CASE STUDY:
Renders & Façade Systems

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SOLCER House, Stormy Down, South Wales

PAREX SYSTEM CONTRIBUTES TO FIRST "ENERGY POSITIVE" HOUSE

A Parex External Wall Insulation (EWI) System forms part of an innovative project for an energy positive, low carbon, low cost home built under the Low Carbon Institute (LCRI) programme set up to unite and promote energy research in Wales.

The SOLCER House was designed and constructed by the Welsh School of Architecture at Cardiff University as part of the SOLCER (Smart Operation for a Low Carbon Energy Region) project, funded through the Wales European Regional Development Fund (ERDF) Programme and is part of the Low Carbon Research Institute (LCRI) WEFO Programme.

As an "energy positive" venture with emphasis on energy efficiency and renewables, constructed, in just 16 weeks. The Solcer House has been designed to supply more energy to the national grid than it uses over an annual period, in an attempt to meet tough new targets for zero carbon housing.

The demonstrator project incorporates leading edge, market available, construction technologies from leading manufacturers, embracing all aspects of construction materials and systems, from floor to roof.

Among the energy-saving systems specified for the project was the Parex External Wall Insulation (EWI) system for the external walls. The PAREXTHERM Mineral Render system was applied to Knauf Aquapanel render board that was attached to a highly energy efficient Sips Eco structural insulated panel system to achieve a minimum U-value of 0.12 w/mk.

The render board joints were meshed and jointed using Parex Maite. Parex WeatherTech Weatherseal Trowel-On was also used as a weathering membrane around all openings, before a 30mm thick layer of PlusTherm EPS was bonded to the render board using Maite and this was followed by a 3-4mm layer of Maite, incorporating Parex 355 AVU reinforcing mesh.

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To create the decorative finish, applicators Joyner PA (Cymru) Ltd, of Risca, applied a top coat of Parex EHI GF mineral render that has been developed to complement the light weight construction techniques and this was finished to a neat scraped textured finish, which then received a protective coating of Paraguard to provide additional water shedding capabilities.

Solcer Technical Project Manager Dr Jo Patterson, Research Fellow, Welsh School of Architecture, commented: "The EWI Parex system has contributed towards the systems based approach that the Welsh School of Architecture has taken, where renewable energy supply, energy storage and reduced energy demand have been combined to produce an energy positive house that is both affordable and replicable. The Parex EWI system reduces the heat load demand of the house, improves the U-value and reduces thermal bridging. The external finish is aesthetically pleasing and will hopefully provide a low maintenance over the long term."

The completed SOLCER House will now be monitored over the coming years to gauge the effectiveness and performance of the various installations and technologies incorporated within the building.

(For more information about the house see @LowCarbon_House; for information on the Solcer Project visit www.lcbe.cardiff.ac.uk)

Applicator: Joyner PA (Cymru) Ltd, Risca
Project Manager: Dr Jo Patterson
Project Architect: Ester Coma-Bassas

PAREX MATERIALS USED

- Weather sealing: WeatherTech
- Weatherseal Trowel-On
- Board joints: Maite & 355 AVU mesh
- Insulation: EPS70E 30mm Plustherm
- Insulation adhesive: Maite
- Base coat: Maite
- Top coat: EHI GF - colour G00
- Protective coat: Paraguard

Other materials used:
SIPS system: Sips Eco
Render board: Knauf Aquapanel

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