SOLARIS

BY MiiHOME

TECHNICAL INFORMATION

THE MOST EXCITING ADVANCE IN INSULATED PANELS IN YEARS

SOLARIS

SOLARIS

BY MiiHOME

Manufactured by MiiHome, Solaris™ is one of Australia's most innovative next generation building panels and building systems.

Since its inception in 1986 this leading brand has developed an unparalleled reputation within the building industry for high quality products that continually set new benchmarks in improving industry standards.

Based in southeast Queensland, MiiHome is the leading national manufacturer and supplier of structural insulated panels used as architectural cladding to walls and roofing for commercial, industrial, agricultural and residential applications.

The award-winning Solaris™ range comprises a selection of sheet profiles available in varying thicknesses and customised lengths.

Each product line is renowned for its contemporary all-in-one design, continuous long span manufacture, commercial grade flatness and precise tolerances. The panels offer superior performance in structural capacity, insulation properties and cyclonic wind resistance as well as ease of installation.

Solaris™ panels are manufactured exclusively with COLORBOND® steel, Australia's only locally produced steel sheeting, and one of the world's most advanced building materials.

Tried and tested over the past 45 years in some of the harshest climates across Australia, COLORBOND® steel's durable baked-on paint finish resists chipping, peeling and cracking, and delivers outstanding anti-corrosion, long life, low maintenance performance.

Available in a wide range of contemporary colours, COLORBOND® utilises Thermatech® technology which optimises the solar reflectance properties of the painted steel finish, further improving the thermal performance characteristics of Solaris™ panels.

Solaris'™ structural integrity has resulted in the development of the patented Solaris™ Building System suited to commercial and residential applications up to two storeys high. It has the ability to create robust, high performance buildings with reduced need for skilled tradesmen during erection, equating to cheaper, simpler and quicker construction, and overall improved building performance.

MAIN MENU

FAQs

WHAT ARE SOLARIS™ PANELS MADE OF?

All Solaris™ panels are made from the highest quality materials including BlueScope COLORBOND® steel skins and fire retardant expanded polystyrene cores.

WHAT SIZES ARE SOLARIS™ PANELS AVAILABLE IN?

SmoothPanel is 1200mm wide and can be up to 250mm thick and up to 16mt long; RidgePanel and CorroPanel are 1000mm wide (plus top skin overlap) and can be up to 200mm thick and up to 16 metres long; AgPanel is 1000mm wide (plus top skin overlap) and can be up to 100mm thick and up to 16 metres long.

WHAT COLORS ARE SOLARIS™ PANELS AVAILABLE IN?

SmoothPanel, RidgePanel and CorroPanel are available in several options from the standard COLORBOND® range which are frequently updated. Please refer to your Solaris™ representative for details and samples of the current colour choices. AgPanel is only available in COLORBOND® Surfmist.

DOES SOLARIS™ OFFER AN INSTALLATION SERVICE?

No, however your Solaris™ representative will be able to recommend an experienced installer in your area.

CAN I WALK ON THE ROOF PANELS ONCE INSTALLED?

Yes, the roof panels are designed to withstand up to 140kg over the supported area of roof only (i.e. No loads are permitted on the unsupported overhang section of roofs).

CAN I CUT THE PANELS ON SITE?

Yes, the panels can be cut with either nibblers, a cold cut saw or any other cutting methods approved by BlueScope.

CAN I FIT A CEILING FAN TO MY ROOF?

Yes, any domestic grade electrical appliance can be face-fixed to the ceiling side of a panel roof.

ARE HIP AND VALLEY ROOF DESIGNS SUITABLE FOR PANEL ROOFING?

Skillion and gable roof designs are most economical for panel roofing. Generally, most houses can be (re) designed to satisfy this requirement and maintain their aesthetic appeal. However, it is possible to use panel roofing on hip and valley roof designs if necessary.

CAN I RUN ELECTRICAL SERVICES WITHIN A PANEL ROOF?

Yes, a services void is provided at the panel join to facilitate running of electrical wires. Of course these should only be installed by a suitably qualified electrician.

HOW DO I MAINTAIN MY SOLARIS™ PANELS IN TOP CONDITION?

Ensure your Solaris™ panels are installed as per the manufacturer's recommendations and any exterior metal surfaces that are not exposed to "washing down" by rain should be manually washed down once per year to avoid build-up of corrosive materials or pollutants.

WHAT WARRANTIES ARE PROVIDED WITH MY SOLARIS™ PRODUCTS?

A comprehensive manufacturer's warranty is provided for all Solaris™ panels for up to 15 years.

IS IT POSSIBLE TO REPAIR DAMAGE TO THE COLORBOND® PAINT SKINS?

Yes, in a similar manner to an automotive repair regime. Dents are filled using a plastic resin body filler, sanded and then painted. Scratches are sanded and painted. COLORBOND® repair paints are available from your local COLORBOND® stockists and most large hardware stores.

ARE SOLARIS™ PANELS RESISTANT TO VERMIN ATTACK?

EPS has absolutely no nutritional value as a food source so will not attract vermin. We do however recommend that you maintain a suitable pest control regime to prevent vermin from burrowing into or through the EPS core.

FAQS

CAN I USE DIFFERENT COLOUR SKINS ON TOP AND BOTTOM PANEL SURFACES?

Yes, subject to minimum order quantities and colour selection. Darker colours may not be suitable for use in certain hot arid regions where the COLORBOND® skin temperature could exceed 80 degrees celcius. Refer to your Solaris™ representative for confirmation of the colours suited to your application.

WHAT ARE THE ACOUSTIC PROPERTIES OF SOLARIS™ PANELS?

Solaris™ panels provide a similar acoustic performance to lightweight stud walls commonly used in residential applications. Improved acoustic performance can be achieved by application of select linings. Refer to you Solaris™ representative for more detail.

DOES CONDENSATION FORM ON THE INNER SKIN OF SOLARIS™ PANELS IN EXTREME HOT OR COLD CONDITIONS?

This will not occur if moist air is prevented from entering the inside of the building. The EPS insulated core prevents thermal bridging occurring between the outer and inner skins, so even if a considerable temperature difference exists between the inside and outside, condensation will not occur. A dry internal environment can be assured in humid climates by incorporating specific design features including entry air locks, ventilation, refrigerative rather than evaporative air conditioning.

Fire retardant expanded polystyrene core

Automated continuous line manufacturing

Industry-best 15 year manufacturer's warranty

High thermal efficiency well above standard

Hygienic – manufactured with antibacterial paint technology

Fast and easy to install, aesthetically pleasing

Panels maintain profile integrity, do not shard or disintegrate

ABOUT | SPECIFICATION | PROFILE OPTIONS

SPAN TABLES | PARTICULARS | PACKING & DELIVERY

MAIN MENU

SMOOTHPANEL

MULTI PURPOSE PANELS

The SmoothPanel system comprises insulated building panels optimised for a range of applications including walls, ceilings, structural floors and partitioning.

SmoothPanel's high quality, commercial class flatness, range of thickness, customised lengths and ease of installation make it an ideal building panel for projects of any scale.

Each panel encompasses COLORBOND® pre-finished galvanised dual skins with an insulated core and a weather-tight tongue and groove jointing system. SmoothPanels can also be provided with rebated service ducts running the length of the panel within the EPS core to facilitate installation of services.

SmoothPanel skins are available with plain, ribbed, satinline or 'VJ' profiles.

Available in a standard colour range offering a wide variety of thermally efficient semi gloss COLORBOND® finishes, SmoothPanel eliminates the need for additional external cladding or internal linings. Alternative colours from the COLORBOND® range can also be selected, subject to availability, quantity and thermal suitability.

Utilising industry leading CNC routing equipment in conjunction with robotic automation, panels can be precut to profiles of any size and shape. This pre-trimming service results in less onsite waste, reduced rubbish removal costs, and the ability to readily recycle offcuts.

SmoothPanel insulated wall and ceiling panels incorporate antibacterial coatings suitable for hygiene and temperature-controlled enclosures including cold rooms, food processing facilities and customised refrigerated truck bodies.

SmoothPanel sets a new benchmark for insulted building panels through high quality manufacture, an aesthetically appealing finish, versatility and 15 year manufacturer's warranty.

TECHNICAL SPECIFICATIONS

Thickness	50 to 250mm
Minimum Length	1800mm
Maximum Length	16000mm
Width/Coverage	1200mm
Thermal Performance/R value	up to 6.8m2K/W

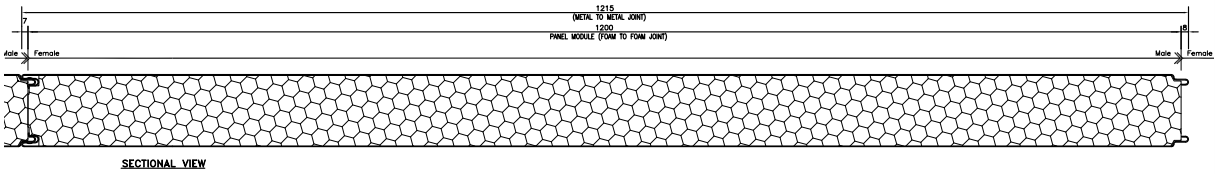
COLOUR RANGE

1. Classic Cream
2. Surfmist (0.4 and 0.6 gauge steel)
3. Paperbark*
4. Evening Haze*
5. Shale Grey*
6. Dune*
7. Pale Eucalypt*

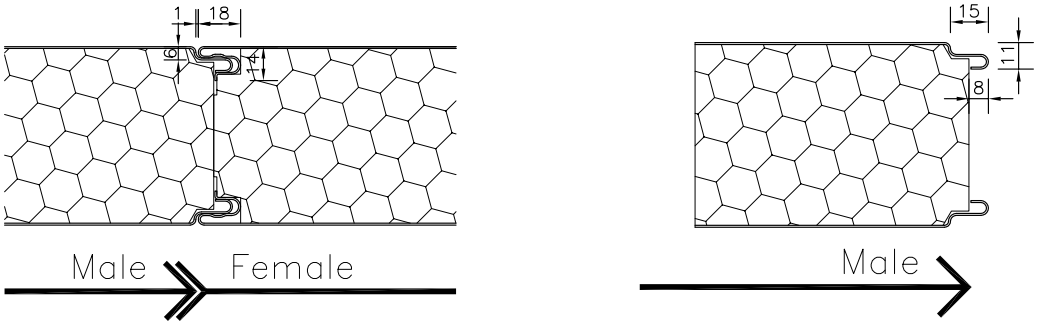
* Limited stock (extended lead time)

The COLORBOND® steel colours shown have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing, as light conditions and limitations of the printing process may affect colour tones. © 2008 BlueScope Steel Limited. ABN 16 000 011 058.

SPECIFICATION



SECTIONAL VIEW



WIDTH OF MODULE

1200mm

THICKNESS

50mm, 75mm, 100mm, 150mm, 200mm, 250mm

LENGTH

Minimum: 1800mm
Maximum: 18,000mm
Subject to transport and handling consideration

CORE

SL grade Expanded Polystyrene (EPS) AS 1366.3 (1992)'

OPTIONAL CORE GRADES

S, M, H, VH

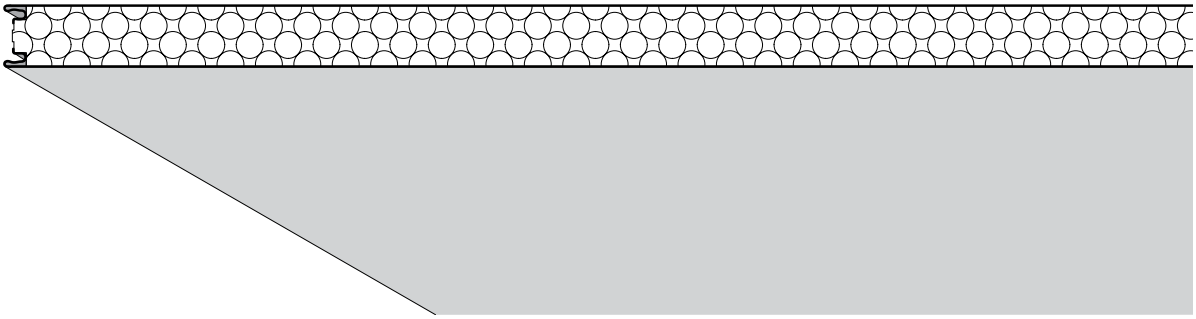
BCA MATERIALS GROUP CLASSIFICATION

Group 1, 2, or 3 depending on fixings. Certificate available on request.

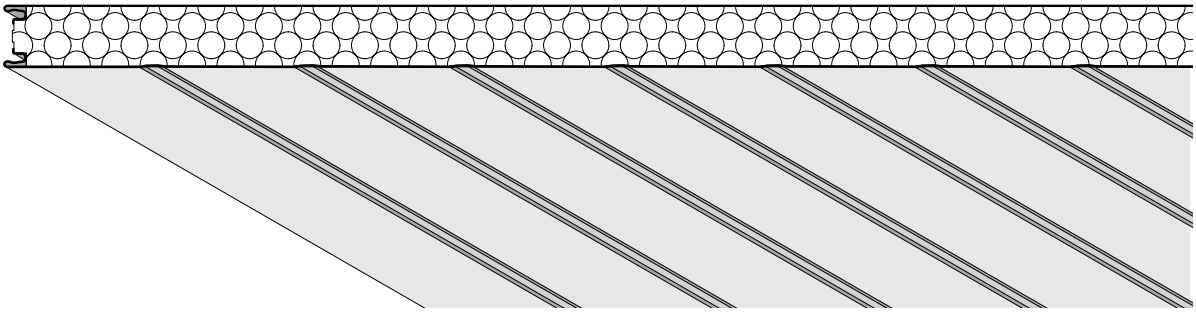
- Solaris™ SmoothPanel is manufactured in pre-painted galvanised steel skins bonded both sides to a core of fire retardant treated polystyrene foam by a two part heat polymerising adhesive.
- SmoothPanel is the highest standard for use in food preparation and processing areas.
- Impervious smooth skins manufactured with a Microban® anti-bacterial paint technology – proven to inhibit the growth of surface bacteria that cause odours, food poisoning, allergies and staining – this technology also helps to protect difficult-to-clean areas, reduces the risk of cross contamination between cleaning, and does not wash off.
- This product is HACCP endorsed.
- Microban® is tested effective against Staphylococcus aureus and Escherichia coli 0157.

PROFILE OPTIONS

'PLAIN'

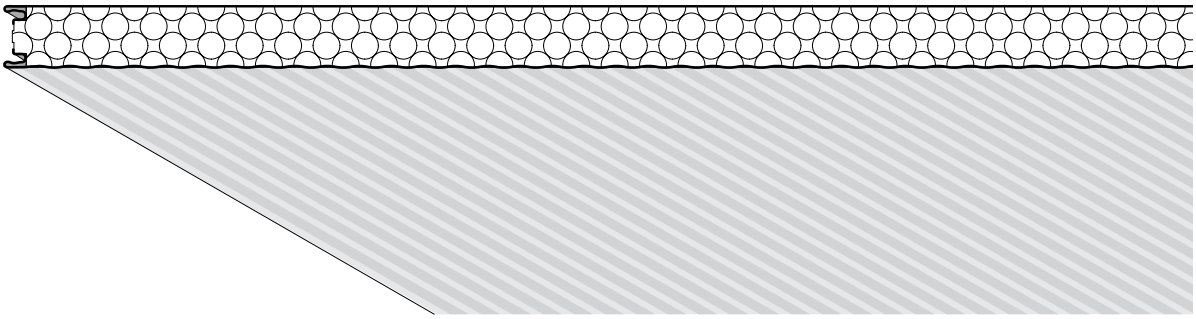


'RIBBED'



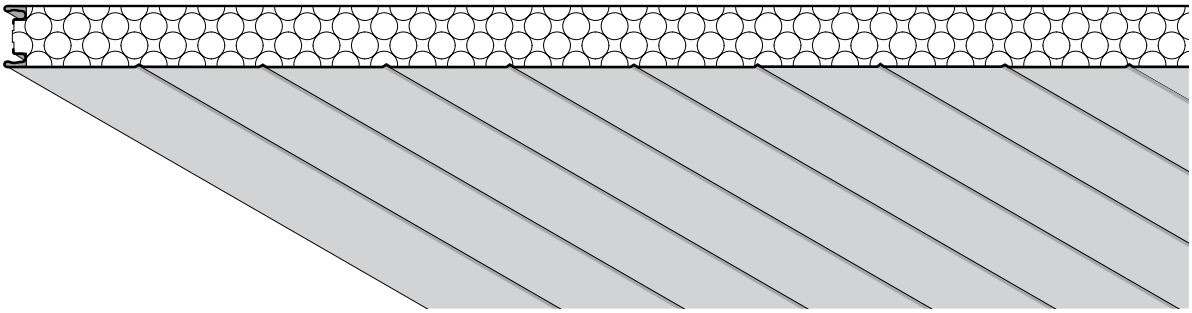
'SATINLINE'

Special profile subject to order quantity and pricing



'V.J.'

Special profile subject to order quantity and pricing



SPAN TABLES – 0.4mm

ULTIMATE LOAD CAPACITY/DEFLECTION LOAD TABLE (KPA) 0.4MM EPS

Span (m)	Panel thickness (mm)					
	50	75	100	150	200	250
1.0						
1.5						
2.0	2.99 (1.69)					
2.5	1.91 (1.18)	2.87 (2.23)	3.82 (3.20)			
3.0	1.33 (0.84)	1.99 (1.66)	2.66 (2.43)	3.15 (3.15)		
3.5	0.98 (0.62)	1.46 (1.26)	1.95 (1.88)	2.31 (2.31)	3.08 (3.08)	
4.0	0.75 (0.47)	1.12 (0.97)	1.49 (1.48)	1.77 (1.77)	2.36 (2.36)	2.95 (2.95)
4.5	0.59 (0.36)	0.89 (0.76)	1.18 (1.18)	1.40 (1.40)	1.86 (1.86)	2.33 (2.33)
5.0	0.48 (0.28)	0.72 (0.61)	0.96 (0.96)	1.13 (1.13)	1.51 (1.51)	1.89 (1.89)
5.5	0.40 (0.22)	0.59 (0.49)	0.79 (0.78)	0.94 (0.94)	1.25 (1.25)	1.56 (1.56)
6.0	0.33 (0.18)	0.50 (0.40)	0.66 (0.65)	0.79 (0.79)	1.05 (1.05)	1.31 (1.31)
6.5		0.42 (0.33)	0.57 (0.54)	0.67 (0.67)	0.89 (0.89)	1.12 (1.12)
7.0		0.37 (0.28)	0.49 (0.45)	0.58 (0.58)	0.77 (0.77)	0.96 (0.96)
7.5			0.42 (0.38)	0.50 (0.50)	0.67 (0.67)	0.84 (0.84)
8.0			0.37 (0.33)	0.44 (0.44)	0.59 (0.59)	0.74 (0.74)
8.5				0.39 (0.39)	0.52 (0.52)	0.65 (0.65)
9.0					0.47 (0.47)	0.58 (0.58)

The above table lists the ultimate wind load pressure for the strength design and the pressure corresponding to a Span/150 single span deflection ratio for panels with 0.4mm thick G300 steel skins boded to 'SL' grade expanded polystyrene core. The designer shall determine if the Span/150 deflections ratio is appropriate for the intended use. Loads for a more stringent deflections ratio can be determined by linearly proportioning the loads provided. Differential thermal effects are NOT incorporated in the loads provided.

Notes
- Capacity Reduction Factor: 0.9
- Results compiled by tests from: Solaris™
- Date tested: January, 2010
- Reference: 09098-2

SPAN TABLES – 0.6mm

ULTIMATE LOAD CAPACITY/DEFLECTION LOAD TABLE (KPA) 0.6MM EPS

Span (m)	Panel thickness (mm)					
	50	75	100	150	200	250
1.0						
1.5						
2.0	4.35 (1.86)					
2.5	2.78 (1.34)	4.17 (2.46)	5.56 (3.45)			
3.0	1.93 (0.99)	2.90 (1.88)	3.86 (2.69)	5.63 (4.35)		
3.5	1.42 (0.76)	2.13 (1.47)	2.84 (2.14)	4.14 (3.53)	5.52 (4.95)	
4.0	1.09 (0.58)	1.63 (1.17)	2.17 (1.73)	3.17 (2.91)	4.23 (4.13)	5.28 (5.28)
4.5	0.86 (0.46)	1.29 (0.94)	1.72 (1.41)	2.50 (2.43)	3.34 (3.34)	4.17 (4.17)
5.0	0.70 (0.37)	1.04 (0.76)	1.39 (1.16)	2.03 (2.03)	2.70 (2.70)	3.38 (3.38)
5.5	0.57 (0.29)	0.86 (0.63)	1.15 (0.97)	1.68 (1.68)	2.24 (2.24)	2.79 (2.79)
6.0	0.48 (0.24)	0.72 (0.52)	0.97 (0.82)	1.41 (1.41)	1.88 (1.88)	2.35 (2.35)
6.5		0.62 (0.44)	0.82 (0.69)	1.20 (1.20)	1.60 (1.60)	2.00 (2.00)
7.0		0.53 (0.37)	0.71 (0.59)	1.03 (1.03)	1.38 (1.38)	1.72 (1.72)
7.5			0.62 (0.50)	0.90 (0.90)	1.20 (1.20)	1.50 (1.50)
8.0			0.54 (0.43)	0.79 (0.79)	1.06 (1.06)	1.32 (1.32)
8.5				0.70 (0.70)	0.94 (0.94)	1.17 (1.17)
9.0				0.63 (0.63)	0.83 (0.83)	1.04 (1.04)

The above table lists the ultimate wind load pressure for the strength design and the pressure corresponding to a Span/150 single span deflection ratio for panels with 0.6mm thick G300 steel skins boded to 'SL' grade expanded polystyrene core. The designer shall determine if the Span/150 deflections ratio is appropriate for the intended use. Loads for a more stringent deflections ratio can be determined by linearly proportioning the loads provided. Differential thermal effects are NOT incorporated in the loads provided.

Notes
- Capacity Reduction Factor: 0.9
- Results compiled by tests from: Solaris™
- Date tested: January, 2010
- Reference: 09098-2

PANEL PARTICULARS

PANEL WEIGHTS

Skin thickness (mm)	Panel thickness (mm)					
	50	75	100	150	200	250
0.4	8.3	8.7	9.0	9.7	10.4	11.1
0.6	11.6	12.0	12.3	13.0	13.7	14.4
0.7	13.4	13.7	14.1	14.8	15.5	16.2

All dimensions are in kg/m^2 unless otherwise stated.

PANEL SPANS – INTERNAL APPLICATIONS

	Panel thickness (mm)					
0.6mm skin thickness	50	75	100	150	200	250
WALLS						
Supporting ceilings doors etc. (1 kPa UL)	4000	5000	5500	7000	8000	9000
Non load bearing	5400	6500	7500	9500	10500	11000
CEILINGS						
Light duty maintenance traffic	3600	4500	5000	6000	7000	7500

This table is for "typical" use of panel walls and ceilings within a larger fully enclosed building. Applications exposed to wind loads, should be designed by an engineer. Solaris™ has additional engineering data available for this purpose. An engineering assessment may optimise the design further. All dimensions are in mm unless otherwise stated.

U-VALUE (OVERALL HEAT TRANSFER CO-EFFICIENT)

Thermal conductivity

K-Value Class SL = 0.038 W/mK

Thickness (mm)	50	75	100	150	200	250
U-Value (W/m^{2}K)	0.76	0.51	0.38	0.25	0.19	0.15

BCA PART J ENERGY EFFICIENCY

Total R-Values included air films

Thickness (mm)	50	75	100	150	200	250
R-Value (m2K/W)	1.5	2.22	2.8	4.2	5.5	6.8

For additional information refer to Solaris™ SmoothPanel data sheets.

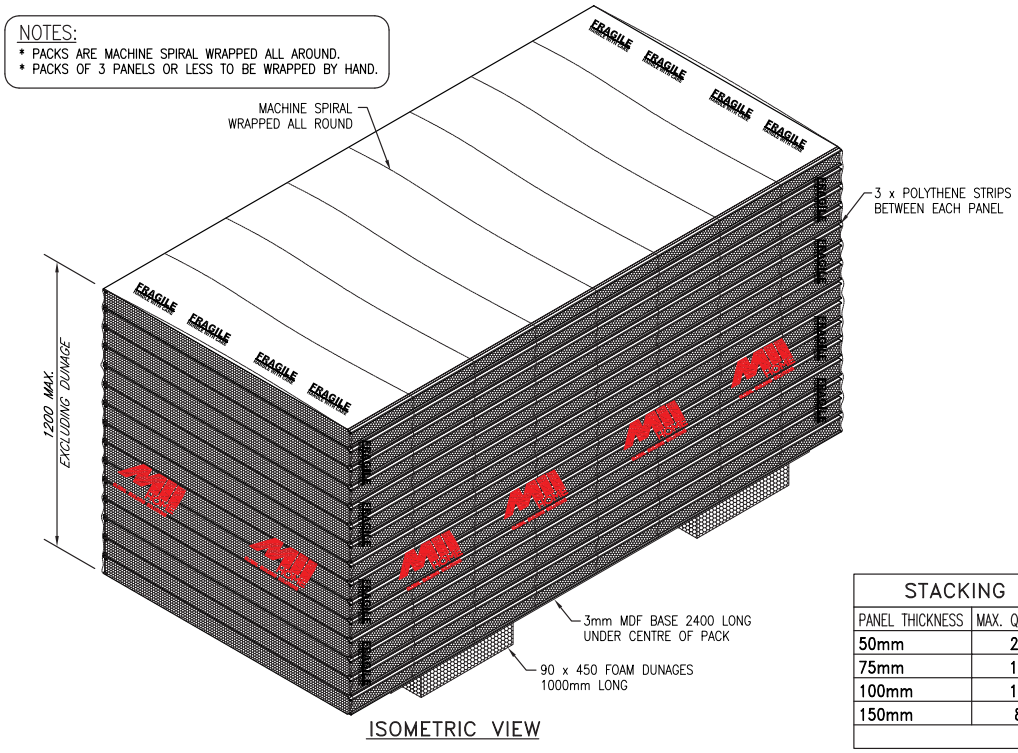
BCA C1.10A MATERIALS GROUP TO TEST STANDARDS ISO 9705 (FIRE TEST)

Panel thickness (mm)	Aluminium trims and fixings	Steel trims and fixings	Steel trims, fixing and ceiling stitch @ 1200c+s
Up to 150	2	2	1
175 to 200	3	2	1

Fire certificates are available upon request.

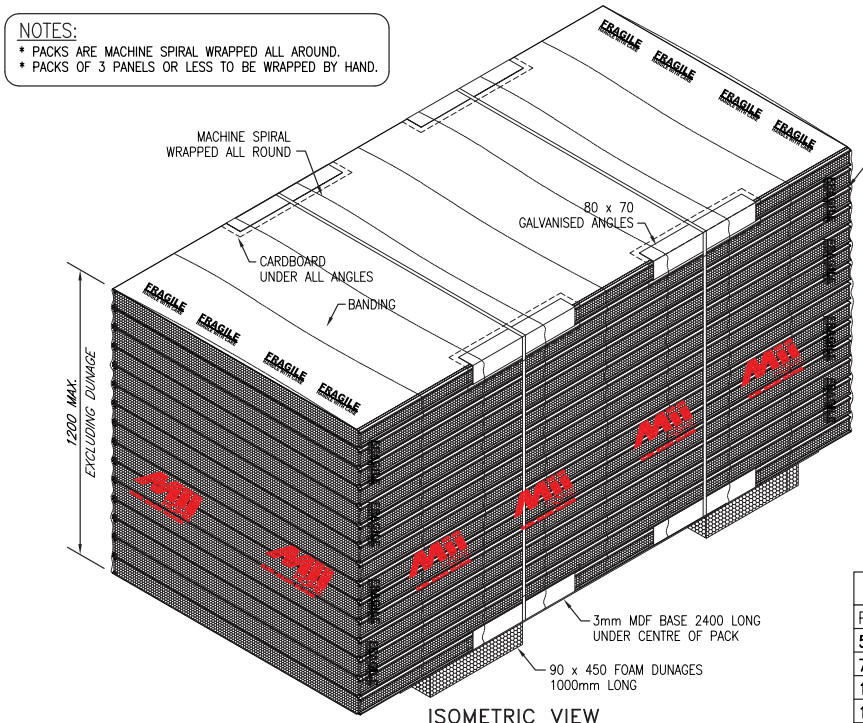
PACKING AND DELIVERY

SMOOTHPANEL STANDARD PACKING DETAIL



STACKING INFORMATION			
PANEL THICKNESS	MAX. QUANTITY	HEIGHT	WEIGHT m2
50mm	20	1000	11.6 kg
75mm	16	1200	12.0 kg
100mm	12	1200	12.3 kg
150mm	8	1200	13.0 kg
(PLUS 100mm FOR DUNAGES)			

SMOOTHPANEL LONG HAUL PACKING DETAIL

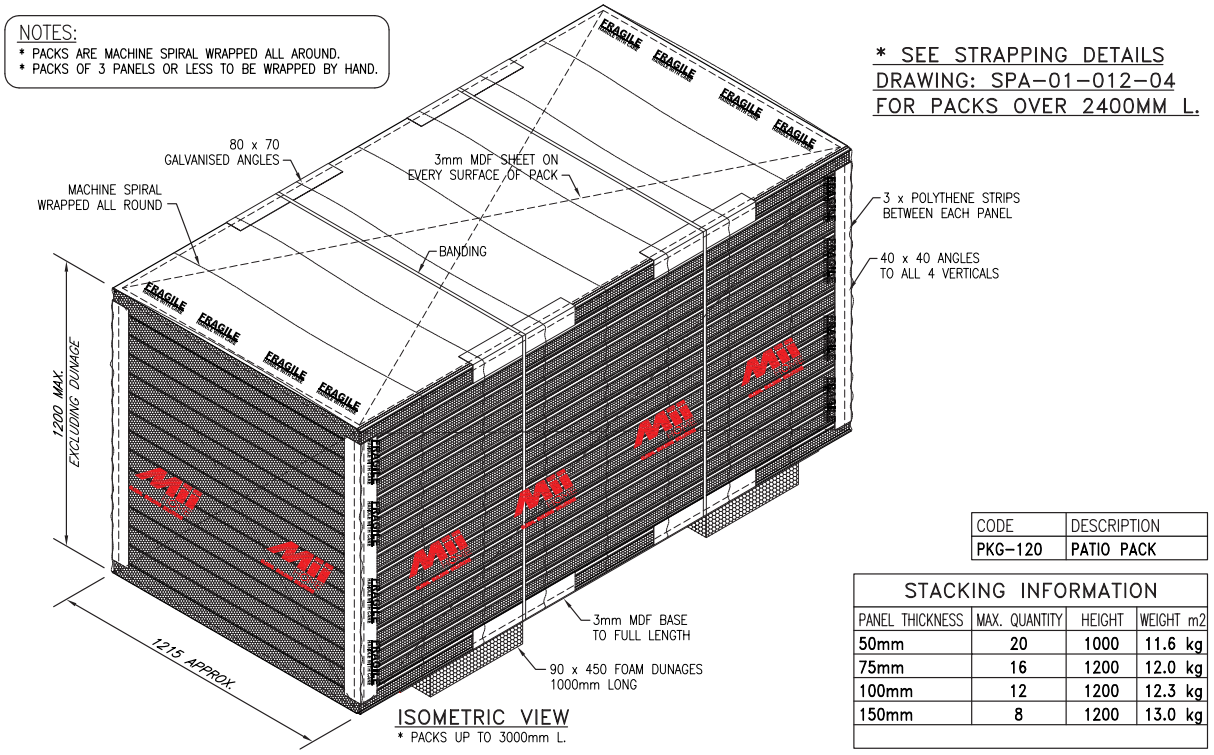


* SEE STRAPPING DETAILS DRAWING: SPA-01-012-04 FOR PACKS OVER 2400MM L.

CODE	DESCRIPTION
PKG-115	LONG HAUL PACK

STACKING INFORMATION			
PANEL THICKNESS	MAX. QUANTITY	HEIGHT	WEIGHT m2
50mm	20	1000	11.6 kg
75mm	16	1200	12.0 kg
100mm	12	1200	12.3 kg
150mm	8	1200	13.0 kg
* NOTE: * DIMENSIONS ARE IN "mm" * DO NOT SCALE			

SMOOTHPANEL PATIO PACK DETAIL



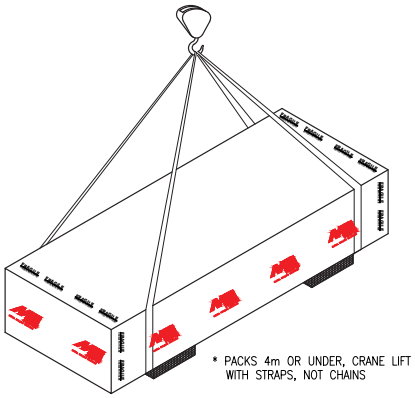
CODE	DESCRIPTION
PKG-120	PATIO PACK

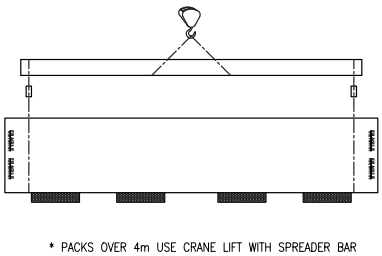
STACKING INFORMATION

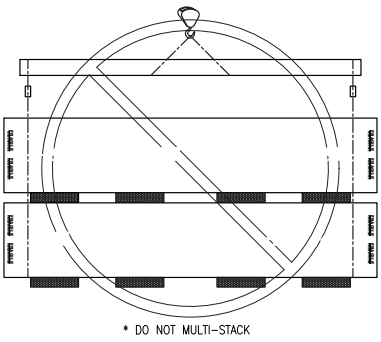
PANEL THICKNESS	MAX. QUANTITY	HEIGHT	WEIGHT m2
50mm	20	1000	11.6 kg
75mm	16	1200	12.0 kg
100mm	12	1200	12.3 kg
150mm	8	1200	13.0 kg

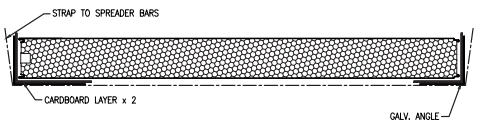
DELIVERY TO SITE/UNLOADING OF PANELS

Please refer to the detail below for unloading guidelines. Unloading of panels remains the responsibility of the client. Panels should always remain dry where possible during storage, kept off the ground to allow for adequate ventilation of the panel stack. DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.









CRANE LIFT - SLING PROTECTION DETAIL
(SAME DETAIL TO TOP - MIRROR REVERSED)

Fire retardant expanded polystyrene core

Automated continuous line manufacturing

Industry-best 15 year manufacturer's warranty

High thermal efficiency well above standard

Fast and easy to install, aesthetically pleasing

Panels maintain profile integrity, do not shard or disintegrate

ABOUT
SPECIFICATION
PROFILE OPTIONS
SPAN TABLES
PACKING & DELIVERY

MAIN MENU

RIDGEPANEL

TRAPEZOID PROFILE PANELS

RidgePanel demonstrates manufacturing innovation through an economical, three-in-one roofing system underpinned by a 15 year manufacturer's warranty.

Cutting edge technology enables the delivery of an architecturally appealing all-weather roof panel with a ridged profile, high performance insulation properties and a commercial-class flatness pre-finished ceiling for commercial, industrial and residential applications.

RidgePanel roofing incorporates a fire retardant treated core and is long spanning, reducing structural support requirements. The trapezoid profile provides additional strength and panels are energy efficient, durable, economical and quick and easy to install.

The ability to procure industry-leading large, unsupported spans reduces build and installation costs and the high-quality surface finish eliminates the need for ceiling linings and the associated battens, insulation, mesh, plasterboard, reflective foil and painting.

A range of ceiling skins are available with plain, satinline or 'VJ' profiles. Available in a range of standard COLORBOND® colours and industry best competitive pricing ensures RidgePanel is particularly suited to residential roofing, home additions and stand-alone structures including carports and pool pavilions.

Alternative colours from the COLORBOND® range can also be selected, subject to availability, quantity and thermal suitability.

RidgePanel can be provided with rebated service ducts running the length of the panel within the EPS core to facilitate installation of electrical services.

A pre-trimming service provided in the factory prior to delivery allows for efficient recycling of offcuts and consequently reduces onsite rubbish removal costs.

Applications also encompass architectural wall cladding, and RidgePanel sets a new benchmark for insulated paneling through high quality manufacture, an aesthetically appealing profile and versatility of use.

TECHNICAL SPECIFICATIONS

Thickness	50mm, 75mm, 100mm, 125mm, 150mm*
Minimum Length	2400mm
Maximum Length	16000mm
Width/Coverage	1000mm
Thermal Performance/R value	up to 4.3m²K/W

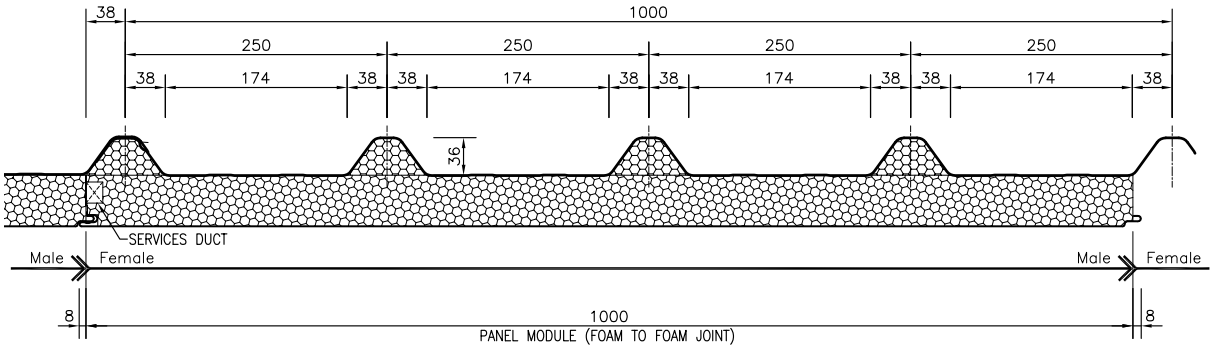
*Other thicknesses available on request

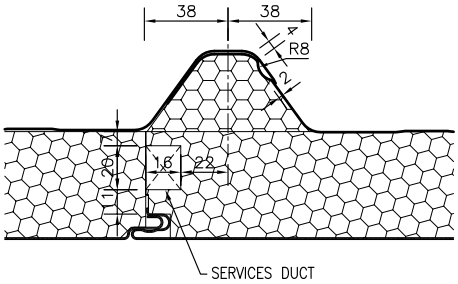
COLOUR RANGE

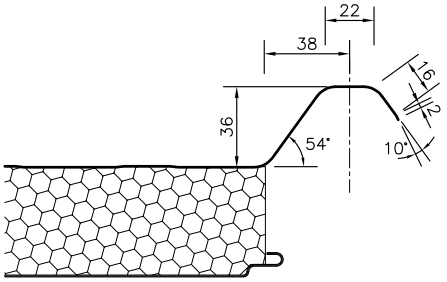
1. Classic Cream
2. Surfmist
3. Paperbark
4. Shale Grey
5. Dune
6. Pale Eucalypt
7. Woodland Grey
8. Deep Ocean

The COLORBOND® steel colours shown have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing, as light conditions and limitations of the printing process may affect colour tones. © 2008 BlueScope Steel Limited. ABN 16 000 011 058.

SPECIFICATION







WIDTH OF MODULE

1000mm

THICKNESS

Standard: 50mm, 75mm, 100mm, 125mm, 150mm

LENGTH

Minimum: 2400mm
Maximum: 16,000mm

RIB PROFILE

Trapezoidal 36mm profile height

PITCH (MINIMUM)

Single span: 1.5°*
Multi span: 5°
(see roof drainage chart)

SKINS

Roof: 0.42mm Hi-Tensile pre-painted COLORBOND® steel
Ceiling: 0.5mm pre-painted COLORBOND® steel

FLATNESS

The core sheets are finger jointed and drum sanded to give the flattest surface possible.

STANDARD CEILING FINISH

Strippable film to 'smooth' underside with commercial flatness**

CORE

SL grade expanded polystyrene (EPS) with void filled profile.

GUTTER CUT BACK

60mm, 80mm, 100mm

BCA MATERIALS GROUP CLASSIFICATION

Group 2 (Group 1 is available with additional fixings)

SPANS

Up to 9700mm (150mm at 0.5kpa ultimate design wind pressure.)

JOINTING SYSTEM

Tongue and groove joints.

EXPANSION JOINTS

Required every 16 metres max. Overhang 250mm at 5° minimum pitch.

HEAT LOAD

Maximum skin temperature 80°C.

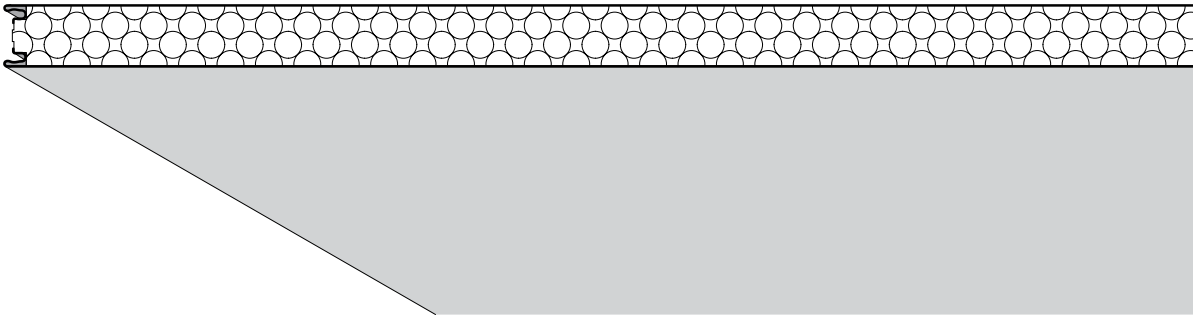
Notes
* Actual pitch achieved after deflection.
** Flatness appearance – 'Commercial': Surface deformations are faintly detectable to the eye when observed in artificial or direct light and are apparent to the eye when observed in low incident light.

CEILING PROFILE OPTIONS

PANEL PROPERTIES

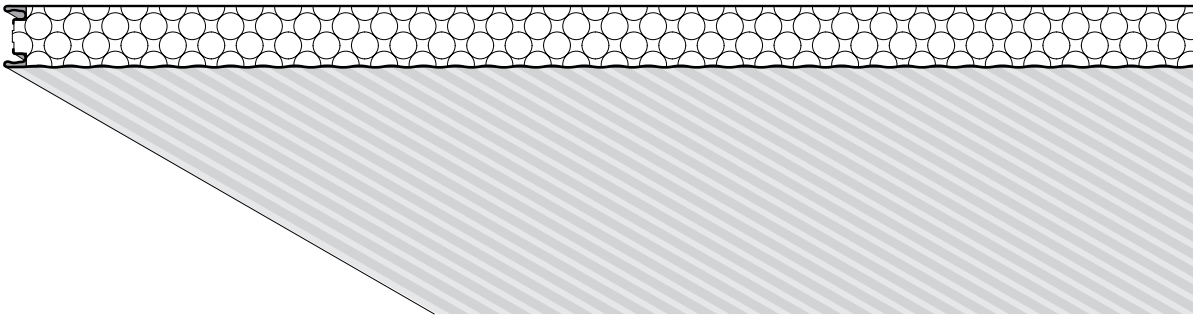
	Panel thickness (mm)				
	50	75	100	125	150
Weight (Kg/gm2)	10	10.3	10.7	11	11.3
R Value (m2K/W) Built up Systems: Roof	1.7	2.4	3.0	3.7	4.3

'PLAIN'



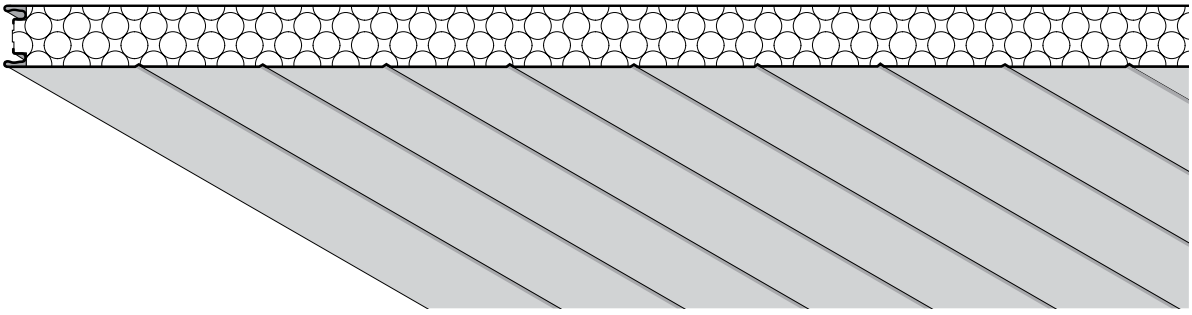
'SATINLINE'

Special profile subject to order quantity and pricing



'V.J.'

Special profile subject to order quantity and pricing

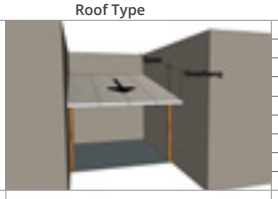
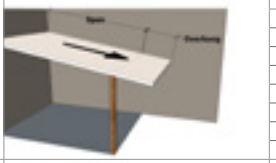


ROOFING PANEL SPAN TABLES

GENERAL STRUCTURES

Roof Type	Wind Class	Panel Thickness (mm) 50mm Max Span	50mm Max Overhang	75mm Max Span	75mm Max Overhang	100mm Max Span	100mm Max Overhang	125mm Max Span	125mm Max Overhang	150mm Max Span	150mm Max Overhang
Fully enclosed – Single Span 	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1900	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3800	1500	4100	1w650	4500	1800	4900	1950	5400	2150
	N4	3100	1250	3400	1350	3700	1450	3900	1550	4200	1650
	N5	2500	1000	2800	1100	3000	1200	3200	1250	3400	1350
	C1	2600	1050	3400	1350	3700	1450	4200	1650	4700	1850
	C2	2100	800	2800	1100	3000	1200	3300	1300	3700	1450
	C3	1700	650	2100	800	2400	950	2700	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850
Fully enclosed – Multi Span 	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1850	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3600	1400	3900	1550	4300	1700	4900	1950	5400	2150
	N4	3000	1200	3200	1250	3400	1350	3800	1500	4100	1600
	N5	2400	950	2700	1050	2900	1150	3100	1200	3300	1300
	C1	2500	1000	3100	1200	3700	1450	4200	1650	4700	1850
	C2	2000	800	2500	1000	3000	1200	3300	1300	3650	1450
	C3	1650	650	2000	800	2350	900	2650	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850

PATIO ROOFING

Roof Type	Wind Class	Panel Thickness (mm) 50mm Max Span	50mm Max Overhang	75mm Max Span	75mm Max Overhang	100mm Max Span	100mm Max Overhang	125mm Max Span	125mm Max Overhang	150mm Max Span	150mm Max Overhang
1 Side Open 	N1	5600	2250	6200	2450	6700	2650	7000	2800	7300	2900
	N2	4800	1900	5200	2050	5700	2250	6300	2500	6700	2650
	N3	3700	1450	4000	1600	4400	1750	5000	2000	5500	2200
	N4	3100	1250	3300	1300	3500	1400	3900	1550	4200	1650
	N5	2500	1000	2800	1100	3000	1200	3200	1250	3400	1350
	C1	2600	1050	3200	1250	3800	1500	4300	1700	4800	1900
	C2	2100	850	2600	1050	3100	1250	3400	1350	3700	1450
	C3	1750	700	2100	900	2450	950	2750	1100	3000	1200
	C4	-	-	-	-	-	-	2200	850	2300	900
2 Sides Open 	N1	5800	2300	6400	2500	6900	2700	7200	2900	7500	3000
	N2	4900	1900	5400	2150	6200	2400	7000	2700	7300	2900
	N3	3900	1500	4300	1700	5000	1900	5600	2200	5900	2300
	N4	3200	1250	3500	1350	4100	1600	4600	1800	4850	1750
	N5	2500	1000	2800	1100	3200	1250	3500	1400	3700	1400
	C1	3600	1400	4600	1600	5000	2000	5600	2200	5800	2250
	C2	2900	1150	3500	1400	4100	1600	4600	1800	4850	1750
	C3	2400	950	2900	1150	3300	1300	3700	1400	3900	1550
	C4	-	-	-	-	-	-	2700	1000	2800	1100
3 Sides Open (Type 1) 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000
3 Sides Open (Type 2) 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000
Fully Open 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000

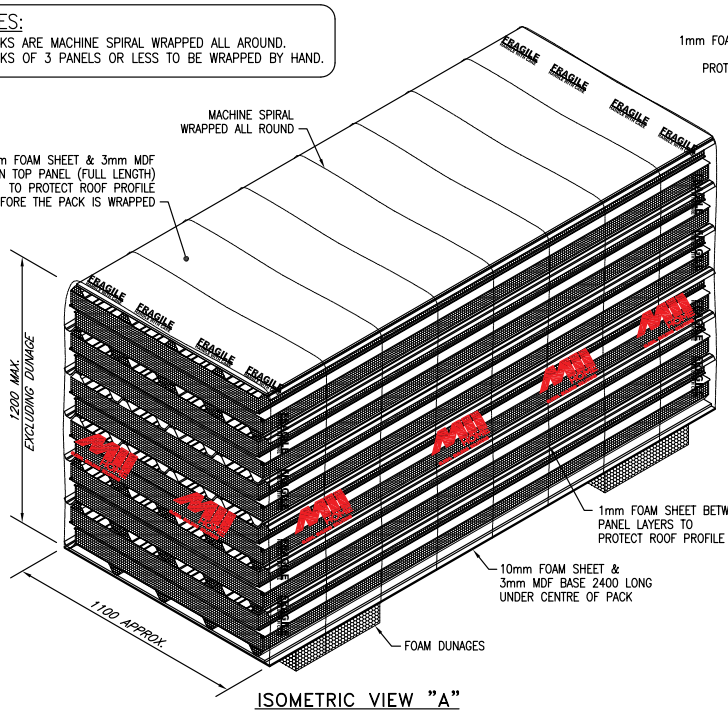
NOTES

1. These span tables apply to enclosed buildings less than 20 metres high with sealed doors and windows and patio roofing as shown.
2. Maximum overhang lengths cannot be exceeded. Customers are advised to use a thicker panel if greater overhang lengths are required.
3. Minimum roof width is 1.5 x overhang.
4. RidgePanel to be fixed every crest. Additional mid-crest fixing required for Wind Class C2, C3 and C4.
5. CorroPanel to be fixed every second crest for Wind Class N1 – N5 and C1 and every crest for Wind Class C2, C3 and C4.
6. Total live load up to 140kg allowed on spanned sections of roof only. (Live loads not permitted on overhangs)
7. These span tables are based on specific deflection limits calculated from serviceability loads for each wind class. (Deflection limits may be exceeded during extreme weather conditions when serviceability wind speeds are higher than usual.

