



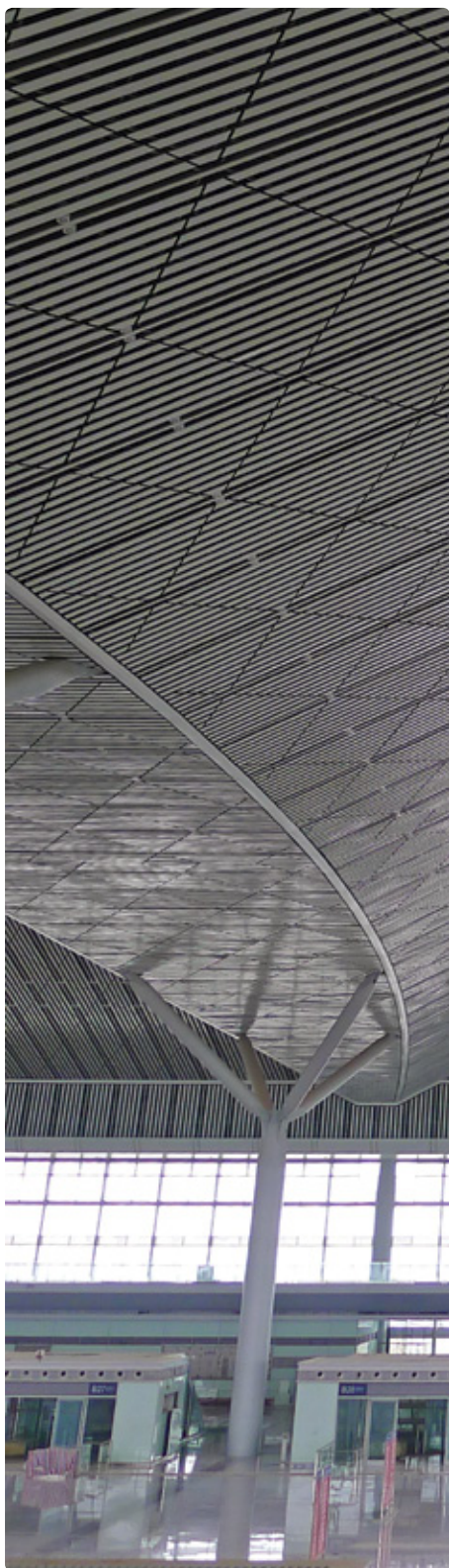
# SUNPAL<sup>®</sup>

Multiwall Polycarbonate Standing Seam Architectural System





## SUNPAL® Multiwall Polycarbonate Standing Seam Architectural System



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## Introduction

SUNPAL is an advanced multiwall polycarbonate panel system that combines proven design, light transmission, thermal insulation and strength. It offers a lightweight, leak-proof design that withstands very high loads and accommodates expansion and contraction. The system's distinct advantages make it ideal for long-term application on many types of projects. As with any true architectural glazing system, SUNPAL is appropriate for a variety of roofing and cladding designs, flat or curved.

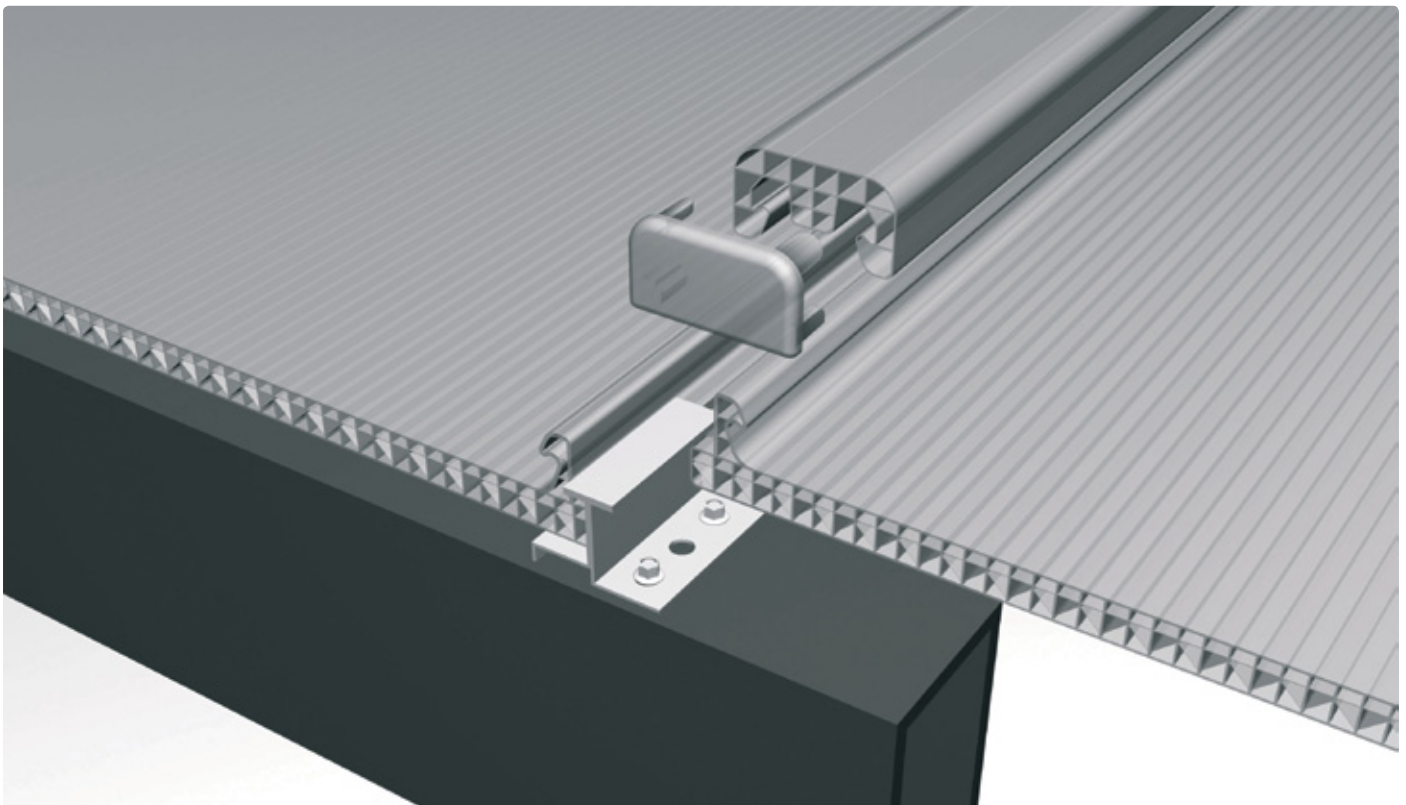
SUNPAL is a self-fastening system, based on multiwall panels, and is available in a range of thicknesses. The panels join together by polycarbonate or aluminum joiners, which are sealed at the ends by End-Caps. T-Fasteners fix the entire system to the structure, allowing the panels to be clamped in place, without any point fastener penetration through the panels. Ventilated Sealing Tape seals the panel lower end, to prevent dirt from entering the flutes, while also providing sufficient drainage. U-Profiles (polycarbonate or aluminum) or F-Profiles (aluminum) seal the upper ends of the panels. Aluminum F-Profiles finish off side edges of the plane, creating a fully framed installation.

## Main Benefits

- ✓ Withstands very high loads
- ✓ Accommodates expansion & contraction
- ✓ Simple & fast installation
- ✓ Leak-proof
- ✓ High thermal insulation
- ✓ Ideal for curved designs
- ✓ Double sided UV protection
- ✓ SolarSmart™ cool light colors


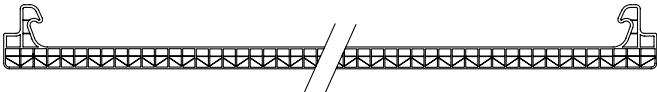
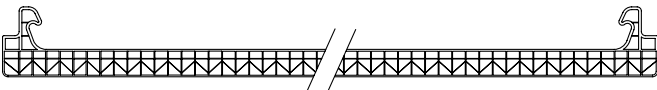
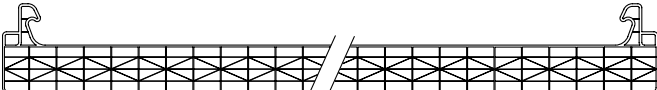

## Applications

- Architectural roofing & glazing
- Commercial and retail roofing
- Sport facilities - translucent roofing
- Covered walkways, awnings & entrances
- Open markets - light roofing
- Service stations - translucent roofing
- Parking structure covering
- Swimming pool covers

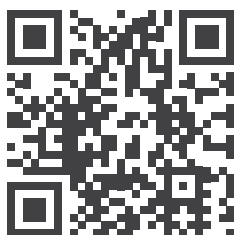


## Panel Types




















SUNPAL panels are of multiwall structure, available by thicknesses of 8mm, 10mm, 18mm and 20mm. Standard SUNPAL panels have UV protection on both sides (specific order can be produced with UV protection on one side only). Maximum panel length is 11.99 (typical stock length).

