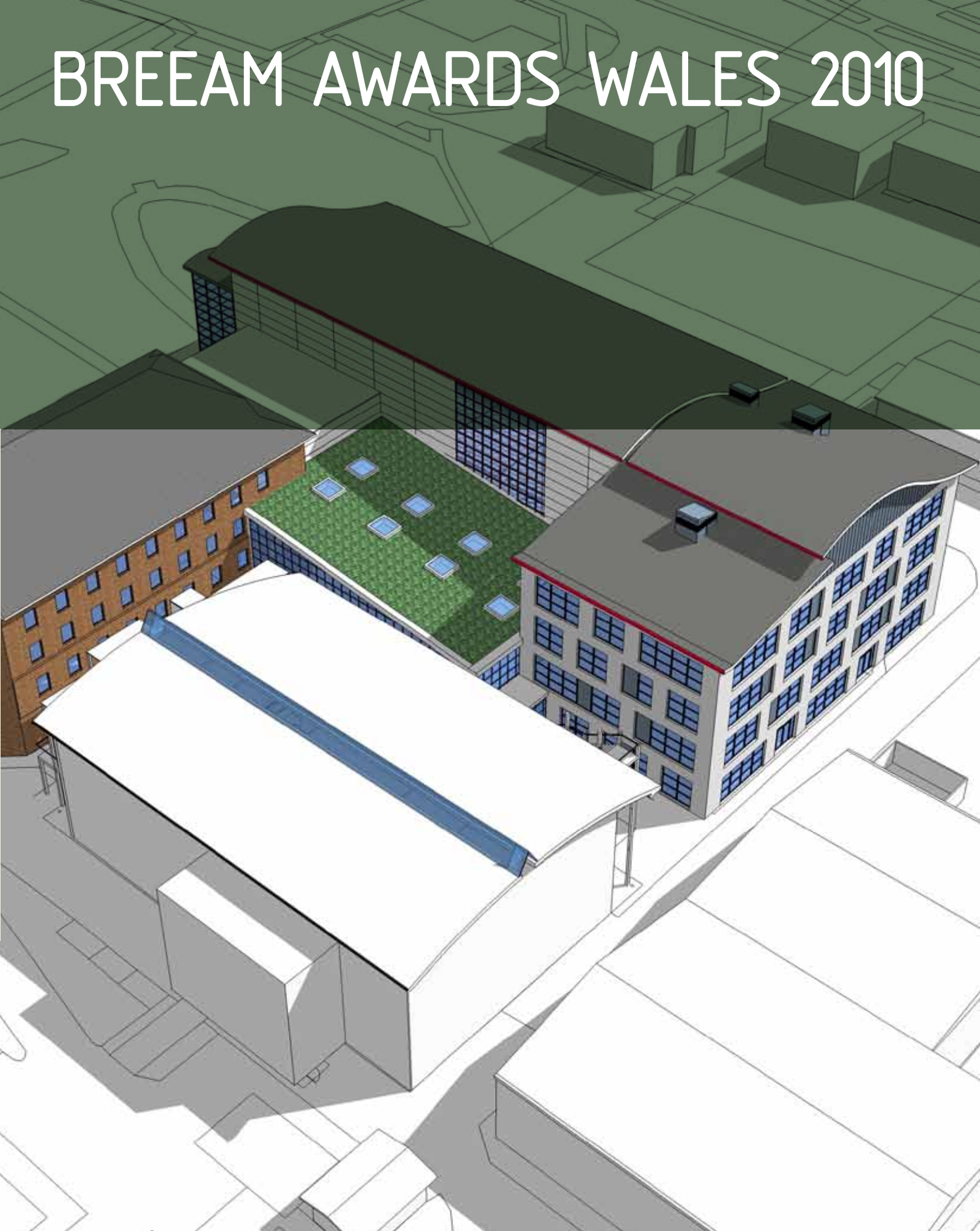


BREEAM AWARDS WALES 2010



BREEAM AWARDS WALES 2010

The BREEAM Awards recognise and reward those involved in the design and construction of the highest scoring buildings certified under BREEAM.

A BREEAM Excellent rating is a pre-qualification, so the winners truly represent the top examples of sustainable design. The awards are not subjective as each development has been independently assessed and certified. In order to win an award, each building must have excelled in every environmental category within BREEAM (eg from Energy to Ecology) and therefore winners represent a holistic approach to delivering environmental sustainability.



