



SIPS

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A fresh
approach
to home
building

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Richard and Ros Maudslay's High Performance SIPs Home with Spectacular Views of the Northumberland Countryside

Taking a Fresh Approach to Home Building

SIPS@Clays is the leading UK provider of structural insulated panels. SIP Panels or SIPs Panels as they are more commonly known, are a key component of eco-friendly building and are fast becoming recognised as one of the most efficient construction methods around.

As proud delivery partners of the market leading Kingspan TEK® building system, SIPS@Clays designs, fabricates and installs SIPs panels across the UK.

Specialising in all aspects of SIPs construction, we will guide you through the process from initial design and fabrication through to on-site construction. With an expert in-house team who will work closely with you, your chosen architect and your main contractor, we will ensure that your project is a complete success.

Manufactured off-site at our factory in Skipton, North Yorkshire, the Structural Insulated Panels are precision engineered to provide a flexible, cost effective solution to building highly insulated, thermally efficient homes.

Originally developed in America in the 1930's, SIPs have now become a mainstream method of modern construction and have in recent years, seen a surge in popularity.



If you'd like to know more about SIPs or if you have a project you'd like to talk to us about, contact us on **01756 799498** or visit our website.

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“Our new home was designed to be constructed from a SIPs (Structural Insulated Panels) building system, for its high performance and speed of build. Our home is built to near Passivhaus standards” Richard and Ros Maudslay.

The Brief

With concept designs being created by Richard and Ros’s daughter, Helen Groves, and then finalised by architectural designers Model Projects Ltd, the SIPs@Clays team was tasked to create a 500sqm, lifetime home using the Kingspan TEK® building system. With emphasis on a quality of build that would last for decades, the new house needed to be a high performance home, have an accessible layout and also maximise the magnificent views that spanned the Northumberland countryside.

Designed with key passive design principles in mind, the self build home is located on a two acre, sloping plot with uninterrupted views across the River Coquet valley to the Simonside Hills.

Its complex design has a trapezoidal floor plan split over two levels with only one 90° square corner throughout the house. It has glazed walls leading to a large conservatory and balcony with a 4.5m SIPs overhang.



“We wanted to build a generously sized modern home, with plenty of glass at the front to take advantage of the stunning views across the Northumberland countryside.”

Richard Maudslay



SUPERIOR QUALITIES

With its superior airtight qualities, low 'U' values and minimal thermal bridging, a SIPs building fabric met the client's brief perfectly.

Why SIPs?

As the original Kingspan TEK® delivery partner, SIPs@Clays LLP is expert in the design, fabrication and erection of Structural Insulated Panels (SIPs). The panels comprise an injected core of high performance, Zero ODP rigid insulation, sandwiched between two structural facings of 15mm Oriented Strand Board (OSB) and create a thermally efficient airtight structure

With its superior airtight qualities, low U values and minimal thermal bridging, a SIPs building fabric met the client's brief perfectly.

In fact, the low-energy home was designed taking a fabric first approach and to be constructed from SIPs from the outset. This, combined with the use of the latest technologies from MVHR (mechanical ventilation heat recovery), a standalone PV (photovoltaic system) and Air Source Heat Pumps, the property achieved an A+ SAPs rating.

The off-site, precision engineering meant that SIPs was the ideal building system for this challenging rural site with tight access via steep, narrow lanes. Off-site fabrication minimises waste and requires far fewer deliveries to site than traditional building methods, thereby reducing the impact on local surroundings, a key consideration for the client. Once on site, the flexibility of the building system meant that SIPs@Clays' skilled installation team could quickly remediate any issues with minimal impact to other trades.

Speed of build was a key factor in this project. Using SIPs enabled a predictable build programme and in just over a month, this large, complex home was water-tight and ready for internals and the brick cladding finish. Richard and Ros said: ***"Seeing the SIPs structure rise from the ground was one of the high points of our project."***

Our Work

From SIPS@Clays initial introduction to the project, we worked closely with client, architectural designers and main contractor Smailes Construction. With such an ambitious build it was clear from the outset that this was going to be a fantastic project. The fact that both the client and the architectural designers, Model Projects, were so familiar with working with SIPs, the majority of the house design was near perfect. However, our in-house design team redesigned the roof structure to design out the need for a steel 'top hat'.

This considerably reduced the amount of steel required for the roof structure, subsequently minimising thermal bridging, provided a lighter-weight roof structure with more ceiling height and delivered the client value engineering that saved substantial time and budget.

Once the designs were finalised, the fabrication and erection could begin. With the Kingspan TEK® panels, precision cut to size at our factory in Skipton, North Yorkshire, we transported the kit to site in Rothbury, Northumberland.

