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Design Commission for Wales

The Design Commission for Wales champions high standards of architecture, landscape and urban design in Wales, by promoting wider understanding of the importance of good quality in the built environment, supporting skill building, encouraging social inclusion and sustainable development.

We believe that good architecture and high quality in our built environment is crucial to our quality of life.



An example of the design of a house that will be developed by HLM which will feature two bedrooms



The bere home with wildflower garden roof

Eco homes design competition – the winners

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Two highly energy efficient homes that will produce more than 80% less carbon emissions than a standard new house have been chosen as the overall winners of the Welsh Passive House architectural competition.

Innovative designs, coupled with high levels of insulation and renewable energy, will dramatically reduce the need for supplementary heating, resulting in fuel bills that are at least two thirds cheaper than the average home.

The Design Commission for Wales were delighted to be a part of the judging panel including representatives from the Building Research Establishment and the Wales and West Housing Association who are the client for the project. The Commission has also advised on aspects of the wider 'Works' scheme, from the masterplan, through to the hospital, Learning Campus, General Office refurbishment and Environmental Resource centre.

The winning 3 bed home – which has a wildflower meadow roof and 85% less carbon emissions than a standard new house - is designed by bere:architects of London and the 2 bed home, which utilizes hempcrete, paper and glass for insulation, is designed by HLM Architects, Cardiff.

The two houses will be built at The Works:Ebbw Vale – the former steelworks site – and form the nucleus of Future Homes, a demonstration centre for sustainable development and construction.

The competition, run by the Welsh Assembly Government and Blaenau Gwent County Borough Council in association with Building Research Establishment (BRE), attracted 26 entries from around the UK and tasked architects with designing a sustainable affordable home featuring innovative measures for energy efficiency and eco excellence.

The Welsh Passive House combines the principles of the highly efficient PassivHaus low carbon buildings standards pioneered in Germany and meet the Code for Sustainable Homes in Wales (CSH) level 5 requirements including waste disposal, use of local materials, water efficiency and use of renewable energy features..

The designs had to satisfy the CSH Level 5 standard, using local sustainable materials, incorporating innovative solutions for electricity reductions and construction costs.

Deputy Minister for Regeneration, Leighton Andrews, said the winning designs use a range of local Welsh products and are exemplars of low carbon energy efficiency.

“The innovative measures for energy efficiency used in these designs can be replicated in building developments throughout Wales and should cost no more than a standard home when economies of scale are taken into consideration.

“The new technologies together with the use of local products manufactured from recycled materials, open up a range of business, training and job opportunities for local people which supports our sustainable agenda.”

Both winning designs are highly energy efficient, substantially insulated to retain heat, have triple glazed windows, make the maximum use of natural light and sunshine and require only the minimal supplementary heating in winter.

Neither timber framed house needs a conventional space heating system but use a heat recovery ventilation system when the warmth is extracted from air within the house to heat incoming fresh air, which is then circulated.

Exterior highlights of the bere home include dry stone walling, larch cladding on the upper storey and a wildflower roof.

Evacuated glass tube solar panels provide 65% of the hot water throughout the year, which is supplemented by an energy efficient gas boiler. Electricity is supplemented by Photovoltaic panels, sheep's wool is used for interior insulation while retractable external blinds provide shade in summer.

The HLM house is fitted with PV roof tiles to supplement electricity, hot water is provided by a wood pellet biomass boiler while rainwater is harvested for gardens and flushing toilets. Movement sensors control all fixed lighting

The HLM design also features dry stone walling and uses innovative local products ranging from cement replacement from Cenin in Bridgend to paper insulation from Excel Technology in the Rhymney Valley.

Jonathan Jones, HLM Regional Director, said: "Winning this competition, which is crucial to making sure homes across Wales become more sustainable, reflects our commitment to environmental design.

"Using local craftsmanship, supply and materials and leading edge environmental analysis and design tools we have created a truly vernacular house reflecting the heritage of both Wales and Ebbw Vale. By applying the principles of passive design with cutting edge environmental design tools, we have designed a low energy building at affordable cost.

"Our dedicated specialist team, HLM Environment, along with the invaluable support of Aecom, Vale Consultancy and EC Harris, have ensured the environmental impact of our project is minimal, in construction and in use. "

Justin Bere, Director of bere:architects said: "Our 3 bed house will be so energy efficient that most of its winter heat will come from the people living in the house so that only a tiny amount of supplementary heating will be required in the very coldest weather.

" Wales has once again shown bold environmental leadership and it will reap the commercial and employment benefits that will undoubtedly come from creating the first Passivhaus skills base in the UK. I believe that Wales now has the opportunity to become the Passivhaus centre of the UK and our practice, bere architects, looks forward to helping with this."

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For more information contact: Shan Ekin-Wood, press Office, Welsh Assembly Government tel 02920 898636

Notes to Editors

- The Assembly Government's Heads of the Valleys (HoV) regeneration initiative is funding the competition. The HoV is delivering a low carbon

programme for the region to improve energy efficiency, create a hub of low carbon technology related businesses and boost job creation and training.

- Blaenau Gwent Council and the Assembly Government are joint venture partners in the £350million regeneration and redevelopment of The Works:Ebbw Vale to create a mixed-use development.
- The Works:Ebw Vale will be hosting the 2010 National Eisteddfod of Wales

Shan Ekin-Wood

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