

Award Category: Most Sustainable Construction

Project: Howe Dell School, Hatfield

Client: Hertfordshire County Council

Architect: Capita/Ruddle Wilkinson



Commended for integrating sustainability into the curriculum through the use of the school's built environment

Commissioned by Hertfordshire County Council, the Howe Dell School and Children's Centre in Hatfield has been designed as a carbon neutral building, with sustainability embedded throughout. It is the first eco school of its kind, exhibiting a number of firsts in the technologies used.

Officially opened in March 2008, the school features a full range of integrated sustainable and environmental principles. It is the first building to incorporate a revolutionary heating system (Inter-seasonal Heat Transfer - IHT) that captures heat energy from the sun via a collection pipe network and releases it to provide heating during the winter months. Likewise, a TermoDeck system (a specialist heating/cooling and ventilating system that uses the structure of the building to stabilise the internal environment) stores energy from cold winter nights to keep the building cool in summer.

In addition to solar thermal water heating, the school incorporates a range of renewable energy technologies: a 'living' sedum green roof to help insulate the building and promote biodiversity; a photovoltaic array; and a wind turbine that exports surplus electricity produced to the national grid. Internally, the building utilises a mechanical and natural ventilation strategy to improve oxygen levels and aid concentration; low energy auto-dimming lighting; rainwater harvesting; linoleum, natural rubber and bamboo flooring; sensor operated taps and sink tops and splash backs made from recycled yogurt pots.

It has been predicted that the school's IHT system will emit just 5,000kg of CO₂, compared to 11,300kg for a comparably sized heating system. Monitoring has shown that energy consumption on an average afternoon is approximately 11Kw while up to 23Kw can be generated on site. The integration of the building's BMS computer with the curriculum computer system means that students can monitor the building's performance and the energy/resources being used or generated on site.

The school has achieved Green Flag status for its environmental work, thanks to its eco-curriculum and an 'eco squad' that makes suggestions to improve sustainability.

Judges comments:

“We were impressed by the Howe Dell project not only because of the imaginative and, in some cases, pioneering use of new sustainable technologies, but because of the holistic approach being taken to sustainability, right through to the monitoring systems that have been implemented so that pupils can track energy use and production on the site”.