

Technical

solarspan®
insulroof®



Colorbond®
THE COLOURS OF AUSTRALIA SINCE 1966

BONDOR®

Leaders in Thermal & Architectural Building Solutions

Patio Design & Install Guide

V9 – Current 05/12/2023



About us



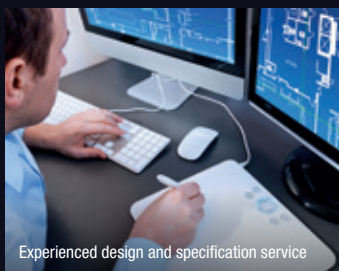
Leaders in Thermal & Architectural Building Solutions



Australian Standards Tested & Certified Products



Continual testing and innovation



Experienced design and specification service

Introduction

The Patio Design and Install Guide is an overview of the steel faced insulated patio panel systems Bondor supplies to the Australian building market. This guide provides installation information, product information, physical properties, spans, acoustic, fire and thermal performance.

If more information is required please contact your local Bondor® representative on 1300 300 099.

Why Bondor® are the Market Leaders

Bondor® is Australia's only manufacturer, distributor and installer of 'EPS-FR' cored panel, Factory Mutual Approved 'PIR' cored panel and Factory Mutual Approved 'MW' cored panel. As such, we are in a unique position to be able to offer our customers impartial advice on the right insulated panel solution to meet their needs.

Support for Australian Standards & Local Manufacturing

Bondor® is an Australian manufacturer producing steel faced insulated panel systems in nine facilities around Australia. In over 65 years, we have manufactured in excess of 100 million square metres and installed in excess of 65 million square metres.

Bondor® products are physically tested and certified to conform to stringent Australian Standards and comply with the performance criteria when used in accordance with the National Construction Code.

Bondor® provide technical advice and support throughout the design and construction process. Our dedicated Technical Services team, local State representatives and construction supervisors are relied upon by our customers for the right advice based on Bondor's 65 years of construction experience and product developed in Australia.

Global Experience

Bondor®, through its associated businesses, has links to the global Metecno Group. As such, we are able to access the latest trends in building product innovation and blend these with Australian experience and know how.

For more information visit:

www.bondor.com.au

Quality Assurance, Proven Partnerships



Colorbond
THE COLOURS OF AUSTRALIA SINCE 1966

BlueScope Steel

In business, your reputation is everything and minimizing risk makes sound business sense. Using only BlueScope® Steel for our panel skins ensures quality Australian steel products and transparent and reliable warranties.



CODEMARK
Australia

CodeMark

Australia's CodeMark Certification is a third-party building product certification scheme that authorises the use of new and innovative products in order to facilitate compliance with the NCC. Bondor Metecno has a range of select wall and roof products that are CodeMark certified and cover multiple performance criteria to meet today's building regulations.

<https://bondor.com.au/resources/codemark-accredited-products/>



Factory Mutual (FM)

Approved Products and Systems

Factory Mutual (FM) Global is one of the world's leading insurance companies and its product testing is an accepted international standard of product quality and performance in the insurance industry. A range of Bondor Metecno products and installation details have been FM approved, providing building owners and insurers a level of confidence in their performance in the face of fire or natural hazards such as cyclones.



IPCA

Bondor Metecno is an active member of the Insulated Panel Council Australasia (IPCA), involved in developing the Industry Code of Practice for insulated panel construction. IPCA set out the principles and standards from design, manufacture, installation, maintenance and risk management of Insulated Panel in Australian buildings. The IPCA Code of Practice has been developed through industry leaders, external fire experts and the AFAC.



AIA

The Australian Institute of Architects

The Australian Institute of Architects (AIA) is the peak body for architectural professionalism in Australia, representing 12,000 members. The Institute works to improve our built environment by promoting quality, responsible and sustainable design.

As supporting corporate partner to the AIA, Bondor Metecno is actively involved in industry forums, technical CPD presentations and specific product and installation advice to AIA members.



NATA

NATA accreditation provides a means of determining, formally recognising and promoting the competence of facilities to perform specific types of testing, inspection, calibration, and other related activities.

Bondor Metecno's structural laboratory is accredited to ISO/IEC 17025 by NATA and is fully dedicated to the testing of Bondor Metecno's products.

SolarSpan & InsulRoof Patio Design & Install Guide

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SolarSpan & InsulRoof Patio Design & Install Guide



SolarSpan® Specifications

SolarSpan® is a long-spanning commercial and residential insulated roof panel system that combines roofing, EPS-FR insulation and a pre-painted ceiling in one durable, functional and attractive roof panel. This all-in-one roofing solution is manufactured using Australian made COLORBOND® steel for durability and is installed in a variety of applications including educational facilities, multi-residential housing and retail facilities and is tested for use in cyclonic regions.	
Core	EPS-FR (Expanded Polystyrene with fire retardant)
Width (cover mm)	1000
Thickness (mm)	50, 75, 100, 125, 150, 175, 200
Length	Up to 24m (check for availability)
External Material	0.42mm G550 COLORBOND® steel
External Finishes	High-Rib Trapezoidal Profile
Exterior Colour Options	Classic Cream™, Surfmist®, Paperbark®, Shale Grey™, Dune®, Pale Eucalypt®, Manor Red®, Basalt®, Woodland Grey®
Internal Material	0.6mm G300 COLORBOND® steel
Internal Finishes	Plain, VJ
Interior Colour Options	Classic Cream™, Surfmist®
Pitch	2 degree minimum, refer Bondor®
Paint System	AS/NZS 2728 & AS 1397
Accreditations	Codemark Certificate Number CM40145

Panel Properties							
Panel Thickness (mm)	50	75	100	125	150	175	200
Typical Mass (kg/m²)	10.6	10.9	11.3	11.6	12.0	12.3	12.7
SL Grade Declared λ (W/m.K) at 23°C	0.042	0.042	0.042	0.042	0.042	0.042	0.042
SL Grade Declared R-value (m²K/W) at 23°C	1.20	1.80	2.40	3.00	3.60	4.25	4.85
SL Grade Total R-value (m²K/W) at 15°C (Winter)	1.40	2.03	2.65	3.27	3.90	4.52	5.15
SL Grade Total R-value (m²K/W) at 30°C (Summer)	1.38	1.98	2.57	3.17	3.76	4.35	4.95
Note: The Declared R-value is at 23°C in accordance with AS/NZS 4859.1:2018 & AS/NZS 4859.2:2018.							

* Conditions may apply.

** Limited availability.

^ Darker colours warranted for use in limited regions. Check with your local SolarSpan® dealer for more information.



InsulRoof® Specifications

InsulRoof® is a long-spanning insulated roof panel that features a corrugated roof profile and a pre-finished steel ceiling lining encased in Bondor's new proprietary dual layered insulating core technology comprising of EPS-FR and PUR.	
This all-in-one roofing solution is manufactured using Australian-made BlueScope® COLORBOND® steel for durability and is ideal for a variety of applications including housing, multi-residential, commercial and industrial roofing applications where a corrugated roof profile is desired.	
SupaCore® is a proprietary and world-first insulating core technology developed by Bondor® to deliver dual layers of high performance insulation and bonding strength.	
Core	EPS-FR (Expanded Polystyrene with fire retardant) PUR (Polyurethane Foam)
Width (cover mm)	1000
Thickness (mm)	50, 75, 100, 125, 150, 200
Length	Up to 12m (check for availability)
External Material	0.42mm G550 COLORBOND® steel
External Finishes	Corrugated
Exterior Colour Options	Classic Cream™, Surfmist®, Paperbark®, Shale Grey™, Dune®, Pale Eucalypt®, Manor Red®, Basalt®, Woodland Grey®, Zinalume™
Internal Material	0.6mm G300 COLORBOND® steel
Internal Finishes	Plain, VJ
Interior Colour Options	Classic Cream™, Surfmist®
Pitch	5 degree minimum
Paint System	AS/NZS 2728 & AS 1397
Accreditations	Codemark Certificate Number CM40235

Panel Properties						
Panel Thickness (mm)	50	75	100	125	150	200
Typical Mass (kg/m²)	11.6	11.9	12.3	12.6	13.0	13.7
SL Grade Declared λ (W/m.K) at 23°C	0.042	0.042	0.042	0.042	0.042	0.042
SL Grade Declared R-value (m²K/W) at 23°C	1.40	2.00	2.60	3.20	3.80	5.05
SL Grade Total R-value (m²K/W) at 15°C (Winter)	1.61	2.23	2.85	3.48	4.10	5.35
SL Grade Total R-value (m²K/W) at 30°C (Summer)	1.58	2.17	2.77	3.36	3.96	5.14
Note: The Declared R-value is at 23°C in accordance with AS/NZS 4859.1:2018 & AS/NZS 4859.2:2018.						

SolarSpan & InsulRoof Patio Design & Install Guide

Overview

The SolarSpan® & InsulRoof® Patio Design & Install Guide and stamped local Building certification material has been provided for generic SolarSpan® & InsulRoof® patio structures only which is based on the structural capacity determined through physical testing in accordance with the relevant Australian Standards. Other products will perform differently due to differences in steel and core material selection, manufacturing methods and testing.

The design and construction shall be compliant with the current Australian National Construction Code (NCC) and other applicable regulations and standards. The user is responsible that the details in this specification are appropriate for the intended application and that additional detailing is performed for specific design requirements or any areas that fall outside the scope of this specification.

This manual has details suited to use in a domestic application only with loading and deflection criteria relevant.

Introduction

This document is to be used in accordance with current Australian building standards. Please note, it is the licensed builder's responsibility to ensure structural adequacy of any existing structures are determined before attaching a SolarSpan® or InsulRoof® structure.

Please note for accurate capacity calculation, the formulas throughout this document must be completed and resulting values transposed to the Summary Table of Engineering Calculations.

Below is an example of the formula calculation boxes you will find on most sections.

Example Only

STEP 4.1: Beam Load Width								
A (patio roof span to Beam) B (patio roof overhang) Load Width on Beam = (0.5 x A) + B (mm)								
0.5	x	A (mm)	Equals	(0.5xA) (mm)	Plus	B (mm) Enter at Step 4	Equals	Load Width on beam (mm) Enter at Step 4.1
0.5	x	2000	=	1000	+	250	=	1250

Summary of patio information selected				
Step	Step	Page	Figure from Formula	Unit of Measurement
4.1	Load Width on beam	12	1250	mm

SolarSpan & InsulRoof Patio Design & Install Guide

Engineering Calculations

Summary of patio information selected					
Step	Step	Page	Options	Enter Value	Unit
1	Wind Classification Determination (N1, N2, N3, N4, C1, C2, C3)	8	<input type="checkbox"/> N1 <input type="checkbox"/> C1 <input type="checkbox"/> N2 <input type="checkbox"/> C2 <input type="checkbox"/> N3 <input type="checkbox"/> C3 <input type="checkbox"/> N4		-
2	Product & Panel Thickness	9/10	<input type="checkbox"/> SolarSpan® <input type="checkbox"/> InsulRoof®		-
3	Case Type & Max Span	11/12	<input type="checkbox"/> Case A <input type="checkbox"/> Case B <input type="checkbox"/> Case C <input type="checkbox"/> Case D <input type="checkbox"/> Case E		mm
4 Beam Loading	4.1.1	Load Width on Beam	13		mm
	4.1.2	Load Width on Intermediate Beam	13		kN/m
	4.2	Uplift Load on Beam	14		kN/m
5 Beam Selection	5.1	Beam Type	15		-
	5.2	Beam Size	15		-
	5.3	Single or Multi-span	15		-
	5.4	Distance between Posts	15		mm
	5.5	Load Capacity	15		kN/m
6.1 Post Uplift	6.1.4	Max Uplift on Post	16		kN
6.2	6.2.1	Post to Beam Connection Type	17/18	<input type="checkbox"/> (A) R.H.S. Post to R.H.S. Beam Joint <input type="checkbox"/> (B) Timber Post to Beam Joint <input type="checkbox"/> (C) Notched Post to Roll Formed Beam Joint <input type="checkbox"/> (D) Proprietary Systems <input type="checkbox"/> (F) Aluminium Post to Aluminium Beam Connection <input type="checkbox"/> (G) Aluminium Post to Twin Aluminium Beams Connection	-
	6.2.2	Bolt Size & Allowable Uplift on Post	17		-
6.3	Post to Ground Connection Type	19/20	<input type="checkbox"/> In Ground Footing <input type="checkbox"/> Footing with Slab Over <input type="checkbox"/> On Slab Footing		-
7	Patio to House Connection Type	21/24	<input type="checkbox"/> For Metal Fascias (7.1) <input type="checkbox"/> For Timber Fascias (7.2) <input type="checkbox"/> Offset Post (7.3) <input type="checkbox"/> Removed Fascia (7.4) <input type="checkbox"/> Brick/Masonry Wall (7.5) <input type="checkbox"/> Rafter Bracket for Fly-Over - Roof Extenda (7.6)		-
8	Gable Structures	27			kN/m

Site Address			
Street	Suburb	Post code	State

SolarSpan & InsulRoof Patio Design & Install Guide

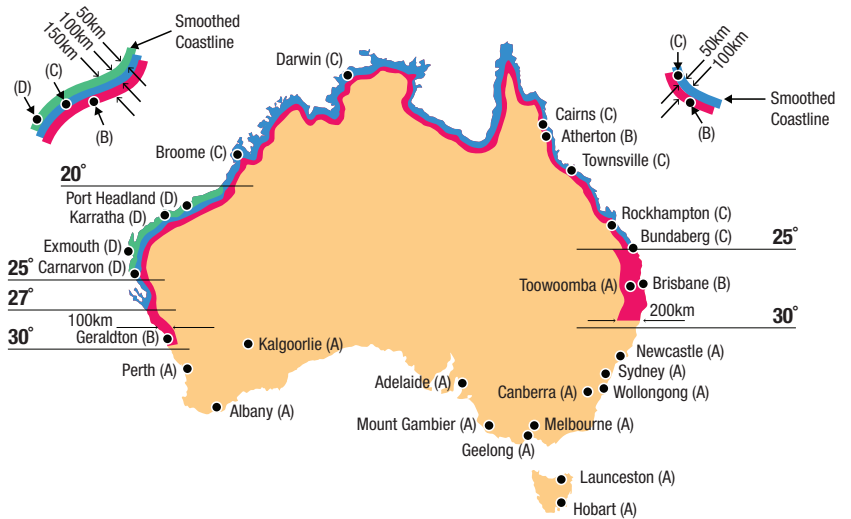
1.0 Wind Classification

This section is a simplification of AS 4055:2021 for the selection of a design Wind Classification for residential structures (NCC class 1 or 10) up to 8.5m tall.

Refer to AS 4055:2021 for more information.

Refer to AS/NZS 1170.2:2021 for other application.

Region A Region B Region C Region D

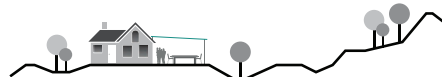


1.1 Wind Region

Location Classification



Shielded on flat terrain in suburban area
REGION A - N1, REGION B - N2 and REGION C - C1



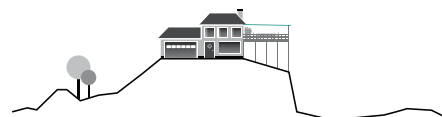
Unshielded on gentle terrain in urban area
REGION A - N3, REGION B - N4 and REGION C - C3



Unshielded in suburban area.
REGION A - N2, REGION B - N3 and REGION C - C2



Shielded on gentle terrain in suburban area
REGION A - N2, REGION B - N3 and REGION C - C2



Unshielded on steep terrain in urban
on the crest of a hill REGION A - N4



Unshielded next to seafront
REGION A - N3, REGION B - N4 and REGION C - C3

Wind Classification to AS4055-2021

Wind Region	Terrain	Topographic Type					
		Flat		Gentle		Steep	
		Shielded	Not Shielded	Shielded	Not Shielded	Shielded	Not Shielded
A	Suburban	N1	N1	N1	N2	N2	N2
	Rural	N1	N2	N2	N3	N2	N3
	Coastal	N2	N3	N2	N3	N3	N3
B	Suburban	N2	N3	N2	N3	N3	N4
	Rural	N2	N3	N3	N4	N3	N4
	Coastal	N3	N4	N3	N4	N4	N5
C	Suburban	C1	C2	C2	C2	C2	-
	Rural	C2	C2	C2	-	-	-
	Coastal	C2	C3	C3	-	-	-
D	Suburban	C2	C3	C3	-	-	-
	Rural	C3	-	C3	-	-	-
	Coastal	C3	-	-	-	-	-

Note: Suburban - Average spacing of surrounding houses or buildings 30m or less (Terrain Category = TC3). Rural - Average spacing of surrounding houses or buildings greater than 30m (Terrain Category = TC2). Coastal - Within 500m of the ocean or large body of water larger than 10km in any direction (Terrain Category = TC1). Flat - less than 1:20 surrounding slopes (T0). Gentle - Between 1:20 and 1:10 surrounding slopes (T1). Steep - Between 1:10 and 1:7.5 surrounding slopes (T2). Terrain may be based on the likely terrain five years after design. Substantial well-established trees may be considered as obstructions for evaluation of terrain category in all wind regions.

STEP 1: Wind condition at site (N2, etc)

Find location. Determine Region.

City	Suburb	Wind Region	Terrain Type	Shielding	Wind Classification Enter at Step 1

SolarSpan & InsulRoof Patio Design & Install Guide

2.0a SolarSpan® Panel Overview

Roofing Layer

- Superior low pitch of 2° minimum
- Available in thermally efficient and modern colours
- Australian made and proven COLORBOND® steel

solarspan®

Ceiling Layer

- Plain ceiling underside pre-finished in Surfemist® or Classic Cream™*
- Two ceiling finish options in Plain or VJ
- Low maintenance and durable COLORBOND® steel

Insulation Layer

- Outstanding thermal performance with CorePlus® EPS-FR Insulation
- Choose from 50 (R1.40), 75 (R2.03), 100 (R2.65), 125 (R3.27), 150 (R3.90), 175 (R4.52) & 200mm (R5.15) core thicknesses
- Service cabling ducts for ceiling lights and fans

Colorbond®



Roof Colour Range

SolarSpan's colour range has been rigorously tested and hand picked with the support of BlueScope® Steel to offer roofing colours with the best thermal performance, made tough for Australian conditions.



Surfmist®



Paperbark®



Classic Cream™*



Pale Eucalypt®



Manor Red®**



Dune®



Shale Grey®



Basalt®^



Woodland Grey®^**

Ceiling Finishes

InsulRoofs ceiling layer is made from proven BlueScope COLORBOND® steel, available pre-finished in Surfemist® (offwhite) or Classic Cream. Select from two popular ceiling underside finishes in either Plain or Elegance* that complement the home and offer stylish design options for your outdoor area.



Plain - Contemporary Look

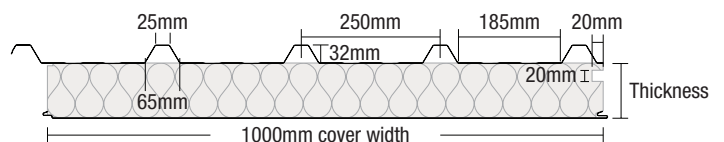
The 'Plain' ceiling finish is a popular smooth ceiling surface option that embodies contemporary design, suitable for the modern home.



VJ - Heritage Look

'VJ' delivers a ceiling look with distinct lines that emulate the look and feel of a heritage style home.

Dimensions



* Conditions may apply.

** Limited availability.

^ Darker colours warranted for use in limited regions. Check with your local SolarSpan® dealer for more information.

SolarSpan & InsulRoof Patio Design & Install Guide

2.0b InsulRoof® Panel Overview

Roofing Layer

- Superior low pitch of 5° minimum
- Available in thermally efficient and modern colours
- Australian made and proven COLORBOND® steel

insulroof®

Colorbond®



Ceiling Layer

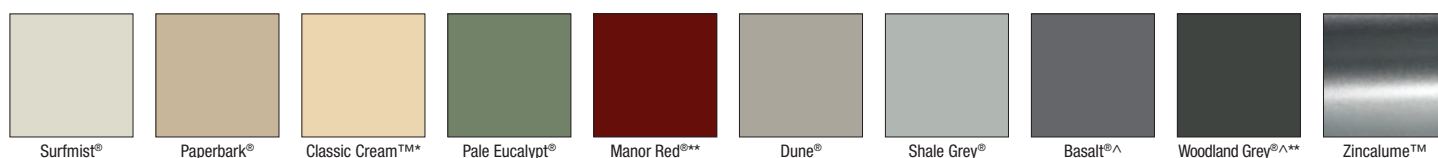
- Plain ceiling underside pre-finished in Surfemist® or Classic Cream™
- Two ceiling finish options in Plain or VJ
- Low maintenance and durable COLORBOND® steel

Insulation Layer

- SupaCore® dual insulation with CorePlus® EPS-FR for superior thermal performance
- Choose from 50 (R1.61), 75 (R2.23), 100 (R2.85), 125 (R3.48), 150 (R4.10) & 200mm (R5.35) core thicknesses
- Service cabling ducts for ceiling lights and fans

Roof Colour Range

InsulRoof's colour range has been rigorously tested and hand picked with the support of BlueScope® Steel to offer roofing colours with the best thermal performance, made tough for Australian conditions.



