DESIGN with evisa© SIPs

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ABOUT EVISSA P/L

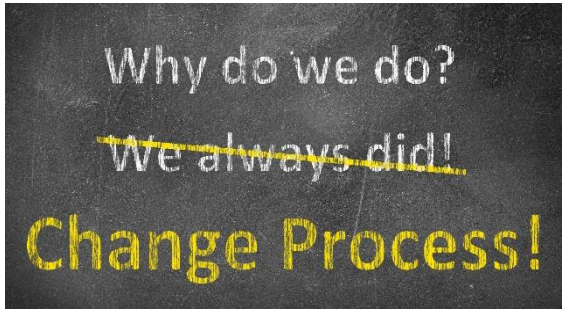
A DESIGN & CONSTRUCT COMPANY

---------- a collaborative delivery method ----------

At EVISSA we are combining two set of skills for the purpose of delivering **healthy buildings, comfort & well-being** in our indoor environments, **energy efficient** building fabrics, **PASSIVE HOUSE** wisdom in a **collaborative environment.**

Design & Build process is **open, consistent, tolerant** to inevitable or necessary changes during construction. Architects involved in a **design & construct** process maintain oversight of what gets built on behalf of clients. Working closely with our **creative engineers,** enables us to implement our modular SIP technology, to ensure we are achieving project's desired outcome and goals, using effective structural design solutions.

INNOVATIVE THINKERS



We believe **that construction concept** should be adopted early days, from planning, design and financing, for a **smooth predictable process** until the project is built and ready for use.

Much like **architects** and **engineers** are the experts in their respective fields of design, **Evissa builders** are the experts at construction and harbour a wealth of knowledge when it comes to constructability, new building materials and the latest modular technologies. Hence, our D & C approach enables the client to bring a valuable specialist, to the design table to ensure that methods of **construction innovation** are incorporated into the project early days.

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WHY USE EVISSA SIPS ?

ABOUT SIPS

Structural insulated panels (SIPs) are high performance building panels used in floors, walls, and roofs for residential and light commercial buildings. The panels are made by sandwiching a core of rigid foam insulation between two structural facings.

SIPs are manufactured under factory controlled conditions and can be used as a modular component and/or custom designed for each project.

SYSTEM

Composition of Evissa SIPS consists of two typical Oriented Strand Board (OSB) panels, glued with a high-performance adhesive, on an insulating EPS or GPS board. Follows the same composition and manufacturing process as the one used extensively in North America.

OSB – Oriented Strand Board – APA approved – AS 1604.1 – 2012

Adhesive – ISOGRIP SP 3030D – approved ASHLAND INC

EPS – Expanded Polystyrene – AS 1366.3-1992 or

Adhesive – ISOGRIP SP 3030D – approved ASHLAND INC

OSB – Oriented Strand Board – APA approved – AS 1604.1 - 2012

DIMENSIONS, SIZES AND THERMAL PERFORMANCE

PANEL WIDTH		PANEL LENGHTS
1220mm	X	2440mm / 3060mm / 3660mm / 4880mm / 6100mm

SIP THICKNESS	WEIGHT	EPS CORE THICKNESS	bare EPS SIP R_{VALUE}	bare GPS SIP R_{VALUE}
115mm	15.2 kg/m²	93mm	2.45 Km²/W	3.08 Km²/W
165mm	16.2 kg/m²	143mm	3.68 Km²/W	4.64 Km²/W
215mm	17.2 kg/m²	193mm	4.91 Km²/W	6.20 Km²/W
265mm	18.2 kg/m²	243mm	6.14 Km²/W	7.76 Km²/W
315mm	19.2 kg/m²	293mm	7.37 Km²/W	9.33 Km²/W

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PERFORMANCE & COMPLIANCE	
STRUCTURE	Specific engineering design - following requirements of "Design with Evissa SIPS" and "Construct with Evissa SIPS" - is required to be undertaken for each project, in accordance with NCC and current AS – see references page 29.
WEATHERPROOFING	Specific damp & waterproofing measures will be adopted to ensure building is constructed to provide resistance to moisture from the outside and moisture rising from the ground. Evissa SIPS will not solely meet the NCC requirements for damp & waterproofing.
VENTILATON	All SIPs buildings are airtight by their nature. Mechanical ventilation is highly recommended to ensure good levels of fresh air are achieved within internal environments.
ENERGY EFFICIENCY	Evissa SIPS achieve high levels of thermal performance (described at the start of this manual as R_{values}) This will facilitate an efficient use of energy for artificial heating and cooling appropriate for the function and use of the building and the internal environment.

EVISSA SIPS APPLICATION & SPECIFICATIONS

Evissa SIPS to comply with NCC and current Australian Standards.
The following principles are to be adopted by designer and structural engineer.

- **LOADS** – Use Australian Standards – AS1170.0 / AS1170.1 / AS1170.2 / AS1170.4 & AS4055
  Framing members structural capacity will be calculated against maximum allowable stresses in the OSB facings induced from the combination of axial and transverse forces and maximum capacity of nail fastening of the OSB facings to the top and bottom plates.

