



## ★ **Installation Guide**

*Summersville, West Virginia*

# *R-Panel*

# **IMPORTANT NOTICE**

This manual contains suggestions and guidelines on how to install panels and trim details. The contents of this manual include the guidelines that were in effect at the time this publication was originally printed. In an effort to keep pace with the ever-changing code environment, we retain the right to change specifications and / or designs at any time without incurring any obligations. To insure you have the latest information available, please inquire or visit our web site. Application and design details are for illustrative purposes only and may not be appropriate for all environmental conditions and/or building designs. Projects should be engineered and installed to conform to applicable building codes, regulations, and accepted industry practices.



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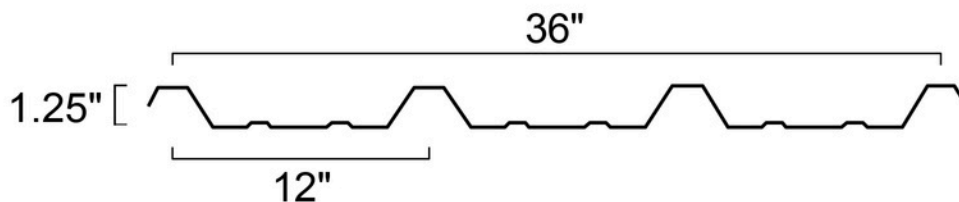
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## Introduction

The R-Panel system is an industry leader in strength and durability. This heavy-duty roof and wall panel features classic looks and is used primarily on commercial, industrial, and steel building applications. R-Panel was designed with taller ribs to increase strength and allow installation on lower slopes down to 1:12.

R-Panel is available in a range of paint colors and in both 26 and 24 gauge steel. It is also available in unpainted Galvalume®. Our paint system carries a 40 year warranty and Galvalume® a 25 year warranty.

The R-Panel system is available in 36" coverage. The panel has four major support ribs at 1.25" high that add rigidity and strength to the panel.



Below is a list of all of the R-Panel system approvals and certifications.

- Miami-Dade County, Florida Approved - See Approvals for Requirements
- Florida Building Code Approved - See Approvals for Requirements
- Texas Windstorm Certified
- UL 790 Fire Resistance Class A
- UL 2218 Impact Resistance Class 4
- UL 580 Uplift Resistance Class 90

### ALLOWABLE UNIFORM LOADS PER SQUARE FOOT - R and PBR Panels

		Allowable Live Loads (lb/ft2)											Allowable Uplift Loads (lb/ft2)										
		Span											Span (ft)										
GA	TS	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7
26	Stress	235.9	163.6	119.4	90.6	71.0	57.0	46.7	38.9	32.9	28.2	24.4	205.3	139.5	100.4	75.4	58.7	46.8	38.2	31.8	26.8	22.9	19.8
80 ksi	L/180	728.5	373.0	215.9	135.9	91.1	64.0	46.6	35.0	27.0	21.2	17.0	604.8	309.7	179.2	112.8	75.6	53.1	38.7	29.1	22.4	17.6	14.1
24	Stress	318.2	211.6	150.2	111.9	86.5	68.8	56.0	46.4	39.1	33.4	28.8	305.1	202.3	143.3	106.6	82.3	65.4	53.2	44.1	37.2	31.7	27.4
50 ksi	L/180	1161.5	594.7	344.1	216.7	145.2	102.0	74.3	55.8	43.0	33.8	27.1	914.1	468.0	270.8	170.6	114.3	80.2	58.5	44.0	33.9	26.6	21.3

- All load data is based on three or more spans (TS). For more information regarding spans or section properties, please contact your rep
- Allowable load based on stress is the smallest load due to bending, shear and combined bending and shear.
- Allowable load based on deflection limit cannot exceed allowable load based on stress.
- These loads are for panel strength. Frames, purlins, fasteners and all supports must be designed to resist all loads imposed on the panel.
- Allowable uplift loads based on stress have not been increased by 33.33% for wind uplift.
- Allowable loads for deflection are based on deflection limitation of span/180.
- For roof panels, self weight of the panel has to be deducted from the allowable inward load to arrive at the actual 'live load' carrying capacity of the panel.

It is the users responsibility to verify all applicable code requirements for the area, check all measurements, and determine suitability of product for job. Implied warranties of merchantability and fitness for particular purpose are disclaimed.



# Panel Installation Guide

## Storage

If metal is not to be installed immediately, store inside in a well ventilated, dry location. Condensation or other moisture can form between the sheets during storage causing water stains or white rust which detracts from the appearance of the product and may affect the product's useful life. Trapped moisture between sheets of painted metal can cause white rust to form underneath the paint. This can cause the paint to flake off the panel immediately or several years later. To prevent white and staining, break the shipping bands on the material. Store the material on end or on an incline of at least 8" with a supporting board underneath to prevent sagging. Fan the sheets slightly at the bottom to allow for air circulation. Keep the sheets off of the ground with an insulator such as wood. Any outdoor storage is at the customer's own risk. If outdoor storage cannot be avoided, protect the metal using a canvas cover or waterproof paper. Never cover the metal with plastic as this will cause condensation to form.

## General Installation Information

Insure that the structure is square and true before beginning panel installation. If the structure is not square, the panels will not properly seal at the side laps. Green or damp lumber is not recommended. Moisture released from the damp lumber may damage the metal panels. Remove any loose metal shavings left on roof surface immediately to prevent corrosion. Keep roof free of debris that could trap moisture on the metal, causing corrosion. The minimum pitch for roofing applications is 1:12.

## Safety Precautions

Always wear heavy gloves when working with steel panels to avoid cuts from sharp edges. When power cutting or drilling steel panels, always wear safety glasses to prevent eye injury from flying metal fragments. If you must walk on a metal roof, take great care. Metal panels can become slippery, so always wear shoes with non-slip soles. Avoid working on metal roofs during wet conditions when the panels can become extremely slippery. Walking or standing on a metal roof which does not have a plywood or other deck beneath it is not recommended. However, if you must do so, always walk on the purlins, never between.

## Fastening

If you wish to pre-drill fastener holes, use a cover sheet to prevent hot metal shavings from sticking to panels. It is recommended that you cut panels upside down using a nibbler. For best results, use #14 x 7/8" Lap Screws at panel overlaps. For installation into a steel frame, use #12 x 1" (minimum) Self-Drilling Screws. For installation into a wood frame, use #10 x 1" (minimum) Wood Screws. Position fasteners as shown in Figure 1

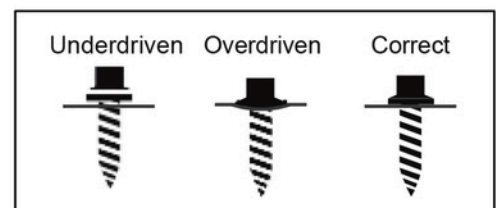
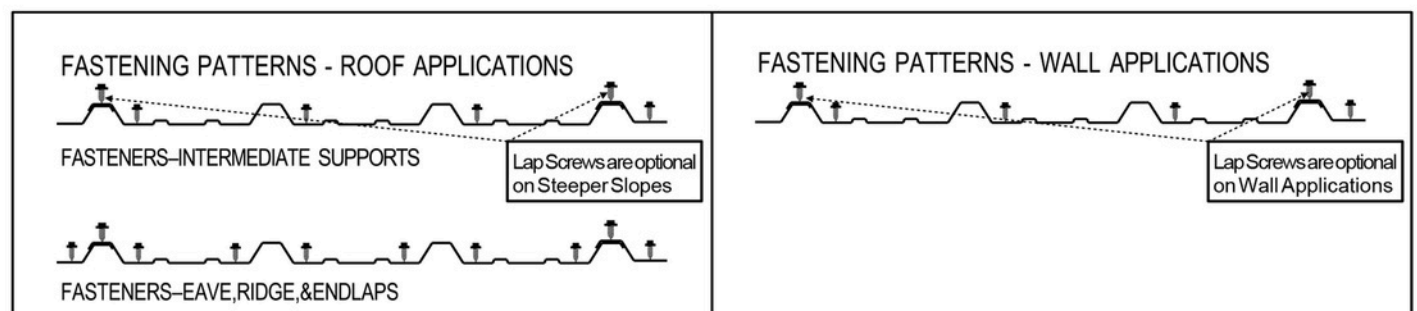
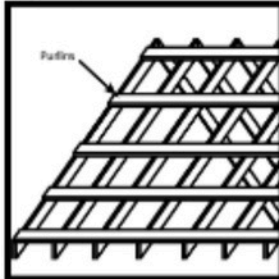


Figure 1



## Roofing Installation Options

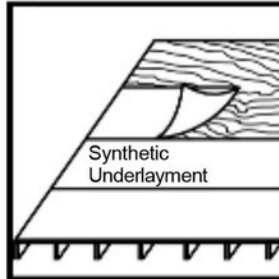
Option 1



### Install Metal Directly to Wood/Metal Frame

- Use Maximum 2' Purlin Spacing
- Install Metal
- \*DO NOT USE THIS OPTION FOR HEATED SPACES

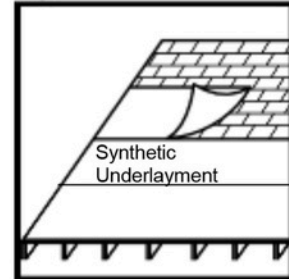
Option 2



### Install Metal on Solid Deck

- Lay Plywood Deck
- Apply Synthetic Underlayment or other Moisture Barrier Protection
- Install Metal

Option 3



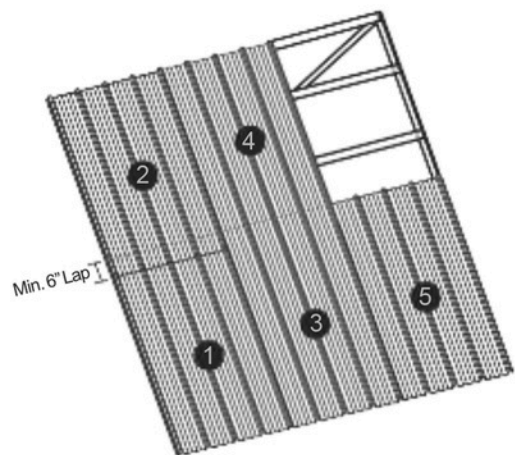
### Install Metal Over Existing Shingles

- Apply Synthetic Underlayment or other Moisture Barrier Protection
- Install Metal

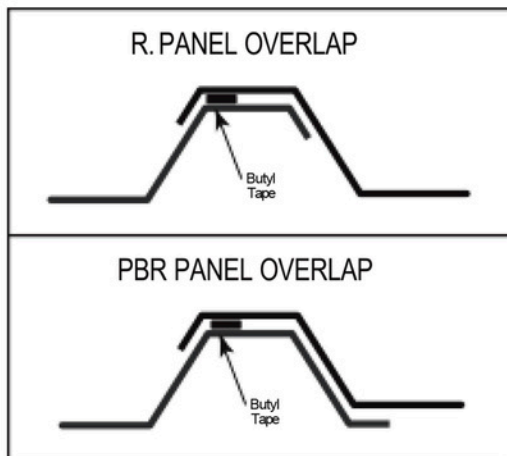
Allow an overhang a minimum of 1" at the eave to provide for a drip edge. Use inside closure at eave to prevent water infiltration, insect or bird infestation at openings. To protect against uplifting winds and to provide a finished appearance, apply rake trim or other standard gable trim. Slopes of less than 1:12 aren't recommended. For slopes less than 3:12, apply butyl tape as shown in Figure #4 along the top of all lap ribs. For best results, apply a 7/8" lap screw into the crown of the rib to secure the side lap.