Ceiling Finishes

InsulRoofs ceiling layer is made from proven BlueScope COLORBOND® steel, available pre-finished in Surfemist® (offwhite) or Classic Cream. Select from two popular ceiling underside finishes in either Plain or Elegance* that complement the home and offer stylish design options for your outdoor area.



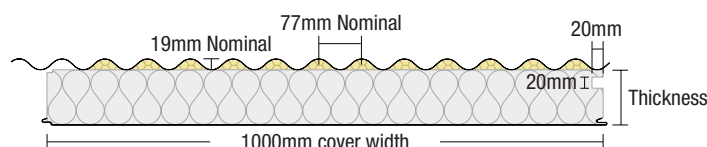
Plain - Contemporary Look

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VJ - Heritage Look

'VJ' delivers a ceiling look with distinct lines that emulate the look and feel of a heritage style home.

Dimensions



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SolarSpan & InsulRoof Patio Design & Install Guide

3.0a SolarSpan® Domestic Patio Span Table (mm)

Select the SolarSpan® panel thickness and allowable span from the Span Table below for the Wind Classification at the site (refer to building inspector if required) and the number of sides enclosed under the roof (Case A to E).

Case A 3 Open Sides	Case B 2 Open Sides	Case C 1 Open Side	Case D Fully Enclosed	Case E Free Standing
				

Wind Classification	Panel Thickness (mm)	Case A 3 Open Sides			Case B 2 Open Sides			Case C 1 Open Side			Case D Fully Enclosed			Case E Free Standing		
		Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang
		b	b, c	a	b	b, c	a	b	b, c	a	b	b, c	a	b	b, c	a
N1	50	5600	4800	1400	5550	4800	1400	5000	4800	1250	5250	4500	1300	5600	4800	1400
	75	7100	5700	1800	6500	5700	1650	5850	5700	1450	6150	5400	1550	7100	5700	1800
	100	8000	6300	2000	7350	6600	1850	6650	6600	1650	6950	6300	1750	8000	6600	2000
	125	8750	7200	2200	8150	7200	2050	7350	7200	1850	7700	6900	1950	8700	7200	2200
	150	9500	7800	2400	8850	8100	2200	7950	8100	2000	8400	7500	2100	9500	8100	2400
	200	10750	9000	2700	10150	9000	2550	9100	9000	2300	9600	8700	2400	10750	9000	2700
N2	50	5600	4500	1400	4600	4500	1150	4150	4500	1050	4350	4200	1100	5600	4500	1400
	75	6850	5100	1700	5400	5400	1350	4900	5400	1250	5150	5100	1300	7100	5400	1800
	100	7700	6000	1950	6100	6000	1550	5550	6000	1400	5800	5700	1450	8000	6000	2000
	125	8300	6600	2100	6750	6900	1700	6100	6900	1550	6400	6300	1600	8700	6900	2200
	150	9100	7200	2300	7350	7500	1850	6650	7500	1650	6950	6900	1750	9500	7500	2400
	200	10100	8100	2550	8400	8400	2100	7600	8400	1900	7950	7800	2000	10500	8400	2650
N3	50	4850	3900	1200	3600	3900	900	3300	3300	850	3450	3600	850	5100	3900	1300
	75	5700	4500	1450	4250	4800	1050	3850	4800	950	4050	4200	1000	6000	4800	1500
	100	6400	5100	1600	4800	5400	1200	4350	5400	1100	4550	4800	1150	6750	5400	1700
	125	7050	5700	1750	5300	6000	1350	4800	6000	1200	5050	5400	1250	7400	6000	1850
	150	7650	6300	1900	5750	6600	1450	5200	6600	1300	5450	6000	1350	8000	6600	2000
	200	8650	7200	2150	6550	7500	1650	5950	7500	1500	6250	6600	1550	9100	7500	2300
N4	50	3900	3300	1000	2950	2700	750	2700	2100	700	2800	2400	700	4100	3300	1050
	75	4550	3900	1150	3450	3900	850	3150	3300	800	3300	3600	850	4800	4200	1200
	100	5150	4500	1300	3900	4800	1000	3550	4800	900	3700	4200	950	5450	4800	1350
	125	5700	4800	1450	4300	5100	1100	3900	4200	1000	4100	4500	1050	6000	5100	1500
	150	6200	5400	1550	4650	5700	1150	4250	5700	1050	4450	5100	1100	6500	5700	1650
	200	7050	6000	1750	5300	6300	1350	4850	6300	1200	5050	5700	1250	7450	6300	1850
C1	50	4900	3550	900	3600	3650	900	3300	3650	800	2600	3050	600	4900	3650	900
	75	5900	4200	1200	4600	4350	1100	3900	4350	900	3100	3800	700	5900	4350	1200
	100	6900	4750	1300	5000	4900	1200	4500	4900	1000	3700	4550	900	6900	4900	1300
	125	7700	5250	1400	5600	5450	1300	5100	5450	1100	4100	5050	1000	7700	5450	1400
	150	8800	5700	1400	6600	5900	1400	5900	5900	1400	6200	5500	1400	8800	5900	1400
	200	10000	6550	1400	7500	6750	1400	6800	6750	1400	7100	6250	1400	10200	6750	1400
C2	50	4000	2950	800	2900	2950	600	2700	2400	600	2000	2000	450	4000	3150	800
	75	4800	3700	1000	3500	3650	700	3100	3000	700	2000	2450	500	4800	3850	1000
	100	5600	4200	1100	4100	4400	800	3700	3850	800	2700	3150	600	5600	4400	1100
	125	6300	4650	1200	4600	4850	900	4200	4850	900	3000	4150	700	6300	4850	1200
	150	7100	5100	1400	5300	5300	1300	4800	5050	1200	5100	4150	1200	7100	5300	1400
	200	8100	5800	1400	6100	6050	1300	5500	5650	1200	5800	4650	1200	8600	6050	1400
C3	50	3300	2250	800	2400	1950	600	2000	1600	450	-	-	N/A	3300	2450	800
	75	4000	3250	1000	2500	2400	600	2100	2000	500	-	1650	N/A	4000	3400	1000
	100	4600	3700	1100	3300	3100	800	2800	2550	600	1900	2100	450	4600	3850	1100
	125	5200	4100	1200	3700	4050	900	3100	3350	700	2000	2750	500	5200	4250	1200
	150	5700	4450	1400	4300	4050	1000	3900	3350	900	4100	2750	1000	5700	4650	1400
	200	6500	5100	1400	4900	4500	1000	4500	3700	900	4700	3050	1000	6900	5300	1400

Notes:

- Applies to patios attached to highset and lowset houses only.
- The overhang must not exceed 25% of the immediate backspan.
- With a full-width panel measuring 1000mm, the maximum allowable side and corner overhang is 400mm.
- In the case of free-standing awnings, it is permissible to utilize 'Case A - 3 Open Sides', as long as it is not blocked under.
- A deflection limit of Span/150 has been allowed for.
- Dead loads of up to 15kg/m² are permissible.
- A concentrated load of 1.1kN for incidental and maintenance has been allowed for each span. It is important to avoid stepping on the ribs. Live loads are not permitted on overhangs.
- When using SolarSpan® Naturelite® skylight with a minimum of 2 full SolarSpan®






- panels in between, the maximum allowable spans must be reduced by 10%.
- When using SolarSpan® Naturelite® skylight with a minimum of 1 full SolarSpan® panels in between, the maximum allowable spans must be reduced by 25%.
- SolarSpan® Naturelite® skylight should not be walked on or used for foot traffic.
- SolarSpan® Naturelite® skylight can only be used on patios in Non-Cyclonic regions, it must not to be used in Cyclonic areas.

STEP 3: SolarSpan® Max Roof Span				
Determine Max Roof Span				
Product	Panel Thickness	Case Type	Wind Classification	Max Span (mm) Enter at Step 3

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3.0b InsulRoof® Domestic Patio Span Table (mm)

Select the InsulRoof® panel thickness and allowable span from the Span Table below for the Wind Classification at the site (refer to building inspector if required) and the number of sides enclosed under the roof (Case A to E).

Case A 3 Open Sides	Case B 2 Open Sides	Case C 1 Open Side	Case D Fully Enclosed	Case E Free Standing
				

Wind Classification	Panel Thickness (mm)	Case A 3 Open Sides			Case B 2 Open Sides			Case C 1 Open Side			Case D Fully Enclosed			Case E Free Standing		
		Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang	Max. Single Span	Max. Multi-span	Max. Overhang
		b	b, c	a	b	b, c	a	b	b, c	a	b	b, c	a	b	b, c	a
N1	50	6000	4800	1500	5850	4800	1450	5250	4800	1300	5500	4600	1400	6000	4800	1500
	75	7150	4800	1800	6950	4800	1750	6250	4800	1550	6550	4800	1650	7150	4800	1800
	100	8150	6400	2050	7950	6400	2000	7150	6400	1800	7500	6000	1900	8150	6400	2050
	125	9000	7200	2250	8800	7400	2200	7900	7400	2000	8350	7000	2100	9000	7400	2250
	150	9850	8000	2450	9650	8000	2400	8650	8000	2150	9100	7600	2300	9850	8000	2450
N2	200	11300	9000	2850	11100	9200	2800	9950	9200	2500	10500	8800	2650	11300	9200	2850
	50	5600	4400	1400	4850	4600	1200	4350	4600	1100	4550	4200	1150	5600	4600	1400
	75	7100	4800	1800	5750	4800	1450	5200	4800	1300	5350	4800	1350	7100	4800	1800
	100	7700	6000	1950	6600	6000	1650	5950	6000	1500	5690	5800	1400	7700	6200	1950
	125	8300	6600	2100	7300	7000	1850	6600	7000	1650	6400	6400	1600	8500	7000	2150
N3	150	9100	7200	2300	7950	7600	2000	7200	7600	1800	6900	7000	1750	9100	7600	2300
	200	10100	8400	2550	9150	8600	2300	8250	8600	2050	7800	8000	1950	10100	8600	2550
	50	5000	3800	1250	3800	3800	950	3450	3200	850	3600	3600	900	5350	4000	1350
	75	6000	4600	1500	4500	4600	1150	4100	4600	1050	4300	4400	1100	6400	4600	1600
	100	6800	5200	1700	5150	5200	1300	4650	5200	1150	4900	5000	1250	7300	5400	1850
N4	125	7550	5800	1900	5700	6000	1450	5150	6000	1300	5400	5400	1350	8100	6000	2050
	150	8250	6400	2050	6200	6600	1550	5650	6600	1400	5900	6000	1500	8850	6600	2200
	200	9500	7200	2400	7150	7600	1800	6500	7400	1650	6800	6800	1700	10200	7600	2550
	50	4000	3000	1000	3050	2600	750	2800	2000	700	2900	2200	750	4300	3400	1100
	75	4800	4000	1200	3650	3800	900	3300	3200	850	3450	3400	850	5100	4200	1300
C1	100	5450	4600	1350	4150	4400	1050	3800	4200	950	3950	4200	1000	5850	4800	1450
	125	6050	5000	1500	4600	4800	1150	4200	4800	1050	4400	4600	1100	6450	5200	1600
	150	6600	5400	1650	5050	5200	1250	4550	5200	1150	4800	5200	1200	7050	5800	1750
	200	7600	6200	1900	5750	6600	1450	5250	5800	1300	5500	5800	1400	8100	6600	2050
	50	4250	3900	1050	3650	3900	900	3300	3200	850	3000	3600	750	4450	4000	1100
C2	75	5050	4600	1250	4350	4800	1100	3950	4000	1000	3600	4400	900	5300	4800	1350
	100	5700	5300	1450	4950	5100	1250	4500	4200	1150	4100	4600	1050	6000	5500	1500
	125	6350	5800	1600	5500	5100	1400	5000	4200	1250	4550	4600	1150	6650	6100	1650
	150	6900	6400	1750	6000	6600	1500	5450	5400	1350	4950	5900	1250	7250	6600	1800
	200	7850	7300	1950	6900	7600	1750	6250	6400	1550	5700	6900	1450	8250	7600	2050
C3	50	3550	3100	900	2950	2600	750	2700	2100	700	2450	2300	600	3750	3400	950
	75	4250	4000	1050	3550	3200	900	3200	2600	800	2900	2900	750	4450	4200	1100
	100	4800	4600	1200	4000	3300	1000	3650	2700	900	3350	3000	850	5050	4800	1250
	125	5300	5100	1350	4450	3300	1100	4050	2700	1000	3700	3000	950	5600	5300	1400
	150	5800	5500	1450	4850	4300	1200	4400	3500	1100	4000	3900	1000	6100	5800	1550
C3	200	6600	6300	1650	5600	5100	1400	5050	4200	1250	4600	4600	1150	6950	6600	1750
	50	2950	2300	750	2400	1700	600	2200	-	550	2000	1600	500	3150	2500	800
	75	3550	3400	900	2900	2100	750	2650	1800	650	2400	1900	600	3750	3600	950
	100	4000	3900	1000	3300	2200	850	3000	1800	750	2750	2000	700	4250	4100	1050
	125	4450	3900	1100	3650	2200	900	3300	1800	850	3000	2000	750	4700	4300	1200
C3	150	4850	4700	1200	3950	2900	1000	3600	2400	900	3300	2600	850	5100	5000	1300
	200	5550	5400	1400	4550	3400	1150	4150	2800	1050	3800	3100	950	5850	5700	1450

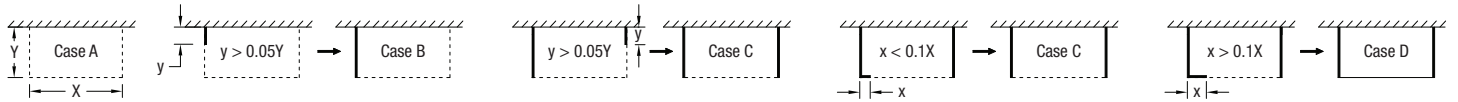
- Notes:
- Applies to patios attached to highset and lowset houses only.
 - The overhang must not exceed 25% of the immediate backspan.
 - With a full-width panel measuring 1000mm, the maximum allowable side and corner overhang is 450mm.
 - In the case of free-standing awnings, it is permissible to utilize 'Case A - 3 Open Sides', as long as it is not blocked under.
 - A deflection limit of Span/150 has been allowed for.
 - Dead loads of up to 15kg/m² are permissible.
 - A concentrated load of 1.1kN for incidental and maintenance has been allowed for each span. It is important to avoid stepping on the ribs. Live loads are not permitted on overhangs.

STEP 3: InsulRoof® Max Roof Span				
Determine Max Roof Span				
Product	Panel Thickness	Case Type	Wind Classification	Max Span (mm) Enter at Step 3

3.0c Partial Enclosure

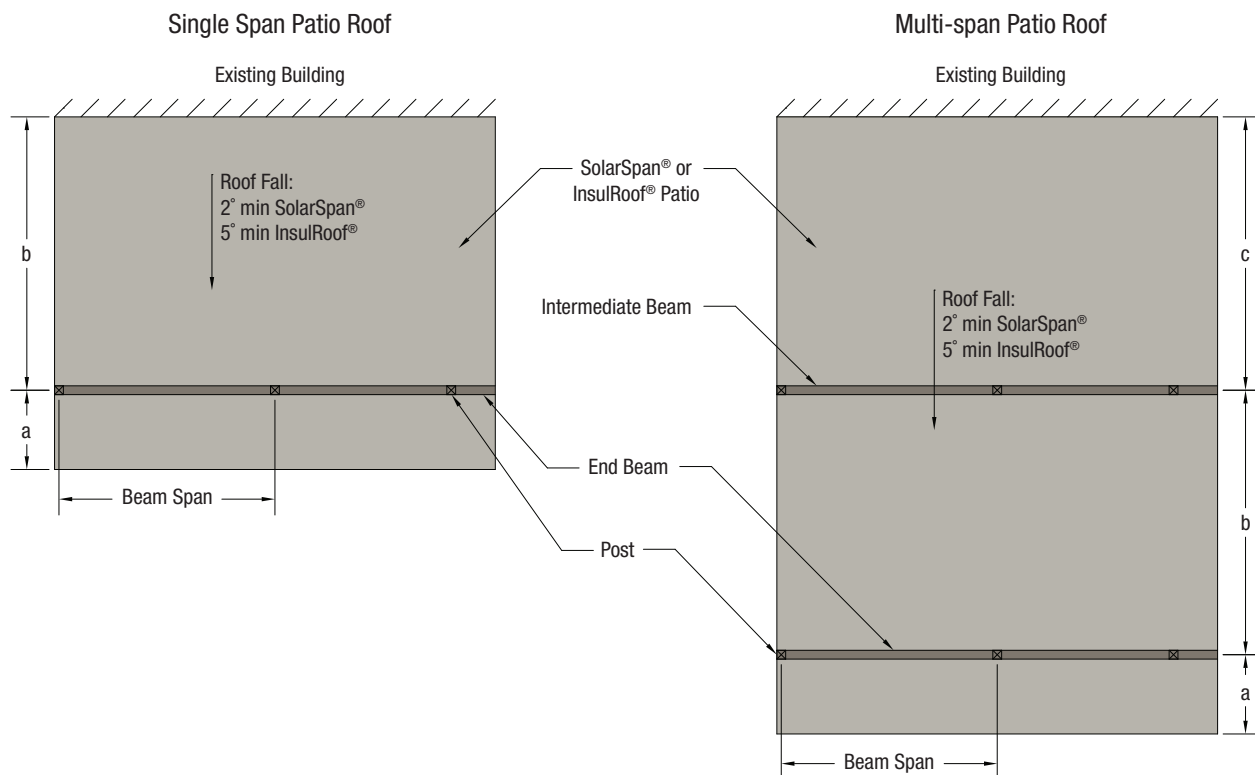
Cases A, B & C designate various options of wall enclosures along the perimeter of an attached patio. When introducing partial enclosures to an otherwise open side of patio structures, the intensity of wind loads on patio roofs increases, resulting in reduction of the allowable roof span. As depicted below, once there is an enclosed length exceeding 5% of the span, then the span charts for the next level of enclosure must be used.

If enclosure starts at the open end of the structure, we recommend that enclosure not exceed 10% of the roof span at this end. This may be present in addition to the 5% against the building line.



4.0 Beam Loading

4.1 Determine Load Width on Beam



STEP 4.1: Beam Load Width

a (patio roof overhang), b (patio roof span between supports)
Load Width on End Beam = $a + (0.5 \times b)$ (mm)

a (mm)	Plus	$(0.5 \times b)$ (mm)	Equals	Load Width on End Beam (mm) Enter at Step 4.1.1
	+		=	

Load Width on Intermediate Beam (for multi-span only) = $0.5 \times (b + c)$ (mm)

0.5	x	$(b + c)$ (mm)	Equals	Load Width on Intermediate Beam (mm) Enter at Step 4.1.2
0.5	x		=	

* Repeat this step for multi-span to obtain Load Width on subsequent intermediate beams.

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4.2 Uplift Load on Beam Table

Use the Load Width from (4.1) to select the Uplift Load on Beam (kN/m) from the table below for the particular Wind Classification and enclosure case (A, B, C, D & E). Enter at Step 4 .2.

For a middle beam in a multi-span configuration, multiply the Load Width by 1.25 to determine the actual load on the beam.

For an edge beam in a multi-span configuration, multiply the Load Width by 0.75 to determine the actual load on the edge beam.