BREEAM FURTHER EDUCATION

YSTRAD MYNACH COLLEGE



About the building

The new Ystrad Mynach College building in Caerphilly is a four-storey teaching block that includes general classrooms, a hair and beauty studio, a learning resource centre and a new refectory and kitchen facilities. It is being constructed within the existing site of the building being replaced, which was a two-storey teaching block dating from the 1960s – when the College was first commissioned.

The aim is to build a new, high quality facility that meets Ystrad Mynach College's ever increasing aspirations. With a gross internal area of 1435m², it will provide much needed expansion space for the College, which continues to grow in response to the needs of the local area. Construction of the building is due to be completed in July 2010.

The project is majority funded by the Welsh Assembly for whom a critical requirement was that the building achieve a BREEAM 'Excellent' rating.

Key facts

BREEAM rating :	Excellent
Score :	72.52%
Size :	1435m ²
Stage :	Design & Procurement
BREEAM version :	Further Education

Overview of environmental features

The key environmental features of the building include:

- Biomass boiler
- Planted green roof
- Natural ventilation
- Use of low environmental impact materials, such as in the laminated timber frame structure. The building achieved 7 of 7 credits for BREEAM MW1: Materials Specification - Major Building Elements.
- Rainwater recycling for WC flushing
- Free cooling using night time cooling
- Low-flow sanitary ware

The BREEAM assessment

The building scored well across all BREEAM categories, achieving 100% in the Water category and 80% or more in the Health & Wellbeing and Land Use & Ecology categories.

Building services

The College includes a biomass boiler, which contributes to the excellent energy performance, with a 31% improvement over building regulations.

The building is naturally ventilated, and incorporates night time cooling with high thermal mass. It also incorporates rainwater recycling for WC flushing.

Green strategy

Every material and design element of the building has been scrutinised to achieve the best rating possible. Particular areas of excellence include:

- The building footprint – the footprint of the new, larger teaching block has been kept within that of the building that was removed.
- The provision of a green roof and water attenuation on the site.
- The installation of a biomass system to replace the existing boiler.
- The use of a natural ventilation strategy, with windows linked to a building management system to control building cooling over night.

Project team details

Developer – Ystrad Mynach College
Project Manager – BNP Paribas Real Estate
Architect – AWW Architects
M&E Engineers – Jones King Partnership
Contractor – Midas Construction
Ecologist – Ecosulis
Structural Engineer – Structures1
BREEAM Assessor – AECOM
Cost Consultants – Cyril Sweett
CDM Co-ordinator – Cyril Sweett



“By including the latest energy saving devices and sustainable processes, BREEAM will enable the College to reduce running costs while providing a comfortable environment for both learners and staff. This also promotes an interest in sustainability, which is becoming more and more a part of the curriculum.”

Steve Davies, Estate Manager,
Ystrad Mynach College

BREEAM BESPOKE

WELSH ASSEMBLY BUILDING, LLANDUDNO JUNCTION



About the building

The building is the regional North Wales office for the Welsh Assembly Government, located at Llandudno Junction in Conway. The building provides both a base for Welsh Assembly staff and public access. Keen to minimise the environmental impact of its facilities, the Welsh Assembly Government set a target of BREEAM 'Excellent' for the building.

Key facts

BREEAM rating:	Excellent
Score:	75.8%
Size:	8,800m ²
Stage:	Construction
BREEAM version:	BREEAM Bespoke

Overview of environmental features

Biomass boiler – meets approximately 90% of the building's energy requirements for heating and domestic hot water.

Natural ventilation – a combination of automatically opening windows and high level louvres in the atrium provide cross flow ventilation and stack ventilation that encourage a natural air flow through the building. The windows and louvres are controlled by temperature and CO₂ sensors, working in conjunction with an external weather station.

Passive cooling – exposed concrete ceiling slabs work in combination with the natural ventilation system. At night, air is allowed to circulate through the building to cool the ceiling slabs. These then absorb heat from building occupants and equipment throughout the day, limiting internal temperatures to acceptable limits without the need for air conditioning.

Solar shading – a combination of fixed and active solar shading throughout the exposed aspects of the building limits solar gain, and reduces the likelihood of the building overheating or being reliant on air conditioning for satisfactory operation.

Heat recovery – ventilation systems in the central core areas where satisfactory natural ventilation is not possible, use high efficiency thermal wheels to extract heat from waste air and transfer it to incoming cold air. This minimises the amount of heat and energy required for the system.

Computational fluid dynamics and thermal modelling – prior to construction, modelling was carried out to ensure that the proposed natural ventilation and cooling strategies would perform acceptably. This also helped with the development of the scheme and the selection of suitable components.

