



SUNLITE®

TWIN-WALL POLYCARBONATE SHEET

CATALOGUE & INSTALLATION GUIDE

1 Piece Joiner

2 Piece Joiner



Overview

SUNLITE twinwall sheeting combines the strength of polycarbonate with superior insulation due to its cellular structure.

SUNLITE is the only twinwall sheet available showcasing the Solarsmart technology, which lets in more visible light while reducing heat generating infra-red radiation.

SUNLITE comes as standard with double sided UV protection, providing 99.9% protection from harmful UV. Its impact resistance is 250 times that of glass. This combination makes SUNLITE the perfect material for both commercial and domestic structures such as pergolas, walkways, facades, skylights etc.

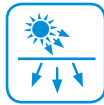
Main Benefits



Energy efficiency - High thermal insulation



Impact resistant



High light transmission



Weather resistance



99.9% UV protection



Easy to handle and install



High fire performance rating



Light weight



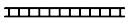
Typical Applications

- Architectural roofing and glazing
- Skylights and sidelights
- Conservatories
- Covered walkways
- Displays, signage and decorations
- Industrial roofing and glazing
- Residential roofing and glazing
- Covered swimming pools
- Agricultural greenhouses

Gallery

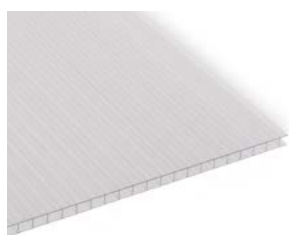


Standard Dimensions

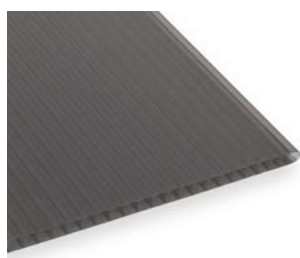
Structure	Thickness (mm)	Area Weight (Kg/m ²)	U-Value (W/m ² •°K)	Standard Width (mm)	Standard Lengths (m)
Twin Wall 	10	1.7	2.9	980	1, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 6.0, 7.0, 8.0, 9.0

Colour

Standard Colours



Clear



Solar Grey



Opal



Bronze

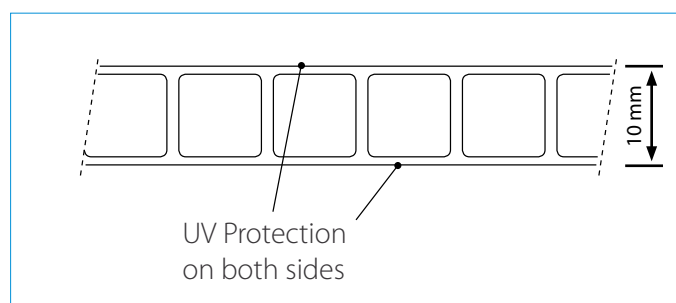
Solar Control Colours



Solar Control Grey

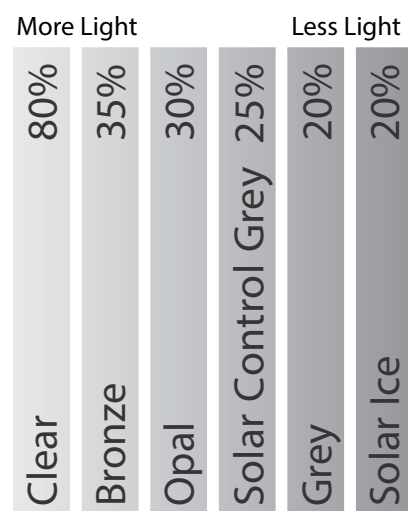


Solar Ice

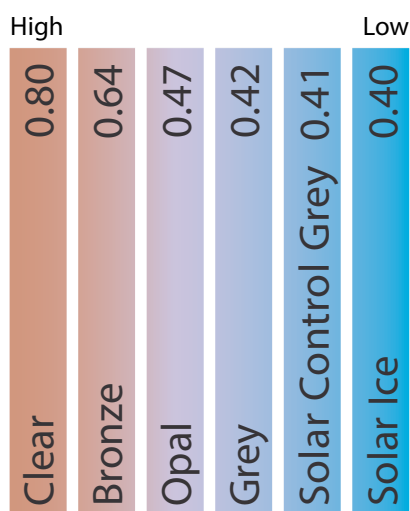


Light and Heat Transmission

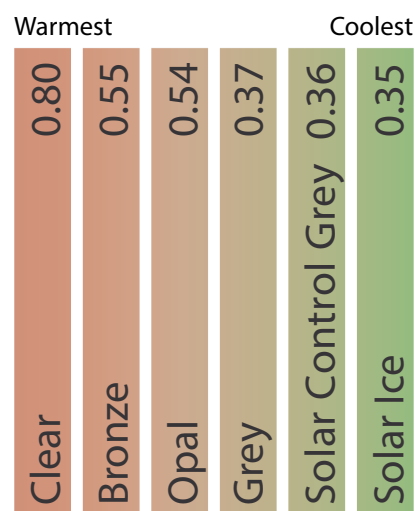
Light Transmission (LT)



Heat Build Up (Shading Co-efficient - SC)



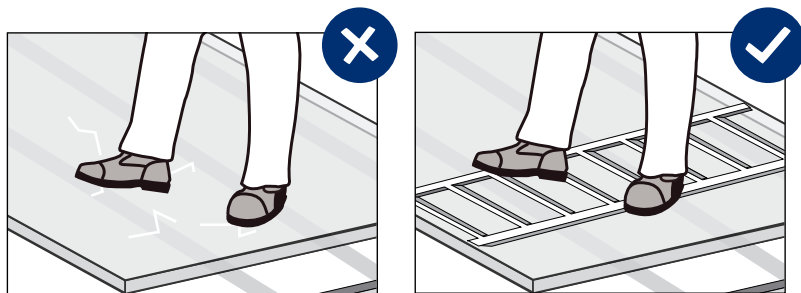
Solar Heat Gain Co-efficient (SHGC)



Important Notes Before Installation

- Carefully read all installation instructions before you start.
- Always exercise extreme care when working on a roof.
- Never walk directly on the sheeting, place a board over three rows of purlins or spread over rafters.
- Always wear eye protection when using power or cutting tools.

Safety comes first



Do not step directly on the sheets between the purlins!
When installing SUNLITE or doing maintenance work, always consider the sheet to be unfit to support a person's weight. Always use stepping ladders or crawling boards, supported by minimum three roof structural elements, when working on a glazed roof of any kind.



The Tools Required

- Cordless drill/driver
- 5/16 & 1/4 in hex drivers
- Rubber mallet
- Clamps
- Tape measure
- Set square
- Circular saw
- Hacksaw
- Handsaw
- Drill bits
- Gloves



Components: 1 Piece Joiner

Component	Part No.	Drawing	Availability
H Joiner (1 Piece Joiner)			Length: 6 m Finish: Anodised
Rubber Gasket	9006466 9012818		25 m Roll 50 m Roll
End Cap Lock	9001465		Sizes: 65 mm Finish: Anodised
Sheet End Cap	9001461		Length: 6 m Finish: Anodised
F Section	9003975		Length: 6 m Finish: Anodised
Timber Hex 12x40 Neo Screw fixes Sunlite H Joiner to timber	9001407		Quantity: 50/Pack
Metal Hex 12x35 Neo Screw fixes Sunlite H Joiner to metal	9001405		Quantity: 50/Pack
Metal Hex 8x12 C3 Screw fixes end cap lock to top of H joiner and F profile	9006433		Quantity: 50/Pack
Blocking Tape	9001307		Width: 25 mm Length: 45 m
Breather Tape	9003066		Width: 28 mm Length: 33 m

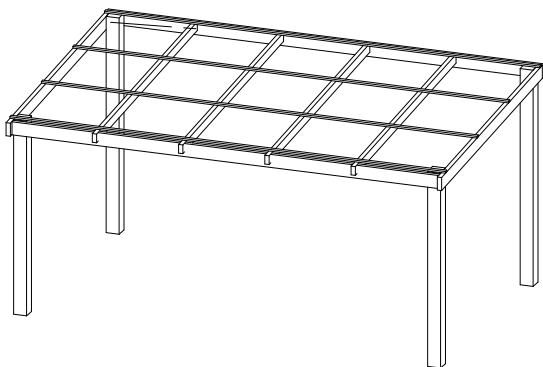
1 Piece Joiner | Installation: Pages 6-13

Roof types

Installing Sunlite Twinwall roofing can be done over two basic roof types:

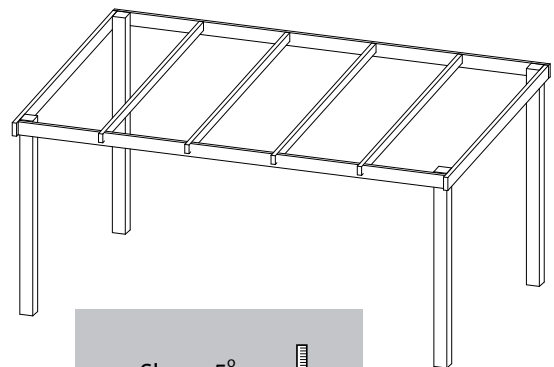
1. Purlins/ Battens

Installing over Purlins/Battens – max Batten spacing is 1.2m apart.

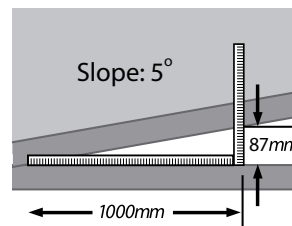


2. Directly onto rafters

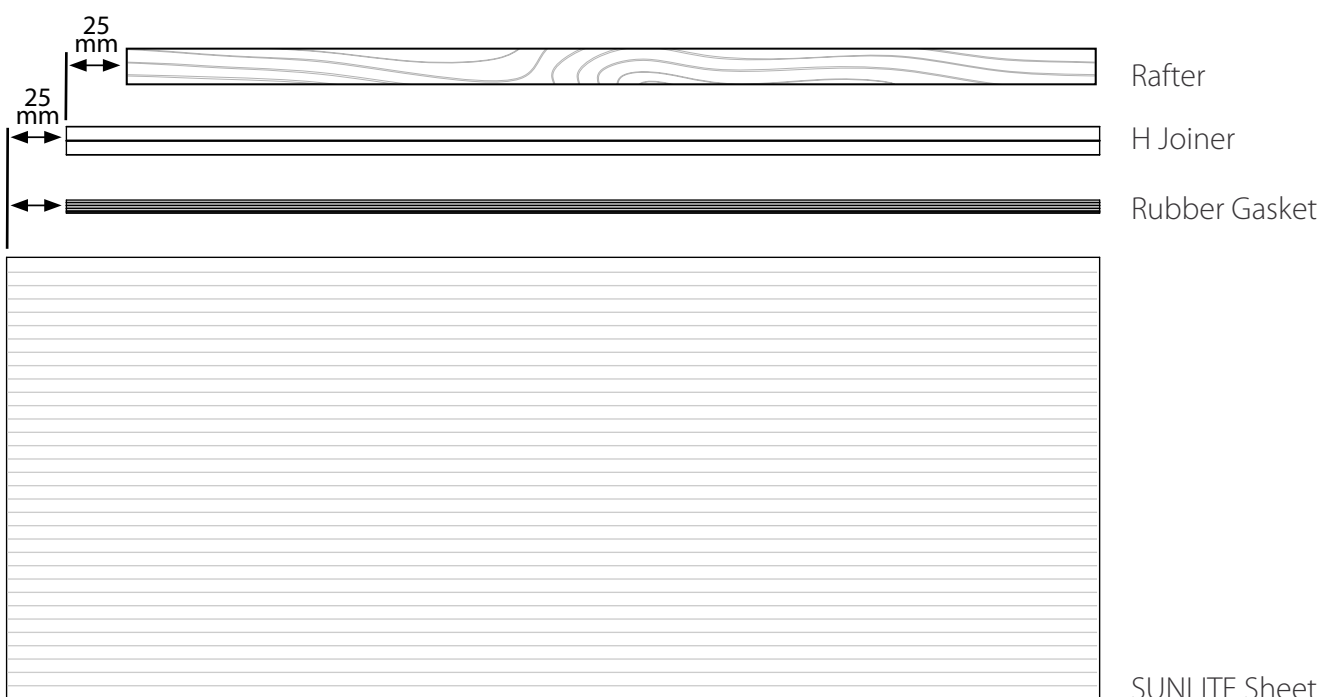
Installing directly onto rafters – the rafter needs to be at 1.0m centres. (Screws' spacing on each rafter: 500mm).