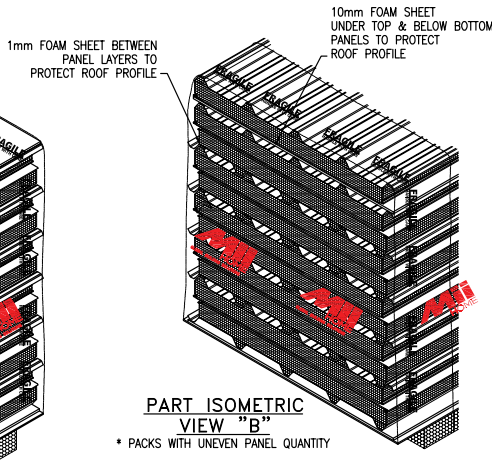
PACKING AND DELIVERY

RIDGEPANEL AND AGPANEL STANDARD PACKING DETAIL

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



ISOMETRIC VIEW "A"

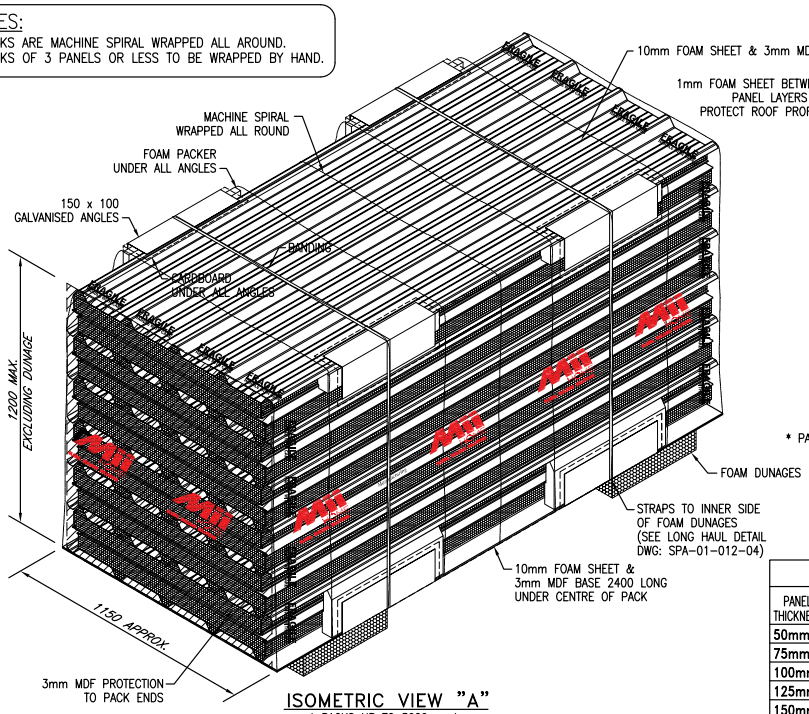


PART ISOMETRIC VIEW "B"
* PACKS WITH UNEVEN PANEL QUANTITY

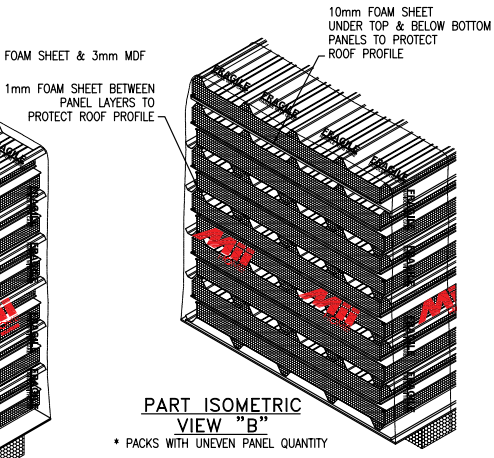
STACKING INFORMATION									
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
(AVERAGE MAX. WEIGHT = 600kg)									

RIDGEPANEL AND AGPANEL LONG HAUL PACKING DETAIL

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



ISOMETRIC VIEW "A"
* PACKS UP TO 3000mm L.

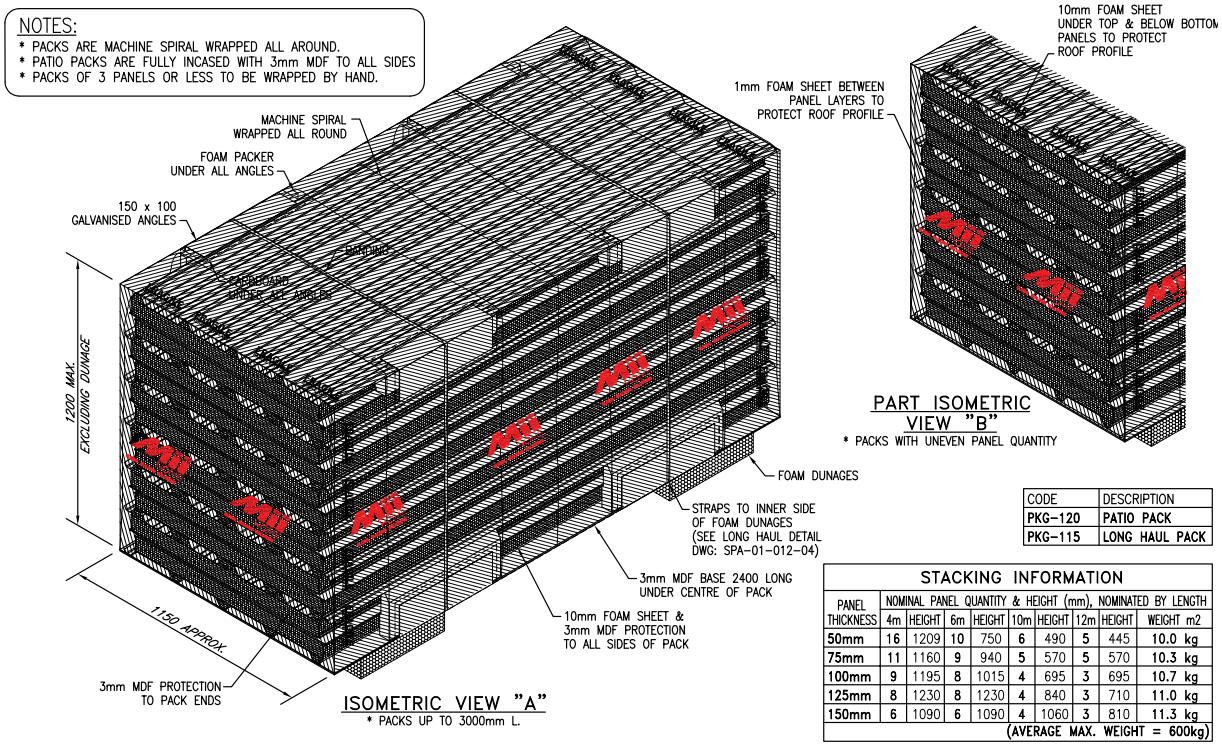


PART ISOMETRIC VIEW "B"
* PACKS WITH UNEVEN PANEL QUANTITY

CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

STACKING INFORMATION									
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
(AVERAGE MAX. WEIGHT = 600kg)									

RIDGEPANEL AND AGPANEL PATIO PACK DETAIL



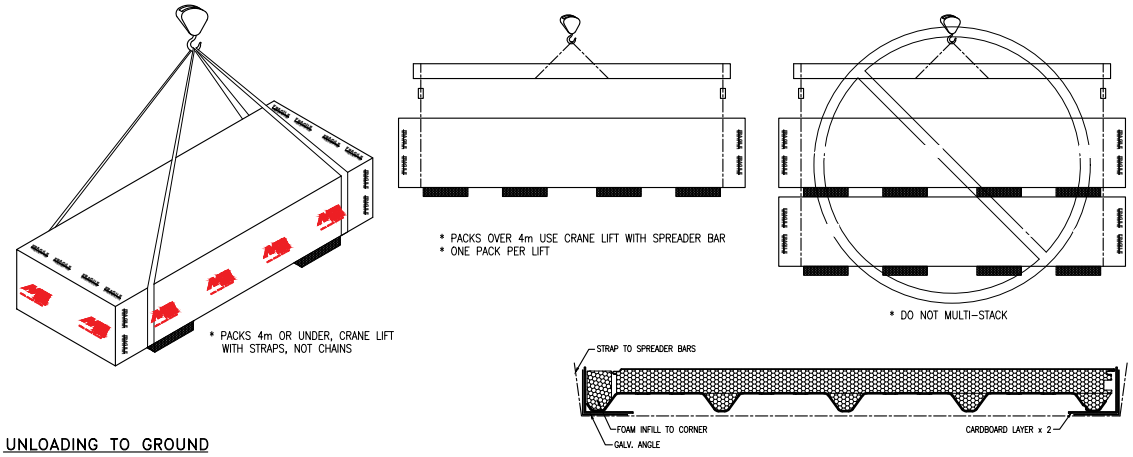
CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

STACKING INFORMATION

PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	16	1209	10	750	6	490	5	445	10.0 kg
75mm	11	1160	9	940	5	570	5	570	10.3 kg
100mm	9	1195	8	1015	4	695	3	695	10.7 kg
125mm	8	1230	8	1230	4	840	3	710	11.0 kg
150mm	6	1090	6	1090	4	1060	3	810	11.3 kg
									(AVERAGE MAX. WEIGHT = 600kg)

DELIVERY TO SITE/UNLOADING OF PANELS

Please refer to the detail below for unloading guidelines. Unloading of panels remains the responsibility of the client. Panels should always remain dry where possible during storage, kept off the ground to allow for adequate ventilation of the panel stack. DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.



UNLOADING TO GROUND

Solaris panel is dispatched to site in packs of approximately 600kg weight on conventional flat bed vehicles. Packs must be unloaded one pack at a time.

Packs up to 6m long can be unloaded using a forklift. It is of upmost importance that the forks do not make contact with panel, suitable protection for the underside of the pack must be provided to avoid damage. Forks must not be less than one metre apart.

If a mobile crane is used to lift packs, care must be taken that the positions of the slings coincides with the pack bearers. Sling protection must be inserted at the top and bottom of each pack to protect the edges of the top & bottom panels.

(SEE: CRANE LIFT - SLING PROTECTION DETAIL)

Lifting beams must be used for unloading Solaris panel packs, in excess of 4000mm. Where panel lengths exceed 4000mm, lifting beams must be used for unloading.

SITE STORAGE

Panels should always remain dry in storage where possible, kept off the ground to allow for adequate ventilation of the panel stack.
DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.

RECEIPT OF GOODS

All materials arriving on site must be checked promptly against relevant advice or delivery notes to ascertain correct quantities, specifications and lack of damage. Any shortages or damage must be reported within 24 hours of receipt of goods on site.

Fire retardant expanded polystyrene core

Automated continuous line manufacturing

Industry-best 15 year manufacturer's warranty

High thermal efficiency well above standard

Fast and easy to install, aesthetically pleasing

Panels maintain profile integrity, do not shard or disintegrate

ABOUT
SPECIFICATION
PROFILE OPTIONS
SPAN TABLES
PACKING & DELIVERY

MAIN MENU

CORROPANEL

CORRUGATED PROFILE PANELS

RidgePanel demonstrates manufacturing innovation through an economical, three-in-one roofing system underpinned by a 15 year manufacturer's warranty.

Cutting edge technology enables the delivery of an architecturally appealing all-weather roof panel with a ridged profile, high performance insulation properties and a commercial-class flatness pre-finished ceiling for commercial, industrial and residential applications.

RidgePanel roofing incorporates a fire retardant treated core and is long spanning, reducing structural support requirements. The trapezoid profile provides additional strength and panels are energy efficient, durable, economical and quick and easy to install.

The ability to procure industry-leading large, unsupported spans reduces build and installation costs and the high-quality surface finish eliminates the need for ceiling linings and the associated battens, insulation, mesh, plasterboard, reflective foil and painting.

A range of ceiling skins are available with plain, satinline or 'VJ' profiles. Available in a range of standard COLORBOND® colours and industry best competitive pricing ensures RidgePanel is particularly suited to residential roofing, home additions and stand-alone structures including carports and pool pavilions.

Alternative colours from the COLORBOND® range can also be selected, subject to availability, quantity and thermal suitability.

RidgePanel can be provided with rebated service ducts running the length of the panel within the EPS core to facilitate installation of electrical services.

A pre-trimming service provided in the factory prior to delivery allows for efficient recycling of offcuts and consequently reduces onsite rubbish removal costs.

Applications also encompass architectural wall cladding, and RidgePanel sets a new benchmark for insulated paneling through high quality manufacture, an aesthetically appealing profile and versatility of use.

TECHNICAL SPECIFICATIONS

Thickness	50mm, 75mm, 100mm, 125mm, 150mm*
Minimum Length	2400mm
Maximum Length	16000mm
Width/Coverage	1000mm
Thermal Performance/R value	up to 4.3m^{2}K/W

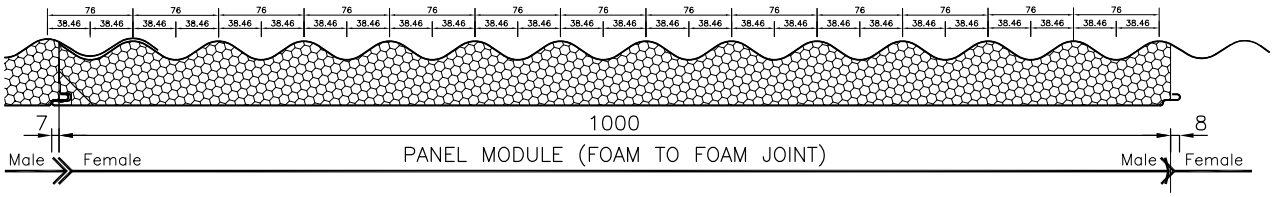
*Other thicknesses available on request

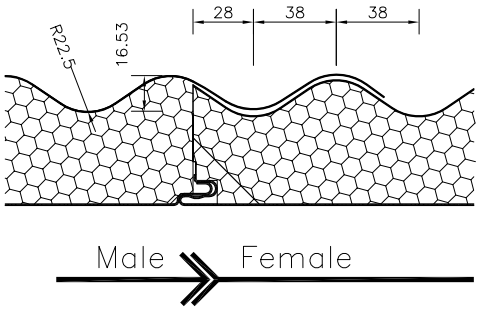
COLOUR RANGE

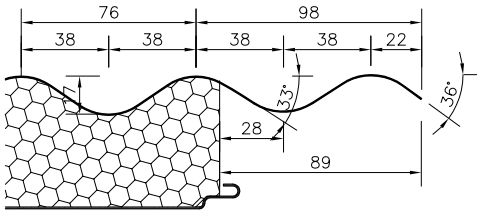
1. Classic Cream
2. Surfmist
3. Paperbark
4. Shale Grey
5. Dune
6. Pale Eucalypt
7. Woodland Grey
8. Deep Ocean

The COLORBOND® steel colours shown have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing, as light conditions and limitations of the printing process may affect colour tones. © 2008 BlueScope Steel Limited. ABN 16 000 011 058.

SPECIFICATION







WIDTH OF MODULE

1000mm

THICKNESS

Standard: 50mm, 75mm, 100mm, 125mm, 150mm

LENGTH

Minimum: 2400mm
Maximum: 16000mm

RIB PROFILE

Trapezoidal 36mm profile height.

PITCH (MINIMUM)

Single span: 1.5°*
Multi span: 5°
(See roof drainage chart)

SKINS

Roof: 0.42mm Hi-Tensile pre-painted COLORBOND® steel
Ceiling: 0.5mm pre-painted COLORBOND® steel

FLATNESS

The core sheets are finger jointed and drum sanded to give the flattest surface possible.

STANDARD CEILING FINISH

Strippable film to 'smooth' underside with commercial flatness**

CORE

SL grade expanded polystyrene (EPS) with void filled profile

GUTTER CUT BACK

60mm, 80mm, 100mm

BCA MATERIALS GROUP CLASSIFICATION

Group 2 (Group 1 is available with additional fixings)

SPANS

Up to 9700mm (150mm at 0.5kpa ultimate design wind pressure)

JOINTING SYSTEM

Tongue and groove joints

EXPANSION JOINTS

Required every 16 metres max. Overhang 250mm at 5° minimum pitch

HEAT LOAD

Maximum skin temperature 80°C

Notes

* Actual pitch achieved after deflection.

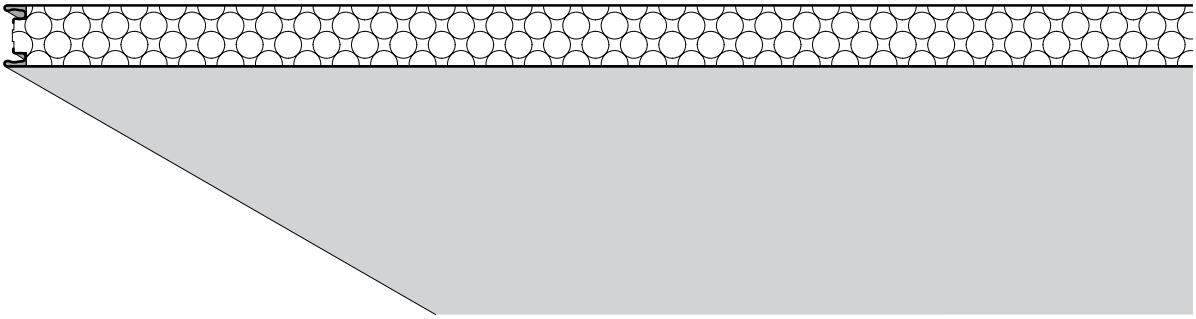
** Flatness appearance – 'Commercial': Surface deformations are faintly detectable to the eye when observed in artificial or direct light and are apparent to the eye when observed in low incident light.

CEILING PROFILE OPTIONS

PANEL PROPERTIES

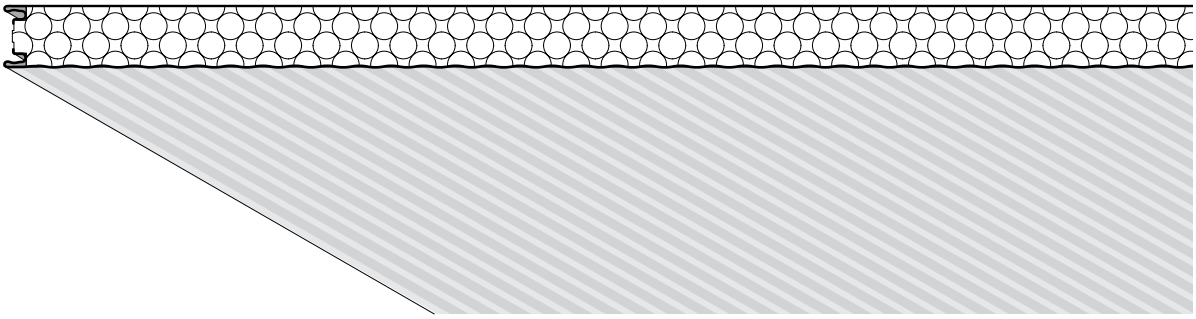
	Panel thickness (mm)				
	50	75	100	125	150
Weight (kg/m^2)	10	10.3	10.7	11	11.3
R Value (m^{2}K/W) Built up Systems: Roof	1.7	2.4	3.0	3.7	4.3

'PLAIN'



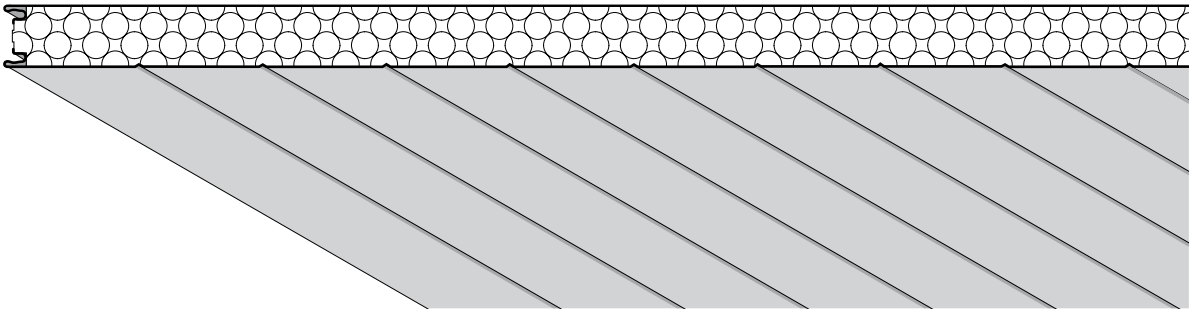
'SATINLINE'

Special profile subject to order quantity and pricing



'V.J.'

Special profile subject to order quantity and pricing

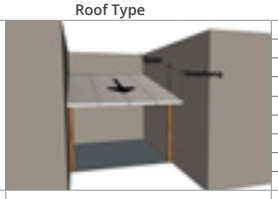
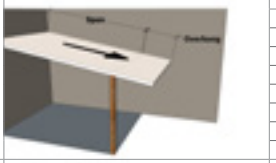


ROOFING PANEL SPAN TABLES

GENERAL STRUCTURES

Roof Type	Wind Class	Panel Thickness (mm) 50mm Max Span	50mm Max Overhang	75mm Max Span	75mm Max Overhang	100mm Max Span	100mm Max Overhang	125mm Max Span	125mm Max Overhang	150mm Max Span	150mm Max Overhang
Fully enclosed – Single Span 	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1900	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3800	1500	4100	1w650	4500	1800	4900	1950	5400	2150
	N4	3100	1250	3400	1350	3700	1450	3900	1550	4200	1650
	N5	2500	1000	2800	1100	3000	1200	3200	1250	3400	1350
	C1	2600	1050	3400	1350	3700	1450	4200	1650	4700	1850
	C2	2100	800	2800	1100	3000	1200	3300	1300	3700	1450
	C3	1700	650	2100	800	2400	950	2700	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850
Fully enclosed – Multi Span 	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1850	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3600	1400	3900	1550	4300	1700	4900	1950	5400	2150
	N4	3000	1200	3200	1250	3400	1350	3800	1500	4100	1600
	N5	2400	950	2700	1050	2900	1150	3100	1200	3300	1300
	C1	2500	1000	3100	1200	3700	1450	4200	1650	4700	1850
	C2	2000	800	2500	1000	3000	1200	3300	1300	3650	1450
	C3	1650	650	2000	800	2350	900	2650	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850

PATIO ROOFING

Roof Type	Wind Class	Panel Thickness (mm) 50mm Max Span	50mm Max Overhang	75mm Max Span	75mm Max Overhang	100mm Max Span	100mm Max Overhang	125mm Max Span	125mm Max Overhang	150mm Max Span	150mm Max Overhang
1 Side Open 	N1	5600	2250	6200	2450	6700	2650	7000	2800	7300	2900
	N2	4800	1900	5200	2050	5700	2250	6300	2500	6700	2650
	N3	3700	1450	4000	1600	4400	1750	5000	2000	5500	2200
	N4	3100	1250	3300	1300	3500	1400	3900	1550	4200	1650
	N5	2500	1000	2800	1100	3000	1200	3200	1250	3400	1350
	C1	2600	1050	3200	1250	3800	1500	4300	1700	4800	1900
	C2	2100	850	2600	1050	3100	1250	3400	1350	3700	1450
	C3	1750	700	2100	900	2450	950	2750	1100	3000	1200
	C4	-	-	-	-	-	-	2200	850	2300	900
2 Sides Open 	N1	5800	2300	6400	2500	6900	2700	7200	2900	7500	3000
	N2	4900	1900	5400	2150	6200	2400	7000	2700	7300	2900
	N3	3900	1500	4300	1700	5000	1900	5600	2200	5900	2300
	N4	3200	1250	3500	1350	4100	1600	4600	1800	4850	1750
	N5	2500	1000	2800	1100	3200	1250	3500	1400	3700	1400
	C1	3600	1400	4600	1600	5000	2000	5600	2200	5800	2250
	C2	2900	1150	3500	1400	4100	1600	4600	1800	4850	1750
	C3	2400	950	2900	1150	3300	1300	3700	1400	3900	1550
	C4	-	-	-	-	-	-	2700	1000	2800	1100
3 Sides Open (Type 1) 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000
3 Sides Open (Type 2) 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000
Fully Open 	N1	7500	3000	8200	3200	8800	3400	9100	3500	9400	3700
	N2	6400	2500	7000	2800	7800	3100	8100	3200	8300	3300
	N3	5100	2000	5900	2300	6900	2700	7700	3000	8000	3200
	N4	4200	1600	4800	1900	5600	2200	6300	2500	6500	2600
	N5	3000	1200	3400	1300	4000	1600	4400	1700m	4600	1800
	C1	5000	2000	5900	1200	6900	2700	7700	3000	8000	3200
	C2	4000	1600	4800	1900	5600	2200	6200	2400	6500	2600
	C3	3300	1300	4000	1600	4600	1800	5200	2000	5500	2200
	C4	-	-	-	-	-	-	3500	1400	4000	1000

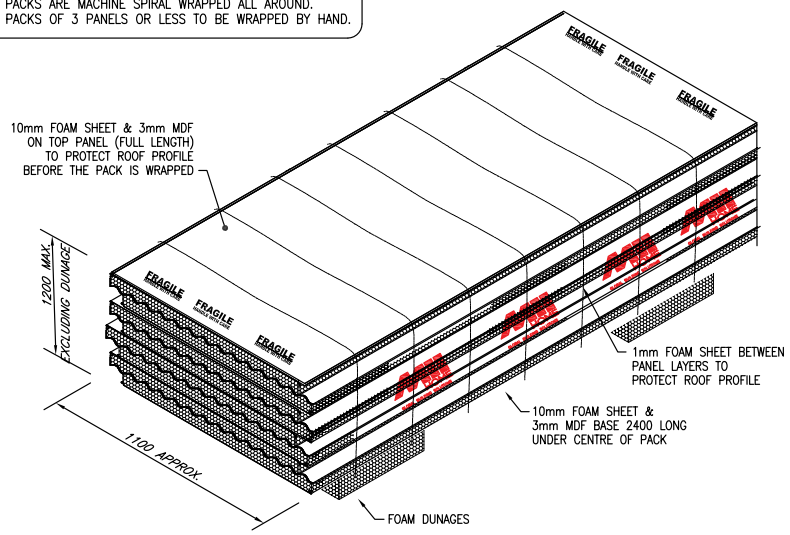
NOTES

1. These span tables apply to enclosed buildings less than 20 metres high with sealed doors and windows and patio roofing as shown.
2. Maximum overhang lengths cannot be exceeded. Customers are advised to use a thicker panel if greater overhang lengths are required.
3. Minimum roof width is 1.5 x overhang.
4. RidgePanel to be fixed every crest. Additional mid-crest fixing required for Wind Class C2, C3 and C4.
5. CorroPanel to be fixed every second crest for Wind Class N1 – N5 and C1 and every crest for Wind Class C2, C3 and C4.
6. Total live load up to 140kg allowed on spanned sections of roof only. (Live loads not permitted on overhangs)
7. These span tables are based on specific deflection limits calculated from serviceability loads for each wind class. (Deflection limits may be exceeded during extreme weather conditions when serviceability wind speeds are higher than usual.

PACKING AND DELIVERY

CORROPANEL STANDARD PACKING DETAIL

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



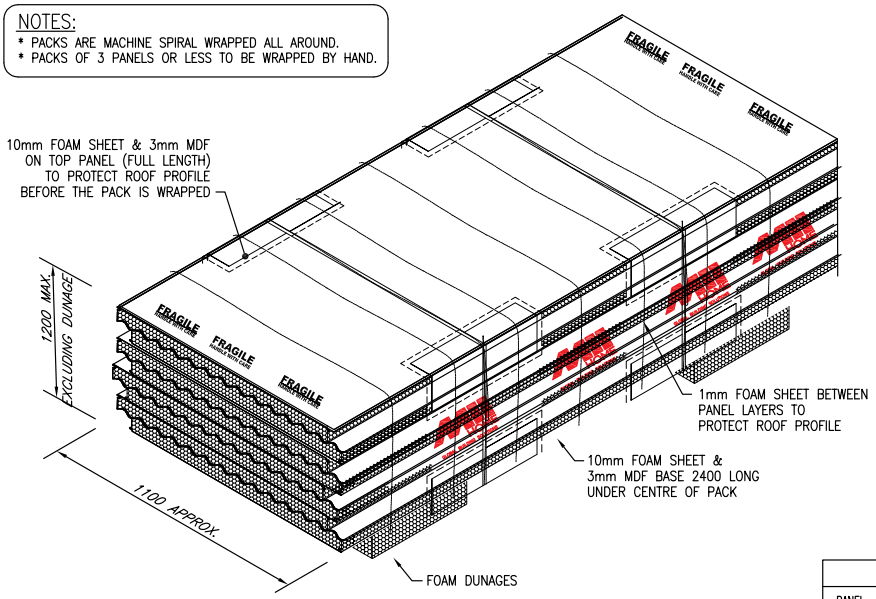
CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

STACKING INFORMATION

PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
									(AVERAGE MAX. WEIGHT = 600kg)

CORROPANEL LONG HAUL PACKING DETAIL

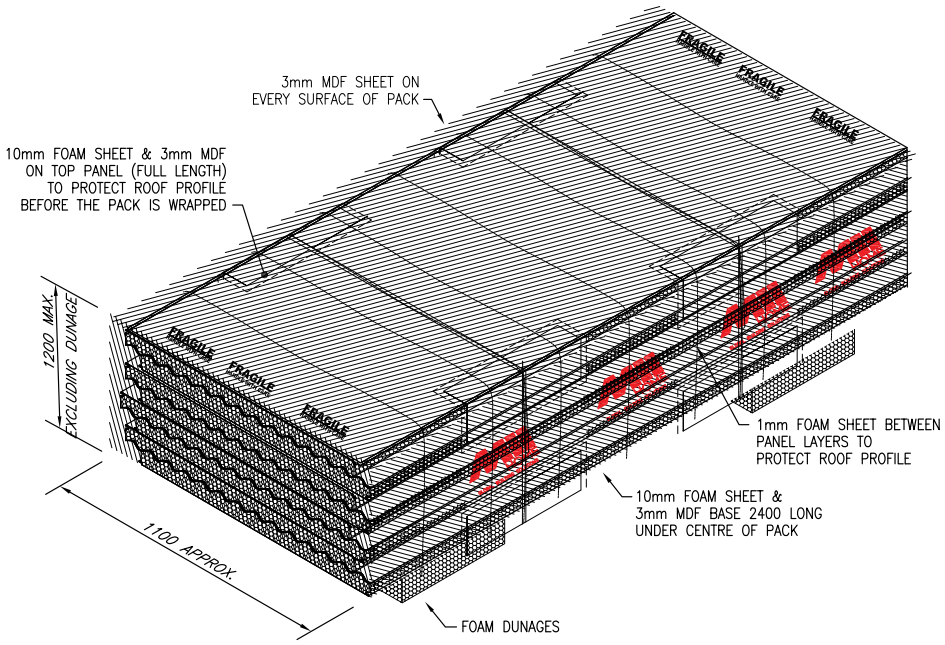
NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



STACKING INFORMATION

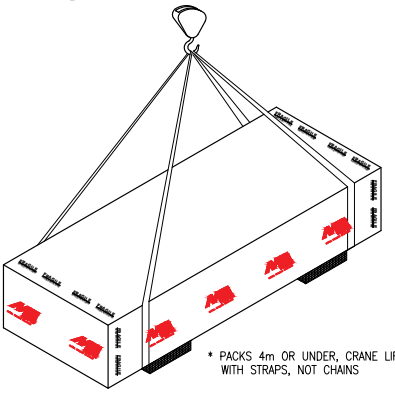
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
									(AVERAGE MAX. WEIGHT = 600kg)

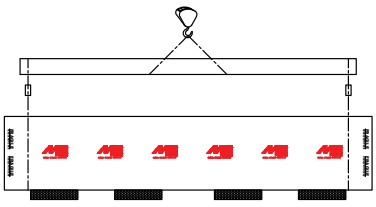
CORROPANEL PATIO PACK DETAIL

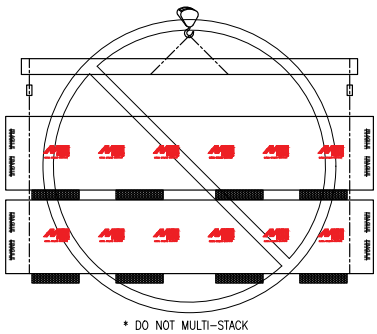


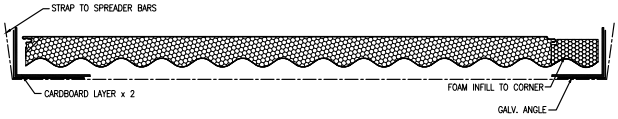
DELIVERY TO SITE/UNLOADING OF PANELS

Please refer to the detail below for unloading guidelines. Unloading of panels remains the responsibility of the client. Panels should always remain dry where possible during storage, kept off the ground to allow for adequate ventilation of the panel stack. DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.









CRANE LIFT – SLING PROTECTION DETAIL
(SAME DETAIL TO TOP – MIRROR REVERSED)

CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

STACKING INFORMATION									
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	16	1209	10	750	6	490	5	445	10.0 kg
75mm	11	1160	9	940	5	570	5	570	10.3 kg
100mm	9	1195	8	1015	4	695	3	695	10.7 kg
125mm	8	1230	8	1230	4	840	3	710	11.0 kg
150mm	6	1090	6	1090	4	1060	3	810	11.3 kg
(AVERAGE MAX. WEIGHT = 600kg)									

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PATIO PACKS ARE FULLY INCASED WITH 3mm MDF TO ALL SIDES
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.

Fire retardant expanded polystyrene core

Panels maintain profile integrity, do not shard or disintegrate

Automated continuous line manufacturing

High thermal efficiency well above standard

Integrated vermin proofing reduces pest control costs

ABOUT
SPECIFICATION
PROFILE OPTIONS
SPAN TABLES
PACKING & DELIVERY

MAIN MENU

AGPANEL

AGRICULTURAL PANELS

The AgPanel insulated agricultural panel is a long spanning, hygienic, durable, all-in-one, insulated roofing product.

The AgPanel system consists of a composite trapezoid profile steel roof sheet with a fire retardant expanded polystyrene core, and a robust and hygienic profiled steel ceiling.

AgPanels are manufactured exclusively with COLORBOND® steel, Australia's only locally produced steel sheeting, and one of the world's most advanced building materials.

Tried and tested over the past 45 years in some of the harshest climates across Australia, COLORBOND® steel's durable baked-on paint finish resists chipping, peeling and cracking, and delivers outstanding anti-corrosion, long life, low maintenance performance.

Available in a wide range of contemporary colours, COLORBOND® utilises Thermatech® technology which optimises the solar reflectance properties of the painted steel finish, further improving the thermal performance characteristics of AgPanels.

The low-maintenance, strong and durable panels are designed to withstand harsh environmental conditions to outperform traditional roofing systems.

The ability to procure industry-leading large, unsupported spans reduces build and installation costs and the composite construction eliminates the need for additional layers of insulation, mesh, and reflective foil.

The low pitch design features an anti-capillary groove for waterproofing while integrated vermin proofing capabilities significantly reduce the costs of pest control.

A pre-trimming service provided in the factory prior to delivery allows for efficient recycling of offcuts and consequently reduces onsite rubbish removal costs.

AgPanel is an ideal roofing solution for chicken growing sheds, layer sheds, farrowing sheds, weaner sheds, sow sheds, finishing sheds, mushroom growing sheds and fruit and vegetable packing sheds.

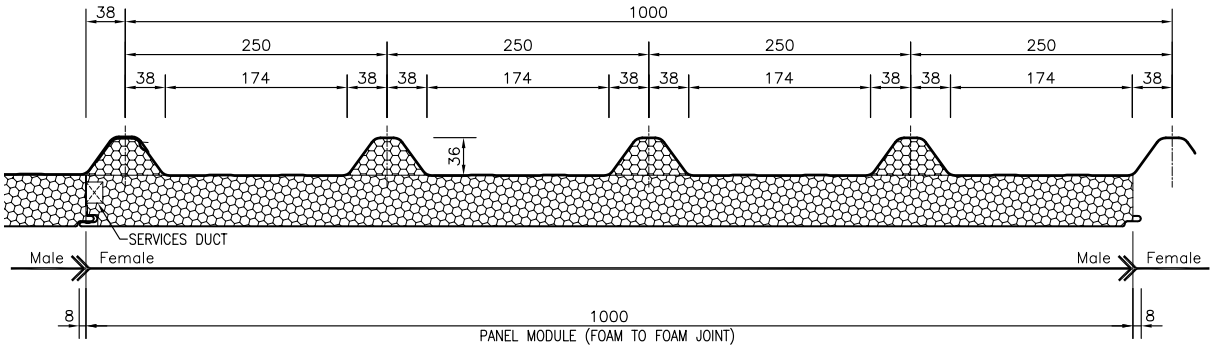
The AgPanel insulated agricultural roofing system sets a new benchmark for insulted building panels through quality manufacture, an aesthetically appealing profile, versatility and industry-best 15 year manufacturer's warranty.

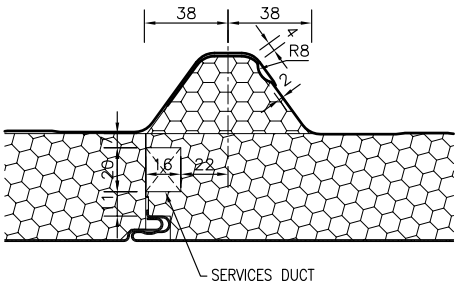
TECHNICAL SPECIFICATIONS

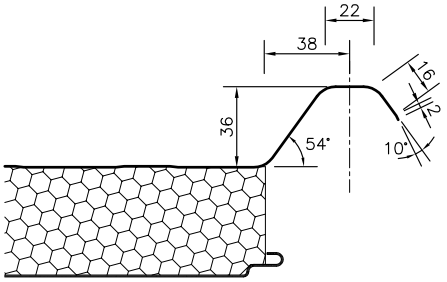
Thickness	50mm, 75mm, 100mm
Minimum Length	2400mm
Maximum Length	16000mm
Width/Coverage	1000mm
Colour	COLORBOND® Surfmist

The COLORBOND® steel colours shown have been reproduced to represent actual product colours as accurately as possible. However, we recommend checking your chosen colour against an actual sample of the product before purchasing, as light conditions and limitations of the printing process may affect colour tones.

SPECIFICATION







WIDTH OF MODULE

1000mm

THICKNESS

Standard: 50mm, 75mm, 100mm, 125mm, 150mm

LENGTH

Minimum: 2400mm
Maximum: 16000mm

RIB PROFILE

Trapezoidal 36mm profile height

PITCH (MINIMUM)

Single span: 1.5°*
Multi span: 5°
(see roof drainage chart)

SKINS

Roof: 0.42mm Hi-Tensile pre-painted COLORBOND® steel
Ceiling: 0.5mm pre-painted COLORBOND® steel

FLATNESS

The core sheets are finger jointed and drum sanded to give the flattest surface possible.

STANDARD CEILING FINISH

Strippable film to 'smooth' underside with commercial flatness**

CORE

SL grade expanded polystyrene (EPS) with void filled profile

GUTTER CUT BACK

60mm, 80mm, 100mm

BCA MATERIALS GROUP CLASSIFICATION

Group 2 (Group 1 is available with additional fixings)

SPANS

Up to 9700mm (150mm at 0.5kpa ultimate design wind pressure)

JOINTING SYSTEM

Tongue and groove joints

EXPANSION JOINTS

Required every 16 metres max. Overhang 250mm at 5° minimum pitch

HEAT LOAD

Maximum skin temperature 80°C

Notes

**Actual pitch achieved after deflection.

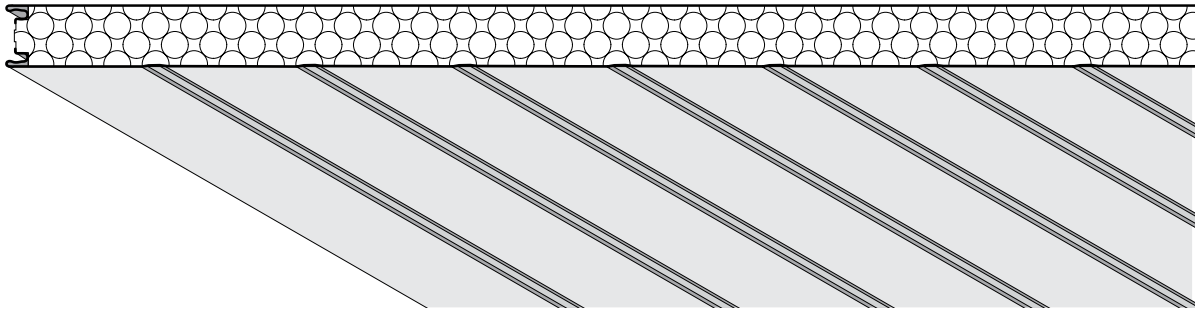
**Flatness appearance – 'Commercial': Surface deformations are faintly detectable to the eye when observed in artificial or direct light and are apparent to the eye when observed in low incident light.

CEILING PROFILE OPTIONS

PANEL PROPERTIES

	Panel thickness (mm)				
	50	75	100	125	150
Weight (kg/m²)	10	10.3	10.7	11	11.3
R Value (m²K/W) Built up Systems: Roof	1.7	2.4	3.0	3.7	4.3

'RIBBED'



ROOFING PANEL SPAN TABLE

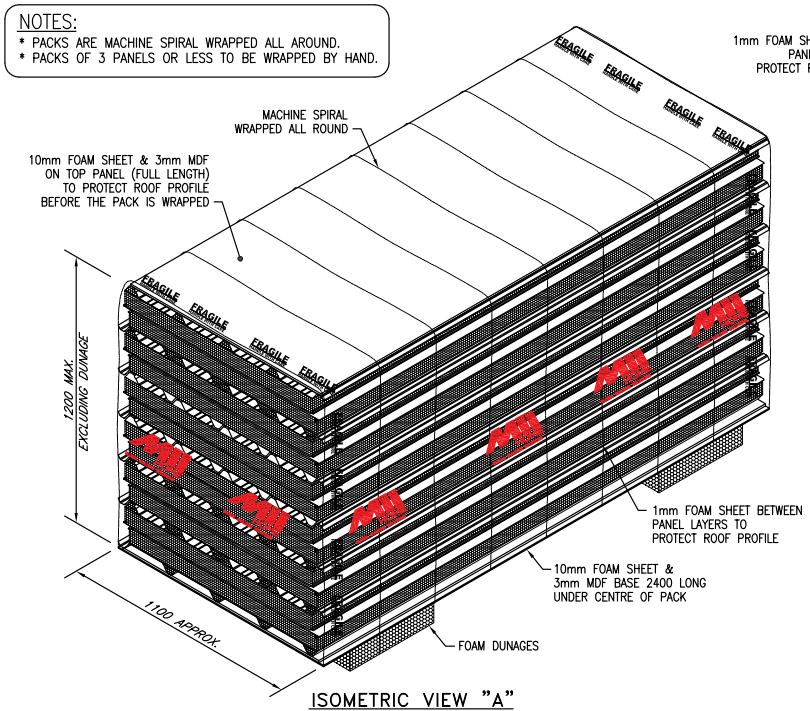
GENERAL STRUCTURES		Panel Thickness (mm)									
		50mm		75mm		100mm		125mm		150mm	
Roof Type	Wind Class	Max Span	Max Overhang	Max Span	Max Overhang	Max Span	Max Overhang	Max Span	Max Overhang	Max Span	Max Overhang
 Fully enclosed – Single Span	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1900	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3800	1500	4100	1w650	4500	1800	4900	1950	5400	2150
	N4	3100	1250	3400	1350	3700	1450	3900	1550	4200	1650
	N5	2500	1000	2800	1100	3000	1200	3200	1250	3400	1350
	C1	2600	1050	3400	1350	3700	1450	4200	1650	4700	1850
	C2	2100	800	2800	1100	3000	1200	3300	1300	3700	1450
	C3	1700	650	2100	800	2400	950	2700	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850
 Fully enclosed – Multi Span	N1	5500	2200	6100	2400	6600	2600	6900	2750	7200	2850
	N2	4700	1850	5100	2000	5600	2200	6200	2450	6600	2600
	N3	3600	1400	3900	1550	4300	1700	4900	1950	5400	2150
	N4	3000	1200	3200	1250	3400	1350	3800	1500	4100	1600
	N5	2400	950	2700	1050	2900	1150	3100	1200	3300	1300
	C1	2500	1000	3100	1200	3700	1450	4200	1650	4700	1850
	C2	2000	800	2500	1000	3000	1200	3300	1300	3650	1450
	C3	1650	650	2000	800	2350	900	2650	1050	2900	1150
	C4	-	-	-	-	-	-	2100	800	2200	850

NOTES
1. These span tables apply to enclosed buildings less than 20 metres high with sealed doors and windows and patio roofing as shown.
2. Maximum overhang lengths cannot be exceeded. Customers are advised to use a thicker panel if greater overhang lengths are required.
3. Minimum roof width is 1.5 x overhang.
4. RidgePanel to be fixed every crest. Additional mid-crest fixing required for Wind Class C2, C3 and C4.
5. CorroPanel to be fixed every second crest for Wind Class N1 – N5 and C1 and every crest for Wind Class C2, C3 and C4.
6. Total live load up to 140kg allowed on spanned sections of roof only. (Live loads not permitted on overhangs)
7. These span tables are based on specific deflection limits calculated from serviceability loads for each wind class. (Deflection limits may be exceeded during extreme weather conditions when serviceability wind speeds are higher than usual.

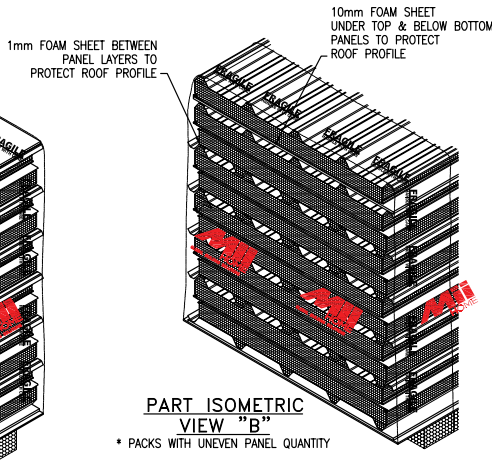
PACKING AND DELIVERY

RIDGEPANEL AND AGPANEL STANDARD PACKING DETAIL

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



ISOMETRIC VIEW "A"

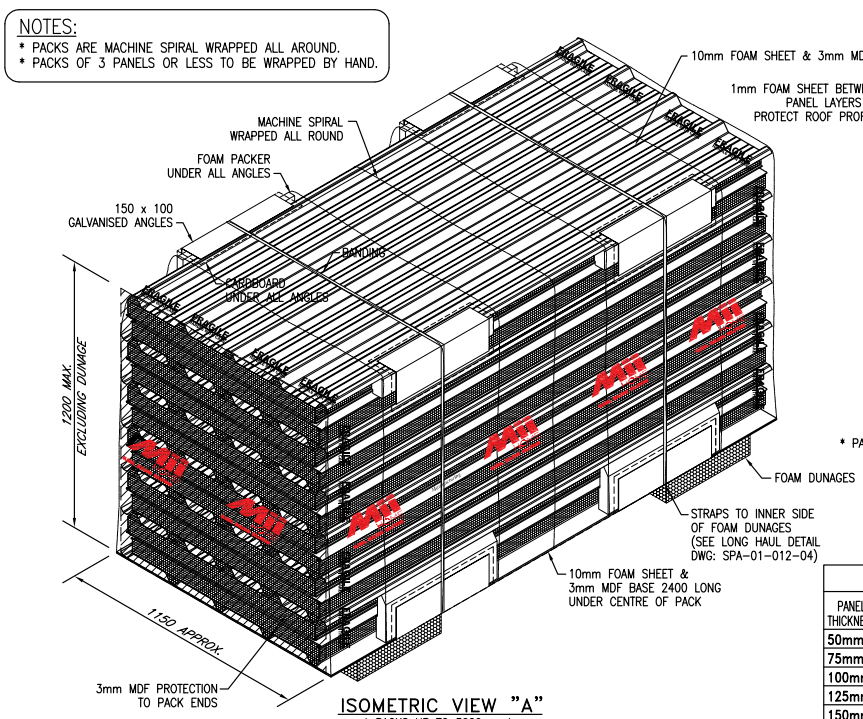


PART ISOMETRIC VIEW "B"
* PACKS WITH UNEVEN PANEL QUANTITY

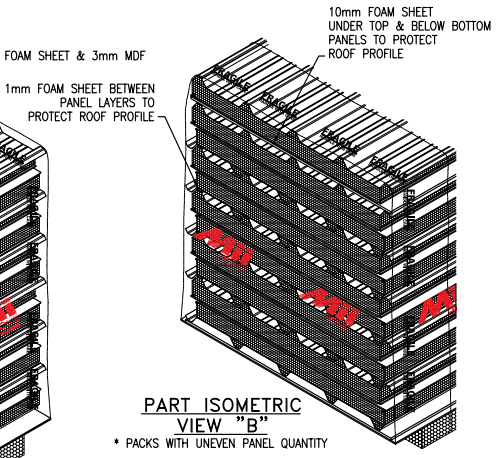
STACKING INFORMATION									
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
(AVERAGE MAX. WEIGHT = 600kg)									

RIDGEPANEL AND AGPANEL LONG HAUL PACKING DETAIL

NOTES:
* PACKS ARE MACHINE SPIRAL WRAPPED ALL AROUND.
* PACKS OF 3 PANELS OR LESS TO BE WRAPPED BY HAND.