The BREEAM assessment

The building scored well in a wide range of issues including:

Construction site impacts – four out of a possible four credits were gained for minimising these.

Reduced carbon emissions – six credits were achieved, with substantially lower CO₂ emissions than is required by current building regulations, through the use of biomass boiler plant, good insulation and heat recovery systems.

Transport – the availability of local transport, along with a travel plan and cyclist facilities, maximised credits in this area.

Water use – numerous credits were achieved by using low-water consumption fixtures and fittings throughout the building, extensive water metering with leak detection, sanitary shut off systems and rainwater harvesting and water recycling systems.

Building services

Heating is provided to the building with a low temperature hot water radiator heating circuit, operating in conjunction with natural ventilation to the majority of office areas.

The lighting systems throughout the building use automatic daylight sensing to minimise energy use.

Where cooling is required, such as in meeting rooms and central core areas, non-ozone depleting ammonia chillers are used.

A combination of biomass boilers, high levels of building insulation and heat recovery ensure that the building performs well in terms of CO₂ emissions.

Green strategy

The building makes use of numerous technologies for reducing environmental impact, which may often be seen in isolation in other buildings, but are not normally combined in a single building as in this case.

Project team details

Main Contractor – Pochin Construction Ltd
Building Services Consultant – S.I.Sealy
Architect – Austin Smith Lord
Structural Engineer – Tier
Project Manager – Tweeds
BREEAM Assessor – WYG
Client – Welsh Assembly Government

"This is a building both the Welsh Assembly Government and North Wales can be proud of. It is no small achievement to complete a building on this scale and to achieve such high environmental standards - BREEAM 'Excellent' and an A-rated energy performance."

Carwyn Jones AM, First Minister of Wales

BREEAM SCHOOLS

ROGIET PRIMARY SCHOOL, MONMOUTHSHIRE



About the building

Rogiet Primary School is a new-build project to replace an existing school on adjacent land in the village of Rogiet, Monmouthshire. The single-storey, timber-frame building accommodates 260 pupils and staff, and has landscaped grounds and external play and sports areas. Monmouthshire County Council set the BREEAM 'Excellent' objective in line with its targets and Welsh Assembly Government guidance on the sustainable development of public buildings.

Key facts

BREEAM rating:	Excellent
Score:	78.18%
Size:	1447 m ² gross floor area
Stage:	Design
BREEAM version:	Schools 2006

Overview of environmental features

Sustainable design principles were followed from the outset, with the client, design team, contractor, and BREEAM Assessor working as a close team in a 'partnering' approach. Key aspects included:

- Single storey plan with high levels of natural daylight in all areas
- Timber-frame construction with glulam and exposed timber elements, with responsibly sourced timber and local supply chain contractors used throughout
- Natural ventilation using both manually and automatically actuated windows, rooflights and vents to ensure good ventilation rates and thermal comfort
- Efficient thermal and building services using high levels of insulation and passive measures to minimise energy consumption.
- Landscape design and planting that maximised both educational benefits for the school and biodiversity enhancement of the site
- Drainage design providing rainwater attenuation to meet local drainage discharge requirements
- Best practice approach to site environmental management and procurement on the part of the contractor

The BREEAM Assessment

The project scored well in all BREEAM categories with 6 of these exceeding a score of 70%:

- Management (80%) – due to a focused approach from both the client and contractor
- Health & Wellbeing (83%) – architectural and building services approach designed to meet or exceed requirements
- Energy (74%) – very good Part L performance and minimal use of mechanical cooling
- Water (86%) – use of both low-use fittings and rainwater capture and reuse
- Materials (76%) – Green Guide A/A+ rated construction and responsibly sourced timber and non-timber materials used throughout
- Pollution (100%) – meeting all achievable BREEAM requirements on refrigerant use, insulation, services specification, renewable energy and flood risk/drainage.

Building services

- Space heating is provided by an ultra-low NOx gas boiler feeding zoned underfloor heating controlled by the BMS
- Hot water is provided by the gas boiler supplemented by a roof mounted solar thermal hot water system
- Lighting is designed to meet all BREEAM requirements and additionally to minimise energy use through PIR and daylight modulation.
- Ventilation is provided in all occupied areas via both manually and automatically actuated windows and rooflights, with a 'Passivent' stack and louvre system to the main hall.
- Renewable/low carbon energy is generated on site via the solar thermal hot water system and a vertical axis wind turbine providing 17% of the building's total energy requirements
- Mechanical cooling is avoided, except in the server room, but the thermal comfort standards of BB87/101 are exceeded with optimally designed natural ventilation
- Rainwater harvesting and storage with reuse for WC flushing

Green strategy

The project team and BREEAM Assessor worked together from the earliest stages of the project, to ensure that the design and project processes were in place to gain the most sustainable outcomes.

