

**PLOT 11: Das PassivHaus / The Passive House**  
**HLM ARCHITECTS LIMITED WITH O'BRIEN HOMES LTD**

The Passive House is arguably one of the most energy efficient properties on show to the public at the forthcoming housing Expo, taking place at Milton of Leys in August.

Designed by a leading Scottish architect, the property effectively marries together Scottish architectural history with a modern, innovative solution to low carbon, sustainable living which will demonstrate an amazing 80% reduction in energy use. Inspired by the German PassivHaus model, the design of this three-terrace property is based on the principle of a self-sufficient energy efficient home, with a radically simplified heating, ventilating and air conditioning system which enables it to heat and cool 'itself', making it essentially passive.

This collaboration between HLM Architects and O'Brien Homes Ltd takes the traditional form of a longhouse or black house but is also reminiscent of a Scottish castle or tower house through the use of inhabited north walls which allows for enhanced energy efficiency. The property's living spaces are situated to the south where they can most benefit from the external climate and temperature which in turn allows for less dependency on energy.

The innovative property responds to a number of key design principles to minimise losses and maximise gains in terms of heat and energy. For example, insulation is cleverly combined with energy efficient windows to considerably reduce heat loss. Whilst the south-facing orientation optimises the use of solar energy to maintain temperature levels within the living space and the hot water supply uses renewable energy sources from a small air source heat pump in the garden, Collectively these features present a genuinely innovative, yet modern solution to low carbon living and sustainable housing.

To meet the needs of modern family living each stunning three-bedroom property makes the best use of a compact 100 square metres of space offering south facing double height living space. With bedrooms split over both floors, the upper two bedrooms can be opened up to overlook the main living space to give both a sense of space and openness.

By creating a compact home office to utilise space above the living area, a private, peaceful enclave is provided right in the heart of the property. This innovative work space supports one of the Expo's overall aims in enabling low carbon living by providing dedicated and quality space for home working thereby maximising the potential for home working and ultimately, minimising the need to travel to work.

It is widely accepted that modern homes can often lack sufficient utility and storage space however these homes counter this trend, with ample space for utility usage away from the living space as well as good storage, all delivered without compromising the approach to open plan living.

Externally the design acknowledges its surroundings with a more formal and public street facade offering a traditional architecture of Highland or rural house types. The rear of the house however is intended to be considerably more private and in a sense more dramatic. With a modern design which embraces the climate, larger expanses of south facing glazing help to create an open feeling towards the garden, the adjoining woodland and beyond. As the evenings draw-in, this stunning glazing feature enables light from the living spaces to glow like a beacon into the dark reaches of the garden.

The impressive and innovative timber superstructure, a local sustainable product manufactured predominantly from Scottish FSC timber, was built off-site in Elgin enabling whole wall and roof pre-fabricated panels to be formed from timber 'I' beams to minimise on-site wastage and increase overall construction speed.

The exterior walls are clad in a locally sourced timber boarding to create a light rural aesthetic, whilst the roof finish reflects the traditional but more industrial highland landscape.

The house will be open to the public for viewing at Scotland's Housing Expo which will take place at Milton of Leys throughout August. The Expo will provide a vision for the next generation of Scottish housing and is based on an established model found in Finland and mainland Europe. It is set to put Scotland firmly on the map as an exemplar of sustainable living.

The Expo houses and their contents will form a platform for showcasing the wealth of Highland and Scottish design talent, including interior and product design. The initiative also provides a 'test bed' for construction and technological innovation, which will inform Scottish house building in the future. The houses will inspire developers to learn new skills and source fresh ideas to incorporate into future designs, while demonstrating how new building standards can be met on energy efficiency and carbon reduction.

For tickets and further information visit [www.scotlandshousingexpo.com](http://www.scotlandshousingexpo.com)