

CASE STUDY ONE OF THE GREENEST SCHOOLS IN THE UK

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A new school in Plymouth is using “free” renewable energy for all its heating needs, making it one of the greenest schools in the UK.

Pupils can observe their school’s building management system on a PC: a valuable teaching resource for energy efficiency and technology skills.

Brook Green Centre for Learning employs ground source heat pumps and solar panels for all space heating and hot water, while an advanced passive ventilation system cools the building in summer and ensures low CO2 levels throughout the year.

A sophisticated building energy management system (BEMS) from Trend Control Systems ensures the energy systems operate at maximum efficiency. KK Controls & Equipment Ltd – a Plymouth-based Trend System Integrator – was chosen to install the BEMS on a dedicated IT network.

Heat is delivered through the school by an underfloor heating system managed by the Trend BEMS. In summer, window louvres and high level vents open automatically to provide free cooling: these are also monitored and controlled by the BEMS. In winter, high CO2 levels and high night time temperatures are also corrected via the passive vent system.

At the heart of the BEMS is six Trend IQ3 controllers, which deliver web pages to a display screen in the school’s restaurant. This enables pupils and staff to see clearly how the heating, cooling and hot water systems are operating, in real time.

It therefore provides a valuable teaching resource, demonstrating not only the use of renewable energies in their own environment, but also how an advanced building control technology manages the energy from ground heat and solar panels to ensure their comfort – and as energy efficiently as possible.

In addition, a Trend IQView touch screen display is mounted on the front of the control cabinet in the main school plant room. This enables the building manager and maintenance engineers to access controller functions, performance graphs, alarms and schedules. The Trend system has the ability to send alarm emails to Plymouth City Council.

If desired in the future, the system can be linked to the Council’s intranet for remote monitoring and control.

Brook Green Centre for Learning is Plymouth City Council’s school for pupils aged 11 to 16 years with special behavioural, emotional and social needs. It opened in September 2008, replacing Hillside Special School. The main Mechanical and Electrical Contractor for the building project was Mitie Engineering Services. Faber Maunsell Ltd were Consulting Engineers for the building, which was designed by Gale and Snowden.

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