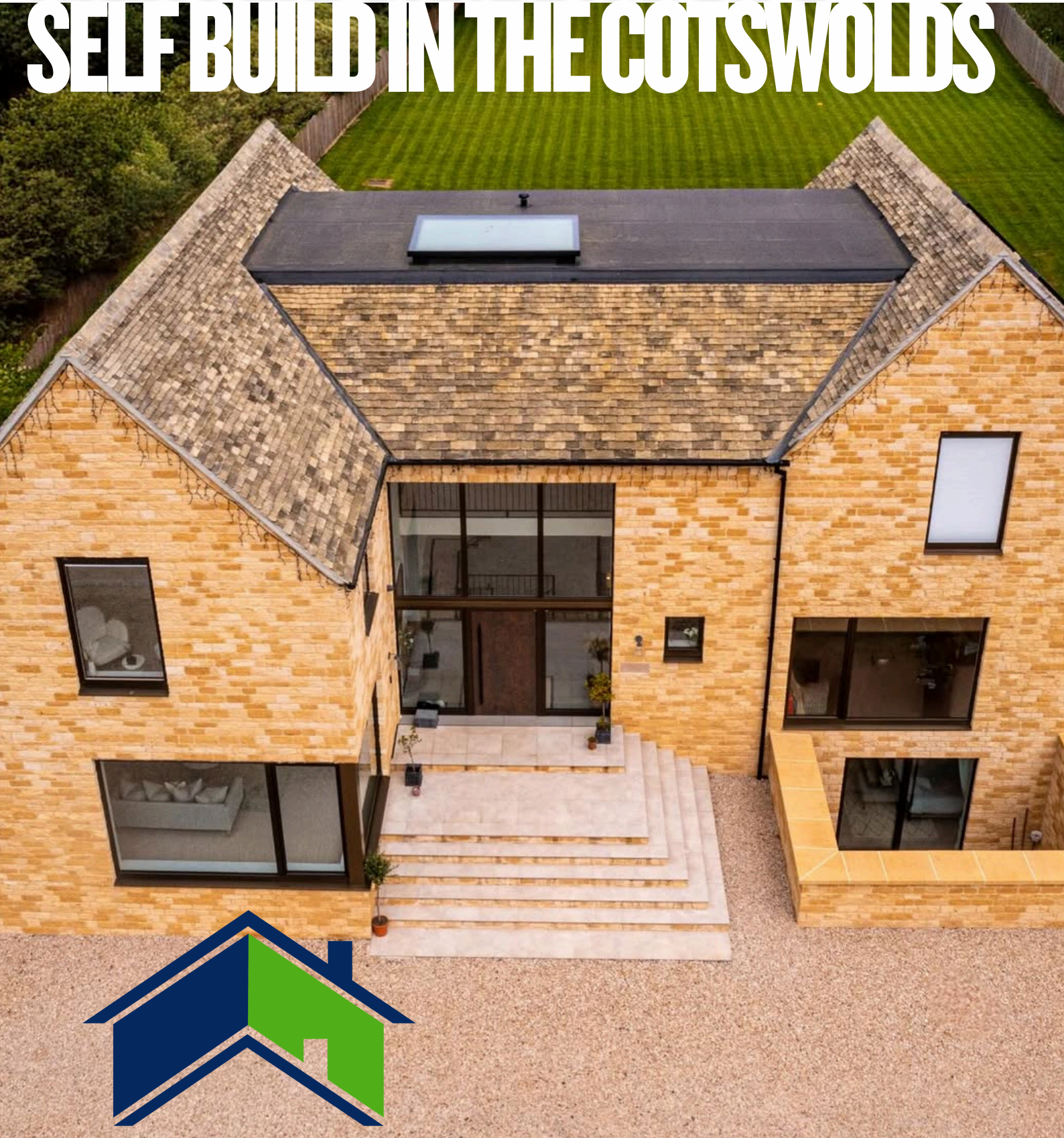


STONE VALLEY HOUSE: 550M² HIGH PERFORMANCE SIPS SELF BUILD IN THE COTSWOLDS



SipsEco

A LARGE ENERGY-EFFICIENT HOME BUILT USING STRUCTURAL INSULATED PANELS

Stone Valley House is an impressive **550m² contemporary self-build home** located in the Cotswolds, delivered using the high-performance SIPS Eco Panels structural insulated panel system.

Commissioned by homeowners Ryan and Emily Breslin, the project was designed to achieve Passivhaus-level energy performance while allowing the architectural flexibility required for extensive glazing and large open-plan living spaces.

Working closely with the wider design team, SIPS Eco engineered and installed the two-storey structural shell above the ICF basement, delivering a highly insulated and airtight building envelope.

The finished home demonstrates how structural insulated panels (SIPs) can be used to create large, architect-designed homes that combine modern design with exceptional energy efficiency.