End lap panels 6"  
Install panels in the sequence shown in Figure #5.

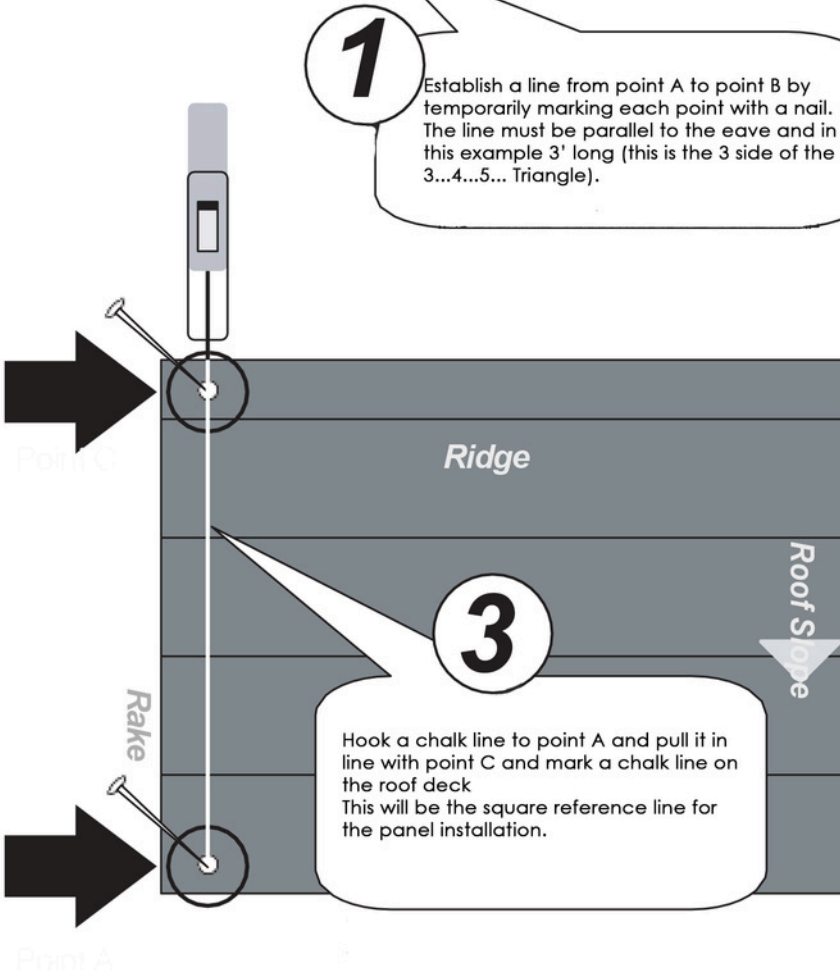
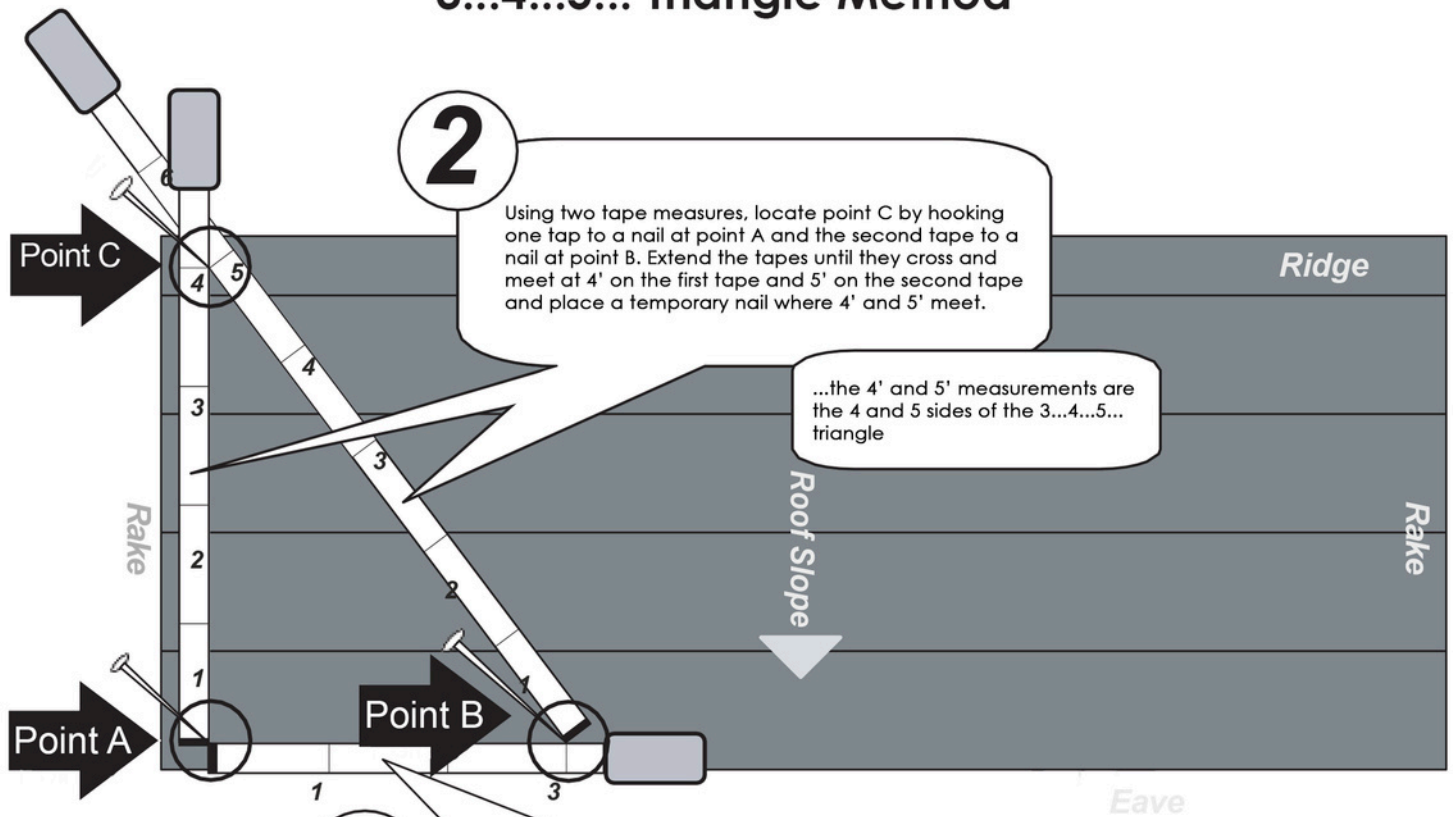
**Figure #5**



