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