

STRUCTURAL INSULATED PANELS

A strong, affordable and environmentally responsible solution to changing construction requirements.. Structural Insulated panels (SIPs) have been utilised successfully worldwide for more than 40 years. 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 or other frame. 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, apartments, hotels and leisure facilities, schools, commercial and industrial units. The following finishes are easily applied:

Walls;

Are fitted with a high quality Proctor breather membrane vapour barrier and then clad giving the designer a massive range of finishes to choose from such as, polymer and cement renders, natural stone, brick, timber, and metal claddings.

Roofs;

Lightweight and traditional systems such as metal or tile can be used, SIPs roof panels lend themselves towards skillion or mono-pitch roof designs with raked ceilings, the roof panel forms the structure and the insulation and can be installed very quickly to waterproof you're the building.

Floors:

Quickly installed floors on bearers spaced up to 2.7m can form your pre-insulated floor system.

Green issues

SIPs Industries sips use OSB3 board manufactured from sustainable harvested spruce thinning from managed plantations. This timber is vac treated a process that uses no solvents and is completely formaldehyde free. 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.



SIP systems comprise of engineered panels that are used as walls, roofs and floor on all types of building. They may be used as insulated lintels with our specific span table to span openings with support from panels on each side. Panels are generally connected using an OSB spline or solid timber joints where all joints are air-tight.

Composition

Manufactured Panels comprise 2 facings of 11 mm thick OSB3 bonded a PVAc D4 adhesive. The facings and the EPS core together act as a composite structure.

Dimensions and Sizes (mm)

Overall standard thicknesses: 95mm, 115mm, 145mm, 165mm with core thicknesses 70mm, 90mm, 120mm and 140mm.

Size: 2440 x 1200 wide
2700 x 1200 wide
3000 x 1200 wide
3600 x 1200 wide
4800 x 1200 wide
5400 x 1200 wide
6000 x 1200 wide

Individual panels are fabricated to any size relevant to the design requirements of the designer, incorporating suitable structural components as per the engineering design.

Weight:

Typically panels weigh 16-22 kg/m².



PERFORMANCE

Air-Tight SIPs panels and jointing system create an airtight structure that exceeds the BCA Standards.

Mechanics: SIPs form light, strong structures that are extremely rigid and stable. Buildings built with SIPs behave as thin shell structures, dispersing point loads throughout the entire surface area. SIPs Industries panels are cyclone rated.

Fire: SIPs are protected against spread of flame by use of thermal barriers such as plasterboard allowing the system to be used for party walls and also in commercial applications. SIPs are impregnated with a fire retardant which ensures the EPs will not catch flame.

Heat Thermal: SIPs addresses all 3 key factors impacting insulation performance.

- Thermal resistance. SIPs panels range from R2.8 to R5.
- Thermal Bridging is eliminated
- Air Tight. SIPs building systems provide an air-tight envelope. All 3 elements must work to provide effective insulation.

Sound Acoustic: SIPs impressive acoustic properties can be further enhanced by the use of acoustic plasterboard linings. SIPs minimum acoustic performance without plasterboard is 26db.

Durability: Life expectancy of buildings using SIPs is the same as for conventionally constructed buildings.

Termite: panel facings and all structural timbers are fully H2 treated to Australian standard 1604H2 providing assurance against termites, additional precaution is taken for building north of the tropic where timber is upgraded to H3 and EPS core is also termite treated. This is available south of the tropic upon request.

DESIGN

Any conventional slab or foundations can be used.

SUPPLY

All SIP products are supplied through SIPs Industries Pty Ltd across Australia.

SERVICES

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