility, helping ensure the supply of the next generation of tradespeople.

Today, Bicton EaRTH provides a full range of plumbing, electrical, heating, renewable technology and professional development short courses for people working in the energy, sustainable construction and wider environmental sectors.

Any questions?

Feel free to ask them!



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