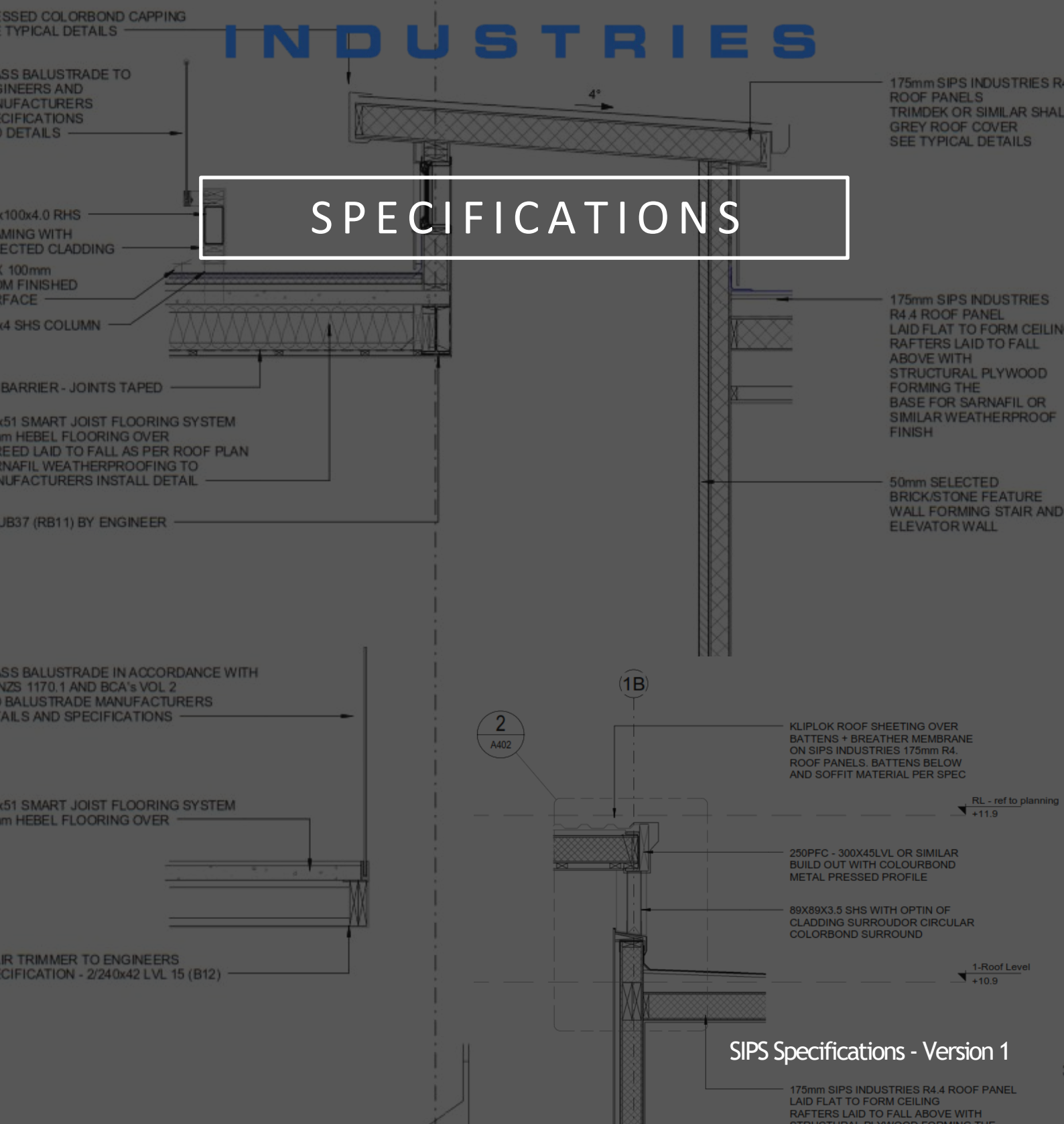
SIPS INDUSTRIES

SPECIFICATIONS



SIPS Specifications - Version 1

INTRODUCTION

THIS SPECIFICATION

All data within this specification has been tested and is supported by certification. The aim is to assist designers, engineers, certifiers, clients, builders and trades to easily find the specified information and trust that it is supported by rigorous testing and analysis and certified for use in Australia. Our SIPS Panels are Codemark Certified also, which involves annual factory auditing and annual on-site auditing which is further to the highly detailed review of our documentation.

SIPS Industries strive to back up the products quality with easy to use documentation for use across Australia. Together with our engineers and certifiers we have produced this specification and certification document. We thank their support.

TERMINOLOGY

SIPS -	Structural Insulated Panel System
OSB -	Oriented Strand Board – an Engineered Termite Resistant Structural Sheet – OSB3
EPS -	Expanded Polystyrene – a strong rigid insulation board – SL Grade
Sole Plate -	Bottom Timber fixed to floor, SIPs panels fit over this and is glued and nailed
Top Plate -	Opposite to Baseplate, fitted to top of SIPS walls
End Closer -	Timber fitted to corners and ends of panel walls, roofs and floors.
Expanding -	Foam glue that expands beyond its original size,
Foam	Filling gaps ensuring an air tight seal between SIPS building elements.
FRL -	Fire Resistance Level

Table of Contents

FLOOR SPECIFICATION

FLOOR PANEL SPAN CHARTS

CodeMark Australia CM40363

This document is to serve to assist engineers and designers in specifying SIPs Floor panels for use for Residential Buildings or floor Live Loads up to 1.5kPa. The panels are certified by Codemark and accepted for use across Australia. Codemark Cert No CM40297

OSB (Orientated Strand Board)

11mm Thick OSB forms the external and internal skin of the structural panel. OSB used in SIPs Industries panels is **Egger OSB3 H2** and is manufactured under ISO9001 from sustainably managed forest plantations under chain of custody (CoC). The board is termite treated to H2 levels all the way through, specific for the Australian environment, to AS1604. The OSB used in SIPS Industries panels is non-toxic Emissions Class E1.

EPS (Expanded Polystyrene)

Locally sourced EPS is processed to AS1366.3-1992 and can be provided in different grades of strength. The EPS used by SIPS Industries is Fire Retardant and the fire retardant used is HBCD Free, HFC Free and HCFC Free (non-ozone depleting – ODP=0). Our EPS is treated to repel termites, other insects and vermin.

Fixing Specifications

Refer to SIPS Industries Fixing Schedules for detailed information.

SIPS Floor Panel Thickness and R-Rating

Thickness	R-Rating
175mm	R4.4

Airtight

SIPS Panels are inherently Air-Tight and tested to <0.25ACH @50Pa – Extremely suitable for Air-Tight and Passivhaus construction. SIPs Industries panels are often applied for Passivhaus Certification.

Applications

Structural Insulated Floor Panels are to be positioned above floor bearers and provide the build with a fast built floor structure, that is highly insulated and air-tight. In wet areas, floor panels are to be protected with a sealant in accordance with AS 3740-2010

Structural Design

SIPS 175mm Floor Panels have been design checked and certified for use as internal residential floor structures. Reference is made to AS1170.0 - 2002 Structural Design Actions – General Principles,
AS1170.1 - 2002 Structural Design Action – Permanent, Imposed and Other Actions, and
AS1684.1 - 1999 Residential Timber Framed Construction.
There is an allowance for 20mm Grout and Tile Included in the calculations for the span table below.
OSB Skins are to be nailed to the Joining Spline with 50x2.8mm dia nails at 150c/c each side.

Installation

SIPS Floor Panels are to be installed in accordance with SIPS Industries Installation Guide Version 1. Any Deviation to the Installation process is to be approved by SIPS Industries and the project specific structural engineer. Load Bearing Walls supported by the floor panels are to be positioned either directly above the panel jointing beams or perpendicular to the jointing spline beams and fixed to the jointing spline beams at a max 1200 centers.

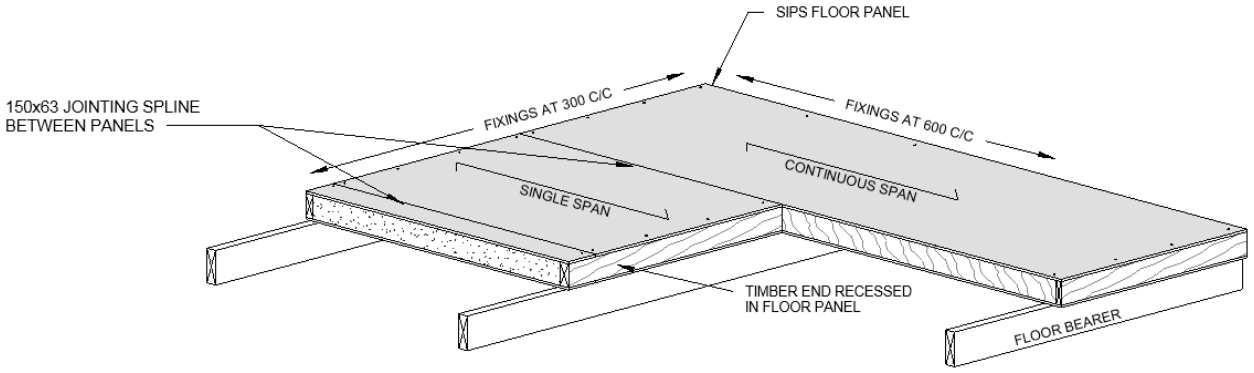
Fl.1 – Span Chart

General Domestic – 1.5 kPa - 175mm Thick Floor Panel

Jointing Spline	Spline Spacing	**Single Span**	**Continuous Span**	Self Weight
1/150x63 LVL*	1200mm Max	**2400mm**	**2700mm**	27kg/m²

*Wesbeam 150x63 LVL or Tillings 150x58 LVL 15

See Span Diagram of the following page.