- **DETAILS & CONNECTIONS** – Refer to Evissa Details for most common design situations. In the event of unspecified Evissa SIPS connections, a qualified structural engineer must design a custom detail as per AS1720.1

- **DEFLECTION** – Creep deflection by long term dead or live loads affecting the panels should be considered by the structural engineer. Serviceability deflections under wind load in accordance with values recommended in AS 1170.0 / AS 4055 and AS 1720.1

- **WEATHER PROTECTION** – Use a breathable membrane and tape joints when external cladding is mounted on battens and/or top-hat sections to allow for a ventilated space.

- **STRUCTURAL PERFORMANCE** – For most applications, SIPs are structurally self-sufficient. The structural characteristics of SIPs are similar to that of a steel I-Beam. The OSB skins act as the flange of the I-beam, while the rigid foam core provides the web. This design is extremely strong and eliminates the need for additional framing. In cases where a point load from a beam or header requires additional support, a structurally designed timber wood spline is field installed at in-plane panel connections.

- **AIRTIGHTNESS –** SIP buildings are extremely airtight and require mechanical ventilation. Ventilation systems bring fresh air into the building in controlled amounts and exhaust moisture laden and stale air to the outside. By limiting air exchange to controlled ventilation systems, SIP homes allow for all incoming air to be filtered for allergens and dehumidified, creating better indoor air quality. Proper ventilation is important in all homes to preserve indoor air quality. Different grades of OSB can be used, depending on the airtightness required through each project. By default, SIP buildings are airtight and achieve ~ 2ach/hour@50Pa pressure difference. For a Passive House project, denser OSB boards will be used to achieve higher airtightness parameters (0.6ach/hour@50Pa pressure difference).

- **MECHANICAL VENTILATION - HVAC / HRV / ERV –** A high performance SIP building enclosure often allows smaller HVAC equipment to be specified. It is important to work with a qualified HVAC professional that can accurately estimate the low levels of air infiltration in a SIP home or commercial building. Proper HVAC sizing is crucial because an oversized HVAC system will fail to reach the steady operating rate the equipment was designed for. Short cycling HVAC equipment will be less energy efficient and require more maintenance than properly sized HVAC equipment.

- **FIRE –** SIPs are fire predictable, protected against spread of flame by use of thermal barriers such as plasterboard allowing the system to be used in various commercial applications. SIPs are impregnated with a fire-retardant material which ensures the EPS will not catch fire.

- **THERMAL PERFORAMNCE –** Using Evissa SIPS and through a carefully designed project we can achieve Passive House energy efficiency standard if – appropriate SIP panel thickness is used to achieve a desired R_{value} – all thermal bridging is eliminated – airtightness is achieved. Additional to this the use of thermally broken fenestration and a heat recovery unit can take a design to achieve passive house standards with a good input from a Passive House Designer.

- **TERMITE –** Although termites do not feed on the foam panel cores, there have been instances where panel cores have been hollowed out by these insects and used as a nesting ground. To prevent this, all Evissa SIPS facings and structural timber complies with AS 1604 H2 treatment. Termites may also be deterred through the use of a specially designed steel mesh. Both these treatments are highly effective, but they are not a substitute for careful termite prevention and maintenance, as with any other wood structure.

- **SUSTAINABILITY -** Structural insulated panels are one of the most environmentally responsible building systems available. A SIP building envelope provides continuous insulation, is extremely airtight, allows for better control over indoor air quality, reduces construction waste, and helps save natural resources. Life cycle analysis has shown that SIP homes have a tremendous positive environmental impact by reducing energy use and greenhouse gas emissions throughout the home's life cycle.

- **ELECTRICALS & PLUMBING -** Electrical wires can be pulled through precut channels inside the core of the panels called "chases." Chases are added during the manufacturing process according to the electrical design of the home. Electricians can feed wires through panel chases without compressing the insulation or drilling through studs. However, at Evissa we prefer to run all our cables and ducts at the interior face of OSB panel through a services cavity to avoid penetration into the panel. Recessed light fittings should never be embedded in structural insulated panels. To install recessed lights, an interior soffit must be constructed.

- **SOUND TRANSMISSION -** The sound resistance of a SIP wall depends on the thickness of the gypsum drywall applied, the exterior finish applied and the thickness of the insulating foam core that is used. SIPs are especially effective at blocking high frequency noise. Low frequency sounds are not as effectively stopped by a SIP building envelope.

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DESIGN & BUILD PROCESS - A smooth design process for each project can be ensured if the following flow chart is implemented

