

A warm outlook in Perthshire

John and Katie Langley found the perfect structural solution for adding a substantial, energy efficient extension to their traditional Scottish farmhouse

John and Katie Langley, who have a construction business in Scotland, bought their 80-year-old farmhouse in rural Perthshire in 2004, just after they got married. A traditional stone built property sitting in an acre of land, the couple fell in love with it straight away.

Not only were they looking for a family home in Perthshire, they also saw the potential for converting the outbuildings into a holiday cottage and offices to use as the base for their housebuilding and engineering firm, JML Contracts.

After two years in the farmhouse and the arrival of their first son (and expecting their second), John and Katie decided that now was the time to undertake a serious extension, and increase not only the amount of bedrooms, but also the living space needed for their growing family.

Katie reflects on the decision to extend: "We immediately fell in love with this house for so many reasons, including its location, traditional stone built architecture, and the ability to create additional revenue by using the outbuildings. However, given its reasonable age there were the accompanying draughts, lack of appropriate insulation and space limitations for a modern family.

She continues: "Our business specialises in building with Structural Insulated Panels, or 'SIPs'. Until this point we had only worked on newly built properties constructed in SIPs, but with our knowledge of the product and also the help of a specialist architect (Kerry Smith) we decided that this would be the ideal technique for our extension".

The couple wanted a modern layout and a much more thermally efficient home which would reduce their energy bills. "However," says Katie, "we still wanted to maintain its traditional look and for it to appear as a seamless

continuation of our home".

After they finished the conversion of the outbuildings, they decided to move into the cottage while they carried out the extension works. "This was ideal as it meant we were on site to oversee works and could ensure that our schedule was met. The imminent birth of a second child was a very good driver for sticking to schedule!"

Katie continued: "Our extension plans were ambitious as we planned to double the size of the original house. However, as housebuilders we knew that the majority of the cost of an extension is in its foundations so it made sense to us to build above and create as much extra living space upstairs as downstairs. We knew we had to move out of the house to carry out the works, so we decided the only way to do it was all at once!"

Kerry Smith Architects are based not far away in Angus, and the couple briefed the architect to design an extension which included all the extra living space desired, was in keeping with the house's original architecture but which

would be built in SIPs so that Katie and John could have the cosy, thermal efficient living space they longed for. The double storey extension took the house from approximately 180 m² to 360 m². The design included a huge kitchen-diner, a downstairs WC, spacious boot room (essential for country living!), and laundry room accessed by a new back door and hall. Upstairs two new double bedrooms, a master bedroom, en suite and dressing room were added.

The whole extension was built with SIPs using high quality sustainable materials. It took a year to build from start to finish, and the super-efficient insulation means the house is warm but also not susceptible to draughts from the sometimes inclement Scottish weather!

Building with SIPs also meant that extra height could be achieved in the bedrooms upstairs as it removes the need for roof trusses. As a result the bedrooms were not only cosy – the vaulted ceilings also provided a more spacious feel.

It also meant the construction process was quicker as the SIPs panels are all manufactured offsite. It was a tricky erection process on site, as adding a SIPs extension to an old existing building meant that all measurements and drawings had to be precise. However it was only 10 days before the skilled SIPs team had erected the extension and made it watertight ready for the next stage.

The walls and roof are all SIPs panels making a very strong and thermally efficient external envelope. The U-values and air tightness are well above other construction methods, and as a result the thermal efficiency is really impressive. However proper ventilation had to be ensured as a result, as Katie explains: "We were very keen to ensure that the space was properly ventilated and we installed an HRV (heat recovery

ventilation) system to recover the heat from downstairs and help circulate fresh air around the new extension. Our eldest son suffers from allergies and the improved air quality from using the HRV is very noticeable."

The added benefits that this self-build has brought to the family's life are huge. Not just from a warmth and space perspective, but also the flexibility the extension has allowed them. Katie says: "I love the fact that my boot room and cloakroom are all at the back door so the kids can dump their kit there and avoid dragging it all through the house! The

"We wanted more space, a modern layout and a much more thermally efficient home"



All images © Douglas Gibb photography

luxury of the extra space downstairs and bedrooms for all the children has been brilliant. It has meant we now throw a lot more parties as well as work gatherings!"

The family have noticed they now tend to use the older part of the farmhouse less often, as the temperature change and draughts are noticeable! All the family bedrooms are in the new extension with the spare rooms relegated to the original house. They also installed underfloor heating throughout the downstairs extension, but the thermal efficiency delivered by SIPs means it has never needed to be switched on.

The heating bills have actually shrunk dramatically despite adding 50 per cent

of space, and with an Aga heating much of the kitchen-diner, they find themselves opening windows to let the heat out.

Katie explains: "The difference in warmth is noticeable between the old and new parts. We put the key living areas in the extension, and the guest rooms and more formal living spaces are in the older part. We wanted to maintain the house's traditional feel however so we still have our open log fires in these areas, but there is no need for extra heat in our new extension. It has provided us with the extra, modern living spaces we required for the family and thanks to the SIPs method, our ongoing energy bills are kept to a minimum."

