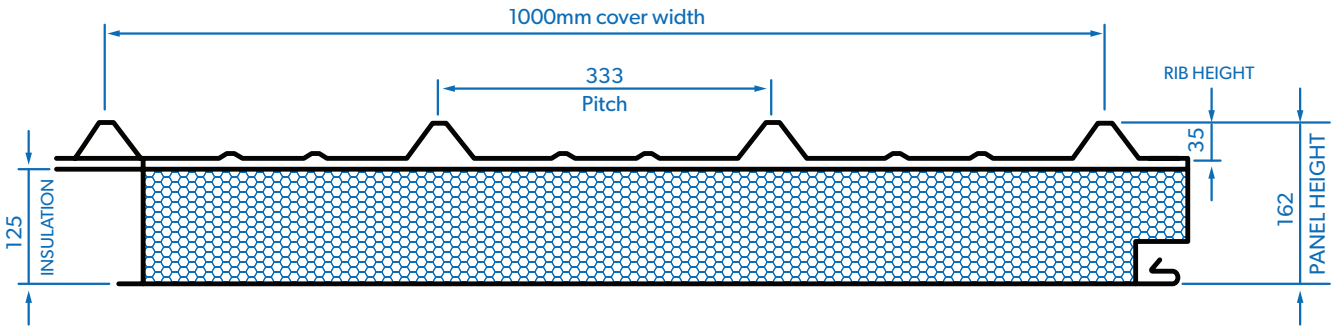
PERMALITE® aluminium ALSULATE 125® Data Sheet

ALSULATE 125® PROFILE DIMENSIONS



PRODUCT DESCRIPTION & FEATURES

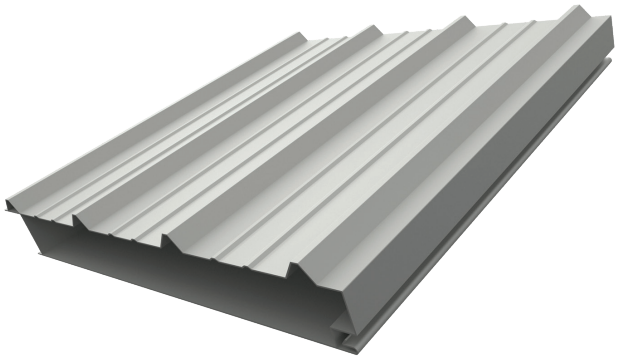
ALSULATE 125® manufactured from PERMALITE® aluminium is an insulated panel system, combining the corrosion resistance of marine grade aluminium with the exceptional thermal properties of a sandwich panel. The clever composite panel design incorporates both roofing and a prefinished ceiling to provide outstanding watertightness, durability and stunning aesthetics.

The self-mating panels, with their large free span capacities combine to provide a clean crisp uninterrupted ceiling finish, reducing the number of unsightly support beams normally associated with traditional roofing methods.

ALSULATE 125® insulated roof panels are easily incorporated into all forms of construction with the added benefit of meeting the building regulations insulation requirements. With its unrivalled sustainability and durability credentials, ALSULATE 125® makes it easy to specify roofing for your next project.

Other features include:

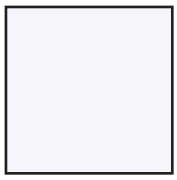
- Insulation ratings of R3.4 Winter and R3.3 Summer
- Can be used for both roofing and walling applications
- Marine grade aluminium top and bottom skins
- High strength / light weight
- May be used in roof pitches as low as 1 degree (1 in 57)
- Free spans of up to 6.4m



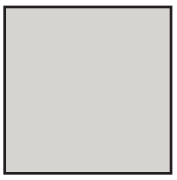
Thickness Range (BMT):	0.70mm top and bottom skins
Length Range:	2.0m to 14.0m
Pan Cross Section area:	30,537mm²/metre sheet width
Tolerances:	Length +0mm, -15mm Width ±2.0mm
Finishes:	Painted

Colour Availability

The following PERMALITE® aluminium standard polyester paint colours are applied to the coiled sheet by reverse roller coating and heat curing on BlueScope paint lines employing the latest painting technology.



TOP SKIN
Glacier White™



BOTTOM SKIN
Gull Grey™

Other colours/fluorocarbon paints are available upon request and subject to MOQ's.