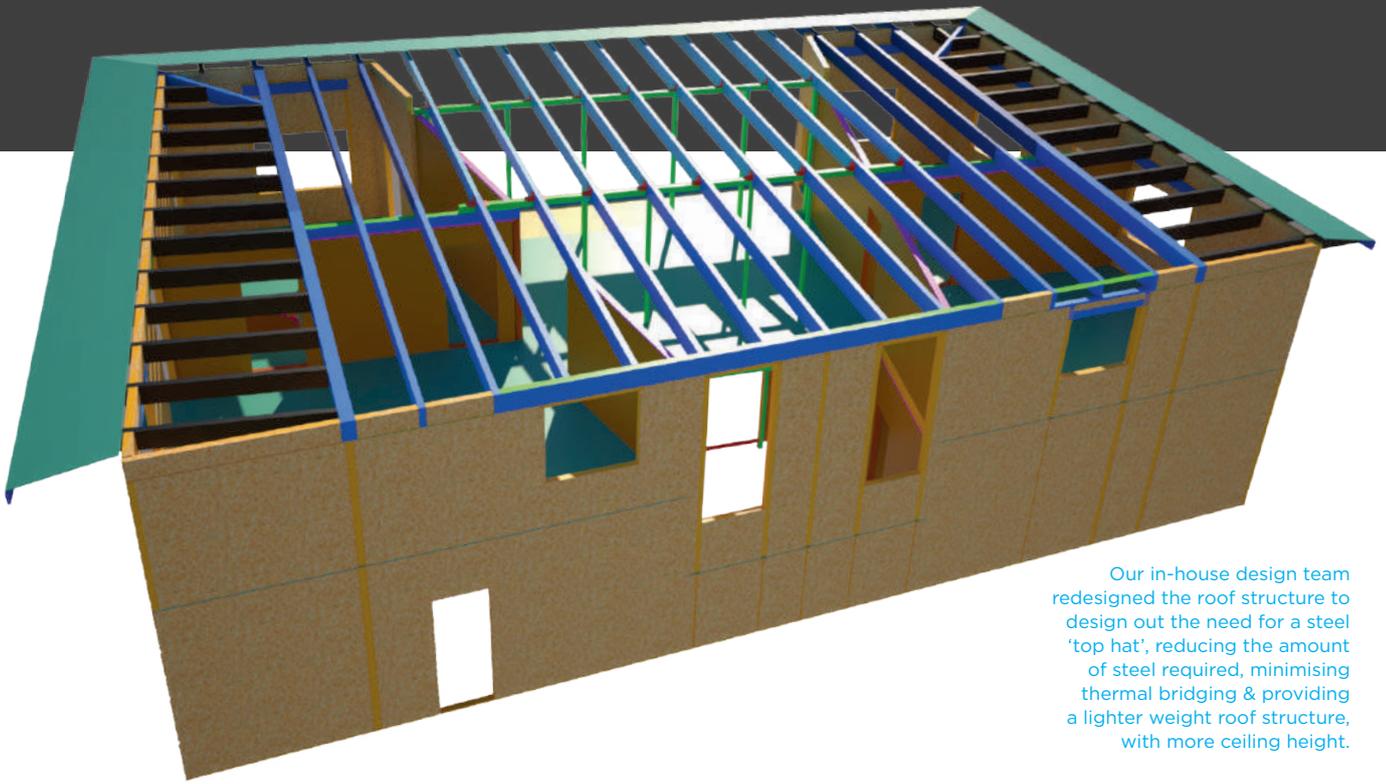


The SIPs roof design incorporates a 5° monopitch metal roof folding down the back and around the house.



SIPS@Clays has its own teams of BBA certified installers, who were already billeted on-site and following delivery of the SIPs superstructure from the factory, work could get underway. With the reinforced raft foundation slab and kicker bricks (which set out the footprint for the erection of the panels) already completed by the main contractor Smailes Construction, the erection took just five weeks to complete.

Working in the harsh January weather, the SIPS@Clays fitting team forged ahead erecting first floor walls, first floor structural deck and structural roof and walls. ***“Seeing the roof panel SIPs being flown in was one of the most memorable and dramatic moments of the build”*** said Richard and Ros.



Our in-house design team redesigned the roof structure to design out the need for a steel 'top hat', reducing the amount of steel required, minimising thermal bridging & providing a lighter weight roof structure, with more ceiling height.

The Challenge

With its large, complex design including a trapezoidal floor plan, and a 4.5m SIPs roof overhang, there were potentially quite a few challenges facing the SIPS@Clays team. However, with their skill, knowledge and expertise and of course the flexibility of building with SIPs, these challenges were overcome with solutions that saved the client time and money.

In particular, the SIPs roof design which incorporates a 5° monopitch metal roof folding down the back and around the house, with a slim-line C section, was skilfully redesigned by one of our in-house CAD designers, to provide a simpler, more cost effective solution that used glulam members and minimised the steel required resulting in a major financial saving for the client.

Using SIPs for the roof, allows for roof coverings of choice and in this case, our clients chose aluminium. With the help of the SIPS@Clays design team, credible suggestions and solutions were made, achieving fabulous results.





