Structural Insulated Panels (SIPs)

Product data sheet

At a glance:

- BBA Certified product
- Support faster build times
- Can be used internally and externally
- Maximises internal build space
- Excellent thermal U values
- Industry leading airtightness

HEMSEC

Applications

Hemsec structural insulated panels (SIPs) can be used for all internal and external walls and roofs in domestic, industrial and commercial construction. You can manufacture an entire building using SIPs for walls, floors and roofs.

Applications include;

- Residential; Self-build and multiplot developments
- Garden rooms and home extensions
- Leisure facilities; Holiday pods, holiday and park homes
- Hotels and holiday resorts
- Commercial and Industrial buildings
- Private Education facilities and extensions

Hemsec SIPs are the best solution for applications where you need thermal efficiency. Depending on how they are used, a building manufactured using SIPs can out-perform most Passive House measures for low-energy use.

About Hemsec

We are proud to be one of the UK's leading composite insulated panel manufacturers. With over 90 years of experience in the industry, we have played a key role in shaping the use of insulated panels across many industries.

Everything we manufacture, either keeps cold air inside a structure, or firmly shuts it out.

Our aim is, and always has been, to create trusted partnerships with our customers, and to supply them with the best quality insulated panels in the world, keeping excellent delivery times. As a consequence of doing this, we remain responsible, and make a positive impact in the world.

Core values of Quality, Responsibility, Trust, and Partnerships influence our organisation at every level meaning every person involved in the manufacturing of our panels, takes great pride in their work.

11mm Panel Data

Panel Data

Cover Width | 1200mm

Available Lengths | Standard Panel Lengths 2400, 3000, 3500, 4000, 5000, 6000mm
Bespoke Lengths Available on request

Panel Thickness	Internal OSB/3 Thickness (mm)	Foam Core Thickness (mm)	External OSB/3 Thickness (mm)	Weight (kg/m2)	Thermal transmittance U-Value W/m2K	Declared thermal conductivity λ D (W/mK)
100 mm	11	78	11	17.42	0.34	0.030
125 mm	11	103	11	18.57	0.26	0.029
150 mm	11	128	11	19.71	0.20	0.028
175 mm	11	153	11	20.85	0.17	0.028
200 mm	11	178	11	21.99	0.15	0.028

Other panel thicknesses are available, please contact us to find out more.

* Calculated using the method required by the Building Regula ons Part L2 (England & Wales) and Building Standards Part J (Scotland).
Also calculated in accordance with BS EN ISO 6946 and BRE report (BR443:2006)

Panel Core

A closed cell Polyurethane rigid foam system with zero Ozone Depletion Potential (ODP) supplied by BASF Polyurethanes Europe. The PUR core is CFC and HCFC free providing a < 5 value for GWP, as specified by various regulatory bodies.

For further technical information, please contact us.

Panel Facings

The Residential SIPs panel comprises of BBA Approved 11mm Internal and External Oriented Strand Board (OSB) grade 3 facings. OSB/3 has a thermal conductivity value λ of 0.13 W/mK.

Manufactured to specification EN 13986 and EN 300, OSB/3 comprises of strands of softwood bonded together using a formaldehyde free synthetic resin. The OSB boards are responsibly sourced and comply to PEFC chain of custody requirements.

Further information and Certification can be obtained on request through Hemsec.

Structural

Loading Capacity Walls
Hemsec 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.

11mm OSB Sheathing	Span of Panel (m)						
	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Load at Max. deflection of span/200 (kNm-2)	5.90	3.48	1.88	1.02	0.60	0.37	0.24
Load at Max. deflection of span/333 (kNm-2)	4.08	2.09	1.21	0.76	0.51	0.36	0.24

Loading Capacity Roofs
Hemsec SIPs 175mm 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.