DISCLAIMER

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CODEMARK Australia
CM40363
SIPS Floor Panels

CERTIFICATION

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ENGINEERING

SIPS Floor Panels have been tested for performance in all Australian Conditions by Lexus Engineers, Civil and Structural Engineering Consultants. This information is specific to SIPS Industries Products and Systems.

LEXUS ENGINEERS

This SIPS Industries Floor Panel Span Table has been design checked by:
Soon Y. Yap
Civil and Structural Engineer
BEng, MIEAust, CPEng, APAC Engineer, IntPE(Aus)
Membership Number 501315
for Lexus Engineers, 266 Vahland Ave, Willetton, WA 6155
Engineering Report Ref: LE18-044-SC5 – 11 December 2019

SIPS – Ready Cut

READY-CUT is a SIPS INDUSTRIES patent pending product which is a standard set of SIPS Panel sizes. Ready Cut Panel dimensions are to be used at the design stage where standard panel sizes can be used to determine the building dimensions, and thus reduce the cost of the build by utilizing standard panel sizes and omitting wastage. This document is relevant for SIPs Ready Cut.

READYCUT™ READY WHEN YOU ARE.

WALL PANEL LOAD CHARTS

This document is to serve to assist engineers in specifying SIPs Wall panels for use across Australia. The panels are certified by Codemark and accepted for use across Australia.

CODEMARK Australia CM40361

SIPS Wall Panels

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EPS (Expanded Polystyrene)

Locally sourced EPS is processed to AS1366.3-1992 and can be provided in different grades of strength. This document covers SL Grade EPS. The EPS use by SIPS Industries is Fire Retardant and the fire retardant used is HBCD Free, HFC Free and HCFC Free (non-ozone depleting – ODP=0). Our EPS is treated to repel termites, other insects and vermin.

Fixing Specifications

Refer to SIPS Industries Fixing Schedules for detailed information. Doc S.04 – Fixing Schedules – Version 1

Airtight

SIPS Panels are inherently Air-Tight and tested to <0.25ACH @50Pa – Extremely suitable for Air-Tight and Passivhaus construction. SIPs Industries panels are often applied for Passivhaus Certification.

SIPS Wall Panel Thickness and R-Rating

Thickness	R-Rating
165mm	R4.1
145mm	R3.57
115mm	R2.8

Acoustic Performance

Refer to SIPS Technical Information which specifies a range of different applications and acoustic ratings. Single wall systems can achieve up to 36dB reduction, whilst SIPS Party Wall systems achieve a minimum reduction of 64dB.

Within this Document

Fire Ratings

SIPS Industries Wall Panels will achieve FRL 60/60/60 and 90/90/90 – Refer to SIPS Typical Details and EXOVA Warringtonfire report Certificate No. 27390-03 Valid to 31st January 2023.

Applications

Structural Insulated Wall Panels are self-supporting structural panels, capable of supporting floors, roofs, point loads and up to 3 storeys of construction. The panels can be used for residential, commercial, retail and industrial purposes.

SIPS Industries wall panels comply with the Building Codes of Australia; Namely:

VOLUME ONE: Part BP1.1(a) and (b)(v) inclusive, BP1.1(b)(viii)(x)(xi)(xii) and BP1.2

VOLUME TWO: P2.1.1 (a), (b)(i) through (v) inclusive, (b)(viii)(x)(xi)(xii) and (c) – Structural Performance to Wind Rating C4.

The applicable Structural Australian Standards including but not limited to:

a. AS/NZS 1170.0/2002 Structural Design Actions – General Principles
b. AS/NZS 1170.1/2002 Structural Design Actions – Permanent, Imposed and Other Actions
c. AS/NZS 1170.2/2011 Structural Design Actions – Wind Actions
d. AS/NZS 1170.3/2003 Structural Design Actions – Wind Actions
e. AS 1170.4/2007 Structural Design Actions – Earthquake Actions in Australia
f. AS1720.1/2010 Timber structures - Design methods
g. AS 3600/2018 – Concrete Structures
h. AS 4055/2012 – Wind Loads for Housing
i. AS 4100/1998 – Steel Structures

SIPS Wall Panel Permissible Axial Load (kN/m)

PERMISSIBLE AXIAL LOAD (kN/m)			
Panel Height (mm)	115mm PANEL	145mm PANEL	165mm PANEL
	93mm EPS CORE	123mm EPS CORE	143mm EPS CORE
2400 (2440)	40.1	47.4	58.4
3000	36.5	42.3	51.1
3600	29.2	35.1	43.8
4200	N/A	26.4	40.1
4800	N/A	N/A	36.5
1. These tables are based on permissible Stress Design. Ultimate Limit State wind loads calculated in accordance with AS 1170.2 can be converted to Permissible wind loads by dividing by 1.5			
2. Loads above have been limited to a Permissible Load by dividing the Ultimate Failure Load by 3.0.			
3. SIP's like all timber products will creep under the action of long term loads. It is recommended that long term deflection should be estimated using a factor of at least 3.0 times the initial deflections.			
4. SIP's panels to have 11mm OSB thick timber panel with SL Grade EPS Core			

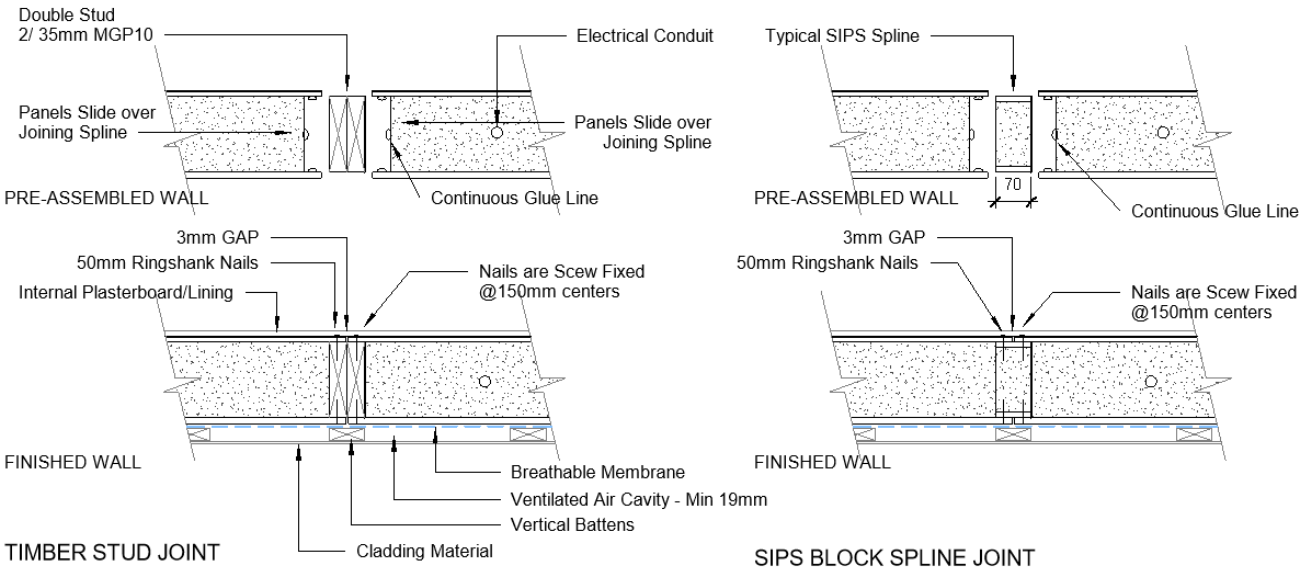
SIPS Panel Permissible Bending Load (KPa)

PERMISSIBLE BENDING LOAD (KPa)									
Panel Height (mm)	115mm PANEL			145mm PANEL			165mm PANEL		
	93mm EPS CORE			123mm EPS CORE			143mm EPS CORE		
	L/360	L/240	L/180	L/360	L/240	L/180	L/360	L/240	L/180
2400	1.3	1.9	1.9	1.58	2.3	2.3	2	2.9	2.9
3000	1	1.4	1.5	1.2	1.76	1.86	1.5	2.3	2.4
3600	0.7	1	1.3	0.9	1.32	1.58	1.2	1.8	2
4200	N/A	N/A	N/A	0.6	0.88	1.3	1	1.5	1.7
4800	N/A	N/A	N/A	N/A	N/A	N/A	0.8	1.2	1.5
1	This table is based on Permissible Stress Design. Ultimate Limit State wind loads calculated in accordance with AS1170.2 can be converted to Permissible wind loads by dividing by 1.5.								
2	Loads above have been limited to Permissible Load by dividing the Ultimate Failure Load by 3.0.								
3	SIPS like all timber products will creep under the action of lond 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.								