ISOMETRIC VIEW "A"
* PACKS UP TO 3000mm L.

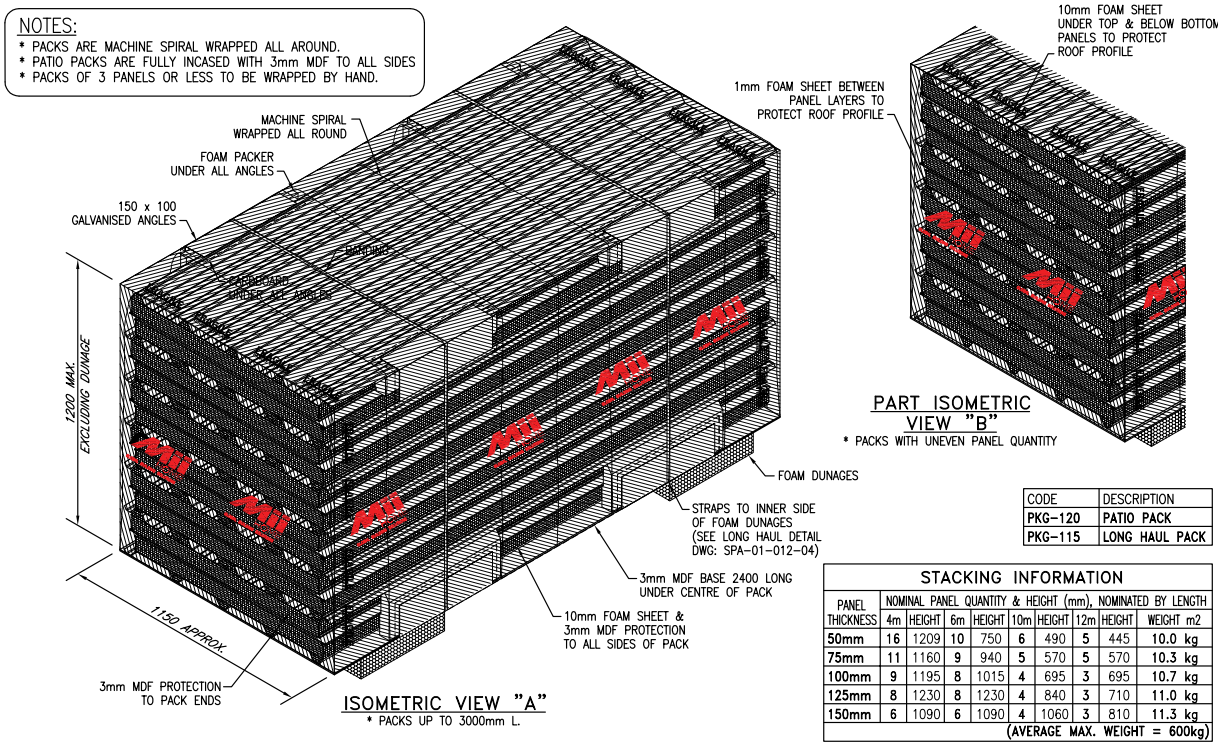


PART ISOMETRIC VIEW "B"
* PACKS WITH UNEVEN PANEL QUANTITY

CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

STACKING INFORMATION									
PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	17	1255	10	710	6	440	5	405	10.0 kg
75mm	12	1195	9	900	5	530	5	530	10.3 kg
100mm	10	1255	8	975	4	655	3	655	10.7 kg
125mm	8	1190	8	1190	4	800	3	670	11.0 kg
150mm	6	1050	6	1050	4	1020	3	770	11.3 kg
(AVERAGE MAX. WEIGHT = 600kg)									

RIDGEPANEL AND AGPANEL PATIO PACK DETAIL



CODE	DESCRIPTION
PKG-120	PATIO PACK
PKG-115	LONG HAUL PACK

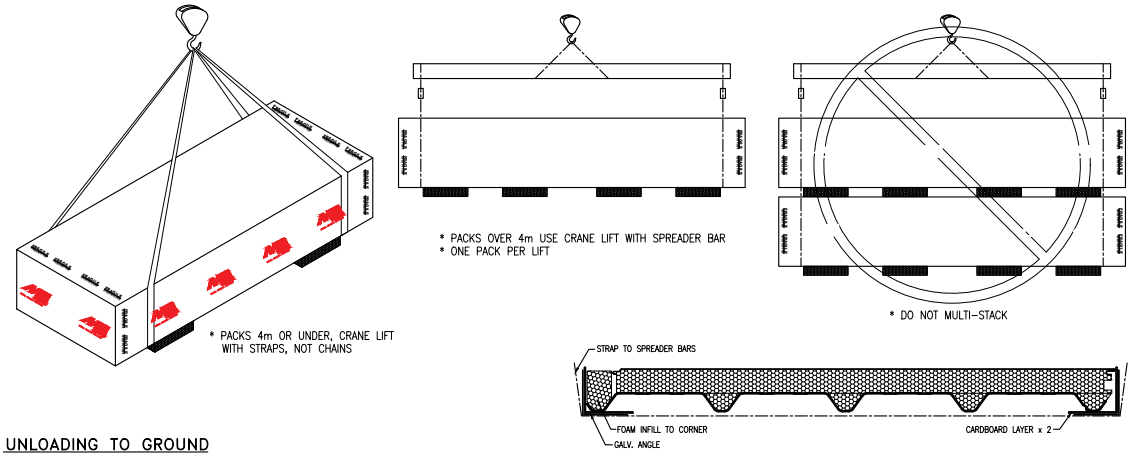
STACKING INFORMATION

PANEL THICKNESS	NOMINAL PANEL QUANTITY & HEIGHT (mm), NOMINATED BY LENGTH								
	4m	HEIGHT	6m	HEIGHT	10m	HEIGHT	12m	HEIGHT	WEIGHT m2
50mm	16	1209	10	750	6	490	5	445	10.0 kg
75mm	11	1160	9	940	5	570	5	570	10.3 kg
100mm	9	1195	8	1015	4	695	3	695	10.7 kg
125mm	8	1230	8	1230	4	840	3	710	11.0 kg
150mm	6	1090	6	1090	4	1060	3	810	11.3 kg

(AVERAGE MAX. WEIGHT = 600kg)

DELIVERY TO SITE/UNLOADING OF PANELS

Please refer to the detail below for unloading guidelines. Unloading of panels remains the responsibility of the client. Panels should always remain dry where possible during storage, kept off the ground to allow for adequate ventilation of the panel stack. DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.



UNLOADING TO GROUND

Solaris panel is dispatched to site in packs of approximately 600kg weight on conventional flat bed vehicles. Packs must be unloaded one pack at a time.

Packs up to 6m long can be unloaded using a forklift. It is of upmost importance that the forks do not make contact with panel, suitable protection for the underside of the pack must be provided to avoid damage. Forks must not be less than one metre apart.

If a mobile crane is used to lift packs, care must be taken that the positions of the slings coincides with the pack bearers. Sling protection must be inserted at the top and bottom of each pack to protect the edges of the top & bottom panels.

(SEE: CRANE LIFT - SLING PROTECTION DETAIL)

Lifting beams must be used for unloading Solaris panel packs, in excess of 4000mm. Where panel lengths exceed 4000mm, lifting beams must be used for unloading.

SITE STORAGE

Panels should always remain dry in storage where possible, kept off the ground to allow for adequate ventilation of the panel stack.
DO NOT cover the panel stack with additional plastic covering such as black plastic sheeting.

RECEIPT OF GOODS

All materials arriving on site must be checked promptly against relevant advice or delivery notes to ascertain correct quantities, specifications and lack of damage. Any shortages or damage must be reported within 24 hours of receipt of goods on site.

INSTALLATION DETAILS

PATIO ROOF INSTALLATION GUIDE

RECESSED LIGHTING INSTALLATION GUIDE

PATIO ENGINEERING DESIGN GUIDE

RIDGEPANEL TYPICAL INSTALLATION DRAWINGS

CORROPANEL TYPICAL INSTALLATION DRAWINGS

MAIN MENU

SOLARIS

PATIO ROOF INSTALLATION GUIDE

INSTALLATION GUIDELINES

Installation guidelines are supplied for both fascia attached and fly over patio structures.

DIAGRAM 1: RIDGEPANEL

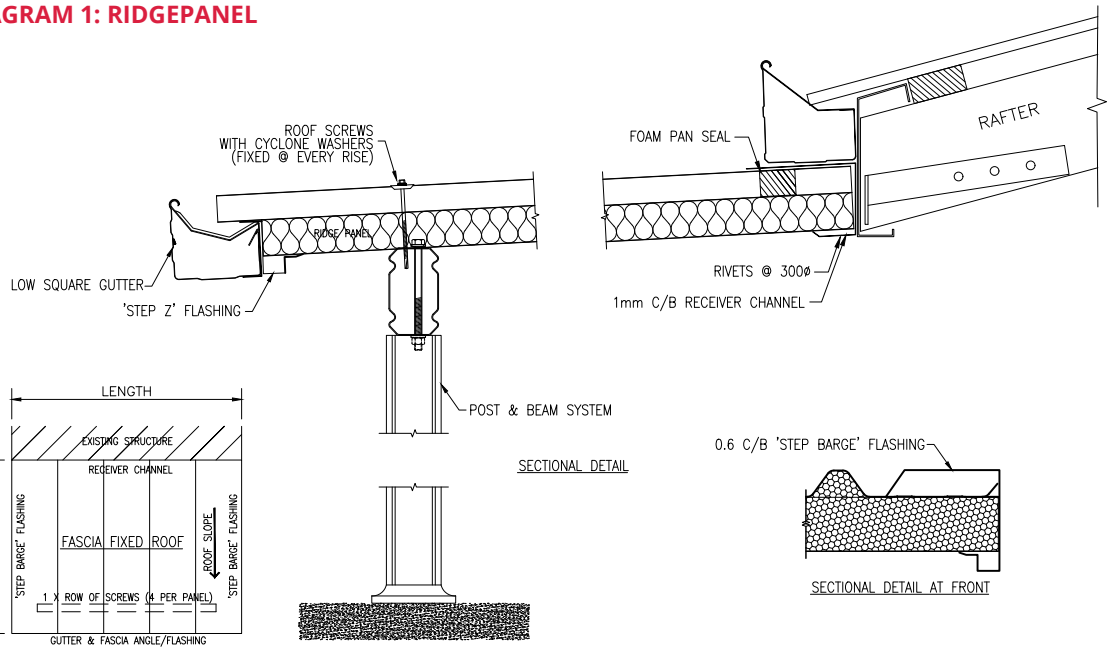


DIAGRAM 2: RIDGEPANEL

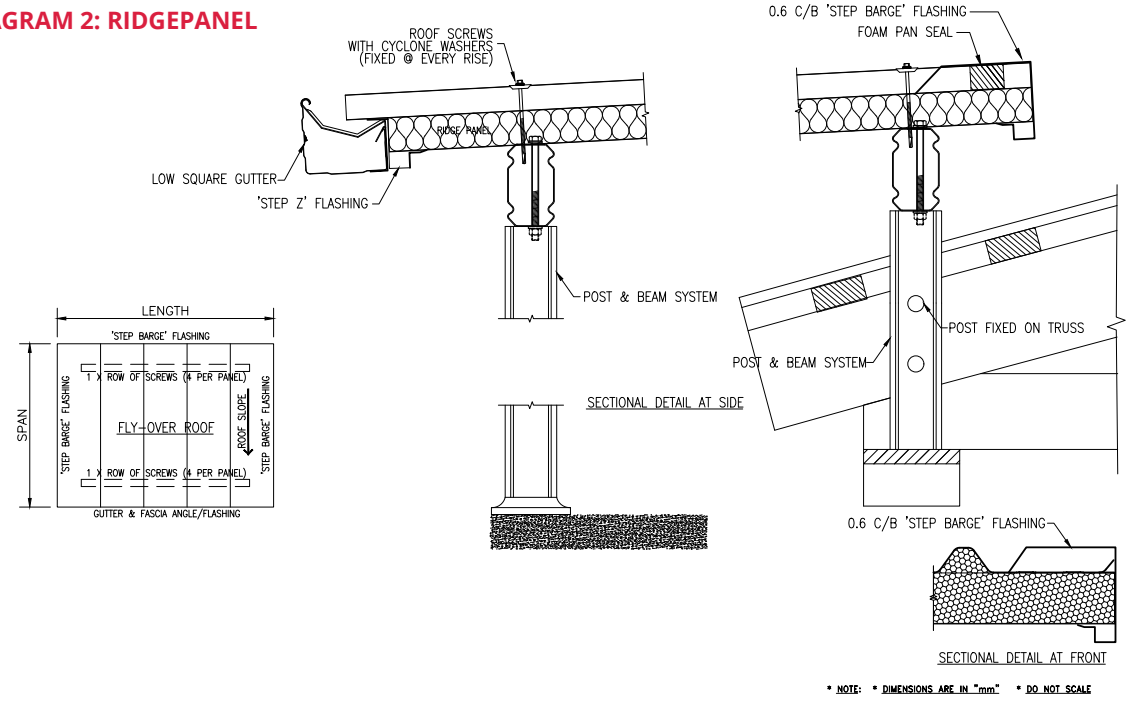


DIAGRAM 1: CORROPANEL

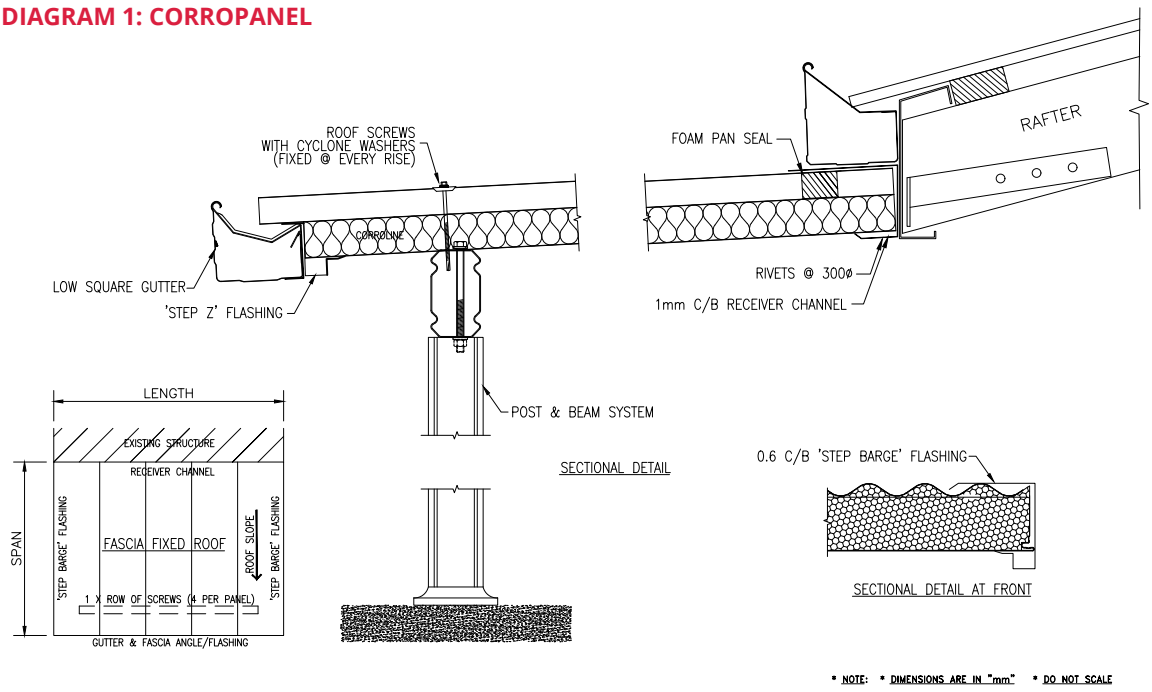
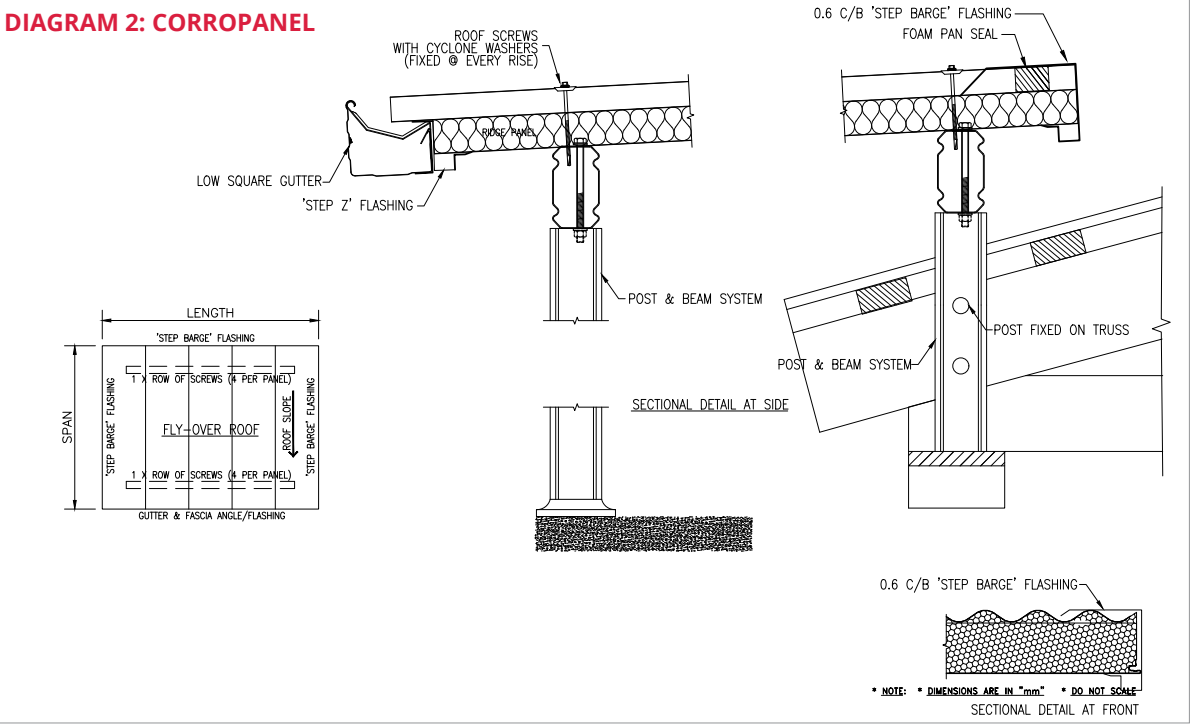


DIAGRAM 2: CORROPANEL



NOTE: This document is to be used only as a guide for the installation of Solaris™ roofing panels. All installation methods, waterproofing and weather flashing actions should be done in compliance with all relevant codes and regulations.

SITE STORAGE: During storage, panels should always remain dry, where possible, and be kept off the ground to allow for adequate ventilation of the panel stack. Do not cover the panel stack with additional plastic covering, such as black plastic sheeting.

1. **FASCIA ATTACHED PATIOS**

a) Attach the receiver channel to house fascia in line with your engineers' specifications.

b) Fit support beam(s) allowing for min 1.5 degree pitch from bottom of receiver to top of beam.

2. **FLY OVER PATIOS**

a) Install extender posts and beam through the house roof in line with engineers' specifications.

b) Fit support beam(s) allowing for min 1.5 degree pitch from top of beam to top of beam.

3. If the side of the patio roof is to start against a wall or fascia of the dwelling, fit this side barge or receiver channel from the end receiver channel, extending out to the beam(s).

4. If the patio is a three side open design, all barges can be installed post the fitting of Solaris™ panels.

5. Remove Solaris™ panels from the stack.

a) Carefully lift panel – ensure Solaris™ panels are NEVER DRAGGED.

6. Prepare a working platform from trestles with foam blocks on top.

7. Place the Solaris™ panel with roof side up on trestles.

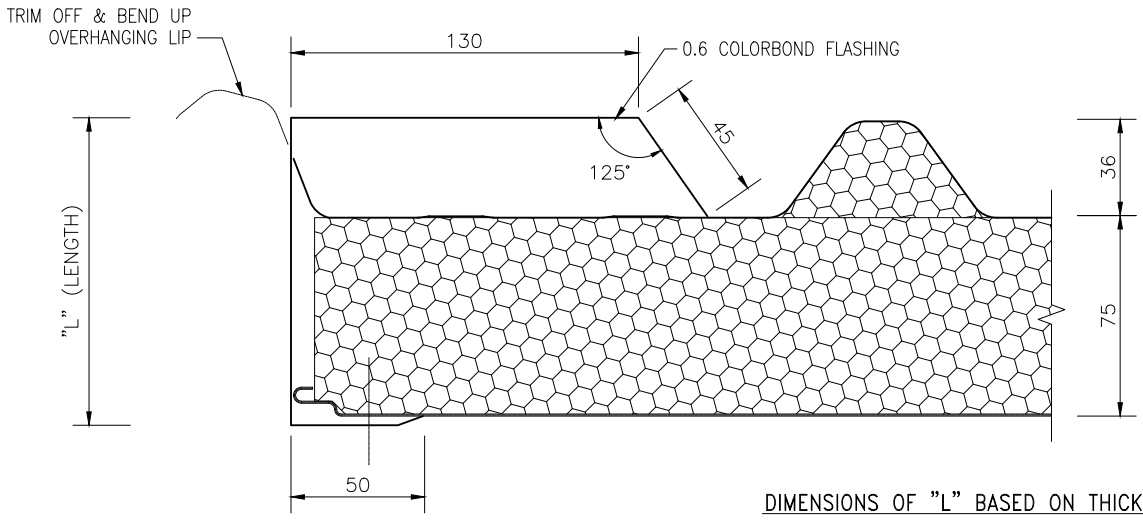


DIAGRAM 3: RIDGEPANEL

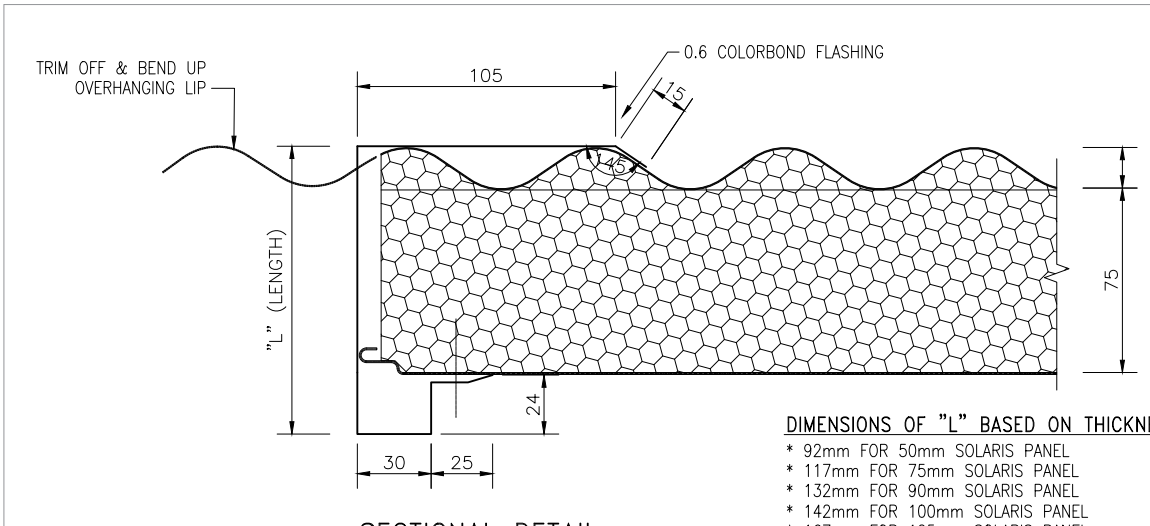


DIAGRAM 3: CORROPANEL

8. Trim the overlay edge as per diagram 3.

9. Turn up the pans of the high end of the Solaris™ roof panels using the Solaris™ pan tool.

10. Turn pans down at the gutter end of the Solaris™ roof panels using the Solaris™ pan tool.

11. Throw soft blanket or covering over beam, where first Solaris™ panel is to be located.

12. Turn the panel over on trestle and remove the core strip from ceiling side completely.

13. Lift the first Solaris™ panel onto beams ready for installation.

14. Fit into receiver channel or onto beams for fly over patios.

15. Square the panel off and fix with screw in the top and underneath (receiver channel end) to hold in place.

16. Prepare the second and subsequent sheets as per points 5 through to 12.

17. On the overlay edge of the top sheet of the remaining Solaris™ sheets, trim the corner off at the receiver end to ensure no interference with the pan turn up of the previous panel.

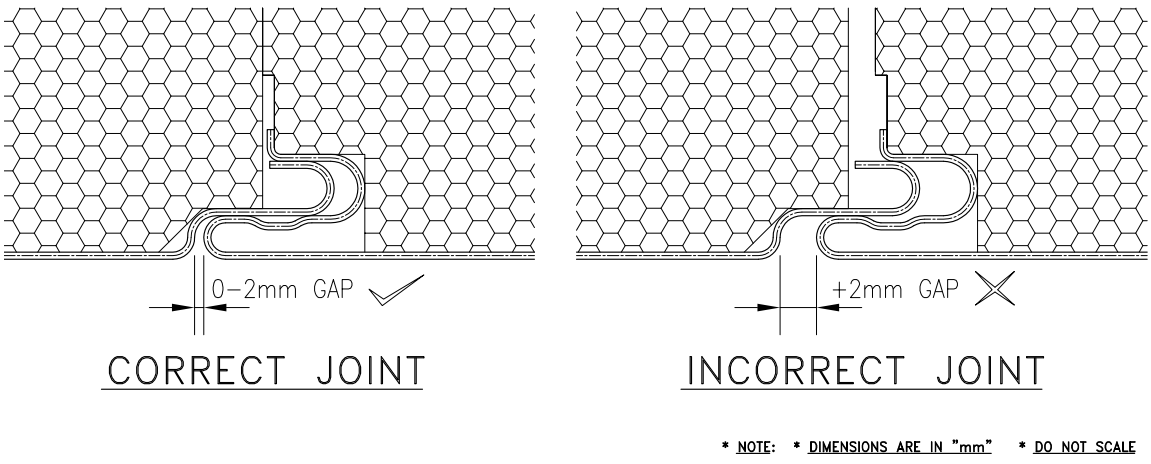


DIAGRAM 4

18. CONNECTING SUBSEQUENT PANELS

a) Move blanket/soft covers over beam(s) to where next panel will connect with the beam.

b) Lift from both ends of the panel to a 45° angle. Place the overlay top skin over the rib of previous panel.

c) Lower the panel to engage the male joint into the female SmoothPanel joint.

d) Slide the Solaris™ panels into the receiver channel at the house end.

e) Apply sidewards pressure to ensure firm joint connection of uniform appearance.

f) Successful connection of panels will result in a neat joint to the ceiling side, with minimal or no gap (refer to Diagram 4).

g) Fix each panel off, top and bottom as they are fitted into place.

Ensure that overlap joints are screw fixed off last.

h) Once all panels are fitted, you can continue to fit the remaining barge flashings, Z flashings and rainwater goods.

RECESSED LIGHTING

SOLARIS
BY MiiHOME

Guidelines for installing LV downlights into Solaris™ Panels – core sizes 50mm, 75mm, 100mm, 125mm and 150mm.

KIT INCLUDES

8w downlight

Dimmable compliant driver with lead and flex plug

12m extra low voltage cable

TECHNICAL SPECIFICATIONS

Voltage – 240volt 50Hz

Wattage – 8watt

Ingress Protection – IP44

Beam Angle - 110°

Constant current driver – 350mA

Dimmable – 8%-100%

MANUFACTURERS SPECIFICATIONS

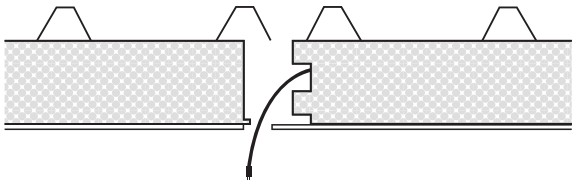
1. No heat shield or cover is required for installation into insulated roofing panels.
2. Installation into 50mm, 75mm, 100mm, 125mm and 150mm insulated panel requires driver to be installed remotely.
3. This product only compatible with leading edge or trailing edge dimmers NOT universal.

WARRANTY

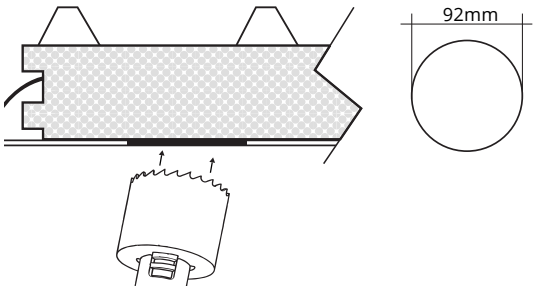
This product is guaranteed for three years from the date of purchase. The warranty is invalid if installation is not carried out in accordance with this information. The product will be replaced should it fail within the warranty period. Solaris™ is not liable for costs associated with replacement of this product.

INSTALLATION INSTRUCTIONS

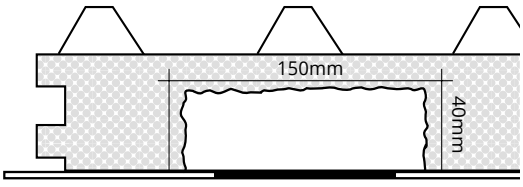
STEP 1 Install 12m extra low voltage cable through the panel join cavity from desired light position back to the driver location in the ceiling cavity. (Note: Each light has its own driver)



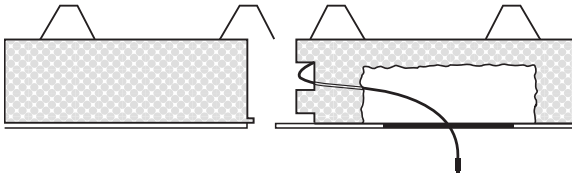
STEP 2 Cut hole in the underside of insulated panel with bimetal holesaw, observing required cut out size as in diagram.



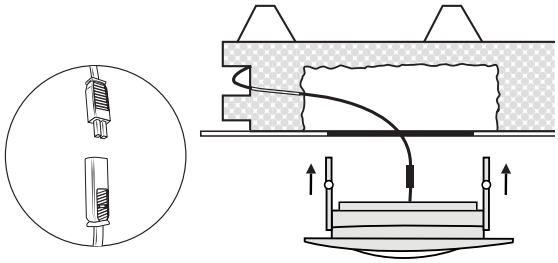
STEP 3 Remove sufficient foam core to allow for specified clearance as in diagram. (Minimum 25mm clearance from body of light to foam installation).



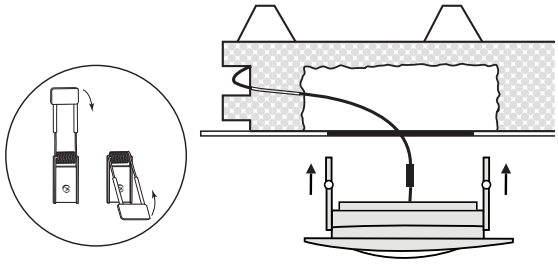
STEP 4 Make provision for extra low voltage cable to pass from panel cavity to cut out area.



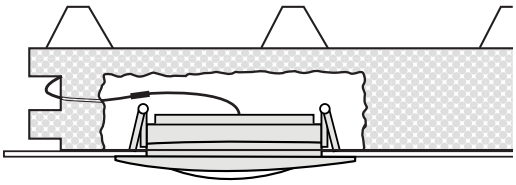
STEP 5 Hold the downlight close to the cut out opening. Connect the light to the extra low voltage cable ensuring the quick connect clip is secure.



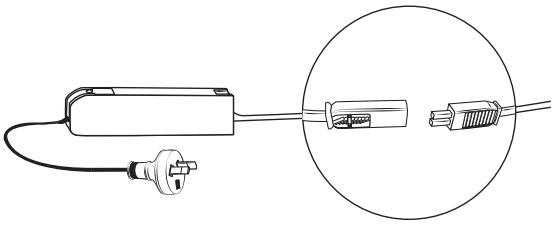
STEP 6 Fold spring clips back and insert downlight into prepared opening in COLORBOND® sheet.



STEP 7 Release spring clips and press downlight firmly into position. The downlight should sit flush to the ceiling.



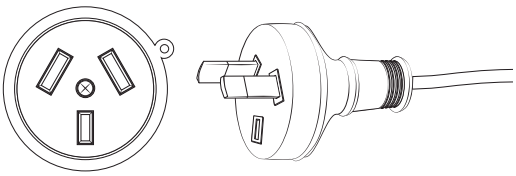
STEP 8 At driver location, connect quick connect clip from extra low voltage cable to driver.



POWER SUPPLY MUST BE TURNED OFF BEFORE PROCEEDING TO THE NEXT STEP!

Choose either step 9A OR step 9B

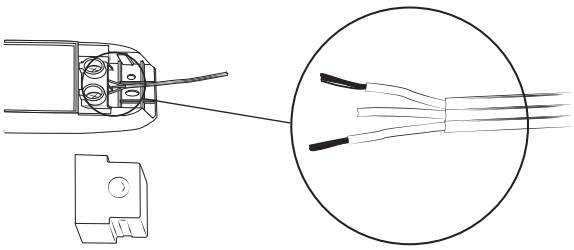
STEP 9A Connect flex plug to plug base or outlet.



STEP 9B **Installation using this method must be carried out by a licensed electrical contractor in accordance with the Electrical Safety Act Wiring Rules AS/NZS 3000:2007 – Electrical Installations**

Fixed wiring – Remove driver cover and flex lead.

Make new wiring connections accordingly and replace driver cover ensuring no single insulated cable is exposed and cover is firmly fastened to driver base. Note: Some cover plastic may need to be cut away to allow for thicker cable entry.



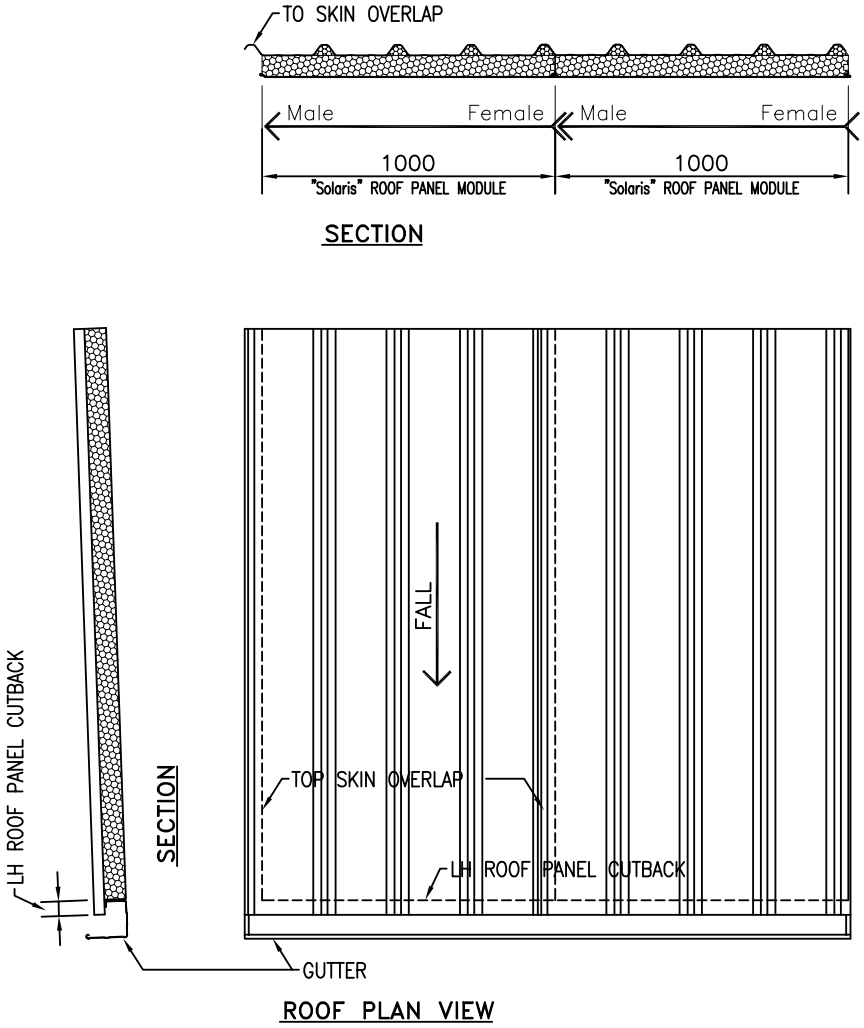
RIDGEPANEL ROOFING
TYPICAL INSTALLATION DRAWINGS

MAIN MENU SECTION MENU

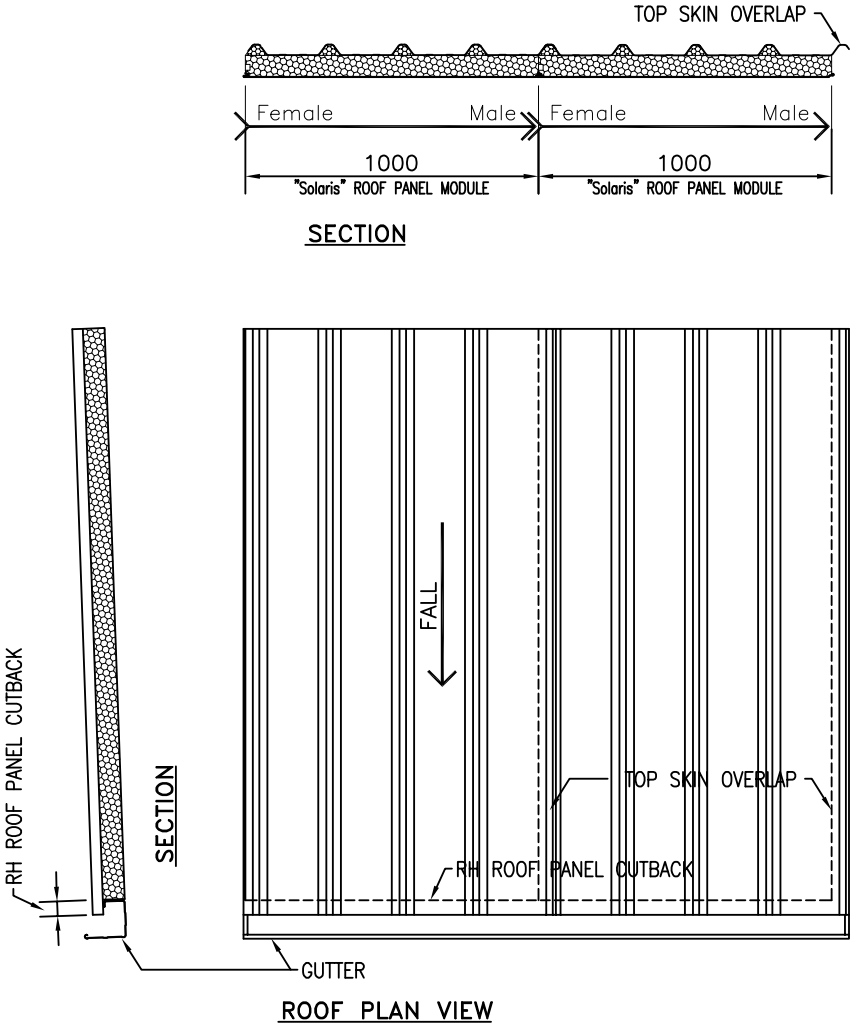
RIDGEPANEL

SCHEDULE OF DRAWINGS

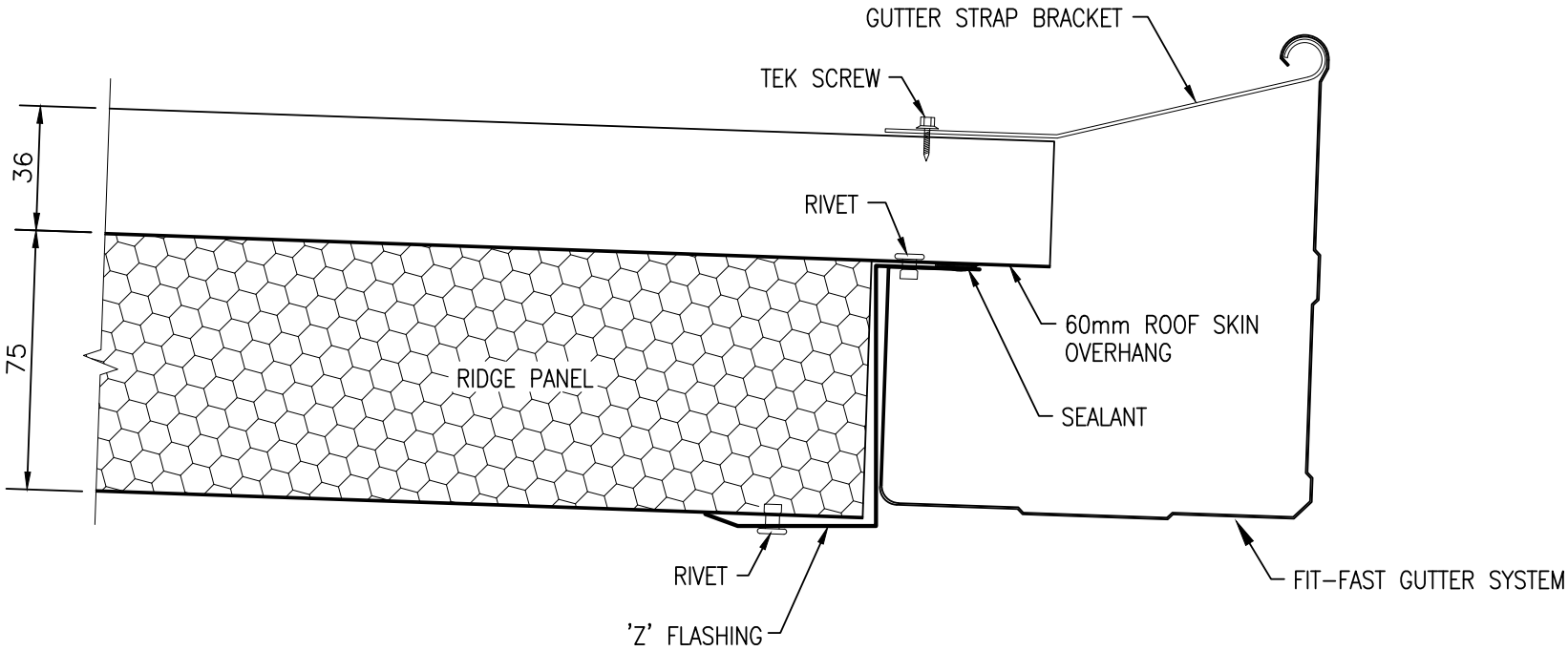
TITLE	DRAWING NUMBER
RidgePanel roof LH and RH cutback installation details	R00
RidgePanel with cutback and “Z” flashing – fit-fast gutter	R01A
RidgePanel with cutback and step “Z” flashing – fit-fast gutter	R01B
RidgePanel with cutback and “Z” flashing – emline gutter	R02A
RidgePanel with cutback and step “Z” flashing – emline gutter	R02B
RidgePanel – Half round gutter with overhang and step flashing	R03B
RidgePanel at female joint – STD. barge flashing detail	R04A
RidgePanel at male joint – step barge flashing detail	R04B
RidgePanel at male joint – STD. barge flashing detail	R05A
RidgePanel at female joint – step barge flashing detail	R05B
RidgePanel patio roof to existing structure at high end receiving channel detail	R06
RidgePanel patio roof end lap detail	R07
RidgePanel roof – multi-pitch roof joint (indicative detail only)	R08
RidgePanel fixing details with overhang and “Z” flashing	R10A
RidgePanel fixing details with overhang and step “Z” flashing	R10B
RidgePanel roof to low wall gutter (indicative detail only)	R11
RidgePanel roof to high wall barge (indicative detail only)	R12
RidgePanel roof at male side barge (indicative detail only)	R13
RidgePanel roof at female side barge (indicative detail only)	R14