**Figure #4 - Rib Overlap**



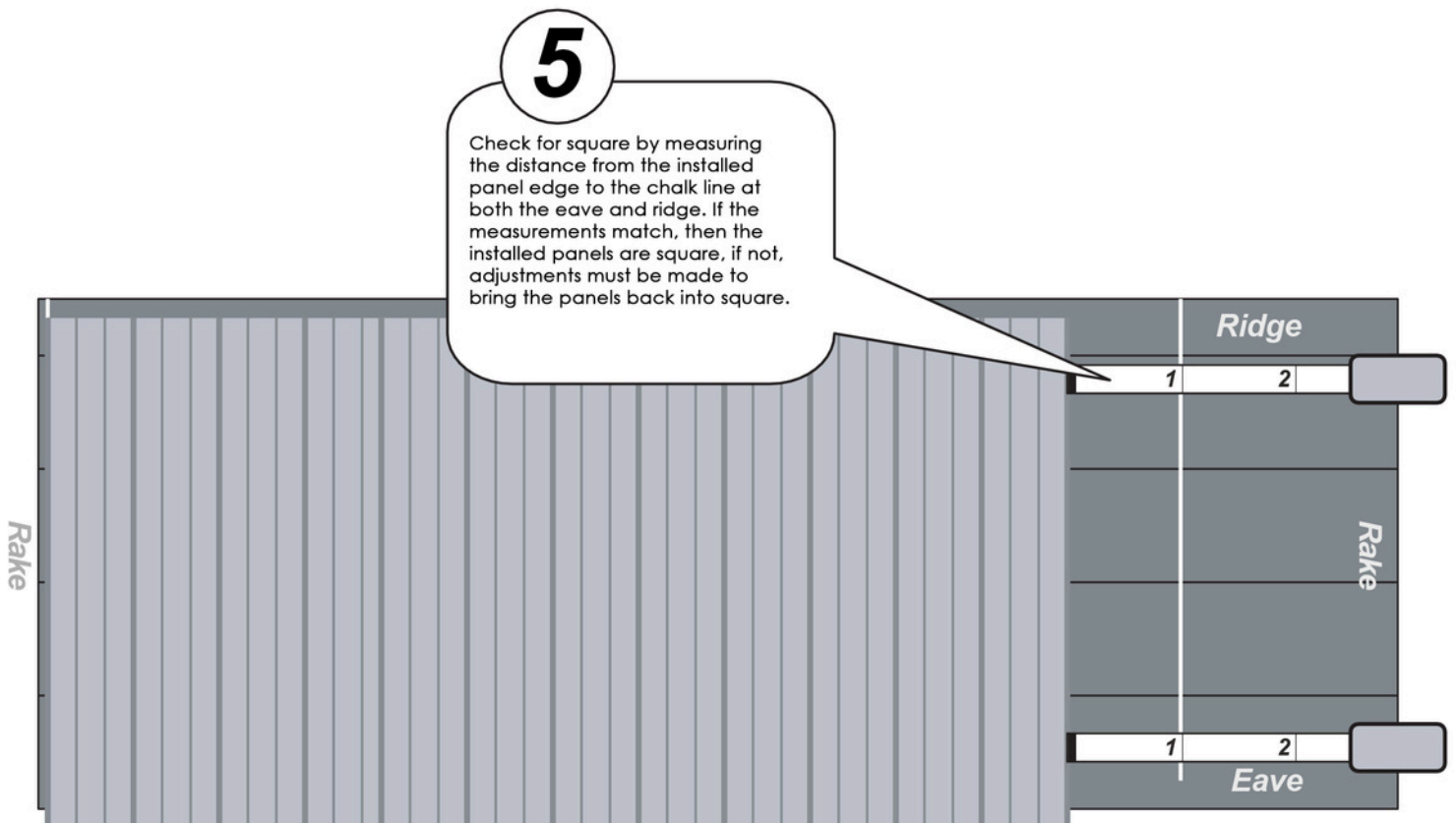
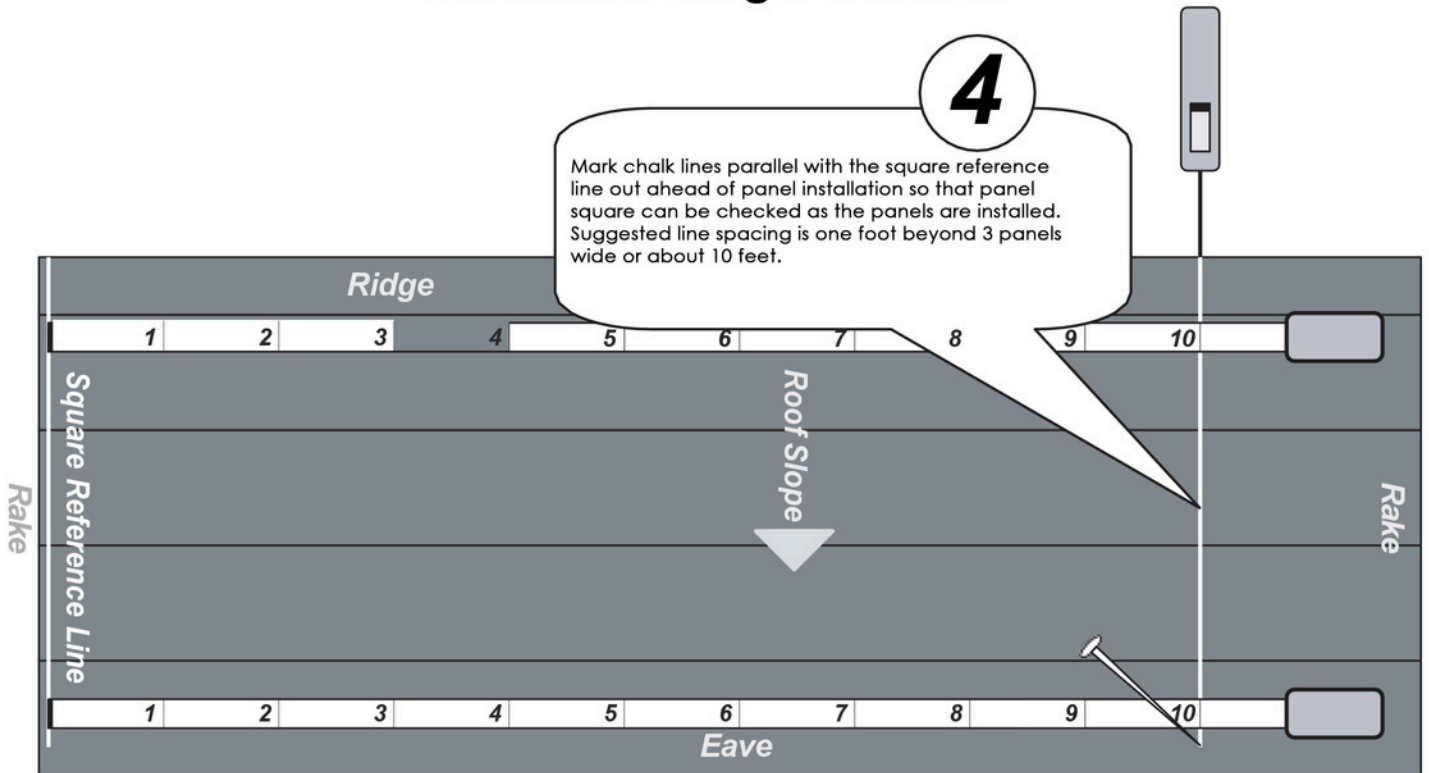
## 3...4...5... Triangle Method



### Note:

For larger 3...4...5...Triangles multiple each side of the triangle by the desired increase in size. For example, if the roof panels are 25' from eave to ridge, multiply each side by a factor of 6 for an 18'...24'...30'...Triangle. Obviously, the closer the triangle vertical leg length is to matching the panel length, the greater the squaring accuracy

## 3...4...5...Triangle Method

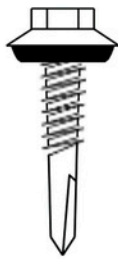




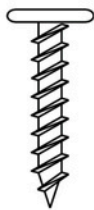
# Accessories



1", 1-1/2", 2", 2-1/2"  
Hex Head Wood Screw  
Metal-to-Wood



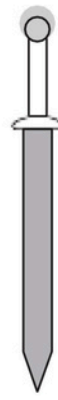
1", 1.25", 1.5"  
Hex Head Self Driller  
Metal-to-Metal



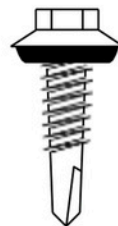
1", 1.5", 2"  
Pancake Head  
Wood Screw



1", 1.5", 2"  
Pancake Head  
Self Driller



Pop Rivet (Stainless)  
(1/8" x 3/16")



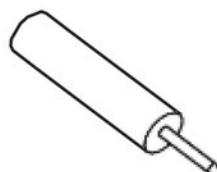
#7/8" Hex Head  
Lap Stitch Screw  
Metal-to-Metal



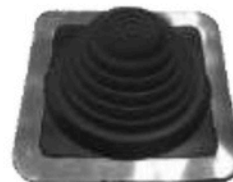
Profile Vent Ridge Vent  
1.25" x 3" x 25'



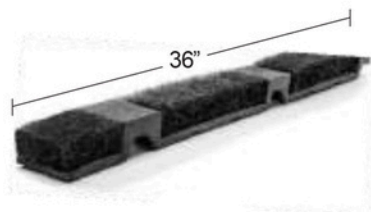
Versa Vent  
1.5" x 3" x 10'



Tube Sealant



Pipe Boot  
(Various sizes, heat treated &  
retro fit also available)



Closure



Butyl Tape  
(3/8" x 3/32" x 45')



Butyl Tape  
(7/8" x 3/16" x 40' or 25'  
depending on plant)



Touch Up Paint



Outside Closure Strip



Inside Closure Strip

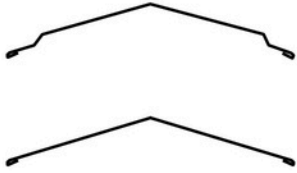
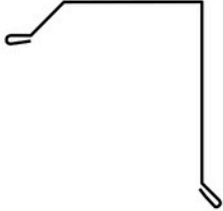

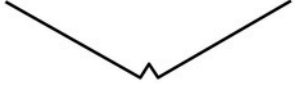
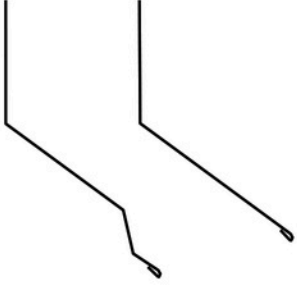
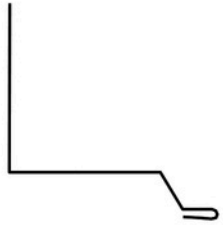
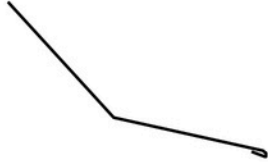
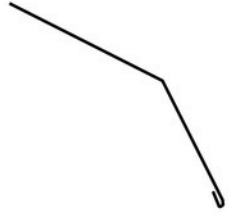
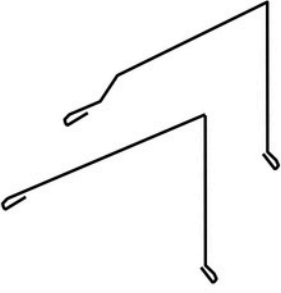

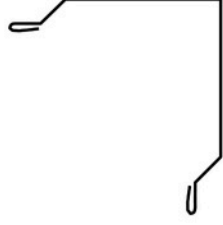
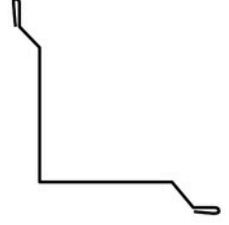

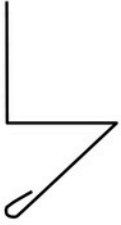




XL A-10 Foam Tape Expanding Hip/Valley  
Closure  
1.5" x 1" x 13' 2"



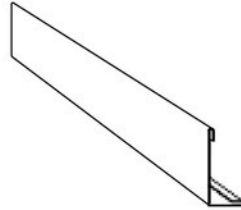
Synthetic Roof  
Underlayment

## Typical Trim Profiles (size/design vary by plant)

<b>Ridge</b> 	<b>Rake</b> 	<b>Eave</b> 	<b>Valley</b> 
<b>Endwall</b> 	<b>Sidewall</b> 	<b>Transition</b> 	<b>Gambrel</b> 
<b>High Side Peak</b> 	<b>Fascia / Angle</b> 	<b>Outside Corner</b> 	<b>Inside Corner</b> 
<b>J-Channel</b> 	<b>Rat Guard</b> 	<b>Drip Cap</b> 	<b>Flat Sheet</b> 

# Fascia

Numbers indicate suggested trim assembly sequence.