Wind Category	Load Width (mm)	Uplift Load on Beam (kN/m)				
		Case A 3 Open Sides	Case B 2 Open Sides	Case C 1 Open Side	Case D Fully Enclosed	Case E Free Standing
N1/N2	1500	0.84	1.44	1.73	1.58	0.84
	2100	1.17	2.02	2.42	2.22	1.17
	2700	1.50	2.59	3.11	2.85	1.50
	3300	1.84	3.17	3.80	3.48	1.84
	3900	2.17	3.74	4.49	4.12	2.17
	4500	2.51	4.32	5.18	4.75	2.51
	5100	2.84	4.90	5.88	5.39	2.84
	5700	3.17	5.47	6.57	6.02	3.17
	6300	3.51	6.05	7.26	6.65	3.51
	6900	3.84	6.62	7.95	7.29	3.84
	7500	4.18	7.20	8.64	7.92	4.18
	8100	4.51	7.78	9.33	8.55	4.51
	8700	4.84	8.35	10.02	9.19	4.84
	9000	5.01	8.64	10.37	9.50	5.01
	9600	5.35	9.22	11.06	10.14	5.35
N3	1500	1.31	2.25	2.70	2.48	1.31
	2100	1.83	3.15	3.78	3.47	1.83
	2700	2.35	4.05	4.86	4.46	2.35
	3300	2.87	4.95	5.94	5.45	2.87
	3900	3.39	5.85	7.02	6.44	3.39
	4500	3.92	6.75	8.10	7.43	3.92
	5100	4.44	7.65	9.18	8.42	4.44
	5700	4.96	8.55	10.26	9.41	4.96
	6300	5.48	9.45	11.34	10.40	5.48
	6900	6.00	10.35	12.42	11.39	6.00
	7500	6.53	11.25	13.50	12.38	6.53
	8100	7.05	12.15	14.58	13.37	7.05
	8700	7.57	13.05	15.66	14.36	7.57
	9000	7.83	13.50	16.20	14.85	7.83
	9600	8.35	14.40	17.28	15.84	8.35
N4	1500	1.94	3.35	4.02	3.68	1.94
	2100	2.72	4.69	5.63	5.16	2.72
	2700	3.50	6.03	7.23	6.63	3.50
	3300	4.27	7.37	8.84	8.10	4.27
	3900	5.05	8.71	10.45	9.58	5.05
	4500	5.83	10.05	12.06	11.05	5.83
	5100	6.60	11.39	13.66	12.52	6.60
	5700	7.38	12.73	15.27	14.00	7.38
	6300	8.16	14.07	16.88	15.47	8.16
	6900	8.93	15.40	18.49	16.95	8.93
	7500	9.71	16.74	20.09	18.42	9.71
	8100	10.49	18.08	21.70	19.89	10.49
	8700	11.27	19.42	23.31	21.37	11.27
	9000	11.65	20.09	24.11	22.10	11.65
	9600	12.43	21.43	25.72	23.58	12.43

Wind Category	Load Width (mm)	Uplift Load on Beam (kN/m)				
		Case A 3 Open Sides	Case B 2 Open Sides	Case C 1 Open Side	Case D Fully Enclosed	Case E Free Standing
C1	1500	1.31	2.25	2.70	2.70	1.31
	2100	1.83	3.15	3.78	3.78	1.83
	2700	2.35	4.05	4.86	4.86	2.35
	3300	2.87	4.95	5.94	5.94	2.87
	3900	3.39	5.85	7.02	7.02	3.39
	4500	3.92	6.75	8.10	8.10	3.92
	5100	4.44	7.65	9.18	9.18	4.44
	5700	4.96	8.55	10.26	10.26	4.96
	6300	5.48	9.45	11.34	11.34	5.48
	6900	6.00	10.35	12.42	12.42	6.00
	7500	6.53	11.25	13.50	13.50	6.53
	8100	7.05	12.15	14.58	14.58	7.05
	8700	7.57	13.05	15.66	15.66	7.57
	9000	7.83	13.50	16.20	16.20	7.83
	9600	8.35	14.40	17.28	17.28	8.35
C2	1500	1.94	3.35	4.02	4.02	1.94
	2100	2.72	4.69	5.63	5.63	2.72
	2700	3.50	6.03	7.23	7.23	3.50
	3300	4.27	7.37	8.84	8.84	4.27
	3900	5.05	8.71	10.45	10.45	5.05
	4500	5.83	10.05	12.06	12.06	5.83
	5100	6.60	11.39	13.66	13.66	6.60
	5700	7.38	12.73	15.27	15.27	7.38
	6300	8.16	14.07	16.88	16.88	8.16
	6900	8.93	15.40	18.49	18.49	8.93
	7500	9.71	16.74	20.09	20.09	9.71
	8100	10.49	18.08	21.70	21.70	10.49
	8700	11.27	19.42	23.31	23.31	11.27
	9000	11.65	20.09	24.11	24.11	11.65
	9600	12.43	21.43	25.72	25.72	12.43
C3	1500	2.86	4.93	5.91	5.91	2.86
	2100	4.00	6.90	8.28	8.28	4.00
	2700	5.15	8.87	10.65	10.65	5.15
	3300	6.29	10.84	13.01	13.01	6.29
	3900	7.43	12.81	15.38	15.38	7.43
	4500	8.58	14.79	17.74	17.74	8.58
	5100	9.72	16.76	20.11	20.11	9.72
	5700	10.86	18.73	22.47	22.47	10.86
	6300	12.01	20.70	24.84	24.84	12.01
	6900	13.15	22.67	27.20	27.20	13.15
	7500	14.29	24.64	29.57	29.57	14.29
	8100	15.44	26.61	31.94	31.94	15.44
	8700	16.58	28.58	34.30	34.30	16.58
	9000	17.15	29.57	35.48	35.48	17.15
	9600	18.29	31.54	37.85	37.85	18.29

- Notes:
1. Linear interpolation is permitted between Load Width values in the table.
 2. In cyclonic regions, it is assumed that doors/windows will blow in and therefore fully enclosed is designed as 1 open side as this is a worse case than fully enclosed.

STEP 4.2: Uplift Load on Beam Table				
Select the correct Uplift Load based on the relevant criteria				
Wind Classification	Load Width (mm)	Case	Equals	Enter at Step 4.2
			=	

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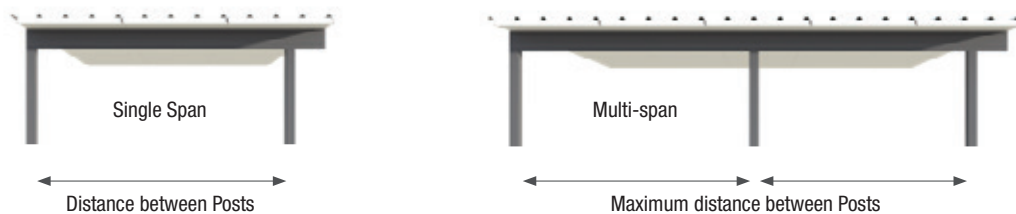
5.0 Beam Selection

Lookup Beam Load Capacities Table (kN/m)

Select the beam from the Beam Load Capacities Table below for the Uplift Load on Beam (kN/m).

Load Capacities of Beams (kN/m) – Ultimate Limit State																	
Beam Details		Step 5: Maximum Beam span mm (distance between Posts)															
Step 5: Beam Type	Beam Size	1800		2400		3000		3600		4200		4800		5400		6000	
		Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span	Single Span	Multi-span
Shademaster	RF 125x50x1.0	10.0	10.0	7.5	7.5	4.8	4.8	3.2	3.3	2.0	2.3	1.3	1.8	0.8	1.5	0.6	1.1
	RF175x65x1.15	10.0	10.0	10.0	10.0	9.0	9.0	6.3	6.3	4.5	4.5	3.5	3.5	2.8	2.8	2.0	2.3
	RF 200x60x1.0	14.7	14.7	14.7	14.7	14.7	14.7	9.7	9.7	6.9	6.9	5.1	5.1	3.9	3.9	3.0	3.0
BON ALBEAM	100x50x3x2	7.4	7.4	4.1	4.1	2.6	2.6	1.8	1.8	1.3	1.3	1.0	1.0	-	-	-	-
	165x50x3x2.5	16.9	16.9	9.4	9.4	6.0	6.0	4.1	4.1	3.0	3.0	2.3	2.3	1.8	1.8	1.5	1.5
	225x50x3x3	30.1	30.1	17.1	17.1	10.9	10.9	7.5	7.5	5.5	5.5	4.2	4.2	3.3	3.3	2.7	2.7
RHS	76x38x2.5	7.9	7.9	4.3	4.3	2.6	2.7	1.5	1.8	0.9	1.3	0.6	1.0	0.4	0.8	-	-
	75x50x3	13.2	13.2	7.4	7.4	4.3	4.6	2.5	3.1	1.5	2.3	1.0	1.7	0.7	1.3	0.5	1.0
	100x50x3	20.7	20.7	11.6	11.6	7.4	7.4	5.1	5.1	3.2	3.8	2.1	2.9	1.5	2.3	1.1	1.8
	125x75x3	36.7	36.7	20.6	20.6	13.2	13.2	9.2	9.2	6.7	6.7	4.9	5.1	3.5	4.0	2.5	3.3
	150x50x3	39.9	39.9	22.4	22.4	14.3	14.3	9.9	9.9	7.3	7.3	5.6	5.6	4.3	4.4	3.1	3.5
	150x100x4	114.3	113.3	64.3	64.3	41.1	41.1	28.5	28.5	18.0	21.0	12.0	16.0	8.4	12.7	6.1	10.2
Timber	150x75 F14	28.7	25.0	16.1	14.0	10.3	9.0	6.1	6.2	3.8	4.5	2.6	3.5	1.8	2.7	1.3	2.2
	200x75 F14	51.1	44.4	28.7	25.0	18.4	16.0	12.7	11.1	9.2	8.1	6.1	6.2	4.3	4.9	3.1	4.0
Purlins	C15015	14.5	15.9	8.1	8.2	4.0	5.4	2.2	3.7	1.3	2.7	0.8	2.0	0.5	1.4	-	1.0
	C15019	15.7	26.4	8.8	15.8	5.6	7.6	3.0	5.3	1.7	3.7	1.1	2.6	0.7	1.9	0.5	1.4
	C20015	20.2	15.1	11.3	10.3	7.2	6.1	4.1	4.6	2.4	3.6	1.5	2.8	1.0	2.2	0.7	1.8
	C20019	29.3	28.0	16.5	18.6	10.5	10.6	5.7	7.8	3.5	5.7	2.2	4.3	1.1	3.4	1.0	2.5
Lysaght Firmlok	F10011	7.8	6.3	4.7	4.7	2.9	3.0	1.6	2.1	1.0	1.5	-	1.1	-	-	-	-
	F15015	11.4	9.1	8.5	6.8	6.8	5.4	5.0	4.5	3.7	3.7	2.5	2.8	1.8	2.2	1.3	1.8
	F20020	18.2	14.5	13.6	10.9	10.9	8.7	9.1	7.2	7.3	6.2	5.6	5.4	4.4	4.4	3.5	3.6
Metroll A.Beam	150x65	4.6	11.6	2.3	5.7	1.4	3.4	0.8	1.8	0.5	1.2	0.4	0.9	0.2	0.5	0.2	0.4
Groove Tube	150x50x1.6	13.5	13.5	8.4	10.4	5.4	6.7	3.5	4.7	2.2	3.4	1.5	2.6	1.0	2.1	0.8	1.7

Note: Overhang = Span/4 max



STEP 5: Beam Type Selected from Table				
Beam Type Enter at Step 5.1	Beam Size Enter at Step 5.2	Single or Multi-span Enter at Step 5.3	Distance between Posts (mm) Enter at Step 5.4	Load Capacity (kN/m) Enter at Step 5.5

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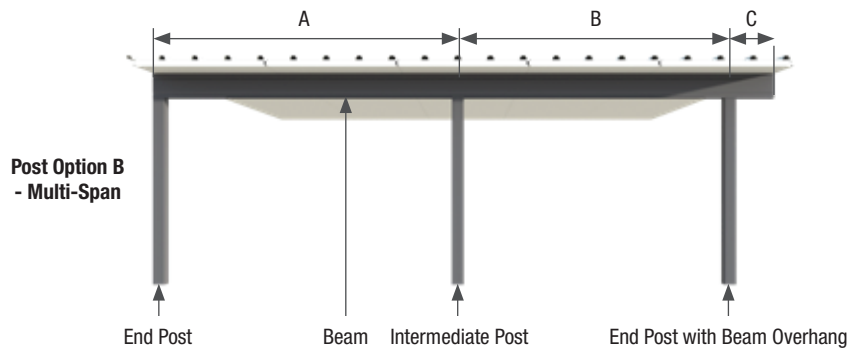
6.0 Posts, Footings and Connections

For free-standing awnings, the strength, serviceability, and stability of the beams, posts, and footings connections must be independently assessed.

6.1 Post Uplift

Select Load Width on each Post, refer to diagram.

Note: Overhang $C \leq B/4$.



STEP 6.1: Max Spacing between Posts

Load Width on End Post = $0.5 \times A$ (m)

0.5	x	A (m)	Equals	Load Width on End Post (m) Enter at 6.1.1
0.5	x		=	

Load Width on Intermediate Post (for Multi-Span only) = $0.5 \times (A+B)$ (m)

A (m)	Plus	B (m)	Equals	(A+B)	x	0.5	Equals	Load Width on Intermediate Post (m) Enter at 6.1.2
	+		=		x	0.5	=	

Load Width on End Post with Beam Overhang = $(0.5 \times B) + C$ (m)

0.5	x	B (m)	Equals	(0.5xB)	Plus	C (m)	Equals	Load Width on End Post with Beam Overhang (m) Enter at 6.1.3
0.5	x		=		+		=	

Maximum Uplift on Post (kN) = Maximum Post Load Width (m) x Uplift Load on Beam (kN/m) from Step 4.2

Maximum	of	6.1.1 Load Width on End Post (m)	or	6.1.2 Load Width on Intermediate Post (m)	or	6.1.3 Load Width on End Post with Beam Overhang (m))	=	Maximum Post Load Width	x	Value from Step 4.2	Equals	Maximum Uplift on Post (kN) Enter at Step 6.1.4
MAX	(,		,)	=		x			

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6.2 Post to Beam Connection

For each Post, use the Uplift on Post (kN) to select the Post to Beam Connection.

BOLT SIZE TABLE					
Post Material	Grade	Maximum Uplift on Post (kN)			
		Min Post Thickness (mm)	2-M12/4.6	2-M16/4.6	2-M20/4.6
Timber	JD4/J3	90	15.6	20.9	-
Steel (Hollow Sections)	G250	2	28.0	38.0	48.0
Cold-Formed Steel (Typical)	G450	0.6	7.8	9.3	11.7
Cold-Formed Steel (Firmlok)	G550	1	15.6	20.7	21.6
		2	31.0	42.0	52.0

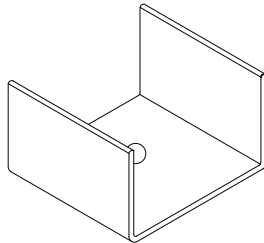
Note: Assumed minimum edge distance for all steel and aluminium as 2x bolt diameter (centre of hole to edge of beam). Timber has larger edge distance requirements of 8D.

Aluminium Post & Post Connector

For the connection of posts to concrete floors/footings, timber floors/decks and beams.

BOLT SIZE TABLE					
Post Material	Grade	Maximum Uplift on Post (kN)			
		Min Post Thickness (mm)	2-M12/4.6	2-M16/4.6	2-M20/4.6
BON ALPOST150	6063-T6	3	36.0	50.0	62.0
BON ALPOST90A	6063-T6	2	24.0	33.0	42.0
BON ALPOST90B	6063-T5	2	15.0	20.0	25.0

Steel Post Connector
3mm Galvanised Steel
90 & 150mm Max. 4.5kN

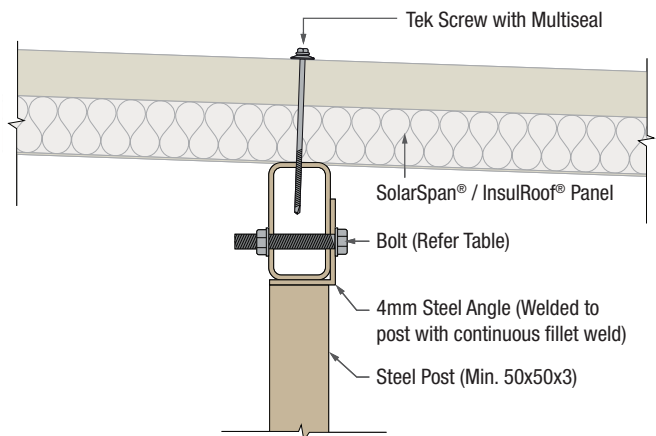


STEP 6.2: Post to Beam Connection Bolt Size				
Connection Type Enter at 6.2.1	Material	Grade	Thickness	Bolt Size Enter at 6.2.2

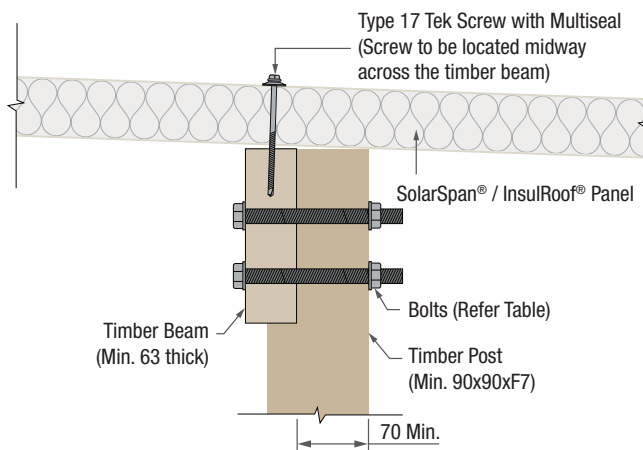
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Refer Section 7.7 for fixing requirements for panels to roof beams.

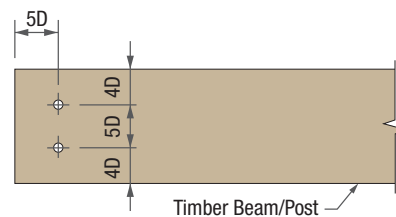
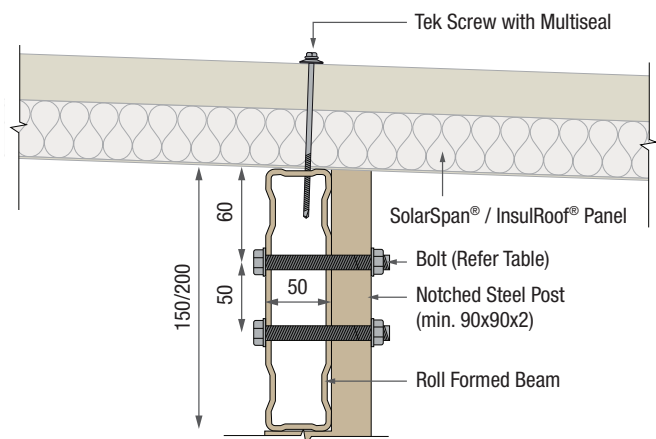
(A) RHS Post to RHS Beam Joint



(B) Timber Post to Beam Joint

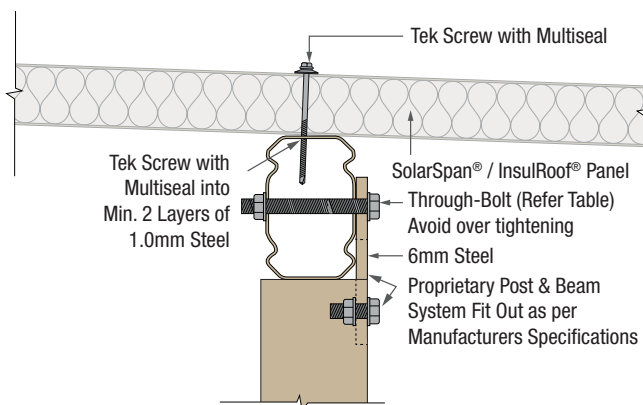


(C) Notched Post to Roll Formed Beam Joint

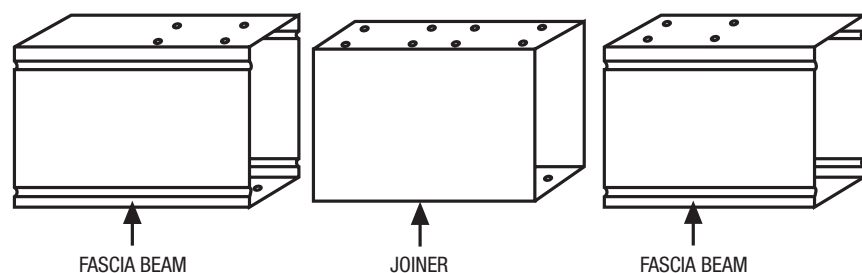


Note:
D = Denotes Bolt Diameter

D) Proprietary Systems



Beams End to End Join

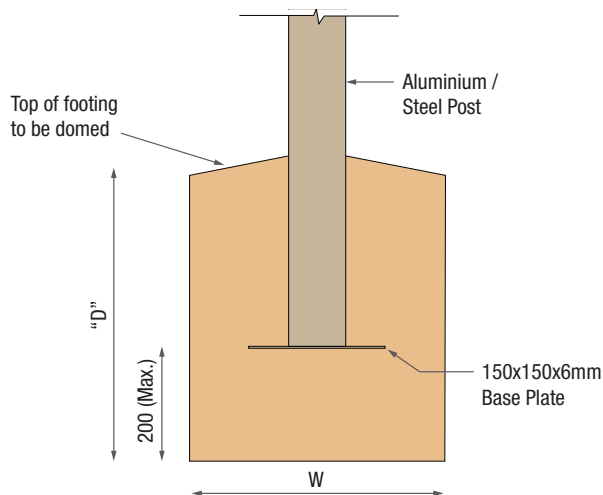


To join 2 RHS beams end to end, insert beam joiner inside the beams and support the join by locating a post or Extenda Bracket under the location of the join.

