



Introduction: Structural Insulated Panels (SIPs) offer a modern, cost-effective, environmental and energy efficient solution to building construction. A SIPs building is constructed by assembling pre-manufactured panels which are heavily insulated, removing the need for additional insulation. The panels are very strong, and can be used for floors and roofs, as well as external and internal walls, without the need for a traditional timber frame or conventional brick or block. The company's personnel have vast experience in the development and manufacturing of composite panels. Manufacturing equipment at our factory has ensured a consistently high quality of manufacture, fast response and high volume production.

Applications: SIP systems are used, amongst others, in the construction of houses, flats, hotels and leisure facilities, schools and light industrial units. They can provide rooms in roof and dormers. The following finishes are easily applied:

Walls - cladding, polymer and cement renders, natural stone, brick and brick slips, timber and metal cladding;

Roofs - lightweight and traditional systems can be used.

Green issues SIPs Industries Ltd sips use OSB board manufactured from sustainable harvested spruce thinning and managed plantations. All timbers meet PEFC standards. A Sips Industries panel house uses whitewood timber which is sourced through a recognised timber supplier and saw mills. This timber is vac vac treated, a process that uses no solvents. The P.V.A. glue used is water based and solvent free. Expanded polystyrene is non-toxic and inert. Expanded polystyrene consists of up to 98% air and its production accounts for less than 1% of oil use in the UK. For every kilogram of oil used to manufacture EPS insulation board approximately 200 kilograms of oil will be saved in reduced heating fuel demands over its lifetime.



DESCRIPTION

SIP systems comprise engineered panels that are used as walls and roofs on all types of building. They may be used to span openings with support from panels on each side. Panels are generally connected using an OSB spline or solid timber joints. SIPs panels are protected against fire by use of thermal barriers such as gypsum wallboard.

Composition, manufactured SIPs comprise of two facings of 11 mm thick H2 termite treated OSB3 bonded with a PVAc D4 structural adhesive. Facings and core together act as a composite structure that is much stronger than the sum its parts. Separately to all necessary adhesive and mechanical fixings, a total superstructure solution including internal partitions (structural and non-structural), intermediate floors, glulam laminated beam, steel where required with the external face finished with a suitable breather membrane, is provided.

Dimensions (mm)

Overall thicknesses: 113mm, 162mm
Width: 1200mm
Length: 5400mm

Individual panels are fabricated to any size relevant to the elevation design requirements, incorporating suitable structural components.

Weight Typically panels weigh 16-22 kg/m².

PERFORMANCE

Weather SIPs' panels and jointing system create an airtight structure that meets the relevant requirements of the Building Regulations.

Mechanics SIPs form light, strong structures that are excellent for in-plane loads. Buildings built with SIPs behave as shell structures, dispersing point loads throughout the entire surface area.

Fire SIPs' panels when lined with plasterboard meet all Building Regulations requirements for fire resistance. A single layer will provide 30 minutes' rating, a double layer 60 minutes' rating.

Heat Thermal conductivity of the polystyrene core is, typically, 0.030 W/m²K. U-values of walls and roofs, depending on construction detail, are in the range of 0.15 - 0.27 W/m²K.

Sound Acoustic insulation is improved by use of plasterboard linings. The company can advise on constructions to achieve Building Regulations' acoustic requirements.

Durability Life expectancy of buildings using SIPs is the same as for conventionally constructed buildings - at least 60 years is expected.

DESIGN CONSIDERATIONS

Any foundations can be used but level tolerances of + 5 mm are required. Conventional heating is suitable but account should be made of the energy efficiency of SIPs' houses.

SUPPLY

All SIP products are supplied through SIPs Industries Ltd.

SERVICES

Services to specifiers include technical advice, structural design, installation, on site supervision and product training.

CONTACT

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