## Roof Substrate

Install the roof substrate according to local building code requirements.

## Moisture Barrier

Install moisture barrier according to the manufacture's recommended procedure and in compliance with local building code requirements.

## Fascia Trim

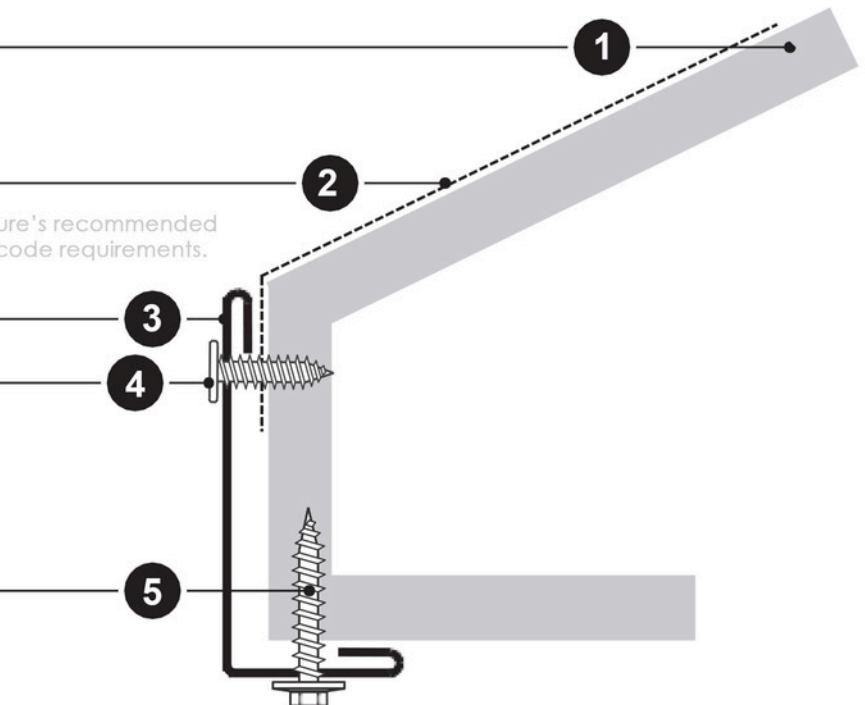
Install the Fascia trim and butt ends.

## Trim Pancake Screw

Fasten trim with Pancake Screws 2' apart along the length of the trim.

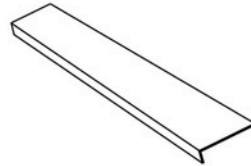
## Trim Wood Screw

Fasten trim with Wood Screws spaced 2' apart along the length of the trim.



# Mini Eave

Numbers indicate suggested trim assembly sequence.



## Moisture Barrier

Install moisture barrier according to the manufacturer's recommended procedure and in compliance with local building code requirements.

## Trim Pancake Screw

Fasten trim with Pancake Screws spaced 12" apart along the length of the trim.

## Optional Butyl Tape

Install continuous along Eave at 1" up from face.

## Mini Trim

Install the Mini Eave and lap ends.

## Roof Substrate

Install the roof substrate according to local building code requirements.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the Mini Eave edge. See panel squaring method in this manual.

## Optional Tube Sealant

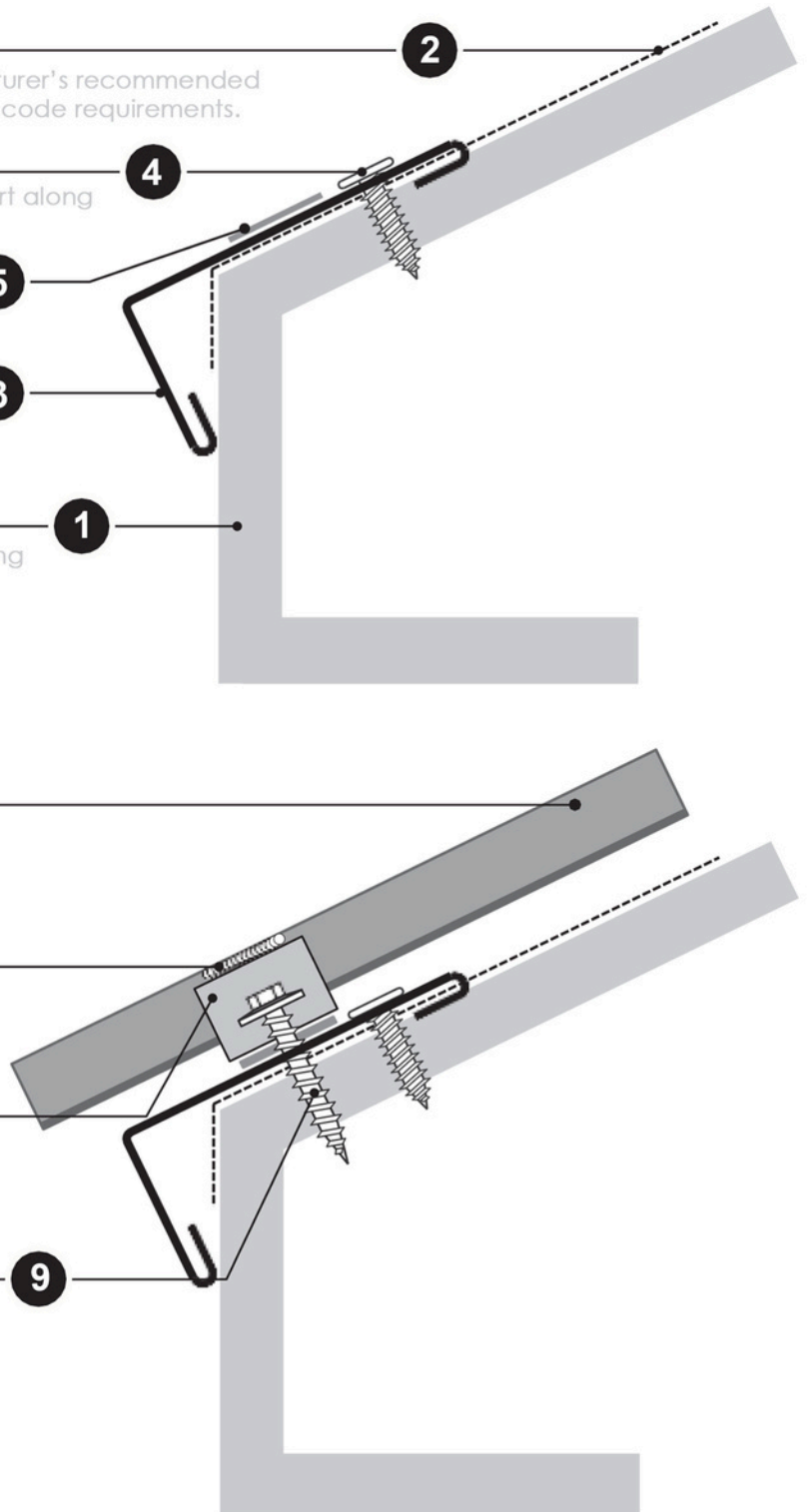
Apply optional Tube Sealant to the top side of the Inside Closure.

## Inside Closure

Place the Inside Closure over the top of the optional Butyl Tape.

## Panel Wood Screw

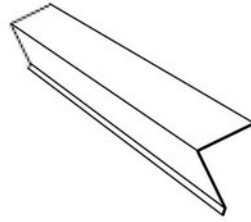
Fasten wood screw at the Inside Closure on each side of major ribs.





# Eave Edge

Numbers indicate suggested trim assembly sequence.



## Moisture Barrier

Install moisture barrier according to the manufacturer's recommended procedure and in compliance with local building code requirements.

## Trim Pancake Screw

Fasten trim with Pancake Screws spaced 12" apart along the length of the trim.

## Optional Butyl Tape

Install continuous along eave at 1" up from face.

## Eave Trim

Install the Eave Trim and lap ends.

## Roof Substrate

Install the roof substrate according to local building code requirements.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the Eave Trim edge. See panel squaring method in this manual.