	EVISSA DESIGN PROCESS			OBSERVATIONS
01	**PROJECT BUDGET & CLIENT NEEDS**			Collaboratively prepare a design brief.
02	SITE VISIT & ASSESSMENT			Observe site conditions for best solar passive orientation of the project.
03	SKETCH DESIGN			Prepare massing of the building and layouts.
04	**DESIGN DEVELOPMENT & SIP STRUCTURAL DESIGN**			Architect and Structural Engineer start coordination.
05	STRUCTURAL DEMAND			Structural Engineer to determine demand for the preliminary design using current Australian Standards.
06	ROOF PANEL SPAN			Select appropriate thickness of roof panel considering loads, roof spans and/or thermal performance of the project.
07	WALL PANEL SPAN			Select appropriate thickness for wall panels considering roof and upper floor loads, heights, cladding and/or thermal performance of the project.
08	CAP PLATE & BRACING DESIGN & LINTELS			Using previously determined dead and live loads, wind zone and cladding select the type of cap plate.
09	SELECT EXTERNAL FINISHES			Select external finishes to determine weight and fixings.
10	DESIGN COORDINATION WITH STRUCTURAL ENGINEER			Undertake detailed design coordination with structural engineer and other consultants required for the project.
11	**CONSTRUCTION DRAWINGS**			Architect, Structural Engineer and other consultants to finish coordination and issue construction drawings.
12	BUILDING PERMIT			Building Surveyor to issue building permit.
13	**START BUILDING PROCESS**			a. Evissa Builders take possession of the site and start building. b. Evissa Builders get engaged by the main contractor and schedule the installation of SIP panels.
14	**BUILDING ENVELOPE**	**SERVICES**	**FIT & FINISH**	
15	FOOTINGS	PLUMBING	INTERNAL FINISHES	a. Evissa Builders to schedule all the onsite works and supervise the construction process. b. Evissa Builders prepare delivery and installation of SIPs as pre-scheduled by nominated contractor.
16	SIP WALL ASSEMBLY & INTERNAL WALLS	ELECTRICAL / POWER COMMUNICATION	FITTINGS FIXTURES	
17	SIP ROOF ASSEMBLY	HEATING / COOLING VENTILATION / HRV / ERV	APPLIANCES	
18	EXTERNAL FINISHES & WEATHER TIGHT			
19	COMMISSIONING			All the equipment will be tested before site hand-over.
20	**CLIENT MOVES IN**			Occupancy Permit is issued. Defects period is starting.

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STANDARD LOAD TABLES

Each SIPs project has specific design structural requirements which will be addressed through customized engineering drawings and computations to comply with NCC and current Australian Standards. Structural design to follow NTA SIP engineering design.

Basic Properties		
Property	**Weak Axis Bending**	**Strong Axis Bending**
Allowable Tensile Stress, Ft (MPa)	1.69	3.41
Allowable Compressive Stress, Fc (MPa)	2.34	4.00
Elastic Modulus (Bending), Eb (MPa)	5094.54	4542.27
Shear Modulus, G (MPa)	1.86	2.79
Allowable Core Shear Stress, Fv (MPa)	0.031	0.034
Core Compressive Modulus, Ec (MPa)	2.48	2.48
Reference Depth, ho (mm)	117.48	117.48
Shear Depth Factor Exponent, m	0.84	0.86

Nominal Section Properties								
Panel Thickness, h (mm)	**Core Thickness, c (mm)**	**Dead Weight, Wd (kPa)**	**Facing Area, Af (mm/m)**	**Shear Area, Av (mm^2/m)**	**Moment of Inertia, I (mm^4/m) x 10^6**	**Section Modulas, S (mm^3/m) x 10^6**	**Radius of Gyration, r (mm)**	**Centroid-to Facing Dist., yc (mm)**
115	**93**	0.153	22225	106469	62.82	1.07	53.09	58.67
165	**143**	0.158	22225	154094	131.78	1.60	76.96	82.55
215	**193**	0.168	22225	198544	218.77	2.09	99.31	104.90
265	**243**	0.172	22225	249344	345.08	2.65	-	-
315	**293**	0.182	22225	300144	500.22	3.22	-	-

STANDARD LOAD TABLES

Floor Framing and flooring - SIP plus single MGP10 Timber Spine - Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	115mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			215mm Thick SIP Deflection Limit			265mm Thick SIP Deflection Limit			315mm Thick SIP Deflection Limit		
	90x45 MGP10 at 1220 CTS			140x45 MGP10 at 1220 CTS			190x45 MGP10 at 1220 CTS			240x45 MGP10 at 1220 CTS			290x45 MGP10 at 1220 CTS		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	0.6	-	-	1.5	1.2	0.8	3.1	2.5	1.7	5.5	4.5	3.2	8.9	7.4	5.2
3,050	0.5	-	-	0.8	0.6	-	1.7	1.4	0.9	3.1	2.5	1.7	4.9	4.1	2.8
3,660	-	-	-	0.5	-	-	1.0	0.8	0.5	1.9	1.6	1.0	3.1	2.6	1.8
4,270	-	-	-	-	-	-	0.6	0.5	-	1.2	0.9	0.6	2.0	1.6	1.1
4,880	-	-	-	-	-	-	-	-	-	0.8	0.6	0.3	1.3	1.1	0.7
5,410	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0.7	-
6,100	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.5	-