Sustainable principles were integrated with the children's education in ways that included:

- Landscape design delivering a nature garden area and a pond for wildlife study
- An eco wall in the library presenting information on the sustainability aspects of the project, and displays of energy use and rainwater capture
- Production of a DVD video of the project including the life-cycle of the recycled cellulose insulation used in the timber frame construction

Project team details

Client – Monmouthshire County Council
Contractor – Willmott Dixon Construction Ltd
Architects & Landscape Design – White Design
Mechanical & Electrical Engineers – McCann & Partners
Structural/Civil Engineers – Jubb Consulting Engineers
Ecologist – RPS
BREEAM Assessor – WD Re-Thinking Ltd

"BREEAM has set the standards to aim for and has encouraged the site team to interact with the school in developing sustainability as an embedded culture, thus encouraging future generations to live sustainably."
Derek Downer, Head of Property Services,
Monmouthshire County Council

BREEAM ECOHOMES

RODNEY PARADE PHASE 1



About the development

Rodney Parade Phase 1 is a residential development of 51 high quality dwellings in Newport, South Wales. It is a mix of 15 one and 36 two bedroom flats, spread over three blocks.

The flats are constructed with a mix of standard brick and block, rendered blockwork and trespa panel external walls, and a steel double skin roof system. The ground floors are concrete and the upper floors are of timber construction. All windows are timber framed but with aluminium clad fascia. The flats are heated by gas boilers.

This development is part of a major regeneration project in Newport known as City Vizion.

Key facts

BREEAM rating : Excellent
Score : 72.6%
Stage : Design & Procurement
BREEAM version : EcoHomes 2005

Overview of environmental features

The key environmental features of the development include:

- efficient building fabric
- low NOx boilers
- responsibly sourced timber
- actions to increase the ecological value of the site
- location in an area with good public transport links and local amenities. It is an easy 500-metre walk from regularly serviced bus stops and the central Newport bus station, and within one kilometre from a range of amenities including a primary school.

The EcoHomes assessment

EcoHomes seeks to minimise the adverse effects of new dwellings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. The overall rating is determined by the total number of EcoHomes criteria met and their respective environmental weightings.

Project Team details

Developer – Taylor Wimpey (South Wales)
Architect – Gardner Stewart Architects
BREEAM Assessor – AECOM

BREEAM OFFICES

CEREDIGION COUNTY COUNCIL OFFICES



About the building

The Ceredigion County Council building, constructed to the east of Aberystwyth town centre, provides new, multi-storey office accommodation for more than 410 Council staff who have been brought together from offices across the city.

The building provides a high quality and sustainable working environment, and is part of a larger landscaped development with adjacent new Welsh Assembly Government offices. The BREEAM 'Excellent' objective was set by the Council in line with its targets and Welsh Assembly Government guidance on sustainable development objectives for future public buildings in Wales.

Key facts

BREEAM rating :	Excellent
Score :	73.7%
Size :	6326m ² net lettable floor area
Stage :	Design & Procurement
BREEAM version :	Offices 2006

Overview of environmental features

The design of Ceredigion County Council Offices followed sustainable principles, with particular focus on energy performance and achieving a building that delivers 'best in class' environmental performance. Key aspects include:

- A central atrium space that ensures high levels of natural daylight in most of the relatively deep plan, multi-storey building
- A natural ventilation strategy in the open plan office space, using manually and automatically actuated windows and rooflights – and the central atrium – to ensure good ventilation rates and maximise thermal comfort
- High levels of insulation and passive measures to minimise energy consumption, efficient building services, and significant levels of renewable and low carbon energy from on-site installations and a district heating network.
- Landscape design and planting that enhances the biodiversity of a site that was previously of low ecological value

- SUDS measures for rainwater attenuation to meet the drainage discharge requirements for the site and mitigate flood risk in a medium risk area
- A best practice approach to site environmental management and procurement on the part of the contractor

The BREEAM assessment

The project scored well in most BREEAM categories, for example:

- Management (100%) – a focused approach from both the client and contractor
- Energy (78%) – very good Part L performance and significant use of low/zero carbon energy
- Transport (87%) – good public transport and provision of cycling facilities
- Water (100%) – use of low-use fittings and rainwater capture and reuse
- Land Use & Ecology (80%) – enhancement of a site of previously low ecological value