## Optional Tube Sealant

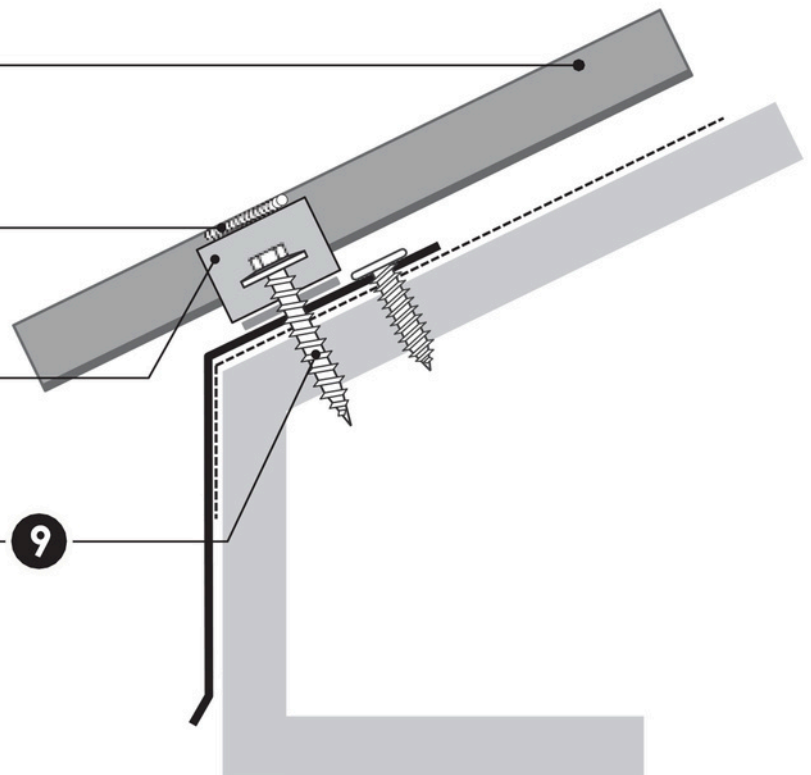
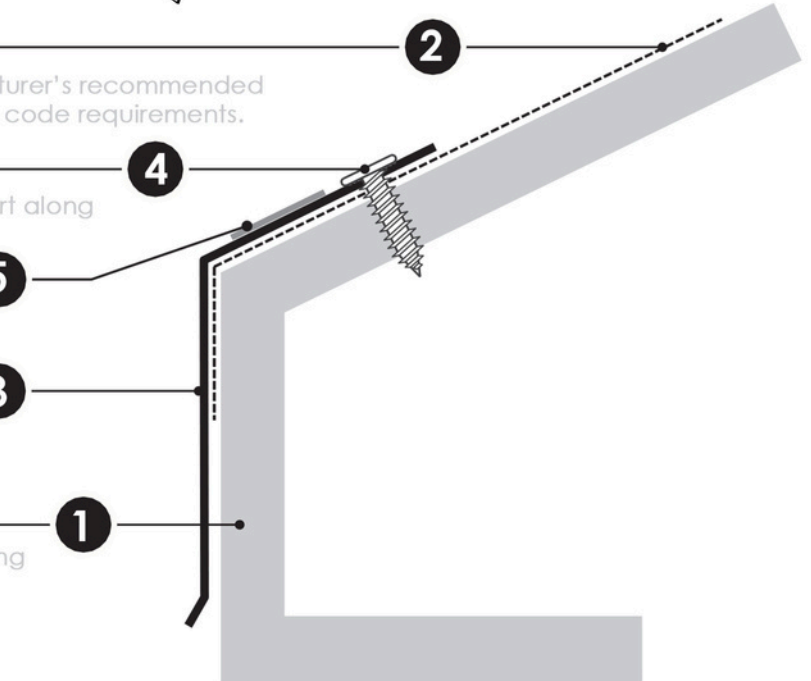
Apply optional Tube Sealant to the top side of the Inside Closure.

## Inside Closure

Place the Inside Closure over the top of the optional Butyl Tape.

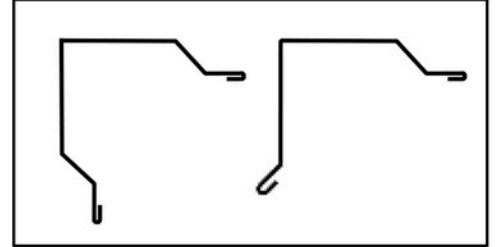
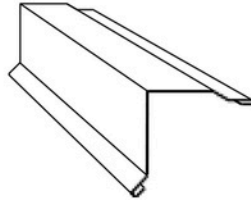
## Panel Wood Screw

Fasten wood screw at the Inside Closure on each side of major ribs.



# Rake

Numbers indicate suggested trim assembly sequence.



## Butyl Tape

Apply Butyl Tape along the length of the panel.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the Eave Trim edge. See panel squaring method in this manual.

## Panel Wood Screw

Fasten panels to the roof substrate using Wood Screws spaced according to the recommended fastening pattern and frequency, and in compliance with local building codes.

## Moisture Barrier

Install moisture barrier according to the manufacture's recommended procedure and in compliance with local building code requirements.

## Roof Substrate

Install the roof substrate according to local building code requirements

## Rake Trim

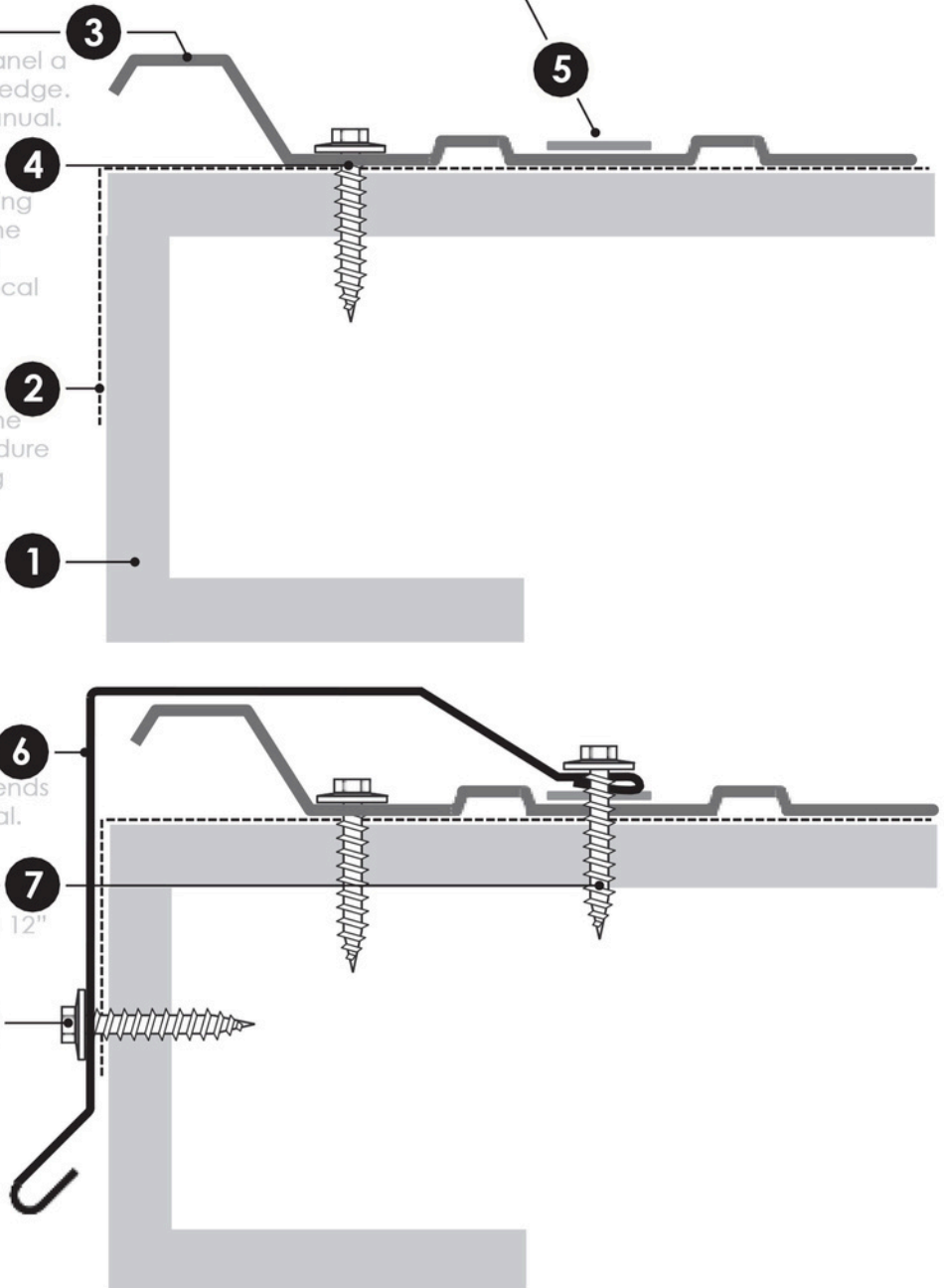
Install the Rake trim and overlap the ends 4". See lapping diagram in this manual.

## Trim Wood Screw

Fasten trim with Wood Screws spaced 12" apart along the length of the trim.