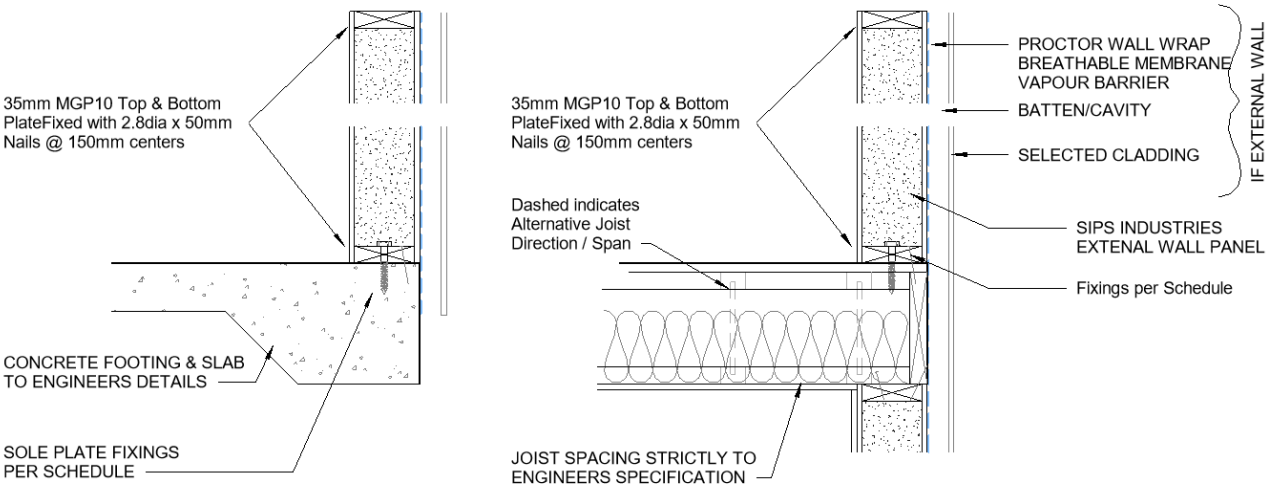
PERMISSIBLE RACKING LOAD (kN)			
Panel Height (mm)	115mm PANEL 93mm EPS CORE	145mm PANEL 123mm EPS CORE	165mm PANEL 143mm EPS CORE
2400	3.2	3.2	3.2
3000	2.5	2.5	2.5
3600	1.79	1.79	1.79
4200	N/A	1.4	1.4
4800	N/A	N/A	1.1

1	Permissible Loads Above are per m length of wall. Multiply by total length of wall to obtain Total Permissible Racking Forces
2	Axial Load is a UDL applied along the Length of the SIPS Panel
3	Wind Load acts over side of SIP placing transverse bending into the panels. The Panels are assumed to be simply supported and span in one direction vertically.
4	Material Properties to Standard as listed previously.
5	Wind Pressures are Global Pressures Calculates to AS 4055-2006, Table 3.3
6	Tables do not consider creep from dead and long-term live loads, engineer is to consider these in the design.
7	Engineer is to specify the correct type of hold down bolt for the medium it is fixing to – Refer to SIPS Fixing Schedules.
8	Engineer is to specify the correct corrosion protection to all fixings for the environment.
9	Engineer is to check that tensile forces at the base of the wall does not exceed the combined ultimate uplift and tensile forces at the base due to racking.

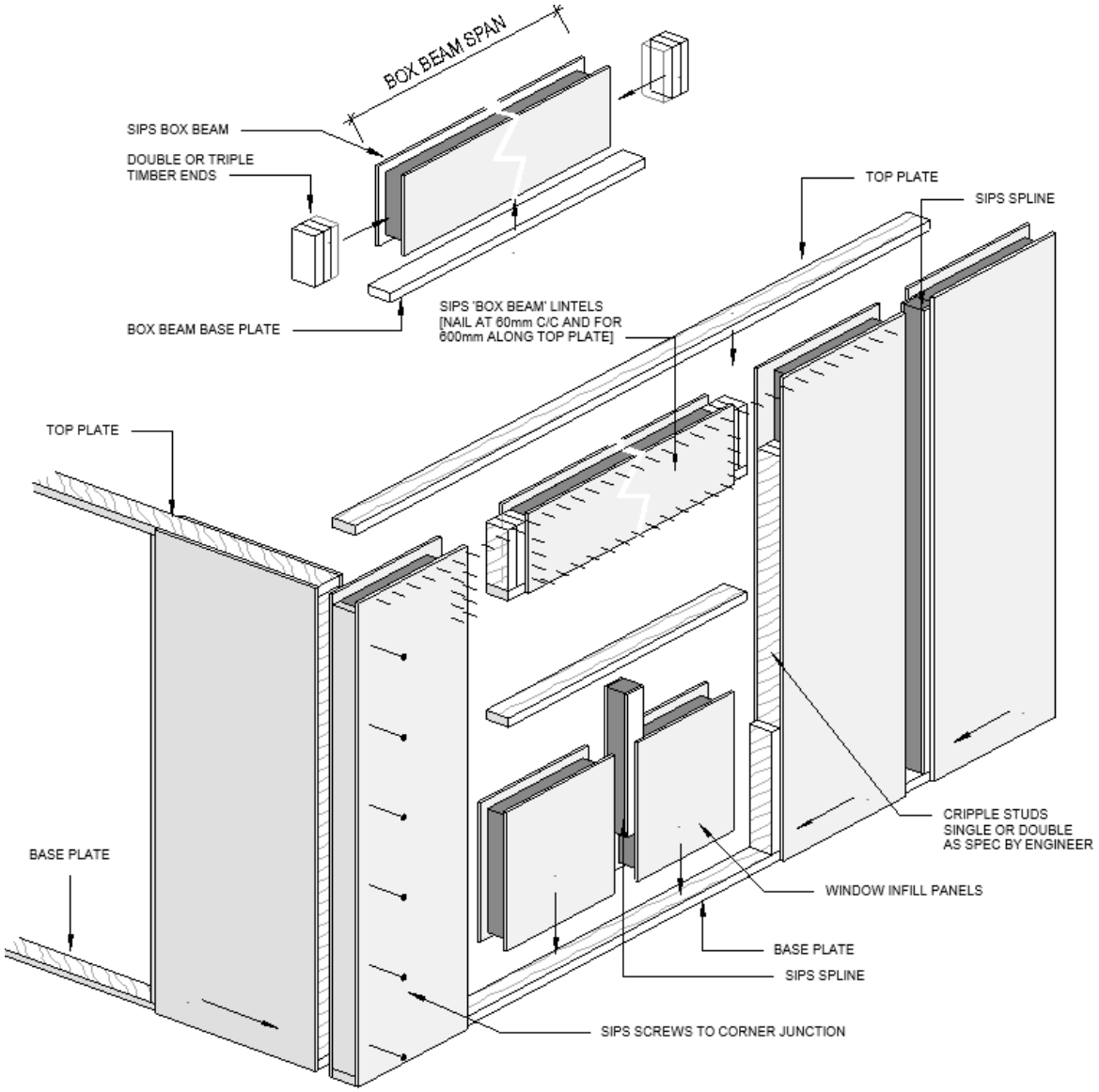
Typical Wall Panel Connections in Plan View



Typical SIPS Wall Sections

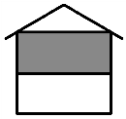


Typical SIPS Wall Assembly Diagram



SIPS Box Lintel Span Chart (mm)

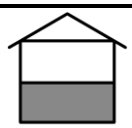
Single or Upper Storey[3]



Box Lintel Depth[1]	Max Lintel Span < N5 - C2 Wind Classification	Max Lintel Span N6 - C3 Wind Classification	Max Lintel Span C4 Wind Classification
300mm	2400	1800	1200
450mm	3300	2700	1800
600mm	4200	3600	2400
900mm	5400	4800	3000
1200mm	6000	5400	3600

SIPS Box Lintel Span Chart (mm)

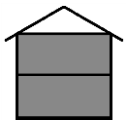
Floor Load for Lower Storey of Two Storeys[2]



Box Lintel Depth[1]	Max Lintel Span < N5 - C2 Wind Classification	Max Lintel Span N6 - C3 Wind Classification	Max Lintel Span C4 Wind Classification
300mm	1500	1200	800
450mm	2700	2100	1400
600mm	3600	3000	2100
900mm	4800	3900	2600
1200mm	6000	4800	3200

SIPS Box Lintel Span Chart (mm)

Floor + Roof Load for Lower Storey of Two Storeys[2]



Box Lintel Depth[1]	Max Lintel Span < N5 - C2 Wind Classification	Max Lintel Span N6 - C3 Wind Classification	Max Lintel Span C4 Wind Classification
300mm	1100	1100	1000
450mm	1500	1400	1300
600mm	2500	2400	2300
900mm	3900	3800	3700
1200mm	4400	4300	4200

1	Box Beam Spans Spans are relevant for each wall panel thickness, 115mm, 145mm and 165mm
2	Lower Storey of Two Storey (i) 3m Effective Roof Load - Metal Roof (Inl Sandwich Panels) 40kg/m² (ii) 3m Effective Floor Load - Max Dead Weight: 120kg/m² + 1.5kPa Live Load
3	Single or Upper Storey - 3m Effective Roof Load - Metal Roof (Inl Sandwich Panels) 40kg/m²
4	Axial Load is as per the SIPS Wall Axial Load Tables within this document
5	Wind Load acts over side of SIP placing transverse bending into the panels. The Panels are assumed to be simply supported and span in one direction vertically.
6	Refer to Bom Lintel Details by SIPS Industries
7	Wind Pressures are Global Pressures Calculates to AS 4055-2006, Table 3.3
8	Span Tables are based on 60mm Nailing Centers
9	Minimum Bearing = 35mm at ends and 70mm at intermediate supports
10	Box Lintels are not to be notched and are to be used in accordance with SIPS typical details and/or project specific manufacture and installation drawings.
	When lintels are used to their maximum design limits - deflection will occur.
11	Engineer is to specify the correct corrosion protection to all fixings for the environment.
12	The Consulting Structural engineer shall satisfy themselves that the lintels are sufficient when supporting point loads.