SIP plus Timber Spine as Floor Framing Member SLS Transverse Loads (kN/m²)															
Panel Length (mm)	110mm Thick SIP Deflection Limits			165mm Thick SIP Deflection Limits			210mm Thick SIP Deflection Limits			260mm Thick SIP Deflection Limits			310mm Thick SIP Deflection Limits		
	1/89x38 SPF No. 1/2 - 1220mm wide panel			1/140x38 SPF No. 1/2 - 1220mm wide			1/184x38 SPF No. 1/2 - 1220mm wide panel			1/235x38 SPF No. 1/2 - 1220mm wide panel			1/290x38 SPF No. 1/2 - 1220mm wide panel		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	-	-	-	-	-	-	1.9	1.9	1.9	2.25	2.25	2.25	2.5	2.5	2.5
3,050	-	-	-	-	-	-	-	-	-	1.9	1.9	1.9	2.1	2.1	2.1
3,660	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9	1.9
4,270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,880	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Floor Framing and flooring - SIP plus double MGP10 Timber Spine - Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	115mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			215mm Thick SIP Deflection Limit			265mm Thick SIP Deflection Limit			315mm Thick SIP Deflection Limit		
	2/90x45 MGP10 at 1220 CTS			2/140x45 MGP10 at 1220 CTS			2/190x45 MGP10 at 1220 CTS			2/240x45 MGP10 at 1220 CTS			2/290x45 MGP10 at 1220 CTS		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	0.8	0.6	-	2.3	1.9	1.3	5.0	4.1	2.9	9.3	7.7	5.5	15.6	13.0	9.3
3,050	-	-	-	1.2	1.0	0.6	2.7	2.2	1.5	5.0	4.1	2.9	8.4	6.9	4.9
3,660	-	-	-	0.7	-	-	1.6	1.3	0.9	3.1	2.5	1.7	5.2	4.3	3.0
4,270	-	-	-	-	-	-	1.0	0.8	0.5	1.9	1.5	1.0	3.2	2.6	1.8
4,880	-	-	-	-	-	-	0.6	0.4	-	1.3	1.0	0.6	2.2	1.8	1.2
5,410	-	-	-	-	-	-	-	-	-	0.9	0.7	-	1.6	1.3	0.8
6,100	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0.8	-

SIP plus Timber Spine as Floor Framing Member SLS Transverse Loads (kN/m²)															
Panel Length (mm)	110mm Thick SIP Deflection Limits			165mm Thick SIP Deflection Limits			210mm Thick SIP Deflection Limits			260mm Thick SIP Deflection Limits			310mm Thick SIP Deflection Limits		
	2/89x38 SPF No. 1/2 - 1220mm wide panel			2/140x38 SPF No. 1/2 - 1220mm wide			2/184x38 SPF No. 1/2 - 1220mm wide panel			2/235x38 SPF No. 1/2 - 1220mm wide panel			2/290x38 SPF No. 1/2 - 1220mm wide		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	-	-	-	-	-	-	3.5	3.5	3.5	6.5	6.5	6.5	9.1	9.1	9.1
3,050	-	-	-	-	-	-	4.1	4.1	4.1	4.5	4.5	4.5	5.2	5.2	5.2
3,660	-	-	-	-	-	-	-	-	-	4.3	4.3	4.3	5.1	5.1	5.1
4,270	-	-	-	-	-	-	-	-	-	3.3	3.3	3.3	4.15	4.15	4.15
4,880	-	-	-	-	-	-	-	-	-	1.9	1.9	1.9	3.25	3.25	3.25
5,410	-	-	-	-	-	-	-	-	-	1.9	-	-	2.5	2.5	2.5
6,100	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9	1.9

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

STANDARD LOAD TABLES

SIP plus Timber Spline as Floor Framing Member SLS Transverse Loads (kN/m²)															
Panel Length (mm)	**115mm Thick SIP Deflection Limit**			**165mm Thick SIP Deflection Limit**			**215mm Thick SIP Deflection Limit**			**260mm Thick SIP Deflection Limits**			**310mm Thick SIP Deflection Limits**		
	-			-			-			**3/235x38 SPF No. 1/2 - 1220mm wide**			**3/286x38 SPF No. 1/2 - 1220mm wide**		
	L/300	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**
2,440	-	-	-	-	-	-	-	-	-	8.5	8.5	8.5	8.5	8.5	8.5
3,050	-	-	-	-	-	-	-	-	-	5.4	5.4	5.4	5.4	5.4	5.4
3,660	-	-	-	-	-	-	-	-	-	5.4	5.4	5.4	5.4	5.4	5.4
4,270	-	-	-	-	-	-	-	-	-	3.7	3.7	3.7	5.3	5.3	5.3
4,880	-	-	-	-	-	-	-	-	-	2.5	2.5	2.5	4.5	4.5	4.5
5,410	-	-	-	-	-	-	-	-	-	2.3	2.3	2.3	3.4	3.4	3.4
6,100	-	-	-	-	-	-	-	-	-	2.4	2.4	-	2.95	2.95	2.95

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Floor Framing and flooring - SIP plus single LVL Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	**115mm Thick SIP Deflection Limit**			**165mm Thick SIP Deflection Limit**			**215mm Thick SIP Deflection Limit**			**265mm Thick SIP Deflection Limit**			**315mm Thick SIP Deflection Limit**		
	90x42 SmartLVL15 at 1220 CTS			**140x42 SmartLVL15** at 1220 CTS			**190x42 SmartLVL15** at 1220 CTS			**240x42 SmartLVL15** at 1220 CTS			**290x42 SmartLVL15 at 1220 CTS**		
	L/300	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**
2,440	0.6	0.5	-	1.8	1.5	1.0	3.9	3.2	2.2	7.1	5.9	4.1	11.7	9.7	6.9
3,050	-	-	-	1.0	0.7	0.4	2.1	1.7	1.1	3.9	3.2	2.2	6.4	5.3	3.7
3,660	-	-	-	0.5	-	-	1.3	1.0	0.6	2.4	1.9	1.3	4.0	3.3	2.3
4,270	-	-	-	-	-	-	0.7	0.6	-	1.5	1.2	0.7	2.5	2.0	1.4
4,880	-	-	-	-	-	-	-	-	-	1.0	0.7	0.4	1.7	1.3	0.9
5,410	-	-	-	-	-	-	-	-	-	0.6	-	-	1.2	0.9	0.6
6,100	-	-	-	-	-	-	-	-	-	-	-	-	0.8	0.6	-