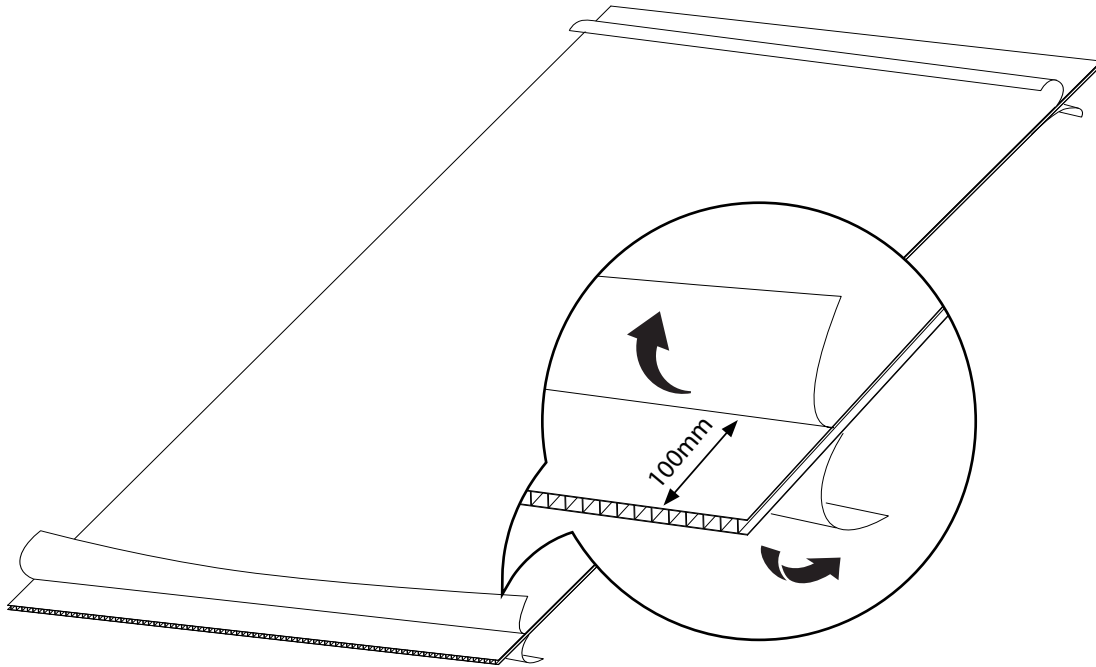
Make sure there is adequate fall of minimum 5 degrees (87mm per 1000mm). A good fall will aid in keeping the sheets clean.



3. Prepare the Sunlite Sheet by cutting and fitting a length of Gasket onto the sheet – trimming the gasket 25mm short of the sheet length. The gasket length should equal the length of the Joiner.
NOTE: In stand alone pergola the gasket and the Joiner should be 50mm shorter than the sheet length.



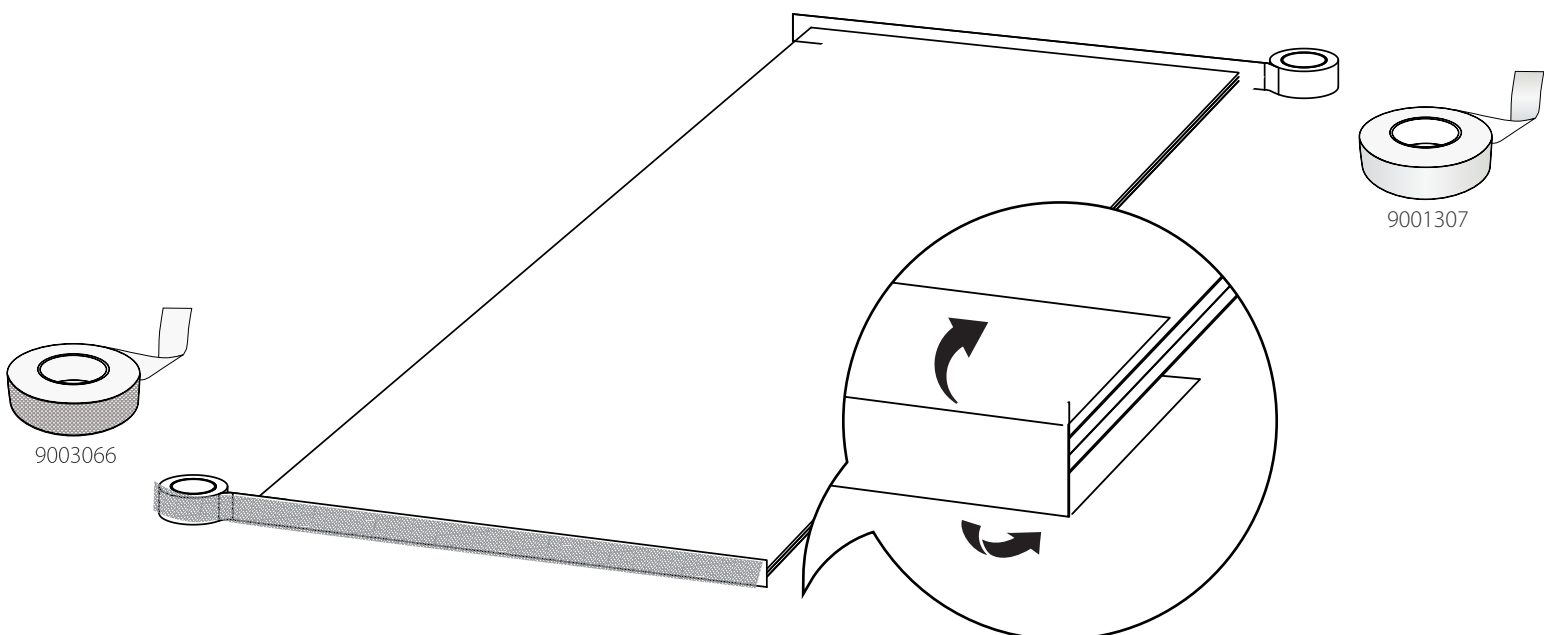
Preparation of sheets before installation: Remove 100 mm of protective film from the edges of both open sides of the sheet to allow the application of the sealing tapes.



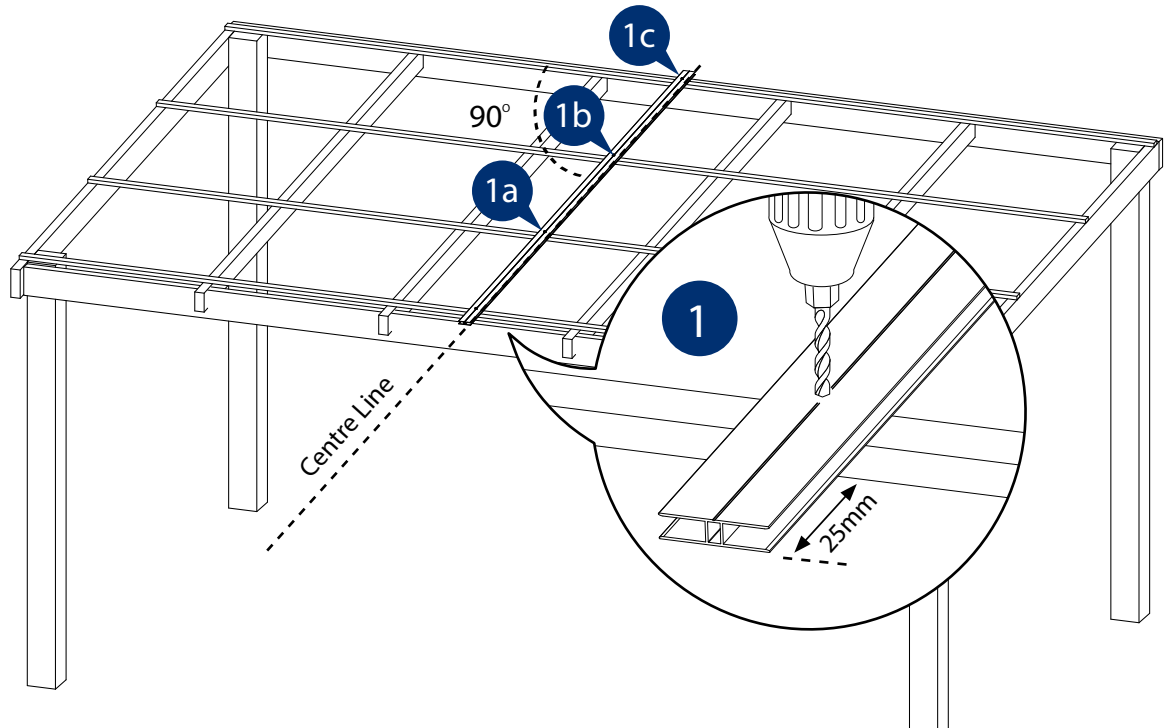
Apply the Breather tape to the **bottom** end of the sheet, and carefully fold the protruding sides over both sheet faces to cover the internal channels.

Ensure that all open channels of the sheet are sealed.

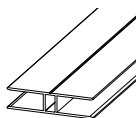
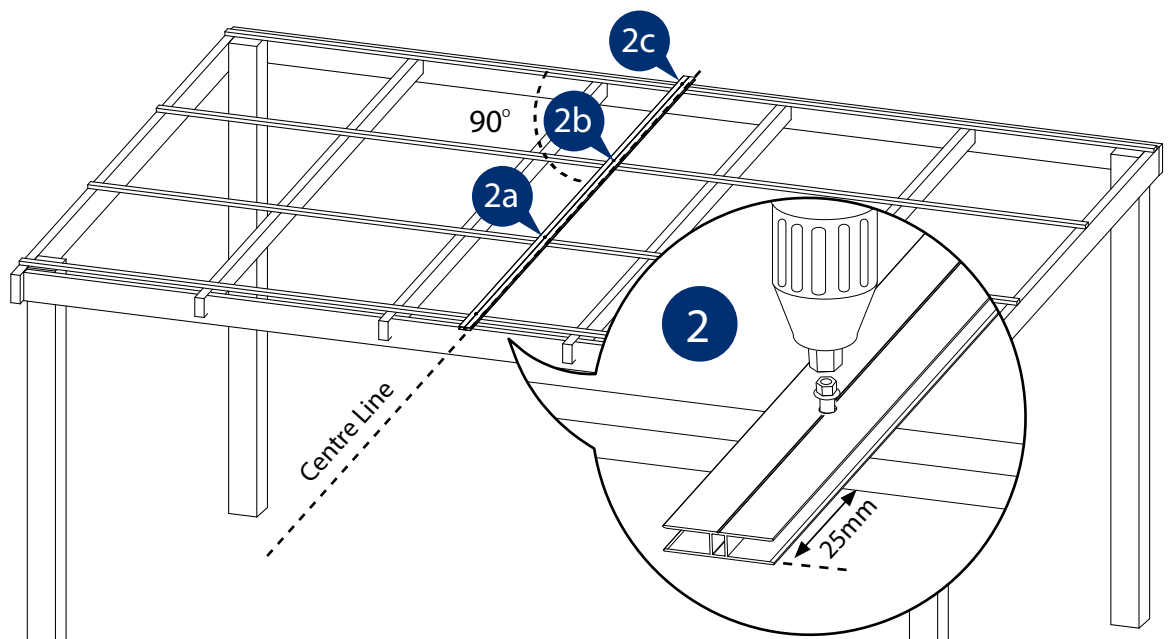
Apply Blocking tape over the **higher** end of the sheet, and carefully fold the protruding sides over both sheet faces to cover the internal channels.



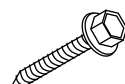
1. Pre-Drill an 8 mm clearance hole in the H-Profile onto each purlin (1a,1b,1c). **NOTE:** if the purlins are metal, use Metal Hex 12x35 Neo Washer. In this case pre-drilling is not necessary.