DESIGN CONSIDERATIONS

PERMISSIBLE AXIAL LOADS + BENDING LOAD TABLES

1. Tables are based on permissible stress design. Ultimate Limit State wind loads calculated in accordance with AS1720.2 can be converted to Permissible wind loads by dividing by 1.5
2. Loads have been limited to a Permissible Load by dividing the Ultimate Failure Load by 3.0
3. SIPS like all timber products will creep under the action of long-term loads. It is recommended that long term deflection should be estimated using a factor of at least 3.0 times the initial deflections.
4. SIPS Wall Panels are to be made up of 11mm thick OSB3 with a minimum SL Grade EPS.

PERMISSIBLE RACKING LOADS TABLE

1. Permissible Loads Above are per m length of wall. Multiply by total length of wall to obtain Total Permissible Racking Forces.
2. Axial Load is a UDL applied along the Length of the SIPS Panel.
3. Wind Load acts over side of SIP placing transverse bending into the panels. The Panels are assumed to be simply supported and span in one direction vertically.
4. Material Properties to Standard as listed previously.
5. Wind Pressures are Global Pressures Calculates to AS 4055-2006, Table 3.3
6. Tables do not consider creep from dead and long-term live loads, engineer is to consider these in the design.
7. Engineer is to specify the correct type of hold down bolt for the medium it is fixing to – Refer to SIPS Fixing Schedules.
8. Engineer is to specify the correct corrosion protection to all fixings for the environment.
9. Engineer is to check that tensile forces at the base of the wall does not exceed the combined ultimate uplift and tensile forces at the base due to racking.

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CODEMARK Australia CM40361

SIPS Wall Panels

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WALL SPECIFICATION

ENGINEERING

SIPS fixings schedules have been tested for performance in all Australian Conditions by Engenuity Engineering, these schedules are specific to SIPS Industries Products and Systems.

SIPS – Ready Cut

READY-CUT is a SIPS INDUSTRIES patent pending product which is a standard set of SIPS Panel sizes. Ready Cut Panel dimensions are to be used at the design stage where standard panel sizes can be used to determine the building dimensions, and thus reduce the cost of the build by utilizing standard panel sizes and omitting wastage.

ROOF PANEL SPAN CHARTS

CodeMark Australia CM40362

SIPS Roof Panels

This document is to serve to assist engineers and designers in specifying SIPs Roof panels.

OSB (Orientated Strand Board)

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Fixing Specifications

Refer to SIPS Industries Fixing Schedules for detailed information. Technical Document S.04 – Fixing Schedules – Version 1

SIPS Roof Panel Thickness and R-Rating

Thickness	R-Rating
165mm	R4.1
175mm	R4.4

Airtight

SIPS Panels are inherently Air-Tight and tested to <0.25ACH @50Pa – Ideally suited for Air-Tight and Passivhaus construction. SIPs Industries panels are often applied for Passivhaus Certification.

Applications

Structural Insulated Roof Panels are to be positioned above Load bearing walls or beams providing the build with a fast-built roof structure, which is highly insulated and air-tight. Roof Panels are available in widths up to 1200mm wide, 165 and 175mm thick and up to 6m long, with a maximum unsupported span of 6m.

Structural Design

SIPS Roof Panels have been design checked and certified for use as roof structures.
Reference is made to AS1170.0-2002 Structural Design Actions – General Principles,
AS1170.1-2002 Structural Design Action – Permanent, Imposed and Other Actions,
AS1684.1-1999 Residential Timber Framed Construction,
AS1684.2-2010 Residential Timber Framed Construction (Non-Cyclonic), and
AS4055/2002 Wind Loads for Housing

The design is based on a lightweight roof in Wind zones up to N3. Roof panels in higher wind regions are to be checked for use by the projects structural engineer.
OSB Skins are to be nailed to the Jointing Spline with 50x2.8mm dia nails at 150c/c each side.

Installation

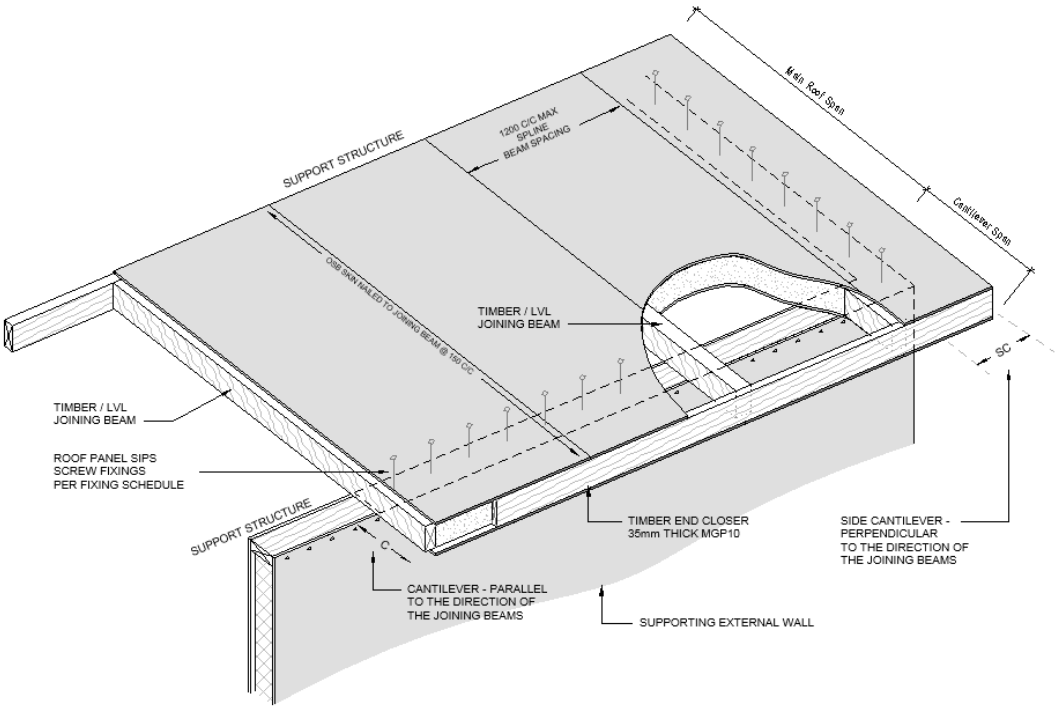
SIPS Roof Panels are to be installed in accordance with SIPS Industries Installation Guide Version 1. Any Deviation to the Installation process is to be approved by SIPS Industries and the project specific structural engineer.

R.1 – Span Chart

SPAN TABLE - SUMMARY OF ROOF SPLINES / SPAN TABLES (Simplified)						
Wind Class	165mm Roof Panels			175mm Roof Panels		
Span	3.5m	4.2m	4.8m	5.0m	5.4m	6.0m
N1	2/140x35 MPG10	2/140x35 MPG10	2/140x35 MPG10	150x63 LVL*	150x63 LVL*	150x63 LVL*
N2	2/140x35 MPG10	2/140x35 MPG10	2/140x45 MGP10	150x63 LVL*	150x63 LVL*	150x63 LVL*
N3	2/140x35 MPG10	2/140x45 MGP10	2/140x45 MGP10	150x63 LVL*	150x63 LVL*	150x63 LVL*
Cantilevers	Max Side Overhang - 700mm					
N1	1200	1200	1300	1500	1500	1500
N2	1200	1200	1200	1300	1300	1300
N3	900	900	1000	1200	1200	1200
	The above max cantilevers must be equal or less than 2 x backspan					

See Span Diagram on the following page.

*Wesbeam 150x63 LVL or Tillings 150x 58 LVL 15



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ROOF SPECIFICATION

ENGINEERING

SIPS Roof Panels have been tested for performance by Lexus Engineers, Civil and Structural Engineering Consultants. This information is specific to SIPS Industries Products and Systems.

This SIPS Industries Floor Panel Span Table has been design checked by: **Soon Y. Yap**
Civil and Structural Engineer
BEng, MIEAust, CPEng, APAC Engineer, IntPE(Aus)
Membership Number 501315
for Lexus Engineers, 266 Vahland Ave, Willetton, WA 6155
Engineering Report Ref: LE19-046-SC2 – 11 Dec 2019

LEXUS ENGINE

READY CUT™ READY WHEN YOU ARE.