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Floor Framing and flooring - SIP plus double LVL Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	115mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			215mm Thick SIP Deflection Limit			265mm Thick SIP Deflection Limit			315mm Thick SIP Deflection Limit		
	2/90x42 SmartLVL15 at 1220 CTS			2/140x42 SmartLVL15 at 1220 CTS			2/190x42 SmartLVL15 at 1220 CTS			2/240x42 SmartLVL15 at 1220 CTS			2/290x42 SmartLVL15 at 1220 CTS		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	0.9	0.7	0.4	2.9	2.4	1.6	6.6	5.4	3.8	12.5	10.4	7.4	21.3	17.7	12.7
3,050	-	-	-	1.5	1.2	0.8	3.5	2.8	2.0	6.7	5.5	3.9	11.3	9.4	6.6
3,660	-	-	-	0.9	0.7	-	2.1	1.7	1.1	4.1	3.4	2.3	7.0	5.8	4.1
4,270	-	-	-	0.4	-	-	1.2	1.0	0.6	2.5	2.0	1.4	4.3	3.5	2.4
4,880	-	-	-	-	-	-	0.8	0.6	-	1.6	1.3	0.8	2.9	2.3	1.6
5,410	-	-	-	-	-	-	0.5	-	-	1.1	0.9	0.5	2.1	1.7	1.1
6,100	-	-	-	-	-	-	-	-	-	0.7	0.6	-	1.4	1.1	0.7

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

STANDARD LOAD TABLES

Roof Framing and Cladding - SIP plus single MGP10 Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	115mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			215mm Thick SIP Deflection Limit			265mm Thick SIP Deflection Limit			315mm Thick SIP Deflection Limit		
	90x45 MGP10 at 1220 CTS			140x45 MGP10 at 1220 CTS			190x45 MGP10 at 1220 CTS			240x45 MGP10 at 1220 CTS			290x45 MGP10 at 1220 CTS		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	1.7	1.4	0.9	3.5	2.9	1.9	5.9	4.8	3.3	9.2	7.6	5.3	13.6	11.2	7.9
3,050	0.9	0.7	0.4	2.1	1.7	1.1	3.6	2.9	2.0	5.7	4.6	3.2	8.3	6.8	4.7
3,660	0.5	0.3	-	1.3	1.0	0.6	2.4	1.9	1.2	3.8	3.1	2.1	5.6	4.5	3.1
4,270	-	-	-	0.8	0.6	0.3	1.5	1.2	0.7	2.5	2.0	1.3	3.8	3.0	2.0
4,880	-	-	-	0.5	0.3	-	1.0	0.7	0.4	1.7	1.4	0.8	2.7	2.1	1.4
5,410	-	-	-	-	-	-	0.6	0.5	-	1.2	0.9	0.5	1.9	1.5	0.9
6,100	-	-	-	-	-	-	0.4	-	-	0.8	0.6	0.3	1.4	1.0	0.6

SIP plus Timber Spline as Roof Framing Member SLS transverse Dead + Live Loads/Wind Loads (kN/m²)															
Panel Length (mm)	110mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			210mm Thick SIP Deflection Limit			260mm Thick SIP Deflection Limit			310mm Thick SIP Deflection Limit		
	1/89x38 SPF No. 1/2 - 1220mm wide panel			1/140x38 SPF No. 1/2 - 1220mm wide panel			1/184x38 SPF No. 1/2 - 1220mm wide panel			1/286x38 SPF No. 1/2 - 1220mm wide panel			1/286x38 SPF No. 1/2 - 1220mm wide panel		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	0.6	0.6	-	2.05	2.05	2.05	3.45	3.45	3.45	5	5	5	6.5	6.5	6.5
3,050				1.25	1.25	1.25	2.25	2.25	2.25	3.25	3.25	3.25	4.25	4.25	4.25
3,660				0.55	0.55	0.55	1.85	1.85	1.85	2.65	2.65	2.65	3.05	3.05	3.05
4,270							0.85	0.85	0.85	1.85	1.85	1.85	2.65	2.65	2.65
4,880							0.45	0.45	0.45	1.25	1.25	1.25	2.25	2.25	2.25
5,410										0.85	0.85	0.85	1.85	1.85	1.85
6,100										0.55	0.8	0.8	1.25	1.25	1.25

