Press Release

Howe Dell School is powered by Interseasonal Heat Transfer

UK Primary School is a World First

Howe Dell School, designed and built to incorporate the latest elements of environmental sustainability, has been officially opened by HRH Prince Richard, The Duke of Gloucester on 18 March 2008. Hertfordshire's first 'eco-school' is the first building in the world to feature a revolutionary new heating system that uses the school playground to heat and cool its buildings.

The new multi-million pound Howe Dell School in Hatfield is a beacon project for Hertfordshire County Council. It could now have a major role to play for schools built across the world as a demonstration of how sustainable practice can be integrated into building design.

Falling within the government's 'eco schools' strategy, Howe Dell features low energy use buildings and a host of renewable energy technologies including a wind turbine capable of exporting surplus electricity to the National Grid. Over the life of the project, the school has integrated sustainable principles into an 'eco-curriculum' which has already been rated as outstanding by Ofsted inspectors.

Interseasonal Heat Transfer has been invented, developed and patented by ICAX Ltd (Interseasonal Collection and Exchange) and works by capturing heat energy from the sun via a collection pipe network just beneath the surface of the school playground. It then stores the energy in computer-controlled thermal banks in the ground under the school, and releases it to heat the buildings in winter via a series of heat exchangers linked to underfloor heating and to TermoDeck ventilation (a specialist heating/cooling and ventilating approach that uses the structure of the building to stabilise the environment). The IHT system - awarded £244,000 of grant funding by the Carbon Trust as part of its mission to develop commercially viable low carbon technologies - is also able to capture the frost of cold winter nights, store it, and use it to keep the building cool in the summer.

Howe Dell School has also been awarded ECO Green Flag accreditation (the highest level of award granted by the UK's eco-schools programme) and will act as a Learning Resource for both its pupils and the wider community.

As Debra Massey, Headteacher, explains: "Our curriculum has sustainable education principles at its core and we've already had a lot of positive feedback from Ofsted. Our 'Eco Squad' of pupils helps to promote ideas of sustainability and learning about the environment across the school, enabling us to engage pupils of all ages with the school's ethos."

Robert Trezona, Head of Research and Development at The Carbon Trust, said: "Interseasonal Heat Transfer technology can significantly reduce a building's need for traditional heating fuel and provide considerable carbon emissions savings. By awarding Howe Dell School a £244,000 grant as part of our

Applied Research scheme to demonstrate the concept, The Carbon Trust is helping to speed widespread commercialisation of this low carbon technology."

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Editor's Notes - The Building

The school has already earned plaudits from BREEAM (the world's most widely used environmental assessment method for buildings) and was selected as one of eight projects used during the development of the new BREEAM for Schools initiative. Preliminary appraisal by the pilot assessment panel for the school has showed that its innovative design achieves a level equivalent to the highest BREEAM rating, making it one of the highest achieving pilot schemes.

The design team has also included a number of innovative 'sustainable' elements such as recycled and sustainable materials, natural ventilation, energy-saving lighting and water management. Specific features include –

- In addition to the Interseasonal Heat Transfer renewable energy system, the school features state of the art solar thermal (to pre-heat water for use in the school kitchens and washing facilities) and electricity producing photovoltaic panels.
- An easily accessible, school-wide software interface that allows pupils to monitor the various environmental systems and help them to understand how energy has been generated by the various systems, how it is being stored, and how much has been exported to the National Grid. Visitors to the school can even see real time energy data displayed on an LCD screen within the main school entrance.
- A TermoDeck fan-assisted heating, cooling and ventilation system, which uses the thermal mass of the structure to stabilize the temperature in the building.
- Strategically placed roof lights allowing natural daylight to flood into the centre of the building, minimizing the need for artificial lighting of deep plan spaces.
- 'Living' sedum green roof areas helping to manage water runoff, insulate the building and promote bio diversity (all aspects of the roofing including the roof lights and green roof were managed by the Hertfordshire based Letchworth Roofing Company).
- High performance windows to reduce heat loss and help control solar gain.
- Light wells that bring natural daylight into the ground floor corridors.
- A sustainably-sourced sprung timber floor in the main hall and a bamboo floor in the dining room.
- Classroom sink tops and splash backs made from recycled yogurt pots.
- Sustainably-sourced timber play equipment.
- A simple rectangular shape that enables all teaching areas – which are all south facing – to have dedicated external classrooms, allowing pupils direct access to the extensive and bio-diverse grounds.
- Rainwater harvested from the main school roof is used primarily for toilet flushing with any surplus being used either by the irrigation system or to top up for the wetland biodiversity area located within the school grounds.

About Capita Architecture

Capita Architecture which led the consultant team is part of Capita Symonds, one of the UK's largest and most diverse multidisciplinary consultancies operating in the building design, civil engineering, environment, management and transport sectors. www.capitaarchitecture.co.uk

About Mace Group

Mace Group, the constructor, is a global business providing consultancy and construction services to the public and private sectors, with a reputation for finding the best solutions to complex property and real estate challenges. Mace is characterised by the strength of its relationships with clients and its reputation as a problem solver and integrator of knowledge and expertise. Mace is privately owned with a worldwide staff of over 2,500 in 23 countries and an annual turnover in excess of £372m. www.mace.co.uk

About Fulcrum

Fulcrum Consulting, which assisted in the integration of the new heating system, is a leading international firm of multi-disciplinary consulting engineers, delivering fully integrated design of building services, infrastructure, building design and built fabric solutions ensuring minimal environmental impact. www.fulcrumfirst.com

About The Carbon Trust

The Carbon Trust is an independent company set up by government in response to the threat of climate change, to accelerate the move to a low carbon economy by helping organisations reduce their carbon emissions and by developing commercial low carbon technologies. The Carbon Trust works with UK business and the public sector through its work in five complementary areas: insights, solutions, innovations, enterprises and investments. Together these help to explain, deliver, develop, create and finance low carbon enterprise. www.carbontrust.co.uk

About ICAX Ltd

For more information on **Interseasonal Heat Transfer** visit www.icax.co.uk