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'Eco-house' based on Medieval architecture could be home of the future

Energy bills will be a thing of the past in the 'eco-house' of the future thanks to a combination of the latest renewable energy technology and building techniques from hundreds of years ago.

By Louise Gray, Environment Correspondent
Last Updated: 2:46PM GMT 17 Feb 2009

The zero carbon building, developed by University of Cambridge architects as a prototype for future living, is based on a 600-year-old Medieval design that retains heat from the sun while cooling naturally in the summer.

Any extra energy needs are provided by solar panels on the roof and a woodchip boiler.

The unusual dome-like design is based on a Medieval technique, originating in Spain, known as "timbrel vaulting".

The four-bedroom "Eco-house", which will feature on the Channel 4 programme Grand Designs tonight (Wed), cost £445,000 to build. However, with the price of renewable technologies set to plummet it could be the most affordable and practical option for the future.

Eco-house: The unusual dome-like design is based on a Medieval technique, originating in Spain, known as 'timbrel vaulting' Photo: MASONS NEWS SERVICE

The building materials used were environmentally friendly, such as locally-sourced timber and recycled newspaper for insulation. The house was also easy to build. The arched building is essentially one large vault spanning 65 feet (20 metres), covered on the outside with earth and plants to camouflage it and help it blend in with the rural surroundings. The natural materials mean the house can absorb fluctuations in temperature while triple-glazed windows use as much light as possible.

Michael Ramage, who is based at the University of Cambridge Department of Architecture, predicted future developments will look more and more like the eco-house.

"The design is cost-effective in that the home is relatively simple to build and, once you know what you're doing, it's quick," he said. "Many of the costs come from the new technology it uses for energy storage and generation. If those become more widely available, making a similar house cheaply in much larger quantities may be possible."

At the moment the Government is under pressure to cut greenhouse gas emissions by 80 per cent by 2050. With more than a quarter of carbon emissions coming from households, improving the efficiency of homes is a major part of ongoing policy with all new homes to be zero-carbon by 2016.

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