

Revealed – Wales' first carbon-free home and its £50-a-year energy bill



Director of development for United Welsh Housing Association Richard Mann talks to Amanda Smith about the houses yesterday

PICTURE: Matthew Horwood ©

ARCHITECTS hope to herald the dawn of a new, "green" Welsh economy with the launch of the country's first carbon-free home – boasting energy bills of just \$50 a year.

The home will be launched today, alongside two others on a mini-estate of affordable, low-energy houses in Ebbw Vale.

The houses were built out of locally-sourced materials in the contemporary square style of German Passivhaus, or "Passive House" on the site of the old steelworks.

The aim of the passive house is to maintain interior heat from the sun's daily and annual cycles without the need for mechanical ventilation.

Builders said the homes were put up for around the same price as it took to build the average band social housing and could be even cheaper to produce en masse.

The work has seen one of the homes given a level six status in the Sustainable Homes Code – which means it is Wales' first zero-carbon home.

It has three bedrooms, is built out of a timber frame of Welsh larch conifers, and generates electricity by converting solar radiation into electricity using semiconductors

The other two homes – which



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HOUSE 'WILL BE CATALYST FOR A GREENER ECONOMY'

have three and two bedrooms – are level five, meaning they are nearly carbon-free. There is a visitor centre designed by the Welsh School of Architecture.

Nick Tune, a director from sustainable building consultancy BRE Wales, came up with the concept and turned the project round in just nine months.

He said: "We wanted to show you could build low-energy, sustainable housing with Welsh materials at a low cost – so it ticks every box, if you like."

"Most of the products are Welsh on these houses."

"The buildings in terms of quality are fantastic. It is one of the most airtight houses in the whole of Britain."

"The final issue is one of cost."

"As a one-off it has cost more, admittedly, but we believe we can drive that down."

"It has got to be an incremental process. That house makes its own energy, so in fact you are actually making money."

"But we are not all going to live in a house like that tomorrow."

Devolved building regulations that come in in 2012 have committed the Assembly Government to trying to improve energy standards by 55%.

The regulations mean that there are already some developers interested in expanding the number of homes on the mini-estate in Ebbw Vale and the general rule is that costs are less when more than four of the homes are built.

Mr Tune said: "Yes, there is a premium and I would never say there is not, but as steps are made, it can be affordable when the building regulations come in a couple of years time."

"In terms of this going forward, there are further plots arranged and we have other developers who want to show their projects and show what they can do."

"The plan is these housing types will be rolled out on the site at Ebbw Vale."

Environment Minister Jane Davidson said the houses could be a "major catalyst" for greener homes.

"I have no doubt these houses will be a catalyst for major changes in the way we design and build homes in Wales," she said.

"They will also inspire Welsh

householders to live in a greener way. The products that have been developed here in Wales will also act as a catalyst for and the creation of a 'greener' economy by promoting the take up of indigenous construction materials, products and build systems."

Carol Parry, of architects Welsh Oak Frame, said that was the trend being seen on the ground.

"Wales is trying to be at the forefront of producing zero-carbon homes and that is clearly

the objective of the Assembly Government because they have been driving that legislatively," she said. "What we are seeing as a company is that energy is becoming more integral to the client brief."

"We are just finding for all our clients it is common sense all these factors into a common build and it is far easier to design a house with environmental criteria rather than it being added on at the end."

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HOW GREEN IS YOUR HOUSE?

The Sustainable Homes Code works by awarding new homes a star rating from one to six, based on how they perform against nine sustainability criteria, which are combined to assess the overall environmental impact.

One star is entry level above building regulations, and six stars is the highest. The sustainability criteria by which new homes are measured are:

- Energy and CO₂ emissions – the energy used and the resulting emissions of carbon dioxide to the atmosphere
- Water – The change in surface water run-off patterns as a result of the development, and the consumption of potable water from the public supply systems or other

ground water resources

- Materials – The environmental impact of construction materials for key parts of the building
- Waste – The amount of waste generated as a result of the building process and facilities encouraging recycling of domestic waste in the home
- Pollution – Pollution resulting from the home being lived in
- Health and Well-Being – The effects that the dwelling's design and indoor environment has on its occupants
- Management – Steps that have been taken to allow good management of the environmental impacts of the construct
- Ecology – The impact of the dwelling on the local ecosystem and land use

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