Type	Panel Data	Drawing
SUNPAL® 8/600 Lite	Width: 600mm Height: 23.5mm Height with PC-Joiner: 33mm Weight: 1.11 Kg/m, 1.83 Kg/m <sup>2</sup> Min. cold bending radius: 2.0m	
SUNPAL® 8/600	Width: 600mm Height: 23.5mm Height with PC-Joiner: 33mm Weight: 1.24 Kg/m, 2.00 Kg/m <sup>2</sup> Min. cold bending radius: 2.0m	
SUNPAL® 10/600	Width: 600mm Height: 25.5mm Height with PC-Joiner: 35mm Weight: 1.56 Kg/m, 2.60 Kg/m <sup>2</sup> Min. cold bending radius: 2.4m	
SUNPAL® 18/1000	Width: 1000mm Height: 33.5mm Height with PC-Joiner: 41mm Weight: 3.11 Kg/m, 3.11 Kg/m <sup>2</sup> Min. cold bending radius: 3.0m	
SUNPAL® 20/1000	Width: 1000mm Height: 35.5mm Height with PC-Joiner: 43mm Weight: 3.19 Kg/m, 3.19 Kg/m <sup>2</sup> Min. cold bending radius: 3.0m	

Scan for product  
video overview



## Colors

Color	SUNPAL® 8/600, 10/600			SUNPAL® 18/1000, 20/1000		
	%LT	SHGC	SC	%LT	SHGC	SC
 Clear	65	0.63	0.72	50	0.54	0.62
 Bronze	25	0.40	0.46	20	0.35	0.39
 White Opal	26	0.37	0.43	20	0.30	0.34
 White Ice	50	0.56	0.64	40	0.48	0.55
 Green	50	0.56	0.64	38	0.46	0.53
 Blue	50	0.60	0.69	36	0.50	0.57
 Red	20	0.52	0.60	15	0.44	0.50
 Solar Ice	20	0.28	0.32	15	0.23	0.26
 Solar Grey	30	0.45	0.52	30	0.44	0.51
 Solar Control	20	0.30	0.34	15	0.25	0.29
 Bluish Breeze	34	0.32	0.38	34	0.33	0.38
 Clear	64	0.63	0.72	49	0.54	0.61
 Bronze	25	0.42	0.44	20	0.37	0.43
 White Opal	26	0.40	0.45	20	0.33	0.38
 Green	40	0.48	0.54	25	0.38	0.44
 Blue	40	0.51	0.59	25	0.41	0.48
 Red	20	0.47	0.55	15	0.39	0.45
 Solar Ice	20	0.35	0.41	15	0.30	0.35
 Grey	30	0.42	0.49	30	0.41	0.48

LT (Light Transmission) = The percentage of incident visible light that passes through an object.  
 SHGC (Solar Heat Gain Coefficient) = The percentage of incident solar radiation transmitted by an object, which includes the direct solar transmission and the part of the solar absorption radiated inward.  
 SC (Shading Coefficient) = The amount of the sun's heat transmitted through a given window compared with that of a standard 3mm thick single pane of glass under the same conditions.

### SolarSmart™ - Energy Efficiency

SolarSmart™ energy-efficient tints break the traditional ratio between light transmission and shading coefficient. By blocking Infrared energy that causes heat buildup, they transmit "cool light" and reduce air-conditioning and lighting costs.

### DiffuserPlus™ - Double Diffusion Effect

DiffuserPlus™ offers double diffusion which prevents both transmitted and reflected light from excessive glare.

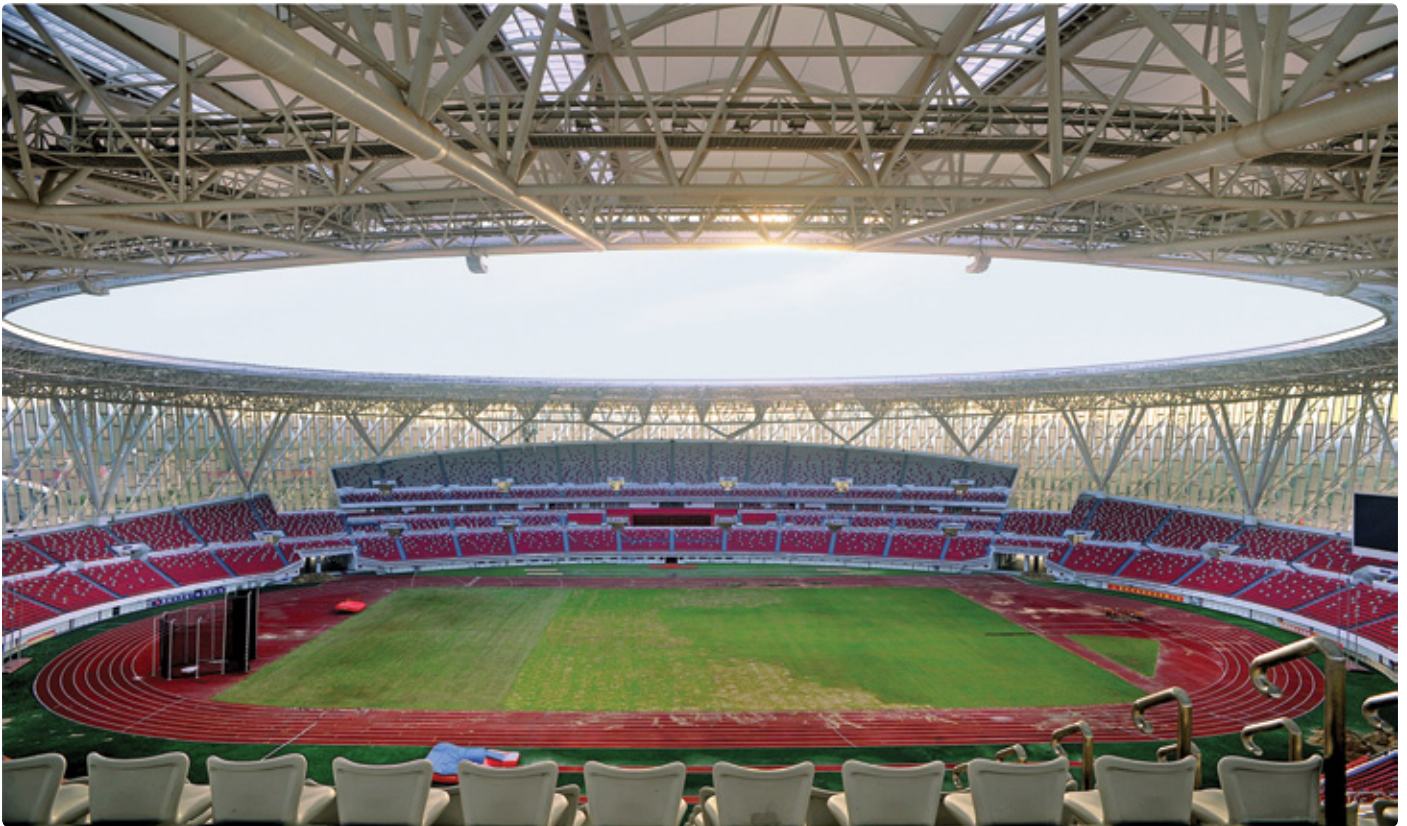
## SUNPAL® Project Gallery

Project: Huzot Hamifratz Mall - Haifa, Israel | Application: Covered Street - 3,700 sqm | SUNPAL® Type: 10mm Solar Control





**Project:** Huizhou Olympic Sports Centre Stadium, China | **Architect:** CCDI | **Application:** Skylight - 6,700sqm | **SUNPAL® Type:** 10mm Clear



**Project:** Technion Institute of Technology, Israel | **Application:** Roof - 3,200sqm | **SUNPAL® Type:** 18mm Diffuser Plus Bronze





**Project:** Kelmscott Train Station, Australia | **Application:** Sidelight | **SUNPAL® Type:** 10mm Clear



**Project:** James Boag Brewery, Australia | **Application:** Sidelight  
**SUNPAL® Type:** 10mm Clear



**Project:** Griffith University at Gold Coast, Australia  
**Application:** Study Pod Walling | **SUNPAL® Type:** 8mm Clear





## Typical Physical Properties

Property	Method*	Conditions	Units	Value
Density	D-792		g/cm <sup>3</sup>	1.2
Heat deflection temperature (HDT)	D-648	Load: 1.82 MP	°C	130
Service Temperature - Short term			°C	-50 to +120
Service Temperature - Long term			°C	-50 to +100
Coefficient of linear thermal expansion	D-696		cm/cm °C	6.5 x 10 <sup>-5</sup>
Tensile strength at yield	D-638	10 mm/min	MPa	62
Elongation at break	D-638	10 mm/min	%	>80
Impact falling dart	ISO 6603/1		J	40-400
Practical Thermal expansion/contraction rate			mm/m	3
Coefficient of linear thermal expansion	D-696		cm/cm °C	6.5 x 10 <sup>-5</sup>

\*ASTM method except where noted otherwise

## Thermal Insulation

Type	U-Value [Watts /m <sup>2</sup> °C]	R-Value [m <sup>2</sup> °C / Watt]
SUNPAL Lite 8 mm	2.45	0.41
SUNPAL 8 mm	2.45	0.41
SUNPAL 10 mm	2.10	0.47
SUNPAL 18/20 mm	1.50	0.67