Building services

- All space heating and most hot water is provided by a biomass-fuelled district heating system that also serves adjacent offices, a school and other public buildings in the area
- Hot water provision is supplemented by a roof mounted solar thermal hot water system
- Lighting is designed to meet all BREEAM requirements and, in addition, to minimise energy use through PIR and daylight modulation
- A site-located wind generator provides additional low carbon electricity
- Ventilation is provided to the main office areas through manually and automatically actuated windows and rooflights and a central atrium, with mechanical ventilation to selected ground floor areas
- Mechanical cooling is provided by ammonia chillers with leak detection technology to give a cooling strategy that avoids using high GWP refrigerants
- Rainwater harvesting and storage for WC flushing

Green strategy

The design team, contractor and BREEAM assessor worked together on the building's design and procurement to ensure that the most sustainable outcomes were achieved within the project's budget limitations. This aligns strongly with the Council's aim to minimise environmental impact across all of its operations in the future.

Project Team details

Client – Ceredigion County Council
Contractor – Willmott Dixon Construction Ltd
Architects – Powell Dobson
Mechanical & Electrical Engineers – Hoare Lea
Structural/Civil Engineers – Clark Bond
Ecologist – Soltys Brewster
BREEAM Assessor – WD Re-Thinking Ltd

"Our employees are proud of their new office with its sustainable credentials and excellent working environment. The building is significantly cheaper to run than the seven Georgian and Victorian buildings previously occupied in Aberystwyth. Following its success, Ceredigion County Council is giving greater emphasis to achieving high BREEAM ratings on future developments."
Martin Severs, Ceredigion County Council

BREEAM INDUSTRIAL

WESTERN POWER DISTRIBUTION, LLANDRINDOD WELLS



About the building

The Western Power Distribution unit incorporates a production area and associated office accommodation. It is a steel frame building located on the Dole Industrial Estate, north of Llandrindod Wells in Powys.

Key facts

BREEAM rating:	Excellent
Score:	76.06%
Size:	210m ²
Stage:	Post Construction Review
BREEAM version:	Industrial 2006

Overview of environmental features

The Western Power Distribution unit maximises the use of renewable energy and energy efficient technologies in its design. It achieves an 82% improvement over the requirements of Part L2A (Conservation of fuel and power) of the building regulations.

The building:

- is naturally ventilated
- avoids the use of refrigerants in its operation
- is fitted with a biomass boiler to deliver space heating
- has high frequency ballasts installed on all fluorescent and compact fluorescent lamps
- uses a leak detection system that is capable of identifying major leaks, both within the building and between the building and the site boundary
- has resulted in an increase in the number of flora species on the site.

BREEAM assessment

The building performed well in all BREEAM categories, scoring particularly highly in:

- Energy – 100%
- Management – 88.89%
- Health and wellbeing – 85.71%

Green strategy

The development gained the maximum of 15 credits under BREEAM E1 (Energy), by achieving an 82% reduction in CO₂ emissions.

The full quota of four credits were awarded under the issue of 'Construction Site Impacts', for monitoring, reporting and setting targets for energy use and water consumption arising from site activities. Site construction waste was also monitored and sorted and recycled into different waste streams. All temporary timber used on site was reused or obtained from an FSC certified source.

Best practice policies were adopted in respect of air (dust) pollution and water (ground and surface) pollution – in line with PPG1, PPG 5 and PPG 6.

Lighting levels were designed in accordance with the appropriate CIBSE guidelines.

In addition:

- the site was registered with the Considerate Constructors Scheme (scoring 32.5 points)
- the Design Team was committed to seasonal commissioning
- a Building User Guide was produced for the building.

Project team details

Client – Western Power Distribution
Contractor – Britannia Construction
Architect – HLN Architects
Building Services – Triangle Consulting Engineers Ltd
Structural Engineer – RVW Consulting
BREEAM Assessor – WYG

"Achieving a BREEAM 'Excellent' rating for the Western Power Distribution unit was greatly assisted by strong communication through the Design Team and the early involvement of the Assessor."

Matthew John, WYG





About BRE Global

BRE Global Limited (incorporating LPCB & BREEAM) is an independent third party approvals body offering certification of fire, security and sustainability products and services to an international market. BRE Global's product testing and approvals are carried out by internationally recognised experts in our renowned testing laboratories. BRE Global Limited is custodian of a number of world leading brands including:

- LPCB for the approval of fire and security products and services, listed in the Red Books.
- BREEAM the leading environmental assessment method for buildings, sets the standard for best practice in sustainable design and has become the de-facto measure of a building's environmental performance.

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