

# At the heart of environmental science in Wales

A finalist in the Best Sustainability Project category of the LABC National Built in Quality Awards, The Environment Centre Wales is a partnership venture between the Natural Research Council's Centre for Ecology and Hydrology, and the University of Wales, Bangor. Gwynedd Council's Building Control Department played an integral role in the design team

**T**he innovative centre brings together 60 environmental scientists from the University and the Centre for Ecology and Hydrology, whose combined scientific knowledge and experience will cut across traditional academic boundaries. This new way of working will make significant contributions to solutions for environmental problems.

Building conservation is an essential part of eco-design principles and the former

building, an old telephone exchange, had lain derelict for years and would probably have decayed so much through lack of use that it would have been dilapidated to a point of demolition.

Any developments on the site would have meant demolition and construction of a new building – all costing money, time and energy. What's more, another architecturally important building would have been needlessly lost,

The telephone exchange has now been rebuilt at a cost

**“THE NEW BUILDING RISES FOUR STOREYS HIGH AND IS A REINFORCED CONCRETE FRAME CLAD IN FSC-CERTIFIED WELSH OAK AND LOCALLY QUARRIED SLATE FROM BLAENAU FFESTINIOG”**

of £5.8 million by Middlewich-based Pochin and designed by architects Fairhurst Design Group.

The new building rises four storeys high and is a reinforced concrete frame clad in FSC-certified Welsh Oak and locally quarried slate from Blaenau Ffestiniog.

All materials used in the building were selected for their low environmental cost and the highest standard of durability. Most of the building materials achieved “A” Grade in the BREEAM assessment.

Efficient use of energy was



imperative for the project and Environment Centre Wales has an overall improvement of between 15-45% over the thermal insulation requirements specified in the Building Regulations.

Photovoltaic panels have been installed on the roof and the combination of passive and active features in the annexe means that it is heated and cooled almost entirely by solar power.

Under floor heating provides not only a 'natural' feeling of heat but also a very efficient way to heat a space

or room. A series of 'loops' are buried under the slate floor and have hot water passed through them in the same way as normal radiators. The solar water panels on the roof also supplies the hot water for the heating in the annexe and can heat water up to temperatures of 80 degrees Celsius.

A gas CHP unit has been installed which can convert up to 90% of the energy into electrical power and useful heat. Ground source heat pumps will provide winter heating to the atrium and

**“ENVIRONMENT CENTRE WALES HAS AN OVERALL IMPROVEMENT OF BETWEEN 15-45% OVER THE THERMAL INSULATION REQUIREMENTS SPECIFIED IN THE BUILDING REGULATIONS”**

ground floor rooms, as well as passive summer cooling for the laboratories.

Natural light is maximised by the south facing building, and the glass atrium which slices through the building ensuring all working areas are within 7m of natural light.

Rainwater collection from a roof area of 270m<sup>2</sup> and with rainfall of 1,300mm per year means that the system has the potential to collect 351,000 litres per annum. This grey water system supplies all the toilets. Although the toilets use grey water, having a low flush





toilet means that less water is put into the local sewerage system.

Metering allows the management of the building to constantly monitor the use of energy and water to ensure the success of the green design. Energy and water consumption can be metered on every floor and in every room.

The design also addressed the needs and wishes of the people who work in the

building. Results from a staff survey indicate that natural light, better ventilation, improved storage areas, modern equipment and an environment that would encourage interaction between the CEH and University staff were all important factors to be taken into consideration. The final design was commended by the Design Commission of Wales.

Due to the complexity of the

**“ON SUCH COMPLEX PROJECTS, THE SUCCESS OF SUCH A PROJECT IS MEASURED BY THE PROFESSIONALISM AND DILIGENCE OF THE MAIN CONTRACTOR”**

building and the stringent design brief, the architects and building control worked closely from design stage to the completion of the project. On such complex projects, the success of such a project is measured by the professionalism and diligence of the main contractor. Pochin (a regular user of local authority building control) built a team of professionals which ensured that the workmanship was of the highest order, and





all variations or difficulties with the design were addressed and resolved quickly and efficiently with the building control officer and architect.

Vice-Chancellor of Bangor University, Professor Merfyn Jones said: "This new project represents the largest concentration of scientists

working on environmental issues in Wales. With around 80 Bangor University scientists and 40 scientists from CEH we are well placed to make a major contribution towards resolving some of the great environmental challenges facing the world today.

"We are also proud to be

**"THE ENVIRONMENT CENTRE WALES... BENEFITS FROM A RANGE OF FEATURES THAT WILL REDUCE THE BUILDING'S ENVIRONMENTAL IMPACT"**

associated with NERC in this venture, knowing that together we are providing world-class environmental science."

Professor Alan Thorpe, Chief Executive of the Natural Environment Research Council said: "With changes in the global climate and increasing pressures on natural resources, our world is facing some tough challenges in the years ahead. The NERC research community is striving to provide the knowledge that will enable the solutions needed to tackle these challenges. At the same time we are playing our part in reducing our own environmental footprint.

"This partnership goes some way to achieving these goals. The Environment Centre Wales not only provides state-of-the-art laboratory facilities and equipment to do the research, but also benefits from a range of features that will reduce the building's environmental impact. I am delighted that our vision for this centre is now a reality."

This scheme won the LABC Cymru (Northern) Region Building Awards for Sustainability in 2008.

