Sustainable Construction

WINNER

University of York - Building tomorrow's science through today's green technology

The new National Science Learning Centre is located at, and was designed and project managed, by the University of York. It offers development courses for school and further education science teachers and technicians, with the ultimate aim of encouraging more post-16 students to choose science options. The Centre has been established by the White Rose University consortium of Leeds, Sheffield and York Universities, together with Sheffield Hallam University, with Government and Wellcome Trust funding.

The building's features include:

- A geothermal cooling/heating system which saves £11,000 annually compared to conventional alternatives
- A multi-species sedum or 'living' roof over much of its area
- Low energy lighting with a state of the art control system
- Variable ventilation which responds to space occupancy levels
- Extensive use of natural lighting and ventilation
- Use of rainwater for WC and urinal flush systems
- Use of Greenpeace-approved "Aquatherm" pipework made of recycled material rather than traditional steel or copper
- A high level of flexibility as a result of partitioning of laboratories and lecture theatres.

Night view of the National Science Learning Centre

Many of these elements can be used to support teaching, supplementing specific curriculum features such as a public display of data from the Building Management System; a weather station on the roof to help study climatic change; and a science trail and webcams highlighting the biodiversity around the building, particularly moths and owls.

The Centre's Director, Professor John Holman, sees the Centre as "being a place of quality and atmosphere to show teachers of science from primary and secondary schools the importance of the job they do, so that they in turn can inspire a future generation of scientists. That's why we have a striking building, full of light, which is a science teaching aid in its own right - especially through its 'green' features. For example, the geothermal heating and cooling not only reduces our CO2 impact, but also gives us a fascinating context for the teaching of energy transfer and earth science."

Judges' Comments on Sustainable Construction

Sustainable buildings require the integration of environment and sustainability into the design process from its start, and a commitment to its importance even through difficult stages such as value engineering. This has been achieved with both the National Science Learning Centre (NSLC) at the University of York, and the Administration and Student Services Building (ASSB) at the University of Southampton. The NSLC stands out because of its holistic approach, and its transparency to the user. This should allow it to be used effectively in the curriculum, and could be replicated in many other of the sector's new buildings. The building also has a number of innovative design features such as the sedum roof and the ground source heat pumps which are used for heating and cooling.

One feature shared by both buildings is being designed for flexible use to make optimal use of space - a feature which, if more widely applied through the sector, could avoid the need for some new construction, and therefore the environmental impacts it would create.