## Flammability

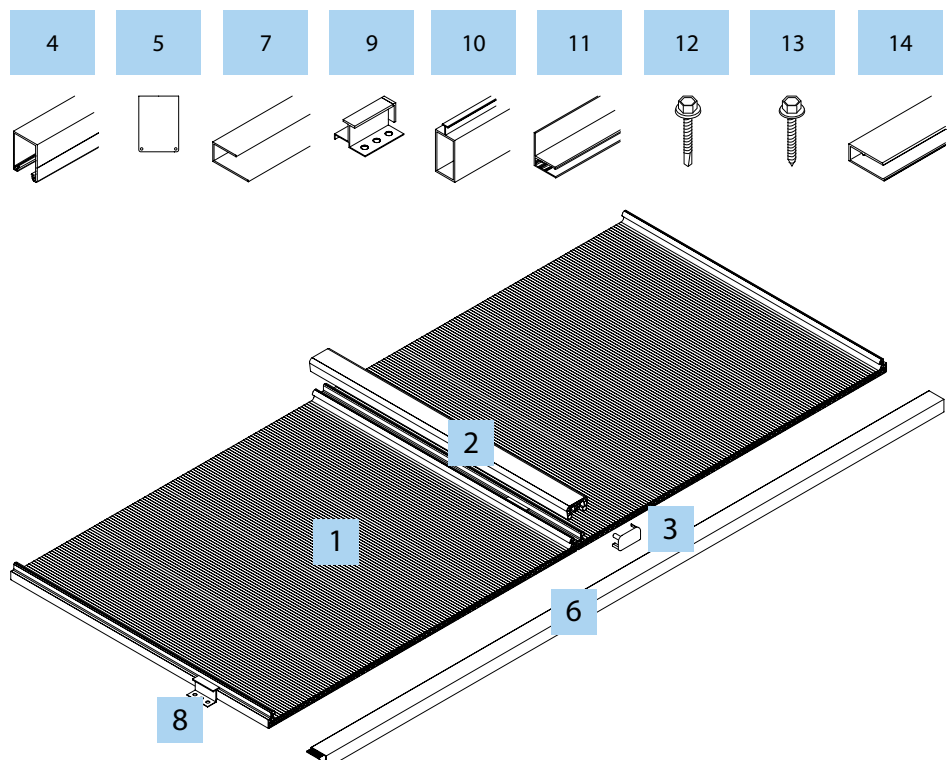
SUNPAL flammability classification appears in the attached table, based on a test performed by certified independent laboratories. The quoted certificate represents the flammability performance of the entire system.

Method	Classification*
EN 13501	B, s1, d0

\*Depends on panel thickness.

## Assembly Details

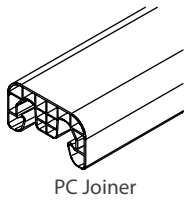
#	Legend
01	Panel
02	PC Joiner
03	End-Cap for PC Joiner
04	Aluminum Joiner 'C'
05	End-Cap for Alu Joiner 'C'
06	Aluminum Sealing Strip
07	Polycarbonate U-Profile
08	T-Fastener
09	T-Stopper
10	Aluminum Span-Bar
11	Aluminum F-Profile
12	Metal Screw
13	Wood Screw
14	Aluminum U-Profile



## SUNPAL® Principles

A SUNPAL system is primarily defined by the panel thickness. All other components are selected to match this panel.

### Joiners

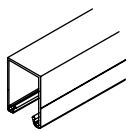


PC Joiner

The Joiners (PC or aluminum) fit all panel types. The choice between them is usually decided by the application - PC Joiner for roofing (or any situation where the seam is external); Alu-Joiner 'C' for cladding (hidden seam).

The PC Joiner is 22mm high and 39mm wide, extruded polycarbonate colored to match the panels. Maximum length is 11990mm, with weight of 160gr/m. The PC-Joiner should overhang about 100mm beyond the last fastener.

End-Cap for PC-Joiner is a clear acrylic cap, designed to plug the PC-Joiner ends. This end-cap prevents water and dirt from entering the joiner, it helps to reinforce the joiner ends, and provides styled appearance to the systems ends.



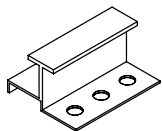
Alu Joiner

Alu Joiner - C is 39mm wide and 54mm high, extruded aluminum with mill finish. Maximum length is 6000mm. The Alu-Joiner should overhang about 250mm beyond the last fastener.

End-Cap for Alu Joiner - C is a mill-finish aluminum plate, designed to close the Alu-Joiner ends. This end-cap is fixed by inserting four screws into the joiner end face.

Note: for curved applications, polycarbonate joiners can be cold-curved. Aluminum joiners have to be pre-curved.

### Fasteners

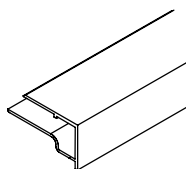


T-Fastener

T-Fastener - SUNPAL roofing system is attached to the supporting structure by the T-Fasteners. These are stainless steel concealed clips that are fixed onto the structure with screws. The fasteners have four different sizes to match each panel type. For installing SUNPAL system onto wooden structure, the T-Fasteners are fixed with Wood Screws. For metal structure, Metal Screws are used. As standard, each fastener is fixed with two screws. For high wind areas, using three screws per fastener is recommended.

T-Stopper (part 09) - To prevent "travelling" of the panels, it is recommended to fix one T-Stopper at a certain fixing point along each Joiner. This will be the only longitudinal fixed point, while all other fixings of this panel are floating, by regular T-Fasteners. It is a special T-Fastener with added stopper plate, which fits into a slit cut in the attached panels (prepared on spot).

### Sealing & end cap Strips



Alu Sealing Strip

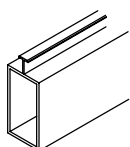
The Alu Sealing Strips are mill-finished aluminum profiles in four sizes, to match each type of panel. Maximum length is 6000mm (stock length). These are used as a closure for the panels end (usually the lower), to prevent penetration of dirt and moisture, and provide efficient drainage. U-Profile is used for sealing the panel's upper end, preventing penetration of moisture and dirt.

PC U-Profiles are made of polycarbonate, and have two types to suite 8mm and 10mm panels. Their maximum length is 6m (stock length).

Alu U-Profile is an aluminum profile mill finished, with two types of sizes to suit 18mm and 20mm panels. Their maximum length is 6000mm (stock length).

Alu F-Profiles are available in four sizes to match each panel type. These are aluminum profiles mill finished, with maximum length of 6000mm (stock length). The F-Profiles are used generally as a side fixing detail, also applicable for an upper-end closure.

### Alu Span-Bar (Per special request)

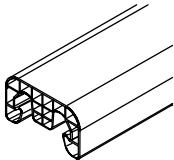
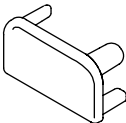
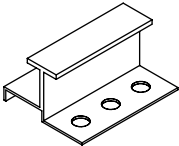
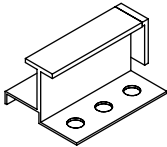
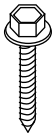
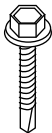
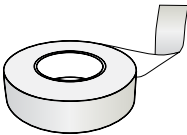
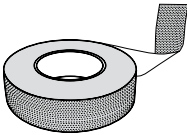




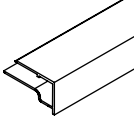
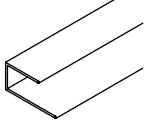
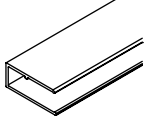
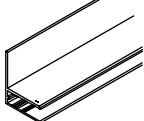
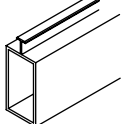
Alu Span Bar

The Alu Span Bar is an aluminum hollow bar that can be used as a rafter on a structure frame. It can be straight or curved (by pre-rolling), and designed to perform both as a rafter and a fastener (no T - Bar Fasteners required in Span-Bar applications). Span-Bars come in four sizes to match each panel type, and its maximum length of 6000mm.



## System Components

Component	Part No. (Type)	Drawing	Suppliance Data
PC Joiner	0200		Length: 12m Colors: panel matched
End-cap for PC Joiner	0300		Quantity: 200/box Colors: Natural Clear
T-Fastener	0808 (8mm) 0810 (10mm) 0818 (18mm) 0820 (20mm)		Quantity: 200/box Sizes: 8mm, 10mm, 18mm, 20mm Finish: Stainless
T-Stopper	0908 (8mm) 0910 (10mm) 0918 (18mm) 0920 (20mm)		Quantity: 50/box Sizes: 8mm, 10mm, 18mm, 20mm Finish: Stainless
Wood Screw Hex-head tapping screw 5x25mm (1")	1500		Quantity: 500/box
Metal Screw Hex-head self-drilling screw 4.8x19mm (3/4")	1400		Quantity: 500/box
Aluminum (Solid) Tape	8mm: 92698 10mm: 92699 18mm & 20mm: 92804		Quantity: 50m / Roll
Breather (Ventilated) Tape	8mm: 92696 10mm: 92697 18mm & 20mm: 92802		Quantity: 33m / Roll
Aluminum Joiner - C	0400		Length: 6m Finish: Mill (Natural)
End-Cap for Aluminum Joiner - C	0500		Finish: Mill (Natural)

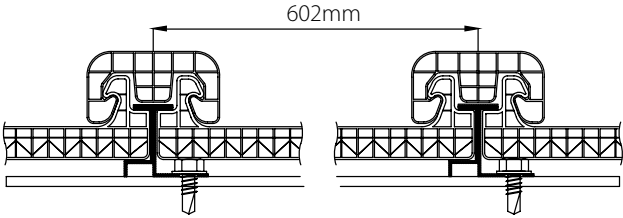
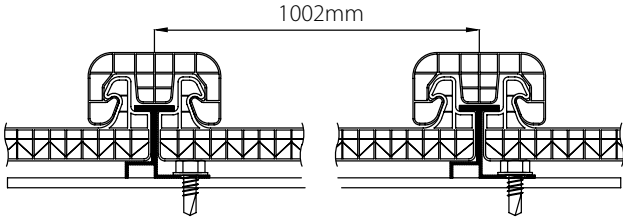
Component	Part No. (Type)	Drawing	Suppliance Data
Aluminum Sealing Strip	0608 (8mm) 0610 (10mm) 0618 (18mm) 0620 (20mm)		Length: 6m Finish: Mill (Natural)
PC U-Profile	0708 (8mm) 0710 (10mm)		Length: 6m Finish: Mill (Natural)
Aluminum U-Profile	1618 (18mm) 1620 (20mm)		Length: 6m Finish: Mill (Natural)
Aluminum F-Profile	1108 (8mm) 1110 (10mm) 1118 (18mm) 1120 (20mm)		Length: 6m Finish: Mill (Natural)
Aluminum Span-Bar	1008 (8mm) 1010 (10mm) 1018 (18mm) 1020 (20mm)		Length: 6m Finish: Mill (Natural)

## Installation Data

### Roof structure

SUNPAL system fits for both rafter and purlin construction. The recommended minimum roof slope for SUNPAL applications is 5%. For lower slopes rafter design is recommended.

