

m² Structural insulated panel (SIP)

Structural insulated panels, often referred to as SIPs, are a composite product containing an outer skin and inner core. As their name suggest, they are typically used as a structural element for low-rise buildings.

Outer layers of oriented strand board (OSB) are glued to an insulating core made from expanded polystyrene (EPS). The core gives the panels good thermal properties while the outer skins provide a durable, aesthetic finish. Alternative core materials, such as extruded polystyrene (XPS) or rigid polyurethane (PU) foam and outer skin materials, such as plywood or fibre cement sheet can also be used.

SIPs can be used as wall or roof panels and are mainly used in domestic construction. They are very lightweight and thus easy to move. The panels come in a range of thicknesses ranging from 100 to 300 mm. Typical panel dimensions are 300, 600, 900 and 1 200 mm wide and 2.4, 2.7 and 3 m long. Openings for windows and doors are cut out of panels during manufacture. Panels are connected onsite using splines with cavities cut into the core for electrical and plumbing services.

Category *Timber products*

Type *Other timber*

Functional unit *m²*

Density *139 kg/m³*

Common uses
Floor structure, external walls, internal walls, roof structure

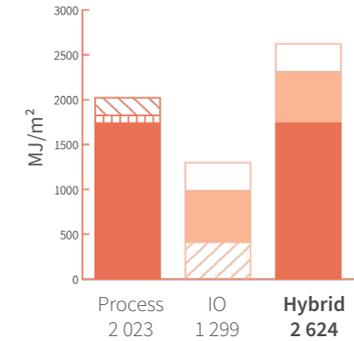
Process name
SIPS

Input-output sector
Other Wood Product Manufacturing

Further information
doi.org/10.26188/5da5586fec593

Material variations	Unit	Energy (MJ/unit)	Water (L/unit)	GHG emissions (kgCO ₂ e/unit)
SIP - 112 mm	m ²	2 624	4 219	135
SIP - 142 mm	m ²	3 327	5 349	171
SIP - 162 mm	m ²	3 795	6 103	195

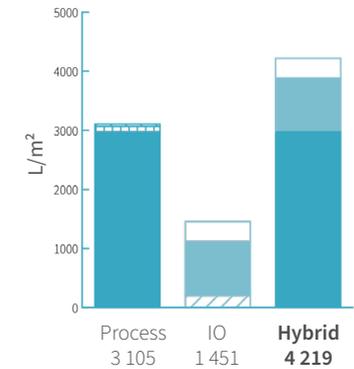
TOP THREE INPUTS



ENERGY



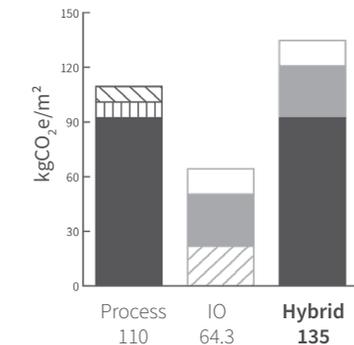
TOP THREE INPUTS



WATER



TOP THREE INPUTS



GREENHOUSE GAS EMISSIONS