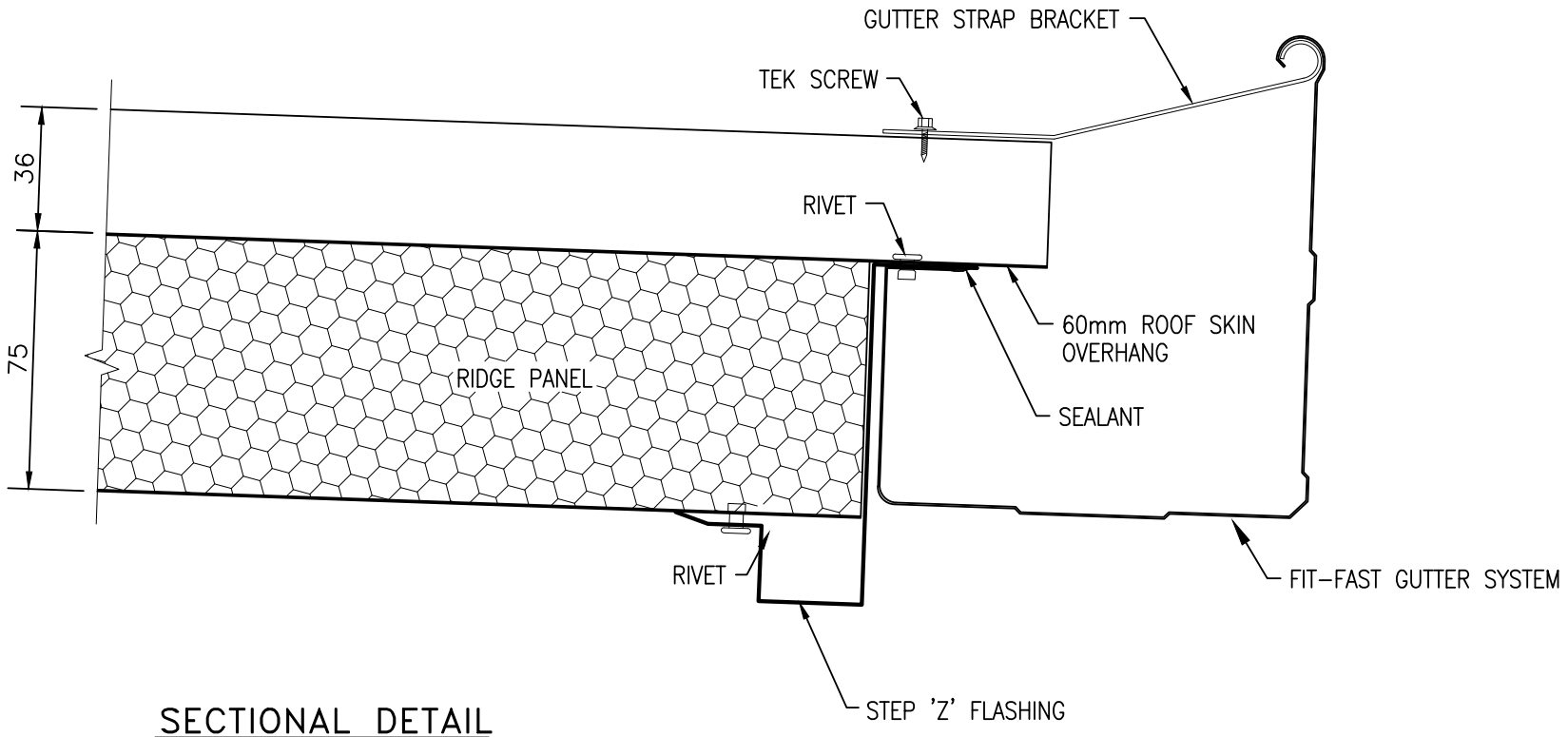
LH ROOF PANEL CUTBACK



RH ROOF PANEL CUTBACK



SECTIONAL DETAIL



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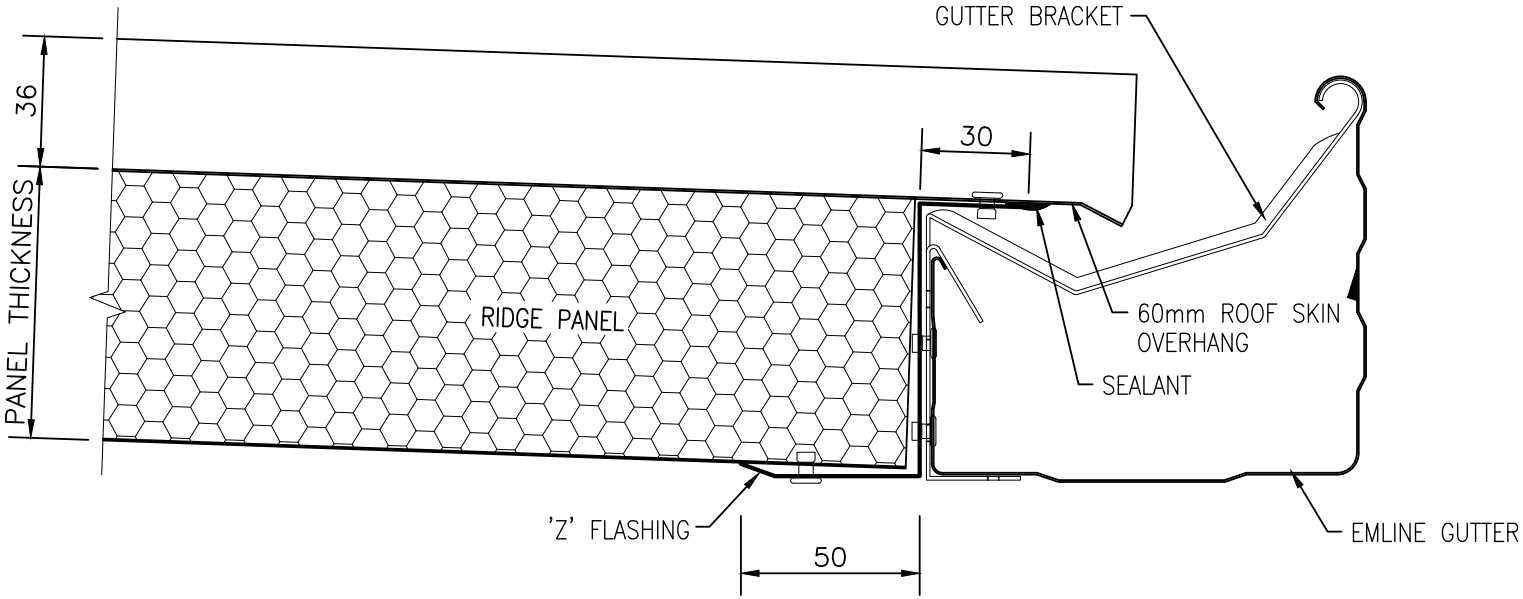
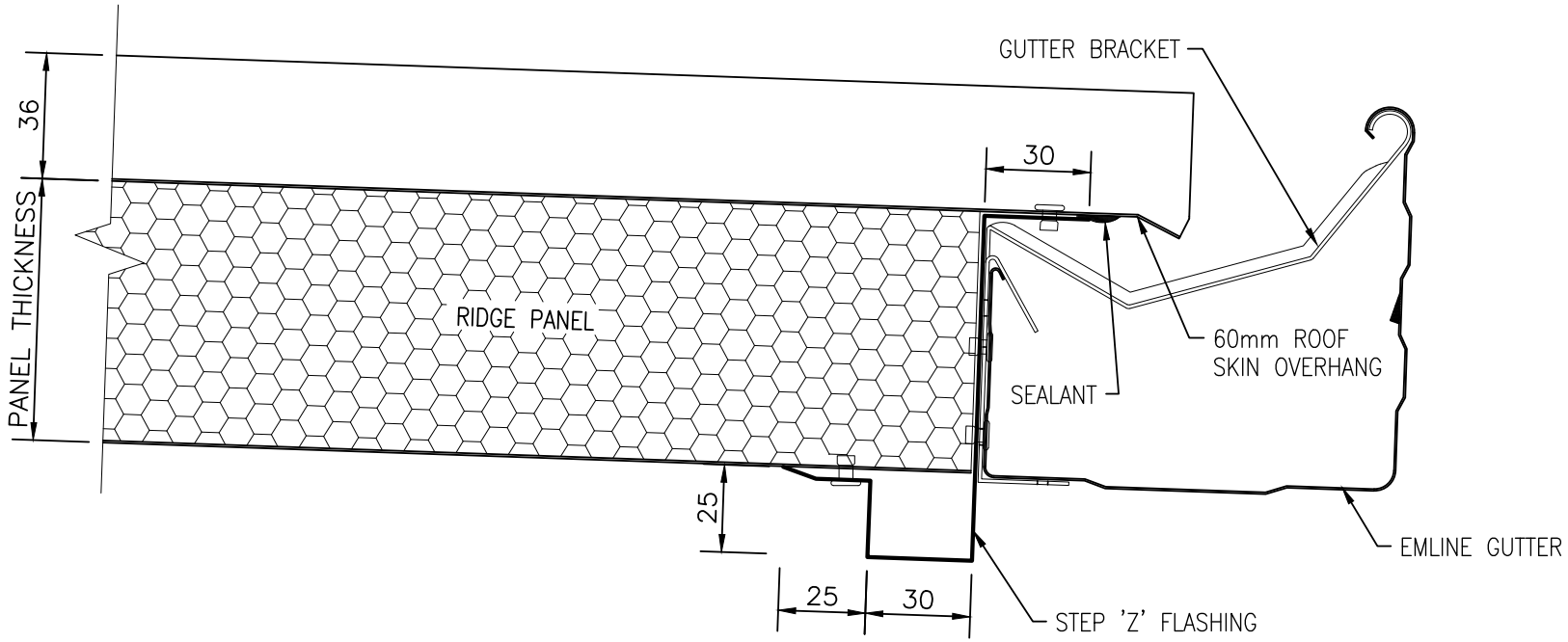


SECTIONAL DETAIL



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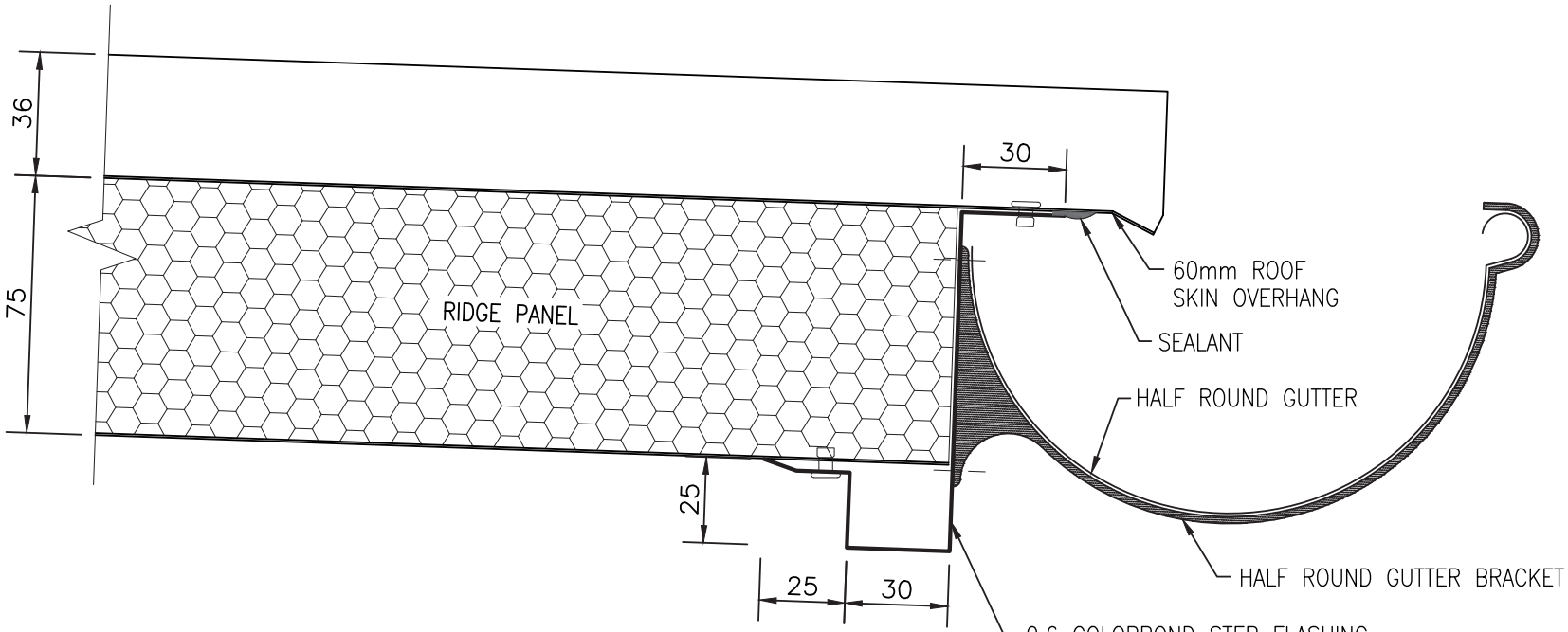

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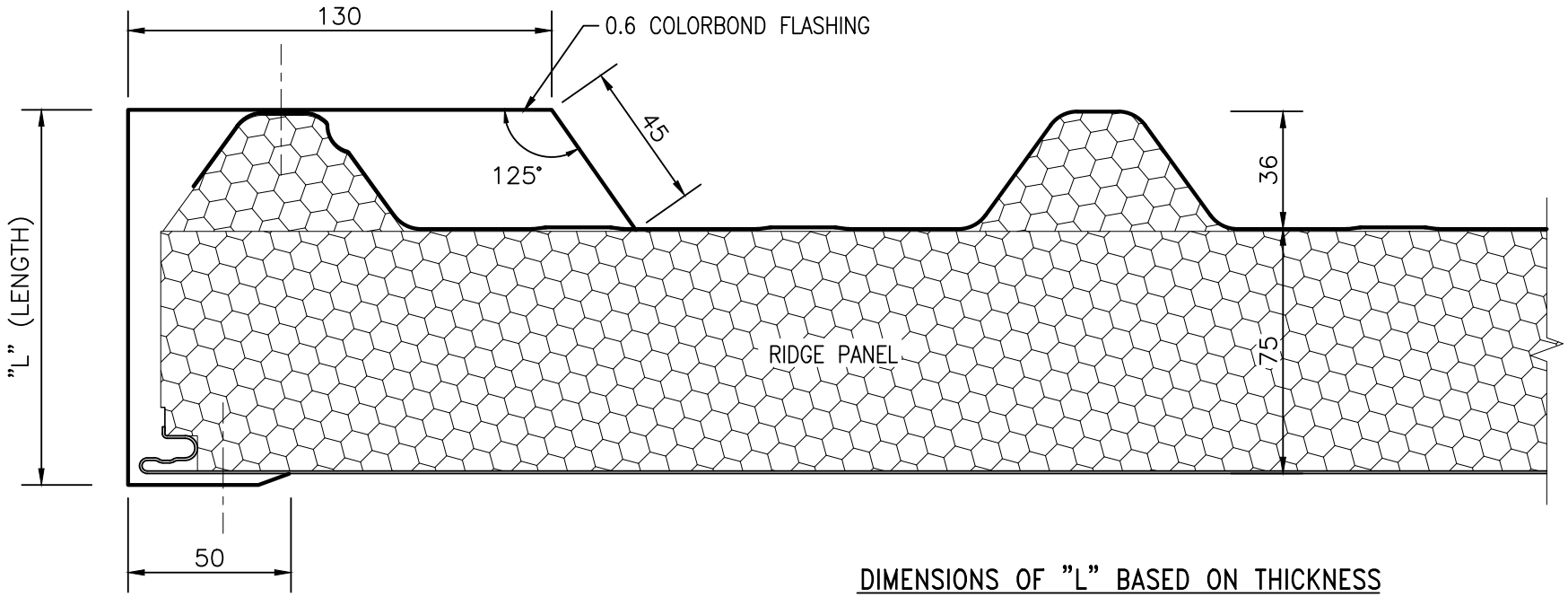
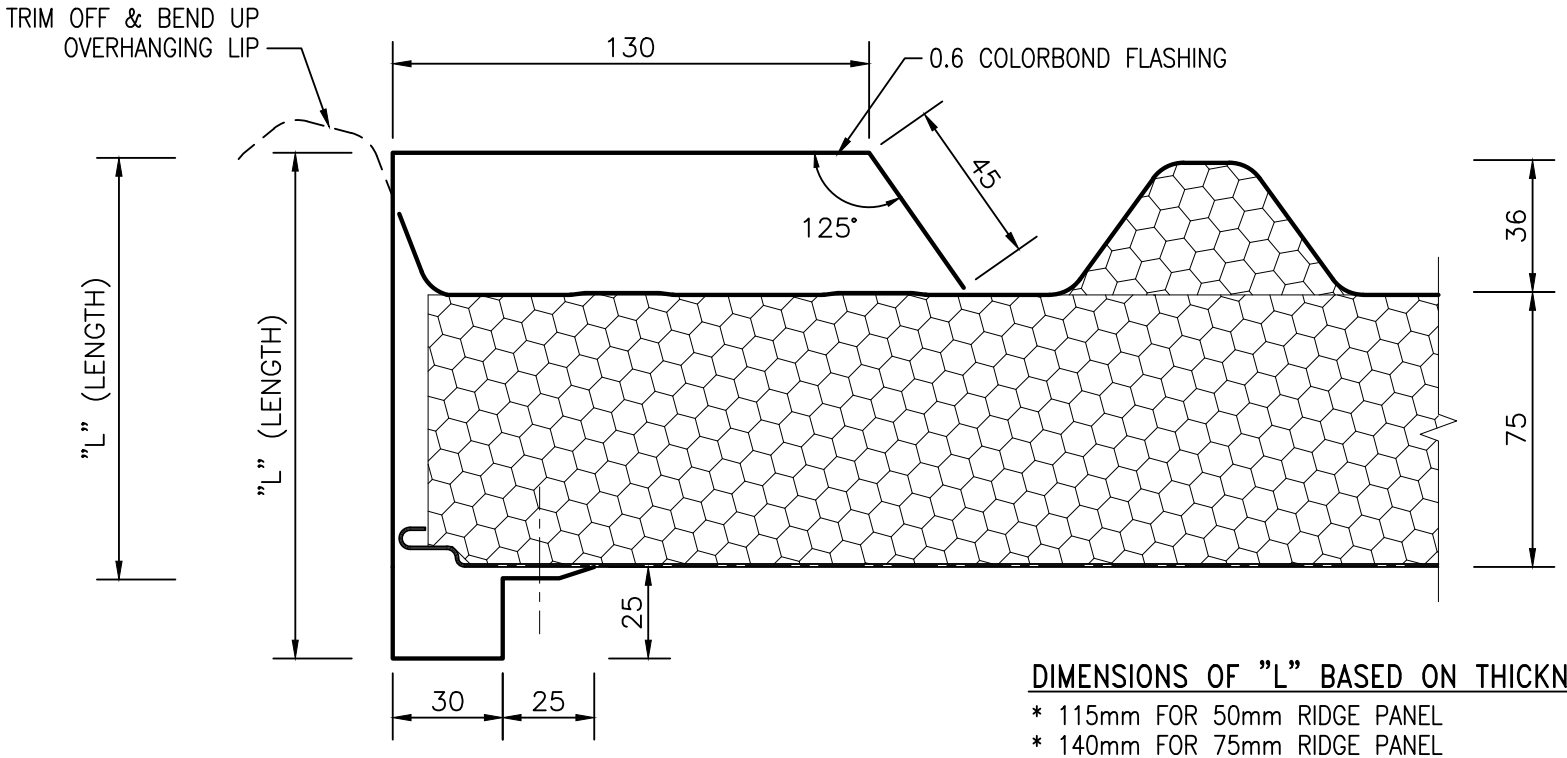


SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

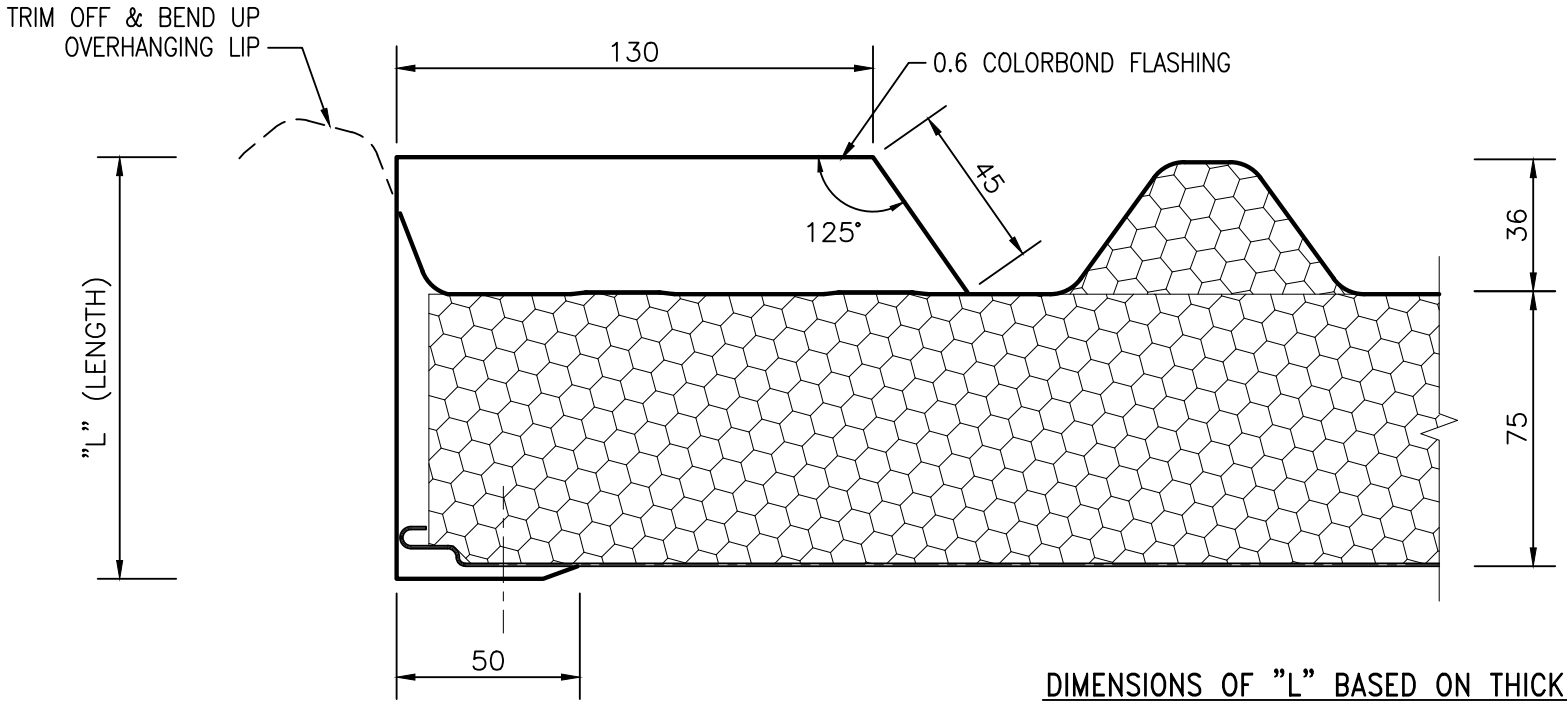
* 90mm FOR 50mm RIDGE PANEL
* 115mm FOR 75mm RIDGE PANEL
* 140mm FOR 100mm RIDGE PANEL
* 165mm FOR 125mm RIDGE PANEL
* 190mm FOR 150mm RIDGE PANEL



SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

* 115mm FOR 50mm RIDGE PANEL
* 140mm FOR 75mm RIDGE PANEL
* 165mm FOR 100mm RIDGE PANEL
* 190mm FOR 125mm RIDGE PANEL
* 215mm FOR 150mm RIDGE PANEL



SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

* 90mm FOR 50mm RIDGE PANEL
* 115mm FOR 75mm RIDGE PANEL
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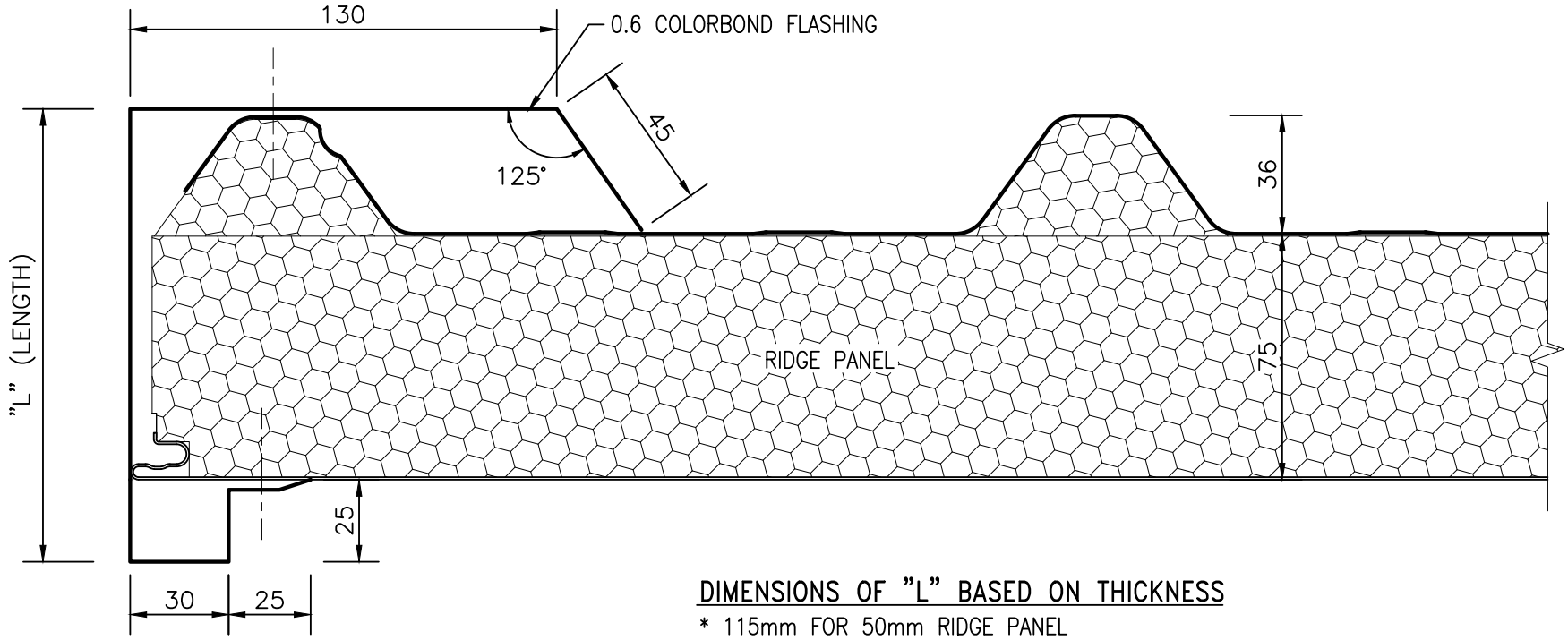
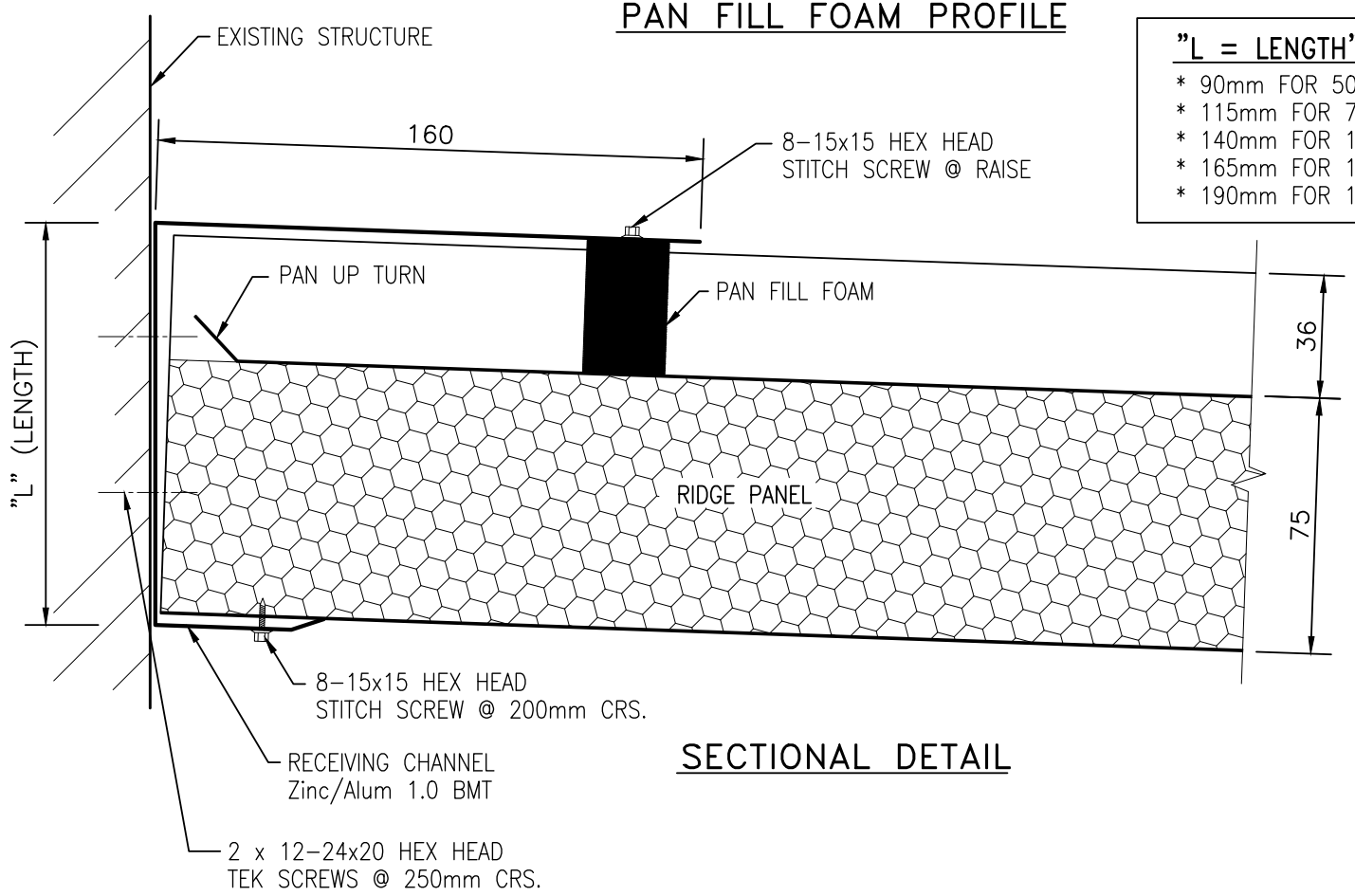


SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

* 115mm FOR 50mm RIDGE PANEL
* 140mm FOR 75mm RIDGE PANEL
* 165mm FOR 100mm RIDGE PANEL
* 190mm FOR 125mm RIDGE PANEL
* 215mm FOR 150mm RIDGE PANEL

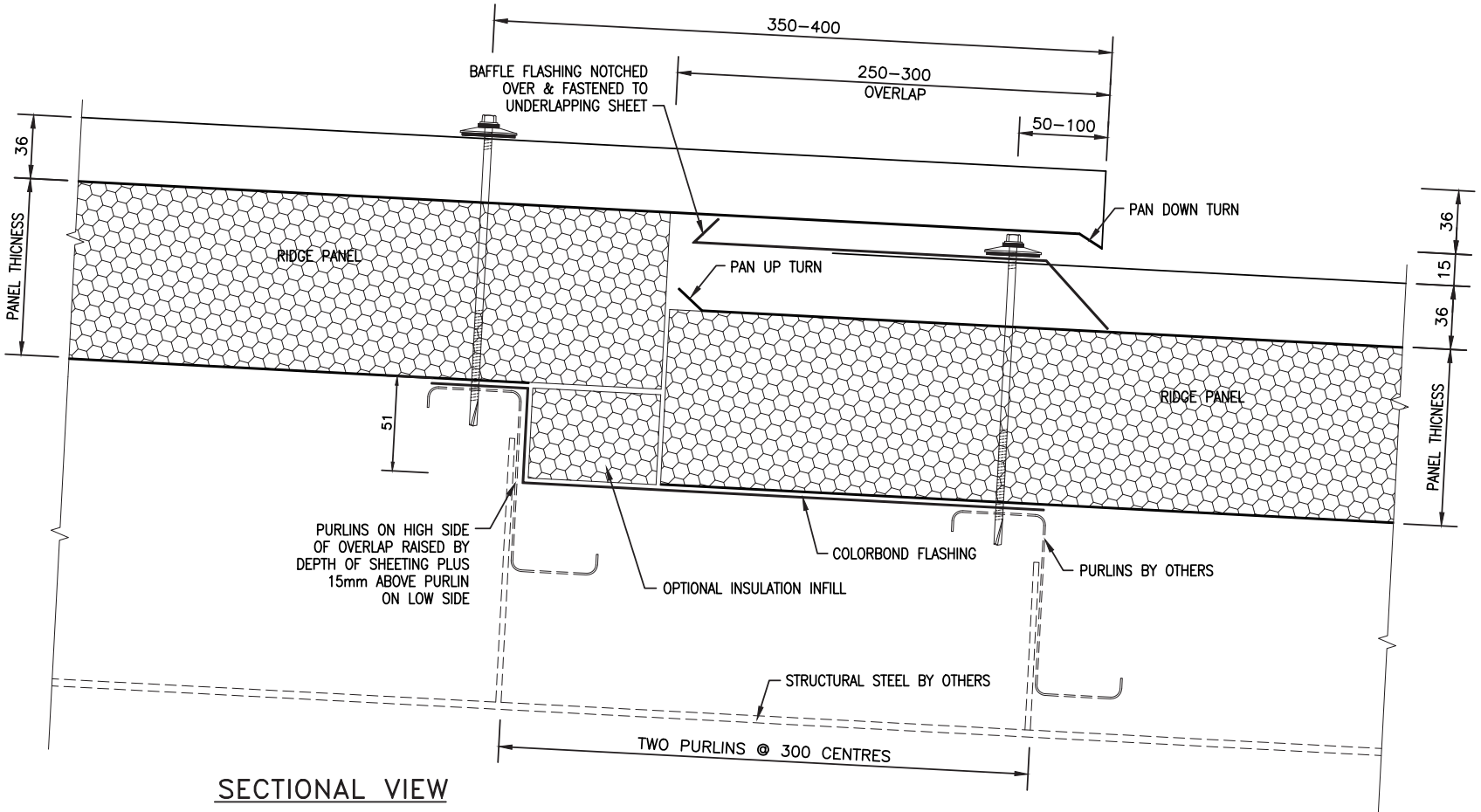
PAN FILL FOAM PROFILE



SECTIONAL DETAIL

"L = LENGTH" BASED ON THICKNESS

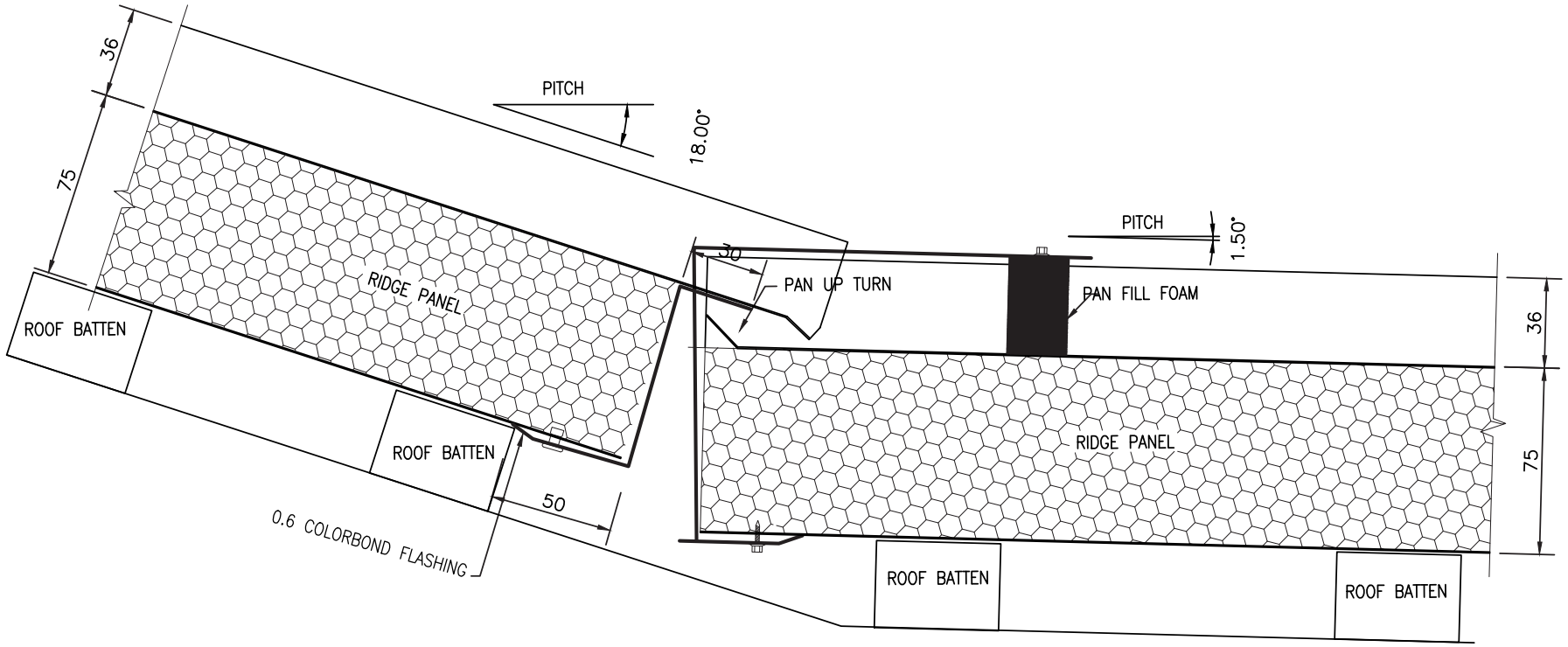
* 90mm FOR 50mm RIDGE PANEL
* 115mm FOR 75mm RIDGE PANEL
* 140mm FOR 100mm RIDGE PANEL
* 165mm FOR 125mm RIDGE PANEL
* 190mm FOR 150mm RIDGE PANEL

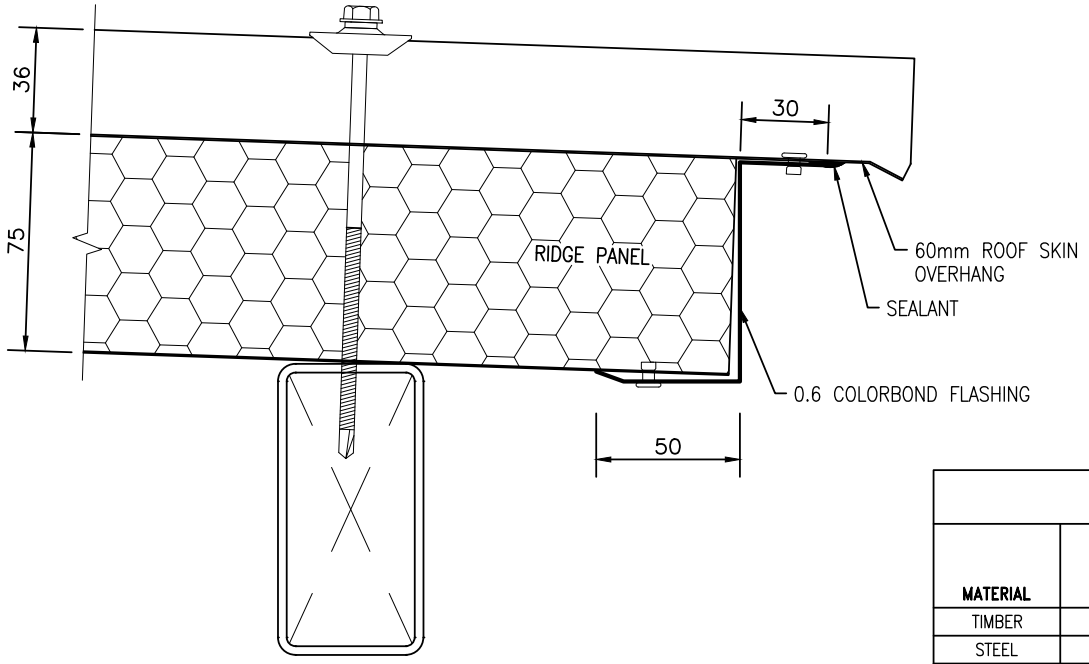


SECTIONAL VIEW

NOTES:–

* JOINT USED FOR END TO END JOINTS IN PANELS.
* ALLOWS FOR THERMAL EXPANSION & CONTRACTION.
* MAXIMUM LENGTH OF ROOF PANEL IS 18 METRES.
* MINIMUM ROOF SLOPE THREE DEGREES.
* REFER – 1) BRANZ "GOOD PRACTICE GUIDE – PROFILED METAL ROOFING". FIGURE 13, SECTION 6.2, TABLE 12.
  2) SAA HB39–1997 "INSTALLATION CODE FOR METAL ROOFING & WALL CLADDING". FIGURE 7.7, SECTION 7.15


36
75
PITCH
18.00°
RIDGE PANEL
ROOF BATTEN
ROOF BATTEN
50
0.6 COLORBOND FLASHING
30
PAN UP TURN
PITCH
1.50°
PAN FILL FOAM
RIDGE PANEL
ROOF BATTEN
ROOF BATTEN
36
75



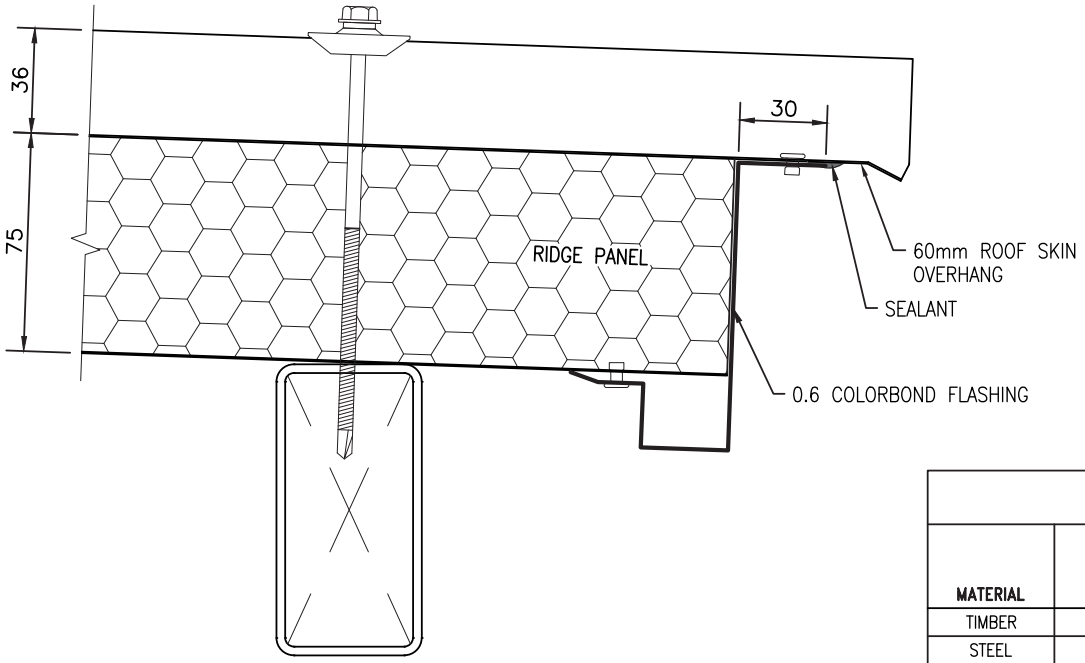
SECTIONAL DETAIL

RIDGE PANEL FIXING DETAILS

MATERIAL	GRADE	UPLIFT ON BEAMS (Kn) THICKNESS	1–SCREW EVERY RIDGE	1–SCREW EVERY RIDGE & PAN	1–SCREW EVERY RIDGE, 2–PER PAN
TIMBER	JD4/J3	MIN. 30mm EMB.	7.6	15.3	22.9
STEEL	250	2	15.2	30.4	45.6
COLD FORMED	G450	0.6	2.56	5.12	7.68
STEEL		1	8.32	16.6	25
		2	10.24	20.5	30.72
ALUMINIUM	6060–T4	2	1.37	2.73	4.1

RIDGE PANEL FIXINGS TO BEAMS

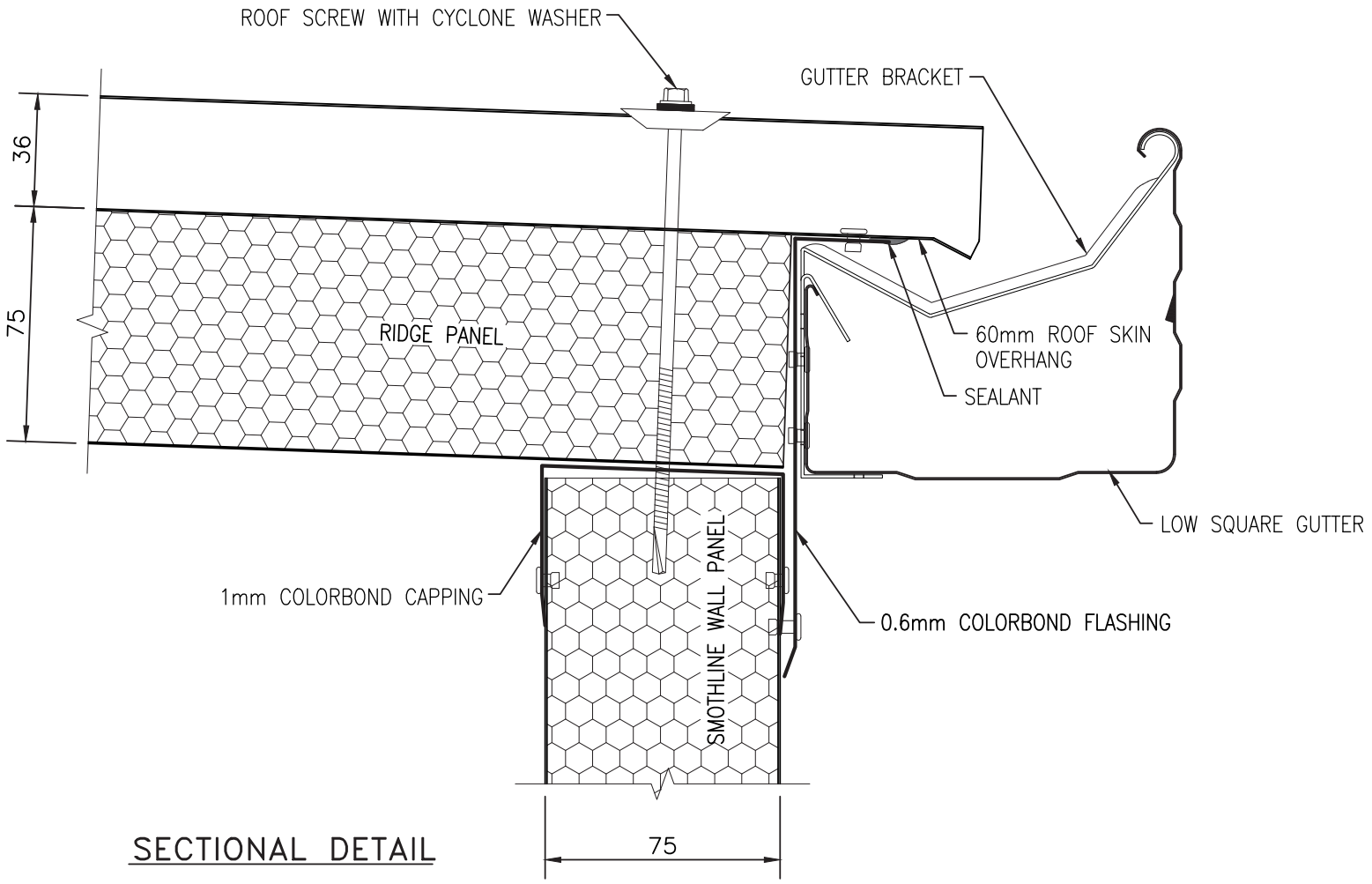
PANEL THICK.	TIMBER BEAM	STEEL BEAM
50mm	TYPE 17 14–15 x 115mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–10 tpi x 115mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.5mm
75mm	TYPE 17 14–15 x 150mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–20 tpi x 135mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.9mm
100mm	TYPE 17 14–15 x 175mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–10tpi x 150mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.9mm



SECTIONAL DETAIL

RIDGE PANEL FIXING DETAILS					
		UPLIFT ON BEAMS (Kn)			
MATERIAL	GRADE	THICKNESS	1–SCREW EVERY RIDGE	1–SCREW EVERY RIDGE & PAN	1–SCREW EVERY RIDGE, 2–PER PAN
TIMBER	JD4/J3	MIN. 30mm EMB.	7.6	15.3	22.9
STEEL	250	2	15.2	30.4	45.6
COLD FORMED	G450	0.6	2.56	5.12	7.68
STEEL		1	8.32	16.6	25
		2	10.24	20.5	30.72
ALUMINIUM	6060–T4	2	1.37	2.73	4.1

RIDGE PANEL FIXINGS TO BEAMS		
PANEL THICK.	TIMBER BEAM	STEEL BEAM
50mm	TYPE 17 14–15 x 115mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–10 tpi x 115mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.5mm
75mm	TYPE 17 14–15 x 150mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–20 tpi x 135mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.9mm
100mm	TYPE 17 14–15 x 175mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI–TEKS 14–10tpi x 150mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS – 1.9mm