### Assembled System Width

SUNPAL® 8/600 and 10/600	SUNPAL® 18/1000 and 20/1000
	



## Purlin Design - Recommended spans (For wind load of 1kPa)

Type (mm)	Panel Width (mm)	Polycarbonate Joiner		Aluminum Joiner - C	
		Mid-Span (mm) ▲▲▲▲	End-Span (mm) ▲▲	Mid-Span (mm) ▲▲▲▲	End-Span (mm) ▲▲
SUNPAL Lite 8 mm	600	900	700	1,500	1,100
SUNPAL 8 mm	600	1050	825	1,600	1,200
SUNPAL 10 mm	600	1,250	950	1,800	1,400
SUNPAL 18/20 mm	1,000	1,350	1,000	1,800	1,400

## Rafter Design - Recommended Spans (With maximum intervals of T-Fasteners along rafters for wind load of 1kPa)

Type (mm)	Rafter Centers (mm)	Polycarbonate Joiner		Aluminum Joiner - C	
		Internal Fasteners (mm)	Fasteners at Rafter Ends (mm)	Internal Fasteners (mm)	Fasteners at Rafter Ends (mm)
SUNPAL Lite 8 mm	602	900	700	1,500	1,100
SUNPAL 8 mm	602	1050	825	1,600	1,200
SUNPAL 10 mm	602	1,250	950	1,800	1,400
SUNPAL 18/20 mm	1,002	1,350	1,000	1,800	1,400

### Notes:

1. The above spans are specified for wind loads of 1000 Pa (21 psf) in roofing applications. For vertical or internal applications, contact your local SUNPAL distributor.
2. In curved applications, Aluminum Joiners will have to be pre-rolled, while Polycarbonate Joiners can be cold curved to the roofing radius.

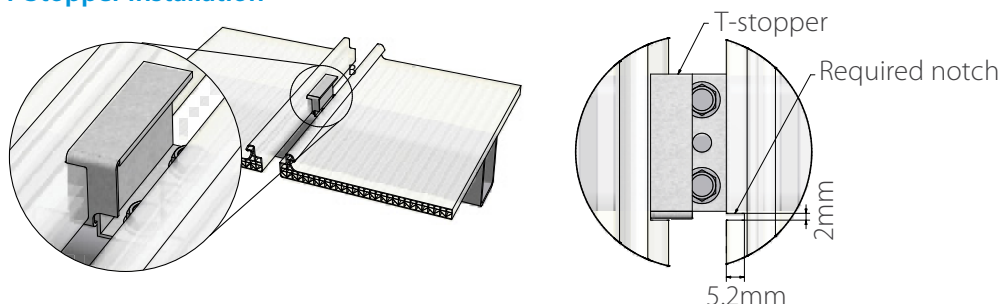
## Maximum Spans Between Purlins

							Multi-Span											
Panel Type (mm)	Single Span (mm)						Mid-Span (mm)						End-Span (mm)					
	75 kg/m <sup>2</sup>	100 kg/m <sup>2</sup>	125 kg/m <sup>2</sup>	150 kg/m <sup>2</sup>	175 kg/m <sup>2</sup>	200 kg/m <sup>2</sup>	75 kg/m <sup>2</sup>	100 kg/m <sup>2</sup>	125 kg/m <sup>2</sup>	150 kg/m <sup>2</sup>	175 kg/m <sup>2</sup>	200 kg/m <sup>2</sup>	75 kg/m <sup>2</sup>	100 kg/m <sup>2</sup>	125 kg/m <sup>2</sup>	150 kg/m <sup>2</sup>	175 kg/m <sup>2</sup>	200 kg/m <sup>2</sup>
8	850	750	700	650	600	550	1150	1050	900	850	800	750	900	825	700	665	625	585
10	950	850	800	750	700	650	1350	1250	1100	1050	1000	950	1050	975	860	820	780	740
18	1100	1000	950	900	850	800	1500	1400	1300	1200	1150	1100	1170	1090	1015	930	900	860
20	1200	1100	1000	950	900	850	1600	1500	1400	1300	1250	1200	1250	1170	1090	1015	975	935

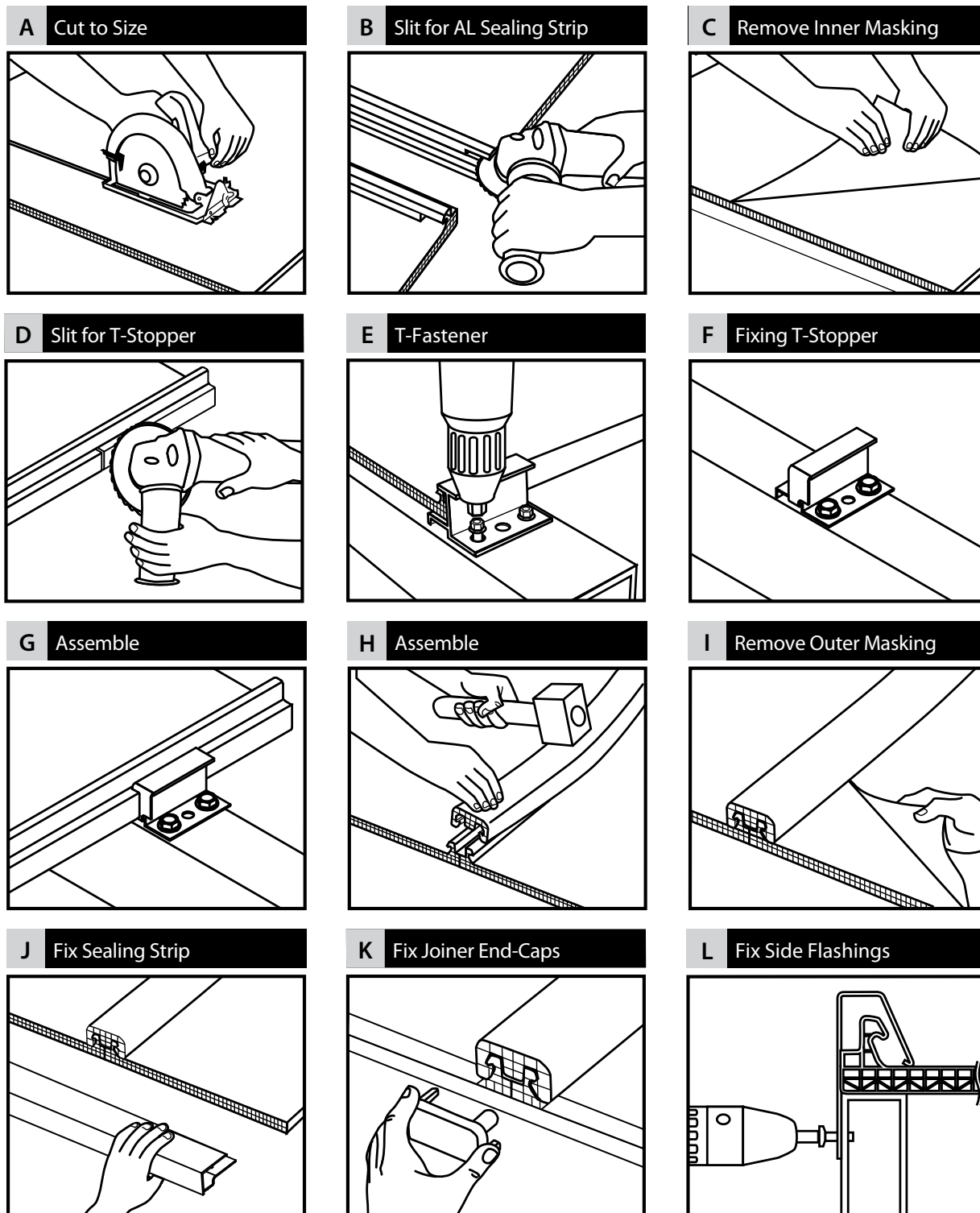
### Notes:

1. When using an Aluminum Joiner rather than a Polycarbonate Joiner, span data in the above table can be increased by 5%.
2. For specific data or any other planning consultation, please contact Palram's Marketing Support department.
3. The values are based on deflection criterion of L/20 of the Polycarbonate panels.
4. The table is valid for purlin installation only.
5. The dimensions depicted do not supersede the requirements of local construction codes.

## T-Stopper Installation



## Installation Guidelines



\*Referene to the illustrations above appear in brackets in the text below.

**1. Cut to size (A):** Cut panels to length allowing for an overhang of no more than 100mm at each end. A penetration of minimum 50mm into the gutter is recommend. Use a circular or hand saw with fine tooth blades for easier and more precise cutting.

**2. Slit for Aluminum Sealing-Strip (B):** Using a small cutting disc (2mm thick), prepare 18mm deep horizontal cuts at each end of the panel teeth. This cut should be in parallel to the panel top face, but without damaging the panel surface. Since this step needs precision, it is highly recommended to perform this action at ground floor level.



**3. Remove cutting chips:** Use a vacuum cleaner or an air compressor with blow gun to blow out any “swarf” or loose particles from inside the panel. Make sure that both ends of panel are not covered with the protective film.

**4. Position first panel:** To achieve a symmetric installation, determine the layout of the first panel, starting at the center of the structure. Measure the structure's width, to determine using odd or even number of the prepared panels. Accordingly, mark on the support purlins the location of the middle panel or middle pair of panels. For “side to side” installation, set up the first panel, fitted to the side flashing at the preferred starting side.

