NBT *Case Study*

NW1 SYSTEM & NW2 SYSTEM

Project Description and Aims

The Bridge Community Centre is a rebuild of an old community hall which previously stood on the same site. The new building is designed to be multifunctional and to serve all sections of the community. Ecological design features were used wherever possible which would minimise the impact on the environment and ensure the area's economy benefited through the use of locally sourced materials and production. The building was designed to be low energy in use and this was achieved by using high values of insulation in the walls and roof and incorporating features such as solar electric (photovoltaics), solar thermal panels and passive ventilation to keep the building interior comfortable in all weather conditions.

NBT role in project

NBT provided design support and calculations to the architect at various stages of the project. Technical support was given to the contactor as work progressed on site.

The Bridge Community Centre

Client:
Hastings Millennium Community Programme
Architect: BBM Sustainable Design Ltd
Contractor: Westridge Construction Ltd
Contract Value: £1.5m

Rendered Diffutherm onto Timber Frame
Clad Timber Frame using Pavatherm Plus
Ecological Sedum Roof using Pavatex Isolair

Case Study

The Bridge Community Centre

Performance:

The walls were designed with a U-value of 0.2W/m2 degree C. This was achieved using two different NBT Systems, NW1 and NW2. In the former, externally rendered Diffutherm 80mm Woodfibre boards were fixed to the chestnut frame with Flax insulation filling the space between the timber studwork. In NW2 Pavatherm plus Woodfibre insulation boards were used with chestnut cladding being fixed eternally onto battens. The two different external finishes both gave similar U- values and allowed the designer to vary the external appearance of different parts of the building. In the roof which was deigned to achieve a U-value of 0.2W/m2 degree C Isolair Woodfibre boards were used to provide both insulation and thermal mass to control heat loss and overheating of the building.

Buildability:

Diffutherm, Pavatherm Plus and Isolair boards are available in a range of thicknesses and are interlocking on all four sides. They are quick and easy to install and eliminate the need for membranes and vapour checks. They all provide enhanced thermal and acoustic insulation; airtightness; heat loss and overheating control and the Diffutherm board can be used as a direct render carrier. The boards are highly "vapour open" and are able to help control the level of moisture within the buildings fabric. This in turn helps to ensure a healthy internal environment for the buildings users. The Lime based renders which were used are quick and easy to apply by machine or by hand and an extensive range of different coloured and textured top coats allow the designer to choose from a huge number of options for the finished appearance. The Flax and Sheepswool insulation which was used was supplied in rolls or batts for easy installation and are non toxic, non itchy and pose no risk to the installer or the environment.

Environmental:

Diffutherm, Pavatherm plus and Isolair boards have an excellent ecological profile and are manufactured almost entirely from waste pinewood and contain no artificial glues, resins or wood preservers. The boards are non toxic, non irritant and contain no substances which can off-gas. They compost naturally and therefore require no special precautions to be taken on final disposal. The BaumitBayosan lime based mineral renders have very low environmental impact as does the Sheepswool and Flax insulation both of which pose no threat to human health or the environment.

Design Issues:

From Architect: Some issues arose with the design of the roof on which Isolair was used as an insulation board; however, these were overcome on site. The building although relatively small in scale was fairly complicated to design as many of the sustainable products that were used were new to the UK market.

Build Issues:

From Contractor: The technical support from NBT's staff on site was good and there were no specific difficulties encountered relating to the build. The project was completed three weeks ahead of programme.

Project images ©BBM Sustainable Design Ltd

Natural Building Technologies Ltd
The Hangar, Worminghall Road, Oakley Bucks. HP18 9UL
Tel: 01844 338338 Fax: 01844 338525 Email: info@natural-building.co.uk Website: natural-building.co.uk