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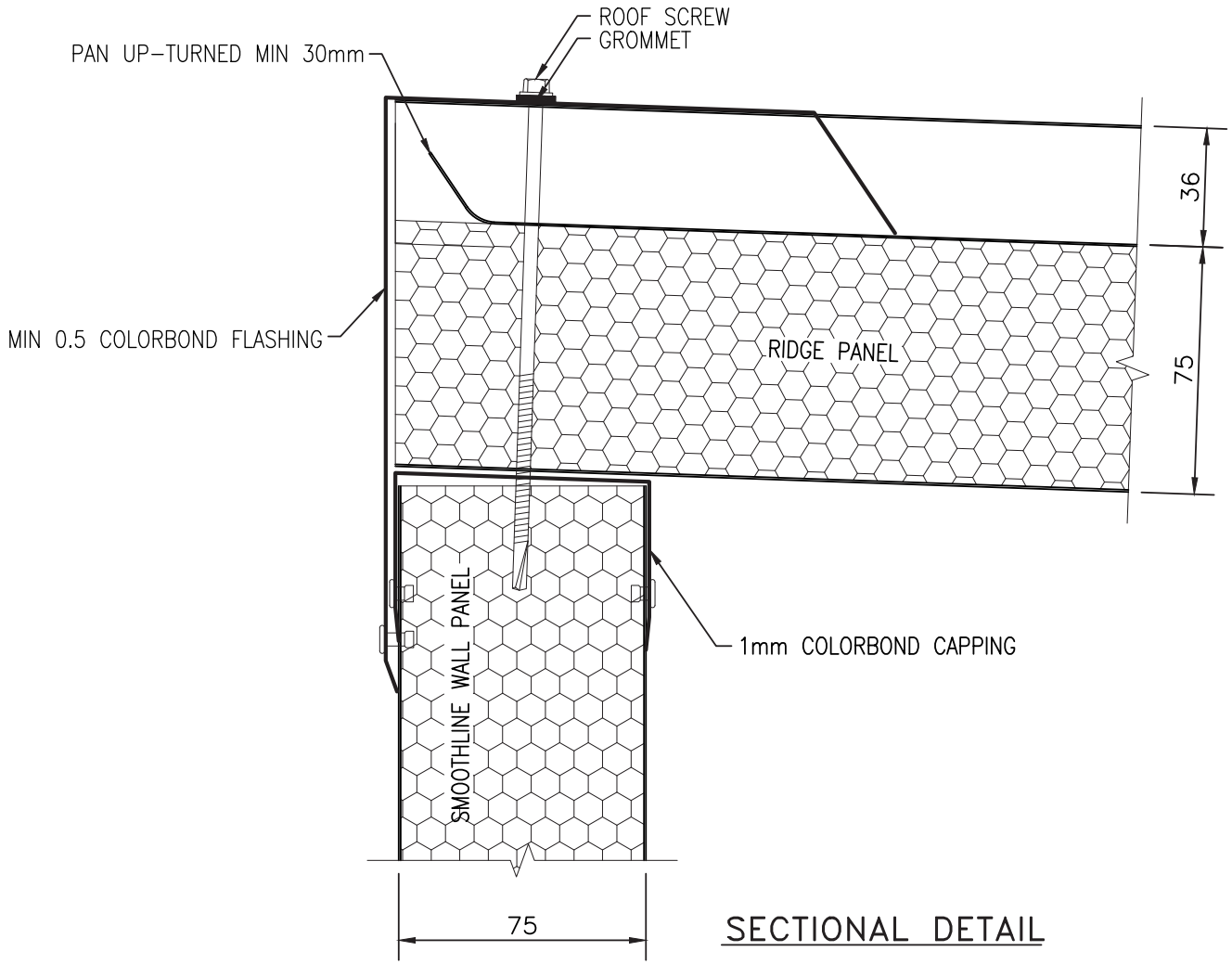
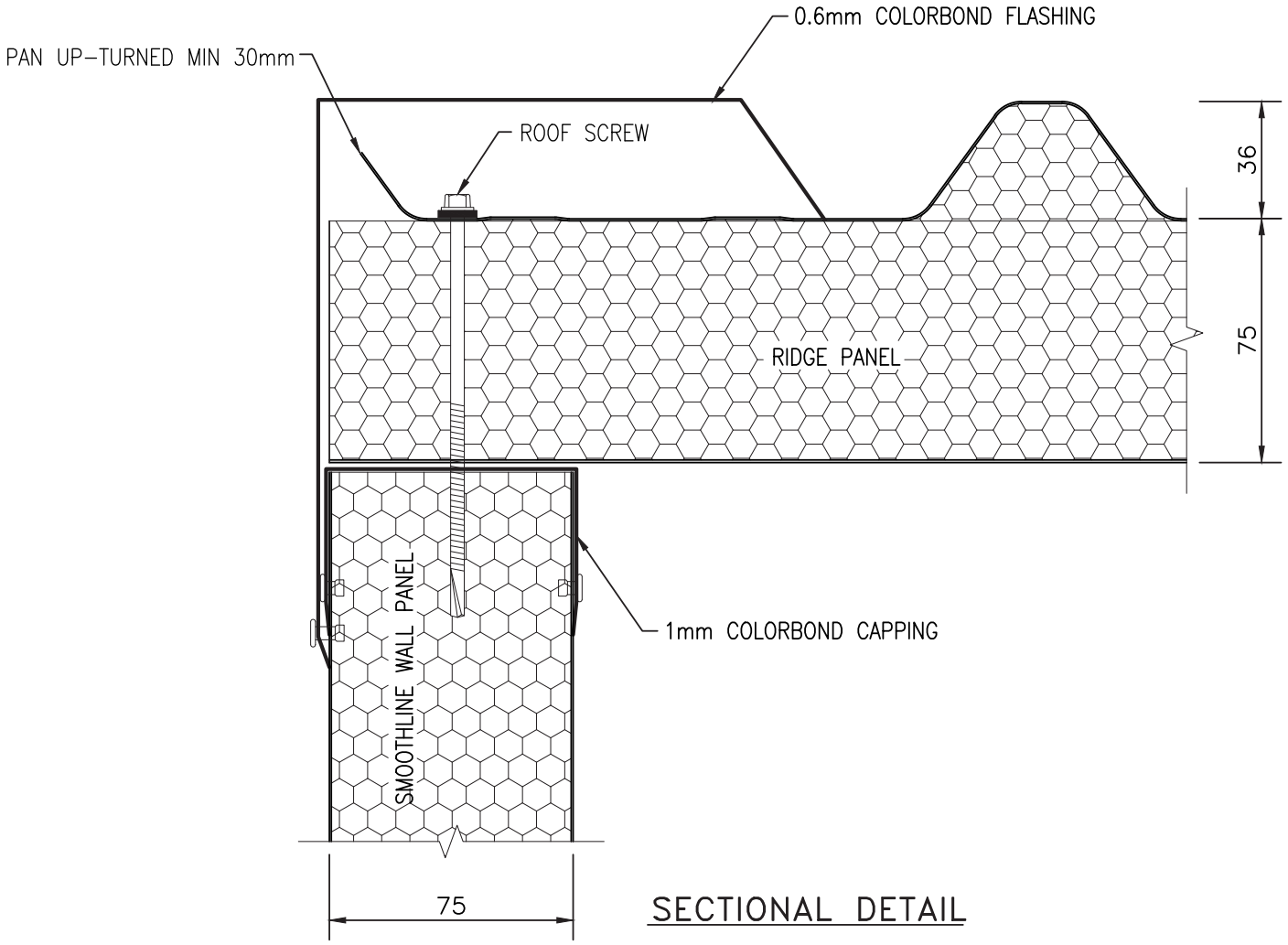
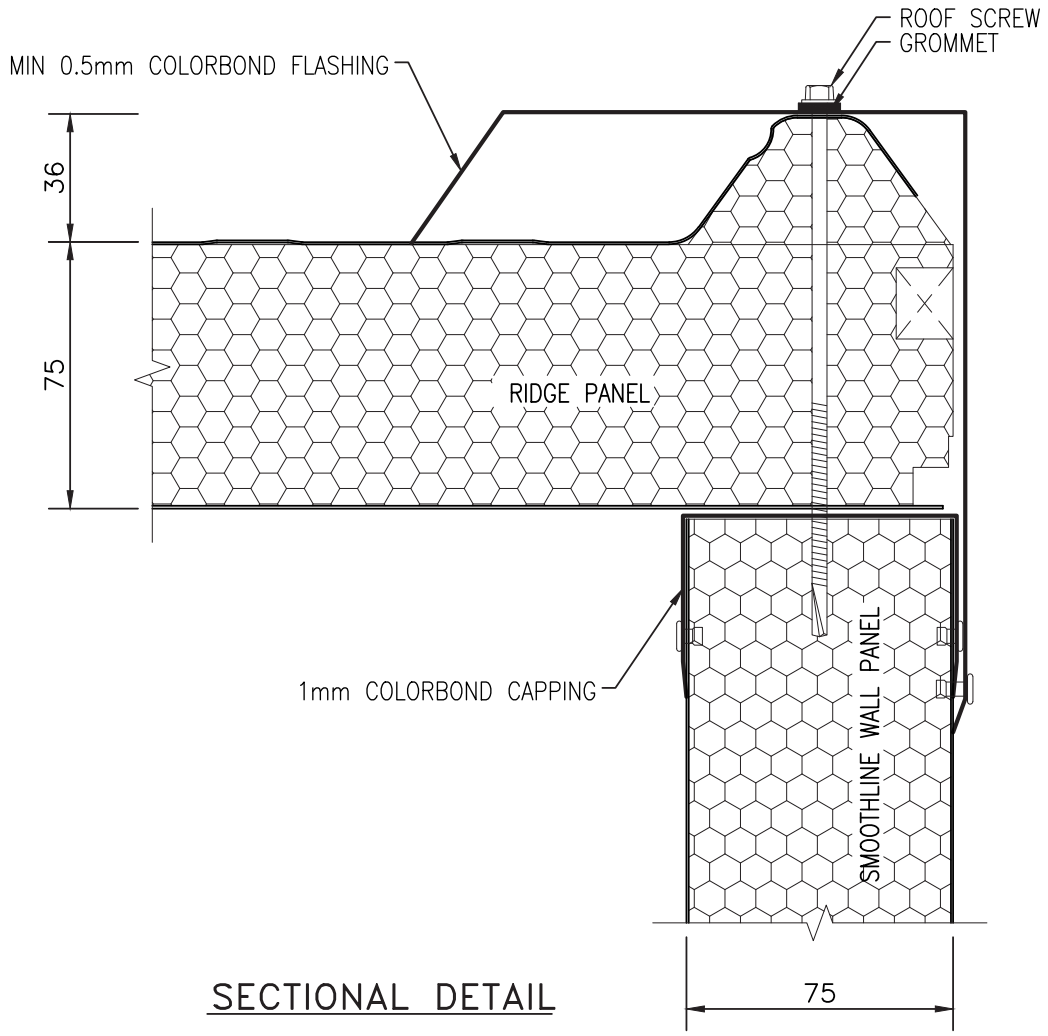


SECTIONAL DETAIL


PAN UP-TURNED MIN 30mm
0.6mm COLORBOND FLASHING
ROOF SCREW
36
75
RIDGE PANEL
SMOOTHLINE WALL PANEL
1mm COLORBOND CAPPING
75
SECTIONAL DETAIL

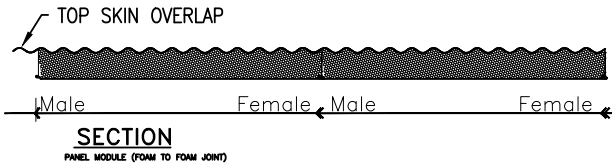


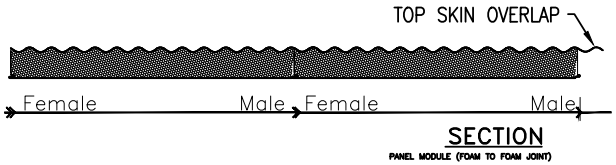
SECTIONAL DETAIL

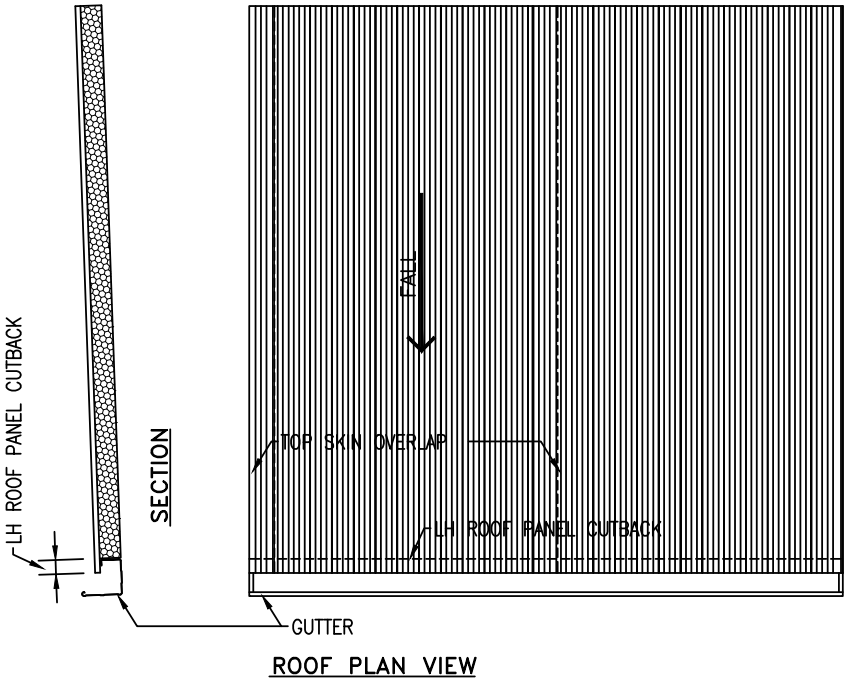
CORROPANEL ROOFING
TYPICAL INSTALLATION DRAWINGS

CORROPANEL

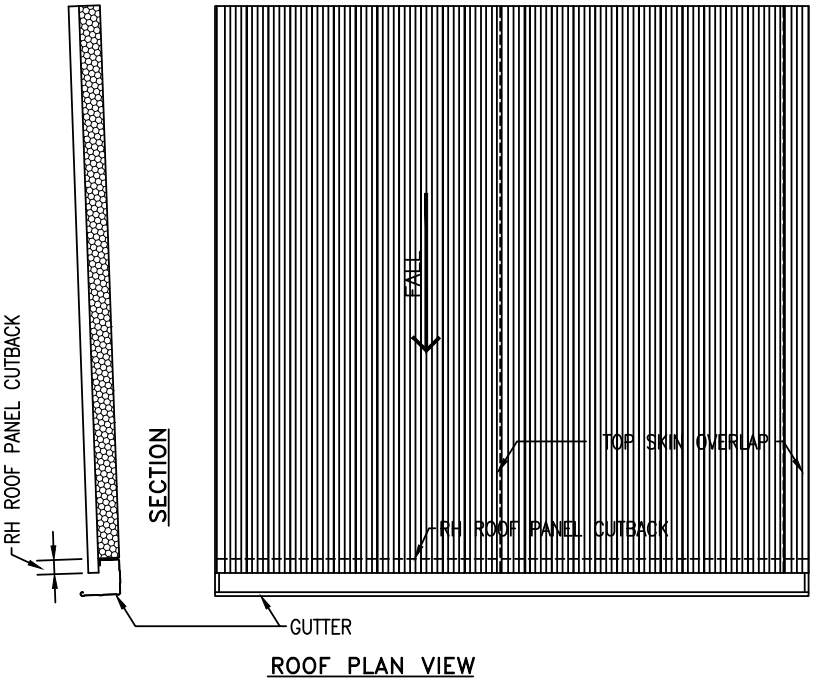
SCHEDULE OF DRAWINGS



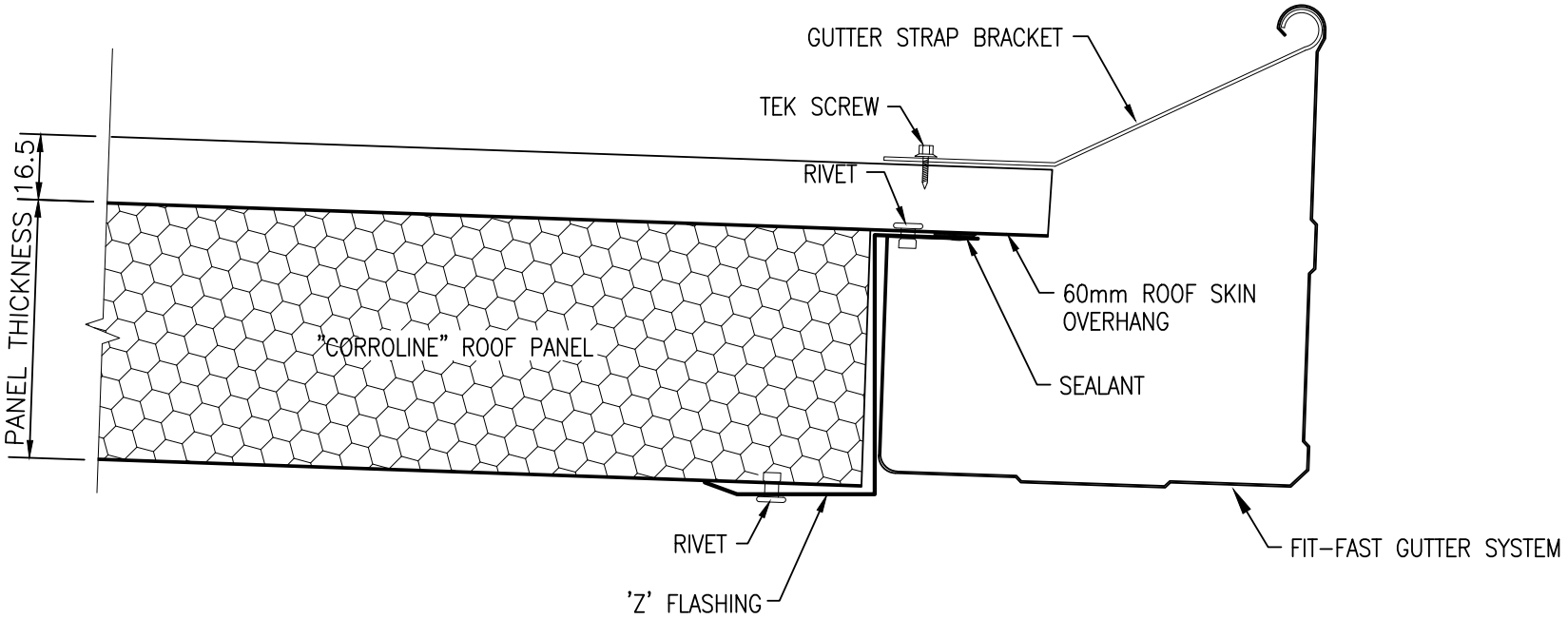




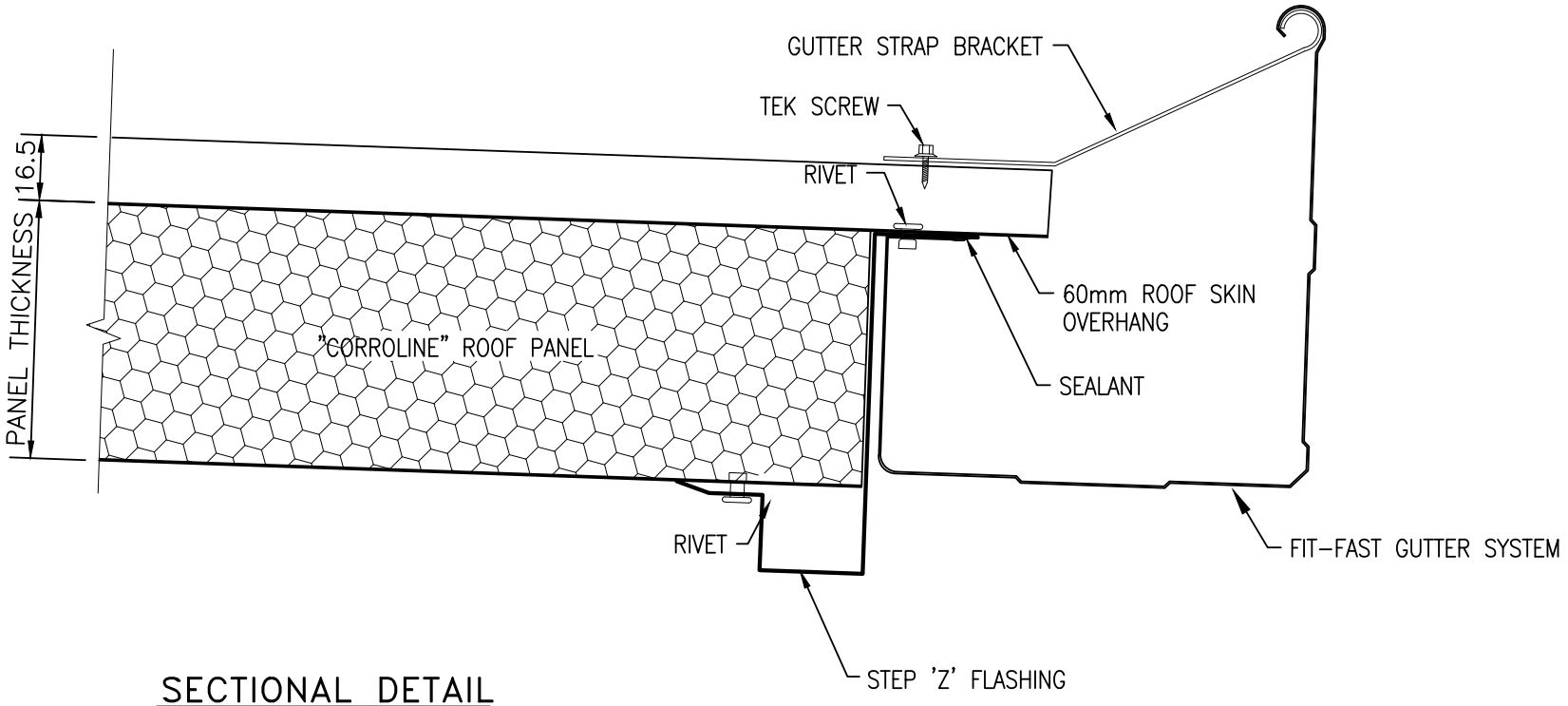
LH CORROPANEL CUTBACK



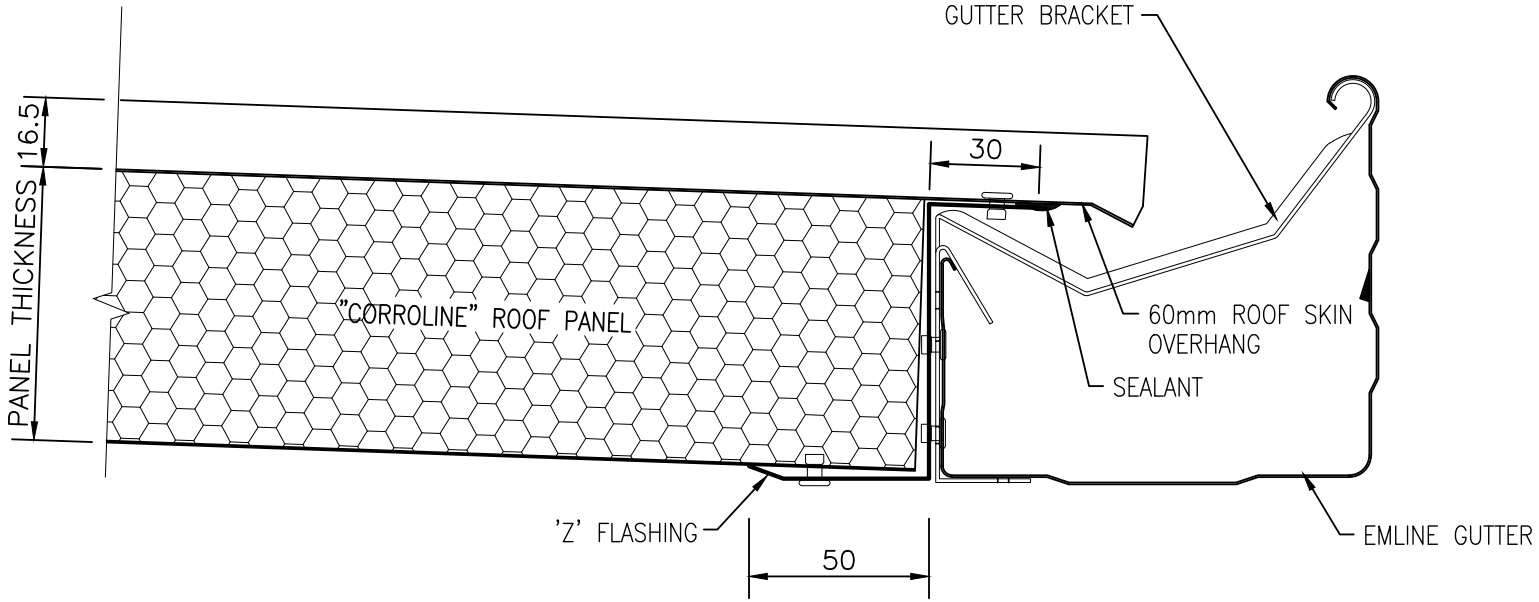
RH CORROPANEL CUTBACK



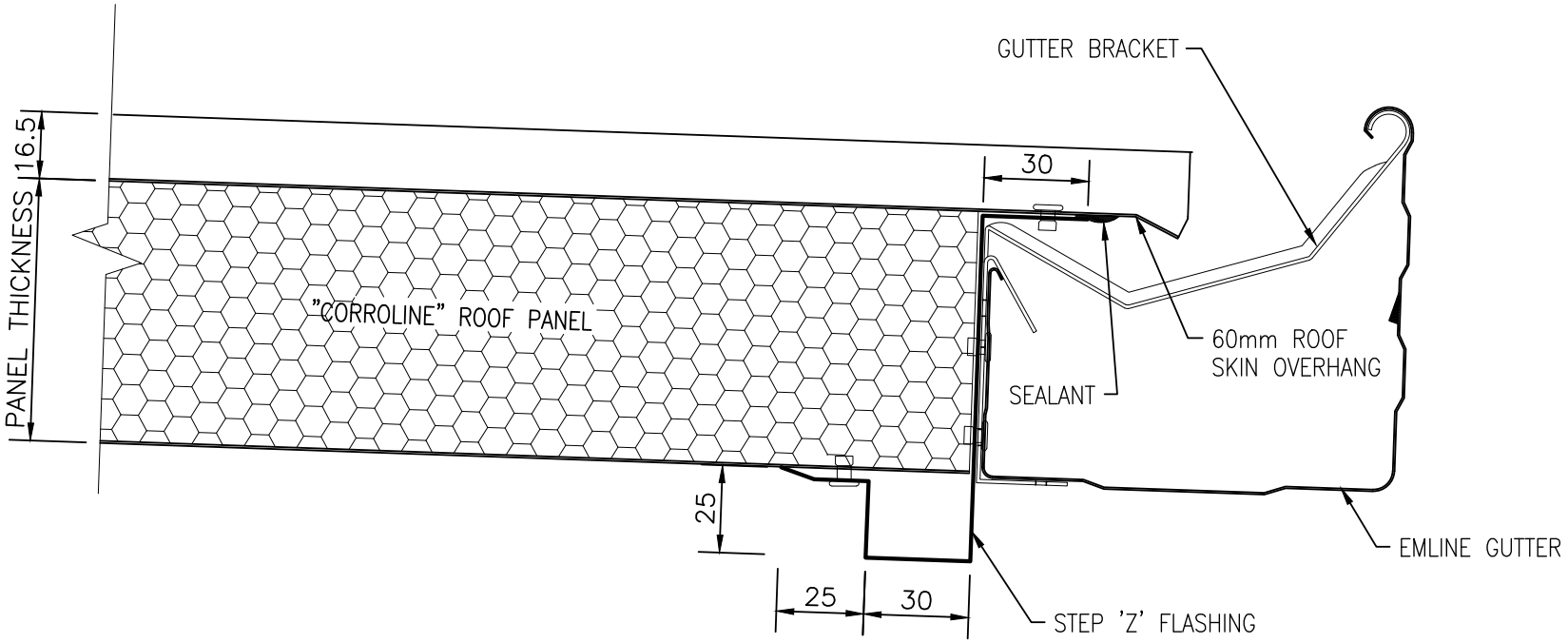
SECTIONAL DETAIL



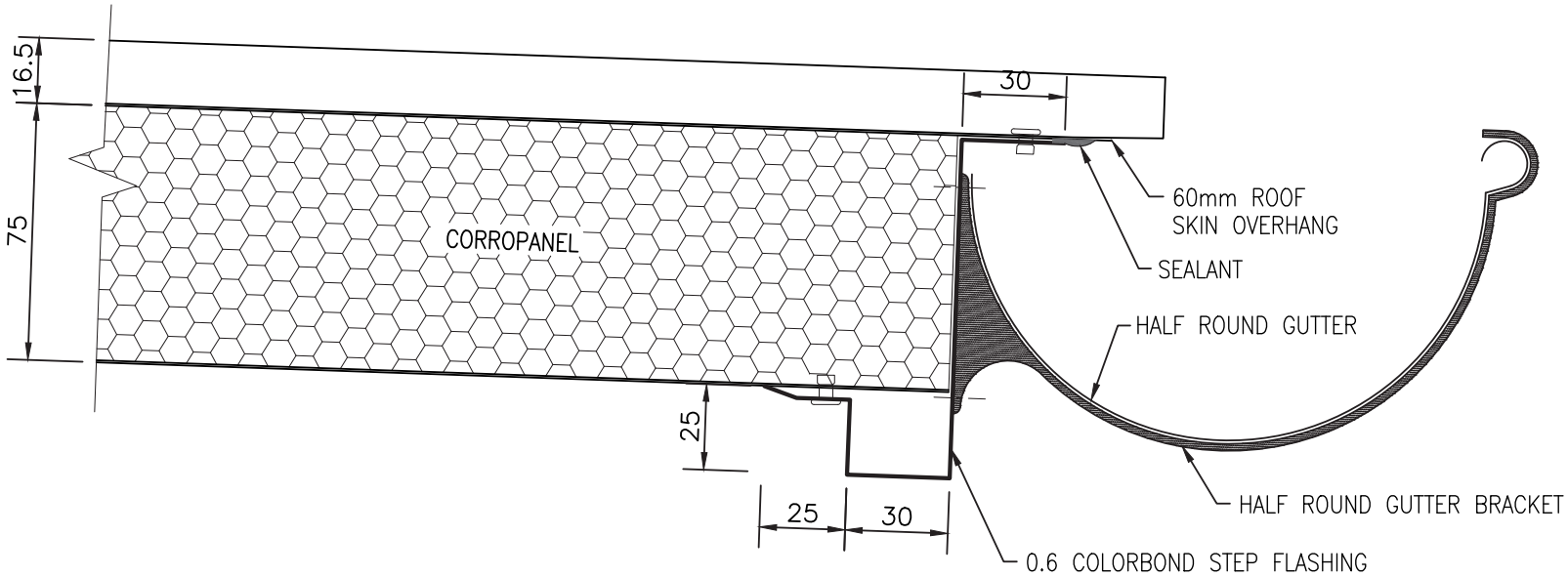
SECTIONAL DETAIL



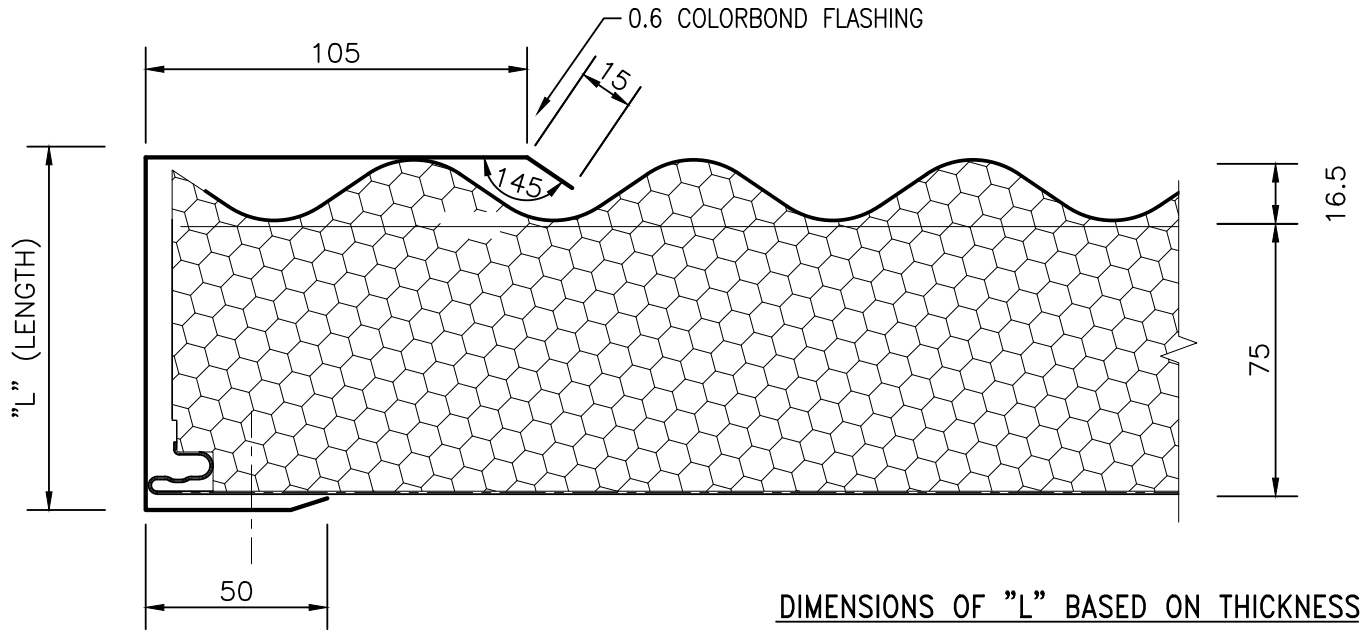
SECTIONAL DETAIL



SECTIONAL DETAIL



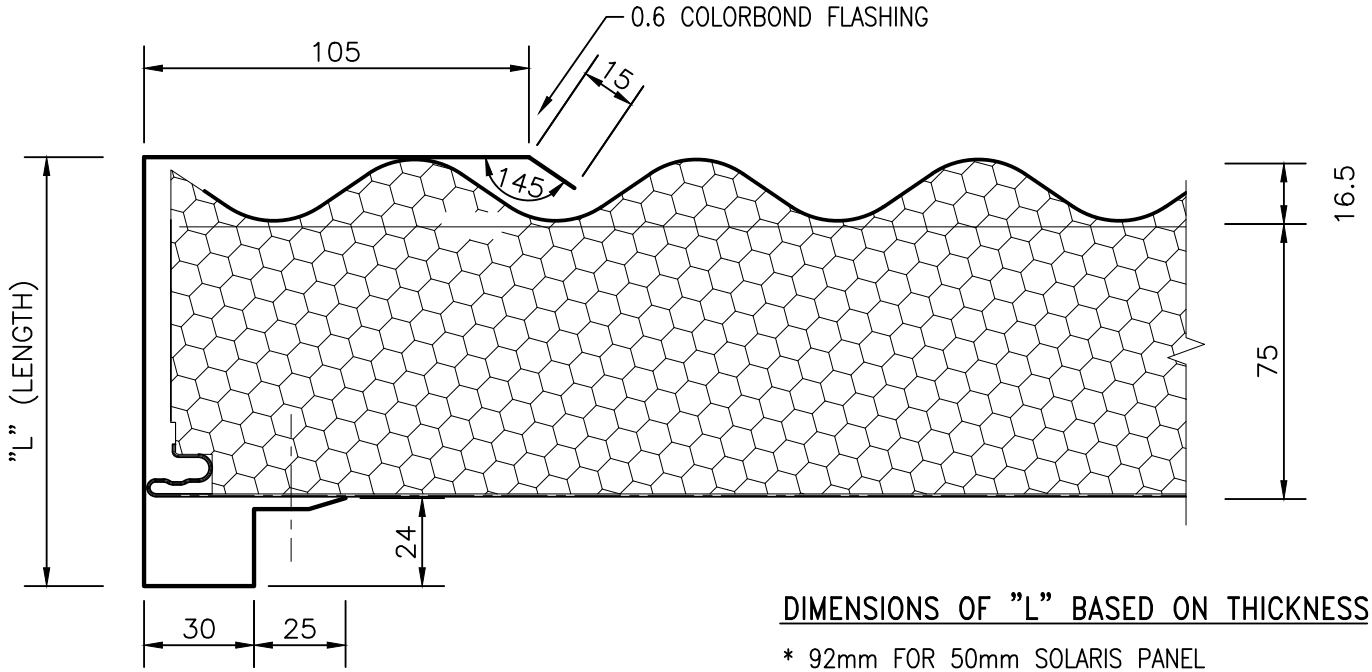
SECTIONAL DETAIL



SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

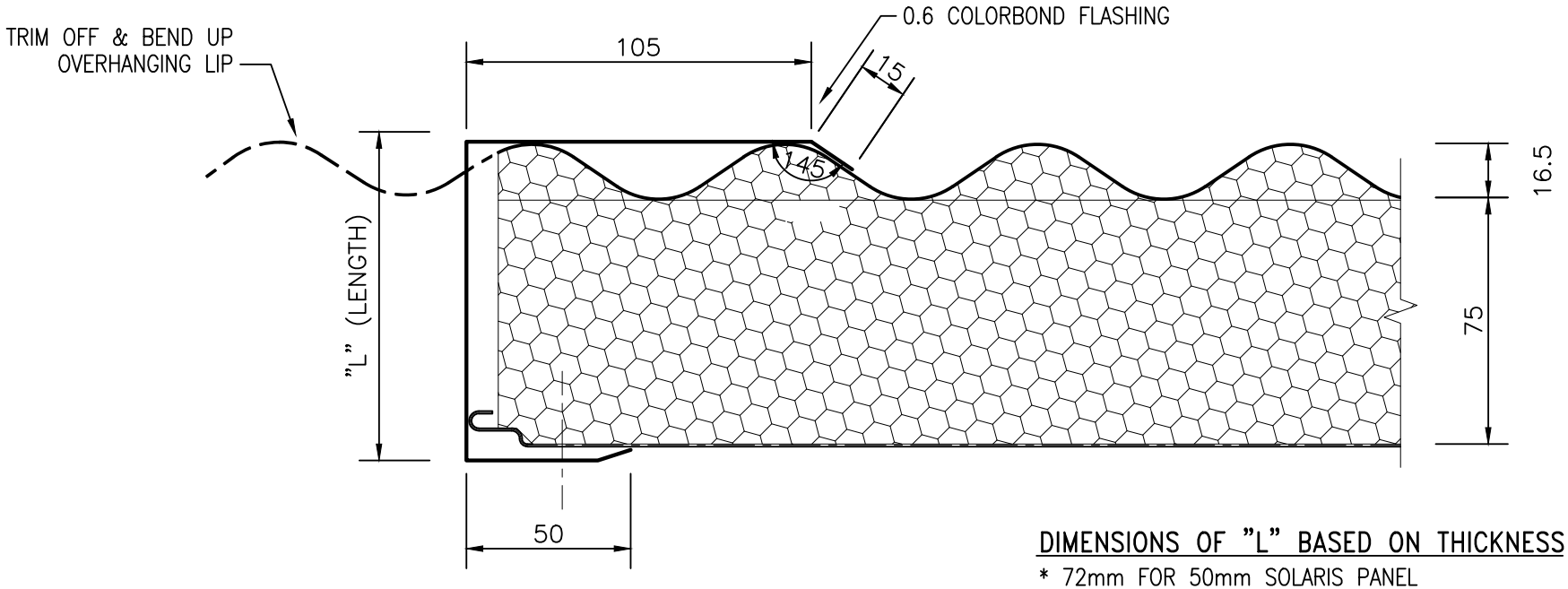
* 67mm FOR 50mm CORRO PANEL
* 92mm FOR 75mm CORRO PANEL
* 107mm FOR 90mm CORRO PANEL
* 117mm FOR 100mm CORRO PANEL
* 142mm FOR 125mm CORRO PANEL
* 167mm FOR 150mm CORRO PANEL



SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

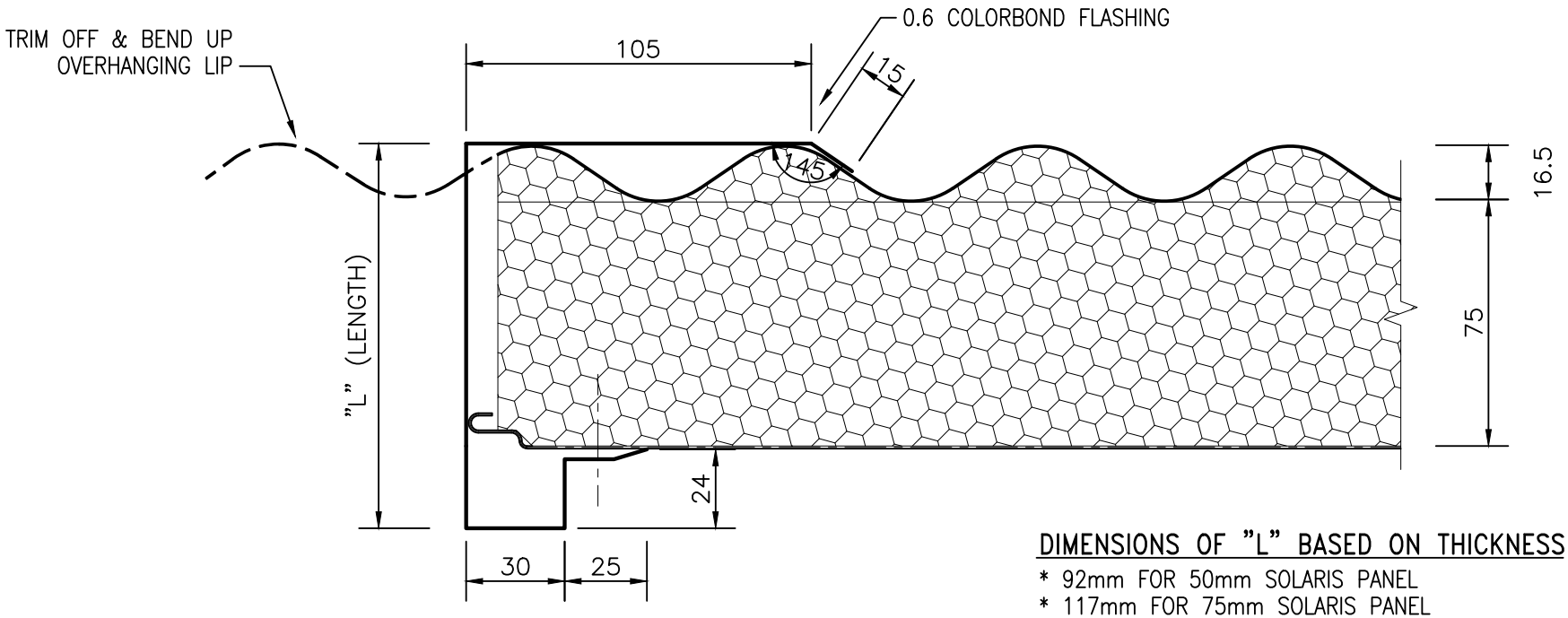
* 92mm FOR 50mm SOLARIS PANEL
* 117mm FOR 75mm SOLARIS PANEL
* 132mm FOR 90mm SOLARIS PANEL
* 142mm FOR 100mm SOLARIS PANEL
* 167mm FOR 125mm SOLARIS PANEL
* 192mm FOR 150mm SOLARIS PANEL



SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

* 72mm FOR 50mm SOLARIS PANEL
* 97mm FOR 75mm SOLARIS PANEL
* 112mm FOR 90mm SOLARIS PANEL
* 122mm FOR 100mm SOLARIS PANEL
* 147mm FOR 125mm SOLARIS PANEL
* 172mm FOR 150mm SOLARIS PANEL

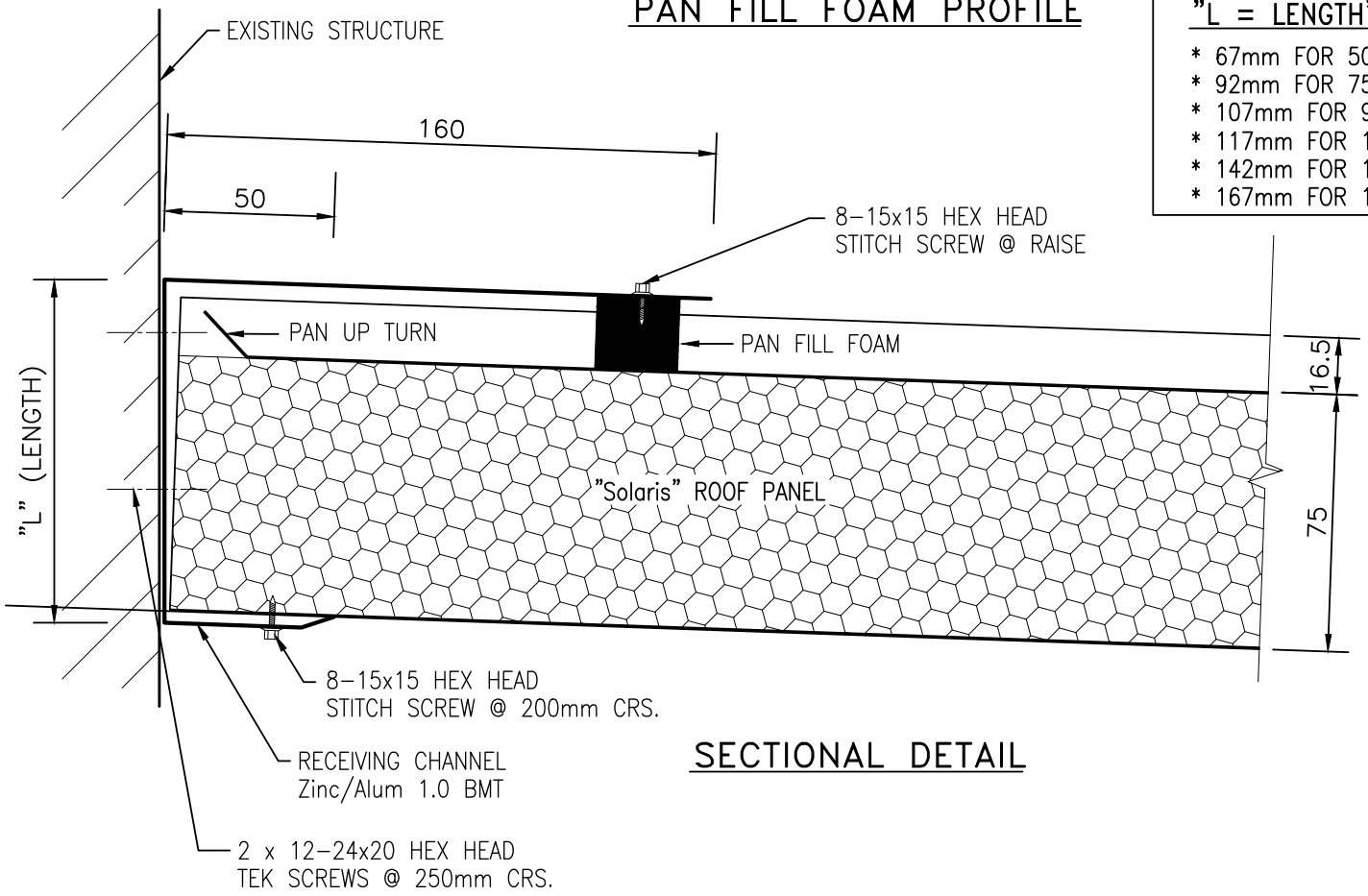


SECTIONAL DETAIL

DIMENSIONS OF "L" BASED ON THICKNESS

* 92mm FOR 50mm SOLARIS PANEL
* 117mm FOR 75mm SOLARIS PANEL
* 132mm FOR 90mm SOLARIS PANEL
* 142mm FOR 100mm SOLARIS PANEL
* 167mm FOR 125mm SOLARIS PANEL
* 192mm FOR 150mm SOLARIS PANEL

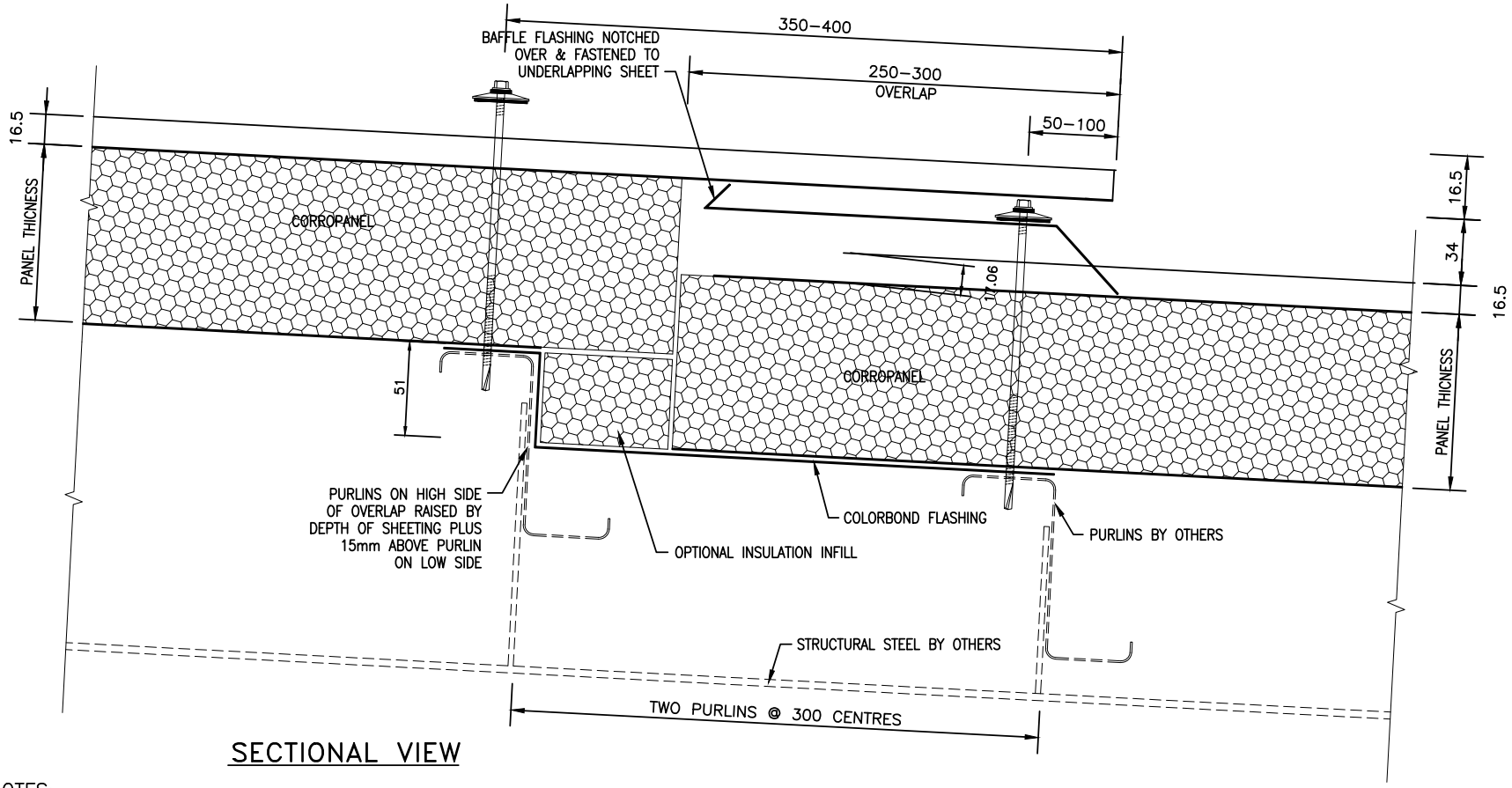
PAN FILL FOAM PROFILE



SECTIONAL DETAIL

"L = LENGTH" BASED ON THICKNESS

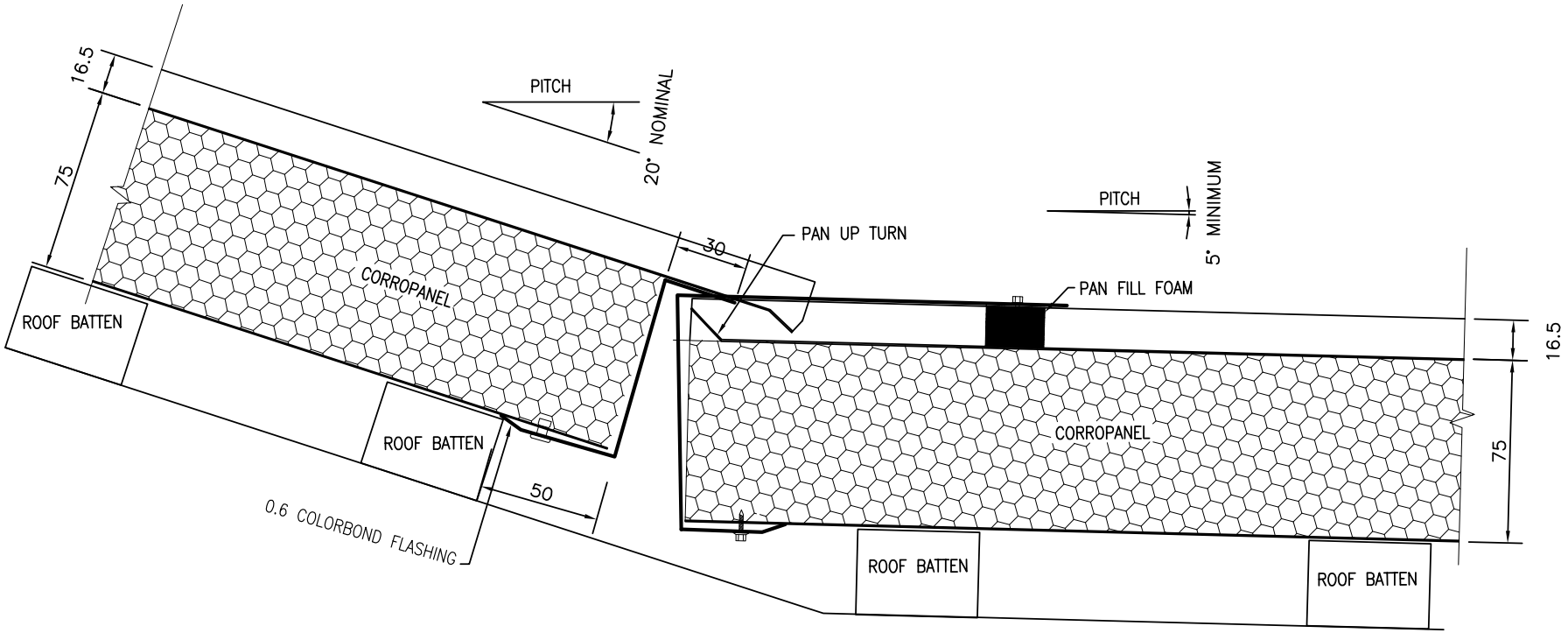
* 67mm FOR 50mm CORRO PANEL
* 92mm FOR 75mm CORRO PANEL
* 107mm FOR 90mm CORRO PANEL
* 117mm FOR 100mm CORRO PANEL
* 142mm FOR 125mm CORRO PANEL
* 167mm FOR 150mm CORRO PANEL