SIPS – Ready Cut

READY-CUT is a SIPS INDUSTRIES patent pending product which is a standard set of SIPS Panel sizes. Ready Cut Panel dimensions are to be used at the design stage where standard panel sizes can be used to determine the building dimensions, and thus reduce the cost of the build by utilizing standard panel sizes and omitting wastage. This document is relevant for SIPs Ready Cut.

SIPS INDUSTRIES – FIXING SCHEDULES

The Fixing Schedules herewith are specific to Australian Wind Regions and Standards, the schedules are engineered and to be conformed to ensure certification of the built product. Fixing Coatings are not specified, and fixing coatings are to be chosen in relation to their exposure.

These fixing schedules may be superseded by the project specific structural engineering and SIPs Installation drawings.

The fixing schedules are for mechanical fixings only, glues, expanding foams and sealants should be applied in accordance with the installation guide, project specific and typical details.

Applications

SIPS Fixings Schedules are separated into the different connection zones across a SIPS build, including Floors, Walls and Roofs.
The Fixings are represented from the base of the structure upward, beginning at floor connections as follows:

F.1 - Floor Panels to Floor Bearers
F.2 - Wall Base Plates to Floor – Single or Upper Storey
F.2 - Wall Base Plates to Floor – Ground Floor of Two Storey
F.4 - Wall Vertical Corner Joints
F.5 - Walls - OSB Skin Nailing
F.6 - Wall Batten Fixings
F.7 - Roof Panel Fixings to Walls Below
F.8 - Roof Batten Fixing
F.9 – Fixings Specifications

SIPS Industries wall panels comply with the Building Codes of Australia; Namely:

VOLUME ONE: Part BP1.1(a) and (b)(v) inclusive, BP1.1(b)(viii)(x)(xi)(xii) and BP1.2

VOLUME TWO: P2.1.1 (a), (b)(i) through (v) inclusive, (b)(viii)(x)(xi)(xii) and (c) – Structural Performance to Wind Rating C4.

The applicable Structural Australian Standards including but not limited to:

a. AS/NZS 1170.0/2002 Structural Design Actions – General Principles
b. AS/NZS 1170.1/2002 Structural Design Actions – Permanent, Imposed and Other
Actions
c. AS/NZS 1170.2/2011 Structural Design Actions – Wind Actions
d. AS/NZS 1170.3/2003 Structural Design Actions – Wind Actions
e. AS 1170.4/2007 Structural Design Actions – Earthquake Actions in Australia
f. AS1720.1/2010 Timber structures - Design methods
g. AS 3600/2018 – Concrete Structures
h. AS 4055/2012 – Wind Loads for Housing
i. AS 4100/1998 – Steel Structures

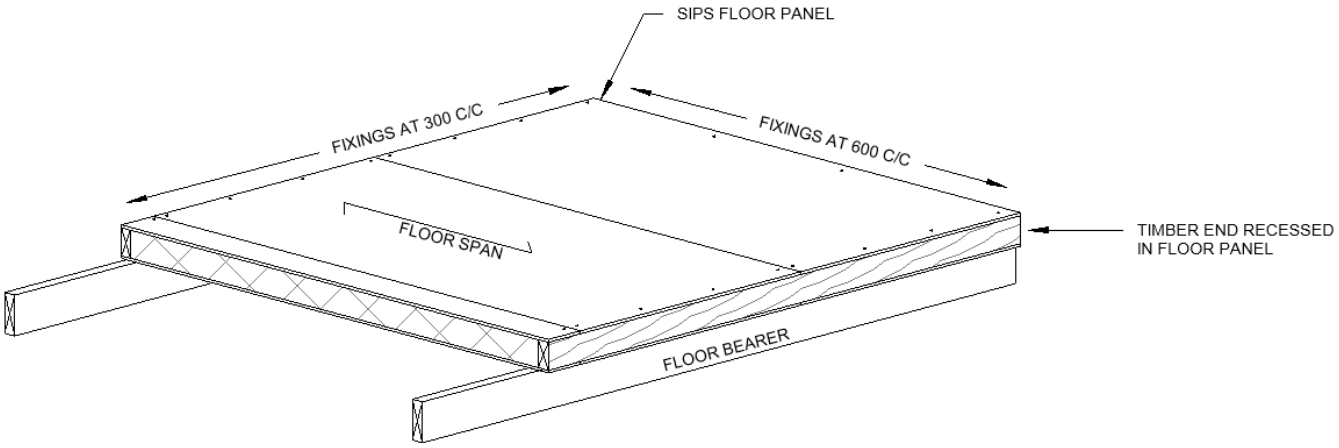
SIPS Wall Panels

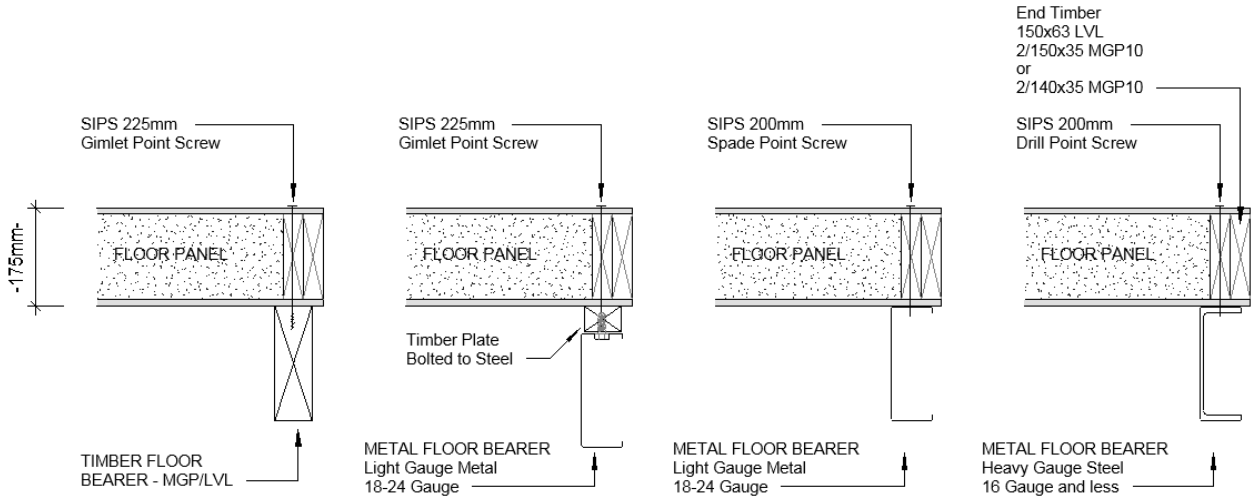
SIPS Roof Panels

SIPS Floor Panels

F.1 - Floor Panels to Floor Bearers

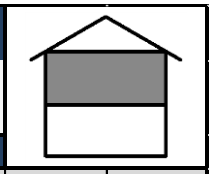
SIPS FLOOR PANEL TO BEARER FIXINGS								
Floor Panel Spec	**Fixing Spec***	**N1**	**N2**	**N3 C1**	**N4 C2**	**N5 C3**	**N6 C4**	
165/175 SIPS Floor Panel Timber Bearer	225mm SIPS Screw + Galvanized Washer	600mm c/c Long Edge* 300mm c/c Short Edge			300mm c/c Long Edge* 150mm c/c Short Edge			
165/175 SIPS Floor Panel Steel Bearer (<1.5mm Steel)	225mm SIPS Screw + Galvanized Washer	300mm c/c Long Edge* 200mm c/c Short Edge			N/A			
165/175 SIPS Floor Panel Steel Bearer (>1.5mm Steel)	225mm SIPS Screw + Galvanized Washer	600mm c/c Long Edge* 300mm c/c Short Edge			300mm c/c Long Edge* 150mm c/c Short Edge			
Stagger Fixings On Panel Joints		Use 30x3mm Washer for C2 and above						
SIPS SCREW SPEC	6.5mm Ø Type 17 Screw with minimum 35mm Embedment to Receiving Timber							
Tensile and shear	Tensile Strength - 16.8kN Shear Strength 15.0kN							
Pull Out Values	**Timber** - 4.1kN **Steel** - 0.7mm(1.6kN), 1.9mm(2.2kN), 1.2mm(2.7kN), 1.6mm(4kN)							
* Long Edge = Parallell to panel span - Short Edge = Perpendicular to panel span (fix to bearers)								





F.2 - Wall Base Plates to Floor – Single Storey or Upper of Two Storeys

- Refer to SIPS Design Certificate for Fixings
- Ensure Minimum 40mm fixing embedment to timber
- Criteria outside the scope of these table to be designed by consulting engineer



BASE PLATE FIXING SPECIFICATION (Single or Upper of Two Storeys)

Bolt Spacing Centres for each Australian Wind Category

SIPS BASE PLATES (BASE PLATES) TO CONCRETE FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	Nail Fixing	900c/c		N/A			
	M10 - 100mm	1200c/c		600c/c	450c/c	300c/c	N/A
	M10 - 120mm	1200c/c		600c/c		450c/c	N/A
	M12 - 100mm	1200c/c			600c/c	450c/c	N/A
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	M10 - 120mm	1200c/c		600c/c	450c/c	300c/c	N/A
	M12 - 120mm	1200 c/c			600c/c	450c/c	450c/c
Refer to SIPs Typical Details							