2. Fix the H-Profile to the purlins using Timber Hex 12x40 Neo Screws onto each purlin (2a,2b,2c).



H Joiner

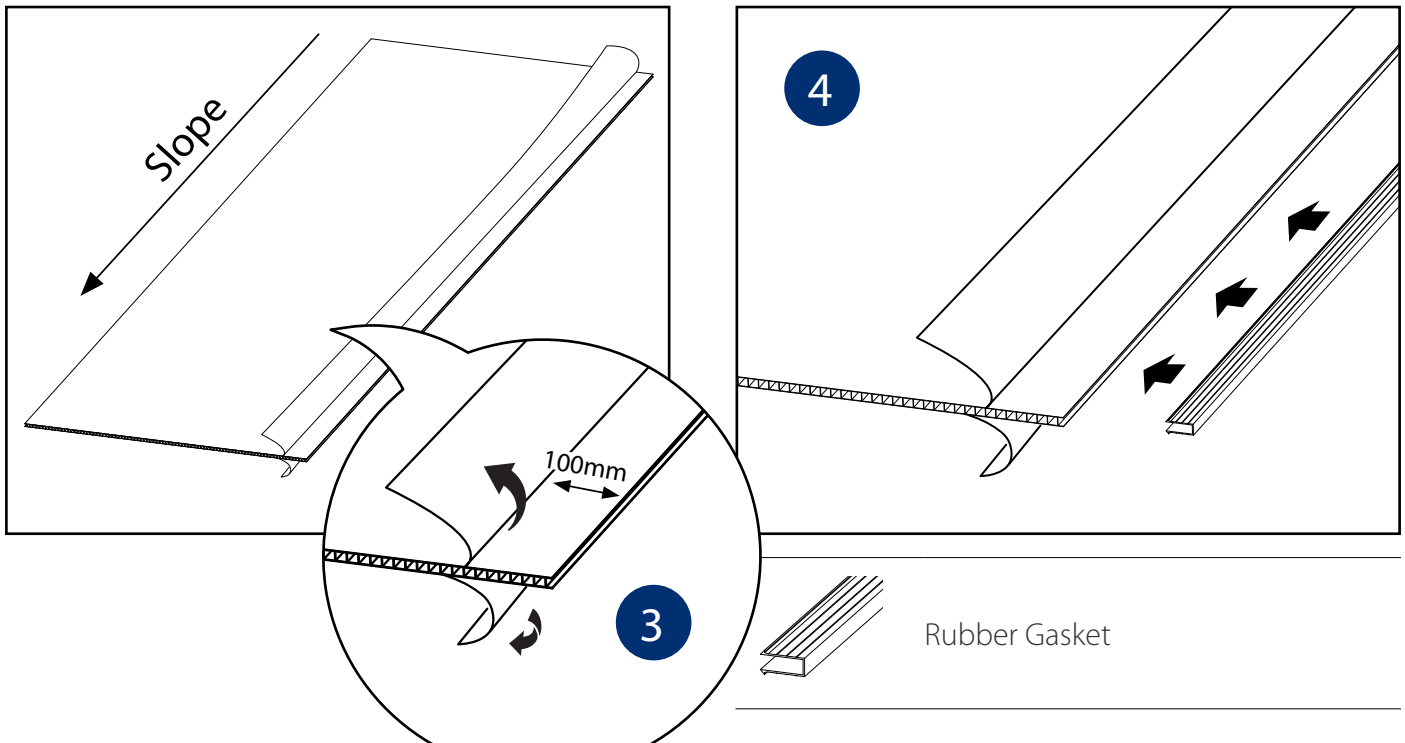


Timber Hex 12x40 Neo Washer

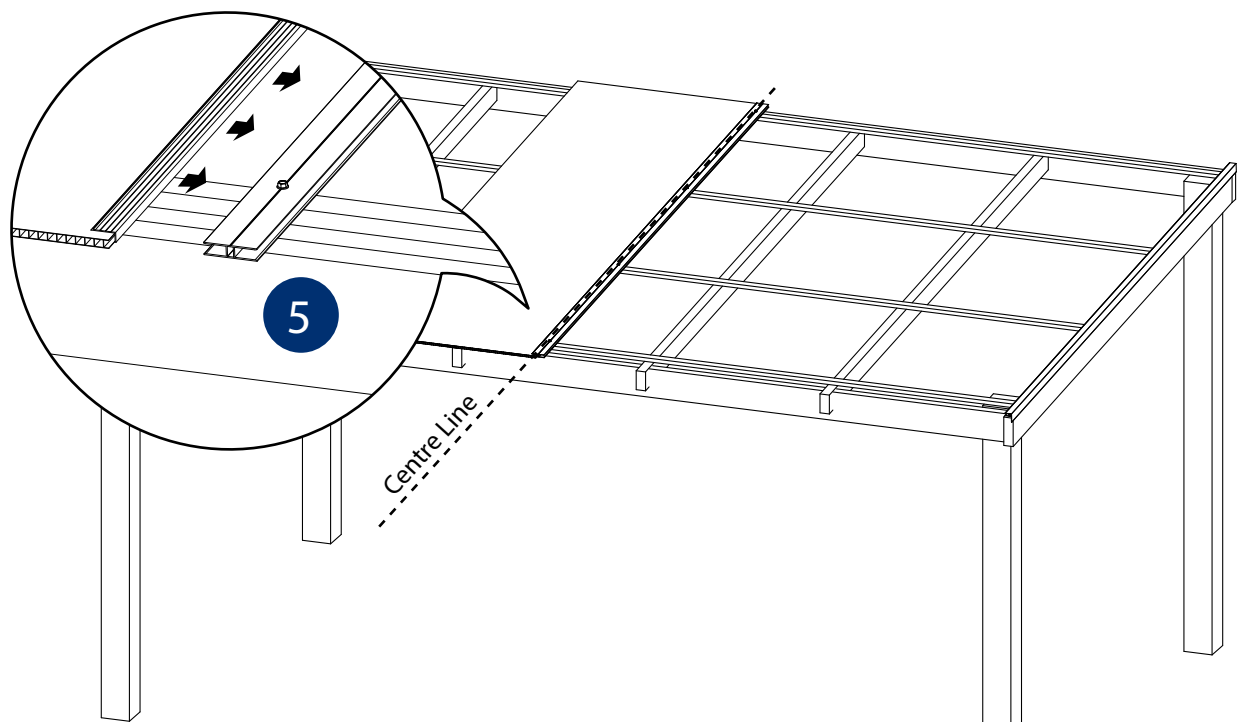
3. Peel off the masking along the edges of length sides at both sides of the sheet, for about 80-100 mm from the edges, preparing the sheet for the Rubber Gasket.

4. Apply Rubber Gasket

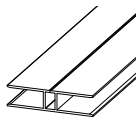
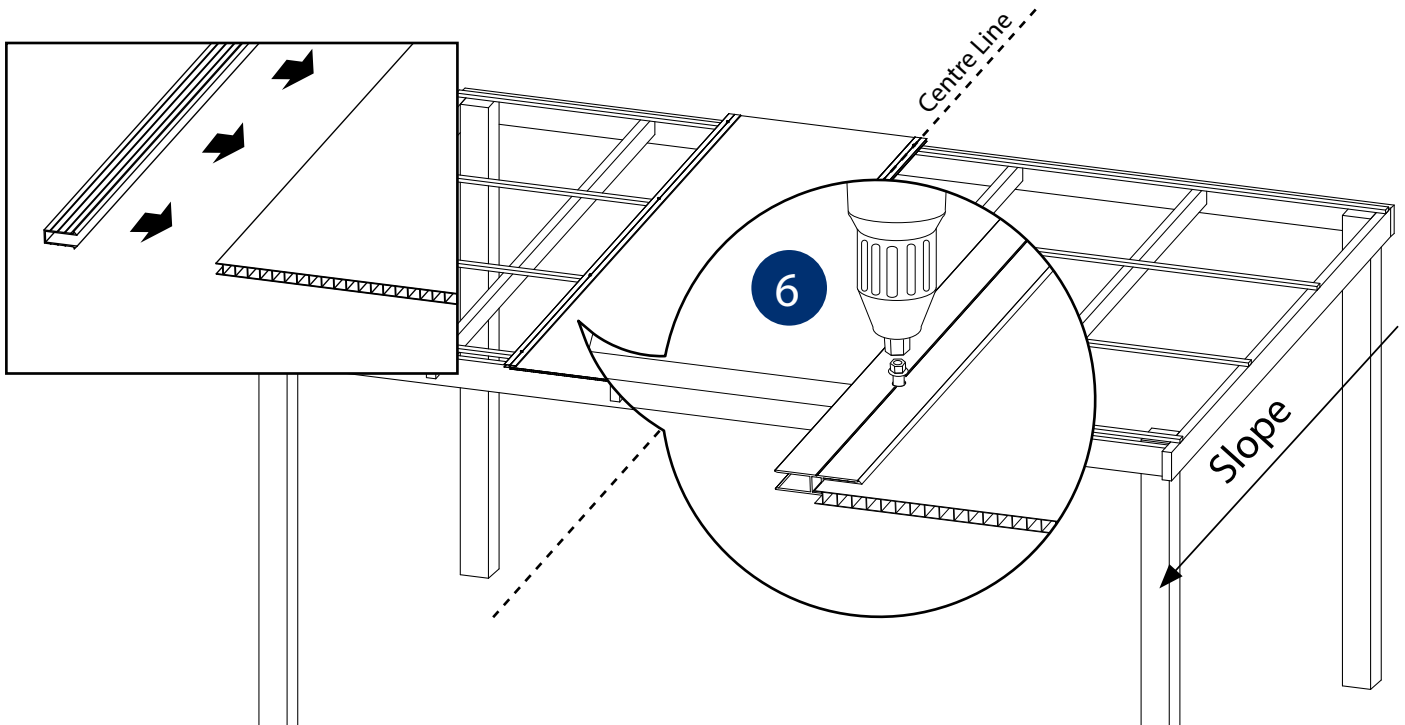
Hint: Keep the protective film on the sheet until installation is complete – this will prevent scratching etc during the installation process