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Roof Framing and Cladding - SIP plus double MGP10 Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	115mm Thick SIP Deflection Limit			165mm Thick SIP Deflection Limit			215mm Thick SIP Deflection Limit			265mm Thick SIP Deflection Limit			315mm Thick SIP Deflection Limit		
	2/90x45 MGP10 at 1220 CTS			2/140x45 MGP10 at 1220 CTS			2/190x45 MGP10 at 1220 CTS			2/240x45 MGP10 at 1220 CTS			2/290x45 MGP10 at 1220 CTS		
	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500	L/300	L/360	L/500
2,440	1.9	1.5	1.0	4.3	3.5	2.4	7.8	6.4	4.5	13.0	10.8	7.6	20.3	16.8	12.0
3,050	1.1	0.8	0.5	2.5	2.0	1.3	4.6	3.7	2.5	7.6	6.3	4.4	11.7	9.7	6.8
3,660	0.6	0.4	-	1.6	1.2	0.7	2.9	2.4	1.6	5.0	4.0	2.8	7.6	6.3	4.4
4,270	-	-	-	0.9	0.7	0.4	1.9	1.5	0.9	3.2	2.6	1.7	5.0	4.1	2.8
4,880	-	-	-	0.6	0.4	-	1.2	0.9	0.5	2.2	1.8	1.1	3.5	2.8	1.9
5,410	-	-	-	-	-	-	0.8	0.6	-	1.6	1.2	0.7	2.6	2.0	1.3
6,100	-	-	-	-	-	-	0.5	-	-	1.1	0.8	0.4	1.8	1.4	0.9

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Roof Framing and Cladding - SIP plus single LVL Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	**115mm Thick SIP Deflection Limit**			**165mm Thick SIP Deflection Limit**			**215mm Thick SIP Deflection Limit**			**265mm Thick SIP Deflection Limit**			**315mm Thick SIP Deflection Limit**		
	90x42 SmartLVL15 at 1220 CTS			**140x42 SmartLVL15 at 1220 CTS**			**190x42 SmartLVL15 at 1220 CTS**			**240x42 SmartLVL15 at 1220 CTS**			**290x42 SmartLVL15 at 1220 CTS**		
	L/300	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**
2,440	1.8	1.4	0.9	3.9	3.1	2.1	6.7	5.5	3.8	10.9	9.0	6.3	16.5	13.6	9.7
3,050	1.0	0.8	0.4	2.3	1.8	1.2	4.0	3.3	2.2	6.5	5.3	3.7	9.7	8.0	5.6
3,660	0.5	0.4	-	1.4	1.1	0.7	2.6	2.1	1.4	4.3	3.5	2.4	6.5	5.3	3.6
4,270	-	-	-	0.9	0.6	0.3	1.7	1.3	0.8	2.8	2.3	1.5	4.3	3.5	2.4
4,880	-	-	-	0.5	0.3	-	1.1	0.8	0.5	2.0	1.5	1.0	3.0	2.4	1.6
5,410	-	-	-	0.3	-	-	0.7	0.5	-	1.4	1.1	0.6	2.2	1.7	1.1
6,100	-	-	-	-	-	-	0.4	0.3	-	0.9	0.7	0.3	1.6	1.2	0.7

\- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Roof Framing and Cladding - SIP plus double LVL Timber Spine- Allowable Uniform Transverse Loads (kN/m2)															
Panel Length (mm)	**115mm Thick SIP Deflection Limit**			**165mm Thick SIP Deflection Limit**			**215mm Thick SIP Deflection Limit**			**265mm Thick SIP Deflection Limit**			**315mm Thick SIP Deflection Limit**		
	2/90x42 SmartLVL15 at 1220 CTS			**2/140x42 SmartLVL15 at 1220 CTS**			**2/190x42 SmartLVL15 at 1220 CTS**			**2/240x42 SmartLVL15 at 1220 CTS**			**2/290x42 SmartLVL15 at 1220 CTS**		
	L/300	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**	**L/300**	**L/360**	**L/500**
2,440	2.1	1.7	1.1	4.9	4.0	2.8	9.4	7.7	5.4	16.3	13.5	9.6	26.1	21.6	15.4
3,050	1.1	0.9	0.5	2.8	2.3	1.5	5.4	4.4	3.0	9.3	7.6	5.4	14.7	12.1	8.6
3,660	0.6	0.4	-	1.8	1.4	0.9	3.4	2.8	1.9	6.0	4.9	3.4	9.4	7.8	5.4
4,270	-	-	-	1.1	0.8	0.4	2.2	1.7	1.1	3.8	3.1	2.1	6.1	5.0	3.4
4,880	-	-	-	0.6	0.4	-	1.4	1.1	0.7	2.6	2.1	1.4	4.2	3.4	2.3
5,410	-	-	-	0.4	-	-	1.0	0.7	-	1.9	1.5	0.9	3.1	2.5	1.6
6,100	-	-	-	-	-	-	0.6	0.4	-	1.3	1.0	0.5	2.2	1.7	1.1

\- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Internal and External Load Bearing Wall when full bearing on top of wall - Allowable Uniform Ultimate Loads (kN/m)							
115mm Thick SIP + 2/90x45 MGP10 at 1220mm CTS							
Wind Pressure	**Wall height(mm)**						
	2.4	**2.55**	**2.7**	**3**	**3.2**	**3.4**	**3.6**
e.min	31.2	29.2	27.4	24.5	23.0	21.6	20.4
0.62	31.2	29.2	27.4	24.5	23.0	21.6	20.4
0.86	31.2	29.2	27.4	24.5	23.0	21.6	20.4
1.35	31.2	29.2	27.4	24.5	-	-	-
2.01	31.2	29.2	27.4	-	-	-	-
2.96	31.2	-	-	-	-	-	-
3.99	-	-	-	-	-	-	-