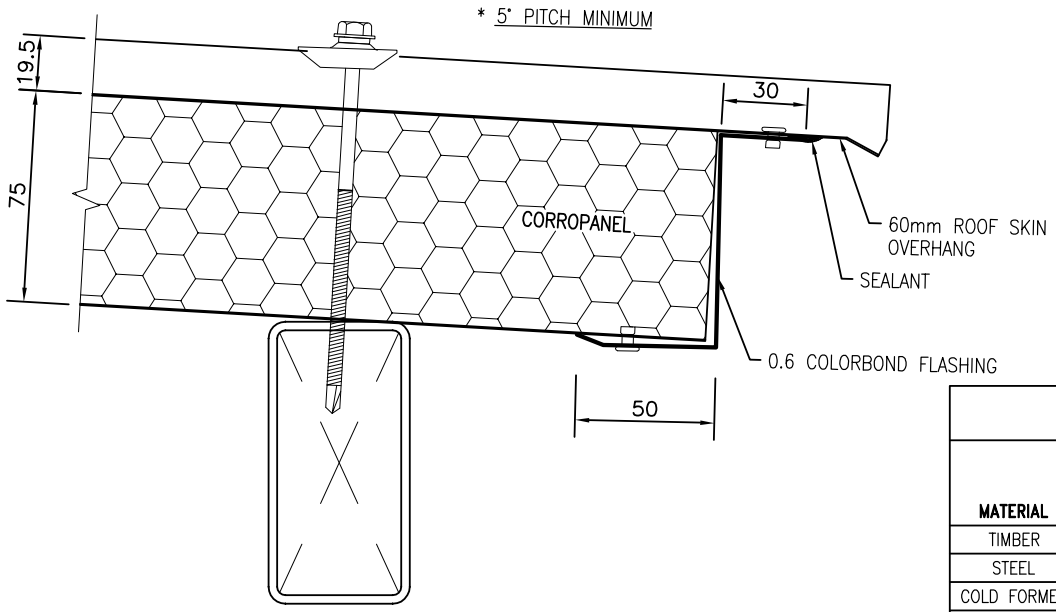


SECTIONAL VIEW

NOTES:–

* JOINT USED FOR END TO END JOINTS IN PANELS.
* ALLOWS FOR THERMAL EXPANSION & CONTRACTION.
* MAXIMUM LENGTH OF ROOF PANEL IS 16 METRES.
* MINIMUM ROOF SLOPE THREE DEGREES.
* REFER – 1) BRANZ "GOOD PRACTICE GUIDE – PROFILED METAL ROOFING". FIGURE 13, SECTION 6.2, TABLE 12.
  2) SAA HB39–1997 "INSTALLATION CODE FOR METAL ROOFING & WALL CLADDING". FIGURE 7.7, SECTION 7.15


16.5
75
PITCH
20° NOMINAL
30
PAN UP TURN
PITCH
5° MINIMUM
PAN FILL FOAM
CORROPANEL
ROOF BATTEN
ROOF BATTEN
50
0.6 COLORBOND FLASHING
CORROPANEL
ROOF BATTEN
ROOF BATTEN
16.5
75



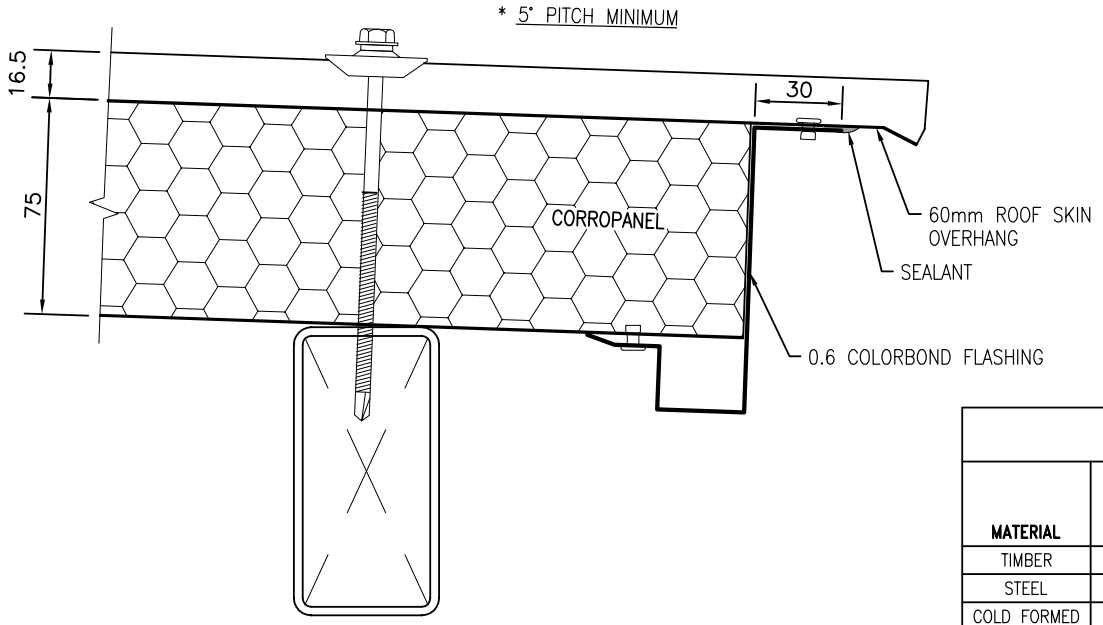
SECTIONAL DETAIL

CORROPANEL FIXING DETAILS

MATERIAL	GRADE	UPLIFT ON BEAMS (Kn) THICKNESS	1-SCREW EVERY RIDGE	1-SCREW EVERY RIDGE & PAN	1-SCREW EVERY RIDGE, 2-PER PAN
TIMBER	JD4/J3	MIN. 30mm EMB.	7.6	15.3	22.9
STEEL	250	2	15.2	30.4	45.6
COLD FORMED	G450	0.6	2.56	5.12	7.68
STEEL		1	8.32	16.6	25
		2	10.24	20.5	30.72
ALUMINIUM	6060-T4	2	1.37	2.73	4.1

CORROPANEL FIXINGS TO BEAMS

PANEL THICK.	TIMBER BEAM	STEEL BEAM
50mm	TYPE 17 14-15 x 115mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI-TEKS 14-10 tpi x 115mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS - 1.5mm
75mm	TYPE 17 14-15 x 150mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI-TEKS 14-20 tpi x 135mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS - 1.9mm
100mm	TYPE 17 14-15 x 175mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI-TEKS 14-10tpi x 150mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS - 1.9mm



SECTIONAL DETAIL

CORROPANEL FIXING DETAILS					
		UPLIFT ON BEAMS (Kn)			
MATERIAL	GRADE	THICKNESS	1-SCREW EVERY RIDGE	1-SCREW EVERY RIDGE & PAN	1-SCREW EVERY RIDGE, 2-PER PAN
TIMBER	JD4/J3	MIN. 30mm EMB.	7.6	15.3	22.9
STEEL	250	2	15.2	30.4	45.6
COLD FORMED	G450	0.6	2.56	5.12	7.68
STEEL		1	8.32	16.6	25
		2	10.24	20.5	30.72
ALUMINIUM	6060-T4	2	1.37	2.73	4.1

CORROPANEL FIXINGS TO BEAMS		
PANEL THICK.	TIMBER BEAM	STEEL BEAM
50mm	TYPE 17 14-15 x 115mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI-TEKS 14-10 tpi x 115mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS - 1.5mm
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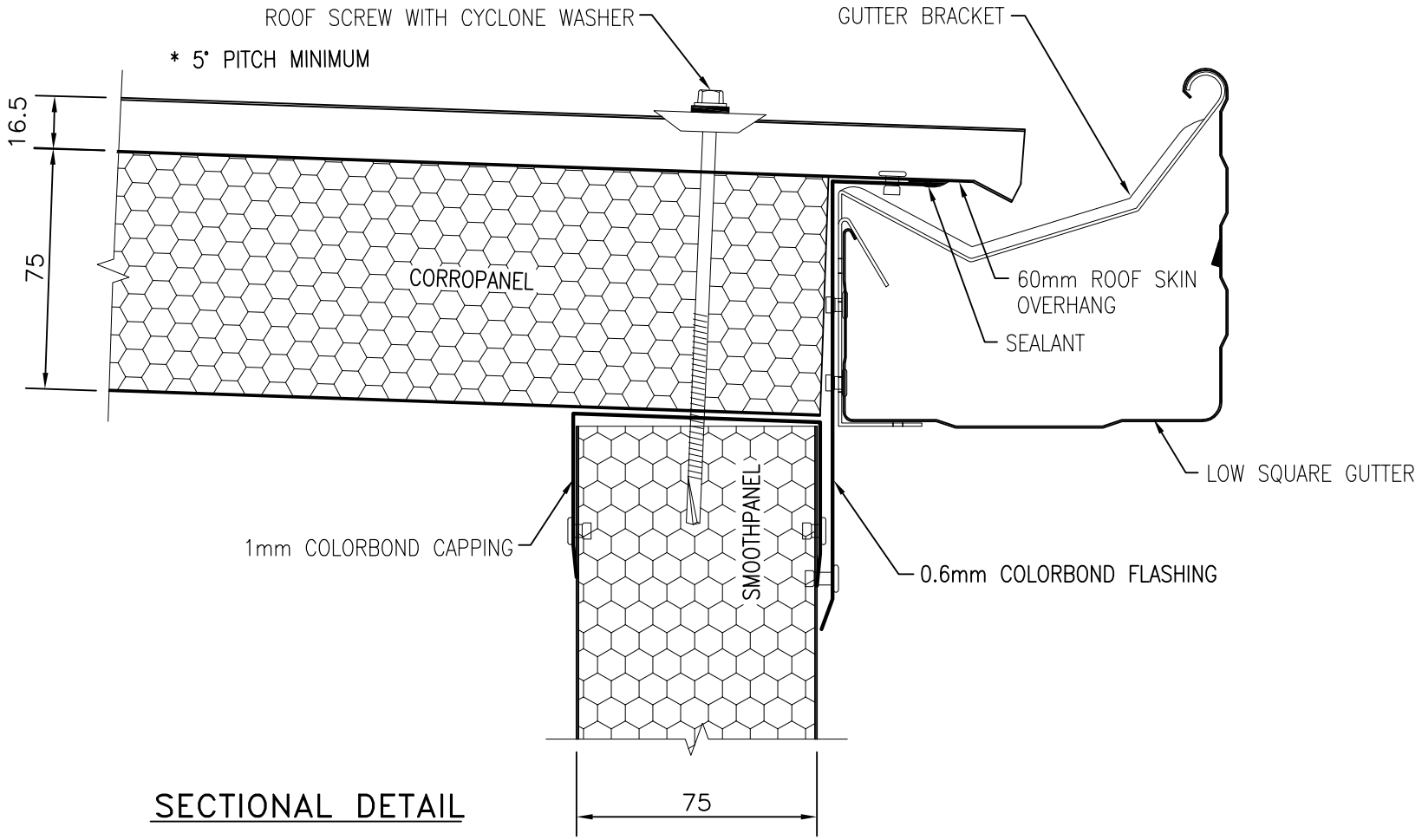
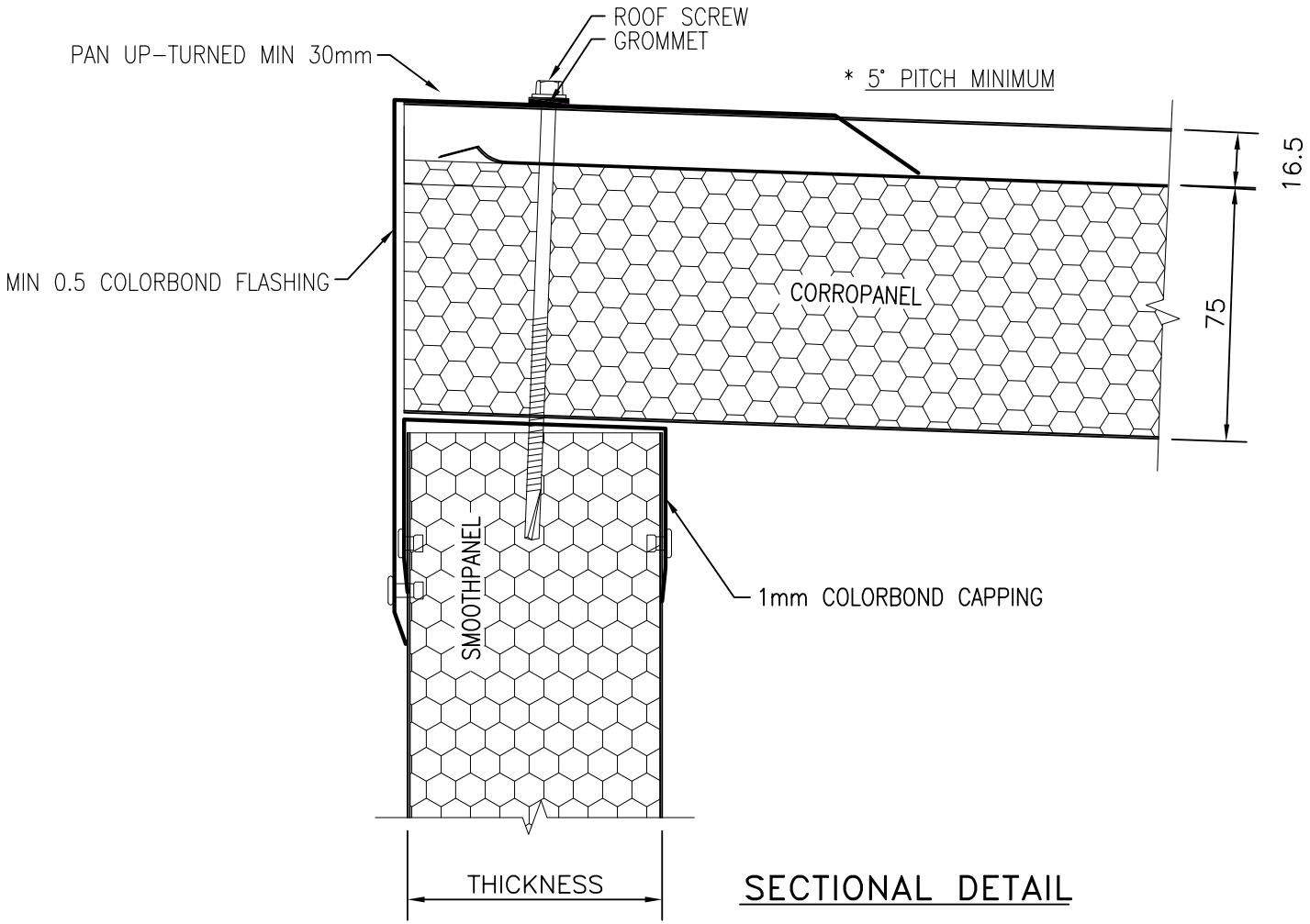
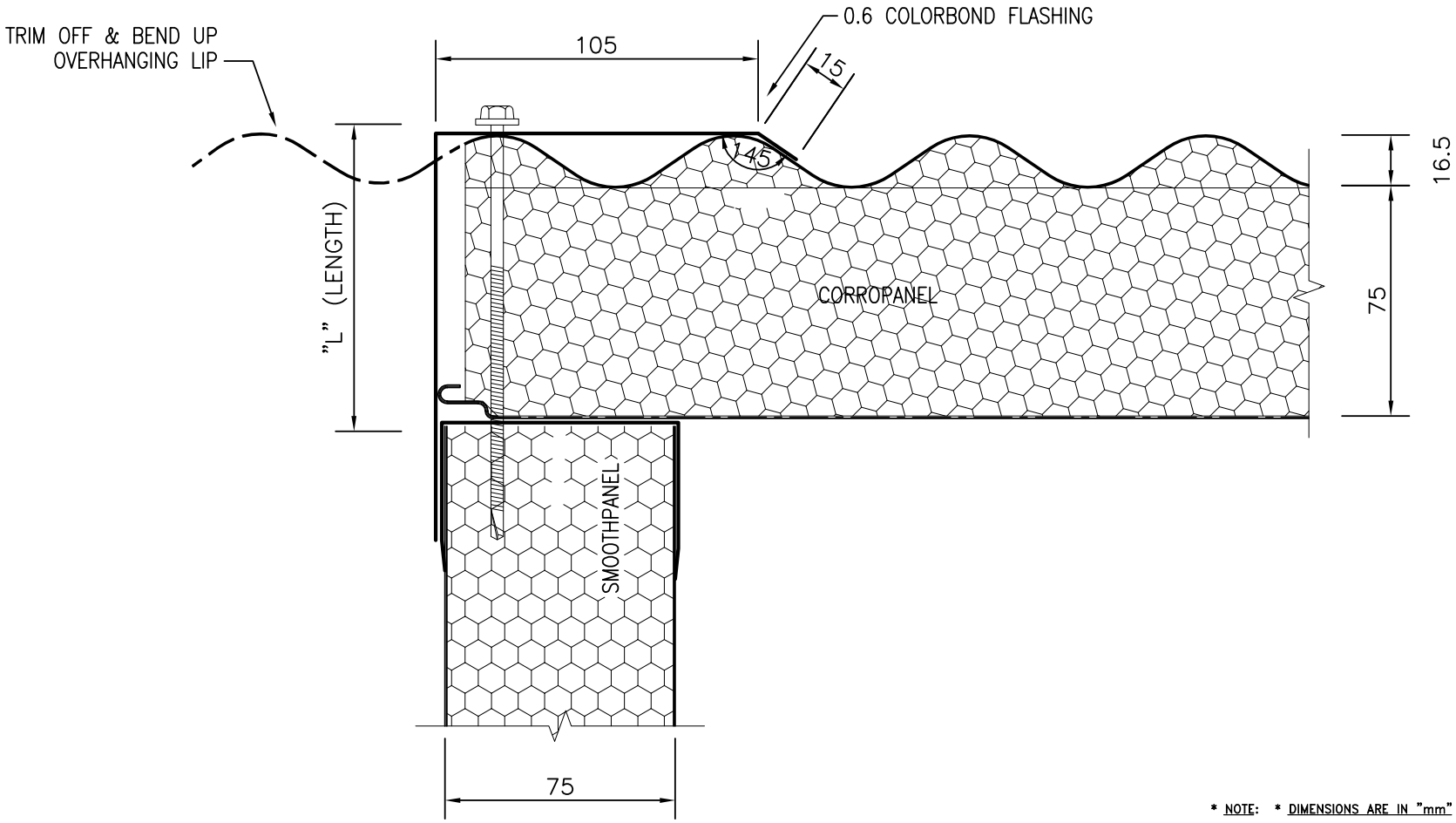
100mm	TYPE 17 14-15 x 175mm CLIMASEAL COATED WITH CYCLONE WASHER .TIMBER TO BE JOINT J3 OR BETTER.	HI-TEKS 14-10tpi x 150mm CLIMASEAL COATED WITH CYCLONE WASHER. MIN. STEEL THICKNESS - 1.9mm



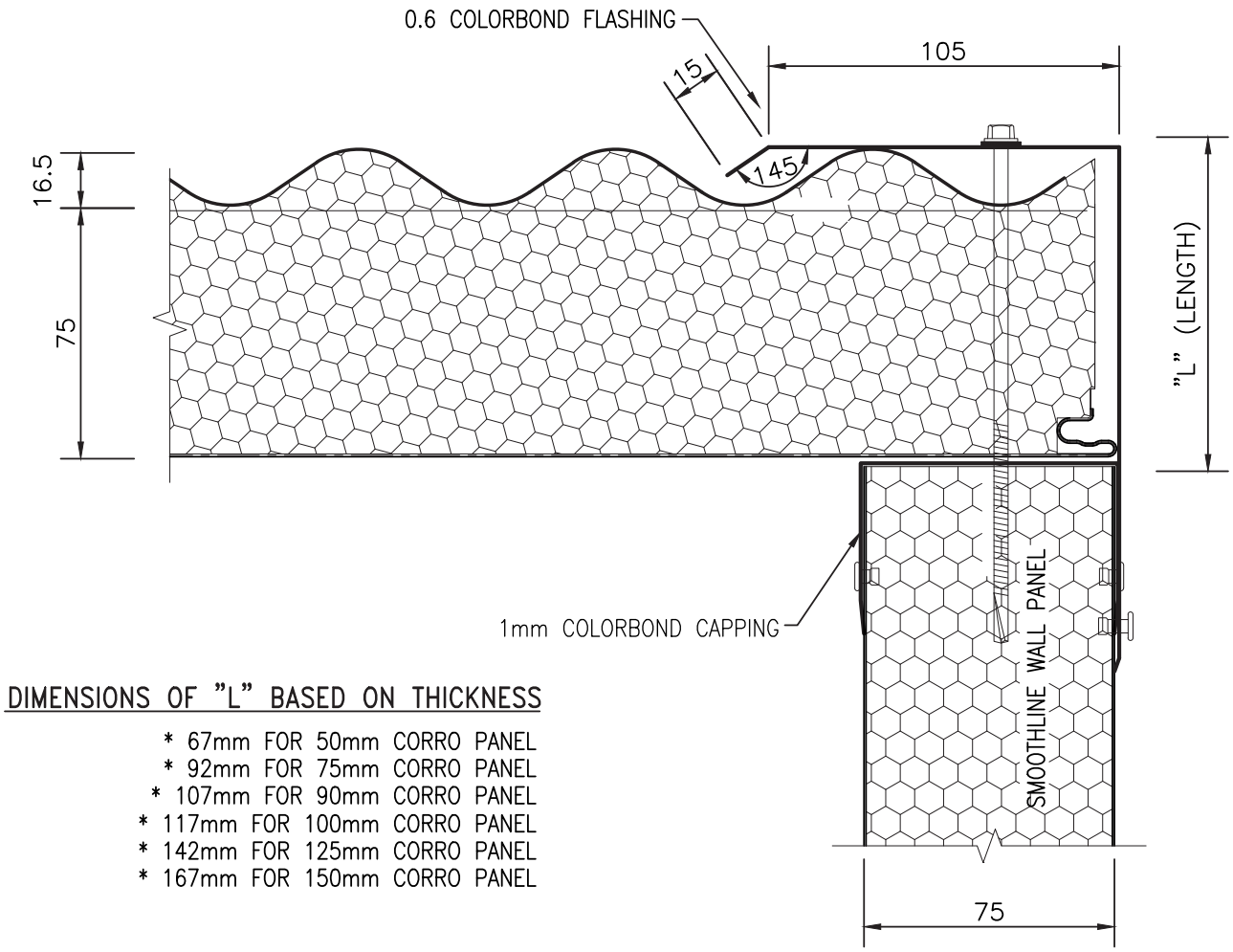
SECTIONAL DETAIL



SECTIONAL DETAIL



* NOTE: * DIMENSIONS ARE IN "mm" * DO NOT SCALE



DIMENSIONS OF "L" BASED ON THICKNESS

* 67mm FOR 50mm CORRO PANEL
* 92mm FOR 75mm CORRO PANEL
* 107mm FOR 90mm CORRO PANEL
* 117mm FOR 100mm CORRO PANEL
* 142mm FOR 125mm CORRO PANEL
* 167mm FOR 150mm CORRO PANEL

PATIO ENGINEERING DESIGN GUIDE

PATIO ENGINEERING

NOTES

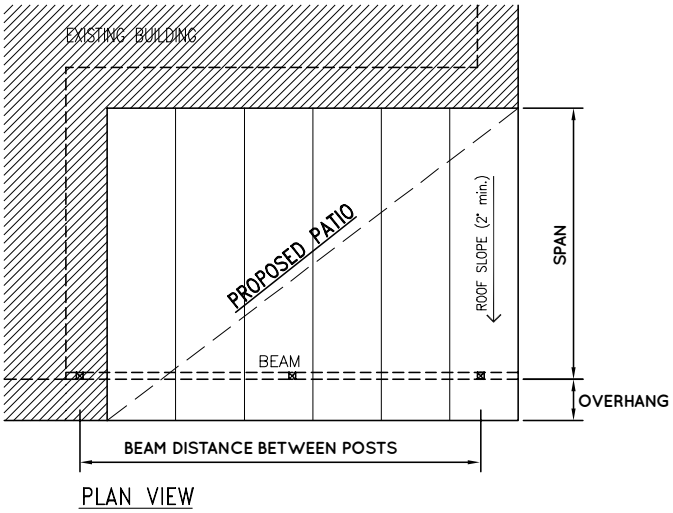
- The information contained herein is applicable for the design of fully open structures and patio structures attached to or under the eaves of single or double storey residences with floor level less than 1 metre above the ground level.
- Minimum roof pitch is 2 degrees.
- The builder is responsible to ensure correct installation for structural adequacy. Additional fixings or strengthening may be carried out by the builder where required.
- Patio designs outside the scope of this document must by individually certified by a registered engineer.

THE INFORMATION CONTAINED IN THIS DOCUMENT CAN BE USED TO DESIGN FULLY OPEN STRUCTURES AND PATIO STRUCTURES UTILISING SOLARIS™ ROOFING PANELS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

MAXIMUM LOAD ON BEAM

LOAD WIDTH ON THE BEAM

* Load width on beam = 0.5 x span + overhang



UPLIFT LOAD ON THE BEAM

Use the load width from above to select the uplift load on the beam (kN/m) from the table below for the particular wind category and patio type

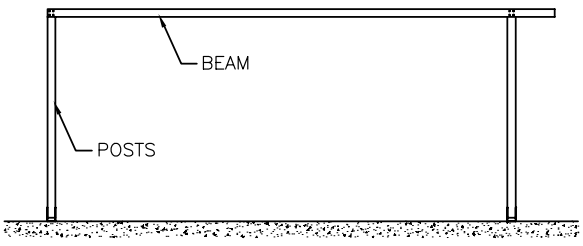
Uplift load on beams (kN/m)					
		Fully open or 3 sides open	2 sides open	1 side open	Fully enclosed
					
Wind class	Load width				
N1/N2	1500	0.91	1.73	2.07	2.25
	2100	1.28	2.42	2.90	3.14
	2700	1.65	3.11	3.73	4.04
	3300	2.01	3.80	4.56	4.94
	3900	2.38	4.49	5.39	5.84
	4500	2.74	5.18	6.22	6.74
	5100	3.11	5.88	7.05	7.64
	6000	3.66	6.91	8.29	8.99
N3/C1	1500	1.49	2.70	3.24	3.51
	2100	2.00	3.78	4.24	4.91
	2700	2.57	4.86	5.83	6.32
	3300	3.14	5.94	7.13	7.72
	3900	3.74	7.02	8.42	9.13
	4500	4.28	8.10	9.72	10.53
	5100	4.86	9.18	11.02	11.93
	6000	5.71	10.80	12.96	14.04
N4/C2	1500	2.13	4.02	4.84	5.22
	2100	2.98	5.63	6.75	7.31
	2700	3.83	7.23	8.68	9.40
	3300	4.68	8.84	10.61	11.49
	3900	5.53	10.45	12.54	13.56
	4500	6.38	12.06	14.47	15.76
	5100	7.23	13.66	16.40	17.76

NOTES:
- Linear interpolation is permitted between load width values in the table
- Loads for Wind Class N5, C3, C4 to be individually designed by a certified engineer

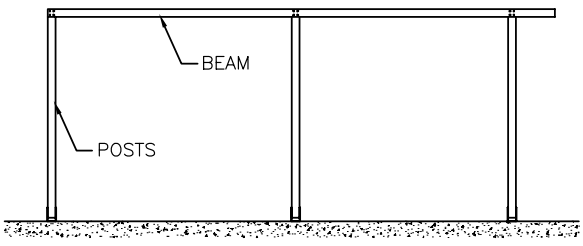
BEAM AND MAXIMUM POST SPACING

- Use the uplift load on the beam (kN/m determined in Step 3.2) to select a suitable beam and span from the table below. Ensure the beam's load capacity (kN/m) exceeds the load on the beam selected in Step 3.2.

Load capacities of beams (kN/m)																															
Beam details		Beam type	R.H.S (Rectangular Hollow Section)										Timber							Purlins				BHP Firmlock			Spanline					
		Beam size	100 x 50 x 2	100 x 50 x 3	100 x 50 x 4	125 x 75 x 3	125 x 75 x 4	125 x 75 x 5	150 x 50 x 3	150 x 50 x 4	150 x 50 x 5	150 x 100 x 4	140 x 45 F7	190 x 45 F7	125 x 50 F14	150 x 50 F14	200 x 50 F14	150 x 75 F14	200 x 75 F14	C15015	C15019	C20015	C20019	F10011	F15015	F20020	140 x 50 RFB	150 x 60 RFB	200 x 60 RFB	2/140 x 50 RFB	2/150 x 60 RFB	2/200 x 60 RFB
Maximum beam distance between posts	1800	Single Span	14.3	20.7	25.9	36.7	46.9	56.5	39.9	50.8	61.3	114.3	15.0	27.3	13.3	19.1	34.0	28.7	51.1	14.5	15.7	20.2	29.3	7.8	11.4	18.2	9.1	20.3	20.3	18.3	40.7	40.6
		Multi Span	14.3	20.7	25.9	36.7	46.9	56.5	39.9	50.8	61.3	113.3	13	23.7	11.5	16.6	29.6	25	44.4	15.9	26.4	15.1	28	6.3	9.1	14.5	9.1	20.3	20.3	18.3	40.7	40.6
	2400	Single Span	8	11.6	14.6	20.6	26.3	31.8	22.4	26.6	34.5	64.3	6.6	15.3	7.4	10.7	19.1	16.1	28.7	8.1	8.8	11.3	16.5	4.7	8.5	13.6	5.1	11	11.3	11.1	22.6	22.3
		Multi Span	8	11.6	14.6	20.6	26.3	31.8	22.4	26.6	34.5	64.3	7.3	13.3	6.5	9.3	16.6	14	25	8.2	15.8	10.3	18.6	4.7	6.8	10.9	5.1	11	11.3	11.1	22.6	22.3
	3000	Single Span	5.1	7.4	9.3	13.2	16.8	20.3	14.3	18.3	22	14.1	3.4	8.5	4.1	6.9	12.2	10.3	18.4	4	5.6	7.2	10.5	2.9	6.8	10.9	3.3	7	7.2	6.6	14.5	14
		Multi Span	5.1	7.4	9.3	13.2	16.8	20.3	14.3	18.3	22	41.1	4.7	8.5	4.1	6	10.6	9	16	5.4	7.6	6..1	10.6	3	5.4	8.7	3.3	7	7.2	6.6	14.5	14
	3600	Single Span	3.6	5.1	6.3	9.2	11.7	14.1	9.9	12.5	15.3	28.5	1.9	4.9	2.3	4.1	8.5	6.1	12.7	2.2	3	4.1	5.7	1.6	5	9.1	2.5	4.8	5	5	10	9.7
		Multi Span	3.6	5.1	6.3	9.2	11.7	14.1	9.9	12.5	15.3	28.5	3.2	5.9	2.8	4.1	7.4	6.2	11.1	2.7	5.3	4.6	7.8	2.1	4.5	7.2	2.5	4.8	5	5	10	9.7
	4200	Single Span	2.3	3.2	4	6.7	8.6	10.3	7.3	9	11.2	18	1.2	3.1	1.5	2.5	6.1	3.8	9.2	1.3	1.7	2.4	3.5	1	3.7	7.3	1.8	3.6	3.6	3.6	7.3	7.2
		Multi Span	2.6	3.8	4.7	6.7	8.6	10.3	7.3	9	11.2	21	2.2	4.3	2.1	3	5.4	4.5	8.1	2.7	3.7	3.6	5.7	1.5	3.7	6.2	1.8	3.6	3.6	3.6	7.3	7.2
	4800	Single Span	1.5	2.1	2.7	4.9	6.2	7.4	5.6	6.7	8.6	12	0.8	2	1	1.7	4.1	2.6	6.1	0.8	1.1	1.5	2.2	-	2.5	5.6	1.4	2.7	2.8	2.9	5.7	5.4
		Multi Span	2	2.9	3.6	5.1	6.6	7.9	5.6	6.7	8.6	16	1.5	3.3	1.6	2.3	4.1	3.5	6.2	2	2.6	2.8	4.3	1.1	2.8	5.4	1.4	2.7	2.8	2.9	5.7	5.4
	5400	Single Span	1	1.5	1.8	3.5	4.4	5.2	4.3	5.1	6.4	8.4	-	1.4	-	1.2	2.8	1.8	4.3	0.5	0.7	1	1.1	-	1.8	4.4	1.1	2.2	2.2	2.2	4.5	4.4
		Multi Span	1.6	2.3	2.8	4	5.2	6.2	4.4	5.1	6.8	12.7	1	2.6	1.2	1.8	3.2	2.7	4.9	1.4	1.9	2.2	3.4	-	2.2	4.4	1.1	2.2	2.2	2.2	4.5	4.4
	6000	Single Span	0.7	1.1	1.3	2.5	3.2	3.8	3.1	3.9	4.6	6.1	-	1	-	0.8	2.1	1.3	3.1	-	0.5	0.7	1	-	1.3	3.5	0.9	1.7	1.8	1.8	3.6	3.5
		Multi Span	1.3	1.8	2.3	3.3	4.2	5	3.5	4	5.4	10.2	-	1.9	0.9	1.5	2.6	2.2	4	1	1.4	1.8	2.5	-	1.8	3.6	0.9	1.7	1.8	1.8	3.6	3.5



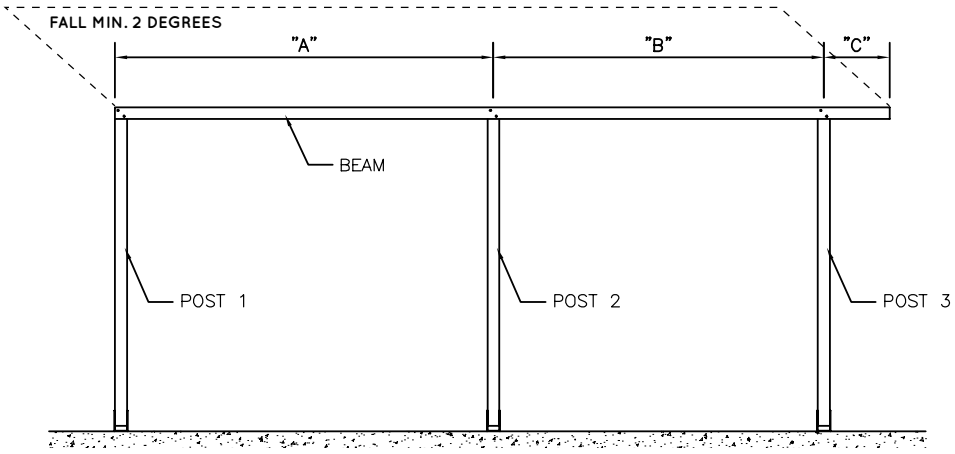
SINGLE SPAN



DOUBLE (MULTI) SPAN

UPLIFT ON POSTS

CASE 1: MULTI SPAN



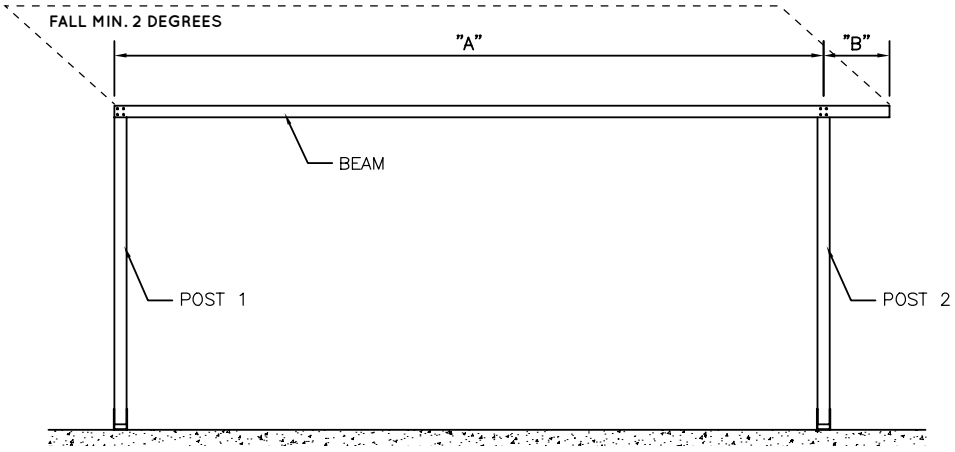
Step 1 – Select load width on each post, refer to diagram

- Load width on Post 1 – 0.5 A metres
- Load width on Post 2 – 0.5 (A+B) metres
- Load width on Post 3 – (0.5 B) + C metres

Step 2

Uplift of post (kN) = Load width on post (metres) x uplift load on beam (kN) from page 65.

CASE 2: SINGLE SPAN



Step 1 – Select load width on each post, refer to diagram

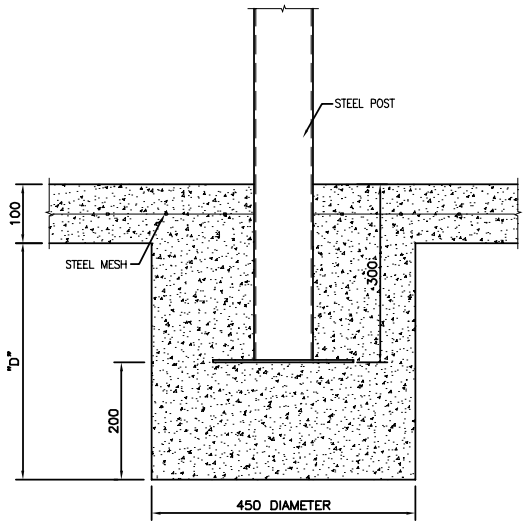
- Load width on Post 1 = 0.5 metres
- Load width on Post 2 = 0.5 (A+B) metres

Step 2

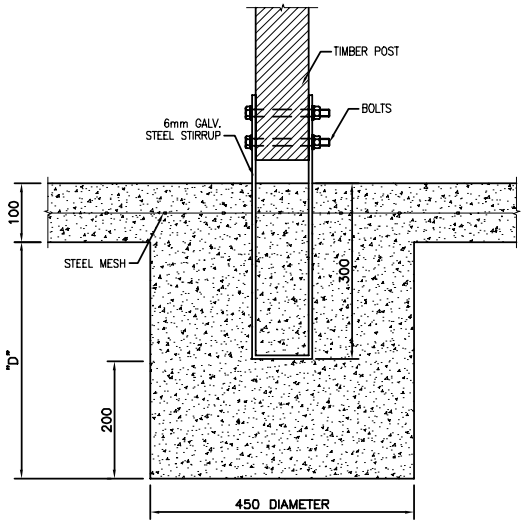
Uplift of post (kN) = Load width on post (metres) x uplift load on beam (kN) from page 65.

FOOTING TYPE

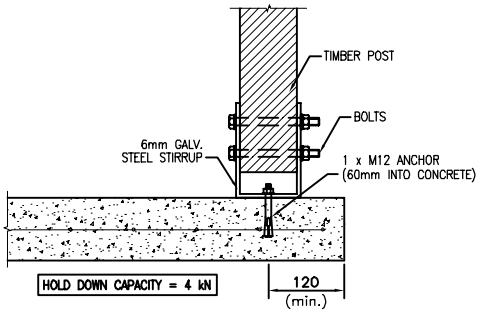
For each post, use the uplift on post (kN) to select the post to base connection and the footing. The hold down capacity of the footing must exceed the uplift on the post.



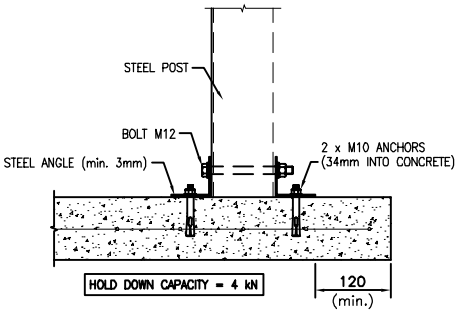
PAD FOOTING – STEEL COLUMN



PAD FOOTING – TIMBER POST



STEEL COLUMN ON SLAB



STEEL COLUMN ON SLAB

Hold down capacity (kN)	Footing with slab over – depth D (mm)	Bolts (mm) No. & diameter
6.7	500	1 x M12
13.1	750	2 x M12 or 1 x M16
20.8	1000	2 x M16
29.0	1250	2 x M20

Hold down capacity (kN)	Footing without slab over – depth D (mm)	Bolts (mm) No. & diameter
3.5	500	1 x M12
8.5	750	2 x M12 or 1 x M16
14.01	1000	2 x M16
22.0	1250	2 x M20

NOTES:

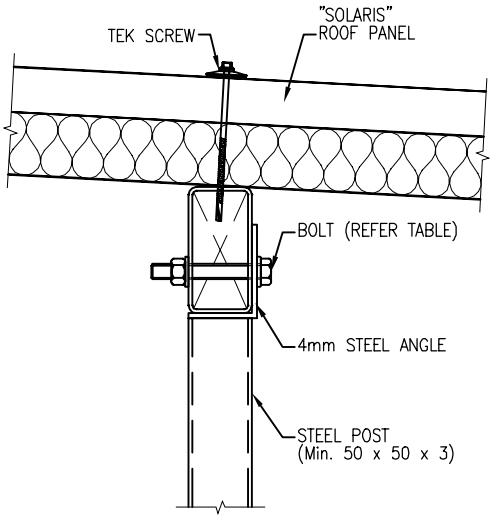
1. Hold down capacity applies to piers with an undercut into cohesive clay soils. Not applicable in shady soils, refer to engineer.
2. For footings with depth D greater than 500, reinforce the footing with 4/Y12 vertical rods tied with R6 ligs at 500 CRS.

Concrete slab must be a minimum of 100mm thick, 20MP concrete reinforced F62 mesh and must extend for the full area covered by the Solaris™ roof.

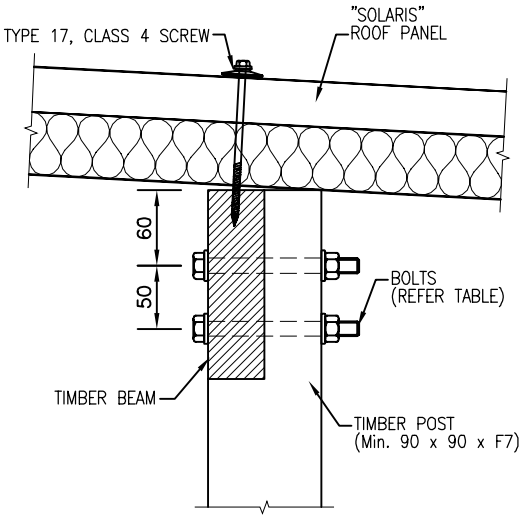
POST SELECTION

POST TO BEAM CONNECTIONS

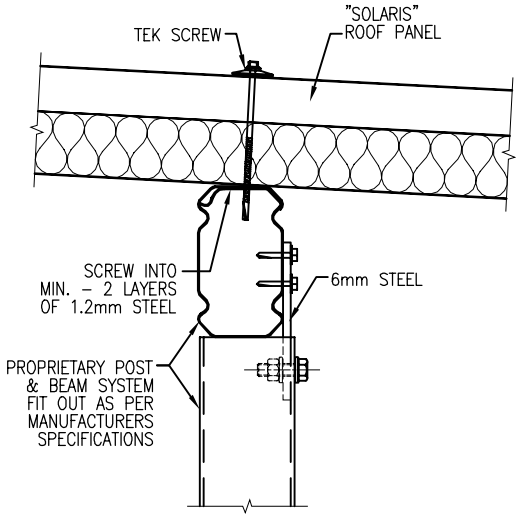
For each post, use the uplift on post (kN) to select the post to beam connection.



R.H.S. POST TO R.H.S. BEAM JOINT



TIMBER POST TO BEAM JOINT



PROPRIETARY SYSTEMS

Bolt size table						
Material	Grade	Uplift on post (Kn)				
		Thickness	1-M12	2-M12	2-M16	2-M20
Timber	JD4/J3	30	3.39	6.77	9.03	11.29
Steel	250	2	10	20	30	50
Cold formed	G450	0.6	3.9	7.8	9.3	11.7
Steel		1	7.8	15.6	20.7	21.6
		2	9.3	18.6	24.8	30.2
Aluminium	6060-T4	2	3.1	6.3	8.3	10.4

NOTE:
For selection and fixing of proprietary rolled steel beam and posts, refer to manufacturer's details for the particular load conditions

PATIO ROOF HOUSE CONNECTIONS

SOLARIS CONNECTION TO HOUSE (FASCIA OR WALL)

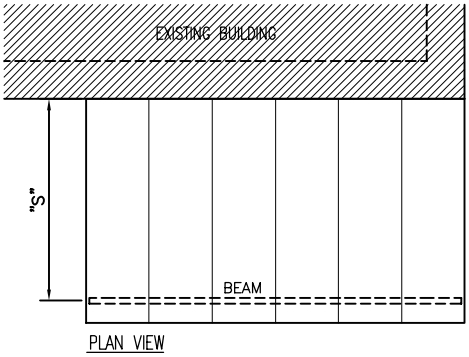
Load capacity of existing tiedowns need to be verified to ensure adequacy

PROCEDURE:

A) Refer to sheet 6 Uplift loads on beam table for load width 0.5 A, select the uplift (kN/m) from the table. This value is the uplift load on the house.

B) Select a suitable house connection for the required kN/m uplift.

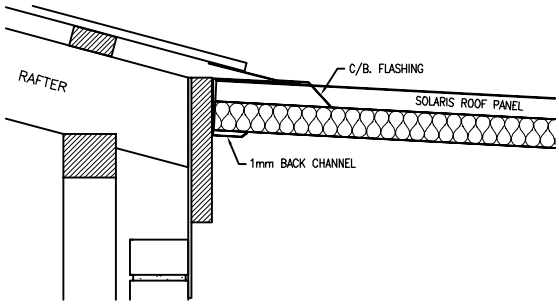
C) Note the uplift capacity of the house fascia connections apply to the receiver channel only. The load capacity and suitability of the members and connections below the rafter are to be assessed and strengthened if required.



WHERE FASCIA AND SOFFIT ARE REMOVED

NOTE:

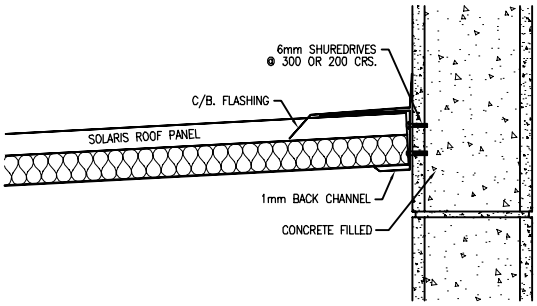
- Cutback rafter tails are shown
- Fix new fascia to each rafter tail with two 75mm batten screws
- Fix back channel to fascia with No. 14 Type 17 screws @ 300 CRS



Rafter spacing (mm)	Uplift capacity of back channel to rafter connection (kN/m)
600	6
900	4
1200	3

BRICK/MASONARY WALL

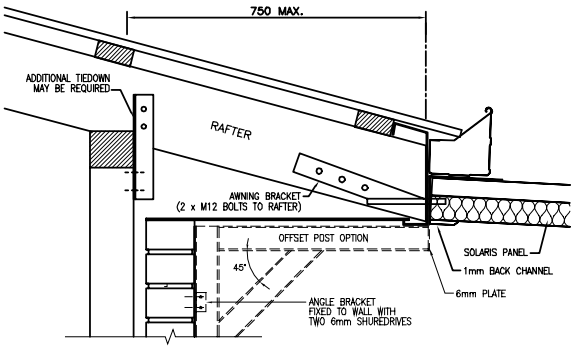
Do not attach to brickwork with less than 1.5m of brickwork above the fixing point unless brickwork is positively tied down with anchor rods. Otherwise a separate tied down structure is required.