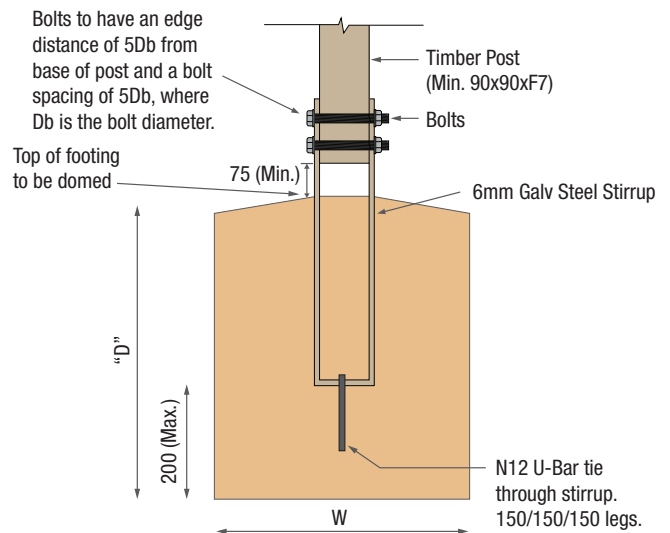
6.3 Post to Ground Connection

Use the Uplift on Post from 6.1 (kN) to select the Post to Ground connection and the footing. The hold down capacity of the footing must exceed the uplift on the Post.

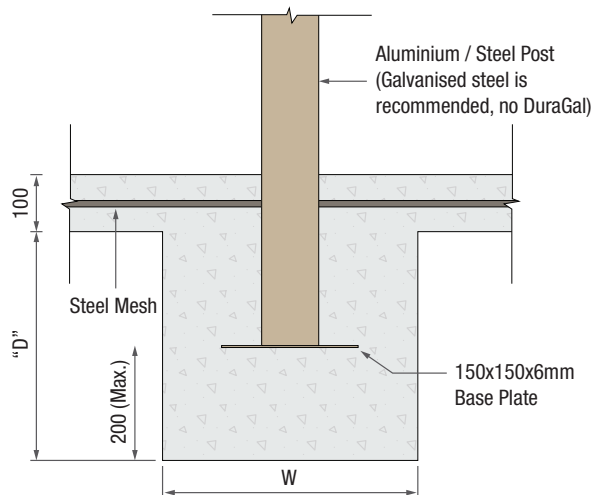
In Ground Footing – Aluminium / Steel Column



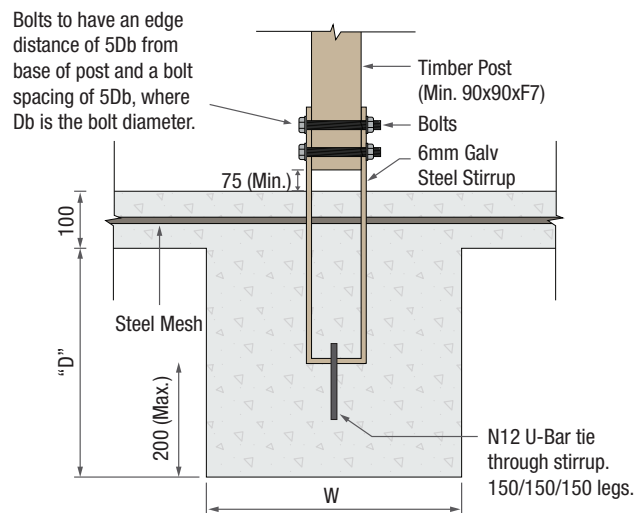
In Ground Footing – Timber Column



Footing with Slab Over – Aluminium / Steel Column



Footing with Slab Over – Timber Column



STEP 6.3: Post to Slab Connection

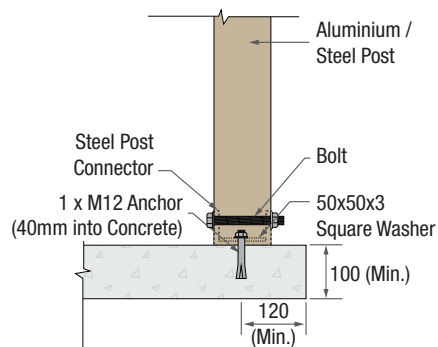
Connection Type Enter at 6.3

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6.3 Post to Ground Connection (cont'd)

On Slab Footing

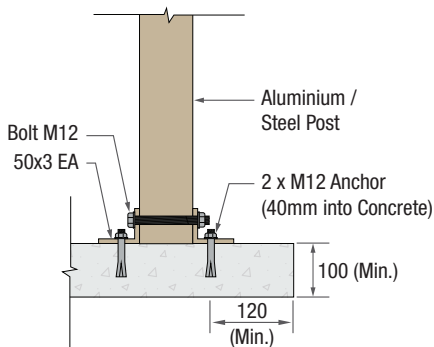
– Aluminium / Steel Column on Slab



Hold Down Capacity = 4.5kN

On Slab Footing

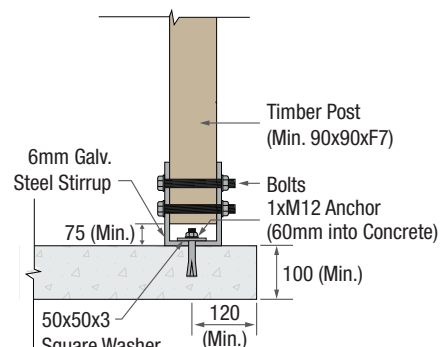
– Aluminium / Steel Column on Slab



Hold Down Capacity = 5.5kN

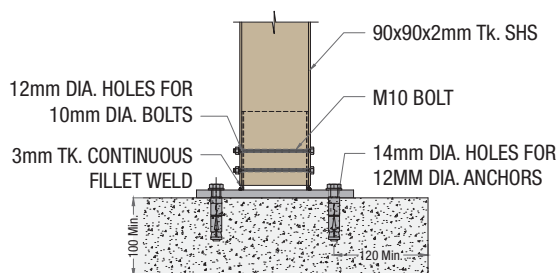
On Slab Footing

– Timber Column on Slab



Hold Down Capacity = 4.5kN

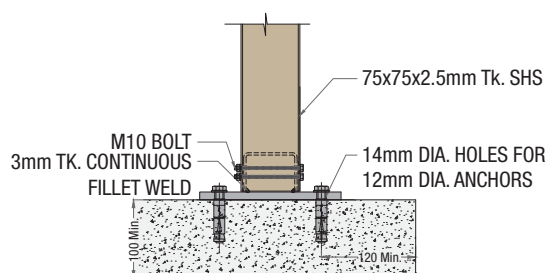
On Slab Footing - Base Plate Option 1



Hold Down Capacity = 5.5 kN

2x M10 bolts can be replaced with 4x14g Tekes placed on the same locations.

On Slab Footing - Base Plate Option 2



Hold Down Capacity = 5.5 kN

2x M10 bolts can be replaced with 4x14g Tekes placed on the same locations.

Notes:
Hold down capacity applies to piers with an undercut into cohesive clay soils. Use post footings for sandy sites.
For footings with depth (D) greater than 500, reinforce the footing with 4-N16 vertical bars tied with R6 spiral, 300 helical pitch.
Concrete slab must be a minimum of 100mm thick, 20MPa concrete reinforced with SL72 mesh and must extend over the full area covered by the SolarSpan®/InsulRoof®.
Mechanical anchors into concrete to be Ramset dynabolt plus or Hilti HST-3.

IN GROUND FOOTING (CLAY SOIL) W=450mm DIA.		
Hold Down Capacity (kN)	Footing Depth (mm)	Bolts
1.6	500	2-M12/4.6s
4.3	750	2-M12/4.6s
7.1	1000	2-M12/4.6s
9.8	1250	2-M12/4.6s
12.5	1500	2-M12/4.6s
15.3	1750	2-M16/4.6s
18.0	2000	2-M16/4.6s

FOOTING WITH SLAB OVER (CLAY SOIL) W=450mm DIA.		
Hold Down Capacity (kN)	Footing Depth (mm)	Bolts
10.4	500	2-M12/4.6s
13.1	750	2-M12/4.6s
15.9	1000	2-M16/4.6s
18.6	1250	2-M16/4.6s
21.3	1500	2-M20/4.6s
24.1	1750	2-M20/4.6s
26.2	2000	2-M20/4.6s

POST FOOTINGS (SANDY SITES)							
Hold Down Capacity (kN)	Width "W" & Depth "D" (mm)						
	500	550	600	650	700	750	800
5	700 x 700 (W) x 500 (D)	650 x 650 (W) x 550 (D)	650 x 650 (W) x 600 (D)	600 x 600 (W) x 650 (D)	600 x 600 (W) x 700 (D)	600 x 600 (W) x 750 (D)	550 x 550 (W) x 800 (D)
10	1000 x 1000 (W) x 500 (D)	950 x 950 (W) x 550 (D)	900 x 900 (W) x 600 (D)	850 x 850 (W) x 650 (D)	850 x 850 (W) x 700 (D)	800 x 800 (W) x 750 (D)	800 x 800 (W) x 800 (D)
15	1200 x 1200 (W) x 500 (D)	1150 x 1150 (W) x 550 (D)	1100 x 1100 (W) x 600 (D)	1050 x 1050 (W) x 650 (D)	1000 x 1000 (W) x 700 (D)	1000 x 1000 (W) x 750 (D)	950 x 950 (W) x 800 (D)
20	1400 x 1400 (W) x 500 (D)	1300 x 1300 (W) x 550 (D)	1250 x 1250 (W) x 600 (D)	1200 x 1200 (W) x 650 (D)	1200 x 1200 (W) x 700 (D)	1150 x 1150 (W) x 750 (D)	1100 x 1100 (W) x 800 (D)
25	1550 x 1550 (W) x 500 (D)	1500 x 1500 (W) x 550 (D)	1400 x 1400 (W) x 600 (D)	1350 x 1350 (W) x 650 (D)	1300 x 1300 (W) x 700 (D)	1250 x 1250 (W) x 750 (D)	1250 x 1250 (W) x 800 (D)
30	1700 x 1700 (W) x 500 (D)	1600 x 1600 (W) x 550 (D)	1550 x 1550 (W) x 600 (D)	1500 x 1500 (W) x 650 (D)	1450 x 1450 (W) x 700 (D)	1400 x 1400 (W) x 750 (D)	1350 x 1350 (W) x 800 (D)

Note: Reinforcement for pad footings: N12-200 CRS (U-bars), top & bottom, each way, 35mm cover.

STEP 6.3: Post to Slab Connection

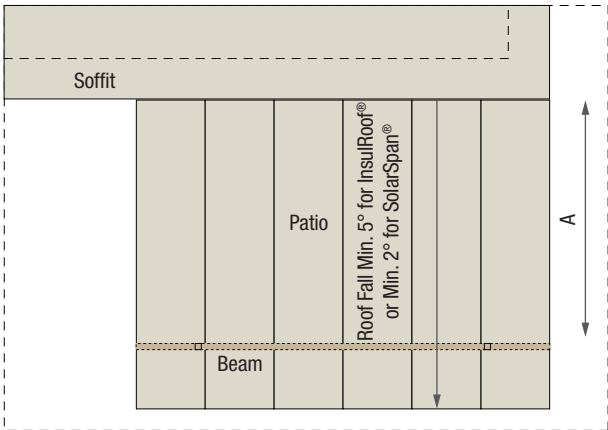
Connection Type Enter at 6.3

7.0 Patio to House Connection

Select the type of patio to house connection based on the Uplift Force (kN/m).

Notes:

- 1. Refer to Section 4.2 Uplift Load on Beam Table. For Load Width 0.5A, select the uplift (kN/m) from the table. This value is the Uplift Load on the house.
- 2. Select a suitable house connection for the required kN/m uplift.
- 3. The uplift capacity of the house fascia connections apply to the SolarSpan® & InsulRoof® Receiver Channel connection only. The Load Capacity and suitability of the members and connections below the rafter are to be assessed and strengthened if required.
- 4. It is the responsibility of the builders and engineers to determine the capacity of the existing structures.



7.1 For Metal Fascias

Rafter Connection Spacing (mm)	Uplift capacity of receiver channel to rafter connection (kN/m)	
	Unstrengthened Rafter	Strengthened Rafter
600	3	6
900	2	4
1200	1.5	3

Rafter Strengthening

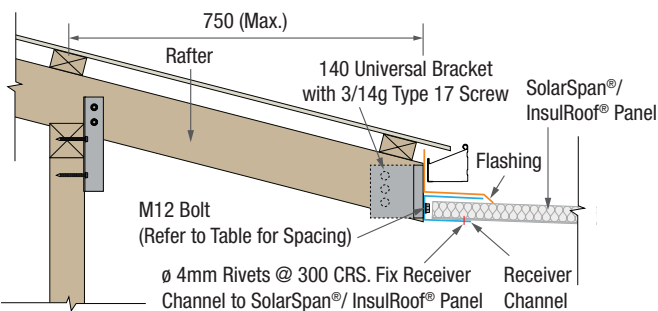
Fix timber stiffener 90x35 F8 x 1500 long to rafter with 75 long x No.14 Type 17 batten screws at 300 CRS (not shown here).

7.2 For Timber Fascias

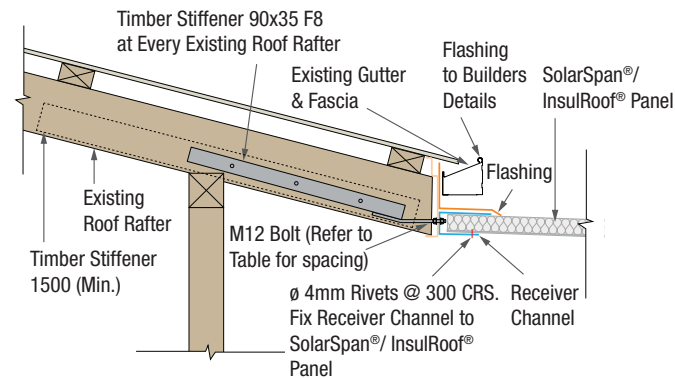
Notes:

- 1. Refer to AS 1684 - Timber Framing Code for attaching pergola or carport to house.
- 2. Connect Receiver Channel as per carport/pergola as shown in that publication.
- 3. Alternatively, connect as for Metal Fascias above.

Unstrengthened Rafter with Universal Bracket



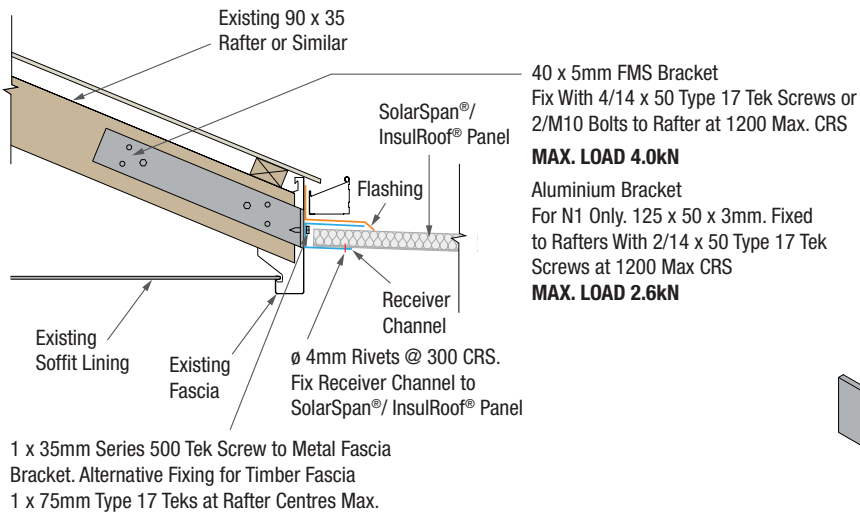
Strengthened Rafter with Stiffener



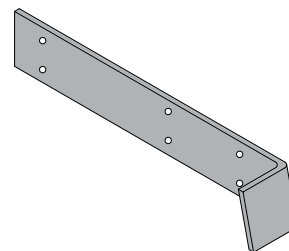
STEP 7: Patio to House Connection
Connection Type Enter at 7

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Strengthened Rafter with Rafter Brackets



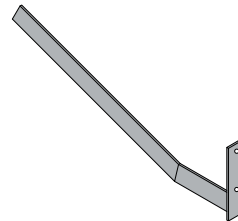
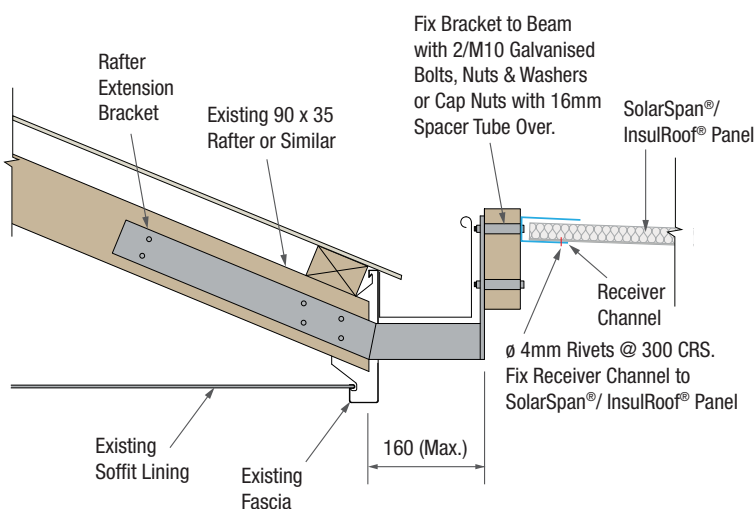
Note that minimum edge distance requirements on screws and bolts must be followed for all brackets.



Internal Rafter Bracket
(Left and Right)
50 x 5mm Mild Steel
MAX. LOAD 4.0kN

NOTE: Brackets to be spaced at max. 1200 CRS.

Strengthened Rafter with Rafter Extension Bracket



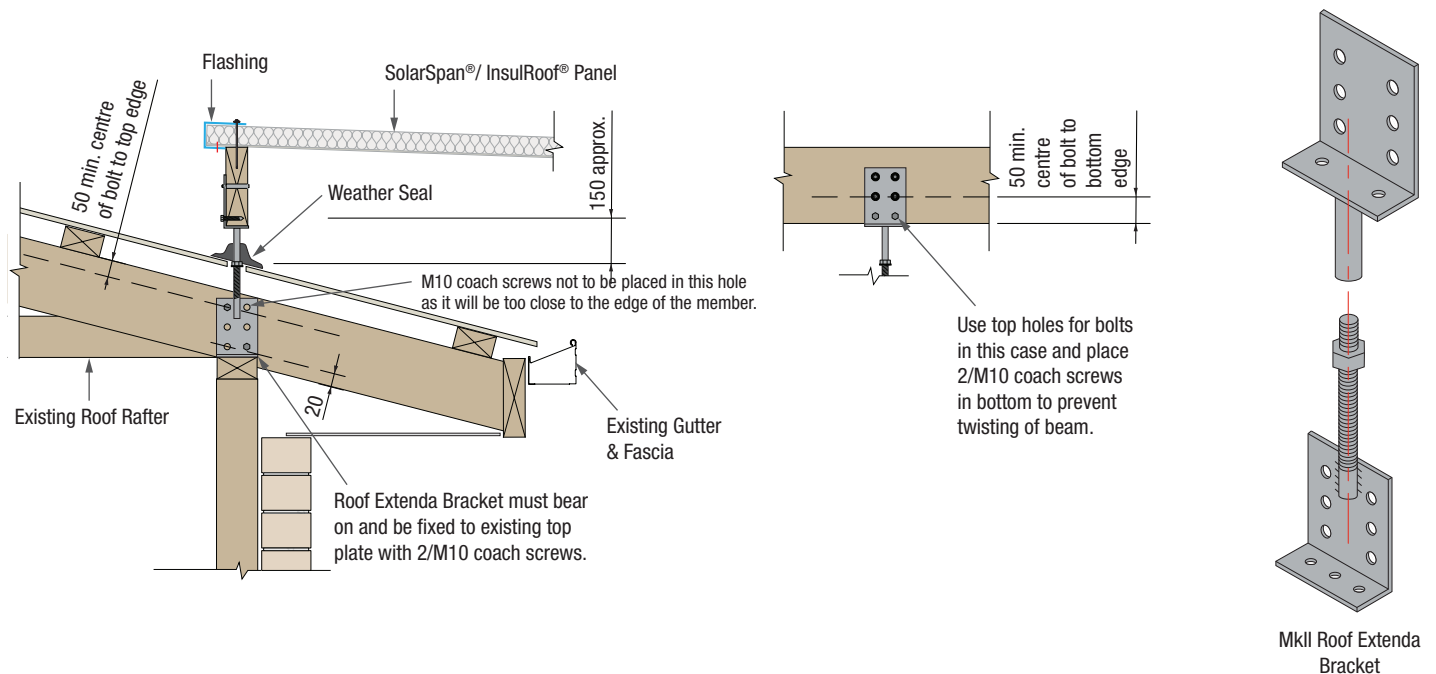
Rafter Extension Bracket
65 x 8mm Mild Steel
MAX. LOAD 5.0kN

NOTE: Brackets to be spaced at max. 1200 CRS.

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7.6 Rafter Bracket for Fly-Over – Roof Extenda

Roof Extenda Bracket MkII & S-Series



Note:

Prior to erecting a pergola or carport using the Roof Extenda Brackets check if a building approval from the Local Council or Shire is required as regulations vary from area to area.

Remove roofing tiles or lift roof sheets to achieve an opening to fit the Roof Extenda.