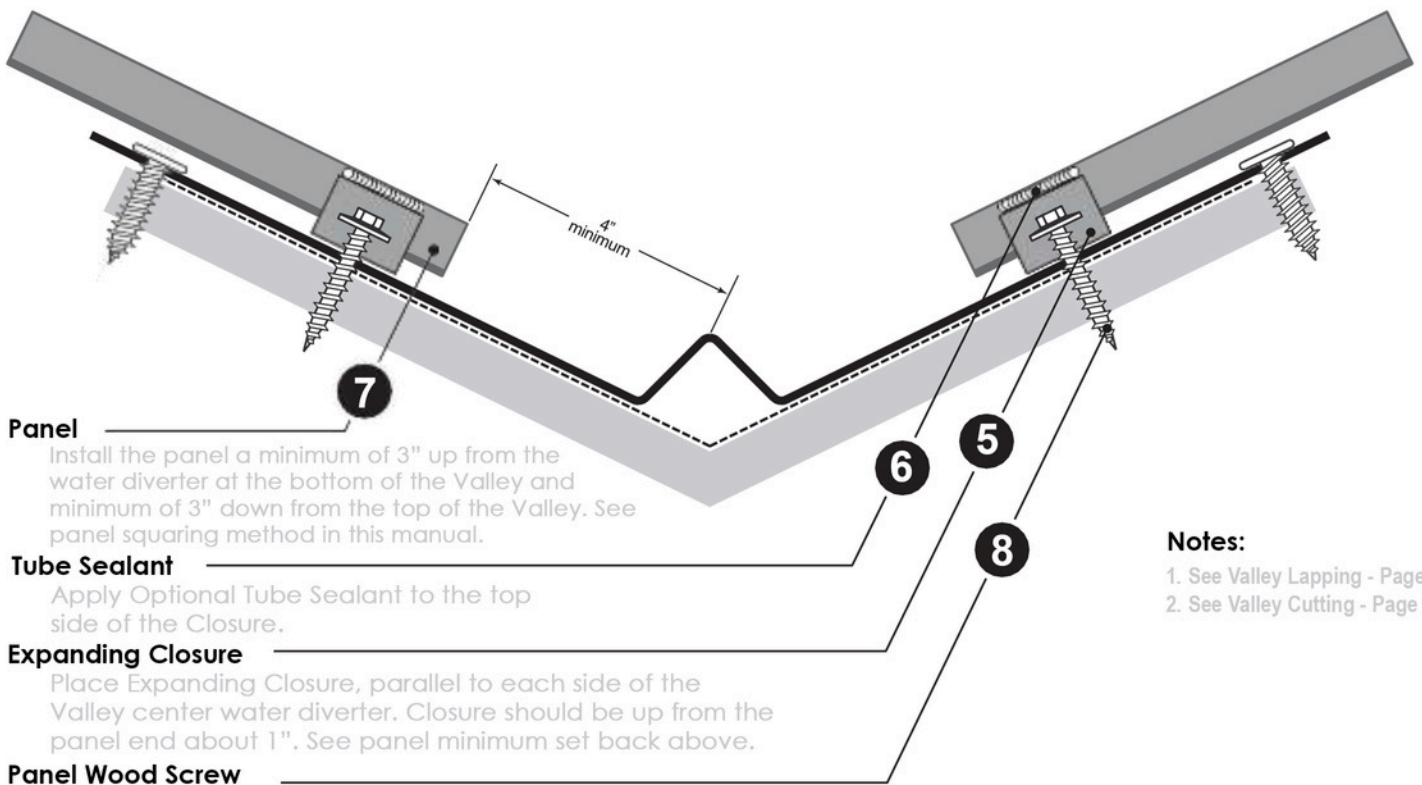
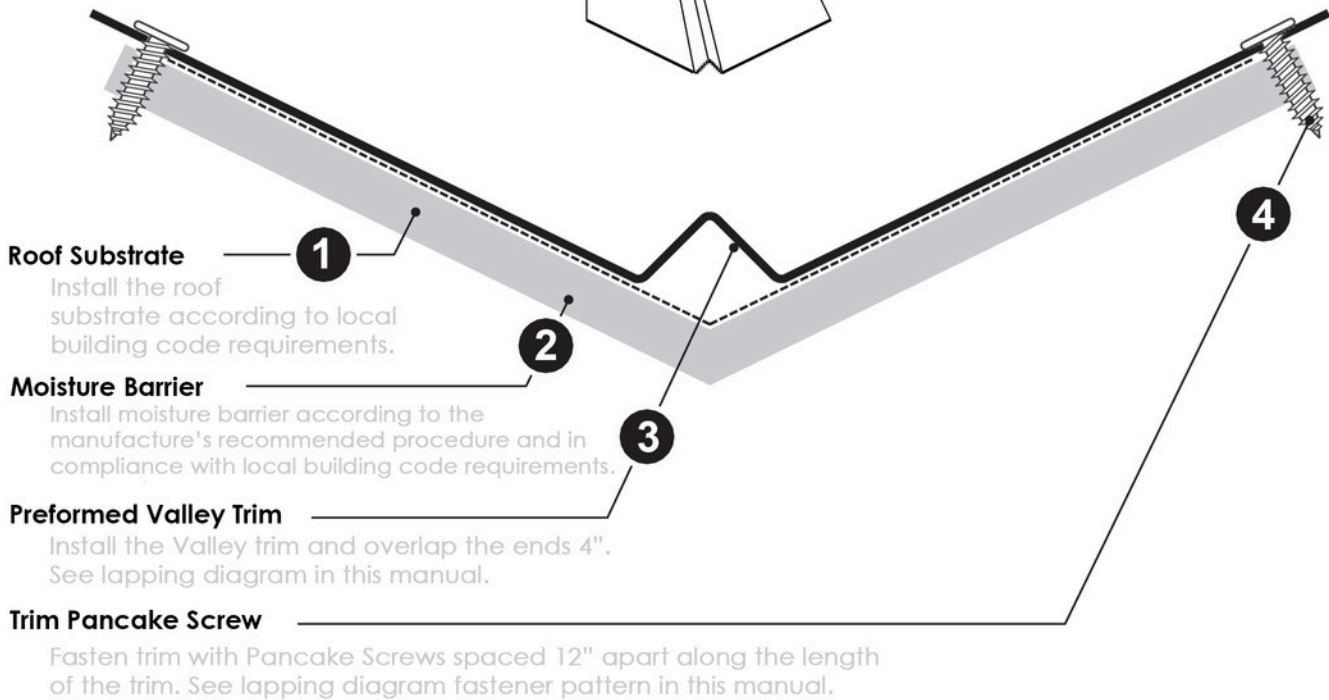
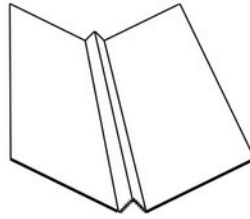
## Trim Wood Screw

Fasten trim with Wood Screws spaced 12" apart along the length of the trim.



# Preformed Valley

Numbers indicate suggested trim assembly sequence.

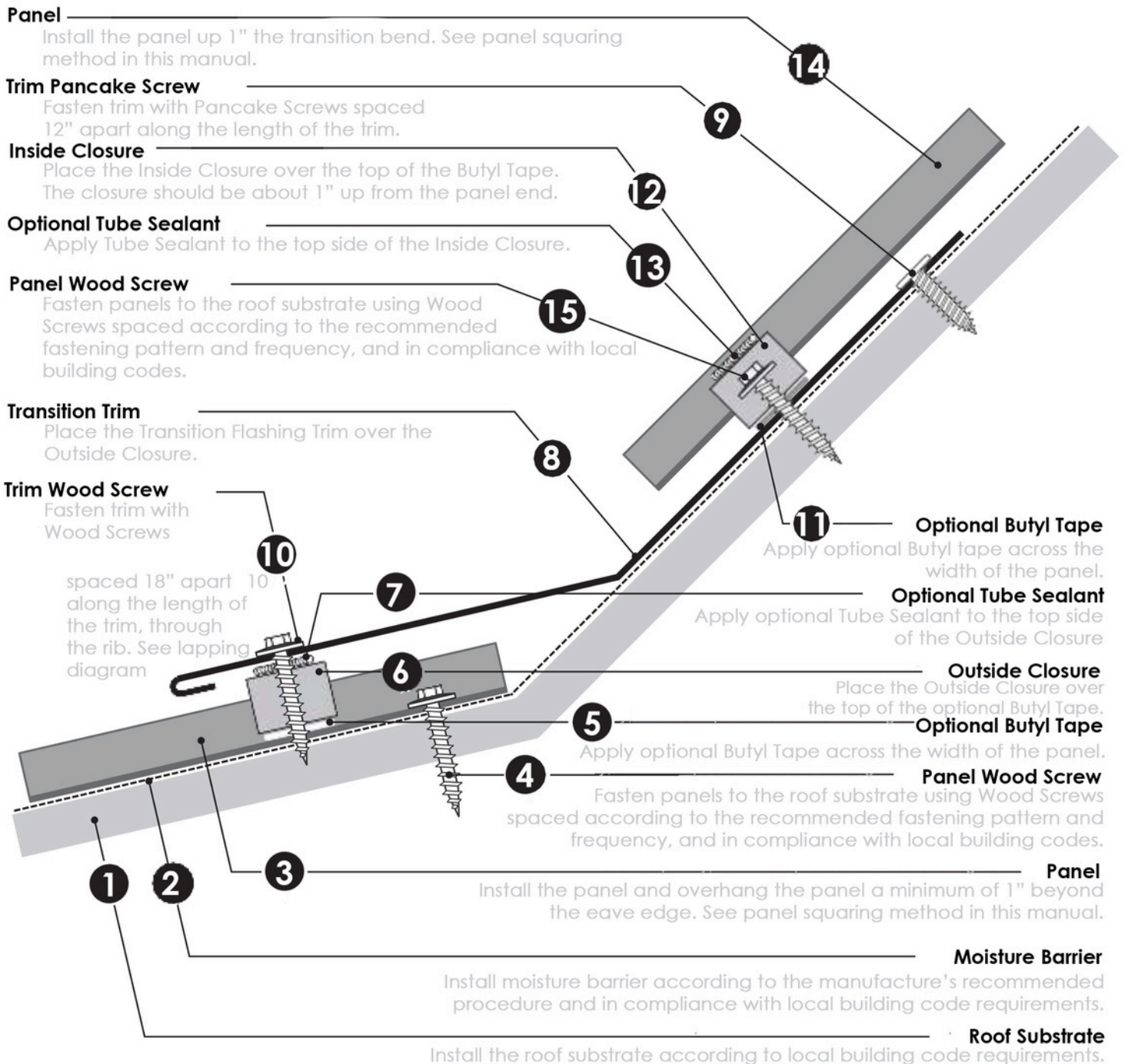
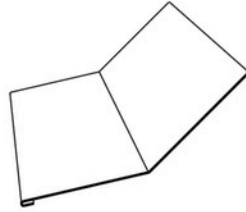


