SIPs - Timber Faced - Frequently Asked Questions

What are SIPs?

Structural Insulated Panels (SIPs) are a composite panel that can be utilised for wall and roof structures and are known as a Modern Method of Construction (MMC).

SIPs are a “Fabric-First” approach, easily integrated with a wide range of construction materials as a load or non-load bearing structure, which provide a built up - through wall panel system.

SIPs are framing, insulation, and sheathing in one pre-fabricated component.

What is the build-up of a SIPs panel?

Generally SIPs are made with Oriented Strand Board (OSB) faces; however, they can also be manufactured using other sheet materials such as Plywood and Cement Particle Board (CPB).

SIPs can be manufactured with different cores including: Expanded Polystyrene (EPS), Graphite Infused Polystyrene (Neopor EPS), Polyurethane (PUR) or Polyisocyanurate (PIR).

Hemsec SIPs are manufactured utilising an injected closed cell Polyurethane - rigid foam system, sandwiched between two structurally rated skins of Orientated Strand Board (OSB/3) that can provide continuous structural integrity and superior insulation within one component.

Hemsec SIPs product ranges include: Residential (Available with 11mm or 15mm OSB) and Commercial (15mm OSB).

What is a U-value?

U-value is the measurement of heat flow through any given combination of materials, air layers and air spaces. The lower the U-value, the more slowly the transfer of heat in and out of a building and the better the insulating quality.

What type of build can SIPs be used for?

SIPs can be utilised in virtually any construction project (residential, leisure, commercial, education, retail), as structural envelopes or in-fill panels within a steel, concrete or timber frame.

Why choose SIPs over traditional methods?

The main benefits to building with SIPs are:

- Superior Insulation provides improved energy efficiency which reduces heating and cooling costs.
- Installation time can be reduced up to 60% against traditional construction therefore minimising overall onsite costs due to reduced; project management, plant hire, welfare facilities and most importantly labour.
- Factory controlled manufacturing provides a consistent and accurate engineered product allowing for easier and precise installation.
- Offsite manufacture results in less waste on site.
- Panels can be built in to large format walls prior to site delivery therefore reducing installation time.
- Up to 7 times stronger when compared to timber frame construction.

What foundation should be used for a SIPs house?

Any foundation method can be used with SIPs; however, the tolerance level should be no more than +/- 5mm to allow for easy installation.

Is it difficult to get planning approval when using SIPs?

SIPs are an accepted form of construction and raise no issues when obtaining planning approval.

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Would a SIPs construction be more expensive?

The initial, up-front cost of a SIP build over traditional methods i.e. timber frame or brick and block, is typically higher depending on the complexity of the design. However the savings in construction time, reduction of material waste on site and improved energy efficiency of the building will bring significant savings, making a SIPs construction a long-term cost effective solution.

How much time can be saved building with SIPs?

The time savings over timber frame or traditional methods of construction can be significant if an experienced SIPs installer is undertaking the build (up to 60% less).
The separate steps of timber framing, insulating, and sheathing are eliminated thanks to the composite nature of SIPs.

The flexibility of SIPs allows architects to design window and door apertures into the structural envelope reducing the need for additional supports and lintels. Panels can also be engineered in the factory in to single or large format walling prior to delivery which speeds up the installation process further and reduces construction waste. Once installed, SIPs are ready for interior and exterior finishing.

What are the options for external finishes?

External finishes are numerous and come down to personal preference, you can have traditional cavity and brick or stone wall, render, brick slips, timber cladding, slate, copper, zinc, stainless standing seam, etc.

Durability of SIPs

A building constructed with SIP panels will have durability comparable to other forms of construction. If the design of the structure follows best practice and the building is maintained and weather tight, a life of at least 60 years can be expected.

Thermal Bridging

Thermal bridging is the ability of external cold transfer to internal walls which can result in cold spots and damp. A thermal bridge/cold bridge, is created when materials that are poor thermal insulators come into contact, which allows heat to flow through the path created. SIPs panels have an insulated core which virtually eliminates thermal/cold bridging.

Hemsec Structural Insulated Panels can be joined together with the use of an insulated SIP spline which provides a continuous polyurethane (PUR) core through the walls and roof of the building. This greatly improves the thermal efficiency of the building compared to timber frame studs.

Air Tightness

Poor air-tightness is a major cause of heat loss. The superior air tightness of SIPs and the jointing method can create an airtight structure that meets the new Building Regulation requirements.

The system is so effective that positive ventilation may need to be considered, this can be linked to a heat recovery system and further reduce energy costs.

SIPs Fire Performance

When Hemsec SIPs are used as part of a through-wall build up they can achieve a fire resistance of up to 90 minutes; meeting all current requirements for Building Regulations. OSB/3 facings have a Class 1 surface spread of flame and are Class 0 as defined by Building Regulations.

Are warranties available for a SIP building?

Warranties for SIPs construction are accepted by all companies that offer warranty schemes. The majority of lenders are able to offer mortgages on SIPs houses.

Hemsec SIPS are BBA / NHBC approved and are eligible for Premier Guarantee.

Environmental Sustainability

The Hemsec Structural Insulated Panels are made from timber which is sourced from managed plantations. Timber is considered a sustainable building material because it is derived from a renewable source and has low embodied energy.

The Polyurethane (PUR) core in our Structural Insulated Panels is CFC/HCFC-free with zero Ozone Depletion Potential and has a “Less than 5” value for Global Warming Potential (GWP) supplied by BASF.