SIPS SOLE PLATES (BASE PLATES) TO SIPS FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	1/70mm Typ 17 Bugle	Ea Spline + 600c/c max			300 c/c	150 c/c	N/A
	2/70mm Typ 17 Bugle	Ea Spline + nom 600c/c max				450 c/c	N/A
	Const Glue +90x2.5HDG Nails	300c/c			N/A		
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	1/100mm Typ 17 Bugle +	Ea Spline (nom 600c/c max)			Ea Spline (nom 150c/c max)		N/A
	2/100mm Typ 17 Bugle +	Ea Spline (nom 600c/c max)			Ea 450c/c max)		N/A
	Const Glue +90x2.5HDG Nails	300 c/c			150 c/c		N/A
Refer to SIPs Typical Details							

SIPS SOLE PLATES (BASE PLATES) TO JOIST FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	1/70mm Typ 17 Bugle	Ea Joist (nom 600c/c max)			300 c/c	150 c/c	N/A
	2/70mm Typ 17 Bugle	Ea Joist (nom 600c/c max)				450 c/c	N/A
	Const Glue + 90x2.5HDG Nails	300c/c			N/A		
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	1/100mm Typ 17 Bugle	Ea Joist (nom 600c/c max)			Ea Joist (nom 150c/c max)		N/A
	2/100mm Typ 17 Bugle	Ea Joist (nom 600c/c max)			Ea 450c/c max)		N/A
	Const Glue + 90x2.5HDG Nails	300 c/c			150 c/c		N/A

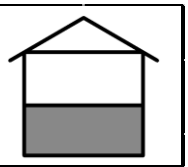
Green indicates where 50x50x4mm Galvanised Washers are also to be used	The above specified is for External, Internal Loadbearing and Bracing Walls
	Non Loadbearing Internal walls are to be bolted at 900c/c Generally, or 600c/c for Cyclonic Regions, using bolts specified for the External Walls
*Acceptable Nails	Min 1kN Masonry Nail - X-C/X-P Hilti Nail
*Acceptable Bolts	Powers Bluetip. Iccons Thunderbolt, Strongtie Throughbolt, Chemical Anchor, or similar approved by SIPS or structural engineer

Refer to SIPS Industries Typical Details for further information

F.3 - Wall Base Plates to Floor – Single Storey or Upper of Two Storeys

- Refer to SIPS Design Certificate for Fixings
- Ensure Minimum 40mm fixing embedment to timber
- Criteria outside the scope of these table to be designed by consulting engineer

BASE PLATE FIXING SPECIFICATION (Lower Storey of Two Storeys)



Bolt Spacing Centres for each Australian Wind Category

SIPS BASE PLATES (BASE PLATES) TO CONCRETE FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	Nail Fixing	900c/c		N/A			
	M10 - 100mm	1200c/c		900c/c	600c/c	300c/c	N/A
	M10 - 120mm	1200c/c		900c/c		450c/c	N/A
	M12 - 100mm	1200c/c			900c/c	450c/c	N/A
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	M10 - 120mm	1200c/c		900c/c	600c/c	450c/c	N/A
	M12 - 120mm	1200 c/c			900c/c	600c/c	450c/c
Refer to SIPs Typical Details							

SIPS SOLE PLATES (BASE PLATES) TO SIPS FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	1/70mm Typ 17 Bugle	Ea Spline (nom 600c/c max)			450 c/c	300 c/c	N/A
	2/70mm Typ 17 Bugle	Ea Spline (nom 600c/c max)					N/A
	Const Glue + 90x2.5HDG Nails	300c/c			N/A		
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	1/70mm Typ 17 Bugle	Ea Spline (nom 600c/c max)			450 c/c	300 c/c	N/A
	2/100mm Typ 17 Bugle	Ea Spline (nom 600c/c max)					N/A
	Const Glue + 90x2.5HDG Nails	300 c/c			150 c/c		N/A
Refer to SIPs Typical Details							

SIPS SOLE PLATES (BASE PLATES) TO JOIST FLOORS

Timber Spec	Fixing Spec*	N1	N2	N3 C1	N4 C2	N5 C3	N6 C4
Base Plates - 35mm Mgp10	1/70mm Typ 17 Bugle	Ea Joist (nom 600c/c max)			450 c/c	300 c/c	N/A
	2/70mm Typ 17 Bugle	Ea Joist (nom 600c/c max)					N/A
	Const Glue + 50x2.5HDG Nails	300c/c			N/A		
Refer to SIPs Typical Details							
Base Plates - 45mm MGP10	1/70mm Typ 17 Bugle	Ea Joist (nom 600c/c max)			450 c/c	300 c/c	N/A
	2/100mm Typ 17 Bugle	Ea Joist (nom 600c/c max)					N/A
	Const Glue + 90x2.5HDG Nails	300 c/c			150 c/c		N/A

Green indicates where 50x50x4mm Galvanised Washers are also to be used	The above specified is for External, Internal Loadbearing and Bracing Walls
	Non Loadbearing Internal walls are to be bolted at 900c/c Generally, or 600c/c for Cyclonic Regions, using bolts specified for the External Walls
*Acceptable Nails	Min 1kN Masonry Nail - X-C/X-P Hilti Nail
*Acceptable Bolts	Powers Bluetip. Iccons Thunderbolt, Strongtie Throughbolt, Chemical Anchor, or similar approved by SIPS or structural engineer

Refer to SIPS Industries Typical Details for further information

F.4 – Walls, Vertical Corner Joints

SIPS WALL PANEL VERTICAL FIXINGS			Nail Spacing Centres for each Australian Wind Category						
Wall Type		Fixing spec	N1 + N2	N3 C1		Nail Spec*	N4 C2	N5 C3	N6 C4
External, Load Bearing and Bracing Walls	Wall Panel Ext Corner	SIPS Screw	300c/c			SIPS Screw	150c/c		
	Wall Panel Int Corner								
	Ext Wall to Internal Wall								
Non Load-bearing Walls	Wall Panel Ext Corner	SIPS Screw	300c/c			SIPS Screw	150c/c		
	Wall Panel Int Corner								
	Internal T-Joint								
All Panel vertical joints are to be glue fixed with Fula Foam Pro Gun Flexible Foam prior to fixing off									
SIPS SCREW SPEC		6.5mm Ø Type 17 Screw with minimum 35mm Embedment to Receiving Timber							
Tensile and shear		Tensile Strength - 16.8kN Shear Strength 15.0kN							
Pull Out Values		**Timber** - 4.1kN							

F.5 – Walls, OSB Skin Nailing

SIPS WALL OSB SKIN NAILING SPECIFICATION			Nail Spacing Centres for each Australian Wind Category						
Wall Type		Nail Spec*	N1 + N2	N3 C1		Nail Spec*	N4 C2	N5 C3	N6 C4
External, Load Bearing and Bracing Walls	OSB to Horizontal Plates	2.5 x 50 HDG	150c/c			3.3 x 90 HDG	100c/c		
	OSB to Vertical Studs	2.5 x 50 HDG	150c/c			3.3 x 90 HDG	100c/c		
	OSB to Vert Sips Splines	2.5 x 50 HDG	150c/c			2.5 x 50 HDG	150c/c		
	to Tie Down Studs	2.5 x 50 HDG	150c/c			3.3 x 90 HDG	100c/c		
	Box Beams	2.5 x 50 HDG	60c/c			3.3 x 90 HDG	60c/c		
Non Load-bearing Walls	OSB to Horizontal Plates	2.5 x 50 HDG	150c/c			2.5 x 50 HDG	150c/c		
	OSB to Vertical Studs	2.5 x 50 HDG	150c/c			2.5 x 50 HDG	150c/c		
	OSB to Vert Sips Splines	2.5 x 50 HDG	150c/c			2.5 x 50 HDG	150c/c		
All Panel recessed timbers and joining splines are to be glue fixed with Fula Foam Pro Gun Flexible Foam prior to nailing off									
Pull Out Values		**Timber** - 4.1kN							

F.6 – Walls Batten Fixing

WALL BATTEN FIXING SCHEDULE		Fixing Spacing Centres for each Australian Wind Category				
Batten Type	**Fixing spec***	**N1 N2**	**N3 C1**	**N4 C2**	**N5 C3**	**N6 C4**
TIMBER 35x70 MGP10 to OSB	**Skew Nail - 2/2.5x50mm HDG**	300c/c	N/A	N/A		
	50mm Type 14 Screw	600c/c	450c/c	N/A		
	50mm Type 17 TEK Screw	600c/c	600c/c	300c/c		
	50mm Type 17 Bugle Head	600c/c	600c/c	300c/c		
TIMBER 35x70 MGP10 to TIMBER	**Scew Nail - 2/2.5x70mm HDG**	300c/c	N/A	N/A		
	70mm Type 14 Screw	600c/c	450c/c	N/A		
	70mm Type 17 TEK Screw	600c/c	600c/c	300c/c		
	70mm Type 17 Bugle Head	600c/c	600c/c	300c/c		

1* All Batten Types and Spacings to be determined by the Cladding used, above are typical specs only, Engineer to confirm.