## Notes:

1. See Valley Lapping - Page 25
2. See Valley Cutting - Page 26

# Transition

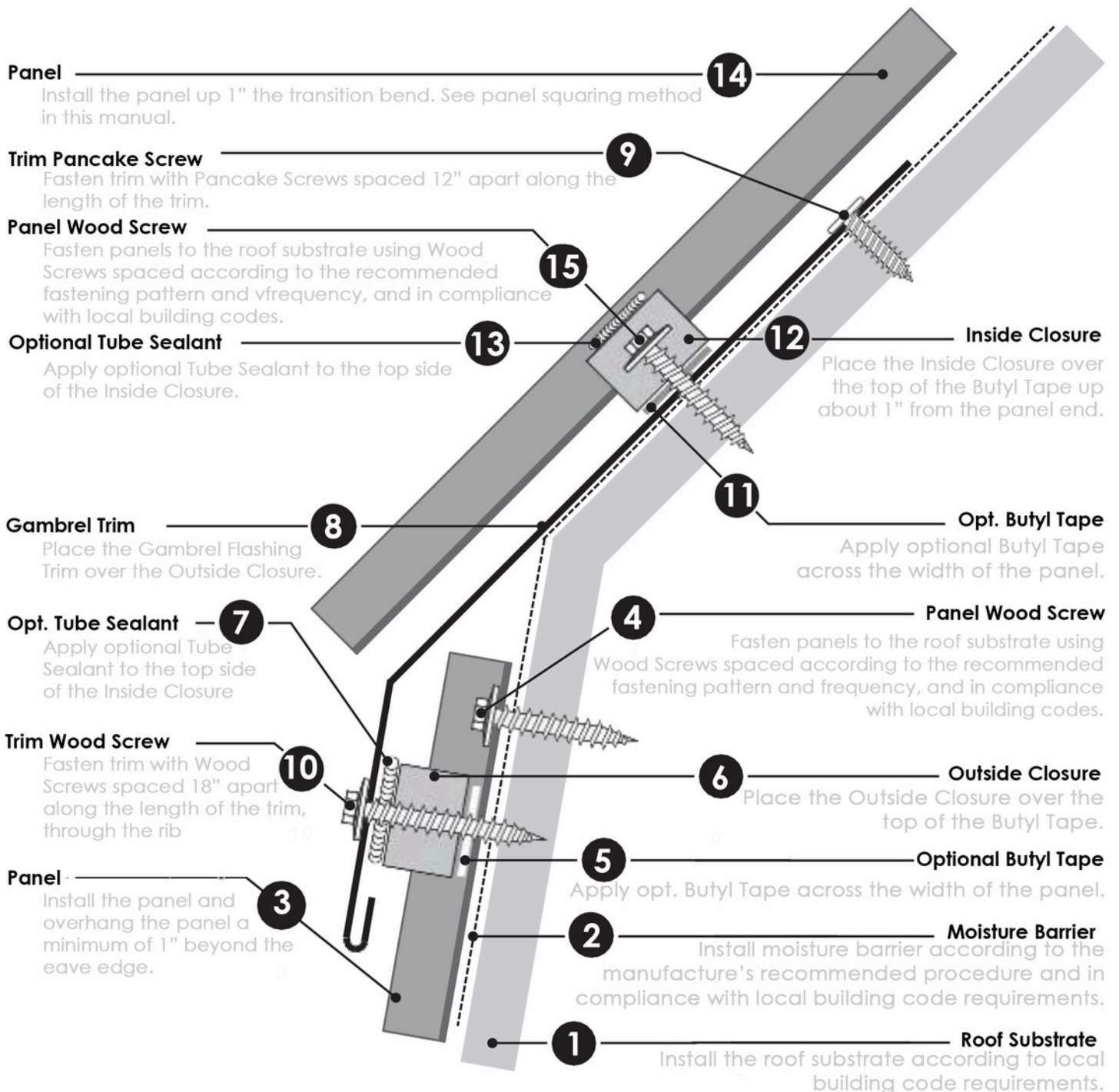
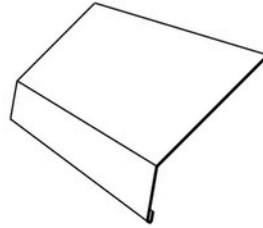
Numbers indicate suggested trim assembly sequence.





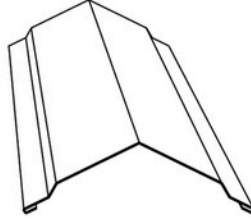
# Gambrel

Numbers indicate suggested trim assembly sequence.



# Hip

Numbers indicate suggested trim assembly sequence.



## Trim Wood Screw

Fasten trim with Wood Screws spaced 18" apart along the length of the trim, through the rib. See lapping diagram.

## Opt. Tube Sealant

Apply optional Tube Sealant to the top side of the Expanding Closure.

## Hip Ridge

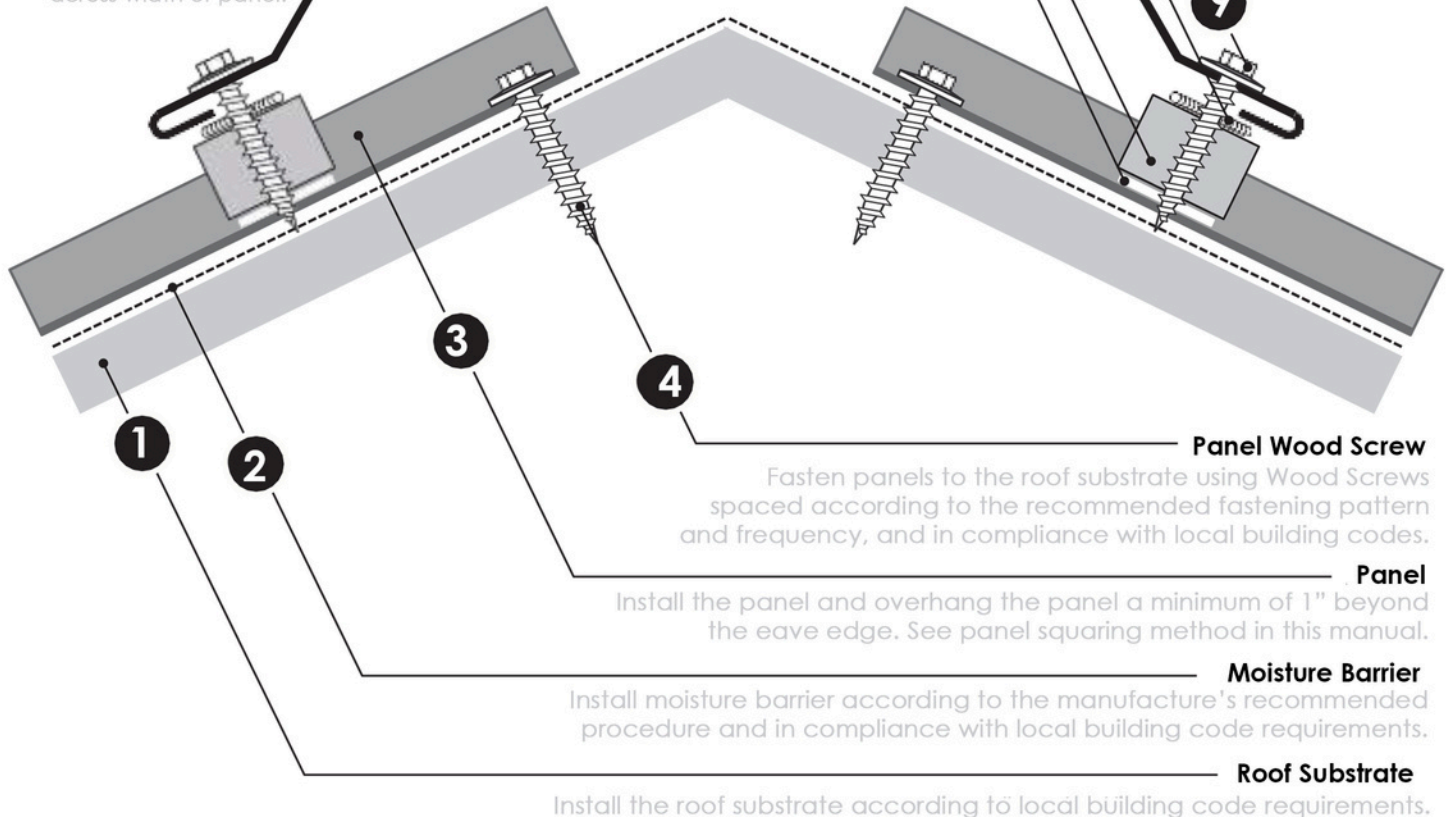
Place the Hip Trim over the Expanding Closure.

## Expanding Closure

Place Expanding Closure parallel to each side of the hip center line so that hip fastener penetrates the center of the closure. Closure should be up from the panel end about 1".

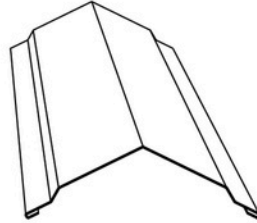
## Opt. Butyl Tape

Apply optional Butyl Tape across width of panel.



# Ridge

Numbers indicate suggested trim assembly sequence.



## Trim Wood Screw

Fasten trim with Wood Screws spaced 18" apart along the length of the trim, through the rib. See lapping diagram.

## Opt. Tube Sealant

Apply optional Tube Sealant to the top side of the Expanding Closure.

## Ridge Trim

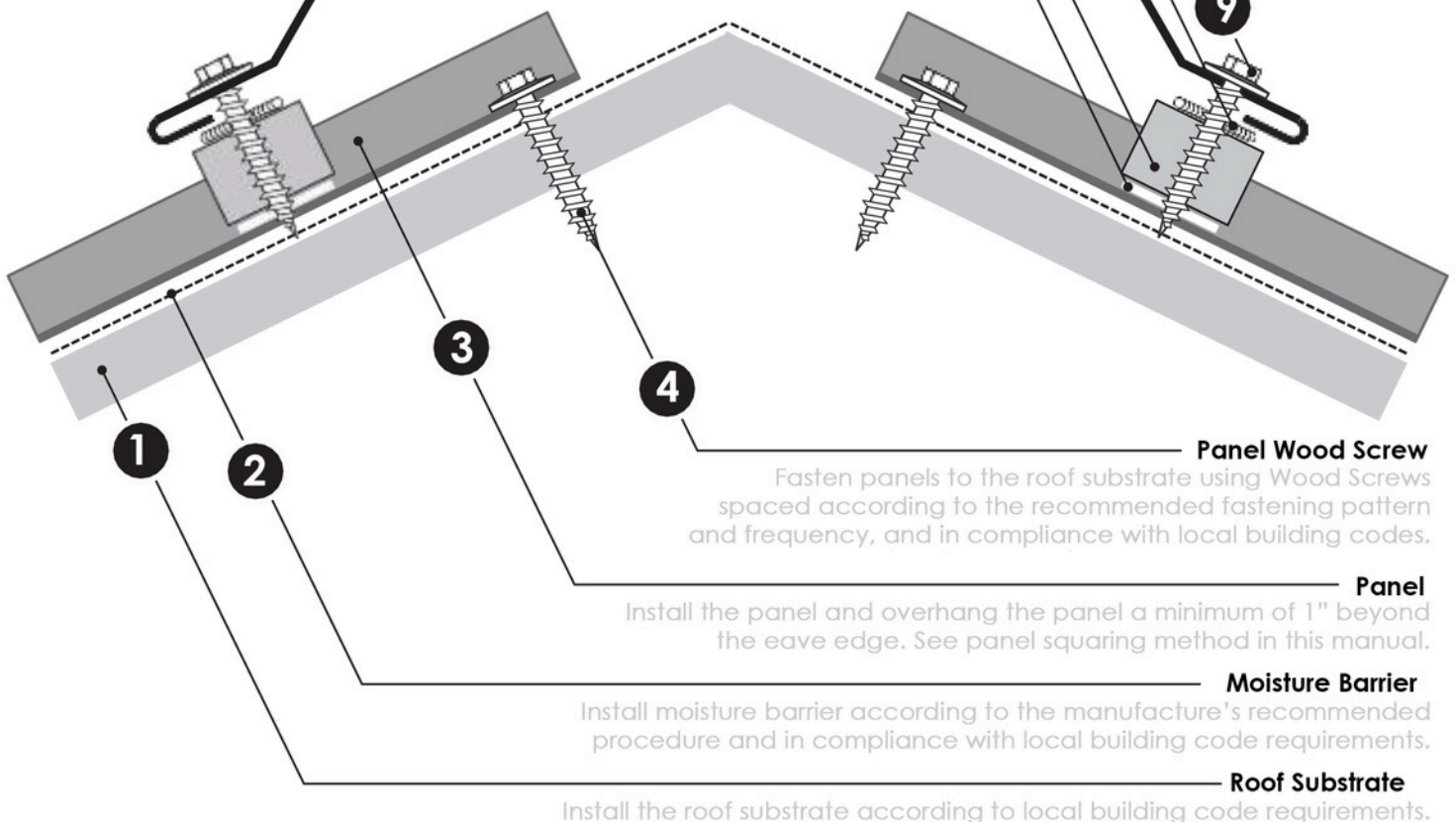
Place the Ridge Trim over the Outside Closure.

