GREEN PROJECT OF THE MONTH

Blending into the landscape

Designed by Mark Waghorn Architects, Three Glens is a five-bedroom farmhouse situated on a working farm near the village of Moniaive, South West Scotland. Owners Mary and Neil Gourlay are the third generation of the family farming in the Cairn Valley.

The new house already feels deeply connected to the surrounding landscape not least because many of the copnstruction materials had previous incarnations on the farm. The stone that makes up many of its walls has been gathered over generations from fields as they have been ploughed, the cladding is sawn from oak trees felled on the farm, and the wool insulation is from sheep grazing in the fields.

The vision

Together with Mark Waghorn Architects, the Gourlays dreamed of creating not just a building, but also a place in which to encourage, teach and inspire others to use available resources responsibly for the benefit of future generations.

"I've always had the ambition to build a house. We just thought that if we were going to do something, we should make it interesting, different and as environmentally friendly as possible," said Neil Gourlay.

Both client and architect share the same passion for the environment and believe that rural areas can provide bountiful renewable resources, but that this opportunity relies on wise stewardship of the land.

Neil Gourlay's sustainable approach to farming and potential to inspire fellow farmers to embrace renewable energy and green business methods won him the Britain's Green Energy Farmer of The Year Award in 2011.

With a total capacity to sleep 10 people, Three Glens can accommodate a member of staff and also take paying guests. Visitors can experience for themselves and learn about the benefits of living in a modern sustainable farmhouse.

The design

The house is situated in front of a rocky outcrop, immediately adjacent to a copse of trees, and at the junction of three dry stone walls, typical of those seen throughout the local landscape. The use of these to integrate the house into the context is a key element of the design.

Left: Extensive glazing, including clerstory windows, flood the main living area with natural daylight.
Right: The house has been designed so that it appears that the main stone wall is a continuation of a previously existing wall dividing the fields, while adding thermal mass to the building.

Bottom left: The Kachelofen log burner heats the wall as well as the rooms.

The wall that runs from the west of the house is seen to continue through the house and become an internal wall which forms the spine at the back of the living space, before then becoming an external wall enclosing the courtyard.

The walls that bound the copse of trees are rebuilt to provide a retaining wall for the entrance courtyard and external wall for the downstairs living accommodation. A third wall has then been introduced to enclose the south-facing glazed areas, terrace and garden.

The west elevation of the living area and the clerestory windows spanning between the main spine wall and the roof is entirely glazed with minimal aluminium framing. This ensures that this wall is clearly seen passing through the house from outside and ensures that the house is not seen as a single mass but a seamless part of the surroundings.

The main living accommodation and the bedrooms, which are at the lower level, are situated to the north of the main spine wall. The bedrooms are divided into two wings, which are seen as clearly distinct from outside, and are set into the slope, bounded by stone walls. The external walls of these and the north face of the living accommodation are clad in oak which is already weathering to a silvery grey, not dissimilar in colour to the stone walls.

The sloped roof of the main living area is turfed, and viewed from across the valley, is barely visible against the hill behind,

Energy consumption

Mark Waghorn paid close attention to energy efficiency and his design takes full advantage of the natural conditions. The expansive glass walls capture and distribute all the available daylight around the house but especially in the living room, kitchen and dining area.

The external walls exceed Building Reg insulation requirements, using treated wool from sheep on the farm. In addition, the windows are triple glazed, achieving a U-value of 0.7.

A mechanical ventilation system with heat recovery has been integrated into the design, while the stone wall that passes through the living room acts as a thermal heat sink to collect heat.

This works in conjuction with the Kachelofen, which is set into this wall. Thermal bricks surrounding the combustion chamber absorb the heat from the burning logs and emit it into the house and the surrounding stone wall.

markwaghorn.co.uk

Above and left: The house blends into the spectacular landscape.

Above: Oak sawn from local trees has been used to clad some of the exterior walls.

Above: Natural materials such as stone taken from the fields are the key components of the eco build.