- Not suitable for floor application

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

STANDARD LOAD TABLES

Internal and External Load Bearing Wall when full bearing on top of wall - Allowable Uniform Ultimate Loads (kN/m)							
165mm Thick SIP + 2/140x45 MGP10 at 1220mm CTS							
Wind Pressure	**Wall height(mm)**						
	2.4	**2.55**	**2.7**	**3**	**3.2**	**3.4**	**3.6**
e.min	41.5	38.4	35.8	31.7	29.6	27.8	26.3
0.62	41.5	38.4	35.8	31.7	29.6	27.8	26.3
0.86	41.5	38.4	35.8	31.7	29.6	27.8	26.3
1.35	41.5	38.4	35.8	31.7	29.6	27.8	26.3
2.01	41.5	38.4	35.8	31.7	29.6	-	-
2.96	41.5	38.4	35.8	-	-	-	-
3.99	41.5	38.4	-	-	-	-	-

Non-Load Bearing Wall - Uniform Transverse Wind Pressure (kN/m²), SLS Deflection Limit = 1/500										
	110mm SIP - 1/89x38 SPF No. 1/2 -1220mm panel		**165mm SIP - 1/140x38 SPF No. 1/2 -1220mm panel**		**210mm SIP - 1/184x38 SPF No. 1/2 -1220mm panel**		**260mm SIP - 1/235x38 SPF No. 1/2 -1220mm panel**		**310mm SIP - 1/286x38 SPF No. 1/2 -1220mm panel**	
Panel Height	Service Wind - Ws	Ultimate Wind - Wu	Service Wind - Ws	Ultimate Wind - Wu	Service Wind - Ws	Ultimate Wind - Wu	Service Wind - Ws	Ultimate Wind - Wu	Service Wind - Ws	Ultimate Wind - Wu
2440	0.3	0.5	1.25	4	2.8	5.8	5.7	8.6	8	11.5

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

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STANDARD LOAD TABLES

Internal and External Load Bearing Wall when full bearing on top of wall - Allowable Uniform Ultimate Loads (kN/m)							
215mm Thick SIP + 2/190x45 MGP10 at 1220mm CTS							
Wind Pressure	**Wall height(mm)**						
	2.4	**2.55**	**2.7**	**3**	**3.2**	**3.4**	**3.6**
e.min	51.2	47.1	43.6	38.2	35.4	33.0	22.7
0.62	51.2	47.1	43.6	38.2	35.4	33.0	22.7
0.86	51.2	47.1	43.6	38.2	35.4	33.0	22.7
1.35	51.2	47.1	43.6	38.2	35.4	33.0	-
2.01	51.2	47.1	43.6	38.2	35.4	-	-
2.96	51.2	47.1	43.6	38.2	-	-	-
3.99	-	-	-	-	-	-	-

- Not suitable for floor application

Non-Load Bearing Wall - Uniform Transverse Wind Pressure (kN/m²), SLS Deflection Limit = 1/500												
	110mm SIP - 2/89x38 SPF No. 1/2 -1220mm wide panel						165mm SIP - 2/140x38 SPF No. 1/2 -1220mm wide panel					
	Service Loads			Ultimate Loads			Service Loads			Ultimate Loads		
Panel Height	**Ws [kPa]**	**Gn [kN/m]**	**Qn [kN/m]**	**Wu [kPa]**	**G [kN/m]**	**Q [kN/m]**	**Ws [kPa]**	**Gn [kN/m]**	**Qn [kN/m]**	**Wu [kPa]**	**G [kN/m]**	**Q [kN/m]**
2440	0.45	0.5	4.3	1.9	0.6	6.45	1.25	4	9	4	4.8	13.50

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

STANDARD LOAD TABLES

Non-Load Bearing Wall - Uniform Transverse Wind Pressure (kN/m²), SLS Deflection Limit = 1/500												
	210mm SIP - 2/184x38 SPF No. 2/2 -1220mm wide panel						260mm SIP - 2/235x38 SPF No. 1/2 -1220mm wide panel					
	Service Loads			Ultimate Loads			Service Loads			Ultimate Loads		
Panel Height	Ws [kPa]	Gn [kN/m]	Qn [kN/m]	Wu [kPa]	G [kN/m]	Q [kN/m]	Ws [kPa]	Gn [kN/m]	Qn [kN/m]	Wu [kPa]	G [kN/m]	Q [kN/m]
2440	1.8	11.5	16.4	5.8	13.8	24.6	2	24	40	12.5	28.8	60

Non-Load Bearing Wall - Uniform Transverse Wind Pressure (kN/m²), SLS Deflection Limit = 1/500						
	310mm SIP - 2/184x38 SPF No. 2/2 -1220mm wide panel					
	Service Loads			Ultimate Loads		
Panel Height	Ws [kPa]	Gn [kN/m]	Qn [kN/m]	Wu [kPa]	G [kN/m]	Q [kN/m]
2440	2	24	40	12.5	28.8	60.0

Wind loads calculated in accordance with AS1170.2 & AS 4055 for non-cyclonic areas. SIPs like all timber products will creep under the action of long-term loads. It is recommended that long term deflections should be estimated using a factor of 3 times the initial deflections for SIPS Panels. LVL Joining spline deflections should use a factor of 2 for long term creep.

