

Stromness Primary School, Orkney



A description of the project

The new build Stromness Primary School accommodates 200 pupils, incorporating a 30-pupil nursery and community facilities. It is located on a very prominent yet exposed brownfield site to the north of Stromness currently utilised as a lorry park

The building had been designed to reflect the local vernacular architecture found in Stromness i.e. gables to the sea. The school is a single storey building with a simple legible layout. All of the classrooms and break-out areas have optimum views over the Hamnavoe and a series of large sliding door panels open up to a year group activity area/ breakout space which allows for a variety of learning and teaching styles with either individual or interclass working.

The key innovative and low impact design features of the building

- The building is heated by high efficiency heat pumps coupled with underfloor heating resulting in a COP (Coefficient of Performance) in excess of 3.5.
- Natural ventilation predominates, but where mechanical ventilation is required to satisfy high levels of occupancy, such as Multipurpose Hall, variable speed fans ensure that airflow rates are matched to occupancy.
- Heat recovery is provided between the exhaust and supply air streams of air handling systems to further enhance operational efficiency.
- 25m² of solar photovoltaic generation is provided to offset an element of the building base electrical demand.
- The development delivers an EPC (Energy Performance Certificate) 'A' and carbon emissions of just 14kgCO₂/m²/yr.
- A Building Management System provides coordinated central control of heating and ventilation to minimise energy use.
- Rainwater harvesting system was installed to reduce amount of fresh water used.



Reducing the environmental impact of construction process

A requirement of the BREEAM (Building Research Establishment Environmental Assessment Method) assessment is to publicise information relating to the aspects of the design and procurement which will reduce the buildings overall environmental impact. Construction has been planned and executed to minimise impact on the environment.

Steps taken:

- The site and the main contractor are registered under Considerate Constructors Scheme with regular inspections taking place. the contractor is committed to achieving Performance Beyond Compliance under the scheme with minimum score of 36 points.
- The contractor implemented site specific Site Waste Management Plan to minimise amount of waste directed to landfill and to promote reducing, reusing and recycling practices.
- The contractor is committed to monitoring site energy, water and fuel consumption.

- All construction materials are responsibly sourced with 100% of timber being from sustainable sources.



BREEAM Rating and Score

Stromness Primary School has been assessed under BREEAM Education 2008 Scheme BREEAM Education 2008 Scheme can be carried out on new builds and major refurbishment projects.

BREEAM rating benchmarks are as follows: UNCLASIFIED (<30), PASS (>30), GOOD (>45), VERY GOOD (>55), EXCELLENT (>70%), OUTSTANDING (>85%).

Predicted BREEAM Rating.	EXCELLENT- 74%.
Basic Building Costs.	£1417.55/m2.
Services Costs.	£838.29/m2.
External Works Costs.	£625.26/m2.
Gross Floor Area.	2710m2.

Total area of site.	0.864ha (2.74 ha including All Weather Pitch).
Function Areas and their size.	Multi-Purpose Hall 165m2. Dining Area 115m2.
Area of Circulation.	100m2- corridors only. This does not include circulation forming break out zones.
Area of Storage.	106.5m2.
% area of grounds to be used by community.	11.6%- MUGA (Multi Use Games Area) only, 29.2% including All Weather Pitch.
% of buildings to be used by community.	11.5%- MPH and Dining.
Predicted Electricity Use.	23kWh/m2/year.
Predicted Fossil Fuel Consumption.	6kWh/m2/year.
Predicted water use.	1.5m3/person/year.
Predicted water use to be provided by rainwater or greywater.	18 days of WC and Urinal flushing.