Bolt angle bracket with the threaded rod to the selected rafter with 2-M12 bolts. Provision has been made to bolt the angle section to the existing wall plate to eliminate any uplift.

Replace roof tiles or roof sheet cutting the hole to allow the threaded rod to penetrate the roof.

The Weather Seal is fitted to the top bracket, top bracket is then wound down to the desired height and the lock nut tightened.


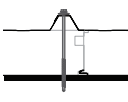
Mark the position of the Weather Seal on the roofing.

Slide the Weather Seal up to apply clear neutral cure silicone to the area marked.

Press the Weather Seal into position and finish with a bead of silicone to the edges of the Weather Seal to complete the fitting.

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7.7 SolarSpan® Fastener Details

Minimum Screw Length for SolarSpan® Fixings to Beam - All Screws Class 4		
Panel Thickness (mm)	Timber Beam Type 17 14-10 with Multiseal. Timber joint to be joint group J3 or better.	Steel Beam Metal Tek 14-14 with Multiseal.
		
50	125mm	125mm
75	150mm	150mm
100	175mm	175mm
125	200mm	205mm
150	240mm	230mm
200	300mm	300mm

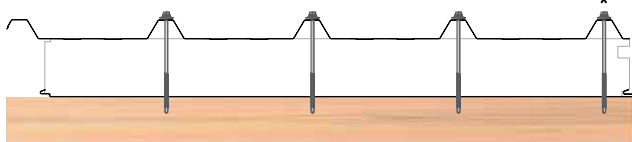
Fixing Recommendations

SolarSpan® roofing side laps should be laid away from the prevailing wind and sit neatly on the preceding roof sheet.

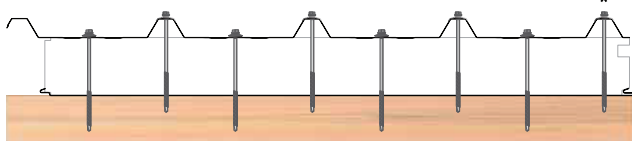
1. Non-Cyclonic Timber Fixings: 14g-10 Type 17 Buildex or Ideal screws with Multiseal washers to every rib. Minimum embedment 35mm.
2. Cyclonic Timber Fixings at each rib and pan, minimum embedment 40mm:
 - a) For 50-100mm thick panels fixing with 14g-10 Type 17 Buildex screws with Multiseal washers into every rib and pan.
 - b) For 125-200mm thick panels fixing with 14g-10 Type 17 Ideal Fasteners screws into every rib and pan, with Square-Lok (BX) washers on ribs and Multiseal washers in pans.
3. Non-Cyclonic Steel Fixings:

14g-14 Buildex or Ideal screws into minimum 1.5mm BMT G450 steel. Fixings to every rib using Multiseal washers.
4. Cyclonic Steel Fixings:
 - a) For 50mm-100mm thick panels fixing with 14g-14 Buildex screws into minimum 1.5mm BMT G450 steel. Fixings to be every rib and pan using Multiseal washers.
 - b) For 125mm-200mm thick panels fixing with 14g-14 Ideal Fastener screws into minimum 1.9mm BMT G450 steel. Fixings to be every rib and pan, using Square-Lok (BX) washers on ribs and Multiseal washers in pans.

Non Cyclonic Fixing - Through Each Rib



Cyclonic Fixing - Through Each Rib and Pan



* Fixing to go through adjacent panel's side lap.

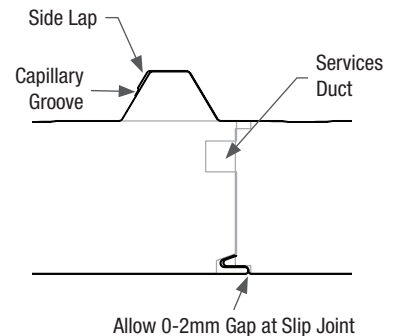
Screw with Multiseal



Screw with Square-Lok

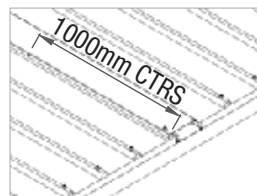
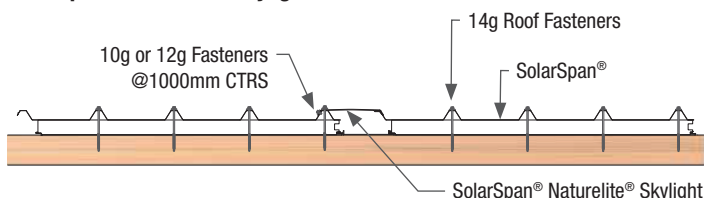


Lapping



Fixing Arrangement for Various Wind Loading Conditions	
Wind Uplift Load on Beam	Fixing Arrangement Required
up to 7.2 kN/m (for non-cyclonic installations only) (up to 5.9 kN/m for Firmlok F10011)	a) One screw per panel rib
up to 14.4 kN/m (for both non-cyclonic and cyclonic installations as relevant)	Screws as per (a) above, plus one screw per pan (between ribs)
up to 21.6 kN/m (for both non-cyclonic and cyclonic installations as relevant)	Screws as per (a) above, plus two screws per pan (between ribs)


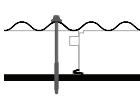
SolarSpan® Naturelite® Skylight



Note: In-plane/axial loads due to different thermal expansion of the panel skins will be transferred to the supporting structure. Therefore, the supporting structure needs to be designed to accommodate the resultant in-plane loads and displacements. Some of the effect may be mitigated by providing oversized holes when fixing the panel to rigid supporting structures. The oversized holes will also minimise the noise associated with thermal expansion and contraction. Please refer to the Noise Dampening section of Metecno's Residential Roofing Design & Install Guide for installation details.

SolarSpan & InsulRoof Patio Design & Install Guide

7.8 InsulRoof® Fastener Details

Minimum Screw Length for InsulRoof® Fixings to Beam - All Screws Class 4		
Panel Thickness (mm)	Timber Beam Type 17 14-10 with Multiseal. Timber joint to be joint group J3 or better. (Min Embedment 35mm)	Steel Beam Metal Tek 14-14 with Multiseal.
		
50	100mm	125mm
75	125mm	125mm
100	175mm	150mm
125	200mm	175mm
150	240mm	205mm
200	300mm	300mm

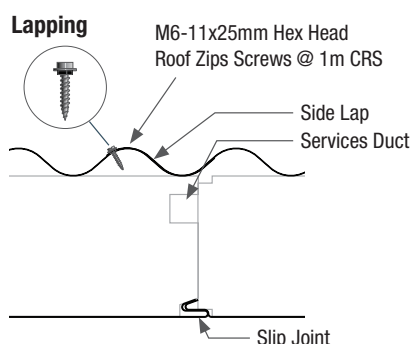
InsulRoof ® Fixings Requirements																																												
Span (mm)	Wind Category:						N2					N3					N4					C1					C2					C3												
	Region:						A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E								
2000		4					4					4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4										
3000												4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
4000												4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	7	7	4	
5000												4	4	4	4	4	4	4	4	4	4	4	4	7	4	4	4	4	4	4	4	4	4	4	7	4	4	7	7	7	4			
6000												4	4	4	4	4	4	4	4	4	4	7	7	4	4	4	4	4	4	4	4	4	4	7	7	4	4	7	7	7	4			
7000												4	4	4	7	4	4	4	7	7	7	4	4	4	4	4	4	7	4	4	7	7	4	4	7	7	4	4	7	7	13	4		
8000												4	4	4	7	4	4	4	7	7	7	4	4	4	4	4	7	4	4	7	7	7	4	7	7	7	4	7	7	13	13	4		
9000												4	4	7	7	4	4	4	7	7	13	4	4	4	4	7	7	4	4	7	7	4	4	7	7	13	4	7	13	13	13	7		

Number of Fixings Required		
Note	Uplift Load on Beam	Fixing Required
4	up to 7.2 kN/m (up to 5.9 kN/m for Firmlok F10011)	4 fixings per panel (minimum every 3rd crest)
7	up to 14.4 kN/m	7 fixings per panel (minimum every 2nd crest)
13	up to 21.6 kN/m	13 fixings per panel (every crest)

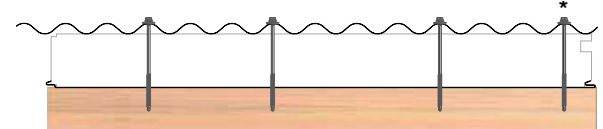
Note: Use screws with cyclone assembly for cyclonic regions.

Fixing Recommendations

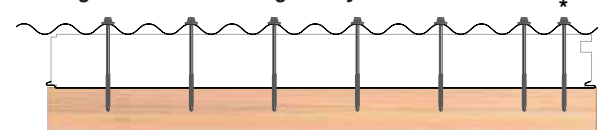
The InsulRoof® side lap should be laid away from the prevailing wind and sit neatly on the preceding roof sheet. Use Bondor® recommended insulated roofing fasteners along with Multiseal fixed as specified. Fix side laps at approximately 1000mm centres using a M6-11x25mm Hex Head Roof Zips screw (available from Bondor). Fascia gutter flashings should be fixed using sealed rivets in the valley.



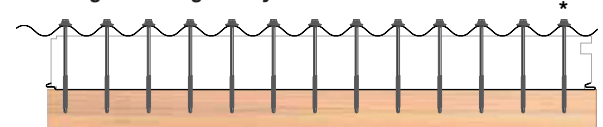
4 Fixings – Minimum Through Every 3rd Crest



7 Fixings – Minimum Through Every 2nd Crest

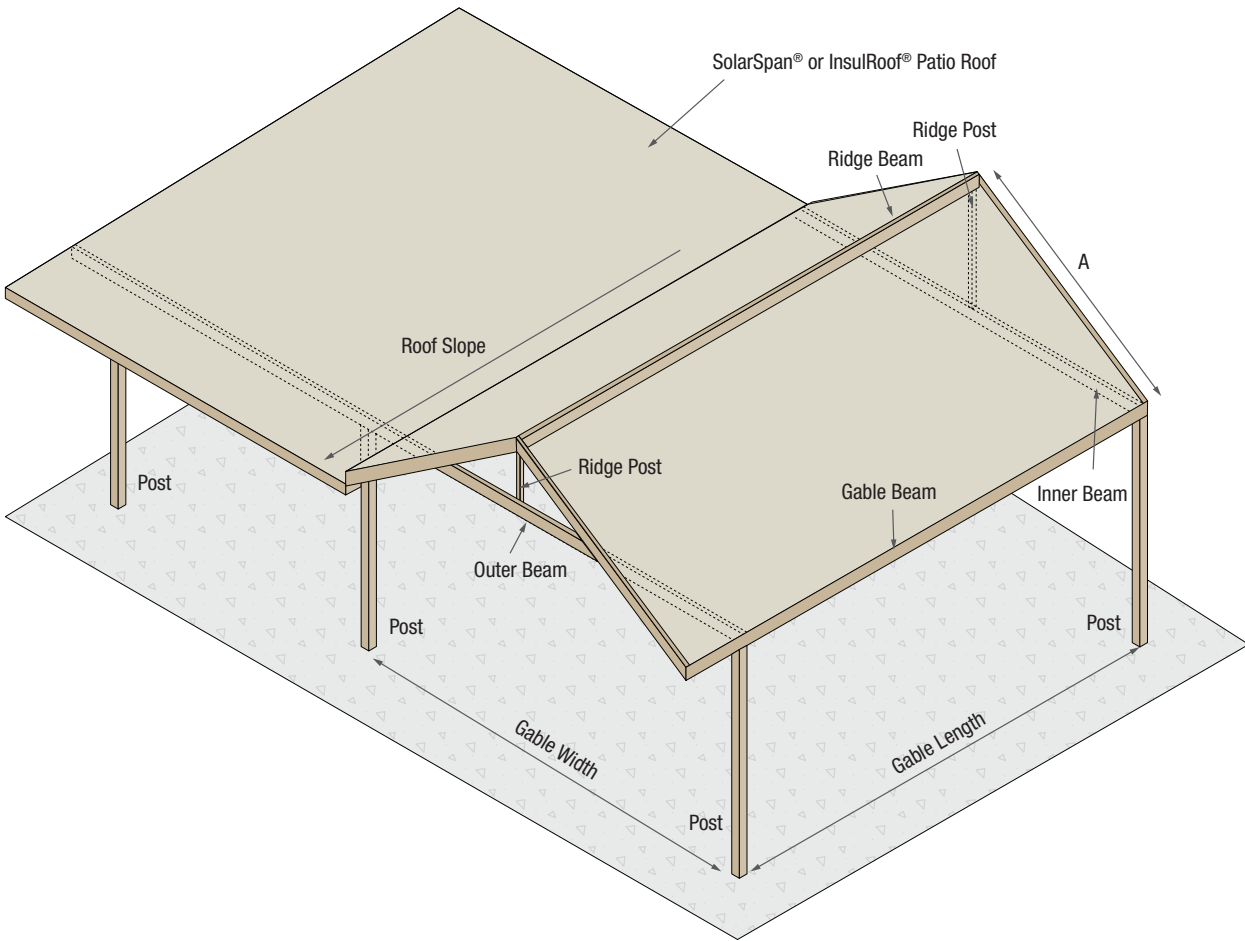


13 Fixings – Through Every Crest



* Fixing to go through adjacent panel's side lap

8.0 Gable Structures



8.1 Thickness and Fixings

Selected as for the rest of the patio (refer to Step 3).

8.2 Select Outer Beam

This will normally be the same beam as the outer beam in the low pitch part of the patio.

8.3 Select Gable Beams

Load Width on Gable = 0.5 A metres. Use the same procedure as set out on Step 4 & 5 to select a suitable beam size.

STEP 8: Gable Span Formula								
Load Width on Gable = 0.5 x A (m)								
Load on Ridge Beam (kN/m) = 2 x Load on Gable Beam (kN/m)								
0.5	x	A (m)	Equals	(0.5xA)	x	2	Equals	Load on Ridge Beam (kN/m) Enter at Step 8
0.5	x		=		x	2	=	

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8.4 Check the Capacity of the Ridge Beam

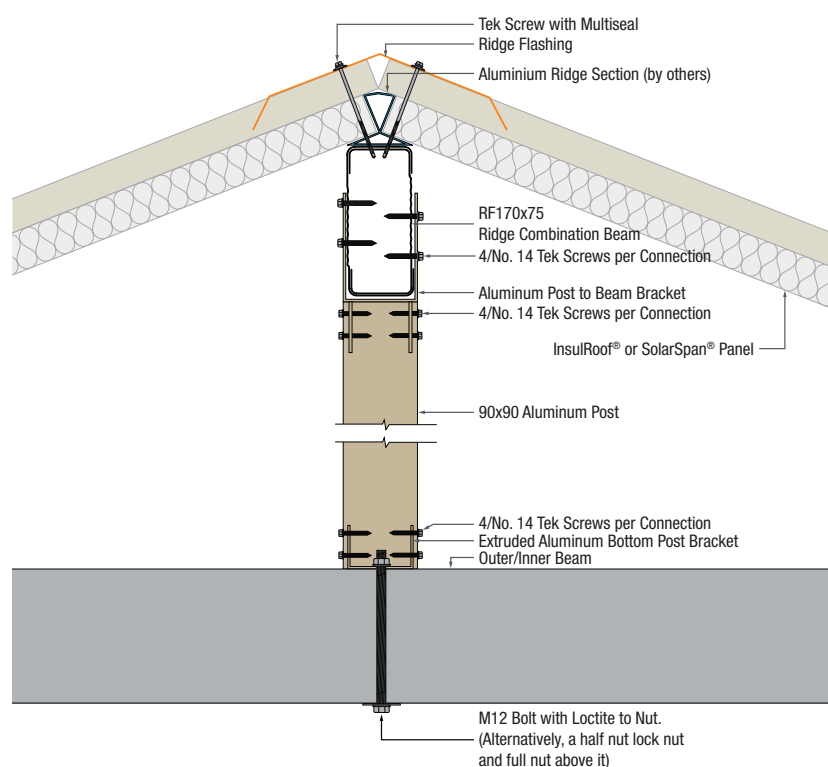
8.4.1 Load on Ridge Beam

Load on Ridge Beam (kN/m) = 2 x load on Gable Beam (kN/m).

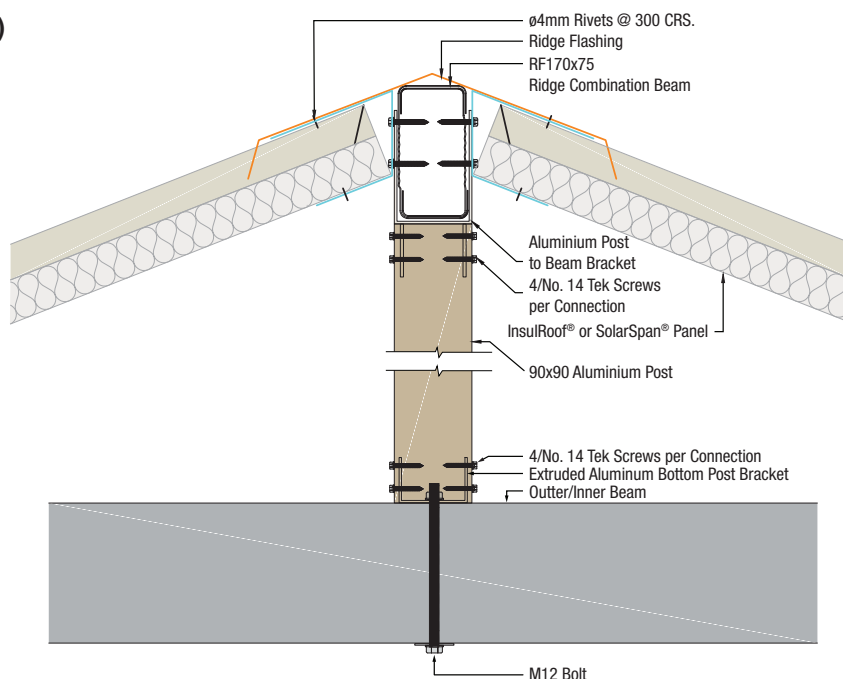
8.4.2 Check Capacity

Check that the capacity (kN/m) of the Ridge Beam has sufficient capacity for the particular conditions by referring to the selection table in Section 5.0.