**5. Remove inner masking (C):** Remove the protective film from the internal face only. Keep this side away from the roof purlins until final positioning of the panel, to avoid scratching.

**6. Fix T-Stopper (D, F & G):** The T-stopper's main function is to create a fix point (zero movement) for each panel. This will allow to control the direction of thermal expansion and contraction, and prevent the panels from shifting due of gravity. Fix the T-Stopper using hex head fixings provided while considering the following recommendations:

- **Curved application:** The T-stopper will be normally fixed at the peak.
- **Roof end with no gutter:** The T-stopper shall be fixed at the last purlin in order to eliminate differential movements (esthetics).
- **Roof end with gutter:** The T-stopper shall be fixed the opposite of the expansion allowance.
- **Wall Application:** The T-Stopper should be fastened at the end of the panel where thermal expansion cannot be accommodated. In this method all thermal expansion is directed to the opposite end of the panel. Proper spacing must be calculated.

**7. Fix T-Fasteners (E):** Along panel on remaining purlins (see span table for rafter design), place T-fasteners against panel and fix into place using hex head fixings provided (2 fixings for standard, 3 fixings for high wind areas and hurricane regions).

**8. Position next panel:** Remove protective film from underside of second panel and place against T fasteners.

**9. Locking the two panels together (H):** Using a rubber mallet, start to fix the Joiner, locking the 2 panels together by striking with short intervals (5-10cm) along the joiner. Start at the bottom end, and work your way up the roof (ensure that the joiner overhangs the panel ends by 13mm, where the aluminum sealing strip will be installed later).

**10. Remove outer masking (I):** Shortly after installation, peel off the protective film from the panel's external face. Delaying removal of the protective film can make it very difficult or impossible to peel off later on. On exceptionally hot days, remove top protective film immediately to prevent it from bonding with the panel.

**11. Repeat steps 5 to 9 (or 11)** until all panels are in place except for the external panels.

**12. Determine width of end panels required.** Using a circular saw (fitted with fine tooth blade) or jigsaw cut the external side panels to width.

**13. Along the cut edge of the SUNPAL panel, push on the aluminum F section (cut to size) so that it is firmly secured.**

**14. Lift the end panel into place and repeat step 9 (or 9-11).** The aluminum F section should be firmly affixed against last rafter or end of purlins (note: if fixing to metal purlins, make sure the ends of the purlins are closed off).

**15. Fix the F-Section** to the rafter or end of purlin using tek screws.

**16. Start installing the U-Profile** at the panel top end by pushing on. It is designed to be a tight fit, so start by pushing one end on and slowly tap it until it is firmly inserted. PC U-Profile (for SUNPAL 8mm and 10mm) is to tap by hand, for AI U-Profile (SUNPAL 18mm) and 20mm) use a rubber mallet.

**17. Start installing the Aluminum Sealing Strip (J)** at the panel bottom end by pushing it on. It is designed to be a tight fit, so start by pushing one end on and using a mallet slowly tap it until it is firmly inserted. These sealing strips are necessary to prevent penetration of dirt end moisture.

**18. Joiner End-cap fixing (K):** Insert Joiner End-cap in both Joiner ends. The End-cap for PC Joiner is pushed into place. The End-cap for Aluminum Joiner is fit with screws. There is no need to use silicone sealants or adhesives of any kind.

**19. Side flashings (L):** These are used on both sides of the structure as fasteners as well as flashings. They are fit either for full width or cut-to-size panels. Application-specific flashings are required in some situations. End-caps should fit to these flashings on both ends.

#### Notes:

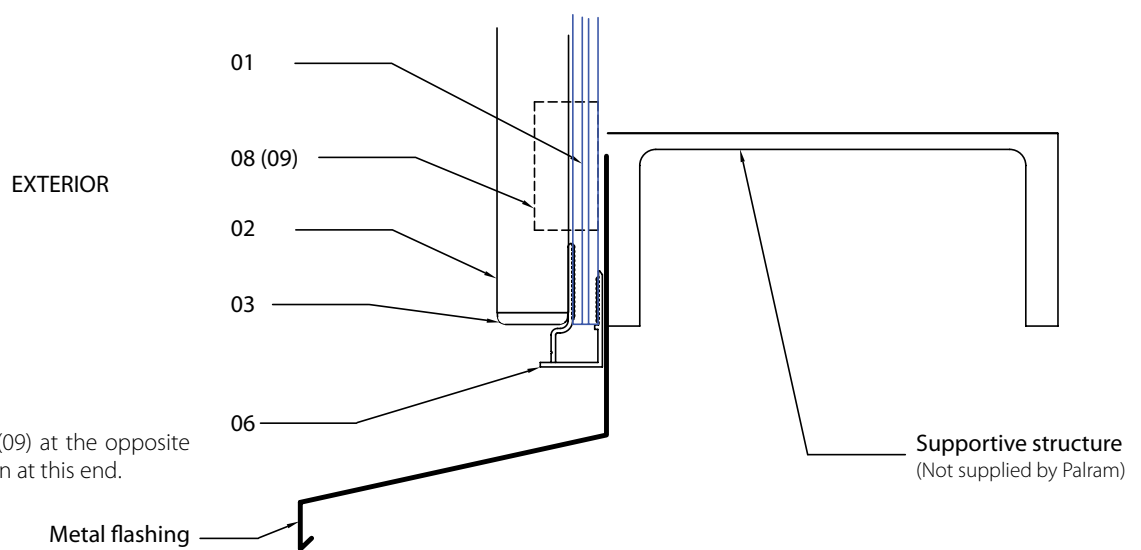
- SUNPAL system does not require using silicones or adhesives for parts interface. For sealing of flashing assemblies use only PALRAM approved accessories, silicones, sealing tape, closure fixtures etc.
- For cleaning SUNPAL multi panels use a pressure cleaner and allow natural drying. Do not use cloth/ sponge/ chamois or similar, doing this can scratch the panels and harm their performance.

## Typical Installation Details

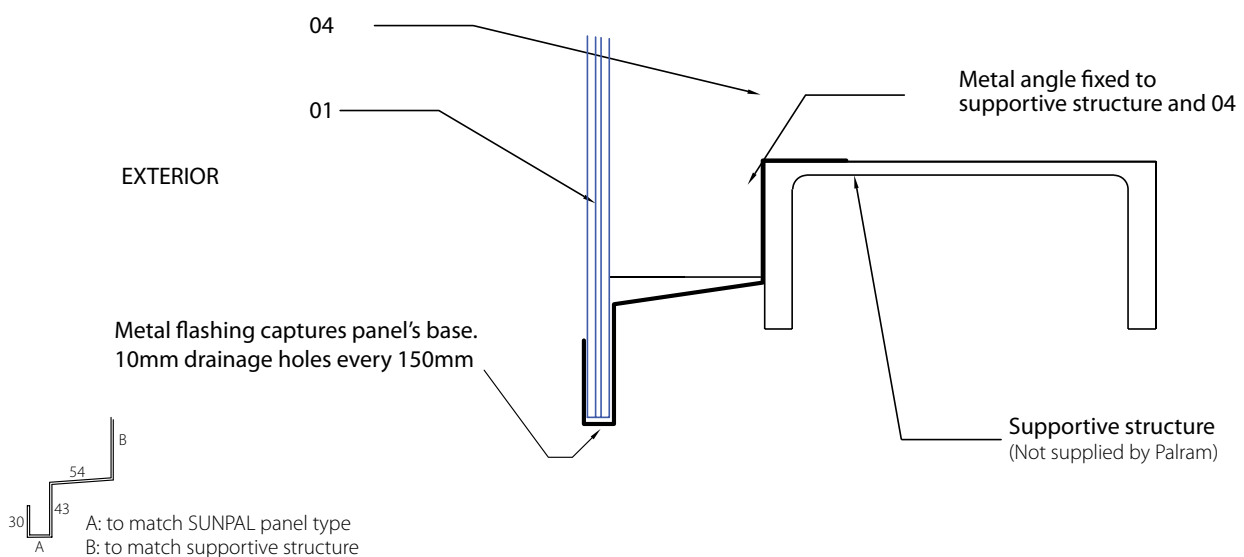
**Please note:** All drawings are available as CAD files from [www.palram.com](http://www.palram.com).