5. Insert sheet into the Joiner until gasket is firmly wrapped



6. Apply Rubber Gasket and install the Second H profile aligning the end of each H profile

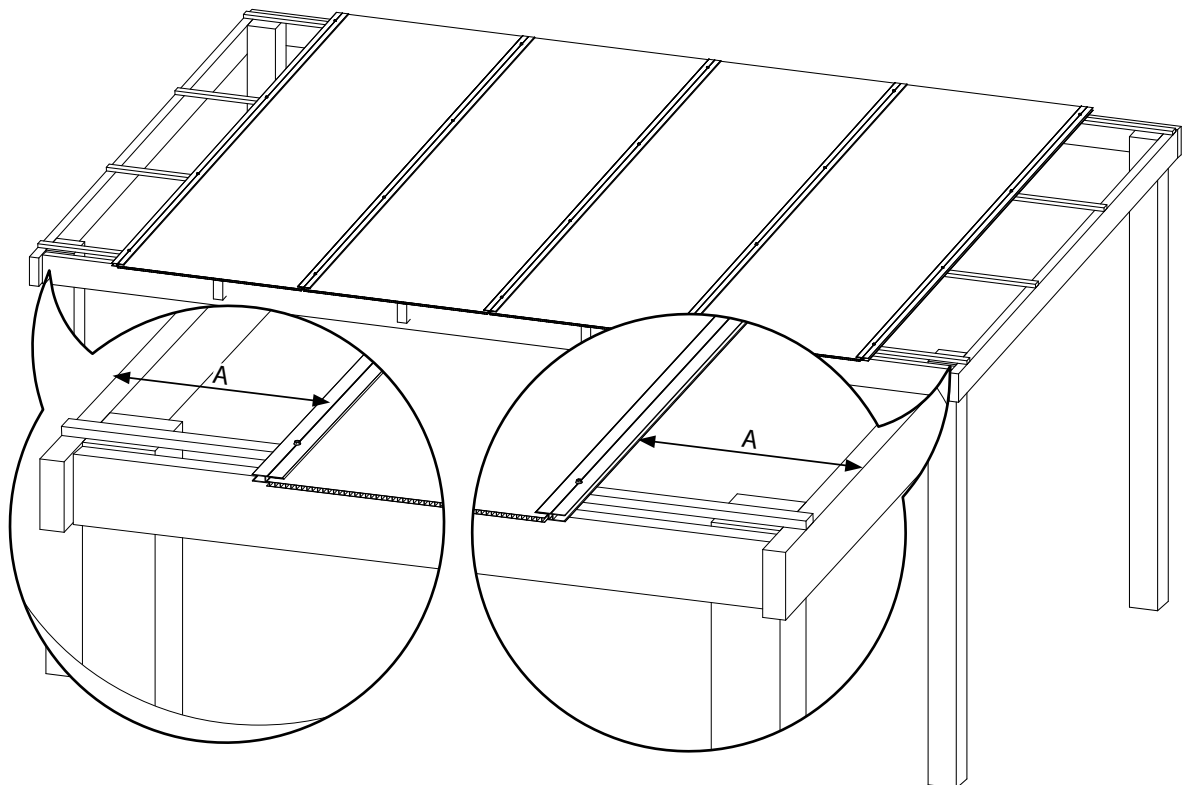


H Joiner

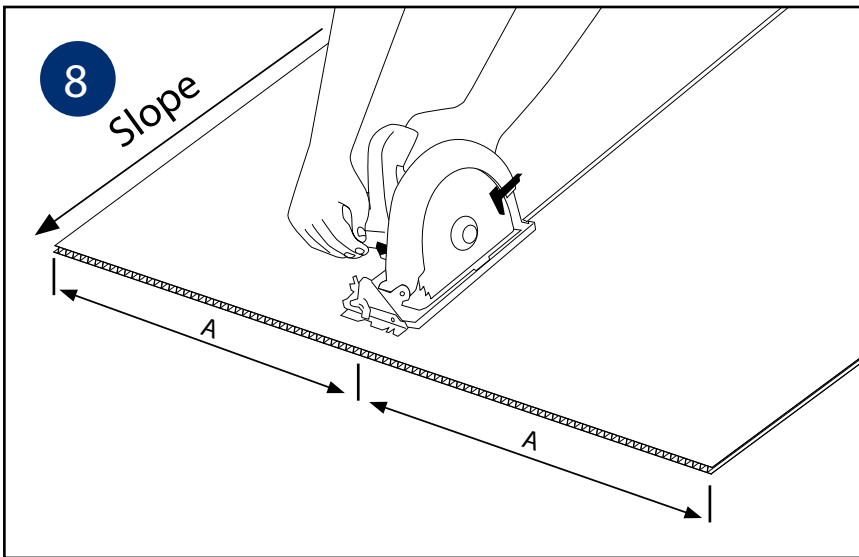


Timber Hex 12x40 Neo Washer

7. Install all SUNLITE sheets as shown in steps 1-5. Measure the uncovered area's width on both sides (A).

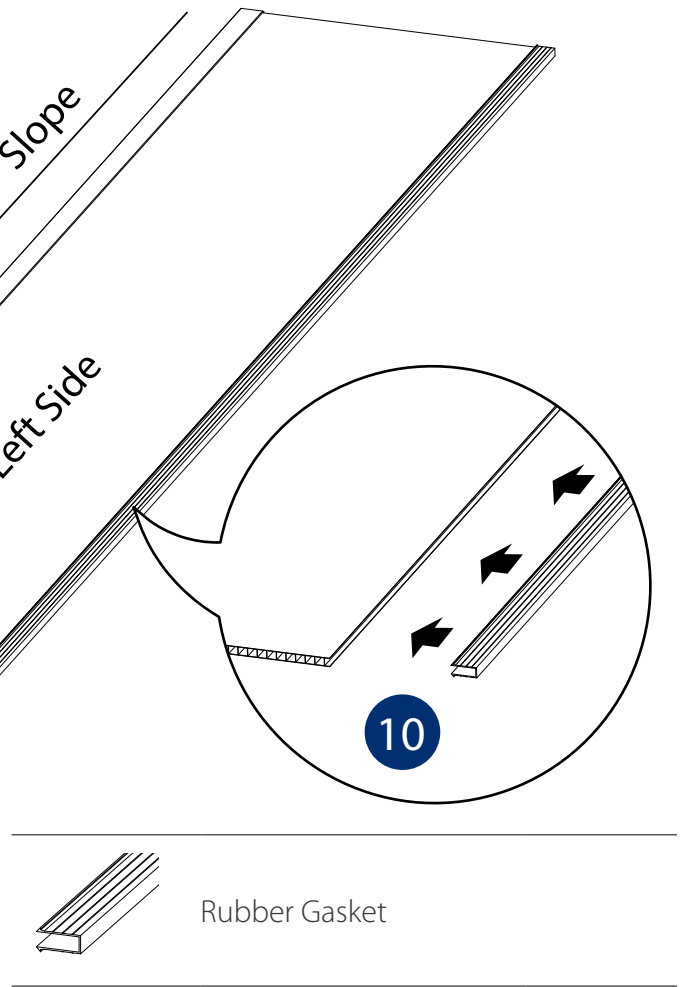
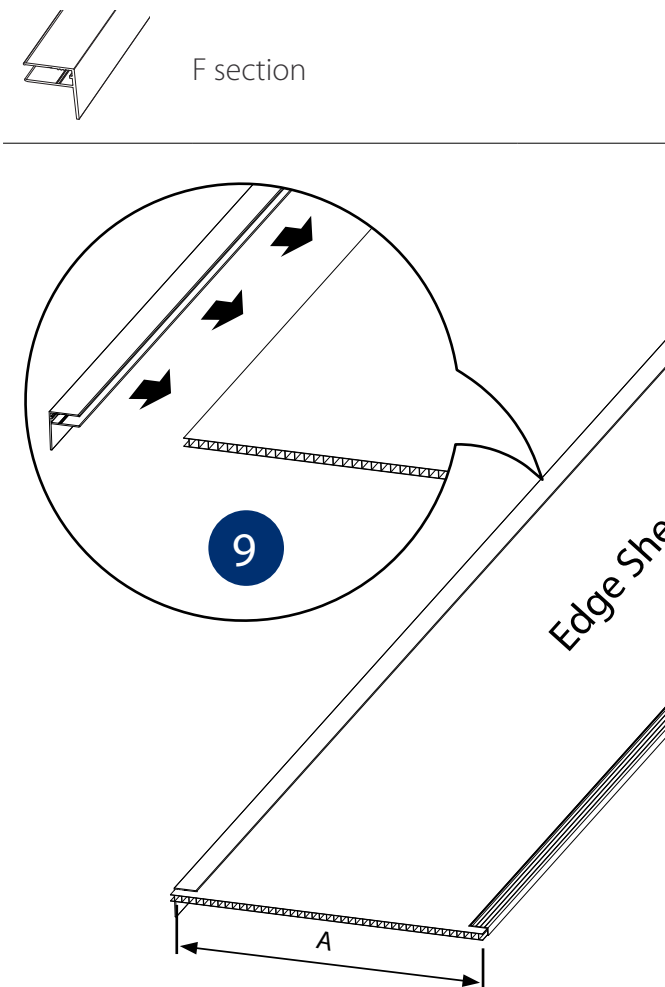


8. Cut the width necessary for both edge sheets.



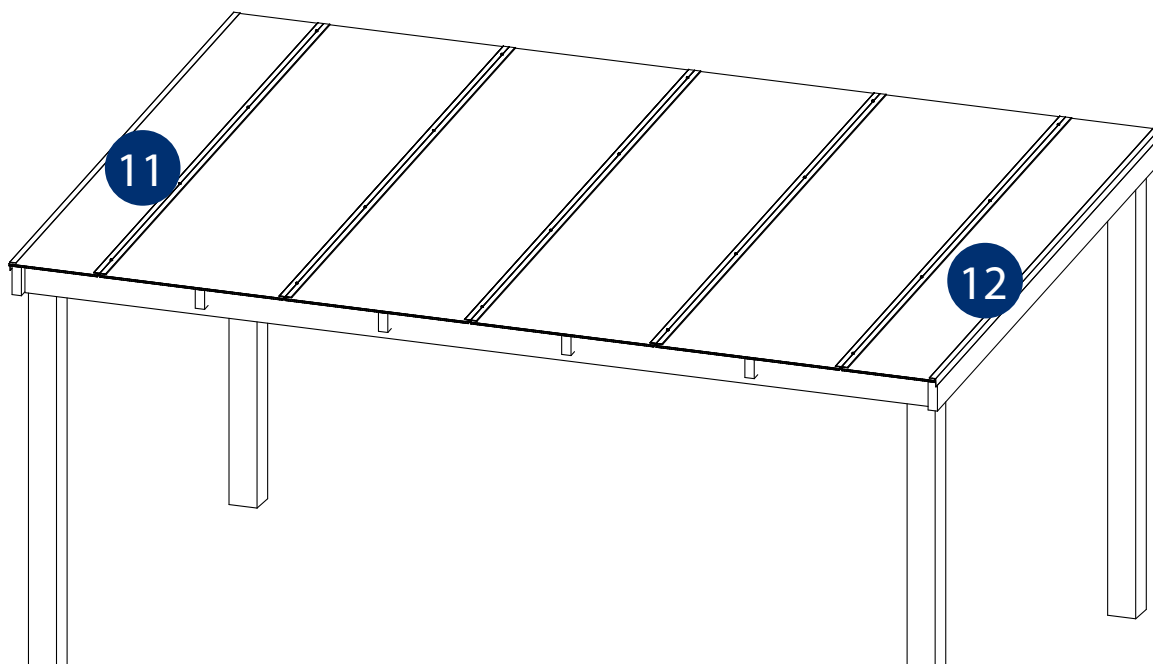
9. Apply the F section to the exterior side of each edge sheet.

10. Apply the Rubber Gasket to the interior side of each edge sheet.

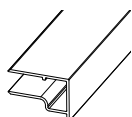
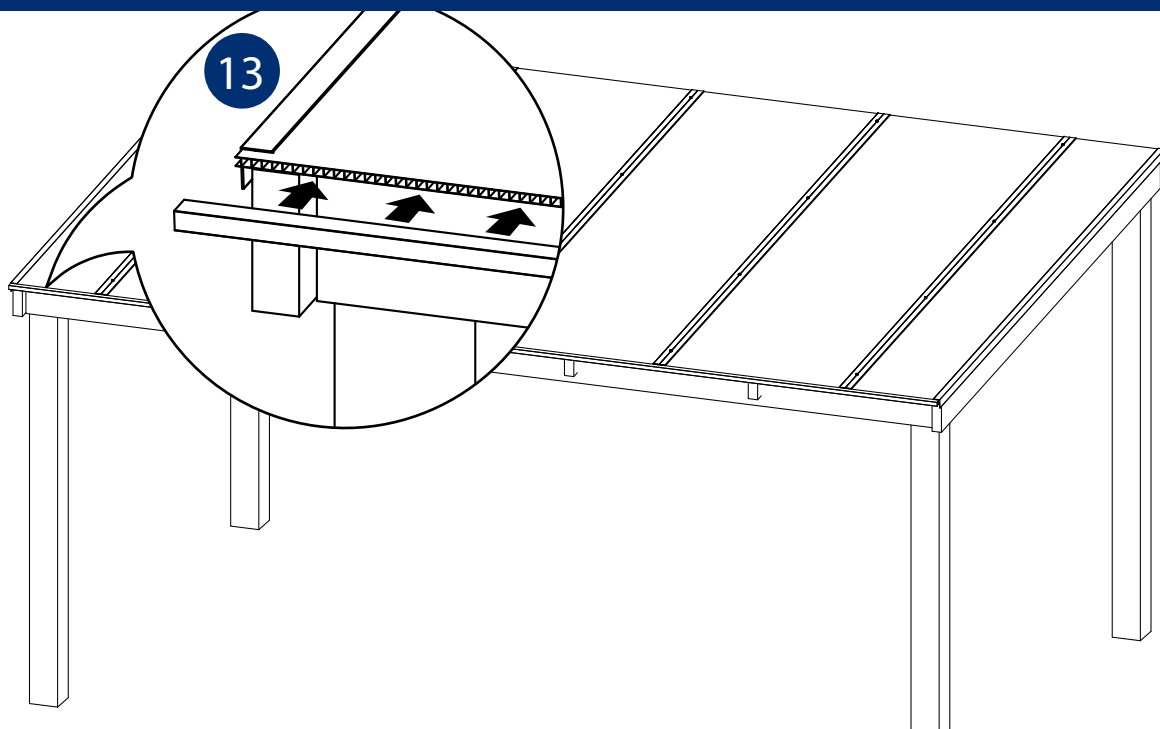


11. Install remaining left side sheet

12. Install remaining right side sheet



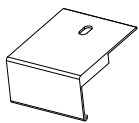
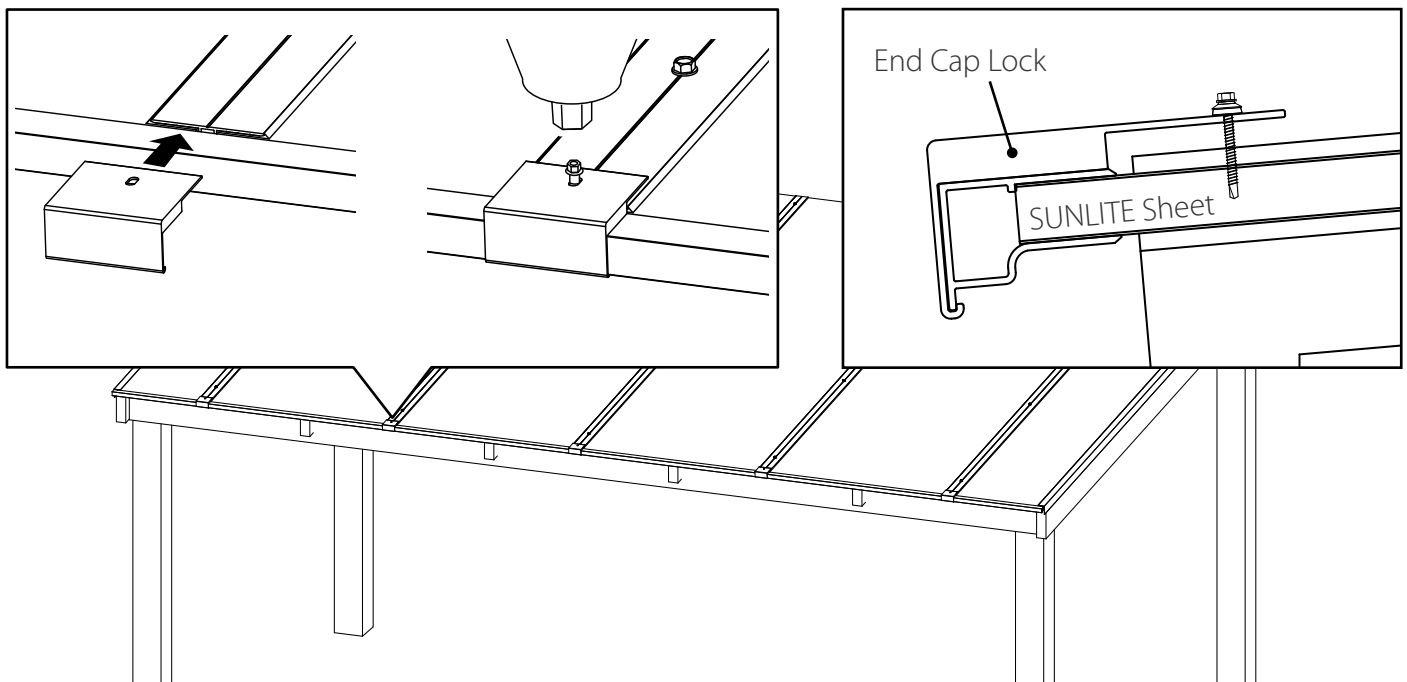
13. Align end edge of Sheet End Cap to outside edge of H Joiner. Tap & fit Sheet End Cap along bottom edge of sheeting to ensure a neat fit to H Joiner.