11mm OSB Sheathing	Span of Panel (m)						
	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Load at Max. deflection of span/200 (kNm-2)	14.00	7.20	3.89	2.10	1.23	0.77	0.50
Load at Max. deflection of span/333 (kNm-2)	8.44	4.32	2.50	1.57	1.05	0.74	0.50

15mm Panel Data

Panel Data

Cover Width | 1200mm

Available Lengths | Standard Panel Lengths 2400, 3000, 3500, 4000, 5000, 6000mm
Bespoke Lengths Available on request

Panel Thickness	Internal OSB/3 Thickness (mm)	Foam Core Thickness (mm)	External OSB/3 Thickness (mm)	Weight (kg/m2)	Thermal transmittance U-Value W/m2K	Declared thermal conductivity λ D (W/mK)
100 mm	15	70	15	22.10	0.37	0.030
125 mm	15	95	15	23.10	0.27	0.029
150 mm	15	120	15	24.20	0.21	0.028
175 mm	15	145	15	25.50	0.18	0.028
200 mm	15	170	15	26.50	0.15	0.028

Other panel thicknesses are available, please contact us to find out more.

* 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 and BRE report (BR443:2006)

Panel Core

A closed cell Polyurethane rigid foam system with zero Ozone Depletion Potential (ODP) supplied by BASF Polyurethanes Europe. The PUR core is CFC and HCFC free providing a < 5 value for GWP, as specified by various regulatory bodies.

For further technical information, please contact us.

Panel Facings

The Residential SIPs panel comprises of BBA Approved 15mm Internal and External Oriented Strand Board (OSB) grade 3 facings. OSB/3 has a thermal conductivity value λ of 0.13 W/mK.

Manufactured to specification EN 13986 and EN 300, OSB/3 comprises of strands of softwood bonded together using a formaldehyde free synthetic resin. The OSB boards are responsibly sourced and comply to PEFC chain of custody requirements.

Further information and certification can be obtained on request through Hemsec.

Structural

Loading Capacity Walls

Hemsec 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.

15mm OSB Sheathing	Span of Panel (m)						
	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Load at Max. deflection of span/200 (kNm-2)	6.19	3.48	1.88	1.02	0.60	0.37	0.24
Load at Max. deflection of span/333 (kNm-2)	5.21	2.67	1.54	0.97	0.65	0.46	0.31

Loading Capacity Roofs

Hemsec SIPs 175mm 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.

15mm OSB Sheathing	Span of Panel (m)						
	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Load at Max. deflection of span/200 (kNm-2)	14.00	8.96	5.05	2.72	1.60	1.00	0.65
Load at Max. deflection of span/333 (kNm-2)	10.95	5.61	3.24	2.04	1.37	0.96	0.65

Tolerances

Materials used to join panels should be selected to meet the structural requirements of the construction.

Length	-3mm	+3mm
Width	-3mm	+3mm
Thickness	-3mm	+3mm
Squareness	Squareness maximum 2mm variance	

Fire

Hemsec SIPs achieve F30 & FR60 in fire resistance tests to BS EN1365-1:2012 for residential applications. Hemsec panels achieved REI30 & REI60 in accordance with fire classification BS EN 13501-2:2023. See technical downloads area of our site.

When Hemsec SIPs are used as part of a through-wall build up they pass the requirements of BS476 Part 21 fire resistance of load bearing walls and have achieved up to 75 minutes fire rating. Non-Load bearing walls can achieve up to a 90 minute fire rating (BS476 Part 22:1987).
Panel Internal and External OSB facings have Class 3 surface spread of flame to BS476: Part 7:1987.

Airtightness

Panel joint air-tightness = 0.01 m3/m2/hr at 50 Pa when tested to EN 12114 in accordance with BS EN 14509: 201

Acoustic

Please refer to Hemsec SIPs BBA certificate, Section 12 – Resistance to Airborne Sound.