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Cladding Detail 1: Cladding Base



### Cladding Detail 2: Cladding Base - Hidden Seams

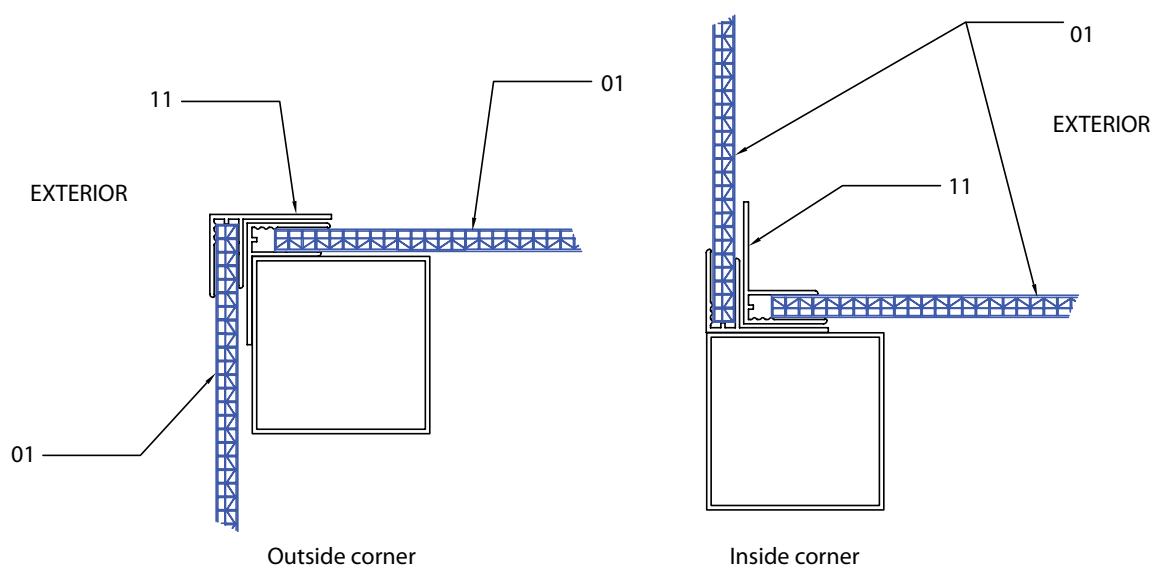




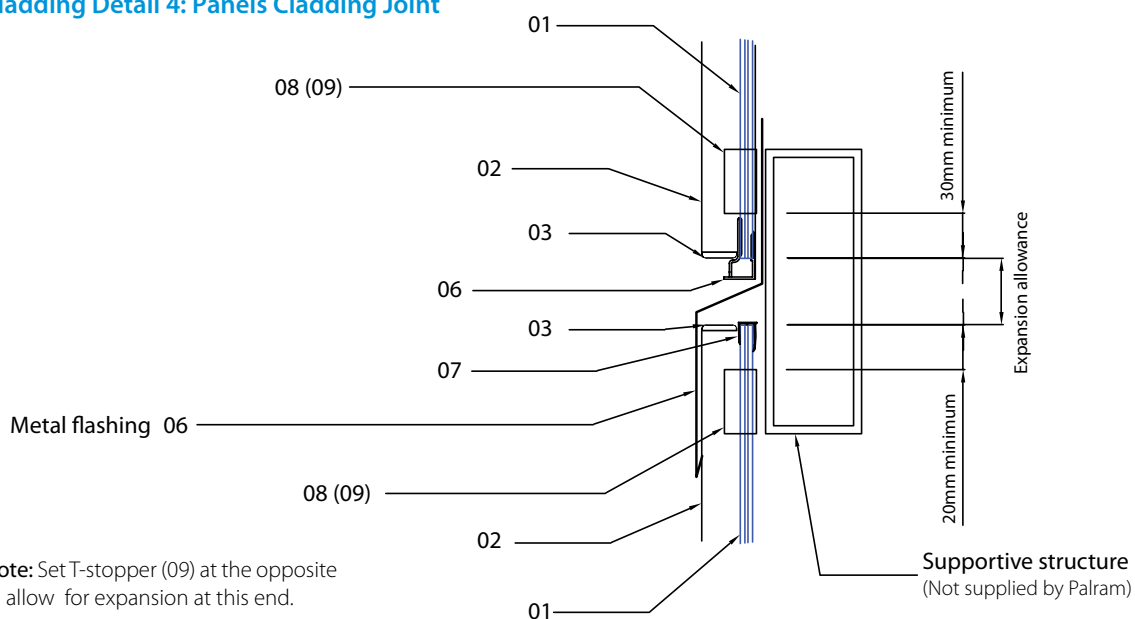
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Cladding Detail 3: Corner Details



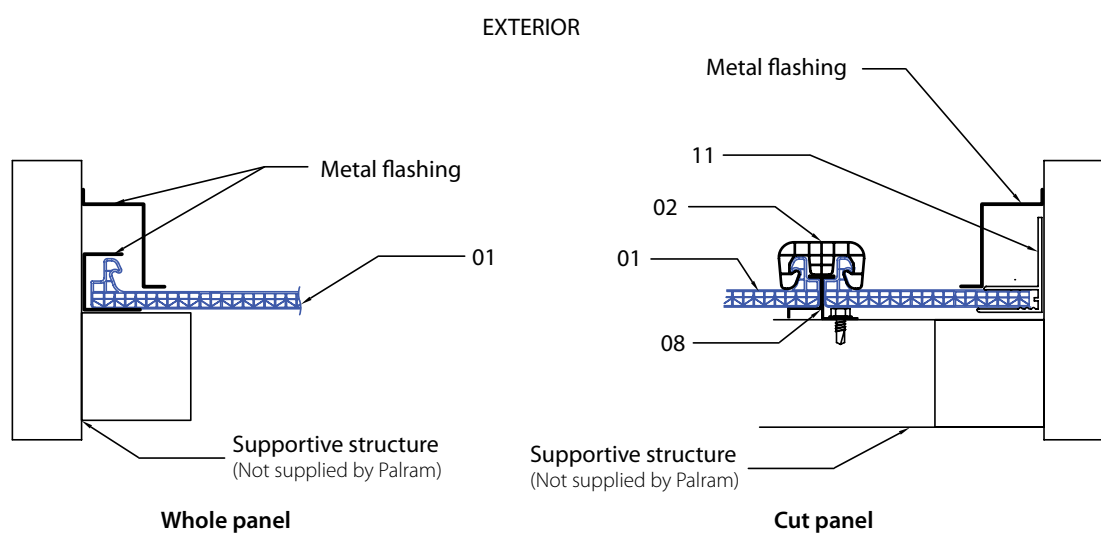
### Cladding Detail 4: Panels Cladding Joint



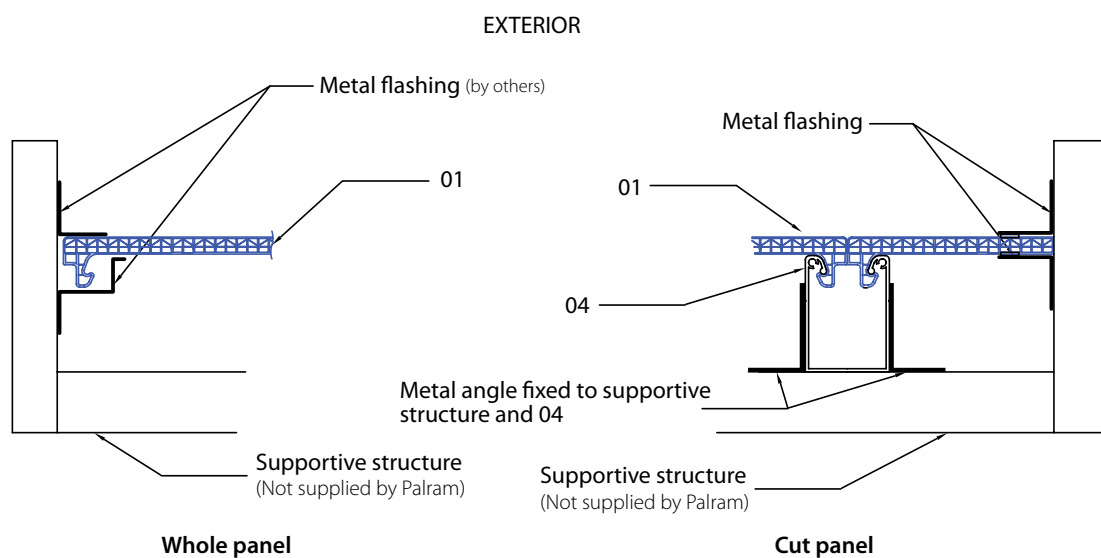
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Cladding Detail 5: Parallel Apron Flashings