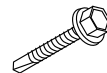
Sheet End Cap

NOTE: In case of a stand alone pergola we recommend to add a Sheet End Cap on the upper edge of the sheeting as well.

14. Fit Sheet End Cap Lock where Joiners meet – fit end of lock over the capillary lip of Sheet End Cap to ensure fitting. Fix the End Cap Lock using Metal Hex 8x12 C3

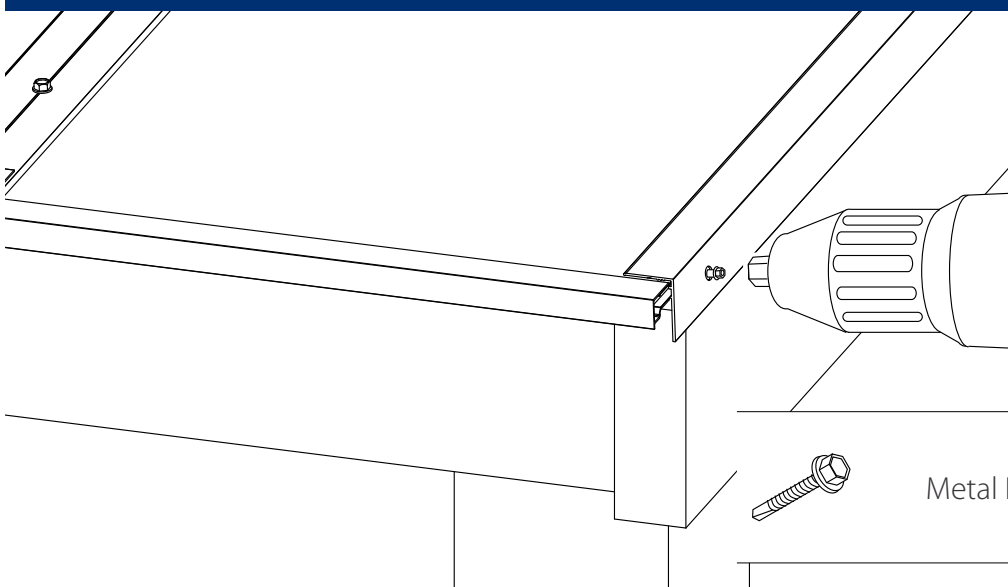


End Cap Lock (65mm) 9001465



Metal Hex 8x12 C3

15. Pre-Drill the F section and Fix it to the rafter using Metal Hex 8x12 C3.



Metal Hex 8x12 C3

NOTE: Other designated elements like gutters, closures, ridge caps, trimming, flashing etc. are not supplied by PALRAM and need to be specially fabricated according to specific design.

For Gable /Apex roof designs – repeat all steps and fit a Universal Ridge to crest of Gable/Apex section. Fix with 8g x 20mm hex screws as per above.

Components: 2 Piece Joiner

Component	Part No.	Drawing	Availability
Joiner Cover (2 Piece Joiner)	9001551		Length: 6 m Finish: Anodised
Joiner Base (2 Piece Joiner)	9001523		Length: 6 m Finish: Anodised
Captive Wedge	9012830 9012831		25 m Roll 50 m Roll
Foam Roll	9001497		20 m Roll
End Cap Lock	9001464		Sizes: 50 mm Finish: Anodised
Sheet End Cap	9001461		Length: 6 m Finish: Anodised
F Section	9003975		Length: 6 m Finish: Anodised
Timber Wafer Head 10x35 fixes Sunlite Base Joiner to timber	9001408		Quantity: 50/Pack
Metal Supa Low Head 12x18 fixes Sunlite Base Joiner to metal	9002058		Quantity: 50/Pack
Metal Hex 8x12 C3 fixes end cap lock & F profile	9006433		Quantity: 50/Pack
Blocking Tape	9001307		Width: 25 mm Length: 45 m
Breather Tape	9003066		Width: 28 mm Length: 33 m

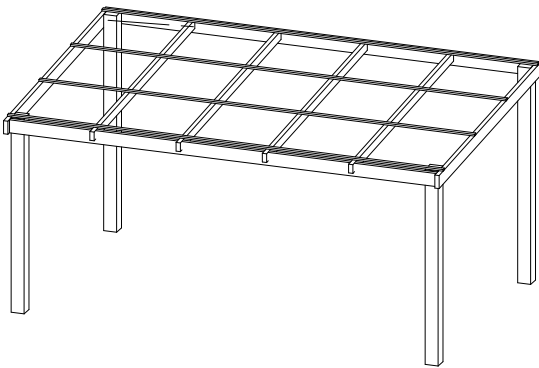
2 Piece Joiner | Installation: Pages 14-21

Roof types

Installing Sunlite Twinwall roofing can be done over two basic roof types:

1. Purlins/ Battens

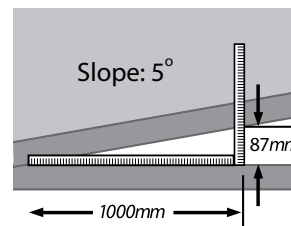
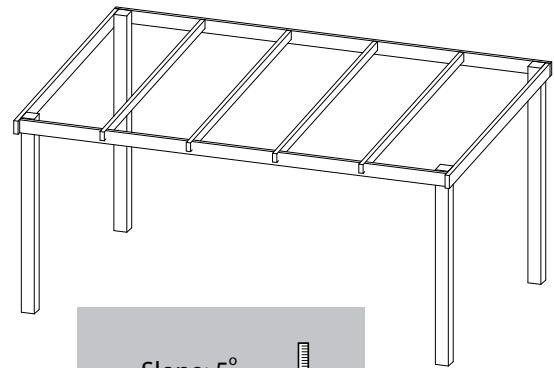
Installing over Purlins/Battens – max Batten spacing is 1.2m apart



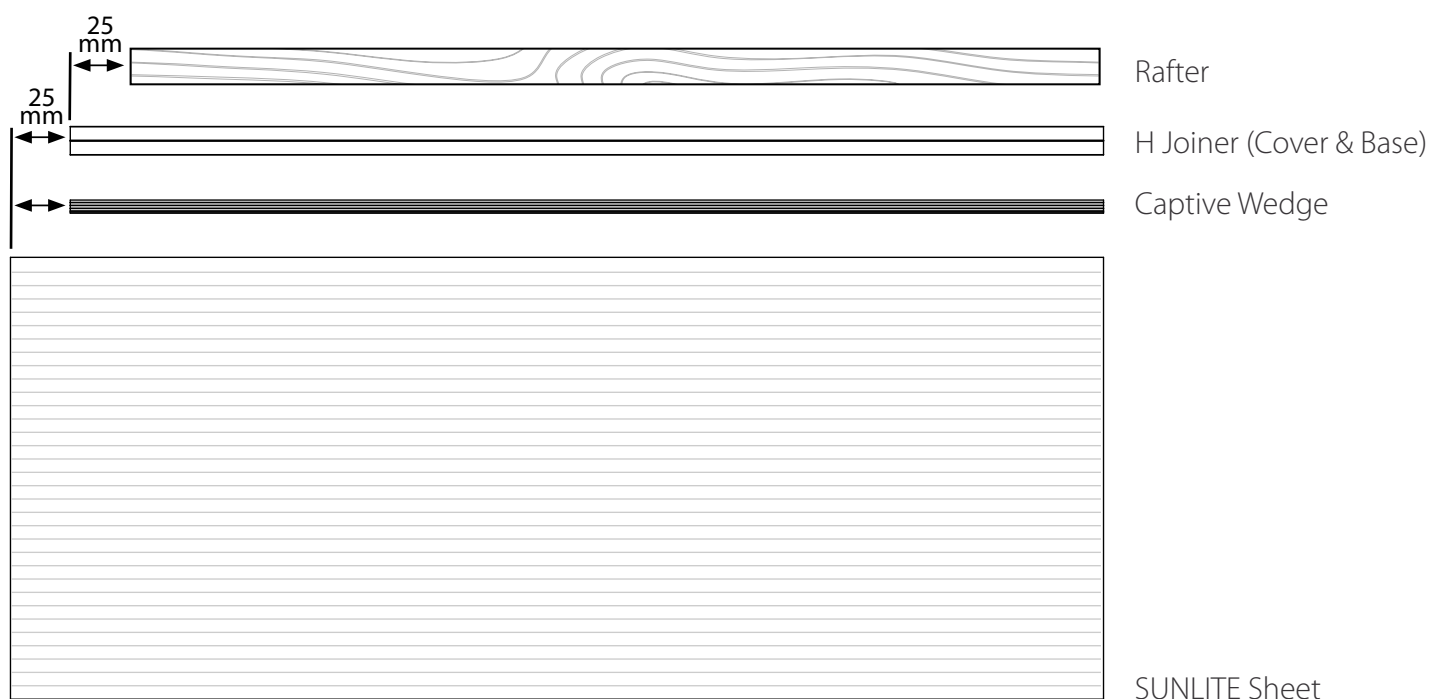
Make sure there is adequate fall of minimum 5 degrees (87mm per 1000mm). A good fall will aid in keeping the sheets clean.

2. Directly onto rafters

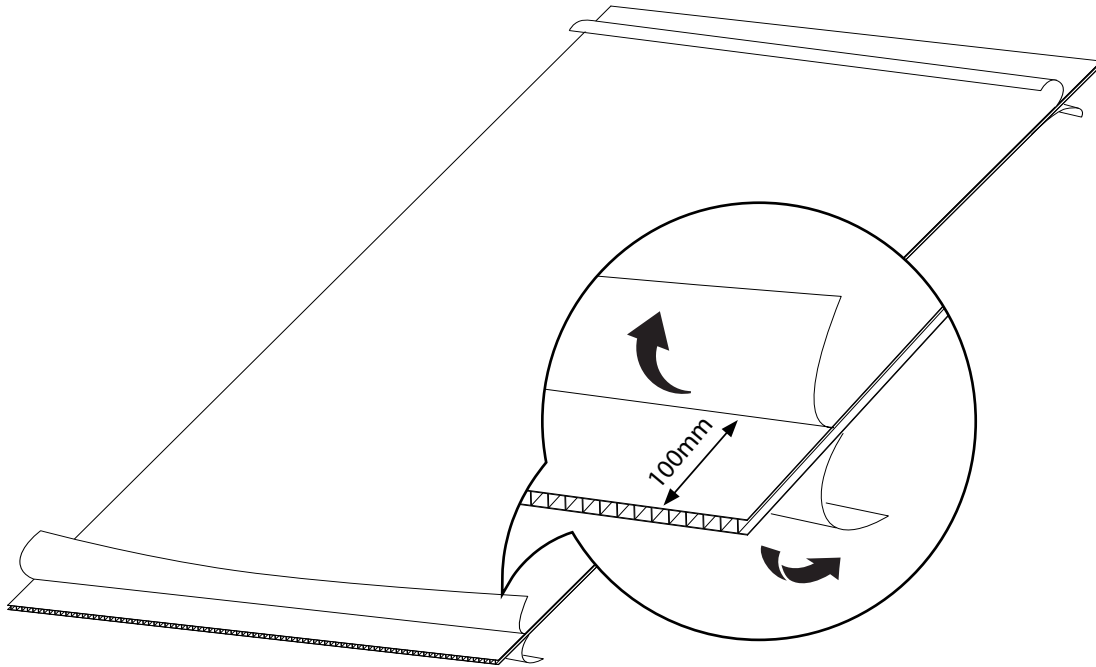
Installing directly onto rafters – the rafter needs to be at 1.0m centres. (Screw spacing on each rafter: 500mm).



