



CLEDDAU REACH VC PRIMARY SCHOOL NEW BUILD

Architect: In house - Pembrokeshire County Council

Contractor: Dawnus Construction Limited, Swansea

Cost: £5.7 million

Funding Sources:
Pembrokeshire County Council
Welsh Government

Scheme Description:

The new school replaces buildings on two separate sites and will accommodate approximately 220 pupils from the ages of 3 -11. A community learning facility is also incorporated.

Internal accommodation includes an Early Years and Reception Unit, ICT Suite and Community Room. Externally, facilities include habitat areas, an outdoor classroom and a MUGA which can also be used by the community.

Interesting features include a natural ventilation strategy, rainwater harvesting system, windcatchers and a full BMS (Building Management System) controlling the building's heating and lighting remotely, ensuring the highest levels of energy efficiency.

The new building is highly sustainable with its own combined heat and power unit (CHP) providing heating and around half of the building's electricity, and solar panels.

The project will be the third BREEAM (Building Research Establishment's Environmental Assessment Method) school that the authority will have completed and is on course to achieve an 'Excellent' rating. 20% of the building has been constructed using recycled materials.



The building incorporates safety, energy efficiency and water saving measures with:

- A sprinkler system
- Natural ventilation strategy with rooflights in all classrooms
- High efficiency luminaires
- Energy-efficient boilers
- CHP unit (Combined Heat & Power)
- 20% of the building materials are recycled
- Rainwater harvesting and water-efficient taps and sanitaryware
- Insulation made of recycled glass bottles
- BREEAM Excellent Rating

Completion: Spring 2013

Figures:

The basic building cost is **£955/m²**, Services Costs **£676/m²** with External Works **£289/m²**.
The total area of the Cleddau Reach site is **1.58 hectares** with a *Gross Floor Area* of **1989 m²**.

Building Areas:

- Basic Teaching area **702m²**
- Hall **181m²**
- Staff & Admin **88m²**
- Learning Resource Areas **124m²**
- Toilets & Personal Care **117m²**
- Kitchen **86m²**

The building has a circulation area of **267m²** and **148 m²** of storage.

Energy Consumption: Including end uses the predicted electricity consumption for the building is **34kWh/m²**, including end uses predicted fossil fuel consumption is **114kWh/m²** and predicted renewable heat (solar hot water) generation is **2.01kWh/m²**.

Water consumption: Including end uses predicted water use is **1.88m³/person/year** with a predicted **39%** of water to be provided by rainwater harvesting.

Steps to reduce environmental impacts: The school incorporates a number of design strategies to reduce its environmental impact, in terms of natural resources used to build and run it:

- Natural ventilation, so there is no need for energy-hungry air conditioning.
- High levels of natural lighting, so that very few lights are needed - even on an overcast day.
- Low-energy lighting on daylight sensors will automatically dim the lighting on bright days.
- The building is highly insulated and very airtight, thereby ensuring the efficient use of natural resources to heat it.
- A combined heat and power (CHP) unit generates up to 50% of the building's electricity, as well as running the underfloor heating and providing hot water.
- A solar-panel array heats water that is used in the kitchen.
- Rainwater harvesting uses water collected from the roof to flush toilets, thus reducing water bills.