### Cladding Detail 6: Parallel Apron Flashings - Hidden Seams

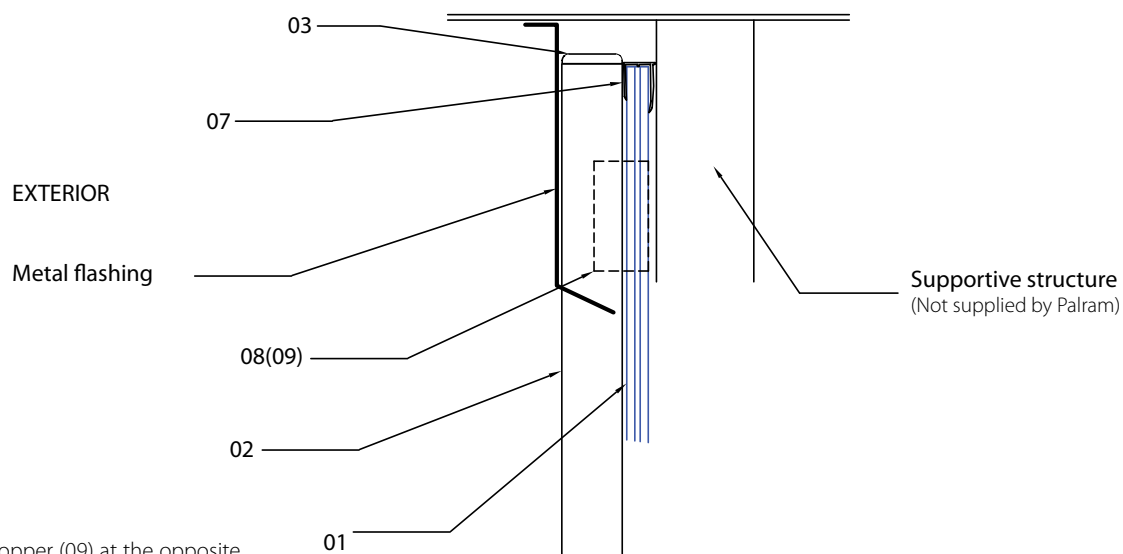




## Legend

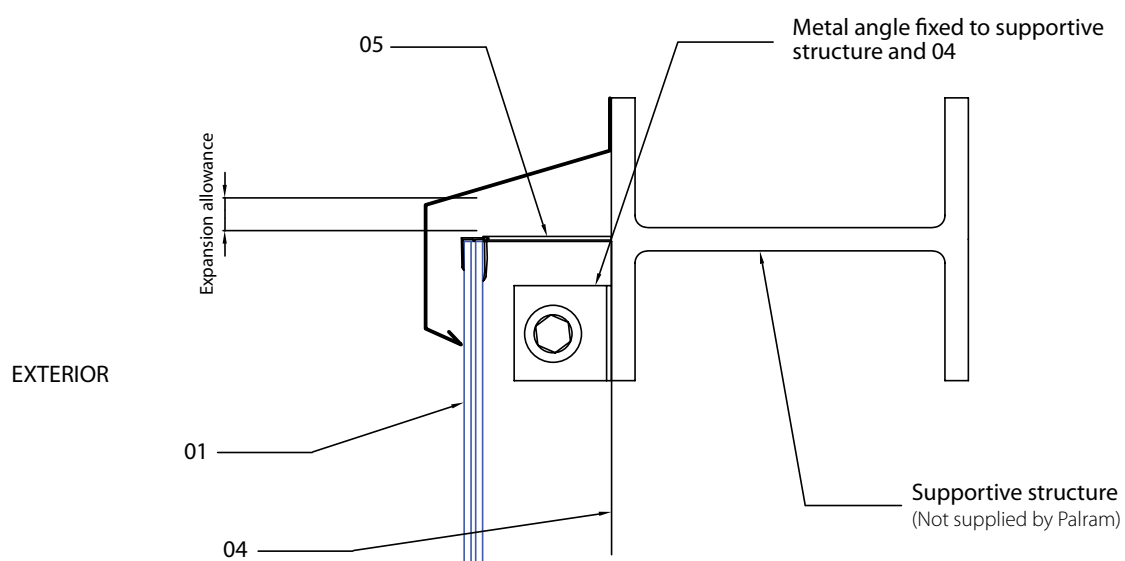
01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Cladding Detail 7: Cladding Top Flashings



**Note:** Set T-stopper (09) at the opposite to allow for expansion at this end.

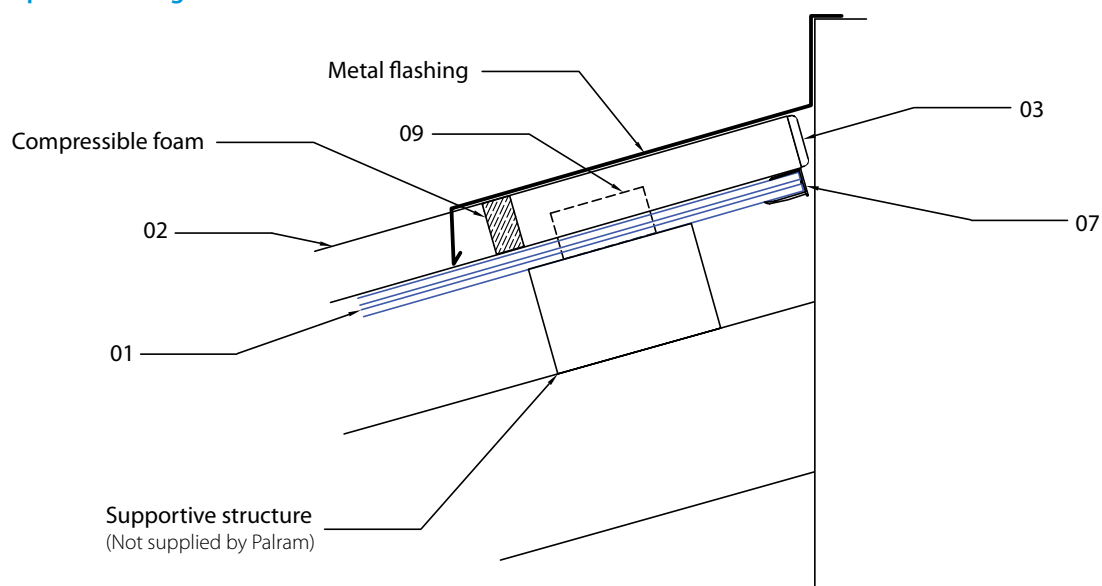
### Cladding Detail 8: Cladding Top Flashing - Hidden Seams



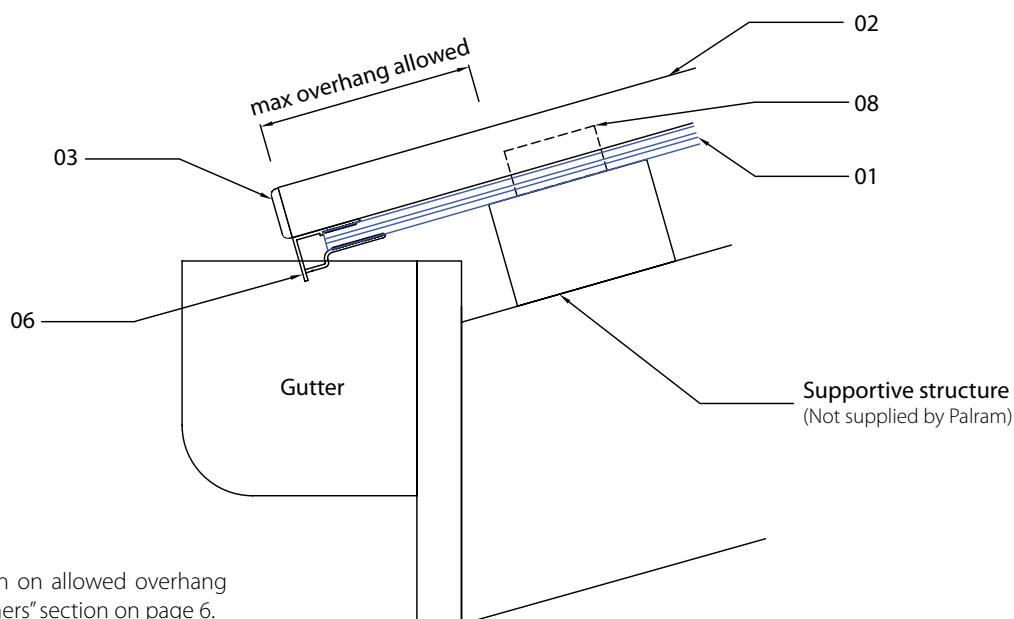
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Roofing Detail 1: Apron Flashing



### Roofing Detail 2: Eave

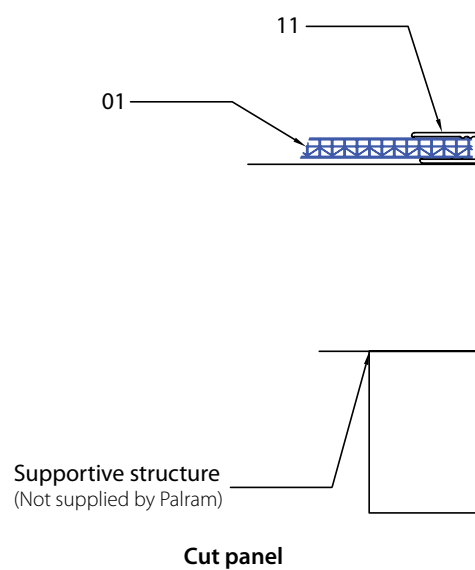
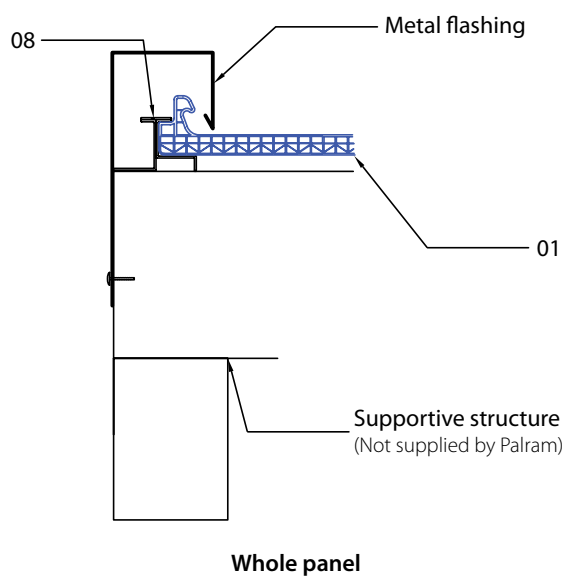


**Note:** For information on allowed overhang please refer to "a) Joiners" section on page 6.

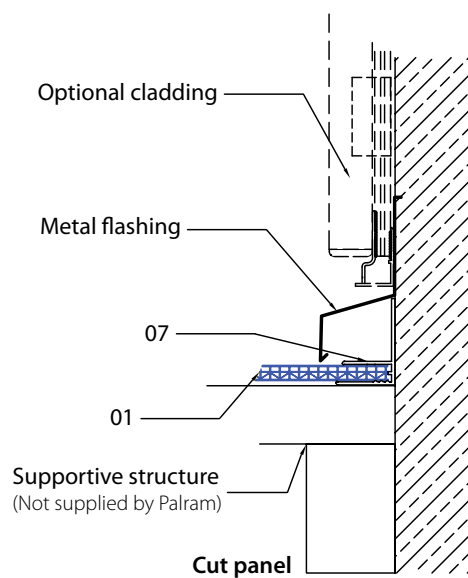
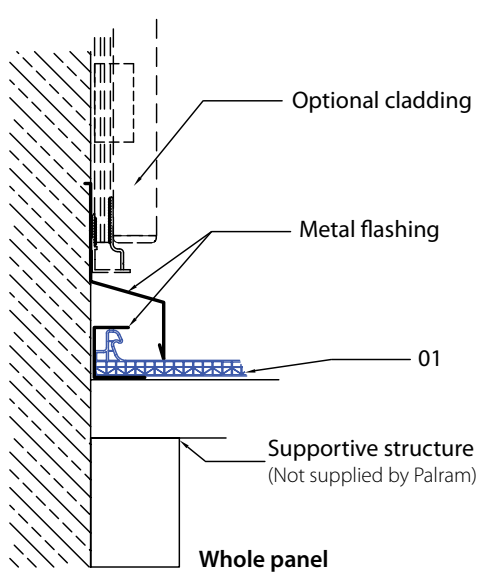
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Roofing Detail 3: Barge Details