FOR TIMBER FASCIAS

Refer to Tradec technical data sheet No.19 January 2002 (pergola and carports) for attaching pergola or carport to house page 6 and 7. Connect receiver channel as per carport/pergola as shown in that publication. Alternatively, connect as for metal fascias (below).

FOR METAL FASCIAS



Rafter connection spacing (mm)	Uplift capacity of receiver channel to rafter connection (mm)	
	Unstrengthened rafter	Strengthened rafter
600	3	6
900	2	4
1200	1.5	3
Rafter strengthening – fix timber stiffener 90 x 35 F8 x 1500 long to rafter with 75mm long x No. 14 type 17 batten screws at 300 CRS. (Not shown above)		

LOAD ON BEAMS

Solaris™ fixing details					
		Uplift on beams (kN)			
Material	Grade	Thickness	1-screw every ridge	1-screw every ridge & pan	1-screw every ridge, 2-per pan
Timber	JD4/J3	Min. 30mm EMB	7.6	15.3	22.9
Steel	250	2	15.2	30.4	45.6
Cold formed	G450	0.6	2.56	5.12	7.68
Steel		1	8.32	16.6	25
		2	10.24	20.5	30.72
Aluminium	6060-T4	2	1.37	2.73	401

Solaris™ fixing to beams		
Panel thickness	Timber beam	Steel beam
50mm	Type 17 14–15 x 115mm Climaseal coated with cyclone washer. Timber to be joint J3 or better.	Hi-teks 14–10tpi x 115mm Climaseal with cyclone washer. Minimum steel thickness – 1.5mm
75mm	Type 17 14–15 x 150mm Climaseal coated with cyclone washer. Timber to be joint J3 or better.	Hi-teks 14–10tpi x 135mm Climaseal with cyclone washer. Minimum steel thickness – 1.9mm
100mm	Type 17 14–15 x 175mm Climaseal coated with cyclone washer. Timber to be joint J3 or better.	Hi-teks 14–10tpi x 150mm Climaseal with cyclone washer. Minimum steel thickness – 1.9mm

Form 15—Compliance Certificate for building Design or Specification

NOTE

This is to be used for the purposes of section 10 of the *Building Act 1975* and/or section 46 of the *Building Regulation 2006.*

RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the QDC. A building certifier (Class B) can not give a certificate regarding QDC boundary clearance and site cover provisions.

1. Property description

This section need only be completed if details of street address and property description are applicable.

EG. In the case of (standard/generic) pool design/shell manufacture and/or patio and carport systems this section may not be applicable.

The description must identify all land the subject of the application.

The lot & plan details (eg. SP / RP) are shown on title documents or a rates notice.

If the plan is not registered by title, provide previous lot and plan details.

Street address *(include no., street, suburb / locality & postcode)*

Postcode

Lot & plan details *(attach list if necessary)*

In which local government area is the land situated?

2. Description of component/s certified

Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

Structural capacity of Solaris Insulated Panel System for Domestic Awning

All Structures to Non-Habitable Class, Importance Level (2), in accordance with Building Codes of Australia & Australian National Construction Codes.

3. Basis of certification

Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.

AS/NZS: 1170.0 (Structural Design Actions) (General Principals)

AS/NZS: 1170.1 (Structural Design Actions) (Permanent Imposed & Other Actions)

AS/NZ: 1554.1 (Structural Steel Welding) (parts 1-7)

AS/NZS: 2312.1 (Protection of Structural Steel against Corrosion, by use of Protective Coating-Paint Coating)

AS/NZS: 1163 (Cold Form Structural Steel Hollow Sections)

AS/NZS: 2252 (High Strength Steel Bolts with Assoc. Nuts & Washers for Struct. Engineering)

continued page 2

4. Reference documentation

Clearly identify any relevant documentation, e.g. numbered structural engineering plans.

Details contained within Solaris Patio Engineering Design Guide – August 2015

LOCAL GOVERNMENT USE ONLY

Date received		Reference Number/s	

5. Building certifier reference number

Building certifier reference number

6. Competent person details

A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practise in an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect.

If no relevant law requires the individual to be licensed or registered to be able to give the help, the certifier must assess the individual as having appropriate experience, qualifications or skills to be able to give the help.

If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines when assessing the person.

Name (*in full*)
Graeme Moulston

Company name (*if applicable*)
Graeme Moulston & Assoc. Engineering Pty Ltd

Contact person
Graeme Moulston

Phone no. *business hours*
07 5530 6214

Mobile no.

Fax no.
07 5525 3774

Email address
info@gcma.com.au

Postal address
PO Box 213

Mudgeeraba Qld Postcode 4213

Licence or registration number (*if applicable*)
RPEQ 4431

7. Signature of competent person

This certificate must be signed by the individual assessed by the building certifier as competent.

Signature

Date
17 September 2015

3. Basis for certification

continued from page 1

AS/NZS: 4671 (Steel Reinforcement Materials)
AS/NZS: 4600 (Cold Form Steel Structures)
AS: 4100 (Structual Steel), AS: 4055 (Wind Loading for Housing),
AS: 3623 (Domestic Metal Framing), AS: 3600 (Concrete),
AS:2870 (Residential Slab & Footings),
AS: 1111.1 (ISO Metric Hexagon Bolts & Screws - Product grade C - Bolts)
AS: 1111.2 (ISO Metric Hexagon Bolts & Screws - Product grade C - Screws)
AS: 1101.3 (Graphical Symbols for Gen. Eng. - Welding & Non-desctructive Examination)

MAINTENANCE AND WARRANTIES

MAINTENANCE OF COLORBOND® STEEL & ZINCALUME® STEEL

SOLARIS™ ROOFING PANEL WARRANTY

SOLARIS™ WALL & CEILING PANEL WARRANTY

MAIN MENU

SOLARIS

MAINTENANCE OF COLORBOND® STEEL AND ZINCALUME® STEEL

INTRODUCTION

The paint system on next generation COLORBOND® pre-painted steel and the metallic coating on ZINCALUME® aluminium/zinc/magnesium alloy coated steel with Activate™ technology are both highly durable and decorative finishes. Simple maintenance of these finishes by regular washing with clean water will enhance the service life of the product and maintain the appearance.

"Unwashed areas" are areas on a building that are sheltered from general rain washing and are therefore not naturally washed by rainfall. Condensation can be absorbed by dust and dirt that build up in these areas, leading to an increase in the time the material is in contact with sufficient moisture to initiate corrosion (i.e. time of wetness). The associated effect is exacerbated in the vicinity of a salt marine influence, where the build-up includes marine salts and/or other pollutants (eg. industrial fallout). Regular cleaning of COLORBOND® steel and ZINCALUME® steel products in unwashed areas is required. Examples of applications requiring cleaning include, but are not limited to, fascia, wall cladding under eaves, garage doors, and the underside of eave gutters, carports and patios.

Washing should be done six monthly as a minimum, or three monthly in coastal areas where marine salt spray is prevalent and/or areas where high levels of industrial fallout occur.

CLEANING

It is good practice to establish a regular routine for washing COLORBOND® steel and ZINCALUME® steel products. Water restrictions permitting (check with your local council), garage doors can be washed with fresh portable water at the same time as your car is being washed. Gutters, fascia and eaves can be washed when windows are being cleaned. COLORBOND® steel fencing can be washed when watering the garden.

In cases where regular maintenance using fresh portable water does not remove all dirt from the surface of the product, or local water regulations prohibit the used of a mains water hose, the following procedure should be followed using water obtained from a locally approved source:

- Wash the surface with a mild solution of pure soap or non-abrasive dish washing kitchen detergent in warm water. Washing should be conducted with a sponge, soft cloth or soft bristle nylon brush (no abrasive scourers, steel wool etc.) and be performed gently to reduce the possibility of scuffing the product surface.
- Thoroughly rinse the COLORBOND® steel and ZINCALUME® steel surface with fresh portable water immediately after cleaning to remove traces of detergent.

NOTE:

- BlueScope Steel do not recommend the use of hard, mineral rich ground waters in the maintenance of COLORBOND® steel and ZINCALUME® steel.
- Ensure maintenance is undertaken in accordance with local government water restriction guidelines.
- It is recommended the chosen cleaning method be tested on a small, inconspicuous section of the building to ensure that no damage to the COLORBOND® steel and ZINCALUME® steel sheeting occurs (eg. surface dulling or discolouration).
- Never use abrasive or solvent type cleaners (eg. turps, petrol, kerosene, paint thinners, sugar soap) on COLORBOND® steel and ZINCALUME® steel surfaces.
- For advice on dirt or other material not removed by soap or detergent, contact BlueScope Steel Direct.

ADDITIONAL MAINTENANCE

The long-term performance of COLORBOND® steel and ZINCALUME® steel can at times be impacted by the durability of the accessories which are in contact with the product. For example, rapid deterioration of the fasteners used to fix COLORBOND® steel and ZINCALUME® steel roofing or walling can result in sacrificial corrosion of the product in the areas immediately adjacent to the fasteners. If is therefore good practice to:

- Ensure that fasteners used to fix COLORBOND® steel and ZINCALUME® steel comply to AS3566. For further information refer to Technical Bulletin TB-16 Fasteners for Roofing and Walling Products – Selection Guide.
- Include regular inspection of fasteners into the maintenance routine. Consideration should be given to replacing any fasteners showing evidence of red rusting.

RELATED BLUESCOPE STEEL TECHNICAL BULLETINS

Technical Bulletin TB-16
Fasteners for Roofing and Walling Product – Selection Guide

This is an extract from *BlueScope Technical Bulletin No 4 dated September 2013 / Rev 8* and is intended as a guide only.

For more details or **if you have any questions regarding this bulletin, please contact BlueScope Steel Direct on 1800 800 789.**

To ensure you have the most current Technical Bulletin, please go to bluescopesteel.com.au

SOLARIS™ ROOFING PANEL WARRANTY

RIDGEPANEL, CORROPANEL AND AGPANEL INSULATED ROOFING PANEL FIFTEEN (15) YEAR WARRANTY

MiiHome International Australia Pty Ltd ABN 50 605 588 476, hereafter the "company" warrants to the "Purchaser" of its Solaris™ Insulated Roofing Panels, that it is free from defects caused by the company's manufacturing process for a period of fifteen (15) years from the date of purchase.

Subject to the terms and conditions of the warranty, if the Solaris™ Insulated Roofing Panels have any defect(s) caused by the company's manufacturing process within the warranty period, the company will repair or replace the Solaris™ Insulated Roofing Panels free of charge.

Warranty Terms and Conditions

1. This warranty statement (duly signed and dated) must be presented with any claim.
2. A claim will only be recognised after a representative of the company has inspected the Solaris™ Insulated Roofing Panels.
3. The Purchaser must permit the company and or its appointed representative's property access to inspect the claim and or carrying out any replacement.
4. Any Warranty undertakings to remedy agreed defects shall be at the discretion of the Company or their designated repairer. Any costs associated with unauthorised repair will not be accepted.
5. The Company will not be liable for:
    a. Labour costs associated with the installation or removal of affected Solaris™ Insulated Roofing Panels or the fixing of replacement panels; or
    b. Injury to persons or damage to property or consequential losses arising from the use of the Solaris™ Insulated Roofing Panels.
6. This warranty is conditional to Solaris™ Insulated Roofing Panels being installed in accordance with the engineering specifications and installation guidelines provided by the company, the receipt of which is hereby acknowledged.
7. Any repair or replacement will be at the company's discretion and the company reserves the right to appoint its own repairers.
8. The Company will not accept liability for any defects which are the result of:
    a. Improper use or mismanagement by the purchaser;
    b. From a use not recommended or not reasonably contemplated by the Company;
    c. If the Solaris™ Insulated Roofing Panels have been modified in any way that does not comply with the relevant Building Regulations and Codes;
    d. The purchaser does not comply with any of the terms and conditions herein stated in the warranty;
    e. Any unauthorised re-installation of the Solaris™ Insulated Roofing Panels.
9. This warranty excludes damage caused by;
    a. Handling, Storage or erection;
    b. Structural pressure due to settlement or unusual loads;
    c. Over-painting;
    d. Storm or tempest, floods, lightning strike or other acts of God;
    e. Adhesion and marking due to protective plastic film;
    f. Corrosion due to pollutants or other airborne particles;
    g. Installations subject to severe industrial or unusually corrosive environments at any time in the future;
    h. Attack from chemical or other agents (including sunscreen), fumes, liquids or solids other than direct rain or run-off falling onto the End Product;
    i. Neglect, mistreatment or deliberate damage;
    j. Failure to replace corroded fasteners;

k. Corrosion arising within the lapped areas of end-lapped panels;
l. Sustained temperatures above 81.6°C dry heat refer to Clause 12 for further details.
m. Contact with soils, ashes, fertilizers or other moisture retaining substances;
n. Area in metallic direct or indirect contact with lead, copper or dissimilar metals, or subject to the run off from Copper or lead flashings or pipes;
o. Failure to remove debris and/or failure to provide free drainage of water including internal condensation from all surfaces of the product;
p. Deterioration of the panels caused by contact with green or wet timbers or treated pine.

10. In accordance with the warranty extended to the company by the manufacture of the steel component of the Solaris™ Insulated Roofing Panels, the company only extends to the purchaser the benefit of any warranty and guarantees it receives from the manufacturer to the extent it is capable of doing so at law and if:
    a. Installation is greater than one (1) kilometre from marine or industrial environments;
    b. The paint finish as supplied must not be scratched, abraded or damaged in anyway, or coated with an incompatible material;
    c. Sheltered or areas unwashed by rain exposure must be washed down on a regular six (6) month basis (refer to BlueScope Steel technical bulletin TB-4);
    d. Installed pitch of the roof is equal to or greater than 2° above the horizontal;
    e. All fasteners used for fixing the product are to be in accordance with the companies recommendations and comply with Australian Standard AS3566: Class 4 where applicable.

Nothing in this warranty will extend the benefit of any warranty of the manufacturer of the steel beyond the period of the warranty provided by the manufacturer. The period of fifteen (15) years referred to in the opening clause of the warranty refers to any defects in the Solaris™ insulated Roofing Panels as a consequence of the company's manufacturing process.
Please Note: for example – if the manufacturer of the steel only warrants their paint finish for six (6) years then the benefit of the warranty for the paint finish of Solaris™ insulated Roofing Panels is directly linked to that of the steel manufacturer, in this case, six (6) years.

11. Solaris™ Insulated Roofing Panels are made with an Expanded Polystyrene (EPS) core material which is fire retardant (FR) and meets AS1366.3. EPS (FR) is a thermoplastic and as such is subject to changes in its structural properties if/when subjected to or exposed to high levels sustained heat. Dark coloured roof surfaces, with no cooling wind, have been known to reach such temperatures on extremely hot days. To ensure the structural properties of the EPS(FR) core and that these levels of heat are not encountered, we recommend that Solaris™ Insulated Roofing Panels not be subject to dry heat loads in excess of 81.6°C. The manufacturer of the steel recommends the following colours, subject to conditions of use (refer to BlueScope Steel technical Bulletin BSR/S/2008/051), will maintain a temperature under 81.6°C dry heat.

    These are the only colours the Company acknowledges as being covered under this warranty. If the colour selected and ordered by the Purchaser is not listed in the recommended colour list, unless written confirmation pertaining directly to the specific project/application is obtained from the Company, it is assumed not to be covered.
    - Surfmist
    - Classic Cream
    - Shale Grey
    - Pale Eucalypt
    - Paperbark
    - Dune

    The following colours are available for Solaris™ Insulated Roofing Panels, and are still covered by the 15 year manufacturing defect warranty. Any claim under this warranty which is a direct result of defect/damages caused by sustained temperatures above 81.6°C dry heat will be void.
    - Ironstone
    - Jasper
    - Woodland Grey
    - Windspray
    - Deep Ocean

12. This warranty is given in lieu of all other considerations or warranties expressed or implied, except to the extent that any statute applicable to this contract prevents the exclusion, restrictions or modifications of such conditions or warranty.
13. The proper law of this warranty shall be the law applying to the state of Queensland.
14. For the purpose of this warranty, the purchaser refers to that person who has duly completed the details below and no other person(s).

PURCHASER	AGENT
Name	Name
Company Name	Company Name
QBSA #	QBSA #
Invoice #	Invoice #
Date of purchase	Date of purchase

SOLARIS™ WALL AND CEILING PANEL WARRANTY

SMOOTHPANEL INSULATED WALL AND CEILING PANEL TEN (10) YEAR WARRANTY

MiiHome International Australia Pty Ltd ABN 50 605 588 476, hereafter the "company" warrants to the "Purchaser" of its SmoothPanel Insulated Wall and Ceiling Panels (herein "SmoothPanels"), that it is free from defects caused by the company's manufacturing process for a period of ten (10) years from the date of purchase.

Subject to the terms and conditions of the warranty, if the SmoothPanels have any defect(s) caused by the company's manufacturing process within the warranty period, the company will repair or replace the SmoothPanels free of charge.

Warranty Terms and Conditions

1. This warranty statement (duly signed and dated) must be presented with any claim.
2. A claim will only be recognised after a representative of the company has inspected the SmoothPanels.
3. The Purchaser must permit the company and or its appointed representative's property access to inspect the claim and or carrying out any replacement.
4. Any Warranty undertakings to remedy agreed defects shall be at the discretion of the Company or their designated repairer. Any costs associated with unauthorised repair will not be accepted.
5. The Company will not be liable for:
   a. Labour costs associated with the installation or removal of affected SmoothPanels or the fixing of replacement panels; or
   b. Injury to persons or damage to property or consequential losses arising from the use of the SmoothPanels.
6. This warranty is conditional to SmoothPanels being installed in accordance with the engineering specifications and installation guidelines provided by the company, the receipt of which is hereby acknowledged.
7. Any repair or replacement will be at the company's discretion and the company reserves the right to appoint its own repairers.
8. The Company will not accept liability for any defects which is the result of:
   a. Improper use or mismanagement by the purchaser;
   b. From a use not recommended or not reasonably contemplated by the Company;
   c. If the SmoothPanels have been modified in any way that does not comply with the relevant Building Regulations and Codes;
   d. The purchaser does not comply with any of the terms and conditions herein stated in the warranty;
   e. Any unauthorised re-installation of the SmoothPanels.
9. This warranty excludes damage caused by;
   a. Handling, Storage or erection;
   b. Structural pressure due to settlement or unusual loads;
   c. Over-painting;
   d. Storm or tempest, floods, lightning strike or other acts of God;
   e. Adhesion and marking due to protective plastic film;
   f. Corrosion due to pollutants;
   g. Chemicals and corrosive atmosphere;
   h. Attack from chemical agents, fumes, liquids or solids other than direct rain falling onto the SmoothPanels;
   i. Neglect, mistreatment or deliberate damage;
   j. Sustained temperatures above 81.6°C dry heat refer to section 12 for further details.
   k. Contact with soils, ashes, fertilizers or other moisture retaining substances;
   l. Area in metallic direct or indirect contact with lead, copper or dissimilar metals, or subject to the run off from copper or lead flashings or pipes;
   m. Failure to remove debris and/or failure to provide free drainage of water including internal condensation from all surfaces of the product;
   n. Deterioration of the panels caused by contact with green or wet timbers or treated pine.

10. In accordance with the warranty extended to the company by the manufacture of the steel component of the SmoothPanels, the company only extends to the purchaser the benefit of any warranty and guarantees it receives from the manufacturer to the extent it is capable of doing so at law and if:
    a. Installation is greater than one (1) kilometre from marine or industrial environments;
    b. The paint finish as supplied must not be scratched, abraded or damaged in anyway, or coated with an incompatible material;
    c. Sheltered or areas unwashed by rain exposure must be washed down on a regular six (6) month basis;
    d. Installed pitch of the roof is equal to or greater than 2° above the horizontal;
    e. All fasteners used for fixing the product are to be in accordance with the companies recommendations and comply with Australian Standard AS3566: Class 4 where applicable.

11. Nothing in this warranty will extend the benefit of any warranty of the manufacturer of the steel beyond the period of the warranty provided by the manufacturer. The period of ten (10) years referred to in the opening clause of the warranty refers to any defects in the SmoothPanels as a consequence of the company's manufacturing process.
    Please Note: for example – if the manufacturer of the steel only warrants their paint finish for six (6) years then the benefit of the warranty for the paint finish of SmoothPanels is directly linked to that of the steel manufacturer, in this case, six (6) years.

12. SmoothPanels are made with an Expanded Polystyrene (EPS) core material which is fire retardant (FR) and meets AS1366.3. EPS (FR) is a thermoplastic and as such is subject to changes in its structural properties if/ when subjected to or exposed to high levels sustained heat. Dark coloured surfaces, with no cooling wind, have been known to reach such temperatures on extremely hot days. To ensure the structural properties of the EPS(FR) core and that these levels of heat are not encountered, we recommend that SmoothPanels not be subject to dry heat loads in excess of 81.6°C. The manufacturer of the steel recommends th e following colours, subject to conditions of use (refer to BlueScope Steel Technical Bulletin TB-4), will maintain a temperature under 81.6°C dry heat.

    These are the only colours we acknowledge as being covered under this warranty. If the colour you choose is not listed in the recommended colour list, unless written confirmation pertaining directly to the specific project/application is obtained from the company, it is assumed not to be covered.
    - Surfmist
    - Classic Cream
    - Shale Grey
    - Pale Eucalypt
    - Paperbark
    - Dune
    - Evening Haze
    - Cove

    The following colours are available for SmoothPanels, and are still covered by the ten (10) year manufacturing defects warranty. Void, will be any claim under this warranty which is a direct result of defect/damages caused by sustained temperatures above 81.6°C dry heat.
    - Ironstone
    - Jasper
    - Woodland Grey
    - Windspray
    - Deep Ocean
    - Gully
    - Mangrove
    - Wallaby
    - Cottage Green
    - Basalt
    - Manor Red
    - Night Sky
    - Terrain
    - Monument

13. This warranty is given in lieu of all other considerations or warranties expressed or implied, except to the extent that any statute applicable to this contract prevents the exclusion, restrictions or modifications of such conditions or warranty.
14. The proper law of this warranty shall be the law applying to the state of Queensland.
15. For the purpose of this warranty, the purchaser refers to that person who has duly completed the details below and no other person(s).

PURCHASER	AGENT
Name	Name
Company Name	Company Name
QBSA #	QBSA #
Invoice #	Invoice #
Date of purchase	Date of purchase

TECHINCAL DATA

ACOUSTIC PROPERTIES

FAR 3323 FIRE TEST REPORT

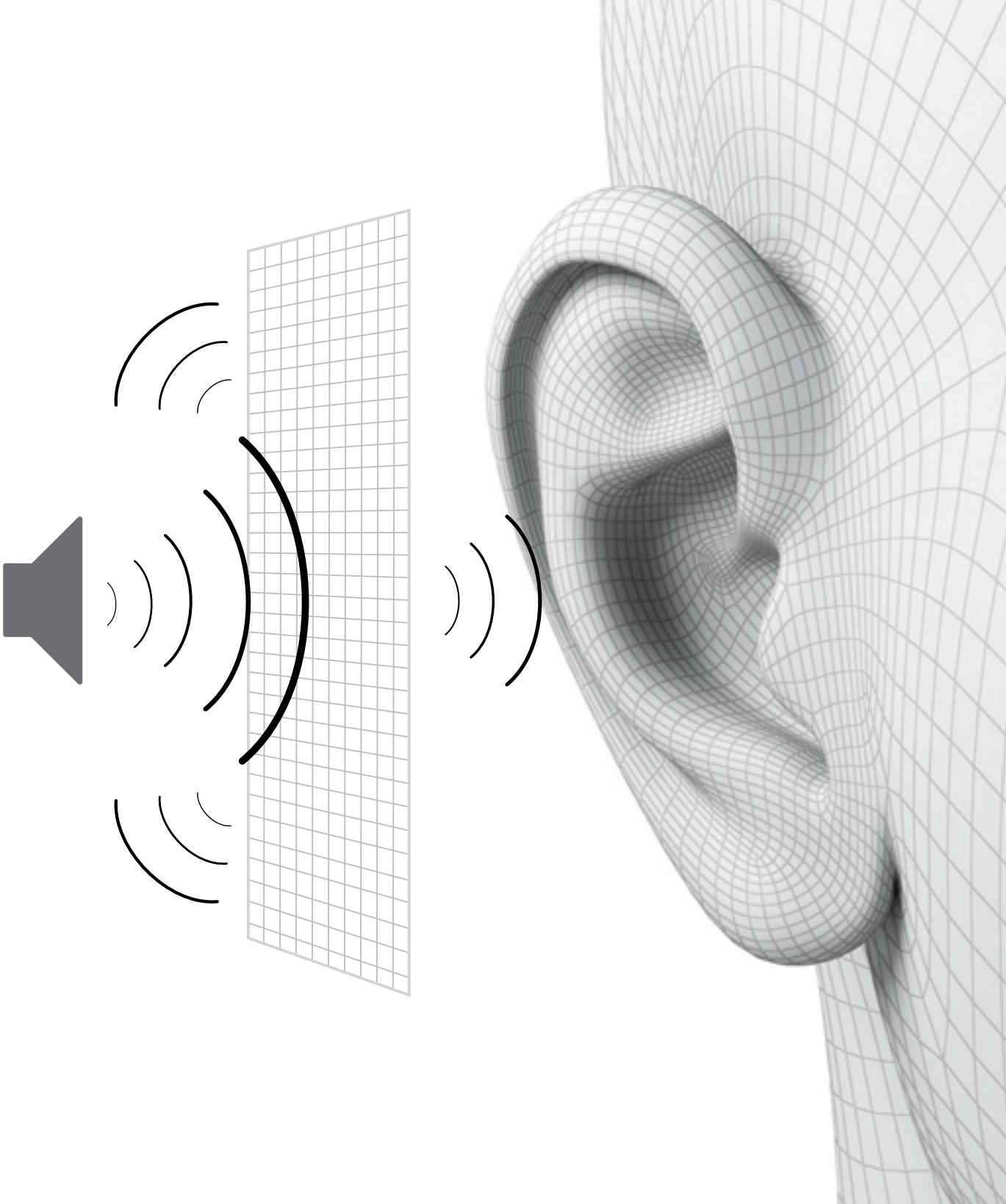
FAR 2489 FIRE TEST REPORT

FIRE TEST CERTIFICATES

MAXIMUM SKIN TEMPERATURE

MAIN MENU

SOLARIS

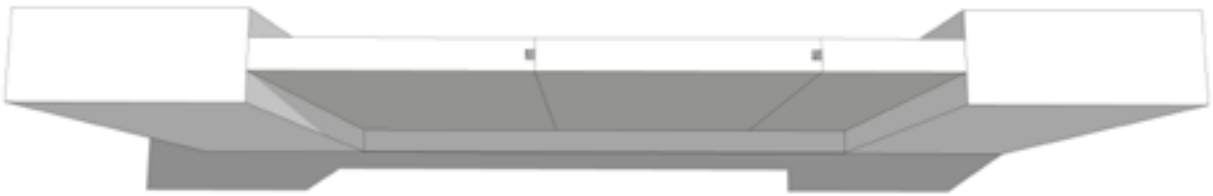


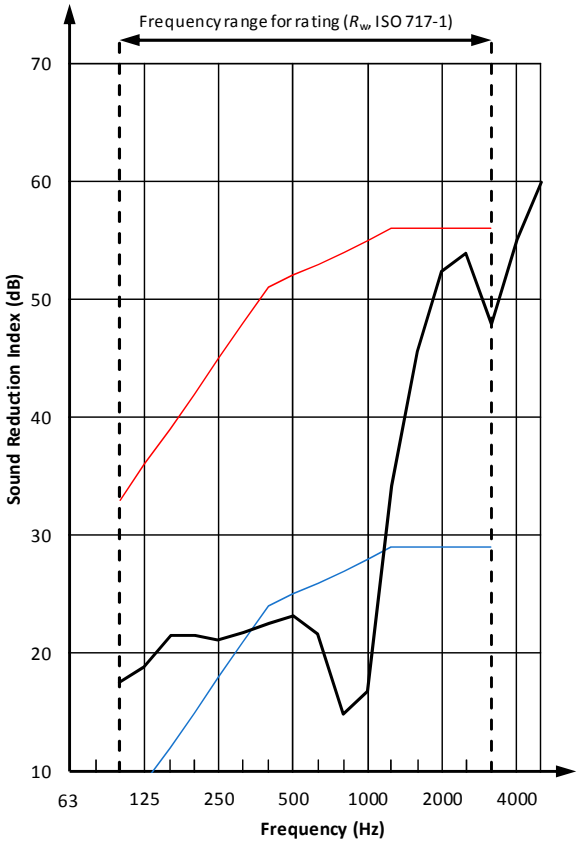
SOLARIS™ PANEL ACOUSTIC PROPERTIES

MiiHome in conjunction with our Acoustic Engineer commissioned Kilargo Acoustic Laboratory to undertake a series of acoustic tests on a range of standard SolarisTM panels and modified SolarisTM panels. The results contained within this document are extracts from the details report 28102013/ct/01 which can be provided upon request.

ACOUSTIC PROPERTIES

140MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

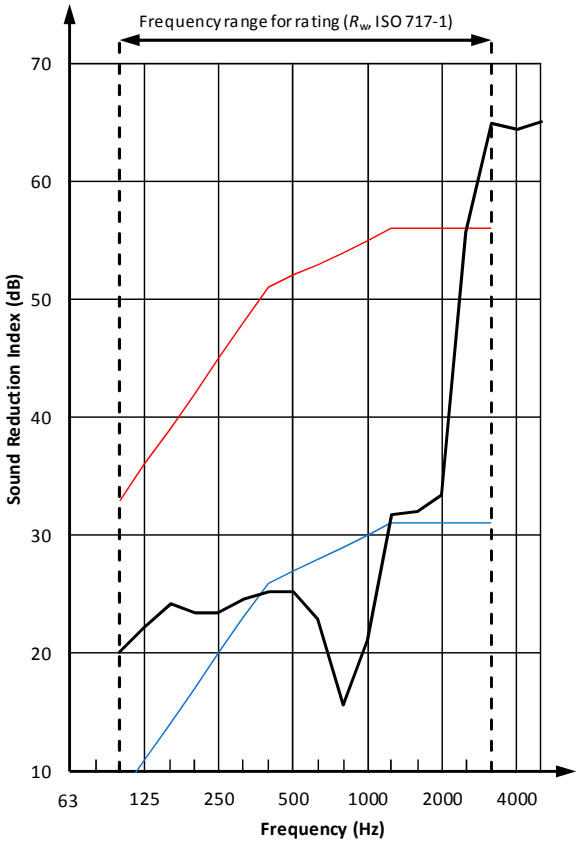
Frequency f Hz	R 1/3 Octave dB
100	17.6
125	18.9
160	21.5
200	21.5
250	21.2
315	21.8
400	22.6
500	23.2
630	21.7
800	14.9
1000	16.8
1250	34.2
1600	45.6
2000	52.4
2500	53.9
3150	47.9
4000	55.1
5000	59.9

$R_w(C;C_{tr})$ = 25 (-3;-5) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

140MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) INCORPORATING WAVEBAR 8KG/M²



Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

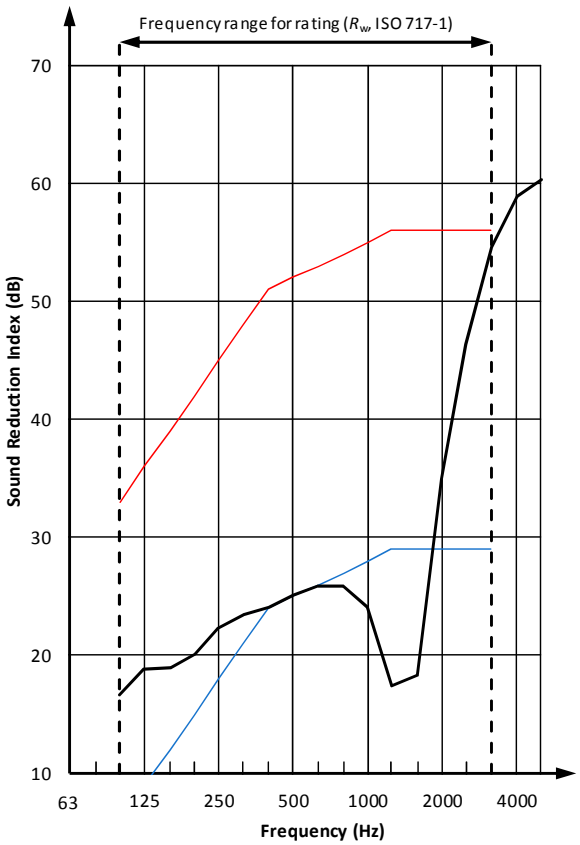
Frequency f Hz	R 1/3 Octave dB
100	20.1
125	22.2
160	24.2
200	23.4
250	23.5
315	24.6
400	25.2
500	25.3
630	23
800	15.6
1000	21.1
1250	31.8
1600	32
2000	33.4
2500	55.7
3150	64.9
4000	64.4
5000	65

$R_w(C;C_{tr})$ = 27 (-3;-5) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

50MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)



Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

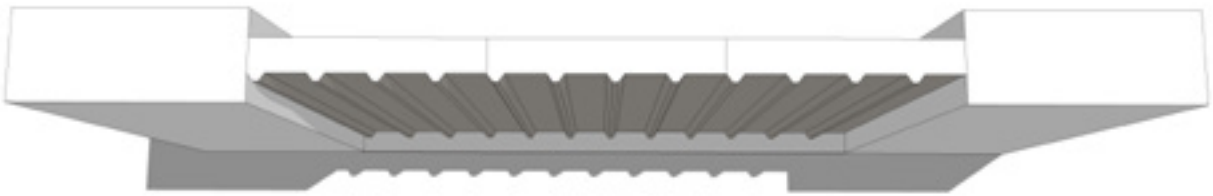
Frequency f Hz	R 1/3 Octave dB
100	16.7
125	18.9
160	19
200	20.1
250	22.3
315	23.4
400	24.1
500	25.1
630	25.9
800	25.9
1000	24.1
1250	17.4
1600	18.3
2000	35
2500	46.4
3150	54.6
4000	58.9
5000	60.3

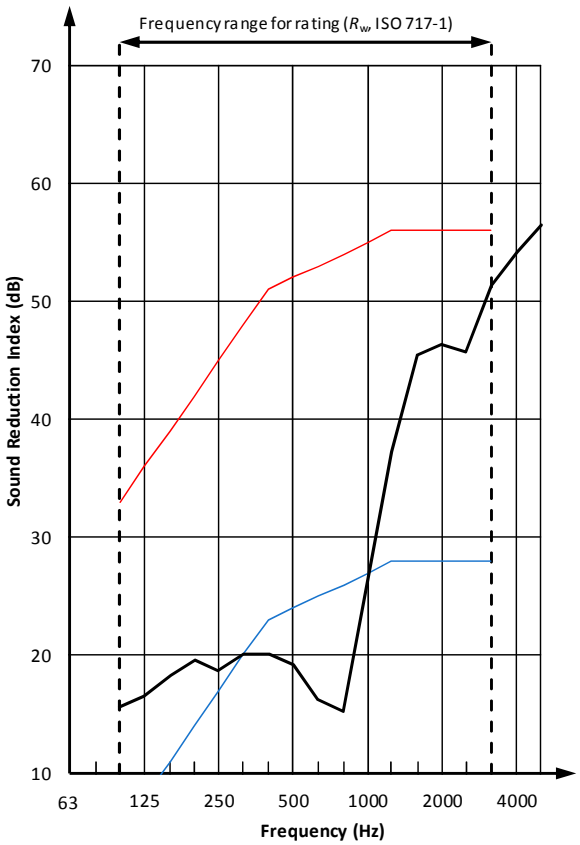
$R_w(C;C_{tr})$ = 25 (-2;-3) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

150MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

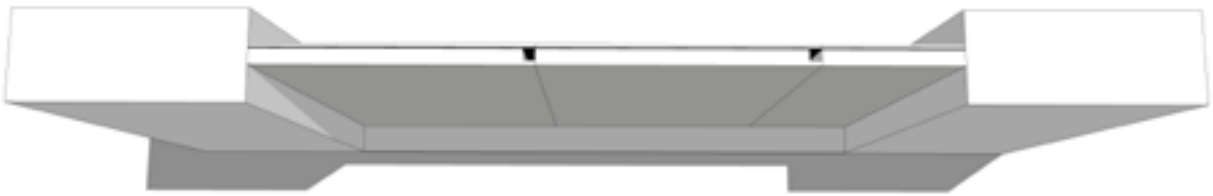
Frequency f Hz	R 1/3 Octave dB
100	15.7
125	16.6
160	18.3
200	19.6
250	18.7
315	20.1
400	20.1
500	19.2
630	16.3
800	15.2
1000	26.3
1250	37.3
1600	45.4
2000	46.3
2500	45.7
3150	51.3
4000	54.2
5000	56.4

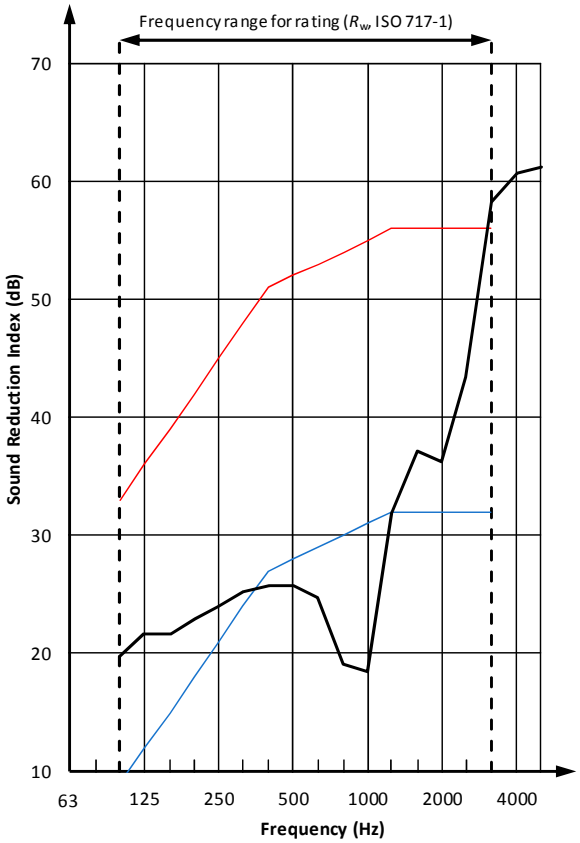
$R_w(C;C_{tr})$ = 24 (-2;-4) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) INCORPORATING WAVEBAR 8KG/M²





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

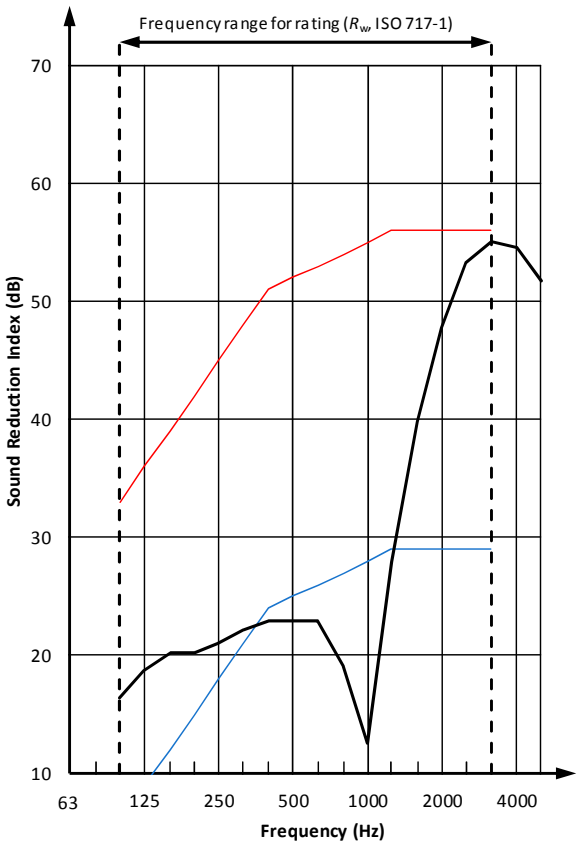
Frequency f Hz	R 1/3 Octave dB
100	19.8
125	21.7
160	21.7
200	23
250	24
315	25.2
400	25.7
500	25.8
630	24.7
800	19.1
1000	18.4
1250	31.9
1600	37.1
2000	36.2
2500	43.4
3150	58.2
4000	60.7
5000	61.2

$R_w(C;C_{tr})$ = 28 (-3;-5) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)



Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

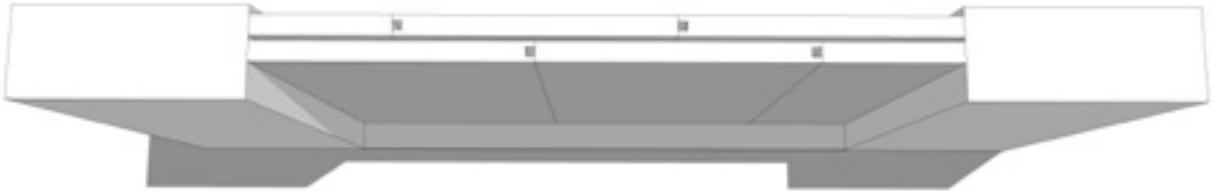
Frequency f Hz	R 1/3 Octave dB
100	16.4
125	18.7
160	20.2
200	20.3
250	21
315	22.2
400	22.9
500	23
630	22.9
800	19.1
1000	12.6
1250	27.9
1600	39.8
2000	47.7
2500	53.2
3150	55
4000	54.6
5000	51.7

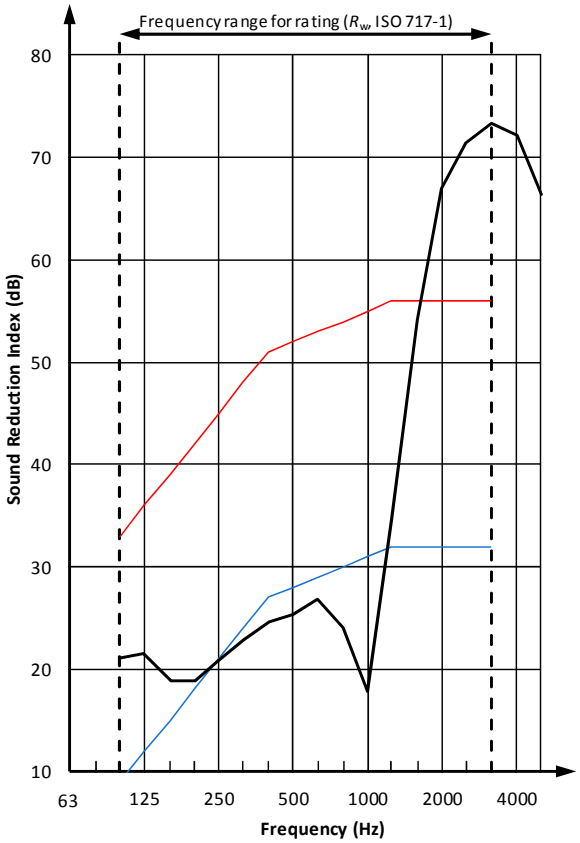
$R_w(C;C_{tr})$ = 25 (-4;-6) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) – 20MM CAVITY – 90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

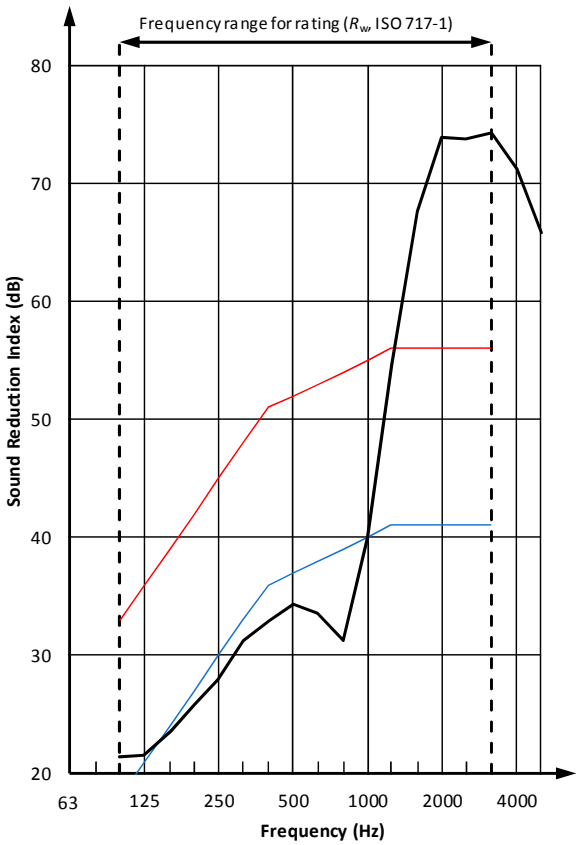
Frequency f Hz	R 1/3 Octave dB
100	21.1
125	21.5
160	18.8
200	18.8
250	20.8
315	22.8
400	24.6
500	25.4
630	26.8
800	24.1
1000	17.9
1250	34.7
1600	54.2
2000	67
2500	71.4
3150	73.3
4000	≥72.2≠
5000	≥66.4≠

$R_w(C;C_{tr})$ = 28 (-2;-5) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

10MM REGULAR BORAL PLASTERBOARD – 90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) – 20MM CAVITY – 90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) – 10MM REGULAR BORAL PLASTERBOARD



Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

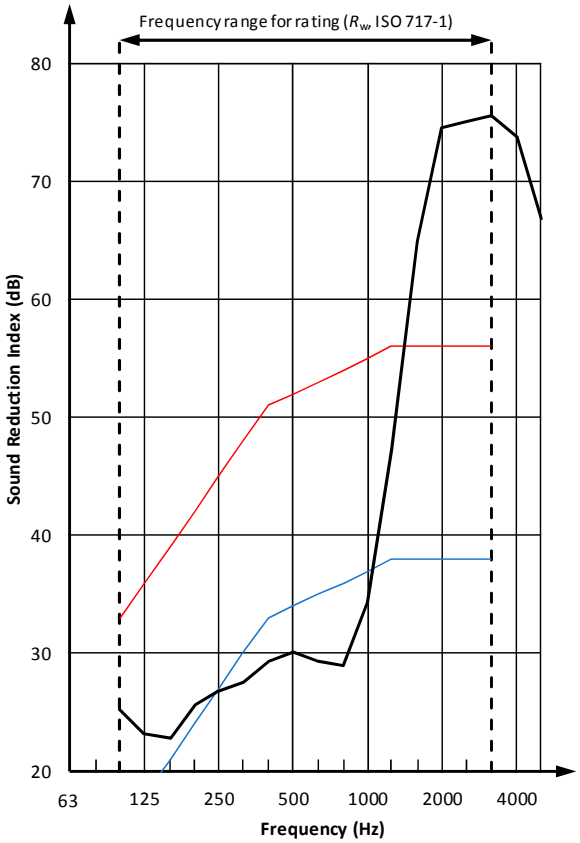
Frequency f Hz	R 1/3 Octave dB
100	21.4
125	21.5
160	23.6
200	25.9
250	28
315	31.3
400	32.9
500	34.4
630	33.6
800	31.3
1000	40
1250	54.5
1600	67.6
2000	≥73.9≠
2500	73.7
3150	74.3
4000	71.2
5000	≥65.8≠

$R_w(C;C_{tr})$ = 37 (-1;-4) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

FROM RECEIVING TO SOURCE ROOM: 900MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) – 20MM CAVITY – 2*13MM FIRESTOP BORAL PLASTERBOARD ON 90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE)



Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

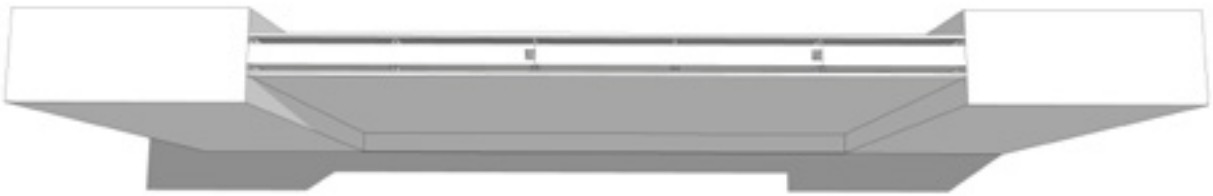
Frequency f Hz	R 1/3 Octave dB
100	25.2
125	23.2
160	22.8
200	25.7
250	26.8
315	27.5
400	29.3
500	30.1
630	29.4
800	29
1000	34.3
1250	47.3
1600	64.9
2000	≥74.5≠
2500	75
3150	75.6
4000	≥73.7≠
5000	≥66.9≠

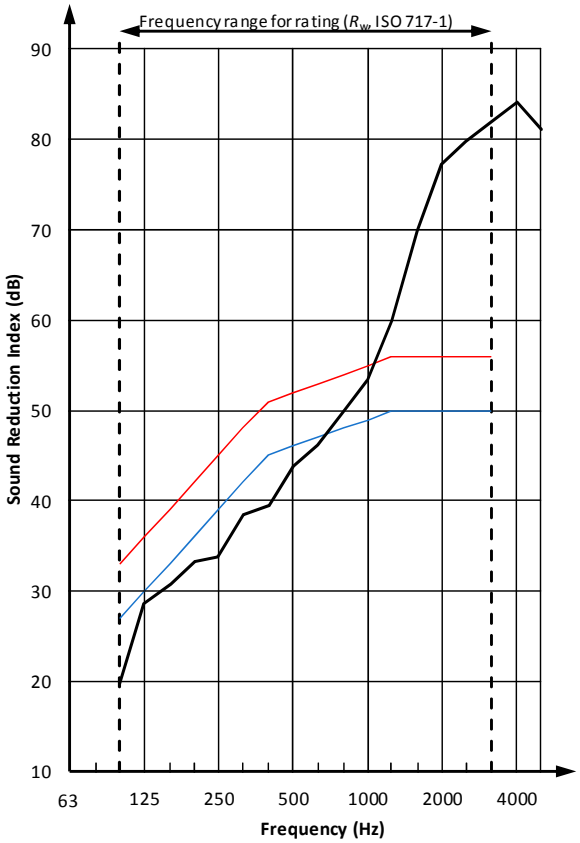
$R_w(C;C_{tr})$ = 34 (0;-3) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

13MM FIRESTOP BORAL PLASTERBOARD – 6MM FIBRE CEMENT BORAL SHEET – 20MM FURRING CHANNELS – 90MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) – 20MM FURRING CHANNELS – 6MM FIBRE CEMENT BORAL SHEET – 13MM FIRESTOP BORAL PLASTERBOARD – SEALED WITH PLASTER





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

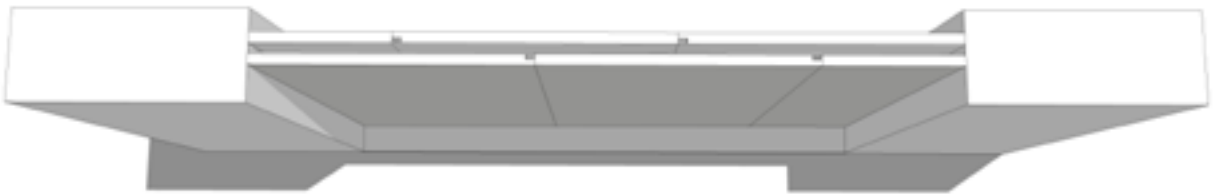
Frequency f Hz	R 1/3 Octave dB
100	19.8
125	28.6
160	30.7
200	33.2
250	33.8
315	38.5
400	39.5
500	43.8
630	46.2
800	49.8
1000	53.4
1250	59.9
1600	≥70≠
2000	≥77.2≠
2500	≥79.8≠
3150	≥82≠
4000	≥84.1≠
5000	≥81.1≠

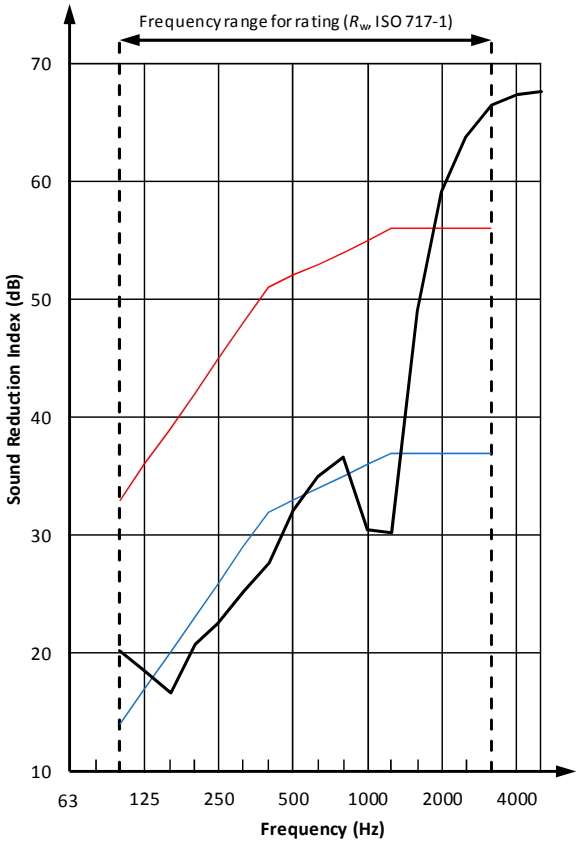
$R_w(C;C_{tr})$ = 46 (-2;-8) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

6MM FIBRE CEMENT BORAL SHEET LAMINATED ON 90/100MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) CUT IN HALF – 20MM CAVITY – 6MM FIBRE CEMENT BORAL SHEET LAMINATED ON 90/100MM SOLARIS™ PANELS (STEEL AND POLYSTYRENE) CUT IN HALF – (STEEL FACING OUTSIDE THE WALL/FIBRE CEMENT SHEET INSIDE THE WALL)





Ref. Values Shifted ISO717:1

Ref. Values ISO717:1

R (Sound Reduction Index)

Frequency f Hz	R 1/3 Octave dB
100	20.3
125	18.6
160	16.7
200	20.8
250	22.5
315	25.2
400	27.7
500	32.2
630	35
800	36.6
1000	30.5
1250	30.2
1600	49
2000	59.1
2500	63.8
3150	66.5
4000	67.3
5000	≥67.6≠

$R_w(C;C_{tr})$ = 33 (-1;-5) dB

Measurement of Airborne Sound Insulation of Building Elements in Accordance with ISO 10140, Weighted Sound Reduction Index (R_w). Calculation in Accordance with AS/NZS ISO 717.1

Evaluation based on laboratory measurement results obtained in one-third octave bands by an engineering method.