2* Ensure minimum 35mm fixing embedment into timber

3* DO NOT OVERDRIVE SCREWS INTO OSB - Set your drills gears to suit. Overdriven screws will not be effective

4* Ensure to provide positive fixings with 1 extra row of fixings at all windows and building corners into timber behind.

5* All other batten sizes and types, along with their fixings, are to be verified by the Projects Structural Engineer

6* Maximum cladding weight allowed for in this specification - **40kg/m2**. Wall cladding over and above the noted value may be accomodated with amendment to batten spacings. Obtain verification from the Projects Structural Engineer.

7* Vertical Battens to be full length and connected to top and bottom horizontal timber plates within panels

8* Do not use bright or smooth shaft nails - use ring shank or twist shank galvanised or as specified by the eng.

9* OSB used in SIPS Industries Panels is 11mm OSB3 with a density of 600kg/m³

F.7 – Roof Panel Fixings to Walls / Beams Below

SIPS ROOF PANEL FIXING SCHEDULE			Fixing Spacing Centres for each Australian Wind Category				
ROOF FIXING		**Nail Spec***	**N1 + N2**	**N3 C1**	**Nail Spec***	**N4 C2**	**N5 C3**	**N6 C4**
ROOF PANEL NAIL FIXINGS	**OSB to MGP10 End Plates**	2.5 x 50 HDG	300c/c		3.3 x 90 HDG	150c/c		
	OSB to LVL Joining Spline	2.5 x 50 HDG	300c/c		3.3 x 90 HDG	150c/c		
	OSB to Sips Joining Splines	2.5 x 50 HDG	300c/c		2.5 x 50 HDG	150c/c		
ROOF PANEL TO SUPPORT FIXING (TIMBER and Steel >1.5mm)	**PANEL to Long Edge**	225 SIPS Screws	350c/c		225 SIPS Screws	350c/c		
	PANEL to Short Edge	225 SIPS Screws	300c/c		225 SIPS Screws	150c/c		
	PANEL to External Beam	225 SIPS Screws	200c/c		225 SIPS Screws	150c/c		
ROOF PANEL TO SUPPORT FIXING (STEEL <1.5mm)	**PANEL to Long Edge**	225 SIPS Screws	350c/c		225 SIPS Screws	350c/c		
	PANEL to Short Edge	225 SIPS Screws	300c/c		225 SIPS Screws	150c/c		
	PANEL to External Beam	225 SIPS Screws	200c/c		225 SIPS Screws	150c/c		

All Panel recessed timbers and joining splines are to be glue fixed prior to nailing off with Fula Foam Pro Gun Flexible Foam	
SIPS SCREW SPEC	6.5mm Ø Type 17 Screw with minimum 35mm Embedment to Receiving Timber
Tensile and shear	Tensile Strength - 16.8kN Shear Strength 15.0kN
Pull Out Values	**Timber** - 4.1kN **Steel** - 0.7mm(1.6kN), 1.9mm(2.2kN), 1.2mm(2.7kN), 1.6mm(4kN)

1* Ensure minimum 35mm fixing embedment

2* Ensure each and every row of fixings is complimented with a fixing through each LVL spline at max 1200 c/c

3* Maximum roof pitch of 35 degrees as per AS1684.2 and AS1684.3

4* Criteria oustide the scope of these tables to be deisgned by the consulting structural engineer

F.8 – Roof Batten Fixings

ROOF BATTEN FIXING SCHEDULE		Fixing Spacing Centres for each Australian Wind Category				
Batten Type	**Fixing spec***	**N1 N2**	**N3 C1**	**N4 C2**	**N5 C3**	**N6 C4**
TIMBER 35x70 MGP10 to OSB	**Scew Nail - 2/2.5x70mm HDG**	300c/c	N/A	N/A		
	50mm Type 14 Screw	600c/c	450c/c	N/A		
	50mm Type 17 TEK Screw	600c/c	600c/c	300c/c		
	50mm Type 17 Bugle Head	600c/c	600c/c	300c/c		
and						
Batten to LVL Splines	**70mm Type 17 Tek or Bugle Head**	Each LVL Spline	N/A	N/A		
	#14-10 x 100 Type 17 Bugle Head	N/A	Each Spline	Each Spline		
and						
TIMBER 35x70 MGP10 to TIMBER	**Scew Nail - 2/2.5x90mm HDG**	300c/c	N/A	N/A		
	90mm Type 14 Screw	600c/c	450c/c	N/A		
	90mm Type 17 TEK Screw	600c/c	600c/c	300c/c		
	90mm Type 17 Bugle Head	600c/c	600c/c	300c/c		

1* All Batten Types and Spacings to be determined by the Cladding used, above are typical specs only, Engineer to confirm.

2* Ensure minimum 35mm fixing embedment into timber

3* DO NOT OVERDRIVE SCREWS INTO OSB - Set your drills gears to suit. Overdriving screws will not be effective

4* Ensure to provide positive fixings with 1 extra row of fixings at all windows and building corners into timber behind.

5* All other batten sizes and types, along with their fixings, are to be verified by the Projects Structural Engineer

6* Minimum Cladding weight allowed for in these Tables is **40 kg/m²**. Cladding outside the noted value may be accomodated with amendment to batten spacings. Obtain verification from the Projects Structural Engineer.

7* OSB used in SIPS Industries Products is 11mm thick with a density of 600kg/m³

8* Allow an Extra Row of battens at the lower end of the roof for an additional row of roof sheet fixings

9* Allow an extra row of fixings to battens along all edges of the roof

10* Maximum roof pitch of 35 degrees as per AS1684.2 and AS1684.3

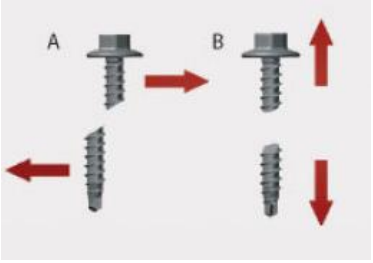
F.9 – Fixing Specifications

Fixings Specified in this Document					
SIPS PANEL FIXING SHEDULE					
Batten Type	**Fixing spec***	**Embedment (mm)**		**Axial Tensile Strength (kN)**	**Single Shear Shear (KN)**
		OSB	**Timber**		
Bugle Screw	14 - 10 Type 17	15	40	0.6	1.3
Tek Screw	12g - 50 + 70mm	15	40	0.8	N/A
Skew Nail (x2)	Coil Nails	70	40	0.3	0.9
Tek Screw 14g 50mm	14g - 50 + 70mm	15	40	0.7	1
Wood Screw	10-8x50mm	15	35	0.7	N/A

1. Appropriate safety factors should be applied for design purposes.
2. All values are avarage obtained under laboratory conditions.

A. Single Shear Strength (N)
The shear load required to break the screw

B. Axial Tensile Strength (N)
The tensile load required to break the screw



DESIGN CONSIDERATIONS

These Schedules are to be read in conjunction with the project specific structural engineering and SIPS Industries installation drawings, both of which will take precedence over this document.

CERTIFICATION

This document has been prepared by SIPS Industries and designed and certified by Engenuity Engineering. Codemark Certification by Certmark.

DISCLAIMER

These fixing schedules are resultant of testing specific to SIPS Industries Structural Insulation Panels, all rights reserved, reproduction of this data is not permitted.

CERTIFICATION

SIPS INDUSTRIES Products are Codemark Certified. The CodeMark Certification Scheme (the Scheme) is a voluntary third-party building product certification scheme that authorises the use of new and innovative products in specified circumstances in order to facilitate compliance with Volumes One and Two of the NCC, also known as the Building Code of Australia or BCA.

The certifiers have questioned and checked over every technical document, our fabrication procedures and audited our full processes. This gives confidence to our customers, certifiers, builders and ourselves. CodeMark provides confidence and certainty to regulatory authorities and the market through the issue of a Certificate of Conformity, which is one of several options available for meeting the 'evidence of suitability' requirements of the BCA.

ENGINEERING

SIPS fixings schedules have been tested for performance in all Australian Conditions by Engenuity Engineering, these schedules are specific to SIPS Industries Products and Systems.

SIPS – Ready Cut

READY-CUT is a SIPS INDUSTRIES patent pending product which is a standard set of SIPS Panel sizes. Ready Cut Panel dimensions are to be used at the design stage where standard panel sizes can be used to determine the building dimensions, and thus reduce the cost of the build by utilizing standard panel sizes and omitting wastage. This document is relevant for SIPs Ready Cut.

CODEMARK Australia CM40361 — SIPS Wall Panels

CODEMARK Australia CM40362 — SIPS Roof Panels

CODEMARK Australia CM40363 — SIPS Floor Panels

Fire Resistance Levels Certification

FRL for 60/60/60 and 90/90/90

Exova Warringtonfire Aus Pty Ltd
Suite 2002a, Level 20
44 Market Street
Sydney, New South Wales 2000
Australia

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W: www.exova.com

Testing. Advising. Assuring.

