

YARROWFORD GRAZINGS

PROJECT REPORT



October 2010

BACKGROUND

The Climate Change Act 2008 has placed an even greater need upon the housing industry to reduce carbon emissions and build sustainable and energy efficient homes. Eildon Housing Association have taken the need for reducing carbon emissions on board and are now building homes to meet the required CO2 savings for new dwelling houses.

Yarrowford Grazings was seen as an ideal project for Eildon Housing Association to implement the use of sustainable building products and green energy products to meet these requirements.

PROJECT TEAM

Architects	-	John R Harris Ltd, Melrose
Quantity Surveyor	-	Pottie Wilson, Edinburgh
Engineers	-	McKay & Partners, Selkirk
CDM Co-ordinators	-	AECOM Ltd, Edinburgh
Main Contractor	-	Border Construction, Earlston

SITE

Eildon Housing Association acquired the land from Scottish Borders Council in March 2005 as part of a bulk transfer of various sites from the former Housing Revenue Account. The land was transferred to EHA for a nominal sum on the provision that the sites be used to build affordable housing for rent and/or low cost home ownership.

Yarrowford Grazings forms part of the rural village of Yarrowford which has a mixture of private and registered social landlord homes. The area of land lying to the west of the village was identified as being suitable for building 8 homes upon.

DESIGN AND TECHNICAL

Sustainable construction and energy efficiency were key areas on this project. Eildon Housing wanted to build homes using Scottish timber and locally sourced materials and to also provide heat and hot water from green energy sources.

Scottish Borders Council in partnership with GAIA Architects procured a study into using locally sourced timbers in construction. Eildon Housing sought advice and information from GAIA Architects who carried out the research for Scottish Borders Council. With this information, our consultants were able to design and specify the buildings to utilise as much Scottish timber as possible within the dwellings.



Scottish timber was utilised for the structural frame, flooring, doors, windows, external cladding and lining. The source of the timbers was verified by the Forest Steward Council. Scottish timbers could not be used for internal facings due to the poor finish that could only be achieved on the material.



Excavated ground on the site was screened to allow this to be re-used for sub-bases to roads, foundations and for top soil. Only a small amount of material had to be imported for ground make-up.

This helped reduce the carbon footprint of the build process by decreasing the number of journeys required to deliver heavy materials to the site and also increased the use of locally sourced materials.

Architects John R Harris, investigated the use of air-source heat pumps for the project. The lead consultant having had previous experience on specifying this type of system was able to provide guidance on the type of system which would suit this project. Mitsubishi Ecodan air-source heat pumps were specified and these were manufactured at their factory in Livingston. These heat pumps are situated externally on the ground and utilise the energy that air contains. This energy is then used to pre-heat water for heating and domestic consumption. The heat pumps are intended to reduce the electrical consumption required to provide heat and hot water, thereby reducing the CO2 output for the dwelling.



ANTICIPATED OUTCOMES

Eildon Housing envisage Yarrowford Grazings as being able to prove that it is possible for a developer to construct dwelling houses using locally sourced materials whilst still achieving value for money. In addition to this the use of air-source heating will help prove that the production of heat and hot water in areas that are not on the national gas network are both economical and financially viable.

OUTCOMES SO FAR

Eildon Housing has so far succeeded in achieving many of our goals for the project. We have been able to construct dwelling houses using timbers sourced from Scottish forests to build more than 90% of the timber element of the dwellings. The timber frame structure for the dwellings was also manufactured in the nearby town of Selkirk. This meant that when ready the kits only had to be transported 6 miles from the factory to the development site.

Screening of material on site reduced the need for importing aggregate materials which not only reduced costs but cut down on the CO2 input into the construction of the dwellings by reducing the amount of deliveries by vehicles.

Materials for the project were sourced from as many local merchants as possible to further reduce delivery distances.

The air-source heating is being monitored by meter readings being made available to Eildon Housing Association by the tenants on a monthly basis to allow us to ensure that the systems are indeed working efficiently and effectively. The results of this will not be known until the summer of 2011 once the system has been monitored throughout the winter period.