3. Prepare the Sunlite Sheet by cutting and fitting a length of Gasket onto the sheet – trimming the gasket 25mm short of the sheet length. The gasket length should equal the length of the Joiner.
NOTE: In stand alone pergola the gasket and the Joiner should be 50mm shorter than the sheet length.



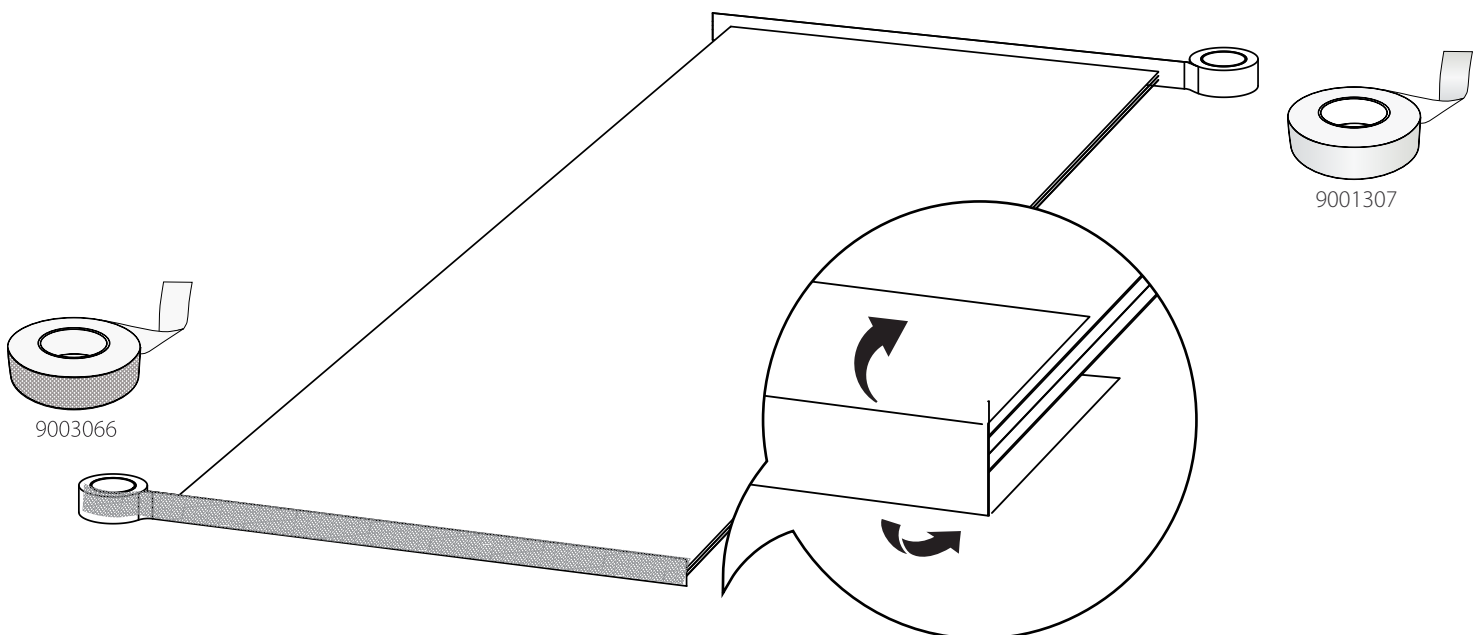
Preparation of sheets before installation: Remove 100 mm of protective film from the edges of both open sides of the sheet to allow the application of the sealing tapes.



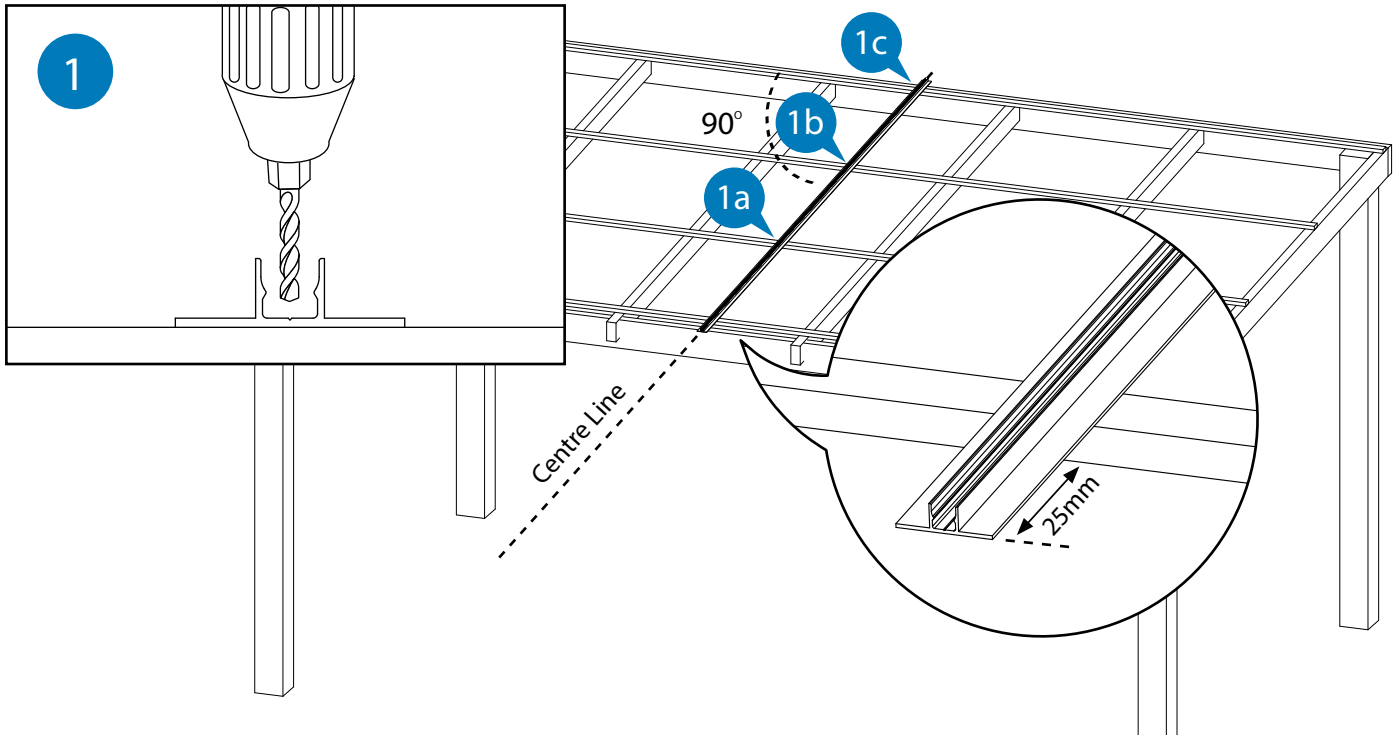
Apply the Breather tape to the **bottom** end of the sheet, and carefully fold the protruding sides over both sheet faces to cover the internal channels.

Ensure that all open channels of the sheet are sealed.

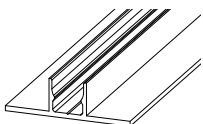
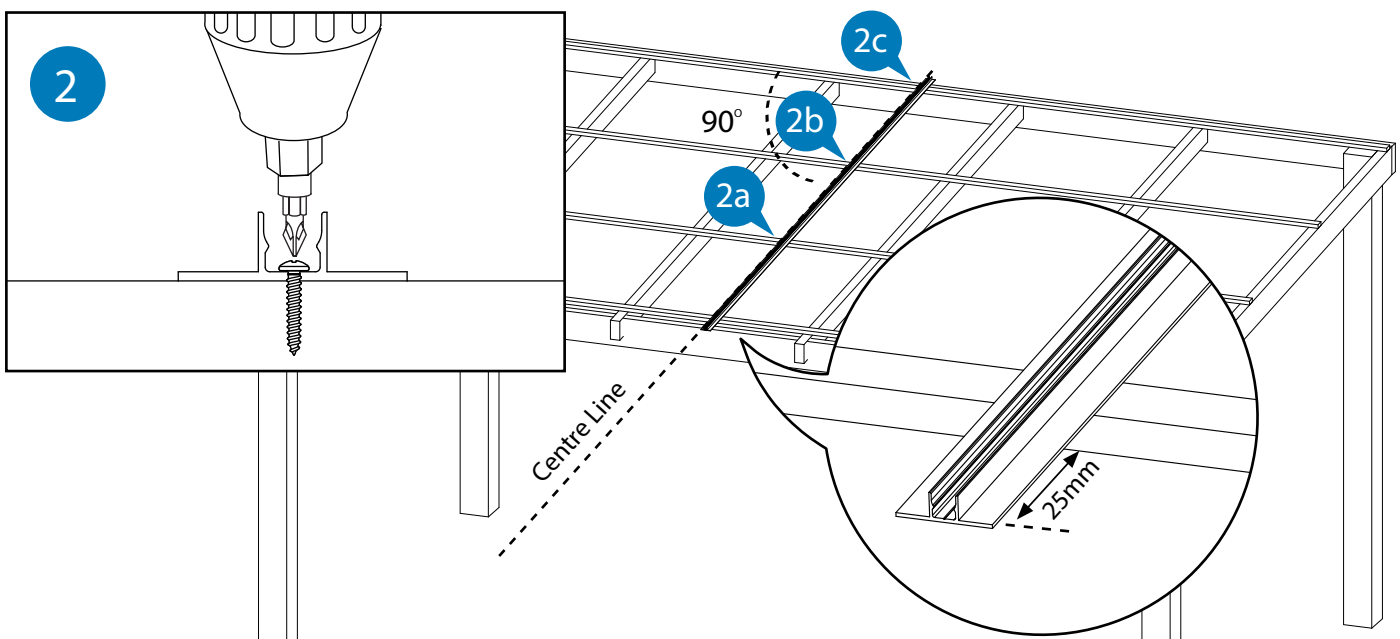
Apply Blocking tape over the **higher** end of the sheet, and carefully fold the protruding sides over both sheet faces to cover the internal channels.



1. Pre-Drill an 8 mm clearance hole in the Joiner Base onto each purlin (1a,1b,1c). **NOTE:** if the purlins are metal, use Metal Hex 12x35 Neo Washer. In this case pre-drilling is not necessary. 25mm spacing is the maximum allowable overhang.



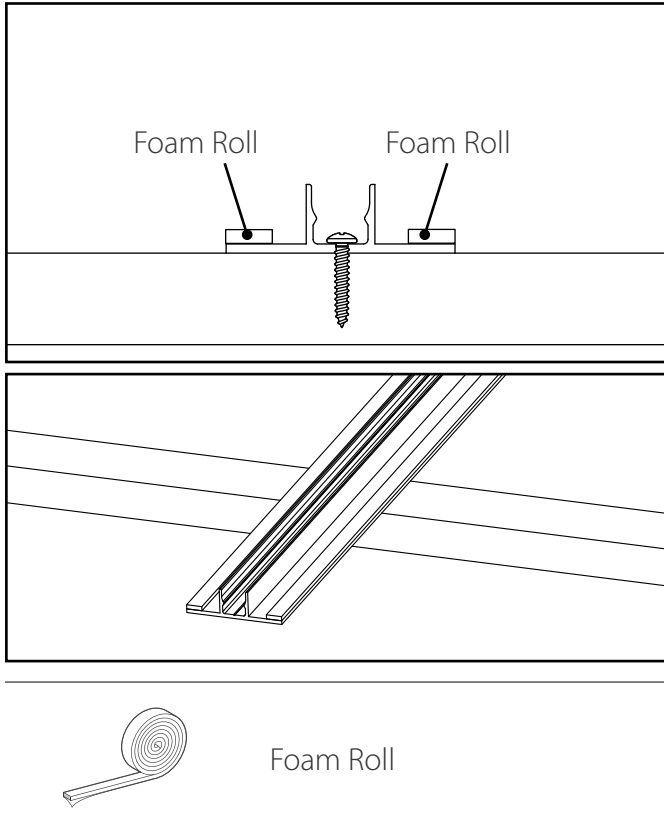
2. Fix the Joiner Base to the purlins using Timber Hex 12x40 Neo Screws onto each purlin (2a,2b,2c).