Ridge Beam Detail (Type 1)



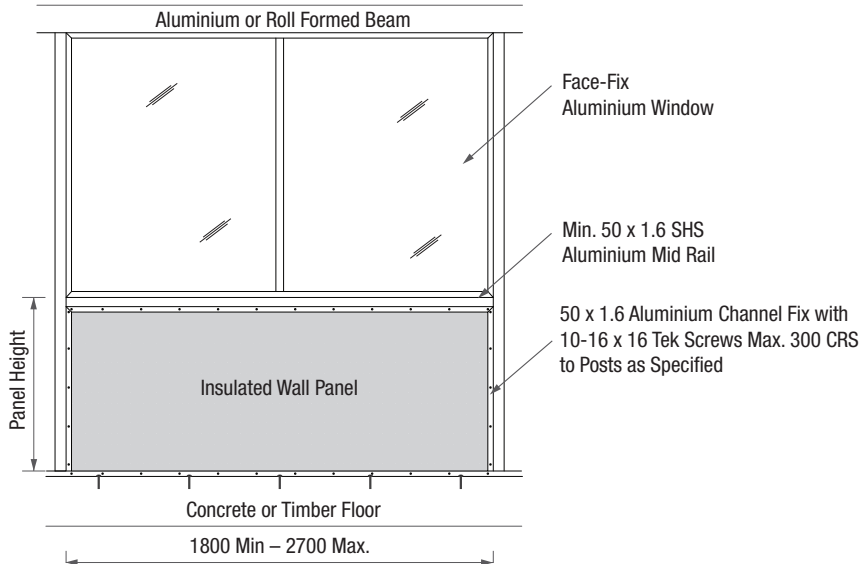
Ridge Beam Detail (Type 2)



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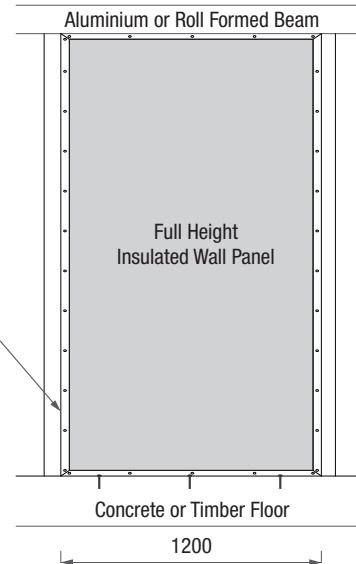
9.0 Enclosure Wall Panel

OPTION 1



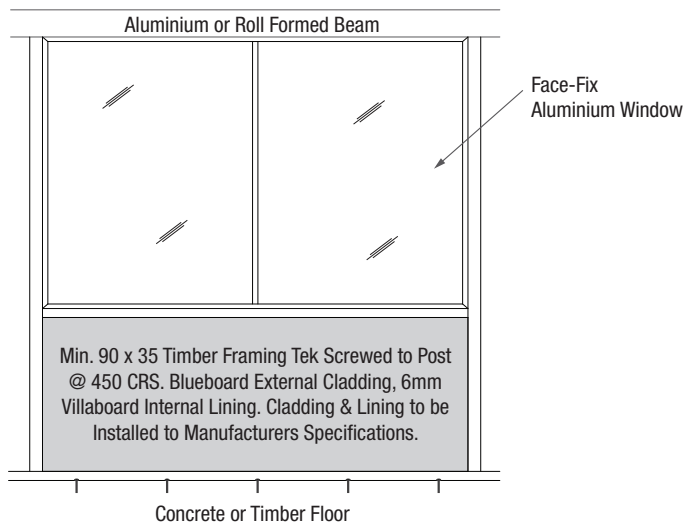
Wall Height	2400		2700		3000	
Panel Height	900	1200	900	1200	900	1200
Capacity per Post – kN	1.8	2.3	1.5	1.8	1.2	1.5
Min. Post Size – Steel	50 x 2.5 SHS		50 x 2.5 SHS		50 x 2.5 SHS	

OPTION 2

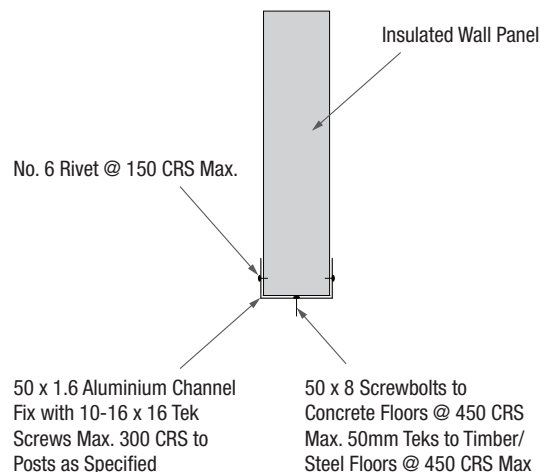


Wall Height	2400	2700	3000
Capacity – kN	2.7	2.4	2.2
Min. Post Size	50 x 1.6 Alum	60 x 2.0 Alum	60 x 2.0 Alum

OPTION 3



Wall Height	2400		2700		3000	
Panel Height	900	1200	900	1200	900	1200
Capacity per Post – kN	1.5	1.9	1.2	1.5	1.0	1.2
Min. Post Size – Alum.	90 x 2.0		90 x 2.0		90 x 2.0	



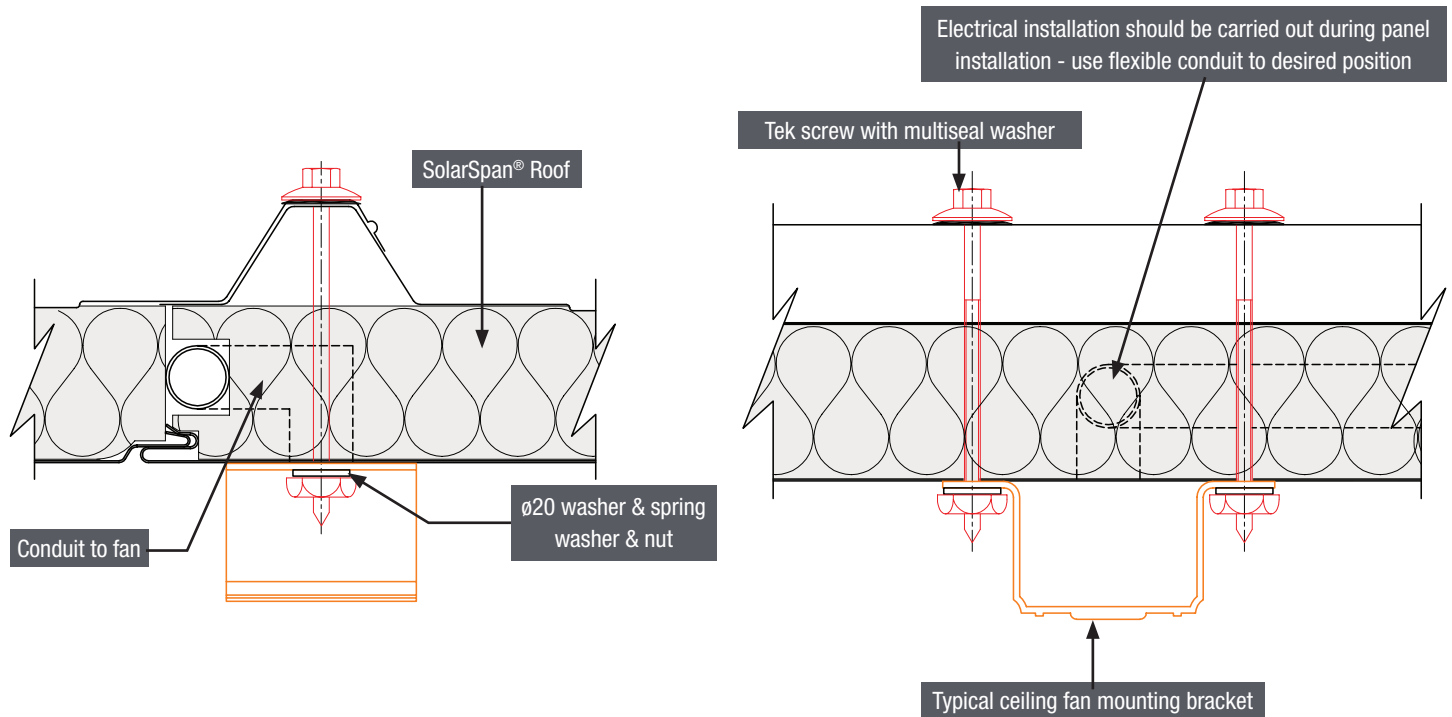
Note:

Max Wall Height for
50 x 50 x 1.6 Aluminium Posts = 2400

Max Wall Height for
60 x 60 x 2.0 Aluminium Posts = 3000

Ceiling Fans Bracket Kit

Where lights or ceiling fans are required, electrical cabling should be pre-wired through the fascia, sheathed inside flexible conduit inside the service ducts on the female side of the panel. Locate fans and lights away from slip joint by drilling horizontally through the foam and then using the appropriate diameter metalholesaw, drill through the underside of the steel sheet to required depth. Fans should be located centrally below a rib as through fixing is required for bracket.



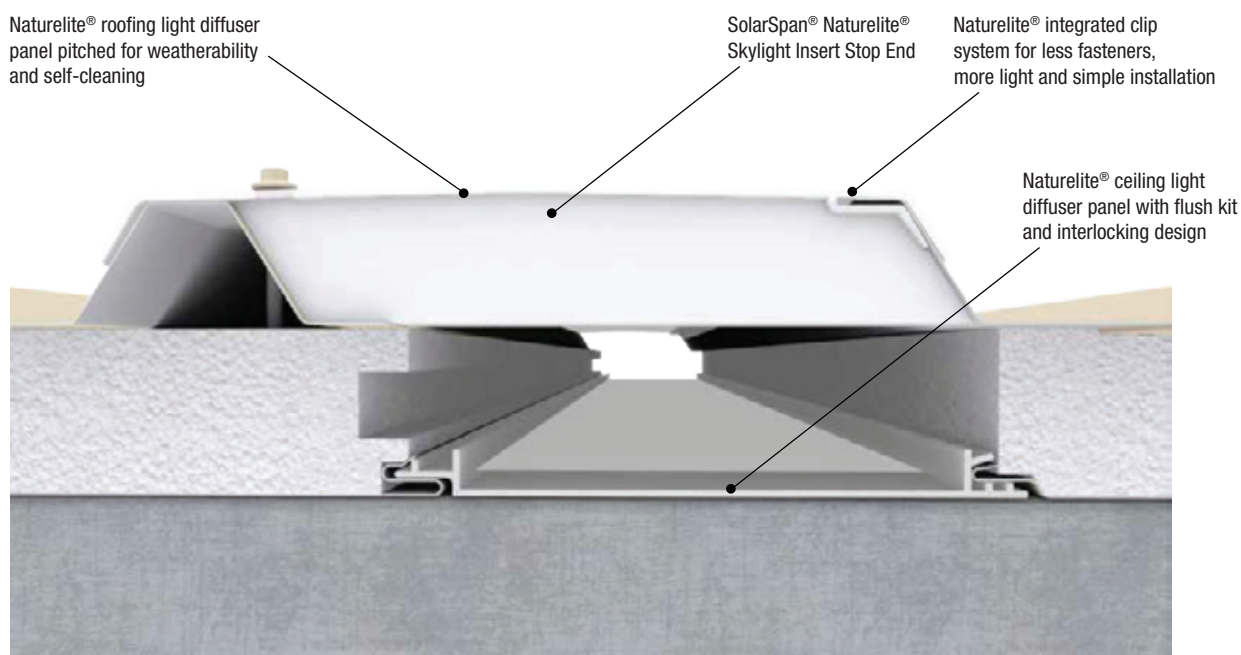
SolarSpan & InsulRoof Patio Design & Install Guide

SolarSpan® Naturelite® Skylight

Bondor®'s Naturelite® skylight system is designed for exclusive use with SolarSpan® insulated patio roofing to increase natural light into outdoor living areas. The Naturelite® skylight roof and ceiling panels are developed to the SolarSpan®'s roof and ceiling profile specification. Made from high impact and UV stabilized material, the skylight is proven for use with outdoor patio applications in Australia. Naturelite® skylights deliver a smart and modern lighting solution that is easy to install with brighter results.

Components

Naturelite® roof panels capture and diffuse more sunlight due to its pitched roof design between SolarSpan® roof ribs and deliver a weather resistant, low maintenance and self-cleaning translucent roof panel that doesn't collect water or debris. Naturelite® diffuser ceiling panels slide into position flush with SolarSpan®'s smooth ceiling underside, interlocking easily without the need for fixings, brackets, metal channels or cover flashings.

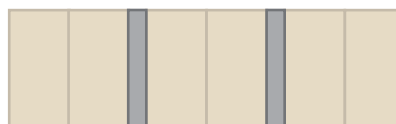


Design Notes

- SolarSpan steel roof panels are serviceable up to 140kg/m² of live load however, Naturelite® skylight panels are non-trafficable and stepping on or near skylight panels must be avoided.
- Naturelite® skylight panels should be used in open outdoor shade applications in non-cyclonic regions only. Skylights are not for house or commercial roofing purposes.
- Installation of Naturelite® skylights should be between at least one SolarSpan® panel on either side.
- SolarSpan® maximum spans may need to be reduced to compensate for the addition of a Naturelite® skylight. Refer span table notes.

Panel Configuration Example

Two SolarSpan® panels on either side



One SolarSpan® panel on either side



Packing & Delivery

Packing for Shipment

SolarSpan® & InsulRoof® sheets are packed to a maximum pack height of 1.2m with the number of panels per pack dependant on panel thickness, length and overall pack weight. SolarSpan® & InsulRoof® panels are manufactured with a protective film applied to the ceiling skin. SolarSpan® & InsulRoof® panels can be marked externally on the insulated core with the panel number and/or length, on request.

Delivery to Site

Panel packs should be secured using cargo straps spaced approximately every 2m with 600mm plastic cargo angles under the straps (refer to Figure 1a). Long 600mm angles must be placed on top and bottom of panel pack to protect from straps. Do not overtighten straps, no depression in panel should be seen, back off on strap tension, panel skin should be flat (refer to Figure 1b). Unloading remains the client's responsibility. For lifting panels greater than 8m in length, use of a spreader bar is recommended (refer to Figures 1c & d). Refer to Figures 1e & 1f for recommended steps to unload panels of less than and greater than 8m in length. Panels should always be kept dry and if placed on site, stored off the ground, slightly inclined, allowing adequate drainage and ventilation of the panel pack.

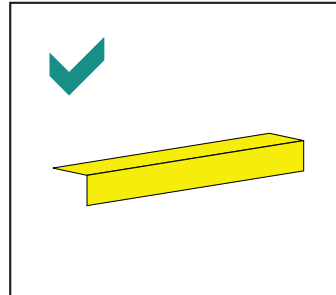


Figure 1a

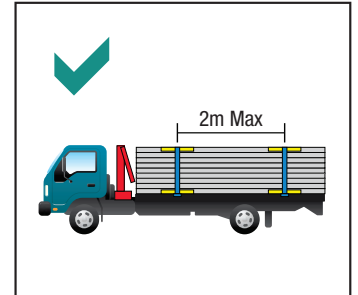


Figure 1b

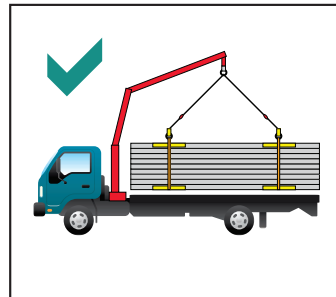


Figure 1c

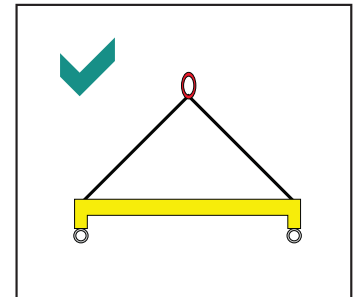


Figure 1d

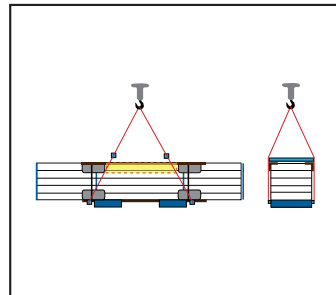


Figure 1e

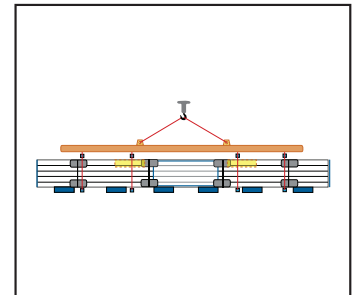


Figure 1f

SolarSpan & InsulRoof Patio Design & Install Guide

Transport Safety Guidelines

Customer Pick Ups

This Transport Safety Guide provides information on state regulations and site requirements for transport of products from Norfoam® sites. This guide applies for customer collected goods that are transported by road and restrained to the minimum standard designed to meet the Australian Load Restraint Performance Standards.

All pick ups are to be booked with our Dispatch team by phone on 02 9609 0802.

1. Site Requirements

- Norfoam® sites will require you to wear PPE whilst on site. Each location will have specific requirements that must be followed. PPE may be loaned for the duration of picking up goods and must be returned before leaving site.
- Norfoam® personnel have the right to refuse to load inappropriate vehicles or load combinations.
- Customers must stay with their vehicle at all times and take direction from loading staff.
- Customers unable to restrain products to their vehicles from the ground must use appropriate available height safety equipment to safely conduct the task.
- Customers must observe all site speed limits, traffic signs and staff directions.
- Alternative arrangements for delivery may be arranged and may incur a fee if the vehicle or equipment is inappropriate for the load.
- In the event of an emergency or evacuation customers should stay within the customer pick up area where safe to do so and await instructions from Norfoam® staff.

2. Chain Of Responsibility (CoR)

Under the CHAIN OF RESPONSIBILITY laws, all parties who have control or influence over the transport task are deemed responsible for complying with and for breaches of the laws. For more information refer to the National Transport Commission website at www.ntc.gov.au or contact your local state Road and Transport Authority.

3. Load Requirements

Roof Rack Capacities

Vehicles must not be overloaded.

Unless the driver has written verification of the rack and vehicle limits, the safe loading limits are:

- 40 kg for sedans, vans and wagons
- 100 kg for utes with trade racks

Written verification of acceptable higher weights includes:

- load rated stickers on roof racks,
- paperwork received with the roof racks,
- information in the vehicle handbook,
- information from the supplier website,
- engineering certificates.

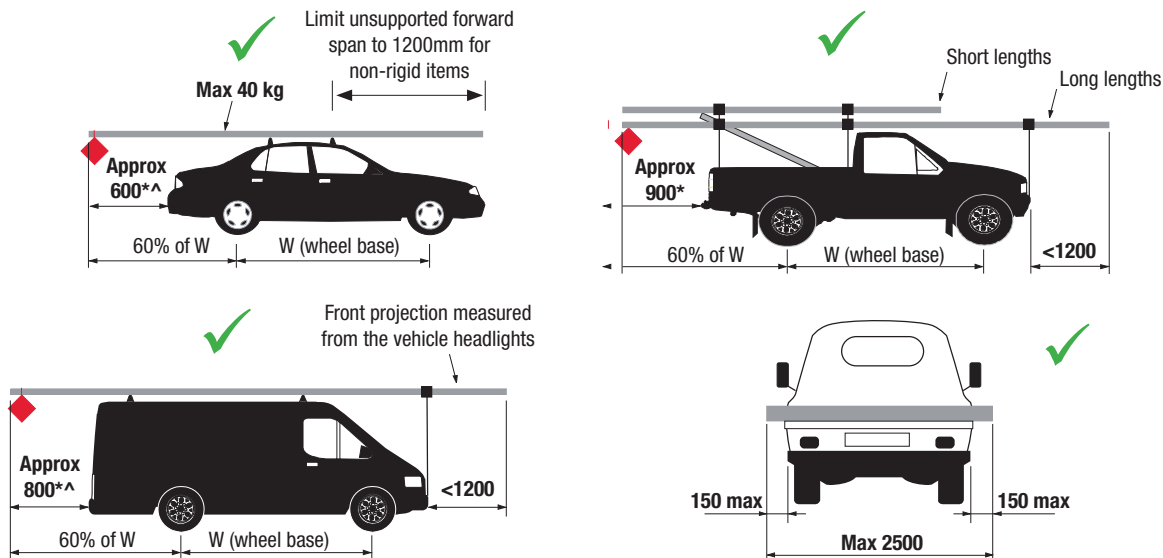
Overhang Requirements

The driver's vision must not be obstructed. Projections/overhangs that are deemed dangerous are not acceptable even if within the limits of the diagrams in this brochure.

For day time travel, a minimum 300mm square bright flag must be used on any overhang that is not easily seen.

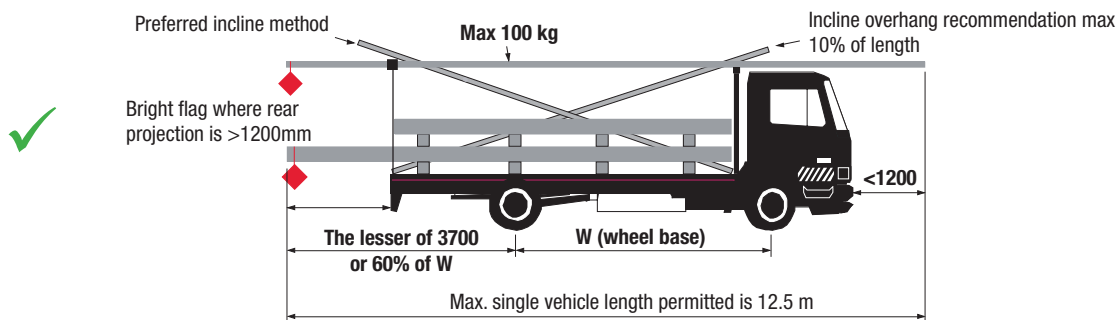
SolarSpan & InsulRoof Patio Design & Install Guide

Rigid Product Loading - All States

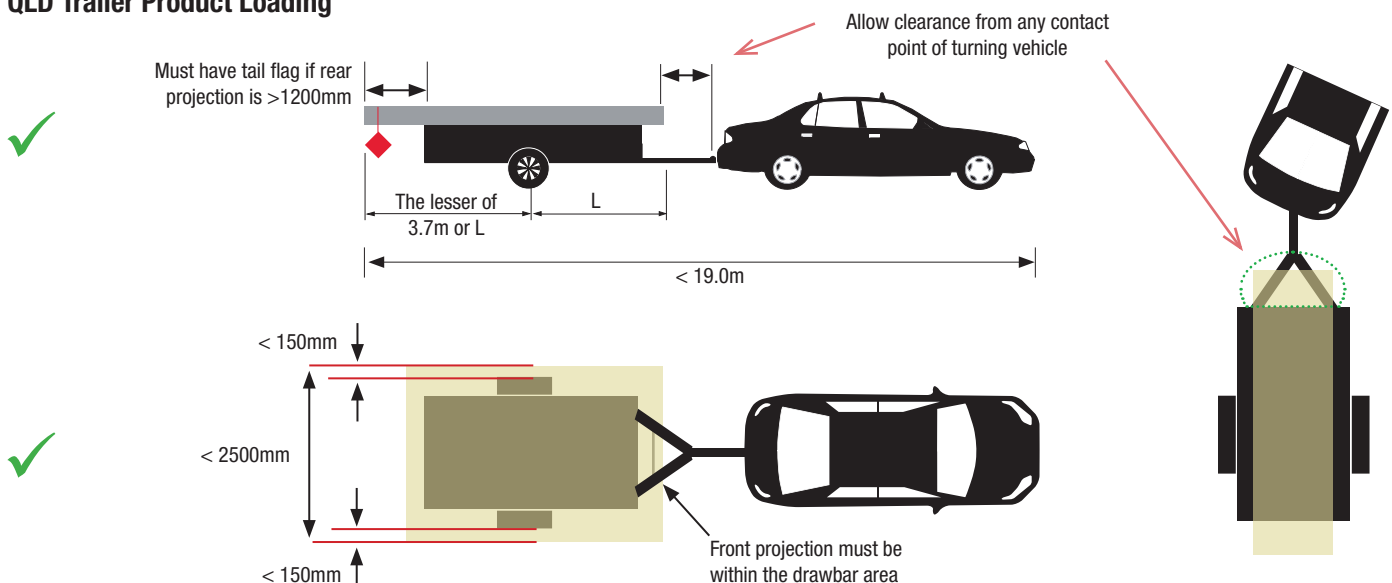


* Guide Only - Not governing dimensions. Check vehicle wheel base to determine permitted legal rear overhang.

