

TITLE:

The Scottish Centre for Ecology and the Natural Environment, Loch Lomond Achieves First BREEAM Excellent Laboratory in Scotland

DATE:

October 2007

SUMMARY

The University of Glasgow and the Carbon Trust worked together on a Carbon Management Programme which identified opportunities to reduce energy consumption and make the most of the Carbon Trust's design advice and surveys. The Scottish Centre for Ecology and the Natural Environment, Loch Lomond is one example taken from the programme. It is the first BREEAM excellent laboratory in Scotland and has won the Carbon Trust Low Carbon Building Award and The International Green Apple Award.

INSTITUTION PROFILE

HE

20500 FTE students

5500 staff

City

Buildings across 16 sites

EAUC COMMENT

This case study demonstrates how support from organisations such as the Carbon Trust can help achieve first class research facilities of award winning standards for energy efficiency.



PROJECT PARTNERS

University of Glasgow
The Carbon Trust
BRE (Building Research Establishment)

THE PROBLEM

The University of Glasgow knew that the replacement of the existing research facilities on the banks of Loch Lomond had to be sustainable and energy efficient. The site is located in the Loch Lomond and Trossachs National Park and is a Site of Special Scientific Interest (SSSI) and is therefore in a very sensitive environment. A highly sustainable design brief including BREEAM excellent status was specified for the building. With support from the Carbon Trust Design Advice Team the University was able to integrate low carbon energy saving technology and energy efficient design into the design of the new building.

THE APPROACH

Early on the University realised that the design team had to have access to appropriate advice if the objectives of the project were to be achieved. Accordingly, BRE were commissioned to provide advice to the design team and client on a passive design strategy analyses (including the design intent, the site design approach and materials) and traditional energy efficiency measures and asked to develop performance targets for the building. On completion of the design the Carbon Trust funded a comprehensive energy review of the proposal.

GOALS

The project goals were:

- To provide first class research facilities
- To exceed environmental good practice
- To create a building with low running costs and low carbon emissions
- To develop a passive energy design strategy for the building
- To achieve BREEAM excellent

OBSTACLES AND SOLUTIONS

- Renewable options restricted due to site location
- The site is within a SSSI, and a national park; therefore planning was very strict
- Tried to source local materials as part of the sustainability ethic
- Assessment of ecological impact of the development
- Full renewables assessment carried out recommending ground source heat pump
- Consulted with local residents before planning application was made. Application was successful and readily went through
- Too expensive to open up local slate quarry; instead brought in high quality slate from the Lake District
- Verification of compliance with BREEAM ecological criteria

PERFORMANCE AND RESULTS

The Centre achieved a BREEAM Excellent, has won the Carbon Trust Low Carbon Building Award and the International Green Apple Award for education establishments run by the Green Organisation.

The building energy consumption will be reduced by 19% when compared to a good performance building and by 45% when compared to a typical comparative academic building. Data used to calculate targets were taken from the Action Energy programme and HEEPI, the figures have been ratified by BRE. This means that the performance will be half-way between Good Practice and the best buildings in the UK.

Further monitoring of energy performance will be undertaken by the Design Team and the Carbon Trust.

LESSONS LEARNT

- Face to face approach taken by the Carbon Trust was essential and resulted in a well managed project that identified lots of carbon saving opportunities
- There is a lot of useful information available through the Carbon Trust
- The partnership with the Carbon Trust provides around £20K pa consultancy fees and high quality expertise (BRE)
- Stakeholder involvement is essential, the Park Authority sees the development as an exemplar
- BREEAM enhances communication with the design team which is essential
- It is essential that the client thinks about how the building will be used after construction in complying with sustainability standards

FURTHER INFORMATION

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