

# Papdale Halls of Residence, Orkney



## Description of the project

The new build Halls of Residence is designed to accommodate 70 students from adjacent Kirkwall Grammar School, all in en-suite rooms along with additional accommodation for visiting staff and students.

The site sits on an elevated position adjacent to a historic walled garden and mature woodland, with open views across Kirkwall in a south westerly direction.

The building has been designed over three floors with upper floor containing separate male and female bedroom wings, and with all bedrooms afforded outward views but with important privacy from each other. Generous and flexible communal spaces on the ground floor allow a variety of social and educational activities to take place, and all these spaces open out onto a sheltered and secure courtyard for leisure and group activities.

## The key innovative and low impact design features of the building

- The chosen main heat source for the building is Ground Source Heat Pumps (GSHP) linked to an array of boreholes. Two small high efficiency LPG boilers (Liquid Petroleum Gas) will serve as back up in case of a GSHP failure and top up during periods of extreme cold.
- A Building Management System provides coordinated central control of heating and ventilation to minimise energy use.
- A natural ventilation strategy has been adopted for the bedrooms to minimise the need for mechanical ventilation and reduce long term maintenance issues associated with this.
- 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 and regular inspections were taking place. The contractor was 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 was committed to monitoring site energy, water and fuel consumption.
- All construction materials were responsibly sourced with 100% of timber being from sustainable sources.

## BREEAM Rating and Score

Papdale Halls of Residence has been assessed under BREEAM Multi Residential 2008 Scheme.

BREEAM Multi Residential 2008 Scheme can be carried out on new builds and major refurbishment projects.

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

<b>Predicted BREEAM Rating.</b>	<b>EXCELLENT- 73%.</b>
<b>Basic Building Costs.</b>	<b>£1211.1/m2.</b>
<b>Services Costs.</b>	<b>£862.35/m2.</b>
<b>External Works Costs.</b>	<b>£180.46/m2.</b>
<b>Gross Floor Area.</b>	<b>3080m2.</b>
<b>Total area of site.</b>	<b>1.135ha.</b>
<b>Function Areas and their size.</b>	<b>130m2 dining / multipurpose hall.</b>
<b>Area of Circulation.</b>	<b>645m2 - this includes corridors, stairs and lifts but exclude foyer space.</b>
<b>Area of Storage.</b>	<b>61m2.</b>

<b>% area of grounds to be used by community.</b>	<b>75%.</b>
<b>% of buildings to be used by community.</b>	<b>0%.</b>
<b>Predicted Electricity Use.</b>	<b>49kWh/m2.</b>
<b>CO2 emissions.</b>	<b>21kgCO2/m2/ year.</b>
<b>Predicter water use.</b>	<b>1.5m3/person/year.</b>
<b>Predicted water use to be provided by rainwater or greywater.</b>	<b>18 days of WC flushing.</b>