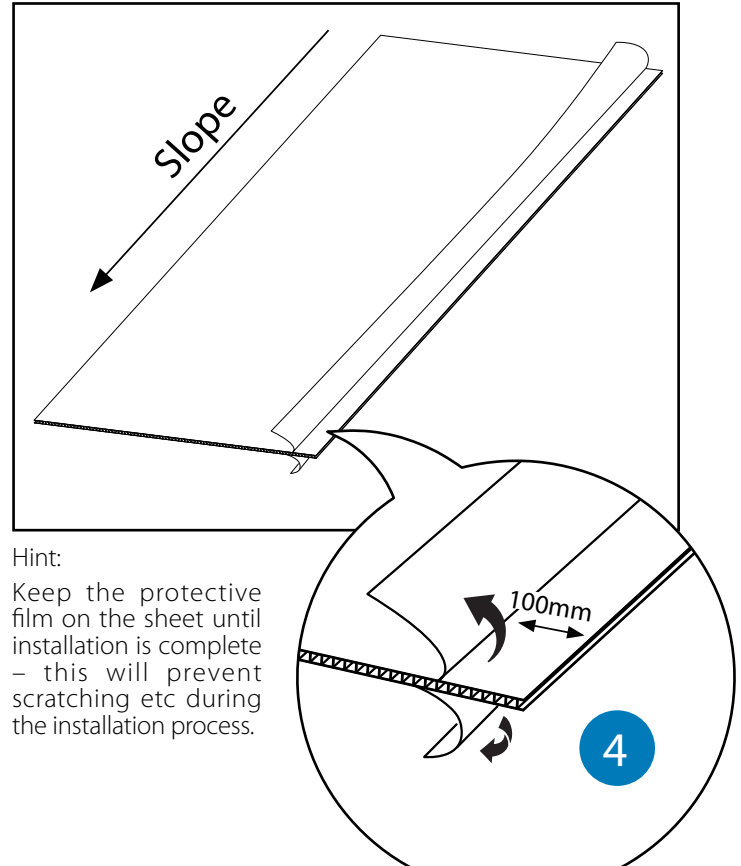
Joiner Base
(2 Piece Joiner)

Timber Wafer Head 10x35

3. Cut to size the foam roll and bond it to the H Joiner Base Profile. Make sure the edges of the foam and the base profile are aligned.

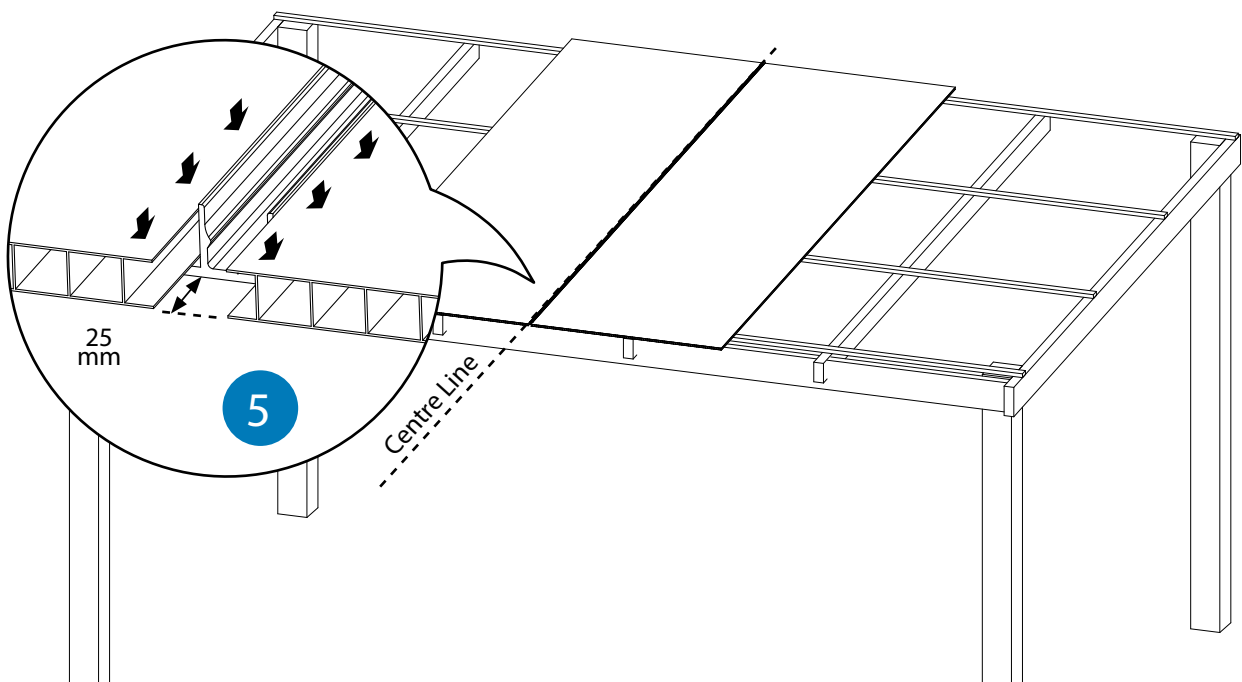


4. Peel off the masking along the edges of length sides at both sides of the sheet, for about 80-100 mm from the edges.

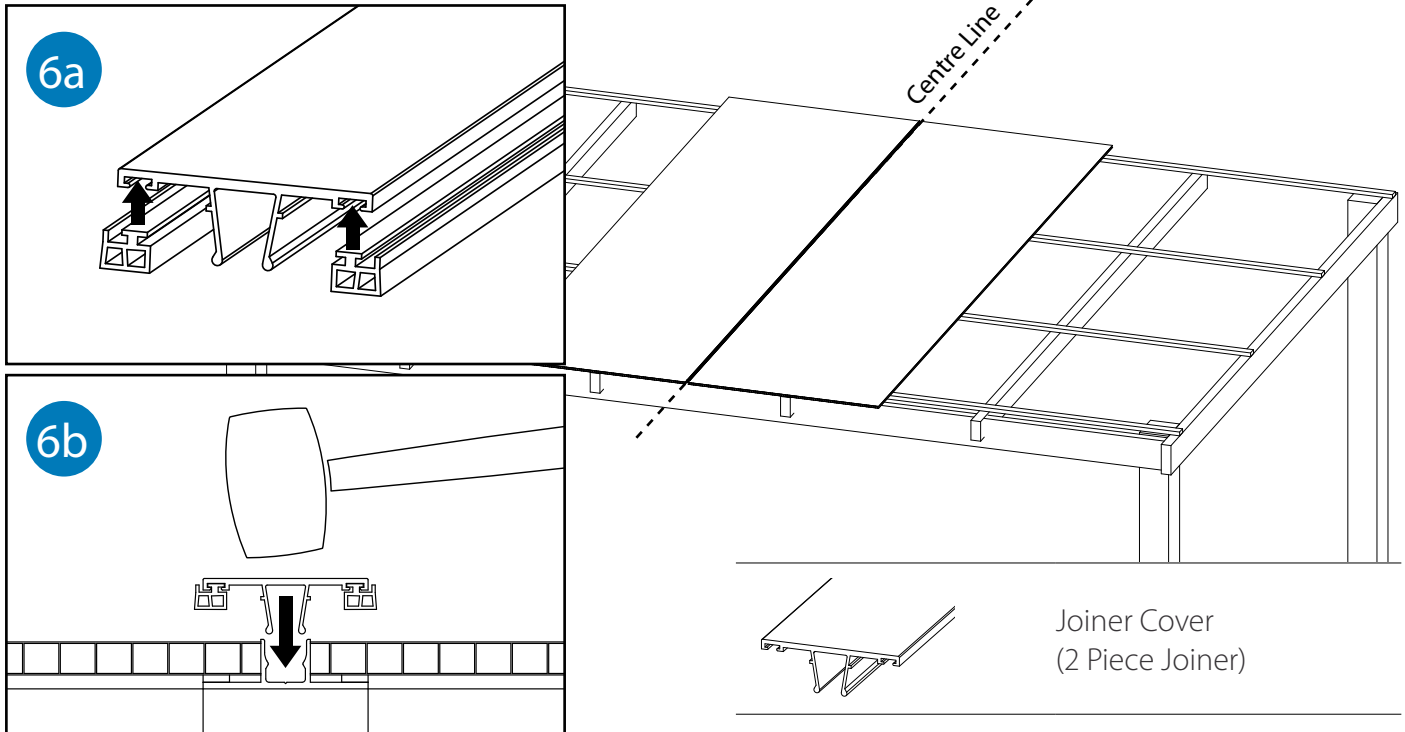


Hint:
Keep the protective film on the sheet until installation is complete – this will prevent scratching etc during the installation process.

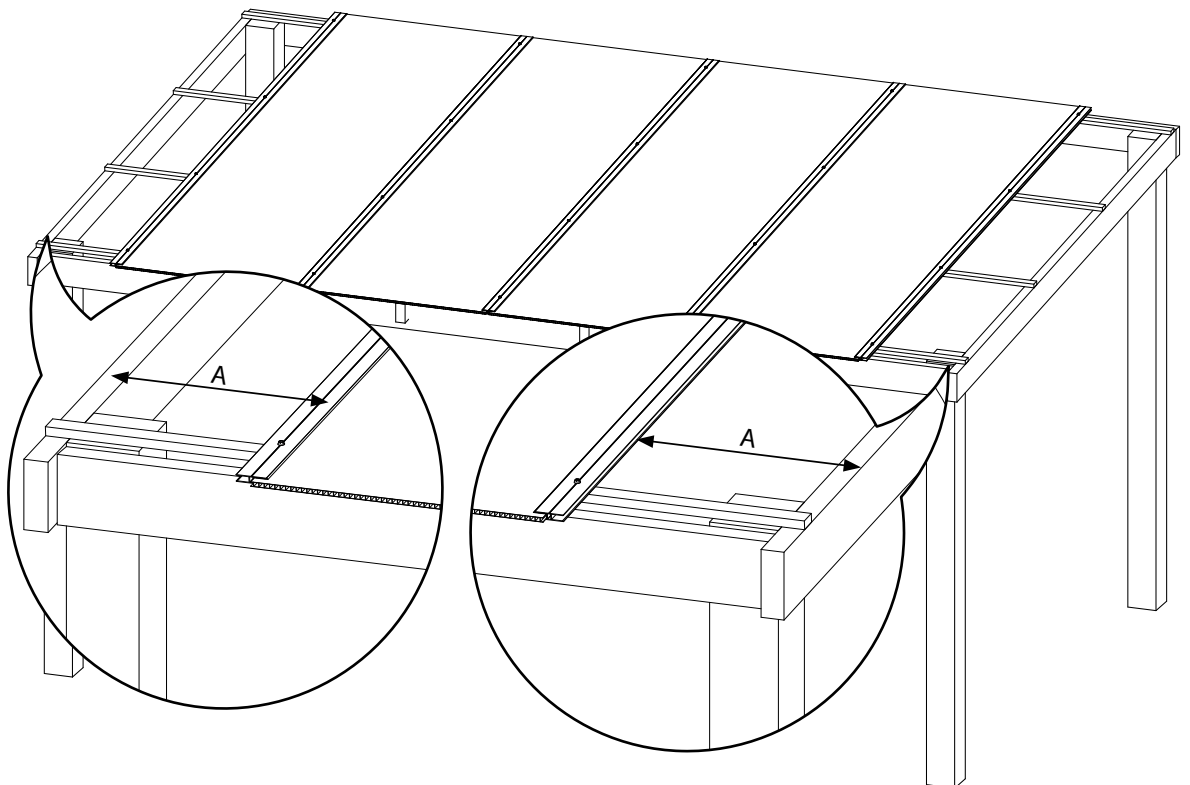
5. Place the sheet between the two secured H Joiner Base Profiles. Sheetting should protrude 25 mm from both sides.



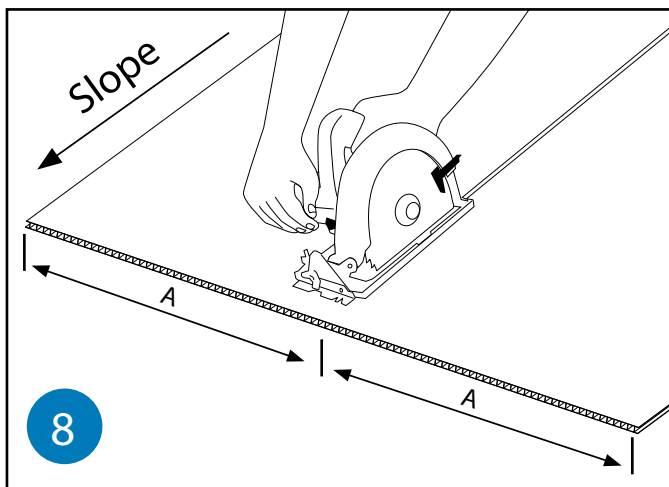
6. Cut to size and fix Captive Wedge with edge lip to outside edge of joiner Cover face. Make sure the cover profile and the captive wedge are aligned. Position the first Joiner Cover aligned with the first Joiner Base and secure the two profiles by using rubber mallet.