### Roofing Detail 4: Parallel Apron Flashing

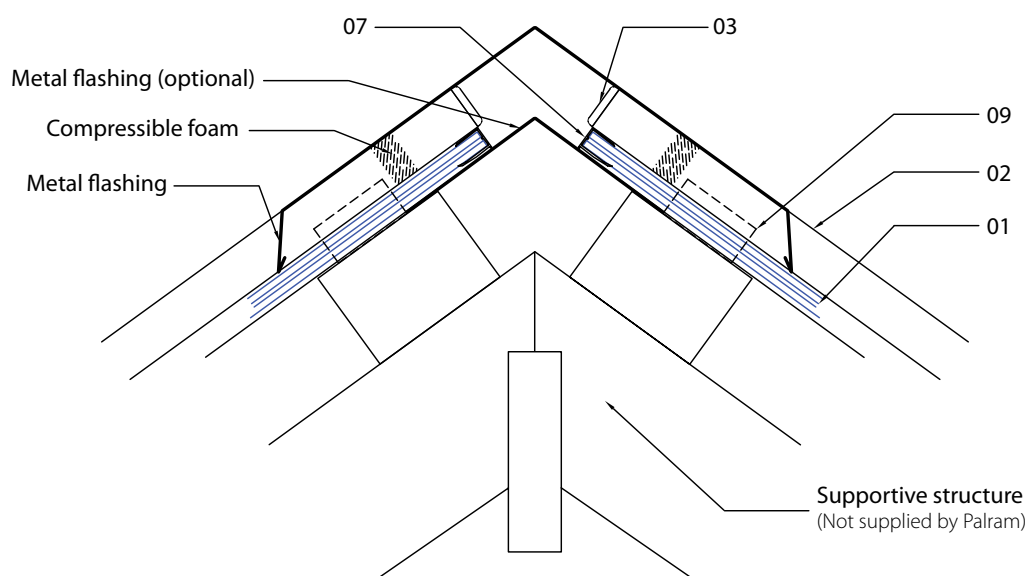




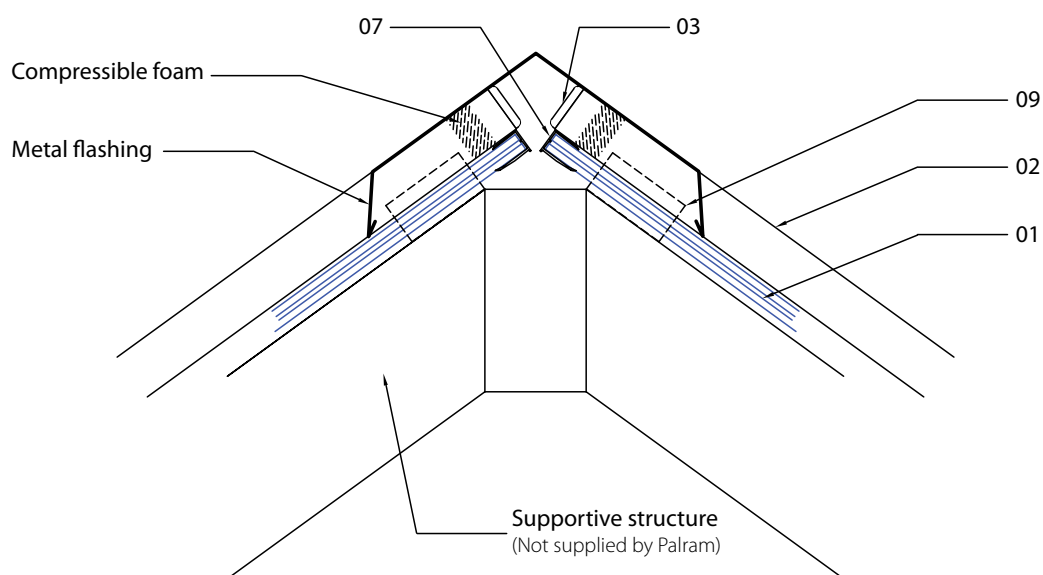
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Roofing Detail 5: Ridge Flashing



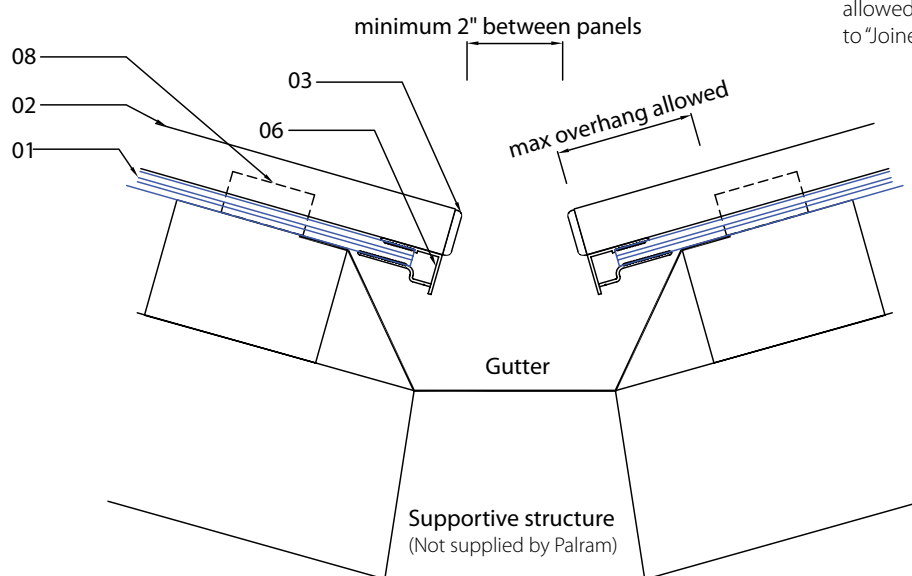
### Roofing Detail 6: Hip Flashing



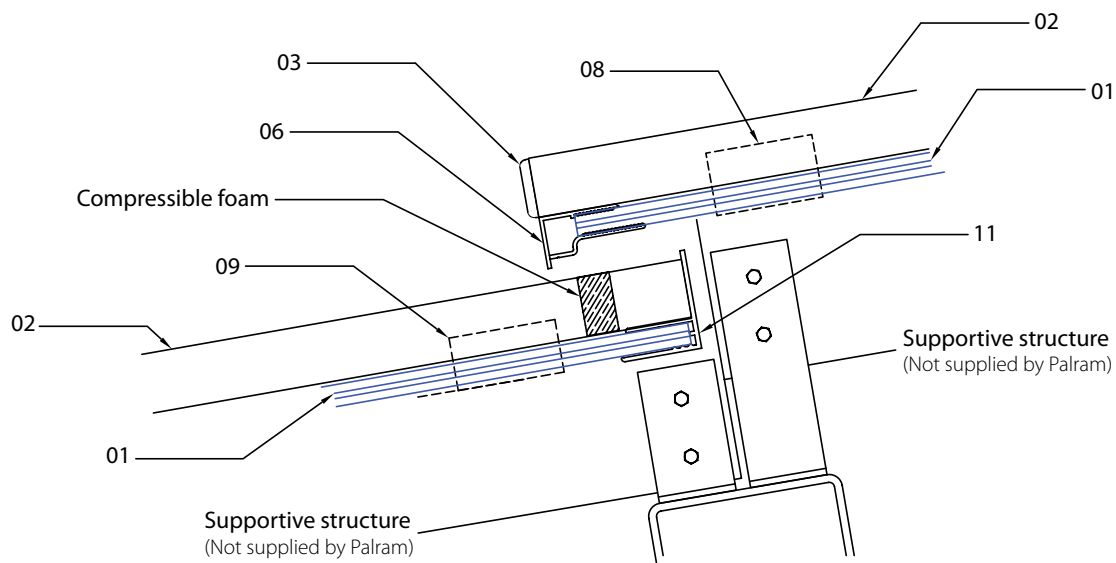
## Legend

01	Panel	06	Aluminum Sealing Strip	11	Aluminum F-Profile
02	PC Joiner	07	PC U-Profile	12	Metal Screw
03	End-Cap for PC Joiner	08	T-Fastener	13	Wood Screw
04	Aluminum Joiner 'C'	09	T-Stopper	14	Aluminum U-Profile
05	End-Cap for Aluminum Joiner 'C'	10	Aluminum Span-Bar		

### Roofing Detail 7: Valley Gutter



### Roofing Detail 8: Overlap Panels



## Manufacturer's Lifetime Warranty

SUNPAL panels are guaranteed for water leak-proof performance for 25 years. SUNPAL panels bear a limited lifetime warranty not to lose more than 8% of light transmission for 15 years and no more than 1% per year thereafter, when measured according to ASTM D1003-77. SUNPAL panels are warranted for up to 10 years from the date of purchase not to break or fail as a result of impact by hail measuring up to 20 mm in diameter, in speed of up to 21 m/s. For detailed warranty terms please see Palram Americas website.

**Please note:** Warranties will apply only if the panels are installed and maintained according to Palram specifications and installation instructions.

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70003 - 08.2012

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