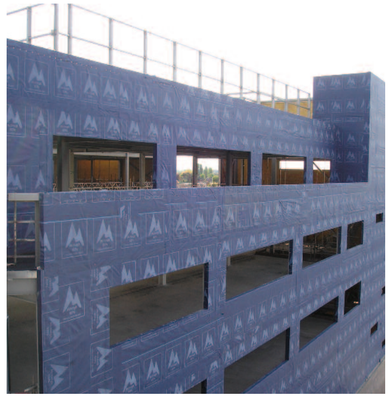
Design to Installation

McVeigh Insulations has a history spanning over 80 years, and is still family owned and operated, delivering a high level of care and commitment to each project and each customer. The company began life designing and building cold stores for the food industry, and applied that expertise in creation of airtight, highly insulated structures to diversify into Structural Insulated Panels.

At McVeigh we have found that the majority of end users are far more comfortable when one company is responsible for the whole process, so have developed our operation to fulfil that need. We are unique in our ability to offer the combination of a single source for design through to installation, the size of panel which we can offer- up to 4m x 8m, and the ability to create structures in even the tightest sites through our innovative 'tight fix' system.

Our specialist in-house team works as a partner with the customer to design each project including detailed working drawings using advanced software, to engineer each panel in our dedicated factory to exact requirements and tolerances, deliver to site, and install.

McVeigh has the ability and flexibility to accommodate all working practice, from design and fabrication of the SIPs in collaboration with the architect, client and main contractor, through to on-site installation. Its expertise extends to the supply and fix of rainscreen cladding.



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Introduction

Since their introduction more than 60 years ago, SIP's (Structural Insulated Panels) have been used in many thousands of buildings across the world and have been exhaustively tested, passing every barrier with flying colours.

As the requirements for better insulation in new (Code for Sustainable Homes) and old buildings get more demanding, existing traditional building materials are starting to become unsuitable and expensive.

Off Site Construction (OSC) and Modern Methods of Construction (MMC), as the Government have named the process, enables buildings to be prefabricated and delivered RTA (Ready to Assemble) directly to site, being constructed in a fraction of the time taken for traditional buildings.

This concept is the ideal platform for SIP products. The modular, almost lego-like properties, combined with their superior thermal capabilities and robust structural nature, are fast becoming the material of choice within the construction industry.

USP benefits of SIPs

- The proven superiority in transverse and axial loading capabilities and increased racking resistance over conventional framing make SIP's a stronger, safer alternative.
- The insulation values for SIP panels are far superior to conventional insulating methods.
- A SIPs building can provide a more airtight envelope, with air leakage as low as 1m³/hr/m² @ 50Pa
- A SIP shell can be erected much faster than a conventional shell.
- SIP's are environmentally friendly. Their facings are made from renewable, farm grown trees and none of their components contribute to environmental degradation.
- From a material stand point SIPS take the place of a whole assembly. Instead of separate pieces of framing and insulation and sheathing, a SIP panel incorporates all of these components and comes ready to install.
- SIP's have a unique ability to integrate with any type of external finish whether it be traditional or another modern method of construction (MMC).
- The dimensional stability of SIP's means there will be virtually no drywall callbacks caused by cracking seams.
- SIPs enable simpler, better fixing of rainscreen cladding, allowing random fixing patterns into the structural boarding without penetrating the insulation layer.

Technical specification

Product performance

MATERIAL
FORMAT OPTIONS
Singe Format
Individual panels engineered to a maximum 1200mm wide delivered flat pack for site assembly.

Large Format
Factory assembled SIPs, typically story height x the width of a structural bay incorporating door and window apertures, building paper and lifting slings. Panels are generally delivered to site in stillage racks and installed with appropriate lifting equipment.

DIMENSIONS & WEIGHT

Thickness : (mm)	100	125	150	180	200	225	255
Weight : kg/m2	22.1	23.1	24.2	25.5	26.5	27.7	29.0

PRODUCT TOLERANCES

Length	–3mm	+3mm
Width	–3mm	+3mm
Thickness	–3mm	+3mm

AVAILABLE LENGTHS
Single panels up to 6.0m.

AVAILABLE WIDTHS
Single panels upto 1200mm.

MATERIALS
OSB – (Orientated Strand Board)
- OSB Grade 3 BBA Approved board.
- Manufactured to BS EN 300: 1997 For OSB /3, Load bearing oriented strand boards for use in humid conditions.
- Standard external and internal sheet thickness 15mm.