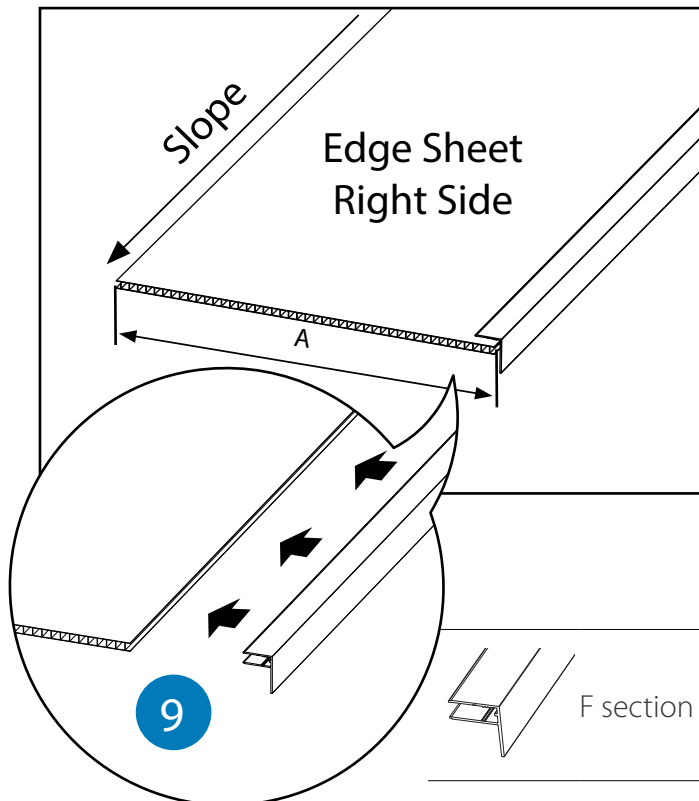
7. Install all SUNLITE sheets as shown in steps **1-6**. Measure the uncovered area's width on both sides (**A**).



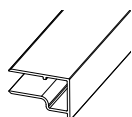
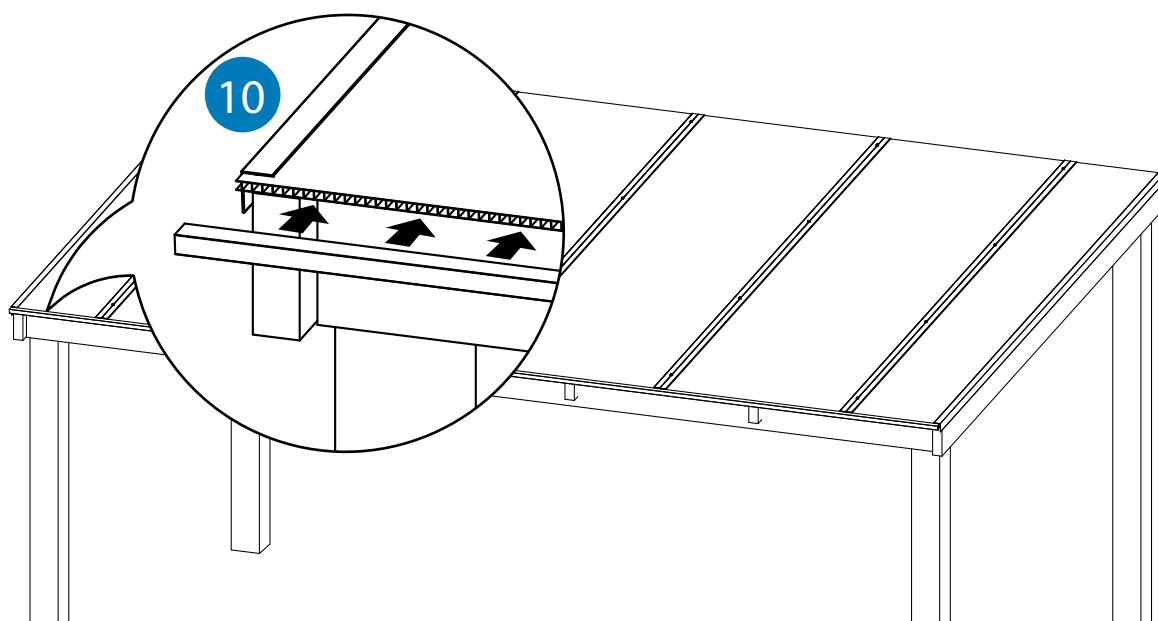
8. Cut the width necessary for both edge sheets.



9. Apply the F section to the exterior side of each edge sheet.



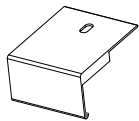
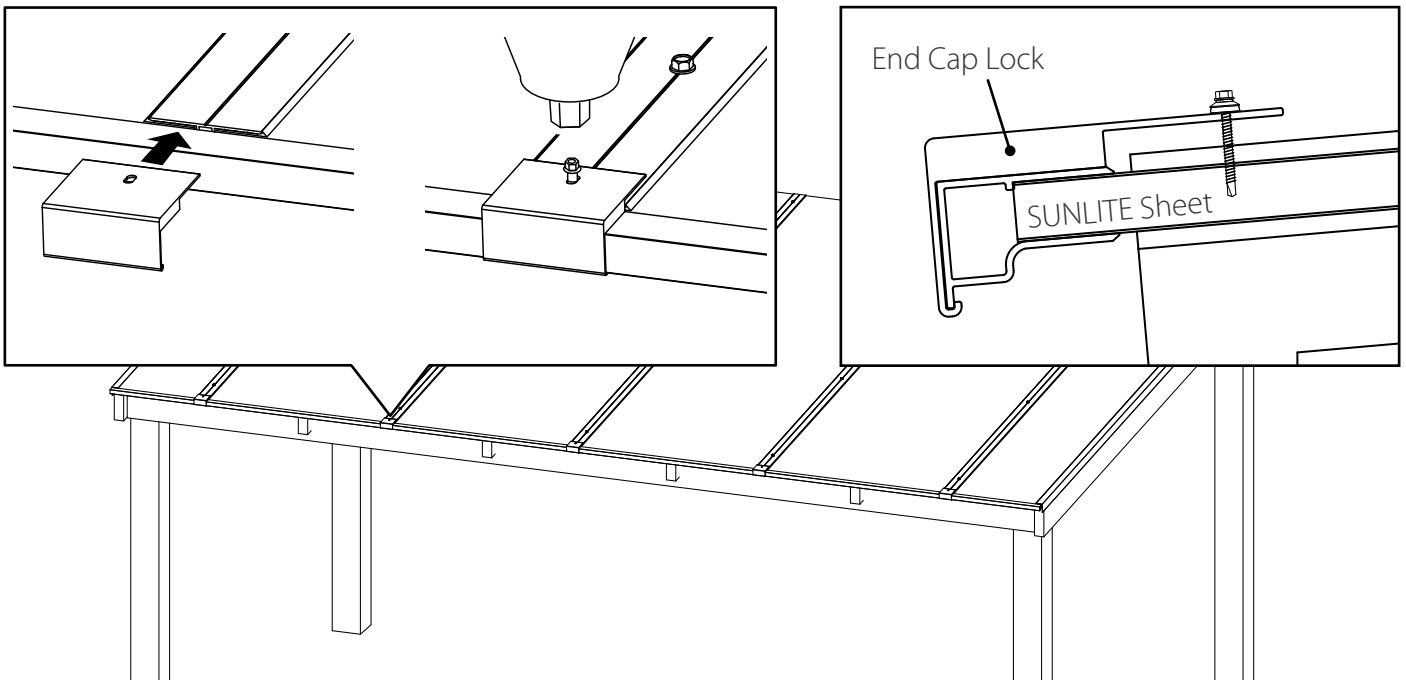
10. Install remaining right & left side sheets. Align end edge of Sheet End Cap to outside edge of H Joiner. Tap & fit Sheet End Cap along bottom edge of sheeting to ensure a neat fit to H Joiner.



Sheet End Cap

NOTE: In case of a stand alone pergola we recommend to add a Sheet End Cap on the upper edge of the sheeting as well.

11. Fit Sheet End Cap Lock where Joiners meet – fit end of lock over the capillary lip of Sheet End Cap to ensure fitting. Fix the End Cap Lock using Metal Hex 8x12 C3



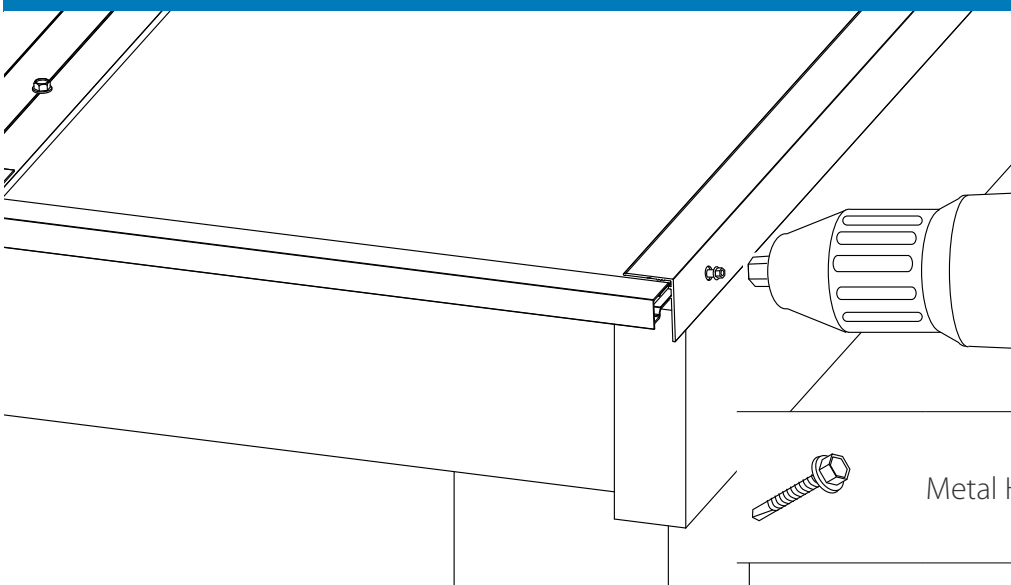
End Cap Lock
(50 mm)

9001463



Metal Hex 8x12 C3

12. Fixing the F Section we installed at stage 10, on both sides.



Metal Hex 8x12 C3

NOTE: Other designated elements like gutters, closures, ridge caps, trimming, flashing etc. are to be specially fabricated according to specific design.
For Gable /Apex roof designs – repeat all steps and fit a Universal Ridge to crest of Gable/Apex section. Fix with 8g x 20mm hex screws as per above.

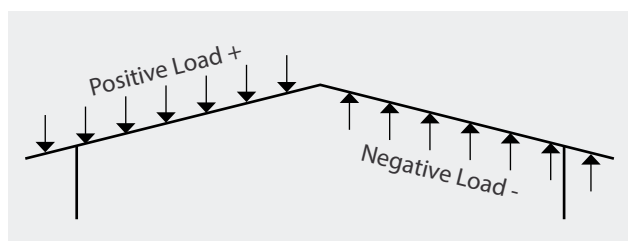
Load Table

Load Type	Installation Type	Maximum Sheet Width (mm)			Supporting Structure Purlin Distance (mm)	
		0.5 kPa	0.75 kPa	1.0 kPa	Mid Span	End Span
Positive**	Purlin	980	980	980	1200	900
	Rafter	980	750	580	NA	NA
Negative**	Purlin	980	750	580	1200	900
	Rafter	980	750	580	NA	NA

* H bar centres calculation: Sheet width +20mm

NOTE: Please contact Palram's Technical Support when the wind load is greater than indicated in the above table. In high wind load areas it is recommended to use purlins.

** Positive vs. Negative loads are demonstrated in the attached drawing:



General Cleaning Instructions for SUNLITE

All of the Palram polycarbonate products can be easily cleaned utilizing a soft sponge or cloth made from 100% cotton using lukewarm water and a mild soap water. All surfaces should then be rinsed with cold water and dried with soft cotton cloth to reduce water spotting. In some instances this procedure may be inadequate and will require the use of additional cleaning agents.

Manufacturer's 10 Years Warranty

Light Transmission

The Product shall not lose more than 6 % of its light-transmitting capability (hereinafter "decrease") for a period of 10 years from the commencement date, as a direct and exclusive result of solar radiation impact (as measured pursuant to the procedures specified in ASTM D-1003-77).



Color

The Product shall not display a change in yellowness of more than 10 units delta in the case of transparent clear product (hereinafter "decrease") for a period of 10 years from the commencement date as a direct and exclusive result of the impact of solar radiation (as measure pursuant to the procedures specified in ASTM E-313-05).

Breakage

The Product shall not break due to loss of impact strength as a direct and exclusive result of weathering and/or, shall not break as a direct and exclusive result of the impact of hail, measuring up to 13mm (0.5") diameter, attaining a velocity of up to 20 m/s (44.7mph) (Loss of above capability shall be hereinafter referred to as "breakage"). Excessive loss of impact strength will be determined by test according to ISO 6603/1-1985(E) and/or ASTM D-5628-95 method F, to be applied on a sample of the broken sheet. This warranty applies only if the sample will be brittle broken in this test into separate pieces (shatter).

Please note: Warranties only apply to installations and maintenance that follow Palram installation instructions and specifications.



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