PROJECT OVERVIEW

- Location: Cotswolds, Oxfordshire
- Project Type: Luxury Self Build Home
- Total Floor Area: 550m²
- Build Programme: September 2021 – December 2022
- SIPs Supplier: SIPS Eco Panels
- Planning Architect: [Charlie Luxton Design](#)
- Building Regulations: [Digi Design Co Architecture Ltd](#)

The completed property includes five bedrooms, three of which are en-suite, alongside generous open-plan living areas designed to maximise natural light and connect the interior with the surrounding landscape.

ARCHITECTURAL DESIGN

The design brief was to create a modern family home that blends contemporary architecture with traditional Cotswold materials.

Externally, the property features a mix of Cotswold Cream and Cotswold Gold stone, helping the building sit naturally within its rural setting while maintaining a distinctive architectural presence.



KEY DESIGN FEATURES INCLUDE:

- Five-bedroom layout including three en-suite rooms
- Guest bedroom within an ICF basement
- Sunken patio bringing natural light into the lower level
- Large open-plan kitchen and dining space
- Extensive floor-to-ceiling glazing
- Flat roof areas with a large roof lantern
- Strong connection between indoor and outdoor living areas

The design prioritises light, space and energy efficiency while maintaining a strong architectural character.

SIPS STRUCTURAL DESIGN

SIPS Eco Panels were responsible for designing, engineering and installing the two-storey SIP structure above DPC level, working closely with the structural engineer and wider project team.

The design required careful coordination between the SIP structure, the ICF basement and structural steelwork to support large glazed openings.

Structural features included:

- Steel supports integrated within floor zones
- Structural steel within flat roof areas
- Steel portal frame supporting the full-height entrance glazing
- Bespoke SIP bay window detail in the kitchen
- Structural support for a large roof lantern over the dining space

These elements allowed the design team to create expansive open-plan living spaces while maintaining the thermal integrity of the building envelope.



SIPS CONSTRUCTION SPECIFICATION

The structural envelope was delivered using the SIPS Eco high-performance panel system, designed to provide excellent insulation and airtightness.

Specification included

- 169mm SIP external wall panels
- 194mm SIP roof panels for both flat and pitched roof sections
- 254mm engineered open-web posi joists
- 22mm structural chipboard flooring
- Internal studwork ranging from 38x89mm to 45x195mm

The use of insulated SIP splines helped maintain a continuous thermal envelope while maximising internal floor space.



ACHIEVING PASSIVHAUS-LEVEL PERFORMANCE

A key ambition for the project was to achieve Passivhaus-level thermal efficiency without pursuing formal certification.

The architectural design was developed using the Passive House Planning Package (PHPP) to ensure the building fabric and systems would achieve the required energy performance.

Energy-efficient systems include:

- Ground source heat pump heating system
- Mechanical Ventilation with Heat Recovery (MVHR)
- Underfloor heating throughout the property
- Smart lighting and home automation systems

Combined with the high-performance SIP building envelope, these systems help create a home with significantly reduced energy demand.

CONSTRUCTION EFFICIENCY & PRECISION

One of the major advantages of using SIPs on this project was the precision achieved through factory-controlled manufacturing.

Accurate panel fabrication ensured that structural openings aligned perfectly with the project's extensive glazing systems, allowing windows to be installed with minimal tolerances and improving airtightness performance.

The use of engineered open-web posi joists also allowed mechanical and electrical services to be installed quickly and efficiently, simplifying coordination for follow-on trades.

WHY SIPS ARE IDEAL FOR LARGE SELF BUILDS

Stone Valley House demonstrates why structural insulated panels are increasingly chosen for high-end self-build homes.

Key advantages include:

- Excellent thermal performance
- Reduced cold bridging
- High levels of airtightness
- Faster structural build programmes
- Precision manufacturing for glazing installations
- Greater architectural flexibility

The lightweight nature of SIP panels also allowed seamless integration with the ICF basement structure while reducing the need for excessive structural steelwork.





HOMEOWNER FEEDBACK

“To design and build our own home was always a dream. Through my experience in the glazing industry I had seen many different construction methods, which ultimately led me to SIPs.

Working with SIPS Eco Panels was a very professional and enjoyable process. They worked closely with everyone involved in the project and took pride in delivering the structural solution.

Building your own home can be stressful, but the experience with SIPS Eco was excellent and we would highly recommend them to others considering a self build.”

ARE SIPS GOOD FOR SELF BUILD HOMES?

Yes – SIPs are one of the most popular construction systems for self build homes in the UK.

Benefits include:

- Faster construction programmes
- Highly energy-efficient buildings
- Reduced heating demand
- Precision-engineered structural panels
- Greater architectural design flexibility

Because SIP panels are manufactured off-site, projects can often reach the weathertight stage significantly faster than traditional construction methods.

UK LEADING AWARD WINNING STRUCTURAL INSULATED PANEL MANUFACTURER