EPSA Inc.- PANEL CERTIFICATION SCHEME

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Abbotsford VIC 3067
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Ron Lawson Executive Officer
Mobile: 0419 644 924

C/- PO Box 1562 Browns Plains QLD 4118

Certificate EPS Roofing Panel

This serves to confirm the Group has obtained a report from BRANZ No FAR 3323 Assessment of the performance of the Expanded Polystyrene Panel Manufacturers Group Roof Panel in the AS ISO 9715 Room Fire Test 10th July 2009. A full copy of this report is available on request.

Roof Panel is accordance with this assessment is considered to achieve Group 1, Group 2, or Group 3 provided the construction and installation parameters appropriate for each group are followed. For full details of these parameters see report.

These details and the report can be provided by current financial members of the group to support the classification and certification of their products.

Yours truly,

Ron Lawson
Executive Officer
1/06/2010

BRANZ

FAR 3323

Assessment of the Performance of the Expanded Polystyrene Panel Manufacturers Group Roof Panel in the AS ISO 9705 Room Fire Test

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      - The date when the service should have been completed in the event of any alleged non-performance.

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   ii. any misstatement or misrepresentation of the Outputs, including Public Outputs;
   iii. any defects in the Products the subject of the Services; or
   iv. any changes, modifications or alterations to the Products the subject of the Services.

Assessment of the Performance of the Expanded Polystyrene Panel Manufacturers Group Roof Panel in the AS ISO 9705 Room Fire Test

1. CLIENT

Expanded Polystyrene Panel Manufacturers Group – PACIA
Level 1 Skipping Girl Place
651 Victoria Street
Abbotsford VIC 3067
Australia.

2. INTRODUCTION

This report gives BRANZ's determination of the BCA classification of the Expanded Polystyrene Panel Manufacturers Group Roof Panel in accordance with the criteria set down in Specification C1.10a Clause 3 of the Building Code of Australia 2008. For reference, a detail of the Expanded Polystyrene Panel Manufacturers Group Roof Panel is appended to this report.

3. BACKGROUND

This assessment report is based on the results of seven room fire tests conducted in accordance with AS ISO 9705, a supplementary test on room constructed as a (freestanding) self-supporting structure, and BRANZ Assessment Report FAR 2489.

The fire tests were carried out by CSIRO MIT Fire Science and Technology Laboratory, Highett, Melbourne for the PACIA, EPS Panel Group as follows:

CSIRO MIT Test No.	Test Date	Reference
03/21	15 September 2003	Doc CMIT-(C)-2003-201
04/01	23 January 2004	Doc CMIT-(C)-2004-089
04/02	06 February 2004	Doc CMIT-(C)-2004-089
04/34	06 September 2004	Doc CMIT-(C)-2004-368
04/35	22 September 2004	Doc CMIT-(C)-2004-368
04/36	24 November 2004	Doc CMIT-(C)-2004-469
04/37	06 December 2004	Doc CMIT-(C)-2004-469

IN BRANZ Assessment Report FAR 2489, the key factors relating to the design, construction and installation of the test specimens were examined for the seven tests, and the results from each test compared. The assessment concluded with specific construction details that were considered satisfactory for the installation to satisfy one of the three BCA Group Classifications, 1, 2, and 3.

The AS ISO 9705 room fire test requires the wall and ceiling panels to be mounted within a test compartment measuring 3.6 m long x 2.4 m wide x 2.4 m high with a

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single opening 2.0 m high x 0.8 m wide. A gas burner is located in one of the rear corners opposite the opening, and the gas flow controlled to produce a heat output and duration as prescribed by the standard i.e. 100 kW for 10 minutes followed by 300 kW for a further 10 minutes.

The performance criteria used for the purpose of BCA group number classification is the time-to-reach 1 MW (flashover), and a smoke growth rate index (SMOGRA) index was determined on the basis on light obscuration measurements in the exhaust duct recorded during the test.

4. DISCUSSION

The Expanded Polystyrene Panel Manufacturers Group roof panel system is described by the client as comprising a Grade SL EPS core sandwiched between an upper weather surface of 0.42 mm thick Colorbond steel profiled roof sheet, and an underside steel sheet with a male/female joint as tested in 0.5 mm or 0.6 mm thickness. The product will be fixed through at each crest with steel Tek screws into a structural supporting member underneath the panel (a steel purlin usually). A detail of the roof panel has been provided and is appended to this report, illustrating the upper weather surface with a trapezoidal profile at 250 centres (refer Figure 1).

For the purposes of determining the BCA Group Classification in accordance with Specification C1.10a Clause 3 of the BCA, the proposed design for the roof panel is consistent with the basic design of the panels used in the series of CMIT tests, including the same male/female as utilised by the panels in the CMIT tests. The design differs only on the unexposed face of the panels where the panel joint is achieved with an overlap at the trapezoidal profile. It is therefore considered that the proposed Expanded Polystyrene Panel Manufacturers Group roof panels, if assembled and tested as the wall panels were in the CMIT series of tests listed above, would achieve the same BCA Group Classifications as achieved by the tested wall panels. It therefore follows that the conclusions reached in FAR 2489 are considered to apply equally to the Expanded Polystyrene Panel Manufacturers Group roof panels.

The AS ISO 9705 fire test evaluates the fire performance of the panel system under a specific set of conditions. This includes the fixed room dimensions of 3.6 m x 2.4 m x 2.4 m. The BCA Specification C1.10a classification is solely based on the performance of the system in the specific fire test. In practice, buildings constructed using the panel system will usually be much larger than the AS ISO 9705 room, and actual time to flashover will be different even for the same burner output regime. By necessity, larger rooms may require different structural support systems for the ceiling, than that required for the AS ISO 9705 room, and in practice this is determined on a case by case basis by engineering design for each application.

The series of fire tests covered by the assessment FAR 2489 attempted to evaluate the fire performance using both a ceiling system supported by the walls (self-supported) and a ceiling system supported externally with steel through-bolts. In the latter case, the spacing between the support bolts was nominally 2.4 m, and was limited by the room dimensions. Again in practice this could be larger as determined by the engineering design. The design of the roof structure when used to provide support for the ceiling suspension system is not considered at all in this assessment. All these factors could affect the behaviour of the actual construction system under real fire conditions. However, for the purposes of complying with BCA Specification C1.10a, this assessment can only consider expected performance/behaviours of the insulated panel system under the specific conditions of the AS ISO 9705 fire test.

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5. CONCLUSION

Provided that the following construction and installation parameters are followed, the Expanded Polystyrene Panel Manufacturers Group roof panel is considered to achieve the following BCA classification and $SMOGRA_{RC}$ based on performance in the AS ISO 9705 room fire test in accordance with BCA Specification C1.10a.

BCA Group 1 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3 may be used for the panel core when the ceiling is externally supported.
- Class SL expanded polystyrene foam to AS1366.3 only may be used for the panel core when the ceiling is self-supported (by the wall panels).
- Panel thickness to be 250 mm or less
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Steel angles at junctions fixed to metal skins with steel rivets at nominal 300 mm spacings
- Ceiling panel-to-panel joins to also have steel rivets connecting the metal skins at not more than 1200 mm spacings.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to determine the spacing and size of any external supports (if required) to ensure structural adequacy for each application. Where ceiling panels are required to be supported using mushroom bolts, they must be no less than 10 mm diameter steel mushroom bolts with steel washers.

BCA Group 2 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3 may be used for the panel core.
- Panel thickness to be 250 mm or less
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Steel or aluminium angles at junctions fixed to metal skins with steel or aluminium rivets at nominal 300 mm spacings, except that if the panel thickness is greater than 150 mm and self-supported, then steel angles and rivets shall be used.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to determine the spacing and size of any external supports (if required) to ensure structural adequacy for each application. Where ceiling panels are required to be supported using mushroom bolts, they must be no less than 10 mm diameter steel mushroom bolts with steel washers.

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BCA Group 3 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3
- Panel thickness is more than 150 mm and not more than 250 mm
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Aluminium angles at junctions fixed to metal skins with aluminium rivets at nominal 300 mm spacings.
- The panel system is self-supporting.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to ensure structural adequacy for each application.

Smoke Growth Rate Index

In all cases, the smoke growth rate index as identified in BCA Specification C1.10a, clause 3c is not more than 100, and the product may be used in buildings with or without a sprinkler system complying with specification E1.5, subject to the construction and installation requirements shown above for the required classification group.

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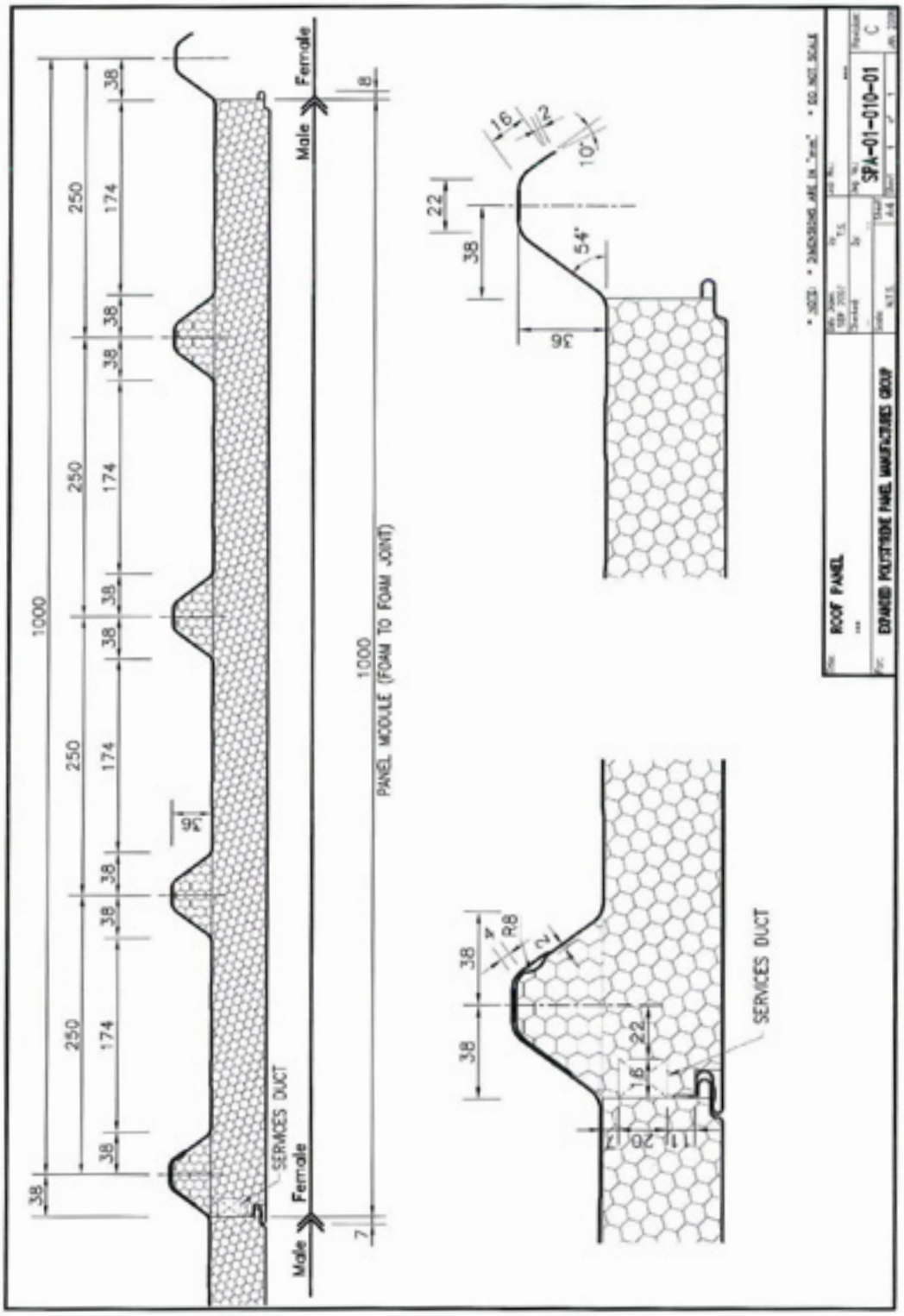
Figure 1 Expanded Polystyrene Panel Manufacturers Group Roof Panel



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BRANZ
BUILDING ON KNOWLEDGE

FAR 2489

Assessment of the Performance of Metal Clad Expanded Polystyrene Sandwich Panels in the AS ISO 9705 Room Fire Test

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Assessment of the Performance of Metal Clad Expanded Polystyrene Sandwich Panels in the AS ISO 9705 Room Fire Test

1. CLIENT

CSIRO MIT Fire Science and Technology Laboratory
PO Box 56
Highett
Melbourne
Australia

(PACIA, EPS Panel Group, Australia commissioned the CSIRO MIT Fire Science and Technology Laboratory to conduct the fire tests)

2. INTRODUCTION

The author was asked by the client to observe a series of AS ISO 9705 room fire tests and independently certify the results in accordance with the criteria set down in Specification C1.10a Clause 3 of the Building Code of Australia 2005.

3. BACKGROUND

This assessment report is based on the results of seven room fire tests conducted in accordance with AS ISO 9705 and carried out by CSIRO MIT Fire Science and Technology Laboratory, Highett, Melbourne for the PACIA, EPS Panel Group as follows:

CSIRO MIT Test No.	Test Date	Reference
03/21	15 September 2003	Doc CMIT-(C)-2003-201
04/01	23 January 2004	Doc CMIT-(C)-2004-089
04/02	06 February 2004	Doc CMIT-(C)-2004-089
04/34	06 September 2004	Doc CMIT-(C)-2004-368
04/35	22 September 2004	Doc CMIT-(C)-2004-368
04/36	24 November 2004	Doc CMIT-(C)-2004-469
04/37	06 December 2004	Doc CMIT-(C)-2004-469

A supplementary test was carried out on 19th March 2004 similar to Specimen 04/01 except that the room was constructed as a (freestanding) self-supporting structure of similar dimensions to the ISO 9705 room, rather than being constructed within the ISO 9705 room. The structure was located inside a larger room and the ceiling panels were provided with additional support using four mushroom bolts to suspend the ceiling from external supports. The results of this test were not directly applicable to this assessment, however useful information was obtained regarding the performance of the ceiling panels.

The AS ISO 9705 room fire test requires the wall and ceiling panels to be mounted within a test compartment measuring 3.6 m long x 2.4 m wide x 2.4 m high with a single opening 2.0 m high x 0.8 m wide. A gas burner is located in one of the rear corners opposite the opening, and the gas flow controlled to produce a heat output and duration as prescribed by the standard i.e. 100 kW for 10 minutes followed by 300 kW for a further 10 minutes.

The performance criteria used for the purpose of BCA group number classification is the time-to-reach 1 MW (flashover), and a smoke growth rate index (SMOGRA) index was determined on the basis on light obscuration measurements in the exhaust duct recorded during the test.

The key factors relating to the design, construction and installation of the test specimens were examined for the seven tests and are summarised in Table 1.

Rivet spacings were nominal 300 mm centres. Steel mushroom bolts supporting ceiling panel from external supports in tests 04/01 and 04/02 were spaced at nominal 2.4 m centres.

4. DISCUSSION

Each test was terminated following flashover or after 20 minutes in the event flashover did not occur. This was the case with tests 04/01 and 04/35, which both satisfied the criteria given for Group 1 materials in the BCA specification C1.10a. Flashover occurred for tests 03/21, 04/02,04/36 and 04/37 in the period between 10 and 20 minutes corresponding to a Group 2 in BCA specification C1.10a. The specimen in test 04/34 reached flashover before 10 minutes corresponding to a Group 3.

Key results are summarised in Table 2.

Class S foam and SL foam (to AS1366.3 - 1992) have nominal densities of 16 and 13.5 kg/m³ respectively. Panels using Class S foam therefore contain a higher amount of combustible mass for the same panel thickness.

The main effect of the panel thickness on the result of the tests was the potentially larger contribution of combustible material associated with the thicker panels; it was thus considered to represent a worse case.

Varying the metal skin thickness in the range 0.4 – 0.6 mm did not appear to greatly affect the result. A thicker metal skin is considered to be slightly more robust, and less susceptible to distortion.

The use of steel and aluminium angle trim and rivets exhibited clear differences in behaviour. Aluminium materials close to the burner were subject to melting which was not the case with steel.

Two of the tests (04/01 and 04/35) used a steel (stitch) rivet connecting the metal facings on the ceiling panels at approximately mid-span. This rivet had a significant effect on the result by preventing the occurrence of flashover for the duration of the test as illustrated by comparing the results of tests 04/35 and 04/36.

The calculated SMOGRA index was significantly lower for the two tests (04/01 and 04/35) that did not reach flashover.

The AS ISO 9705 fire test evaluates the fire performance of the panel system under a specific set of conditions. This includes the fixed room dimensions of 3.6 m x 2.4 m x 2.4 m. The BCA Specification C1.10a classification is solely based on the performance of the system in the specific fire test. In practice, buildings constructed using the panel system will usually be much larger than the AS ISO 9705 room, and actual time to flashover will be different even for the same burner output regime. By necessity, larger rooms may require different structural support

systems for the ceiling, than that required for the AS ISO 9705 room, and in practice this is determined on a case by case basis by engineering design for each application.

The series of fire tests covered by this assessment attempted to evaluate the fire performance using both a ceiling system supported by the walls (self-supported) and a ceiling system supported externally with steel through-bolts. In the latter case, the spacing between the support bolts was nominally 2.4 m, and was limited by the room dimensions. Again in practice this could be larger as determined by the engineering design. The design of the roof structure when used to provide support for the ceiling suspension system is not considered at all in this assessment. All these factors could affect the behaviour of the actual construction system under real fire conditions. However, for the purposes of complying with BCA Specification C1.10a, this assessment can only consider expected performance/behaviours of the insulated panel system under the specific conditions of the AS ISO 9705 fire test.

5. CONCLUSION

Provided that the following construction and installation parameters are followed, the metal-skinned EPS panels are considered to achieve the following BCA classification based on performance in the AS ISO 9705 room fire test in accordance with BCA Specification C1.10a.

BCA Group 1 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3 may be used for the panel core when the ceiling is externally supported.
- Class SL expanded polystyrene foam to AS1366.3 only may be used for the panel core when the ceiling is self-supported (by the wall panels).
- Panel thickness to be 250 mm or less
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Steel angles at junctions fixed to metal skins with steel rivets at nominal 300 mm spacings
- Ceiling panel-to-panel joins to also have steel rivets connecting the metal skins at not more than 1200 mm spacings.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to determine the spacing and size of any external supports (if required) to ensure structural adequacy for each application. Where ceiling panels are required to be supported using mushroom bolts, they must be no less than 10 mm diameter steel mushroom bolts with steel washers.

BCA Group 2 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3 may be used for the panel core.
- Panel thickness to be 250 mm or less
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Steel or aluminium angles at junctions fixed to metal skins with steel or aluminium rivets at nominal 300 mm spacings, except that if the panel thickness is greater than 150 mm and self-supported, then steel angles and rivets shall be used.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to determine the spacing and size of any external supports (if required) to ensure structural adequacy for each application. Where ceiling panels are required to be supported using mushroom bolts, they must be no less than 10 mm diameter steel mushroom bolts with steel washers.

BCA Group 3 Classification requires the following construction/installation parameters:

- Class S or SL expanded polystyrene foam to AS1366.3
- Panel thickness is more than 150 mm and not more than 250 mm
- Metal skins to be 'Colorbond' steel, 0.4 mm or thicker
- Aluminium angles at junctions fixed to metal skins with aluminium rivets at nominal 300 mm spacings.
- The panel system is self-supporting.
- The panel system is required to be installed in accordance with the manufacturer's panel installation instructions in all other respects and an engineering assessment is required to ensure structural adequacy for each application.

Smoke Growth Rate Index

In all cases, the smoke growth rate index as identified in BCA Specification C1.10a, clause 3c is not more than 100, and the product may be used in buildings with or without a sprinkler system complying with specification E1.5, subject to the construction and installation requirements shown above for the required classification group.

Table 1 Summary of design, construction and installation parameters

	Test Specimen						
Test No	03/21	04/01	04/02	04/34	04/35	04/36	04/37
Test Date	15 Sep 2003	23 Jan 2004	6 Feb 2004	6 Sep 2004	22 Sep 2004	24 Nov 2004	6 Dec 2004
EPS foam	SL to AS1366.1	S to AS1366.1	SL to AS1366.1	SL to AS1366.1	SL to AS1366.1	S to AS1366.1	S to AS1366.1
Panel Thickness	100 mm	250 mm	250 mm	250 mm	250 mm	250 mm	150 mm
Facing Type	0.6 mm Colorbond steel	0.4 mm Colorbond steel	0.4 mm Colorbond steel	0.4 mm Colorbond steel	0.4 mm Colorbond steel	0.4 mm Colorbond steel	0.4 mm Colorbond steel
Angle trim material	aluminium	steel	aluminium	aluminium	steel	steel	aluminium
Rivet material	aluminium	steel	aluminium	aluminium	steel	steel	aluminium
Mushroom bolts support ceiling	no	yes	yes	no	no	no	no
Rivet in ceiling joint	no	yes	no	no	yes	no	no

Table 2 Summary of results

	Test Specimen						
Test No	03/21	04/01	04/02	04/34	04/35	04/36	04/37
Test Date	15 Sep 2003	23 Jan 2004	6 Feb 2004	6 Sep 2004	22 Sep 2004	24 Nov 2004	6 Dec 2004
Time to reach 1 MW (sec)	1100	No failure	785	415	No failure	1140	605
BCA group classification	2	1	2	3	1	2	2
SMOGRA index (m^2/s^2 x 1000)	14.0	2.4	12.0	13.2	2.1	24.2	18.1

CW PCRC

BRANZ
BUILDING ON KNOWLEDGE

Fire Test Certificate

This is to certify that the specimen described below has been examined by BRANZ Ltd on behalf of

EPS Panel Division, PACIA
and
CSIRO Manufacturing and Infrastructure Technology

Test standard: AS ISO 9705

Specimen name: Sandwich Panel with an Expanded Polystyrene (EPS) core

Specimen description:

Insulating sandwich panel, with nominal thickness 250 mm or less.

Panel core of Class S or SL (to AS 1366.3) expanded EPS.

Clad both sides with "Colorbond" steel, thickness 0.4 mm or greater.

Panel to panel junctions require steel angles fixed to the steel skins at not more than 300mm centres, with steel rivets.

Orientation: N/A

Full descriptions of the test specimen and the complete results of the examination are given in the following Test Reports and Assessments:

CMIT-(c)-2003-201 CMIT-(c)-2004-089 CMIT-(c)-2004-368 CMIT-(c)-2004-469
BRANZ FAR 2489

Conditions of laboratory registration by IANZ do not allow assessments expressed by the Registered Laboratory to be covered by IANZ.

Regulatory authorities are advised to examine test reports and assessments before approving any product.

The assessed results were as follows:

Group Number 2 in accordance with BCA 2005 specification Cl.10a

Smoke Growth Rate Index ($SMOGRA_{RC}$) < 100.

Test Dates: 15/9/03, 23/1/04, 6/2/04, 6/9/04
22/9/04, 24/11/04, 6/12/04

Test Supervisor(s): N/A

This Certificate issued: 29 April 2005

Certificate Number: 372

Colleen Wade, Principal Scientist
Fire Testing Supervisor
For BRANZ Limited

BRANZ
BUILDING ON KNOWLEDGE

Fire Test Certificate

This is to certify that the specimen described below has been examined by BRANZ Ltd on behalf of

EPS Panel Division, PACIA
and
CSIRO Manufacturing and Infrastructure Technology

Test standard: AS ISO 9705

Specimen name: Sandwich Panel with an Expanded Polystyrene (EPS) core

Specimen description:

Insulating sandwich panel, with nominal thickness 150 mm or less.

Panel core of Class S or SL (to AS 1366.3) expanded EPS.

Clad both sides with "Colorbond" steel, thickness 0.4 mm or greater.

Panel to panel corner junctions require aluminium angles fixed to the steel skins at not more than 300mm centres, with aluminium rivets.

Orientation: N/A

Full descriptions of the test specimen and the complete results of the examination are given in the following Test Reports and Assessments:

CMIT-(c)-2003-201 CMIT-(c)-2004-089 CMIT-(c)-2004-368 CMIT-(c)-2004-469
BRANZ FAR 2489

Conditions of laboratory registration by IANZ do not allow assessments expressed by the Registered Laboratory to be covered by IANZ.

Regulatory authorities are advised to examine test reports and assessments before approving any product.

The assessed results were as follows:

Group Number 2 in accordance with BCA 2005 specification Cl.10a

Smoke Growth Rate Index ($SMOGRA_{RC}$) < 100.

Test Dates: 15/9/03, 23/1/04, 6/2/04, 6/9/04 22/9/04, 24/11/04, 6/12/04

Test Supervisor(s): N/A

This Certificate issued: 29 April 2005

Certificate Number: 373

Colleen Wade, Principal Scientist

Fire Testing Supervisor
For BRANZ Limited

BRANZ
BUILDING ON KNOWLEDGE

Fire Test Certificate

This is to certify that the specimen described below has been examined by BRANZ Ltd on behalf of

EPS Panel Division, PACIA
and
CSIRO Manufacturing and Infrastructure Technology

Test standard: AS ISO 9705

Specimen name: Sandwich Panel with an Expanded Polystyrene (EPS) core

Specimen description:

Insulating sandwich panel, nominal thickness 250 mm or less.

Panel core of Class SL (to AS 1366.3) expanded EPS.

Clad both sides with "Colorbond" steel, thickness 0.4 mm or greater.

Panel to panel junctions require steel angles fixed to the steel skins at not more than 300mm centres, with steel rivets. Ceiling panel to panels joins require a steel (stitch) rivet connecting the metal skins at not more than 1200 mm centres.

Orientation: N/A

Full descriptions of the test specimen and the complete results of the examination are given in the following Test Reports and Assessments:

CMIT-(c)-2003-201 CMIT-(c)-2004-089 CMIT-(c)-2004-368 CMIT-(c)-2004-469
BRANZ FAR 2489

Conditions of laboratory registration by IANZ do not allow assessments expressed by the Registered Laboratory to be covered by IANZ.

Regulatory authorities are advised to examine test reports and assessments before approving any product.

The assessed results were as follows:

Group Number 1 in accordance with BCA2005 specification Cl.10a

Smoke Growth Rate Index ($SMOGRA_{RC}$) < 100.

Test Dates: 15/9/03, 23/1/04, 6/2/04, 6/9/04
22/9/04, 24/11/04, 6/12/04

Test Supervisor(s): N/A

This Certificate issued: 29 April 2005

Certificate Number: 374

Colleen Wade, Principal Scientist

Fire Testing Supervisor
For BRANZ Limited

BSR/S/2008/051

MAXIMUM OUTER SKIN TEMPERATURE OF COLORBOND® STEEL INSULATED PANELS EXPOSED TO SOLAR RADIATION – 2008 UPDATE.

by
J C Adams

August 2008

Circulation: Unrestricted

SOLARIS™ RECOMMEND THAT MAXIMUM PANEL SKIN TEMPERATURES BE KEPT TO 80 DEGREES CELCIUS

BlueScope Steel Limited
ABN 16 000 011 0 58

MAXIMUM OUTER SKIN TEMPERATURE OF COLORBOND® STEEL INSULATED PANELS EXPOSED TO SOLAR RADIATION – 2008 UPDATE

CONTENTS

1 INTRODUCTION

In 1999 a report was developed to predict the outer skin temperatures for each COLORBOND® steel prepainted steel colour when used as the outer skin of an insulated panel roof. The information was provided to assist insulated panel manufacturers to determine suitable colours for use with their products [1].

In the design of sandwich panels, careful consideration needs to be given to the outer-skin surface temperature and subsequent thermal expansion. Roofing panels that take account of these items perform well. Problems that can be encountered due to incorrect product selection include deflection out of plane, localised buckling, screw hole bearing, profile tearing, and delamination.

The information provided here and in the original report has been documented to provide a consistent set of results to help panel manufacturers to decide on the range of colours they intend to use for their panels. The final decision on appropriate colours rests with the panel manufacturers, as the acceptable skin temperature will be dependent upon the service temperature of all components of the panel, including the core material and adhesives, and the behaviour of the system when subject to thermal movement.

There have been a number of updates to the original report covering impact of core material, changes to colour ranges and climate variation [2,3]. This update is required to reflect the changes introduced in August 2008 to the standard COLORBOND® steel colours. The changes made to COLORBOND® steel that affect the temperatures calculated within this report include:

- All standard COLORBOND® steel colours now incorporate Thermatech™ technology. Thermatech™ technology increases the solar reflectance of the COLORBOND® steel colours thereby making them cooler.
- Three new colours have been introduced to the standard COLORBOND® steel colour range – Evening Haze®, Loft® and Monument™. Night Sky®, Plantation® and Blue Ridge® are now part of the secondary colour range.

Whilst the author believes that a conservative set of assumptions has been used to determine the maximum outer skin temperatures, a designer/manufacturer should always ensure that the product would not be subjected to more extreme events.

2 ASSUMPTIONS & TESTING

This section contains a brief summary of the assumptions and testing used to determine the temperatures reported in this document.

Laboratory Testing

Spectral measurements using a Perkin Elmer Lambda 900 spectrophotometer were made throughout the solar wavelength range (ultra-violet, visible, near infrared). The spectral measurements and solar reflectance calculations were conducted in accordance with ASTM E903 [4]. A recent laboratory crosscheck has shown excellent agreement providing confidence in both the equipment and method [5].

No tests were conducted to directly determine the panel temperatures documented in this report. All of the temperatures were determined by calculation using a steady state thermal calculation method. The method is described in the original report [1].

General Assumptions

Surface properties – see Section 3.

- The solar reflectance values are based on new product.
- The thermal emittance value for all products was taken as 0.85.

Panel properties – see Section 4.

- The panel was assumed to be 150 mm thick.
- The core was assumed to have thermal conductivity of 0.043 W/m°C.

Environmental conditions – see Section 5.

- Most Australian climates will fit into one of the broad exposure categories.
- Outdoor temperature for the different exposure categories were taken as those contained in Table1.
- Indoor temperature was assumed to be 25°C.
- Solar radiation upon the roof was assumed to be 1000 W/m^2, with the exception of exposure category 4, which was assumed to be 900 W/m^2. Solar radiation upon the west wall was taken to be 80% of the roof values.
- Internal wind speed was assumed to be 0 m/s.
- Outdoor wind speed was assumed to be 0.5 m/s.

3 SURFACE PROPERTIES

The thermal emittance and solar reflectance of COLORBOND® steel will influence the outer skin temperature of an insulated panel.

The thermal emittance of most surfaces is greater than 0.80, except for metals which are typically less than 0.20. For example aluminium foil is 0.05. The measured thermal emittance of COLORBOND® prepainted steel has been shown to be between 0.84 and 0.90. In this note a thermal emittance of 0.85 was assumed for all painted surfaces.

The solar reflectance depends upon the colour of the surface and the pigments used. BlueScope Steel has completed measurements on samples of all of the standard COLORBOND® steel and COLORBOND® Metallic steel colour range in order to determine their solar reflectance values. Spectral reflectance measurements were made throughout the solar wavelength range (ultra-violet, visible and near infra-red) using a spectrophotometer. The solar reflectance was then obtained by weighting the spectral reflectance results with a standard solar energy distribution, in accordance with ASTM E903 [4].

In this note, the solar reflectance values used were obtained from new samples. Results from exposure samples provide some confidence that under normal exposure conditions the solar reflectance remains reasonably stable [6]. Obviously in corrosive environments, dirty environments, or environments that have extended periods without rain the solar reflectance could fall, causing higher maximum outer skin temperatures.

4 PANEL PROPERTIES

In this note the panel was assumed to have a 150 mm thick polystyrene core. The polystyrene core was assumed to have a thermal conductivity of 0.043 W/m°C. This is in line with the original report. Variations from 150 mm for typical panel core thickness will make little difference to the overall predicted temperatures [2].

5 ENVIRONMENTAL CONDITIONS

The Australian climate varies considerably from cool alpine through to hot arid regions. In the original report an environmental condition was assumed that was considered to conservatively represent most of the populated regions of Australia. In this report the climate is broken down into four exposure categories.

Exposure category 1 – Extreme inland

Exposure category 2 – Majority of seaboard Australia (Condition assumed in the original report)

Exposure category 3 – Cooler regions of mainland Australia.

Exposure category 4 – Tasmania

The assumed outdoor temperatures and some typical locations for each of the exposure categories are shown in Table 1.

TABLE 1 – OUTDOOR TEMPERATURES

Exposure Category	*Assumed*	*Maximum Recorded*			
1	50 °C	Wilcannia	50.0 °C	Swan Hill	49.4 °C
		Oodnadatta	50.7 °C	Mardie	50.5 °C
2	45 °C	Melbourne	45.6 °C	Adelaide	47.6 °C
		Sydney	45.3 °C	Perth	44.6 °C
		Brisbane	43.2 °C	Cairns	43.2 °C
		Townsville	43.4 °C		
3	40 °C	Toowoomba	39.3 °C	Gladstone	39.8 °C
		Mackay	37.9 °C	Bowral	40.0 °C
		Cooma	37.9 °C	Lithgow	38.4 °C
		Port Stephens	39.4 °C	Bright	40.7 °C
		Omeo	40.0 °C		
4	40 °C	Hobart	40.7 °C	Devonport	31.8 °C
		Launceston	37.3 °C		

The remaining conditions assumed are in line with the original report with the exception of exposure category 4, Tasmania. A slightly lower solar radiation is assumed, as it is not possible for the sun to be directly overhead due to the latitude of Tasmania. Peak average solar radiation supports this variation; see Table 2 [7]. The remaining conditions assumed are:

Internal temperature = 25 °C

Internal wind speed = 0 m/s

Roof solar radiation = 1000 W/m2 (1, 2, 3) = 900 W/m2 (4)

West wall solar radiation = 800 W/m2 (1, 2, 3) = 720 W/m2 (4)

Outdoor wind speed = 0.5 m/s

TABLE 2 – SOLAR RADIATION

Location	*Latitude*	*Peak Average Solar Irradiance+*	*Location*	*Latitude*	*Peak Average Solar Irradiance+*
Darwin	12º 28’	*966 W/m^2	Perth	31º 55’	993 W/m^2
Townsville	19º 55’	*917 W/m^2	Mildura	34º 14’	942 W/m^2
Alice Springs	23º 49’	1033 W/m^2	Melbourne	37º 49’	818 W/m^2
Brisbane	27º 23’	*861 W/m^2	Hobart	42º 53’	736 W/m^2

\+ Average hourly value averaged over one month.

* Solar irradiance is less than expected based on latitude due to prevalence of cloud cover in summer months.

6 MAXIMUM OUTER SKIN TEMPERATURES

A simple heat balance model was used to determine the maximum outer skin temperatures of COLORBOND® steel and COLORBOND® Metallic steel insulated panels. The model used measured surface properties from new product (see Section 2), the panel core properties defined in Section 3 and the four environmental conditions as discussed in Section 4.

A report by Parker, evaluating both theoretical and measured results, suggests that typically roof panels backed by insulation will reach temperatures above 82 °C and under some conditions will exceed 93 °C [8]. The predicted outer skin roof temperatures given in Table 3 are consistent with Parker’s observations providing confidence to the results.

Walling outer surfaces are typically cooler than roofing outer surfaces. However, whilst the peak direct solar radiation upon a wall is less, the wall cannot loose heat as readily to the cooler sky and is subject to additional reflected solar radiation from the ground. This results in the outer surface of the wall reaching a similar peak temperature to the roof [9]. West wall panels typically have the highest walling temperature with peak conditions occurring around 4 pm in the middle of summer. An indication of the maximum temperatures for the outer skin of a west facing sandwich panel wall is included in Table 4. The wall temperatures are calculated using the same assumptions for the roof with the exception that the solar radiation on the wall is 80% of the solar radiation upon the roof and that the wall does not loose heat to the sky.

The predictions in the tables should assist panel manufacturers in deciding upon the appropriate range of COLORBOND® steel and COLORBOND® Metallic steel colours to use as outer faces of their panels having due regard for the climate in which their products are being sold. The allowable colour range would normally be chosen taking into account the service temperature of the core material and the adhesives.

The results show that:

- for panels that can maintain their integrity and durability when the outer skin reaches 90 °C the entire standard COLORBOND® steel range may be used.
- for panels where the durability and integrity are affected by outer skin temperatures that are less than 90 °C the manufacturer will need to restrict the range of standard COLORBOND® steel colours used for the outer skin.
- it may also be possible to extend the colour range for locations in the less severe climate exposure categories.

Whilst the core and adhesive may be suitable for a wide range of colours, the design of the insulated panel may also limit colour choice if expansion and contraction is a critical factor.

7 CONCLUSION

This note has provided a brief update to an earlier report on the same subject [1]. The update takes account of changes introduced to the standard COLORBOND® steel colours in August 2008. The changes affecting the temperatures reported here include the introduction of Thermatech™ technology, which makes the standard colours cooler; and three new colours replace three existing colours in the standard COLORBOND® steel colour range.

The predicted outer skin maximum temperatures that have been reported are based on four different climatic conditions, the warmest condition being typical for an extreme inland condition, whilst the coolest condition is more typical of a location within Tasmania. Whilst the results were primarily calculated for sandwich panel roofs, results are also given to provide an indication of the peak temperatures that the outer skin of a sandwich panel wall may reach.

The information provided here is intended to assist panel manufacturers to decide on the range of colours they intend to use for their panels. The final decision on appropriate colours rests with the panel manufacturers, as the acceptable skin temperature will be dependent upon the service temperature of all components of the panel, including the core material and adhesives, and the behaviour of the system when subject to thermal movement.

Whilst the author believes that a conservative set of assumptions has been used to determine the maximum outer skin temperatures, a designer/manufacturer should always ensure that the product would not be subjected to more extreme events.

8 REFERENCES

[1] Adams J C, Clayton T G and Williams K T, “Maximum outer skin temperature of COLORBOND® prepainted steel insulated roofing panels exposed to solar radiation”, SRL/R/1999/08, BHP Research, Port Kembla, 1999.

[2] Adams J C, “Maximum outer skin temperature of COLORBOND® steel insulated roofing panels exposed to solar radiation – 2005 Update”, BSR/N/2005/042, BlueScope Steel Research, Port Kembla, 2005.

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[9] Stephenson D G, “Extreme temperatures at the outer surfaces of buildings”, Canadian Building Digest CBD 67, National Research Council Canada, 1963.

At web address:
http://irc.nrc-cnrc.gc.ca/pubs/cbd/cbd047_e.html

MAXIMUM OUTER SKIN TEMPERATURE OF COLORBOND® STEEL INSULATED ROOFING PANELS

COLOUR	Exposure Category 1	2	3	4	COLOUR	Exposure Category 1	2	3	4
Classic Cream™	64.4 °C	60.1 °C	55.7 °C	53.6 °C	Pale Eucalypt®	82.2 °C	78.1 °C	74.1 °C	70.4 °C
Surfmist®	64.9 °C	60.6 °C	56.3 °C	54.1 °C	Bushland®	83.5 °C	79.5 °C	75.5 °C	71.7 °C
Paperbark®	71.4 °C	67.2 °C	63.0 °C	60.3 °C	Headland®	84.3 °C	80.3 °C	76.3 °C	72.4 °C
Evening Haze®	71.8 °C	67.6 °C	63.4 °C	60.6 °C	Wilderness®	85.4 °C	81.4 °C	77.4 °C	73.4 °C
Shale Grey™	72.2 °C	68.0 °C	63.8 °C	61.0 °C	Jasper®	87.2 °C	83.2 °C	79.3 °C	75.2 °C
Sandbank®	72.9 °C	68.7 °C	64.6 °C	61.7 °C	Manor Red®	87.5 °C	83.6 °C	79.7 °C	75.5 °C
Dune®	74.2 °C	70.1 °C	65.9 °C	62.9 °C	Woodland Grey®	88.6 °C	84.7 °C	80.8 °C	76.5 °C
Citi®	74.7 °C	70.5 °C	66.3 °C	63.3 °C	Loft®	88.9 °C	85.0 °C	81.1 °C	76.8 °C
Skybridge®	77.5 °C	73.4 °C	69.3 °C	66.0 °C	Monument™	90.1 °C	86.2 °C	82.3 °C	77.9 °C
Conservatory®	78.2 °C	74.0 °C	70.0 °C	66.6 °C	Ironstone®	90.7 °C	86.8 °C	83.0 °C	78.5 °C
Axis®	78.5 °C	74.4 °C	70.3 °C	66.9 °C	Cottage Green®	90.9 °C	87.0 °C	83.1 °C	78.7 °C
Cortex®	81.3 °C	77.2 °C	73.2 °C	69.6 °C	Deep Ocean®	91.1 °C	87.2 °C	83.3 °C	78.8 °C
Windspray®	81.4 °C	77.4 °C	73.3 °C	69.7 °C	Façade®	93.5 °C	89.7 °C	85.8 °C	81.2 °C

Note: Temperatures are for COLORBOND® steel and COLORBOND® Metallic steel products only. Standard COLORBOND® steel colours incorporate Thermatech™ technology which leads to cooler outer skin temperatures.

MAXIMUM OUTER SKIN TEMPERATURE OF COLORBOND® STEEL WEST FACING ISULATED WALL PANELS

COLOUR	Exposure Category 1	2	3	4	COLOUR	Exposure Category 1	2	3	4
Classic Cream™	65.9 °C	61.3 °C	56.8 °C	55.1 °C	Pale Eucalypt®	80.1 °C	75.8 °C	71.5 °C	68.5 °C
Surfmist®	66.3 °C	61.8 °C	57.2 °C	55.5 °C	Bushland®	81.2 °C	76.9 °C	72.6 °C	69.5 °C
Paperbark®	71.5 °C	67.1 °C	62.6 °C	60.4 °C	Headland®	81.8 °C	77.5 °C	73.3 °C	70.1 °C
Evening Haze®	71.8 °C	67.4 °C	62.9 °C	60.7 °C	Wilderness®	82.7 °C	78.5 °C	74.2 °C	71.0 °C
Shale Grey™	72.1 °C	67.7 °C	63.2 °C	61.0 °C	Jasper®	84.2 °C	80.0 °C	75.7 °C	72.4 °C
Sandbank®	73.2 °C	68.8 °C	64.3 °C	62.0 °C	Manor Red®	84.5 °C	80.3 °C	76.0 °C	72.6 °C
Dune®	73.8 °C	69.3 °C	64.9 °C	62.5 °C	Woodland Grey®	85.3 °C	81.1 °C	76.9 °C	73.4 °C
Citi®	74.1 °C	69.7 °C	65.3 °C	62.8 °C	Loft®	85.6 °C	81.4 °C	77.2 °C	73.7 °C
Skybridge®	76.4 °C	72.0 °C	67.7 °C	65.0 °C	Monument™	86.5 °C	82.4 °C	78.2 °C	74.6 °C
Conservatory®	76.9 °C	72.5 °C	68.2 °C	65.5 °C	Ironstone®	87.1 °C	82.9 °C	78.7 °C	75.1 °C
Axis®	77.1 °C	72.8 °C	68.4 °C	65.7 °C	Cottage Green®	87.2 °C	83.0 °C	78.9 °C	75.2 °C
Cortex®	79.4 °C	75.1 °C	70.8 °C	67.9 °C	Deep Ocean®	87.3 °C	83.2 °C	79.0 °C	75.4 °C
Windspray®	79.5 °C	75.2 °C	70.9 °C	67.9 °C	Façade®	89.3 °C	85.2 °C	81.1 °C	77.2 °C

Note: Temperatures are for COLORBOND® steel and COLORBOND® Metallic steel products only. Standard COLORBOND® steel colours incorporate Thermatech™ technology which leads to cooler outer skin temperatures.