

# Aiming for high-energy-efficiency fabric for construction of sustainable homes

The Technology Strategy Board is supporting a £6.4 million programme to build twelve world-class, energy-efficient houses, without using renewable energy technologies.

The project – AIMC4 – will see the Technology Strategy Board partner a major consortium of three leading developers (Stewart Milne Group, Crest Nicholson Plc and Barratt Developments Plc), H+H UK Ltd, BRE and Oxford Brookes University. The AIMC4 project will take a ‘fabric-first’ approach to the construction of the new homes, with the aim of achieving a 44% reduction in carbon emissions. Only specific building materials, components and systems that will increase the energy efficiency of the houses throughout their lifespan will be used. This holistic, design-based solution has not been attempted before and marks a significant step forward in the journey towards cost-effective, zero-carbon homes.

The test homes will be constructed in three conventional developments and lived in by ordinary families, with their performance monitored over several years to ensure that they continue to achieve reduced emission levels. The £6.4 million project, in which the Technology Strategy Board will invest £3.2 million, will see three different construction types evaluated – one timber, one masonry and a third, hybrid, option – each capable of longer-term volume delivery.

The AIMC4 consortium will construct the homes to achieve Code Level 4 (Energy) of the Code for Sustainable Homes and will target the following headline deliverables:

- a widely applicable Code for Sustainable Homes Level 4 (Energy) range of design solutions that are not reliant on renewable technologies;
- a new industry innovation process map to facilitate the accelerated development of materials, components and systems in-



Stewart Milne Group demonstration Sigma Home, on the BRE Innovation Park, achieving 100 per cent reduction in carbon dioxide emissions from heating and lighting.

cluding the manner in which they are incorporated into the build process;

- a significantly improved, and in some areas newly created, UK supply chain capable of delivering a selection of innovative products to support the AIMC4 ‘fabric first’ approach to Code Level 4 (Energy);
- a variety of build systems, capable of volume delivery within the UK market (timber, masonry and possibly a hybrid option);
- twelve innovative homes, with ‘as built’ and ‘as lived in’ monitored performance, to begin the process of creating a database

to inform mainstream volume production;

- reduced construction costs to achieve viable Code Level 4 (Energy) homes that are easy to use and market, and that are based on a fabric solution, on a volume scale, through process change and new product technology.

The project is responding to the target set by the Government to reduce carbon emissions from homes by 2016. AIMC4 is a challenging research project, bringing together the UK’s premium developers and suppliers to pave the way for the delivery of sustainable homes. This will yield a variety of building systems, each capable of volume build, reducing carbon emissions and driving delivery of the Government targets while creating desirable and sustainable communities.

The Technology Strategy Board’s Low Impact Buildings Innovation Platform was established in May 2008 with the aim of increasing innovation in the building industry to meet these challenges. The Innovation Platform invests jointly with industry and other funders in projects to bring innovative solutions, and to overcome barriers to the wider use of existing solutions. The Innovation Platform’s budget has been increased from £30m to £47m over the initial three years (2008-2011) to address the challenge of both new and existing buildings.

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