Project Notes

The Homeowners: Richard and Ros Maudslay
The Project: Contemporary-style SIPs self-build
Location: Northumberland
Build Size: 500m²
Plot Cost: Around £40/m²
Build Cost: Just over £2,000/m²

Timeline

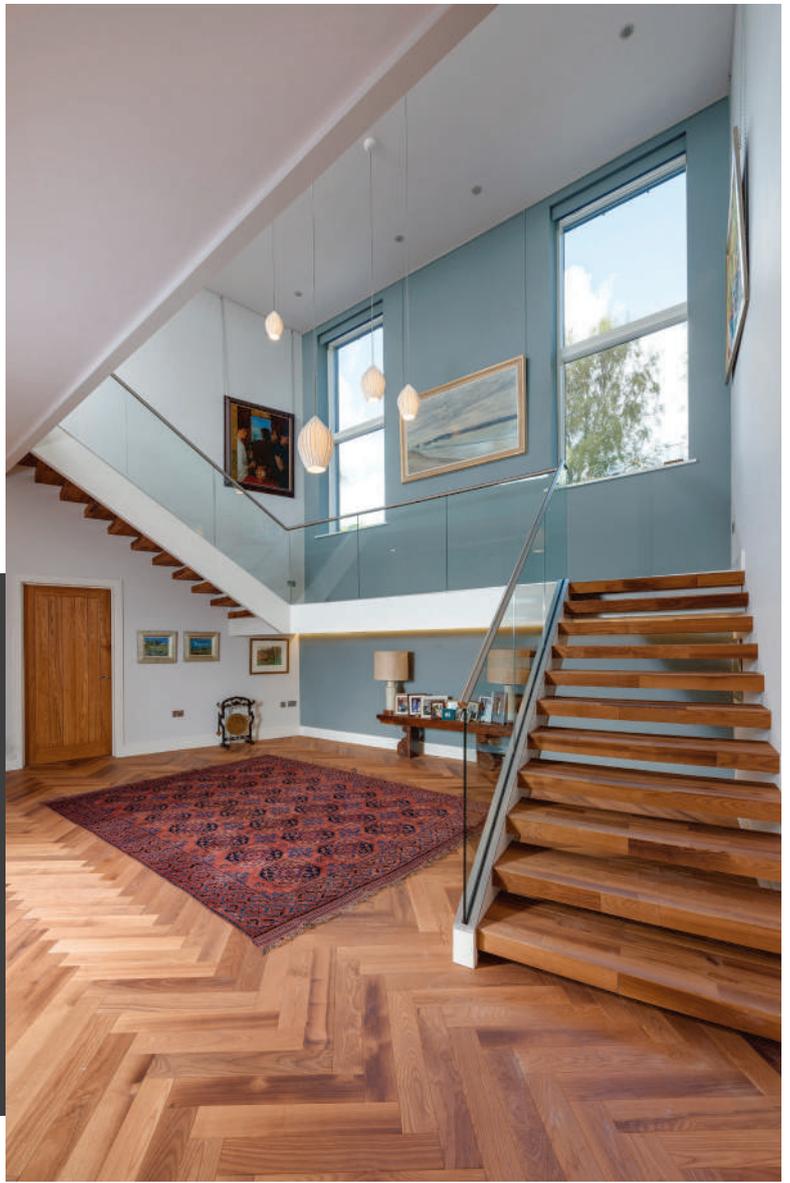
Groundworks and foundations
 Oct - Dec 2016
SIPs erection
 Jan - Feb 2017
Completion
 Nov 2017

Key Project Achievements

- Making design changes to the roof that saved the client both time and money
- Completing the erection of the complex build in 4 weeks
- Being an integral part of a self build project that the client is so proud of
- This project clearly demonstrates the benefits of a SIPs building system.

You too can have your dream home...

If you're thinking about a self build project and would like to talk us about the many benefits of using SIPs and in particular the Kingspan TEK® Building System to build your new home, contact us today to discuss your project.





Find Your Inspiration

The versatility of a structural insulated panel building system (SIPs) makes it the ideal building method for any house design.

So whether your dream property is a contemporary hi-tech statement house, an eco-efficient, lifetime home or you want to create a family home that maximises space with a room in the roof, a SIPs building system from SIPs@Clays will be the perfect solution for you.



If you'd like to know more about SIPs or if you have a project you'd like to talk to us about, contact us on **01756 799498** or visit our website.

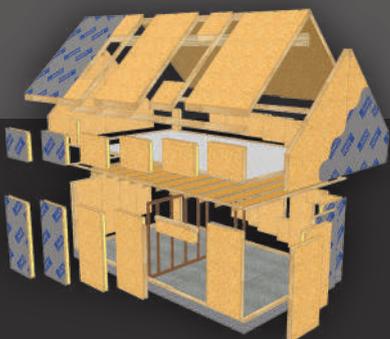
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A fresh approach to home building

Are you planning a self build?

Speak to SIPS@Clays about a high performance, *Structural Insulated Panel*, self build home.



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Over 20 years of building design, innovation and SIP expertise to bring you stylish, low energy homes.



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