STANDARD LOAD TABLES

Spline Type	SIP Thickness (mm)	Minimum Facing Connections			Shear Strength (kN/m)
		Chord	Plate	Spline	
Block Surface Spline	115	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	5.5
	165	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	5.5
	215	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	Ø3.15mm x 75mm nails, 150 cts	5.8

Spline Type	SIP Thickness (mm)	Minimum Facing Connections			Shear Strength (kN/m)
		Chord	Plate	Spline	
Block Surface Spline	165	Ø3.15mm x 75mm nails, 75 cts (16mm edge distance)	Ø3.15mm x 75mm nails, 75 cts (16mm edge distance)	Ø3.15mm x 75mm nails, 75 cts (18mm thick, 75 wide spline)	13.1

FASTENERS / ADHESIVES / FOAMS / TAPES

1. Sill gasket between foundation and bottom plate used as moisture proof and sealant.
2. Anchor bolt: fasten treated timber bottom plate to foundation. Bottom plate fixing and spacing in accordance with AS 1684.2 & AS 1684.4 or engineer's specification.
3. PU glue: Used as sealant between spline and SIPs panel. Expanding foam to ensure spline and SIP panel are firmly installed and fill up big gaps.
4. Coil nail fasten on each side of SIP panel - 75 x 3.15mm.
5. SIPs screw: long, connect wall to wall, roof to beam. Zenith 14g x 200mm, 16g x 225mm, 16g x 250mm, Galvanized Bugle screw used as specified by the structural engineer and as required through the thickness of the SIP.
   Coil nail: fasten each two SIPs panels together. Manufacturer: Paslode 75 x 3.06mm Bright D Head Impulse Nail
6. White glue: structural adhesive used to glue OSB floor sheathing to floor joist.
7. Galvanized metal hangers and connectors (if details require).
8. Seal tape used on all SIP joints to improve airtightness
9. Hold down corner nailing pattern at each end (mm): 75 cts / 150 cts – or otherwise specified by the structural engineer.
10. Hold down continuous strap under the bottom plate and on both sides of panel for increased bracing capacity, to be determined by structural engineer.
11. Hold down 2 X steel straps fixed on one side of the panel and to the timber joist.

EVISSA SIP SITE INSPECTION

Building surveyor will allow for the typical site inspections at mandatory stages of the project. Additional construction inspections by structural engineer as listed below:

- Bottom plates inspections prior to erection of Evissa SIPS. SIPs are solid elements which fully encapsulate the structure of the wall.
- Any other special beams / lintels which will be fully concealed into the SIP would have to be inspected prior to erection of panel.
- Hold down straps (if any) will be installed at the underside of bottom plate and would be inspected prior to erection of Evissa SIPS.
- Panel nail spacing, long Evissa screws at wall corners, roof panels to wall panels and connection of Evissa SIPS with load bearing internal walls would have to be inspected prior to erection of SIP panel.
- Timber splines at both long edges of SIP panel.

PASSIVHAUS APPLICATION

Passive House (or Passivhaus) is a Germany design standard which targets 90% reduction in a building's heating and/or cooling energy consumption compared to typical building method.

OSB SIPs can provide an airtight building envelope (~ 1 air changes per hour at 50 pascal pressure test, measured by a blower-door test) and superior insulation required by the Passive House criteria, as well as meet the design needs of other highly energy-efficient buildings.

Although Passive House standards do not specifically require SIPs, the panels support the design criteria and performance characteristics very well. The large size panels have a reduced number of joints needing sealing, as opposed to other construction methods (especially when compared to stick framing) and reduced thermal bridging. Because the insulation is integrated directly with the structural elements, it is continuous throughout the panels, and is produced within a controlled setting. For a passive house exercise, we encourage the use of SIP panels throughout the whole external envelope of the building – floor (suspended) – walls – roof – as it will perform much better when exposed to the same thermal transfer across the entire external building component.

Passive house requirements are very close to the above-mentioned airtightness level (airtight building shell with less than 0.6 air changes per hour at 50 pascal pressures, measured by a blower-door test). Using SIPs panels would make passive house certification an easier to achieve goal. For a Passivhaus exercise, customized details can be developed to enable us achieving each specific project goals.

REFERENCES

- BCA/NCC 2022 Building Code of Australia - Volume Two
  H1P1(1) & (2)(a), (b), (c), (d) & (3)

- AS/NZS 1170.0-2002 Structural design actions Part 0: General principles
- AS/NZS 1170.1-2002 Structural design actions Part 1: Permanent, imposed and other actions
- AS/NZS 1170.2-2021 Structural design actions Part 2: Wind for non-cyclonic areas only
- AS1170.4-2007 Structural design action Part 4: Earthquake actions in Australia
- AS4055-2021 Wind loads for housing for non-cyclonic areas only
- AS1720.1-2010 Timber structures Part 1: Design methods
- AS1684.2-2021 Residential timber-framed construction Part 2: Non-Cyclonic Areas
- AS1684.4-2021 Residential timber-framed construction Part 4: Simplified Non-Cyclonic Areas

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