DESIGN AND INSTALLATION

ALSULATE 125® manufactured from PERMALITE® aluminium span capacity tables are based on data in accordance with AS/NZS 1170.2:2002 Structural design actions – Wind actions. Wind classes nominated are in accordance with AS4055-2012 Wind loads for housing.

These tables and all installation data/details can be found in the Permalite Aluminium Roofing Solutions manual, available for download at www.permalite.lysaght.com

PROFILE PROPERTIES

Thickness (mm)	kg/m² Cover width (Mill finish)	kg/m Length (Mill finish)	m²/tonne (Mill finish)
0.7 (top skin)	6.423	6.423	156
125 (EPS)			
0.7 (bottom skin)			

MATERIAL SPECIFICATION

The top and bottom skins of ALSULATE 125® manufactured from PERMALITE® aluminium is produced from marine grade aluminium 5251 and 5052 H38 temper to AS/NZS 1734:1997 Aluminium and aluminium alloys – Flat sheet, coiled sheet and plate.

The 125mm EPS (expanded polystyrene) foam core is produced in accordance with the following standards:

- **AS 2498.3-1993 Methods of testing rigid cellular plastics** – Determination of compressive stress
- **AS 2498.4-1993 Methods of testing rigid cellular plastics** – Determination of cross-breaking strength
- **AS 2498.5-1993 Methods of testing rigid cellular plastics** – Determination of water vapour transmission rate
- **AS 2498.6-1993 Methods of testing rigid cellular plastics** – Determination of dimensional stability
- **AS 2464.5-1985 Methods of testing thermal insulation** – Steady-state thermal transmission properties by means of the heat flow meter
- **AS 2464.6-1983 Methods of testing thermal insulation** – Steady-state thermal transmission properties by means of the guarded hot plate
- **AS 2122.1-1993 Combustion characteristics of plastics** - Determination of flame propagation - Surface ignition of vertically oriented specimens of cellular plastics

CHEMICAL COMPOSITION OF 5251 AND 5052

(% max except where range is given)

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	
									Each	Total
5251	0.40	0.50	0.15	0.10-0.50	1.70-2.40	0.15	0.15	0.15	0.05	0.15
5052	0.25	0.40	0.10	0.10	2.20-2.80	0.15-0.35	0.10	0.15	0.05	0.15

CHARACTERISTICS OF 5251 AND 5052

Corrosion Resistance:	Excellent
Anodising:	Fair (finish cannot be guaranteed to meet the requirements of AS 1231:2000 Aluminium and Aluminium Alloys – Anodised Coatings for Architectural Applications)
Formability:	Very Good
Machinability:	Fair
Weldability:	Very Good
Brazeability:	Poor

ALLOY MECHANICAL PROPERTIES

The following properties are typical of mill finish, unpainted sheet.

Alloy	5251	5052
Temper	H38	H38
Minimum Yield Strength (Mpa)	225	220
Ultimate Tensile Strength (MPa)	260	270
Elongation (0.70 BMT)	3%	3%
Elongation (0.90 BMT)	4%	4%
Elongation (1.20 BMT)	4%	4%

EPS FOAM CORE PROPERTIES

Physical Property	**Unit**	**Class**						**Test Method**
		L	**SL**	**S**	**M**	**H**	**VH**	
Compressive stress at 10% deformation min.	kPa	50	70	85	105	135	165	AS2498.3
Cross - breaking strength; min.	kPa	95	135	165	200	269	320	AS2498.4
Rate of water vapour transmission; max. - measured parallel to rise at 23°C	µg/m²s	710	630	580	520	460	400	AS2498.5
Dimensional stability of length; max.: at 70°, dry conditions: 7 days	per cent	1.0	1.0	1.0	1.0	1.0	1.0	AS2498.6
Thermal resistance (min.) at a mean temperature of 25°C (50mm sample)	m²K/W	1.0	1.13	1.17	1.2	1.25	1.28	AS2464.5 or AS 2464.6
Flame propagation characteristics:								AS2122.1
- median flame duration; max.	seconds	2.0	2.0	2.0	2.0	2.0	2.0	
- eighth value; max.	seconds	3.0	3.0	3.0	3.0	3.0	3.0	
- median volume retained;	per cent	15	18	22	30	40	50	
- eighth value; min.	per cent	12	15	19	27	37	47	

THERMAL PROPERTIES

Coefficient of thermal expansion: 23.9 x 10^{-6} per °C
(approximately 1.17mm/m over 50°C temperature change).

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