[^] Applicable in WA only, maximum length of product protruding from vehicle is 1200mm from the end of the vehicle and at no time must the rear projection beyond the vehicle's rear axle exceed 60% of the wheel base.



QLD Trailer Product Loading



SolarSpan & InsulRoof Patio Design & Install Guide

Installation

Required Tools & Equipment

Personal Protective Equipment

- Long sleeves & pants
- Cut resistance level 5 gloves
- Eye protection
- Hearing Protection
- Enclosed footwear

General Tools

- Saw Horse Stools (Padded)
- Rivet gun
- Multi-purpose step ladders
- Socket set (metric) for post bolts
- RH & LH Hand Tin snips
- Spirit Level
- Chalk Line
- Roof Screw Gun with Hex Head Adapters 5/32" R 14g Tek Adaptor
- SolarSpan® Turn-Up/Down Tool (See Bondor®)
- Plastic Paint Scraper
- Measuring Tape
- Towels or blankets to cover patio beams
- Shears to remove overlap (first sheet only)

Components

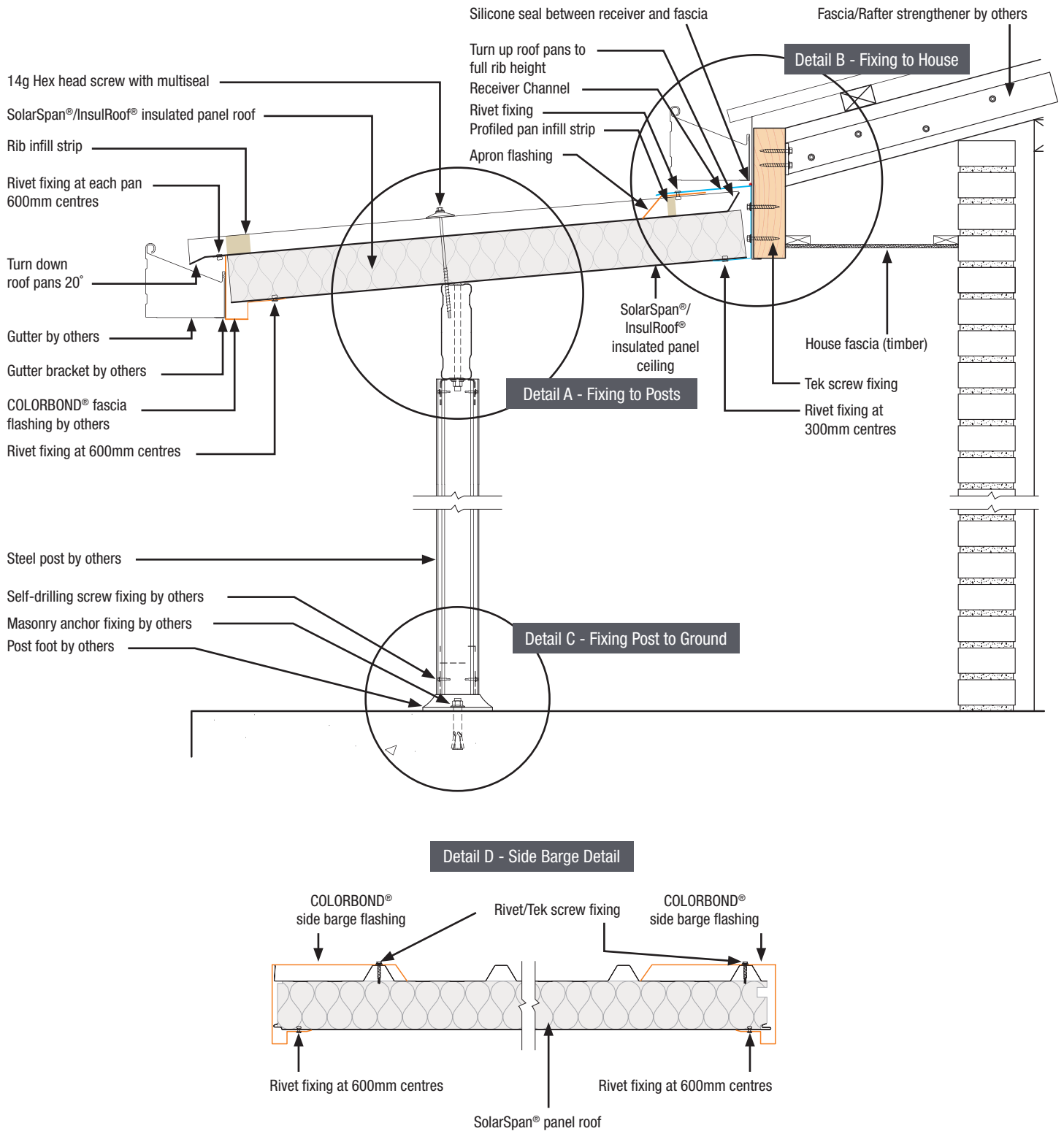
- Patio Structure
- SolarSpan®/InsulRoof® Roofing Panel
- Receiver Channel (for attached patios)
- Barge and Fascia Gutter Flashings
- 3.2mm diameter blind rivet (sealed)
- 14g class 4 metal/timber roof screws with Multiseal / Square-Lok
- Profile vermin protection and EPS-FR rib infill strip

Clean Up

- Broom for cleaning swarf from roof
- Blower/Vacuum

Patio Construction Overview

The below overview is conceptual only.



SolarSpan & InsulRoof Patio Design & Install Guide

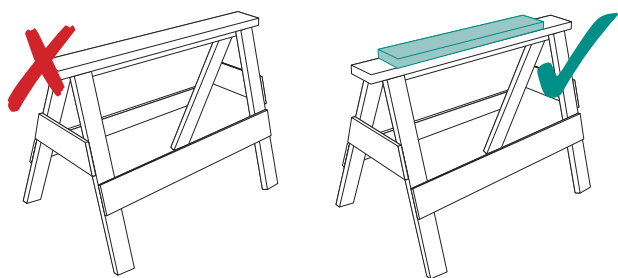
Structure Preparation

Fix Receiver Channel to the house fascia using appropriate fasteners. Apply to the Receiver Channel a thick continuous bead of silicone to the top of the back face of the Receiver Channel for protection against water ingress retained behind the Receiver or to the patio floor below.

Install patio structure, including posts and beams to manufacturer's specifications, ensuring the frame is square, checking diagonals.

SolarSpan®/InsulRoof® Installation Instructions

This example shows a typical installation to an existing house timber fascia. For other examples, visit www.solarspan.com.au. SolarSpan® is shown in the illustrations below but the instructions apply to InsulRoof® as well.

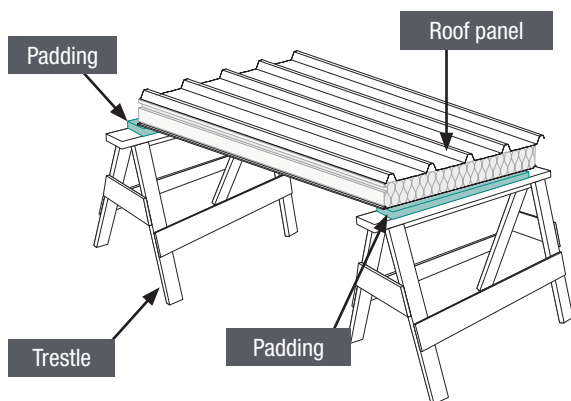


Handy Tip

Prepare your carpenter's trestles (or similar work platform) by taping soft material or foam to the top of the trestles.

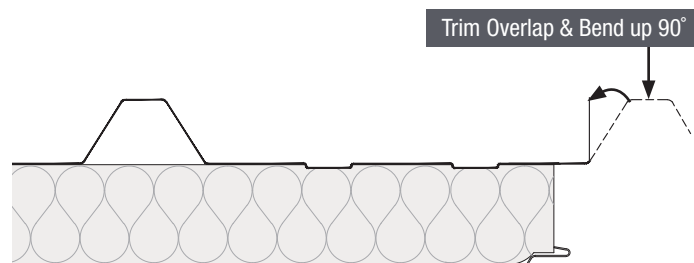
Step 1: Panel Preparation

Place SolarSpan®/InsulRoof® panel roof side up on the trestles (avoid dragging the panel to eliminate damage).



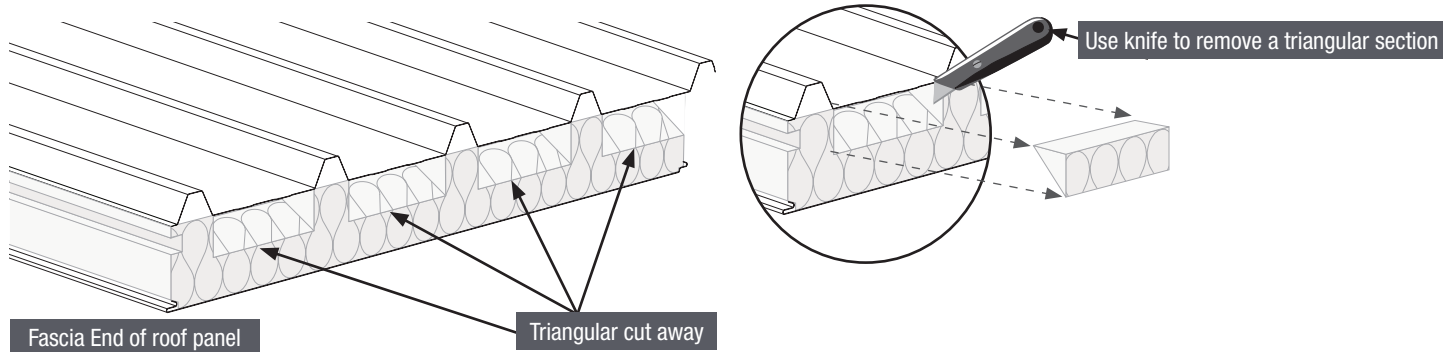
Step 2: Trim Overlap & Bend 90°

FIRST PANEL ONLY. The first overlay rib on the first panel acts as waterproofing under the side barge/apron and should be trimmed using sheers and bent up 90° as shown below.



Step 3: Remove Foam at House Fascia End

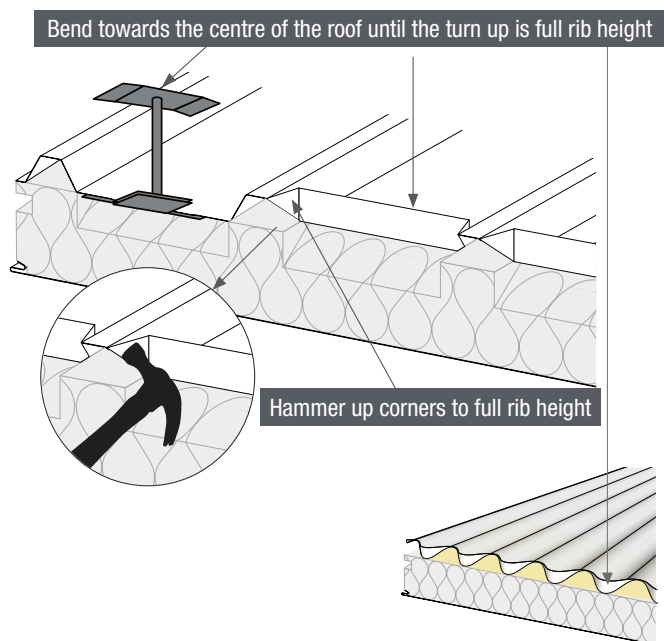
Cutaway foam below pans at the fascia (house) end to allow the pan turn up.



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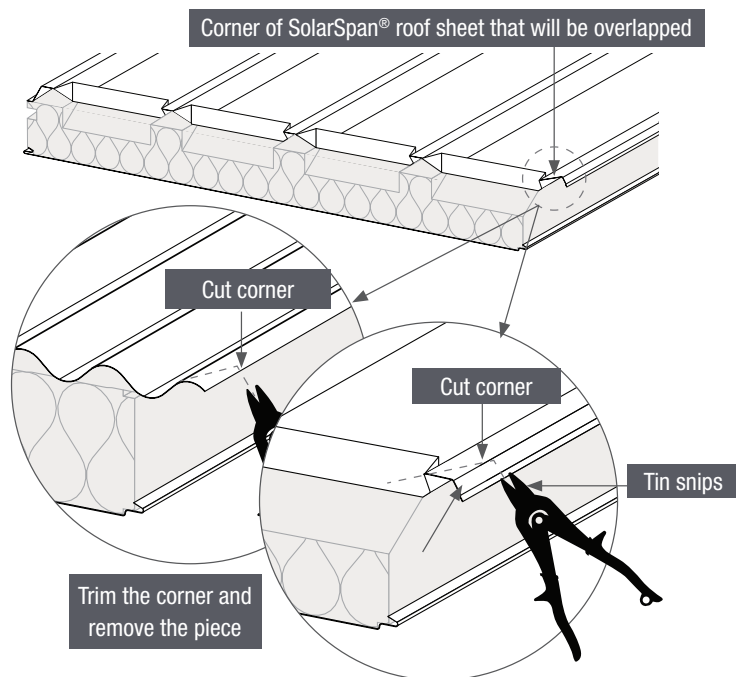
Step 4: Turn Up Pans Fascia End

SolarSpan®/InsulRoof® roofs should always have the roof pans at the top or house end turned up to full rib height. It is important to ensure the pan is turned up to the full rib height for the complete width of the pan so no 'low' points exists. The Turn-up/Turn-down tool is available from your Bondor® distributor.



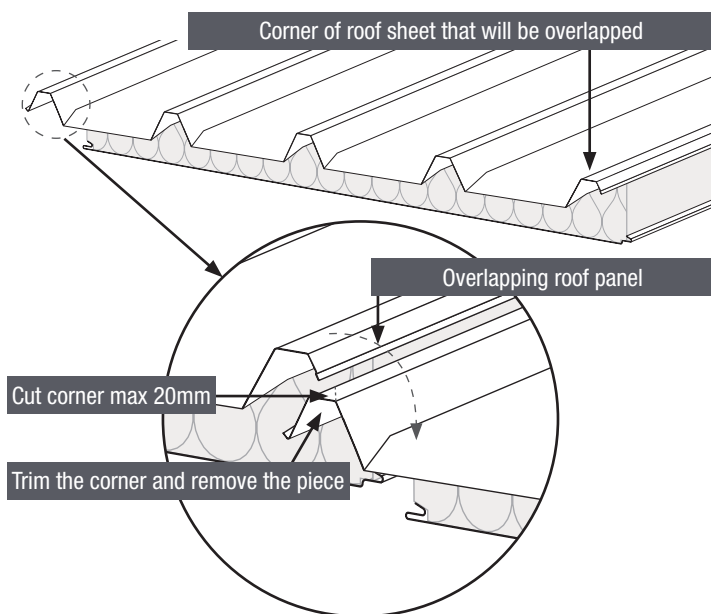
Step 5: Trim House Fascia End Overlap

Trim the overlay rib to prevent fouling with the turned up pan of the adjacent panel.



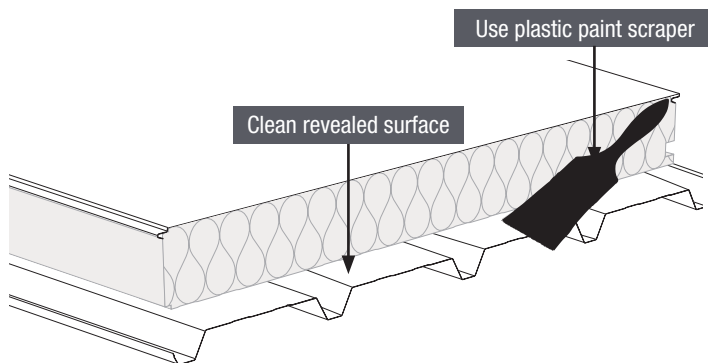
Step 6: Trim Gutter End Underlap (for SolarSpan® only)

Trim the underlay rib of every SolarSpan® panel at the gutter end to prevent water drawback via capillary action.



Step 7: Remove Gutter Cutback Foam

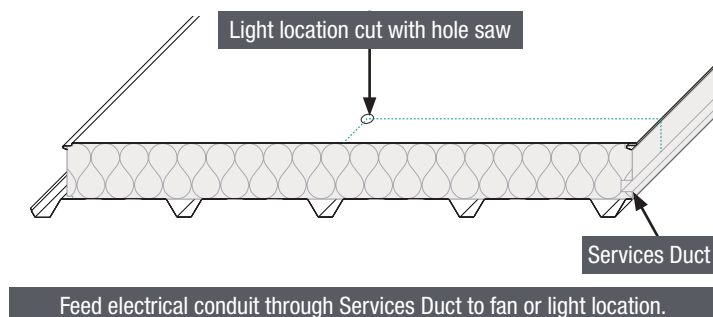
Turn the panel over roof side down on the trestles. Remove core material from the gutter cutback end of the panel with a plastic paint scraper to ensure that the fascia flashing can be installed correctly.



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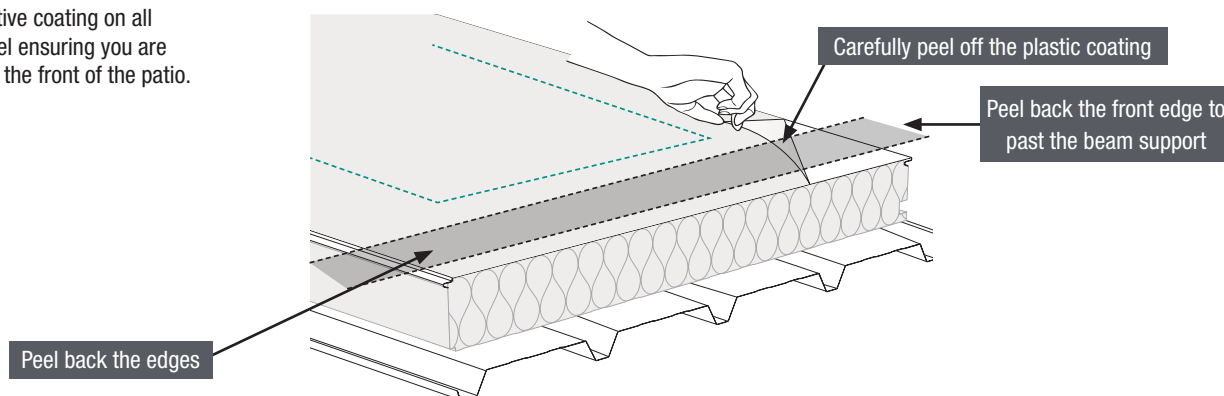
Step 8: Electrical Preparation

Mark the location of each downlight/fan, cut appropriate size hole in the SolarSpan®/InsulRoof®. Feed electrical conduit through Services Duct to fan or light location. The ceiling core-strip protective film should be left on while any marking, drilling and cutting is carried out. LED Downlights & fan bracket kits are available from your SolarSpan®/InsulRoof® installer or contact Bondor® for more information.



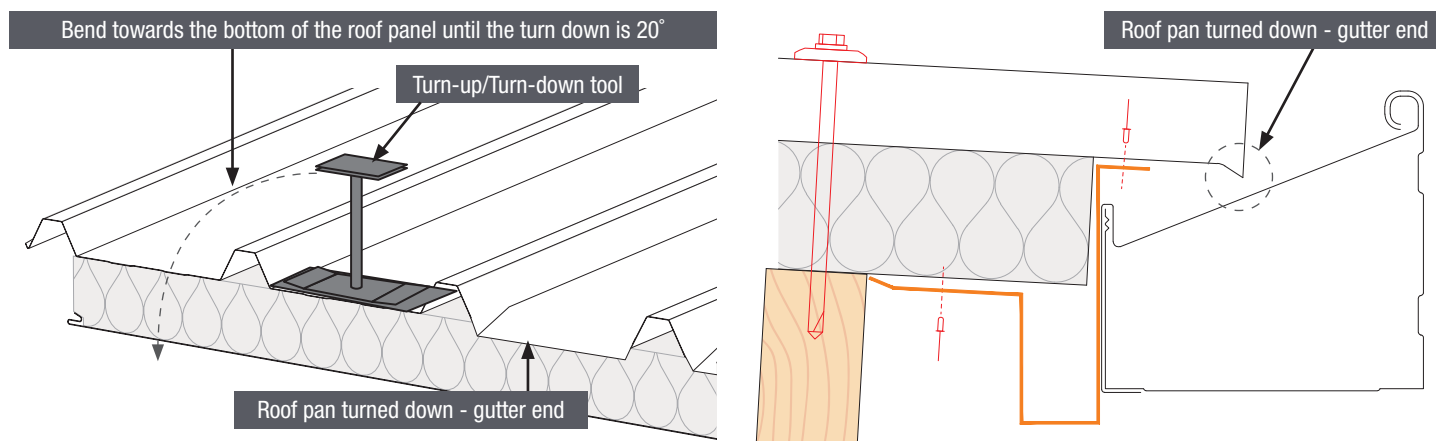
Step 9: Peel Back Plastic

Peel back protective coating on all edges of the panel ensuring you are past the beam at the front of the patio.



