

Recognising the U-value of SIPS

STRUCTURAL INSULATED PANELS (SIPS) DELIVER OUTSTANDING PERFORMANCE. WHETHER IT'S STRUCTURAL INTEGRITY, THERMAL PERFORMANCE, AIRTIGHTNESS, SPEED OF ERECTION OR QUALITY CONTROL WITH OFFSITE MANUFACTURE. JML CONTRACTS BELIEVE SIPS LEAD THE FIELD – THE INDUSTRY JUST HASN'T RECOGNISED THIS YET.



That may sound like a bold statement, but JML Contracts firmly believes this to be true and is determined to prove it. Their foundation in civil engineering enables the company to offer a full turnkey solution, including specialist groundworks. The full service with in-house Passive registered consultants, a SIP engineer, processing facility, construction teams and a full range of Passive-standard house designs (Caber House in partnership with Architeco) and the insight and experience gained puts the team in the perfect position to offer a fully managed SIPS solution.

With the Scottish Government's commitment to building 50,000 affordable new homes over the life of this Parliament, a need has arisen to deliver outstanding new homes using affordable and sustainable cutting edge construction techniques and represents a huge opportunity for SMEs.

Emphasis is moving from increasing levels of insulation to airtightness – a fundamental

advantage for SIPS. Due to each joint being glued and the sandwich of OSB boards being fully bonded to the polyurethane foam, a typical SIPS house can achieve less than 2 ac/hr@50Pcls (air changes per hour at 50 pascals pressure) without the application of a single piece of tape/plasterboard or any VCL. The difference in airtightness values between this and a well-constructed timber frame kit, that could possibly achieve 4ac/hr@50Pcls, equates to a 20% reduction in heating demand. The heat load is also 20% lower, requiring a smaller, more cost-effective heating system. Years of building both timber kit and SIPS houses have allowed JML to make informed and actual post-build performance comparisons between the two systems and all the evidence points to SIPS.

It's simple to increase the airtightness even further in a SIPS kit as either the internal or external layer of OSB can be used as the airtight layer, achieving levels as low as 0.6 ac/hr@50Pcls and making it particularly suitable for Passivhaus builds. It is not surprising that JML SIP kits are extremely popular in the Highlands and Islands where in the remote environment and high gale winds mean that quick erection, strength and airtightness are top priorities and are all met comfortably by SIPS.

JML Contracts' BBA-rated SIPS panels incorporate injected polyurethane insulation, the same insulation generally used in

rigid board, with a typical lambda value of 0.024 W/m². Although timber kits can also incorporate this insulation, it is not without the risk of gaps and air spaces. However, the main advantage comes when insulated jointing splines are used between the panels. In the walls for example, an 85% reduction in thermal bridging can be achieved when compared with an equivalent timber kit, effectively improving the U-value of the wall by 25%.

SIPS, although structurally very strong, are relatively lightweight (20Kg/m² for a 150mm thick panel) and are therefore often able to offer a reduction in foundation specification. The prefabricated and often large-format panels are very quick to erect and can reduce installation time by up to 60%. This allows the building to very quickly become wind and watertight, granting follow on trades access sooner and reducing prelim costs across the development. In addition, offsite manufacture generates up to 60% less waste, offering substantial cost savings and reducing the industry's impact on the environment.

Once completed, SIP structures form a shell up to seven times stronger than conventional timber frame constructions. Engineers will find SIPS are excellent for in-plane loads and act like thin shell structures, dispersing point loads to the entire surface area. Furthermore, architects can make creative use of the vaulted ceiling spaces which result from the lack of requirement for roof trusses and roof structure.

For more information visit:

www.jmlcontracts.co.uk

IMAGES:

01. SIPS are prefabricated, reliable, quality-controlled structural products

JML CONTRACTS

STRUCTURAL INSULATED PANELS

SIPs house building specialists with our own in-house Passive consultant, engineers, processing factory, groundworks and erection team - allowing us full quality control over the entire SIPs process.



Benefits of SIPs

- Exceptional thermal performance and u-values
- Airtight & draft free construction
- Drastically reduced energy bills
- Increased, habitable roof space
- Off-site manufacture & minimal site erection time
- Excellent sound proofing & structural strength



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