EWFA CERTIFICATE OF ASSESSMENT	CERTIFICATE No : SFC 27390-03	Page 1 of 1

Report Sponsor		Certificate Issue Date	Product Name
SIPS Industries 30a Renewable Chase Bibra Lake, WA 6163	CSR Gyprock Cemintel™ 376 Victoria Street, Wetherill Park NSW 2164, Australia	06/07/2018	**SIPS Panel Walls**

Assessment Report Reference	Referenced Standard	Report Issue Date	Report Validity Date
EWFA 27390-03	AS1530.4-2014	06/07/2018	31/01/2023

Introduction

The element of construction described below was assessed by this laboratory on behalf of the report sponsor in accordance with the stated test standard and achieved the results stated below. Refer to the referenced test report(s) or Regulatory Information Reports for a complete description of the assessed construction.

Summary of Assessed Fire Resistance

Wall Description	Wall System	FRL Performance
SIPS Panel wall clad with fire grade plasterboard	SIPS + 1 × 13mm and 1 × 16mm CSR Fyrchek	**60/60/60**
	SIPS + 2 × 13mm and 1 × 16mm CSR Fyrchek	**90/90/90**

The result of this assessment are applicable to walls exposed to fire from one side only, the side lined with Fire Resistant Plasterboard.
For a complete description of the assessed construction, refer to referenced assessment report EWFA 27390-03.

Conditions/Validity

- THIS CERTIFICATE IS PROVIDED FOR GENERAL INFORMATION ONLY AND DOES NOT COMPLY WITH THE REGULATORY REQUIREMENTS FOR EVIDENCE OF COMPLIANCE.
- Reference should be made to the relevant test report or regulatory information report to determine the applicability of the test result to a proposed installation. Full details of the constructions and justification for the conclusions given, along with the validity statements, are given in the assessment reports.
- The assessment report or short form assessment report does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the performance of the actual products supplied. It is intended to provide a brief outline of the above referenced assessment reports and not to replace them.
- The conclusions in this certificate of assessment relate to the configurations as detailed, and should not be applied to any other configuration. The conclusions expressed in this document assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- Full copies of the assessment and relevant test reports may be obtained from the sponsor.

TESTING AUTHORITY	Exova Warringtonfire Aus Pty Ltd
Address	Suite 2002a, Level 20, 44 Market Street, Sydney NSW 2000, Australia
Phone / Fax	+61 (0)2 8270 7600 / +61 (0)2 9299 6076
ABN	81 050 241 524
Email / Home Page	www.exova.com
Authorisation	Prepared By: O. Saad Reviewed By: C. M Mclean

Refer to SIPS Industries Typical Details Document S.05 Revision D – Detail # 214 – 217 Inclusive.

Thermal Properties of SIPS

SIPS 175mm Floor Panel

SIPS Floor – 175mm Thick Panel with minimum 11mm solid flooring.

(minimum 20mm flooring substrate including
11mm OSB which forms part of the floor panel)

RESULTS for SIPs Industries 175 Floor Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB3 External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	153	0.038	4.00
OSB3 Internal	640	11	0.12	0.09
Flooring (11mm Min)	700	11	0.12	0.09
Inside Air (still)				0.12

Prepared by Damien Madden – ZNRG **Total Resistance:** **R:4.4**

SIPS 115mm Panel

SIPS Wall – 115mm Thick Panel with minimum 13mm Plasterboard Internal Lining

(no external cladding is accounted for in this calculation)

RESULTS for SIPs Industries 115 Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB3 External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	93	0.038	2.38
OSB3 Internal	640	11	0.12	0.09
Plasterboard (13mm)	880	13	0.12	0.08
Inside Air (still)				0.12

Prepared by Alistair Brownlie – Thermarate **Total Resistance:** **R:2.8**

SIPS 145mm Panel

SIPS Wall – 145mm Thick Panel with minimum 13mm Plasterboard Internal Lining

(no external cladding is accounted for in this calculation)

RESULTS for SIPs Industries 145 Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB3 External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	123	0.038	3.15
OSB3 Internal	640	11	0.12	0.09
Plasterboard (13mm)	880	13	0.12	0.08
Inside Air (still)				0.12

Prepared by Alistair Brownlie – Thermarate **Total Resistance:** **R:3.57**

SIPS 165mm Panel

SIPS Wall – 165mm Thick Panel with minimum 13mm Plasterboard Internal Lining

(no external cladding is accounted for in this calculation)

RESULTS for SIPs Industries 165 Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB3 External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	143	0.038	3.66
OSB3 Internal	640	11	0.12	0.09
Plasterboard (13mm)	880	13	0.12	0.08
Inside Air (still)				0.12

Prepared by Alistair Brownlie – Thermarate **Total Resistance:** **R:4.08**

SIPS 175mm Panel

SIPS Wall – 175mm Thick Panel with minimum 10mm Plasterboard Internal Lining

(no external cladding is accounted for in this calculation)

RESULTS for SIPs Industries 175 Roof Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	153	0.038	4.00
OSB Internal	640	11	0.12	0.09
Plasterboard Lining	880	10	0.12	0.08
Inside Air (still)				0.12

Prepared by Damien Madden – ZNRG **Total Resistance:** **R:4.4**

SIPS 215mm Panel

SIPS Wall – 215mm Thick Panel with minimum 10mm Plasterboard Internal Lining

(no external cladding is accounted for in this calculation)

RESULTS for SIPs Industries 215 Roof Panel

Element	Density (Kg/m³)	Thickness (mm)	Conductivity (W/mK)	Resistance (R)
Outside Air (7m/s)				0.04
OSB External	640	11	0.12	0.09
RMAX EPS – SL Grade	13.5	193	0.038	4.94
OSB Internal	640	11	0.12	0.09
Plasterboard Lining	880	10	0.12	0.08
Inside Air (still)				0.12

Prepared by Alistair Brownlie – Thermarate **Total Resistance:** **R:5.36**

Acoustic Performance of Intertenancy Walls

Acoustic Certificate – REPORT # ALA 12-089-2

SIPS Intertenancy walls achieve Rw64 (-2)(-7) - The Laboratory Test Certificate Below is sufficient for DtS.

Contact SIPS Industries for further reports that do not require certification.

ACOUSTIC LABORATORIES AUSTRALIA PTY LTD

Unit 3/2 Hardy Street
South Perth 6151
Tel: 9474 4477
Fax: 9474 5977

AIRBORNE SOUND TRANSMISSION LOSS

ALA Test No.: 12-089-2
Project: SIPS Insulated Cavity Party Wall
Specimen: 112mm SIPS Panel

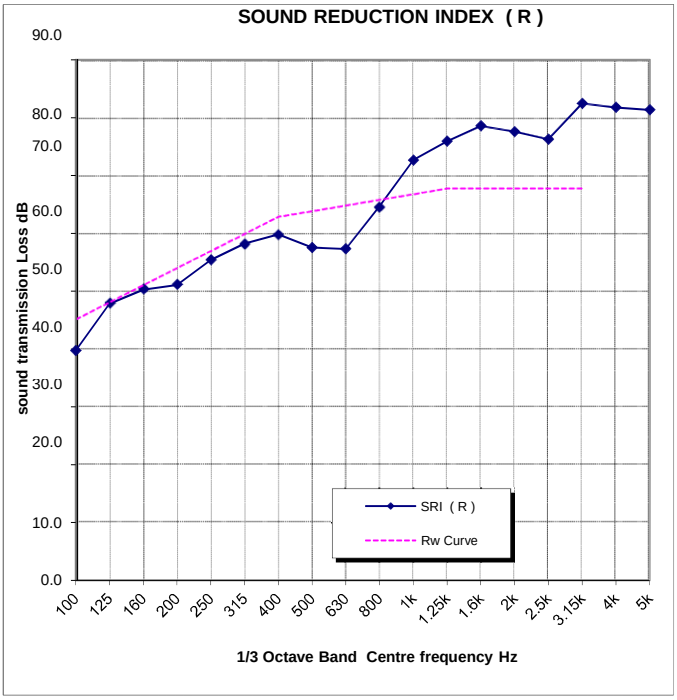
Description of Specimen:

Meas. Date: 2012 Jun 25

13 + 16mm CSR Fyrchek Plasterboard
112mm SIPS Panel
11 mm OSB (Orientated Strand Board)
90mm Poystyrene board
11 mm OSB
Overall thickness (mm): 322
40mm Cavity with 50mm fibreglass insulation @ 14 kg/m3
112mm SIPS panel
13 + 16mm CSR Fyrchek Plasterboard

	Rw	C	Ctr	Tested to
Weighted Sound Reduction Index	**64**	**-2**	**-7**	AS1191

Centre Frequency Hz	SRI (R) dB	Rw Curve dB	Deficiencies dB
100	39.7	45	5.3
125	47.8	48	0.2
160	50.3	51	0.7
200	51.1	54	2.9
250	55.4	57	1.6
315	58.2	60	1.8
400	59.8	63	3.2
500	57.5	64	6.5
630	57.3	65	7.7
800	64.7	66	1.3
1k	72.6	67	
1.25k	75.9	68	
1.6k	78.6	68	
2k	77.6	68	
2.5k	76.3	68	
3.15k	82.5	68	
4k	81.8		
5k	81.3		
		Total	
Rw	64		31.1



Signatory: .. Date: 26 June 12 Kingsley Hearne .

Tester: N Gabriels B.Arch, MAAS Checked: K Hearne B.Arch, MAAS

Refer to SIPS Industries Typical Details Document S.05 Revision D – Detail # 216

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