

Barratt EcoSmart Show Village, Chorley, Lancashire: testing green technologies

The Barratt EcoSmart Show Village at Chorley is the first project of its kind by a major UK housebuilder.

We have created seven special showhomes which incorporate the latest in energy-efficient and 'green' technologies, including renewable energy sources generated on site. The houses, ranging from 2 to 5 bedrooms, feature various combinations of wind, solar and geothermal power, as well as a host of environmentally-friendly features such as rainwater recycling.

The objective is to test these new technologies, whose performance is being independently monitored and evaluated by the University of Manchester. We are also assessing visitor reaction and preferences, and considering the applications for our future homes.

The show village is open to the public, schools and others who are interested in seeing how Britain's best-known housebuilder is confronting the challenge of climate change.

Visitors are able to compare costs and annual savings from the various renewable energy technologies in each home and provide feedback on whether they would be prepared to pay for installation in a new home. They are also informed of CO₂ emission savings – represented by symbols showing the number of fully-grown oak trees that would be required to neutralise the CO₂ released into the atmosphere from using the same level of energy from non-renewables.

As test-bed properties, the houses will not be sold until after the assessment period, although experts predict that when compared to traditionally-powered homes, harmful carbon emissions from the seven homes could be reduced by over 16 tonnes per year and annual fuel bills cut by up to a third.

The project is helping Barratt to assess and evaluate a wide range of state-of-the-art

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technologies in a variety of permutations and also to find out what potential homebuyers really think. The challenge is to find out which environmental features can be incorporated in future and continue to keep new homes affordable for our buyers.

The Manchester University team is examining how much each energy-saving or 'green' feature costs to install, what exactly it can and cannot do, what combinations work best, what they will save in terms of carbon emissions and other waste, and what cost savings householders might expect to make as a result of living with them.

As Barratt currently builds over 15,000 homes a year, the sustainability lessons from EcoSmart will be important, and the potential immense.

Technologies featured at the show village include:

Solar Energy: This is harnessed in two ways:

- Solar thermal collectors – these special roof panels use the sun's heat to provide hot water.
- Solar PV (PhotoVoltaics) – these roof panels convert the sun's radiation directly into electrical power to run appliances and lighting.

Wind Power: Five of the showhomes have small wind turbines attached to small masts above their roofs to generate electricity.

Geothermal Power: Three houses feature ground source heat pump (GSHP) technology – a simple method of transferring the natural heat stored in the ground into the home.

Micro-combined Heat & Power (CHP) plant: a highly-efficient domestic generator

produces electricity and hot water for showers, baths and radiators.

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The seven EcoSmart homes are all built to traditional family house designs, ranging from a typical first-time buyer 2-bedroom terraced/semi-detached house to a large, detached 5-bedroom family property.

This was a deliberate choice. Barratt could have chosen to build really futuristic designs, but was keen to show that environmental measures can be accommodated in conventional housing still strongly favoured by the majority of British homebuyers.

Monitoring of the Barratt EcoSmart Show Village is being led by Dr Tony Sung, Chairman of CIBSE Electrical Services Group, Lecturer at the School of Mechanical, Aerospace and Civil Engineering, University of Manchester. The team's findings will be published for the benefit of homebuyers and the housebuilding industry as a whole.

Monitoring Barratt's EcoSmart Village at Buckshaw will continue throughout the year with results expected in 2008.

The EcoSmart Show Village forms part of the Buckshaw Village sustainable community, a £400 million project which is creating an "urban village" with around 2,000 new homes plus a business park, shopping centre, railway station and community facilities all taking shape on a 395-acre site which was previously used by the MoD.