INSULATION CORE
- Low density fire retardant polyurethane foam with polymer derived from renewable vegetable oils. Zero ozone depletion potential (ODP) and global warming potential (GWP) ≤1. Very low thermal conductivity with lambda value of 0.021-0.022W/MK.

PANEL JOINT
Panel to panel joints are either 15mm thick OSB splines or softwood timber posts.

Air Leakage
Overall air leakage for complete envelope can be less than 5m3//hr/m2.

PERFORMANCE
Thermal Insulation

Panel thickness	Thermal transmittance (U Value) W/m2 K
100mm	0.28
125mm	0.22
150mm	0.18
180mm	0.15
200mm	0.13
225mm	0.12
255mm	0.10

Calculated using the method required by the Building Regulations Part L2 (England & Wales) and Building Standards Part J (Scotland). Also calculated in accordance with BS EN ISO 6946:1997 and BRE report (BR443 : 2006).
Correction factor may be required in consideration of any timber inserts.

Fire
The panels have passed the requirements of BS476 Part 21 fire resistance of load bearing walls and has achieve up to 75 minuets fire rating.

Acoustics
External Walls
- OSB faced panel plus 12.5mm Fireline plasterboard and 12.5mm plasterboard to the inside face only achieved a weighted sound reduction index (SRI) 36dB (units).

Party Walls (Single Panel Construction)
- OSB Faced Panel plus 12.5mm Sound Block and 12.5mm Plaster board to each face achieved a weighted sound reduction index (SRI) 49db. (This construction will achieve a FR- 60 minuets fire rating).

ENVIRONMENTAL
'A' rating for the insulated core under the Building Research Establishment Green Guide.
ODP Global Warming Potential of <1.
Ozone Depletion Potential of 0.
Timber content procured from responsibly managed sources with an insulated core containing polymer derived from renewable vegetable oil.

STRUCTURAL
Loading Capacity Walls
- **SIPS /** 125mm Wall panel. The permissible design load values for the effective span of the panels based on the results of tests undertaken and analysed in accordance with BS5268-2 : 2002 Loading as follows:

Loading	Maximum Distance between Panel supports.					
	2.0	2.2	2.4	2.6	2.8	3.0
Vertical (kNm-1)	38	38	38	38	38	38
Lateral						
For Strength (kNm-2)	8.14	7.40	6.79	6.26	5.82	5.43
For Deflection (kNm-2)	2.40	1.80	1.39	1.09	0.87	0.71
Racking Resistance (kNm-1)	4.08	3.71	3.40	3.14	2.91	2.72

- For Full Loading information please refer to BBA certificate.

Loading Capacity Roofs
- **SIPS /** 180mm Roof panel. The permissible design load values for the effective span of the panels based on the results of tests undertaken and analysed in accordance with BS5268-2 : 2002.

Loading	Maximum Distance between Panel supports.						
	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Vertical (kNm-1)	7.89	6.31	5.06	3.19	2.13	1.50	1.09

- For Full Loading information please refer to BBA certificate.

QUALITY & DURABILITY
SIPS Insulated Panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, complying with ISO9000 standard, ensuring long-term reliability and service life.

GUARANTEES & WARRANTIES
The OSB and SIPs are BBA Approved and the Panel system satisfies the requirements of the Zurich Approval building guarantee.

PACKING
Standard Packing
SIPS single panels are stacked horizontally and wrapped in polythene. The number of panels in each pack depends on panel length and weight. Typical pack height is 1100mm. Maximum pack weight 1000kg.

Panel thickness (mm)	100	125	150	180
No. panel/pack (max)	9	7	6	5

DELIVERY
All deliveries (unless indicated otherwise) are by road transport to project site.

Case studies

Castle Rock

Castle Rock High School won excellence awards for its sustainable construction. Large format fully integrated McVeigh SIPS enhanced thermal continuity and air sealing details, and reduced secondary support requirements

Northern Ballet

A centre for excellence for Northern Ballet Theatre and Phoenix Dance Theatre created from McVeigh SIPS up to 4.5m x3.8m, factory produced and fixed in place on the space-limited site using roof-mounted crane; contributed towards overall BREEAM 'excellent' rating

John Ferneley

John Ferneley College: McVeigh SIPS up to 7m x 3.8m used to create a school with 'exemplar' sustainable design and construction, simulatenously accelerating construction process- the 650m² roof constructed on site from McVeigh SIPS in just three days

Ellesmere

McVeigh SIPS up to 7.5m long used to create main campus building at West Cheshire College's Ellesmere Port site five storeys high with a BREEAM rating of 'very good'