TRADA TIMBER INDUSTRY YEARBOOK 2011

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Timber frame

Zero-carbon *Passivhaus* is timber frame

Joe Martoccia, director of the UK Timber Frame Association, explains why timber frame is the preferred system for achieving the onerous Passivhaus standard for low-energy housing

Timber frame is now regarded as *the* most efficient way of building truly sustainable, energy efficient homes and, while the traditional build sector plays catch up, timber frame continues to push the boundaries of every aspect of housing innovation and sets the standard by which zero carbon homes will be achieved by 2016.

Figures from independent timber research company *timbertrends* reveal that one in four new homes built in the UK is timber frame and, despite the economic recession, timber frame continues to take market share and is expected to lead the housing market out of recession.

While timber frame continues to form the housing landscape of the future in both the private and social housing sectors, it cannot be ignored that it also forms the fabric of the UK's most exemplar housing schemes that will define the way the housing community achieves zero carbon housing. This is best demonstrated at this development that achieves *Passivhaus* standard.

Designed by bere:architects and with timber frame provided by UKTFA member Holbrook Timber Frame, these houses form the central feature of Future Homes, a demonstration centre for sustainable development and construction, part of the 2010 National Eisteddfod festival of Wales.

Future Homes is a joint initiative by the United Welsh Housing Association, BRE, Blaenau Gwent County Borough Council and the Welsh Assembly Government which saw the appointment of bere:architects to design low-cost houses that showcase the *Passivhaus* concept. The completed houses feature a range of innovative measures for energy efficiency and eco excellence and are sited next to each other at The Works, Ebbw Vale, a disused steelworks that is the site of the 2010 National Eisteddfod.

Neil Smith of Holbrook Timber Frame explains why timber frame is the natural choice to achieve *Passivhaus* standard: "Achieving *Passivhaus* standard, and Code Level 6, is a very real issue for the housing

The larch house – a zero-carbon Passivhaus. Photo: Jefferson Smith

community and this scheme demonstrates that low-cost housing can be achieved with excellent sustainability credentials, superb thermal efficiency and excellent design. With increasing pressure to deliver more social housing over the next four years under the Coalition Government's Spending Review, the real significance of The Lime House and The Larch House, could not have been anticipated. They represent a blueprint to which all future housing should adhere."

Sited next to each other, the houses are certified Passivhaus. Their energy needs are met by harvesting heat from sunshine via extensive glazing and thermal and photovoltaic panels, and by using heat from the bodies and the electrical appliances of the occupants. Hardly any fossil fuel energy is used and The Larch House generates enough energy from the sun in the summer to fulfil all its energy requirements throughout the year. Neil Smith continues: "In order for the low-energy, renewable sources to heat and cool at their optimum, the building fabric has to perform extremely well, preventing generated heat from escaping during the winter, yet allowing cooling in the summer. Getting the fabric right in any home is critical to achieving an energy-efficient environment – you can add as many environmental bolt-ons as you like but if the fabric of the building isn't performing efficiently then any advantages achieved through the addition of add-on systems will be compromised."