Jointing

Materials used to join panels should be selected to meet the structural requirements of the construction and be approved by the projects' Structural Engineer. Standard SIP panel splines provide low air leakage and enhance thermal performance. Solid timber splines should be responsibly sourced and the suppliers must provide evidence of its sustainability credentials through PEFC certification.

Quality & Durability

Hemsec panels are made from the highest and most robust quality materials, on a state-of-the-art production line within the UK.

Our company is BS EN ISO 9001:2015 certified, quantifying our quality management system and demonstrating our ability to consistently provide products and services that meet customer and regulatory requirements.

Further to this, we operate within a BBA approved Quality Plan to strict Factory Production Control (FPC) measures, defining documentation and Quality Control Procedures.

Guarantee

Warranties for SIPs construction are available from companies that offer warranty schemes and the majority of lenders are able to offer mortgages on SIPs houses.

Hemsec SIPs are BBA / NHBC approved and are eligible for Premier Guarantee.The panels will have comparable durability to that of OSB/3 to BS EN 300, therefore, provided the installation remains weathertight and damp-proof; a life of at least 60 years may be expected. The long life expectancy of our product will reduce energy consumption of a building over its' lifespan.

For more information about our warranties, please contact use.

Environmental

Hemsec recognise our responsibilities in working towards a sustainable future and demonstrate excellent performance in minimising the environmental impact of our manufacturing processes. Maximising the environmental benefits of our products contributes to the well-being of the communities we operate and conduct our business within, in the most economically viable manner.

Energy consumption within buildings which utilise our Insulated panel systems is reduced over much of the buildings life due to the thermal efficiency of our products.

A guide outlining the options for end-of-life procedures of insulated panels whether for reuse, recycling or waste disposal has been developed by EPIC (Engineered Panels in Construction). Available from www.epic.uk.com

For further information is available on our website.

Delivery & Site Procedures

All deliveries are made by road transport to the project site, subsequent offloading and storage is the responsibility of the customer.

Packaging

Hemsec's insulated panels are stacked horizontally with protective jiffy foam laid between the ends of each panel; they are then wrapped in polythene and strapped on top of a 3mm hardboard sheet to prevent forklift damage and to protect against the weather. The pack is supported by a number of polystyrene bearers, (150mm x 100mm), regularly spaced under the hardboard to keep the panels elevated from the floor avoiding dirt and possible damage.

The number of panels in each pack depends on panel length and weight. Typical pack height is 1100mm.

Panel Thickness	100mm	125mm	150mm	175mm	200mm
No. panels/pack (max)	10	8	7	6	5

Maximum pack weight is 1000kg. Each pack is labeled with project information and customer panel references.

Site Procedures

Panel care information and indicative drawings are available from Hemsec.

Indicative Detail Drawings

Our drawings should be considered indicative only, as Hemsec do not underwrite project design.
Please visit our website for the latest drawing set which can also be supplied in both PDF and DWG formats, on request from Hemsec.

Guides / Associations

BBA

BBA Agreement Certificate is a mark of excellence based on rigorous national and European standards that validate a construction product's specialist formulation, capability and uniqueness.
www.bbacerts.co.uk

EPIC – Engineered Panels in Construction

Publishers of the Insulated Panels Identification and Disposal guide.
Not-for-profit trade association representing the PIR rigid urethane insulated panel industry in the UK.
www.epic.uk.com

BASF

The world leader in isocyanates, key components for producing rigid foam insulation.
www.basf.com/gb

STA - Structural Timber Association

The Structural Timber Association (STA) represents the vast majority of the structural timber industry, with an extensive membership covering a range of businesses engaged.
www.structuraltimber.co.uk

PEFC

PEFC is the world's leading forest certification system and an internationally recognised brand devoted to ensuring that forests are managed according to environmental, social and economic criteria.
www.pefc.co.uk

Hemsec Manufacturing Ltd
Stoney Lane
Rainhill
Prescot
Merseyside
L35 9LL

Tel: 0151 426 7171
Email: contact@hemsec.com