Step 10: Turn Down Pans Gutter End 20°

Turn the panel back over and use the special Turn-down tool to turn each pan of the panel approx 20° into the gutter. Turn downs should be done while safely on the ground before installing into place. Turn up/down tools are available from Bondor®.



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Step 11: Installing Panel

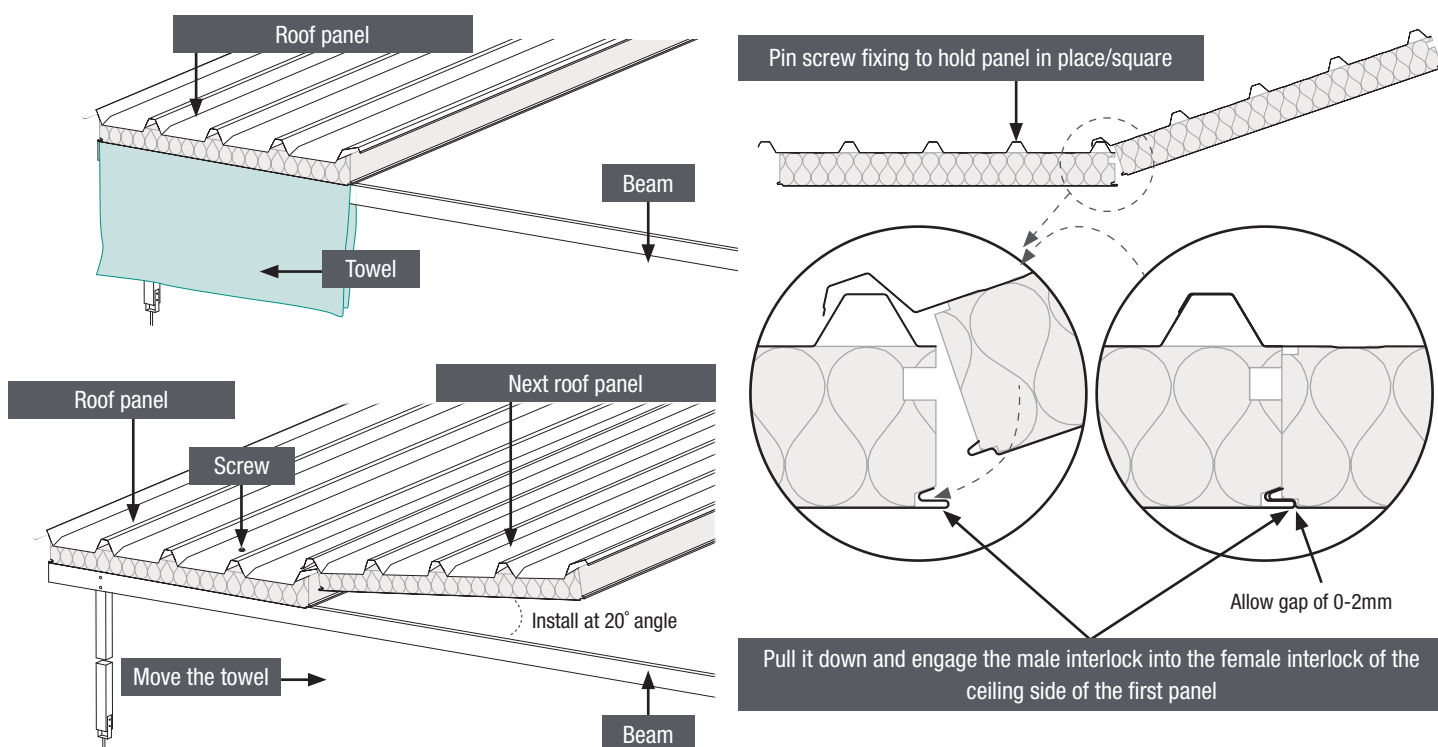
Place a towel or blanket over the beams that the first panel will be in contact with. Place the cutback end (gutter or low end) on to the covered beam and then push the panel back into the rear receiver channel.

Square off this first panel. Pin with a screw fixing in the top middle rib and with a rivet underneath receiver channel to hold it square and in place.

To install the second panel, place the overlay flap of the roof skin over the previously fitted panel and with the panel at approx 20° pull it down and engage the male interlock into the female interlock.

Slide this second panel towards the back receiver channel. To be sure you are successful, the ceiling join should be a neat 'V' join, with 0-2mm of the male interlock showing.

Screw fix to the beam and rivet bottom of the receiver channel ensuring your line is square.

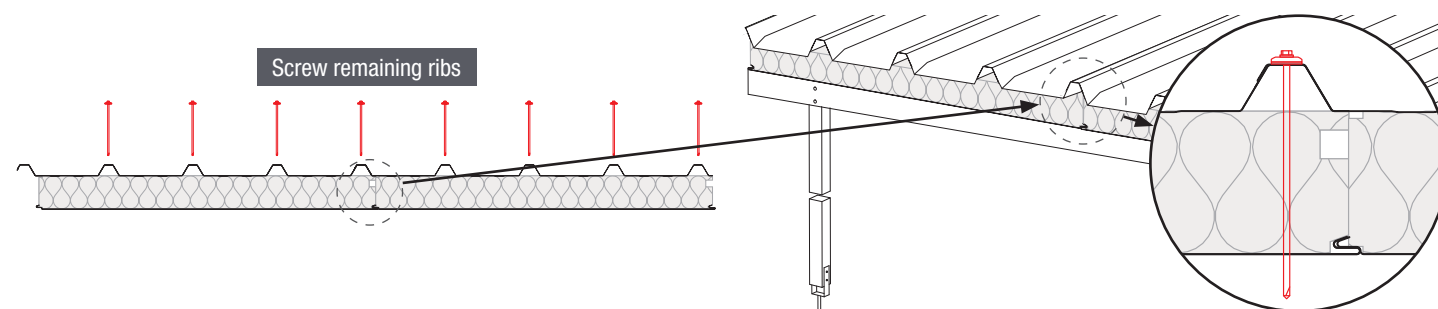


Handy Tip

Refer to SolarSpan® Naturelite® Skylight Installation Instructions if installing the skylight.

Step 12: Screw Down Remaining Ribs

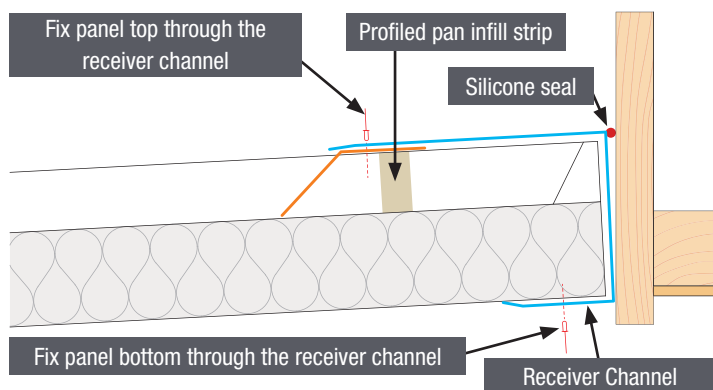
Screw down the remaining ribs per fixing recommendations.



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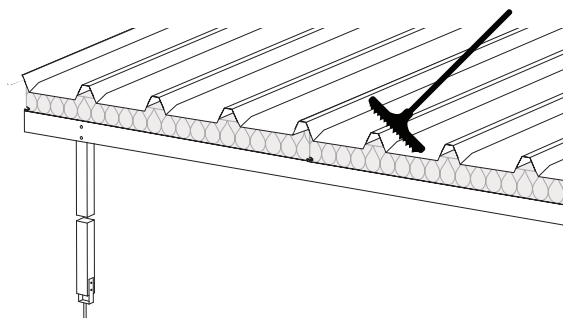
Step 13: Fix to Receiver Channel

Fix receiver channel to the top (above ribs) and the bottom of the panel.



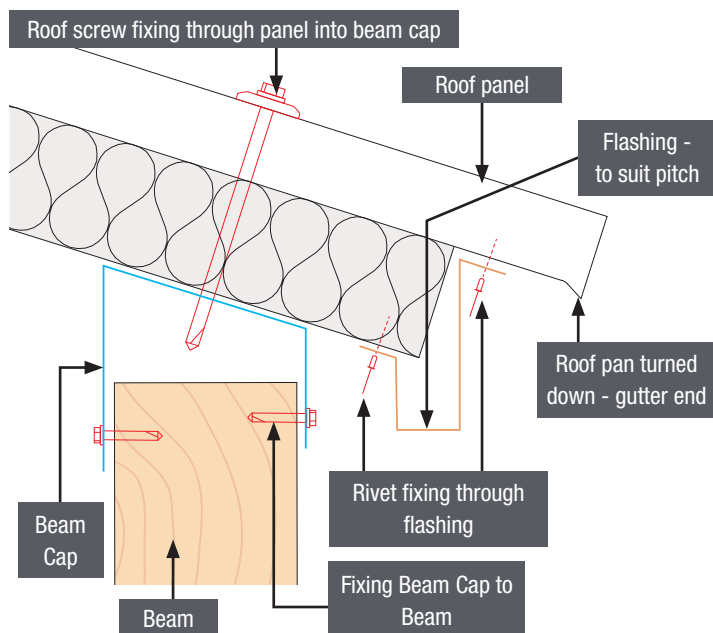
Step 14: Clean Down Roof

Once roof fixings are installed use a soft broom to sweep swarf and debris off the roof surface before installing flashings. Once flashings and gutter are installed clean the flashings and roof using the same method. Ensure gutters are clear from swarf and debris to prevent corrosion. A wet microfiber cloth can be used on COLORBOND® to clean down any marks.



Step 15: Steeper Pitches

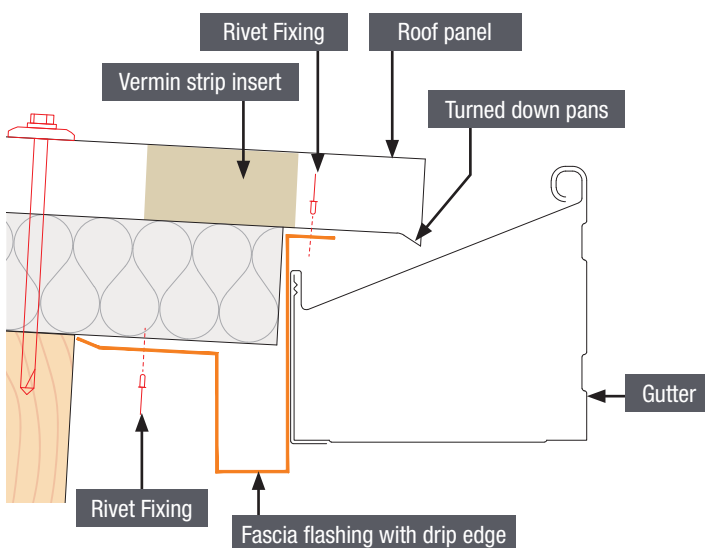
For steeper pitches ($> 7^\circ$), an angled beam cap that is designed specifically for the beam selected is recommended to provide a flat screwing surface beneath the panel. This will prevent screws from skewing off the perpendicular to the top skin and provide a more watertight finish on top.



Step 16: Vermin, Gutters, Downpipes

After all panels are fitted, vermin strips are to be inserted into every sheet (for SolarSpan® only) rib, then install fascia flashings, gutter, downpipes and barge flashings.

Gutter and downpipe sizes should be selected in accordance with good plumbing practice to adequately service the requirements of the additional roof area, plus handle additional water for any gutters and downpipes that were removed from the existing house roof.



Rough-in-Lighting and Other Electrical Services Instructions

WARNING: Always consult your licensed electrician for advice on details for cable installation. Ensure all services are clear of the top wall plate centre cavity where roof fixing screws will penetrate.

InsulRoof®/SolarSpan® panels have a services duct (at least 20mm x 20mm) on the female (under lap) joining edge which accommodates a standard size conduit for electrical cables for ceiling lights and fans.

Step 1: Mark Entry

Mark the entry location of the feed wires on the InsulRoof®/SolarSpan® underside.

Step 2: Mark Exit

Mark the exit location of the feed wires for fan/light fittings on the InsulRoof®/SolarSpan® underside.

Step 3: Drill Underside

Drill through the underside metal skin at the marked locations and remove the excess polystyrene.

Step 4: Form Hole

Drill and form a hole through the services duct to the exit and entry hole on the underside.

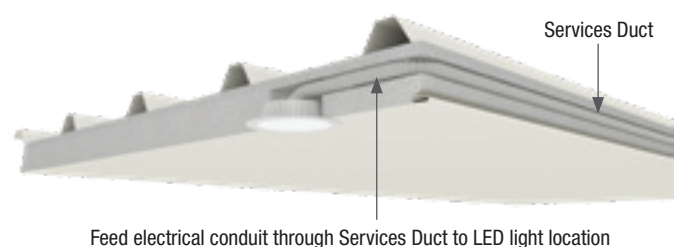
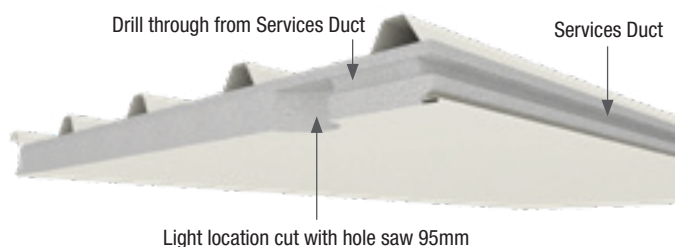
Step 5: Feed Conduit

Lift the InsulRoof®/SolarSpan® panel into position. Feed the conduit up from the wall panel into the entry hole on the InsulRoof®/SolarSpan® panel, along the services duct and out the exit hole.

Step 6: Screw Off

Complete the final screw off, fixing through the InsulRoof®/SolarSpan® panel ribs/crests into the top wall plates or support beams.

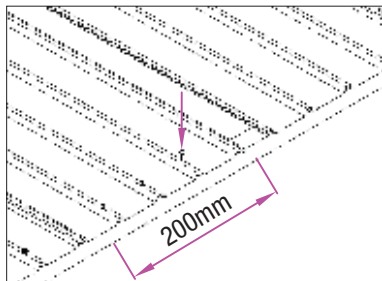
Handy Tip: Other options of electrical services are running above dropped ceilings or bulkheads or under slab.



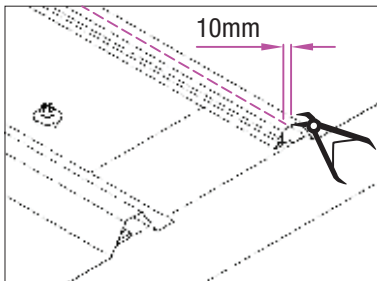
SolarSpan & InsulRoof Patio Design & Install Guide

SolarSpan® Naturelite® Skylight Installation Instructions

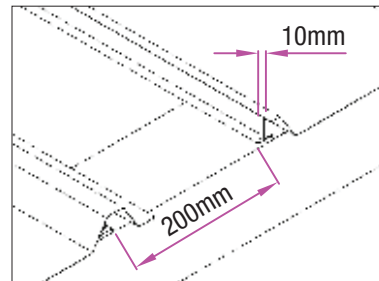
Caution: Metal roofing edges can be sharp; cut resistant gloves, appropriate clothes and shoes, safety glasses and other appropriate PPE should be worn at all time during the installation.



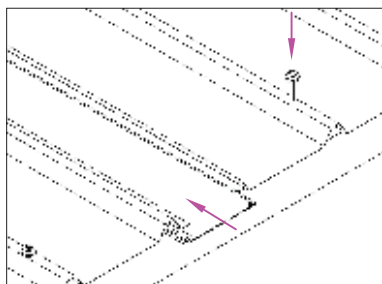
Step 1: Install and fix into position the SolarSpan® insulated roof panels in direction of the roof overlap, except for the panel before the Naturelite® skylight.



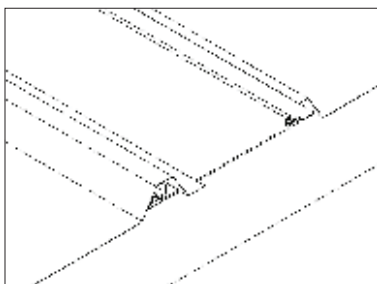
Step 2: Prepare the next SolarSpan® insulated roof panel by cutting all but 10mm off the roof overlap edge using metal nibblers.



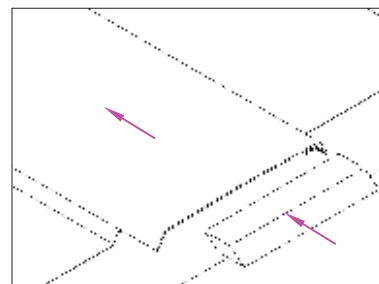
Step 3: Put the next adjoining roof panel in place with a gap of 200mm from the last SolarSpan® roof panel.



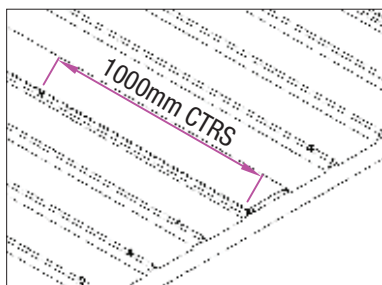
Step 4: Insert and slide the Naturelite® ceiling diffuser panel into position between the two SolarSpan® panels selected, adjusting the last roof panel as needed then tack down into position.



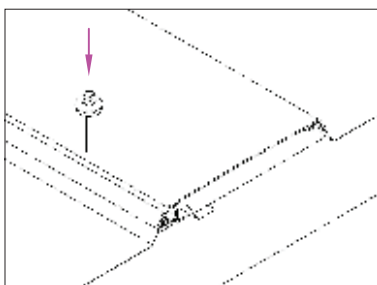
Step 5: Check the Naturelite® and SolarSpan® ceiling underside is flush and level. The ceiling sheet now forms a spacer for fitting the Naturelite® skylight roof panel.



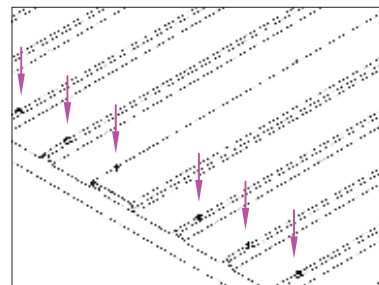
Step 6: Insert the leading edge of the Naturelite® skylight roof panel clip over the roof overlap and then slide into position. Note, any rough edges may obstruct sliding of panels. Ensure the non-clip side sits flush on top of the adjoining SolarSpan® roof rib. Then fit Naturelite® skylight insert stopend to fill the gap at the gutter end to prevent water and insects entering the cavity.



Step 7: Predrill **oversized holes** on the non-clip side of the Naturelite® skylight roof panels every 1.0m through the top of the underlap rib or side. Install 10g or 12g fasteners at 1.0m intervals across the underlap side of the roof. Do not overtighten the screw.



Step 8: Predrill **oversized holes** (8-9mm) on the non-clip side of the Naturelite® skylight roof panels to suit 14g roof fasteners, in preparation for fastening the roof panel to the supporting beam.



Step 9: No fasteners are required on the clip side.

Step 10: Brush metal swarf and debris clean off the roof at the end of project.

Step 11: Insert optional profile cut skylight stop end above fascia flashing below the SolarSpan® Naturelite® skylight roof profile for added protection of any open voids (ask your SolarSpan® representative for more information, limited colour options available).

Clean up and Maintenance

Ensure all metal filings (swarf) are swept off and disposed of into bins as you install each sheet. These filings can leave unsightly stains on the surface of the sheet and also on floor tiles/pavers, etc, in the near vicinity.

Intermittent cleaning of all surfaces not washed by regular rainfall will prolong the life of the products and keep them looking their best. A mild detergent solution is recommended ensuring the surfaces are always wiped off with clean water afterwards. Hosing of the ceiling is to be avoided as it will cause water to sit inside panel joins and flashings leading to possible corrosion.

Installation Checklist

Description	Completed (tick)	Name/Signed
Pitch equal to or greater than 2 or 5 degrees		
All roofing turn up / turn down done		
Trimming of underlay		
Downpipe selection suitable		
Clean down of roof and gutter (removing any swarf)		
Any incorrectly drilled holes are sealed		
Electrical completed by Licensed Professional		



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