## Outside Closure

Place the Outside Closure over the top of the Butyl Tape.

## Opt. Tape Sealant

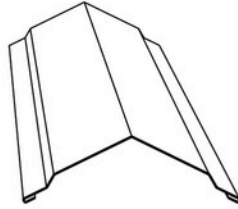
Apply optional Butyl Tape across the width of the panel





# Vented Ridge

Numbers indicate suggested trim assembly sequence.



## Trim Wood Screw

Fasten trim with Wood Screws spaced 18" apart along length of the trim, through the rib. See lapping diagram fastener pattern in this manual.

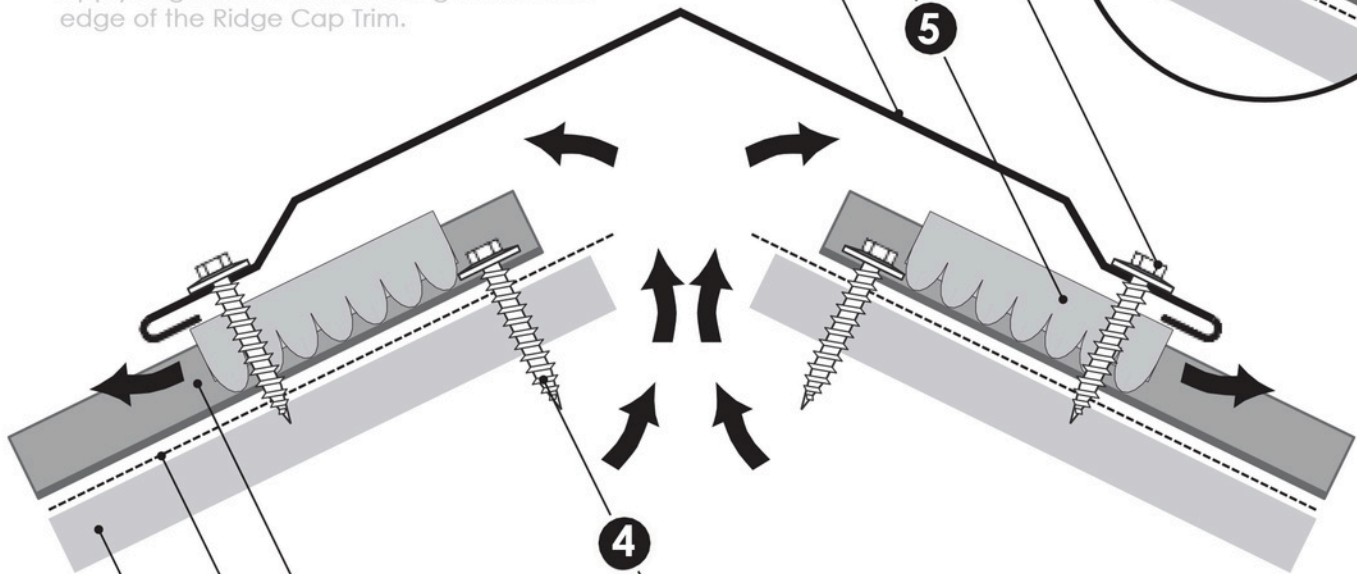
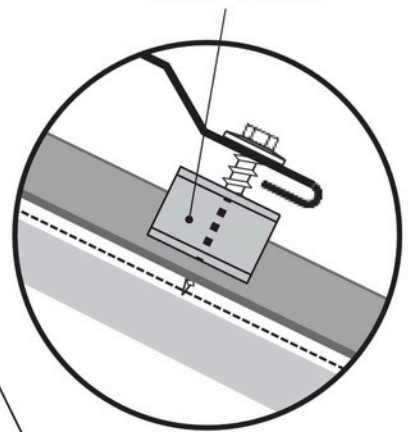
## Ridge Trim

Place the Ridge Trim over the Outside Closure.

## Vent Material

Apply ridge vent material along the outside edge of the Ridge Cap Trim.

## LP2 Vented Closure Option



## Panel Wood Screw

Fasten panels to the roof substrate using Wood Screws spaced according to the recommended fastening pattern and frequency, and in compliance with local building codes.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the eave edge. See panel squaring method in this manual.

## Moisture Barrier

Install moisture barrier according to the manufacture's recommended procedure and in compliance with local building code requirements.

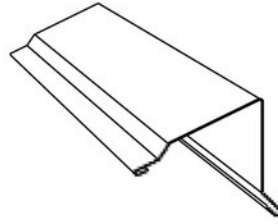
## Roof Substrate

Install the roof substrate according to local building code requirements.



# High Side Peak

Numbers indicate suggested trim assembly sequence.



## Trim Wood Screw

Fasten trim with Wood Screws spaced 2' apart along the length of the trim. See lapping diagram.

10

## High Side Peak Trim

Place the High Side Peak Trim over the Outside Closure.

8

## Trim Wood Screw

Fasten trim with Wood Screws spaced 18" apart along the length of the trim, through the rib. See lapping diagram.

9

## Opt. Tube Sealant

Apply optional Tube Sealant to the top side of the Inside Closure.

7

## Outside Closure

Place the Outside Closure over the tip of the optional Butyl Tape.

6

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the eave edge. See panel squaring method in this manual.

5

## Opt. Butyl Tape

Apply optional Butyl Tape across the width of the panel.

4

## Panel Wood Screw

Fasten panels to the roof substrate using Wood Screws spaced according to the recommended fastening pattern and frequency, and in compliance with local building codes

2

## Moisture Barrier

Install moisture barrier according to the manufacturer's recommended procedure and in compliance with local building code requirements.

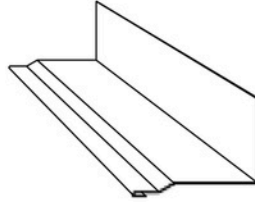
1

## Roof Substrate

Install the roof substrate according to local building code requirements

# Side Wall

Numbers indicate suggested trim assembly sequence.



## Tube Sealant

Apply Tube Sealant continuously along the Counter Flashing and generously filling the space between the flashing and the wall. Round or slope the Sealant top so that water will run off.

## Trim Wood Screw

Fasten trim with Wood Screws spaced 2' apart along the length of the trim. If wall material is not wood, fasteners will be by others.

## Counter Flashing

Position the Counter Flashing above the Side Wall Trim as shown. Some applications may not need counter flashing.

## Side Wall Trim

Place the Side Wall Trim over the Butyl tape and overlap the ends 4". See lapping diagram in this manual.

## Roof Substrate

Install the roof substrate according to local building code requirements.

## Butyl Tape

Apply Butyl Tape along the length of the panel.

## Trim Wood Screw

Fasten trim with Wood Screws spaced 2' apart along the length of the trim. See lapping diagram.

## Panel Wood Screw

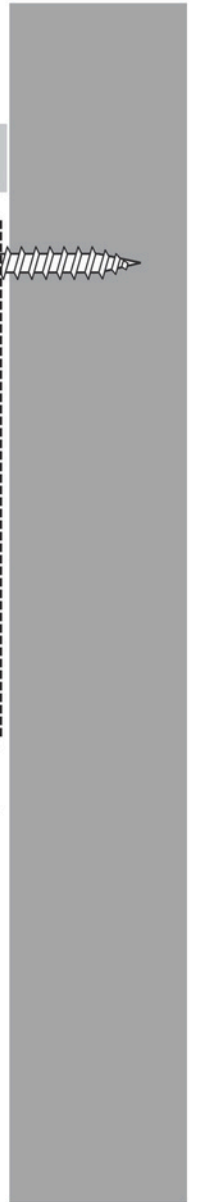
Fasten panels to the roof substrate using Wood Screws spaced according to the recommended fastening pattern and frequency, and in compliance with local building codes.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the eave edge. See panel squaring method in this manual.

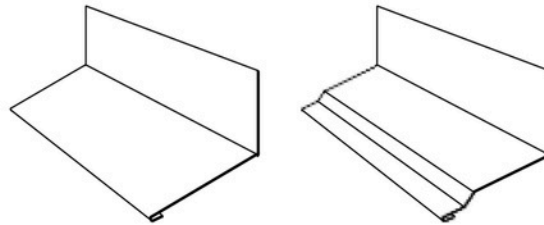
## Moisture Barrier

Install moisture barrier according to the manufacturer's recommended procedure and in compliance with local building code requirements.



# End Wall

Numbers indicate suggested trim assembly sequence.



## Tube Sealant

Apply Tube Sealant continuously along the Counter Flashing and generously filling the space the flashing and the wall. Round or slope the Sealant top so that water will run off.

## Trim Wood Screw

Fasten trim with Wood Screws spaced 2' apart along the length of the trim. If wall material is not wood, fasteners will be by others.

## Counter Flashing

Position the Counter Flashing above the Side Wall Trim as shown. Some applications may not need counter flashing.

## End Wall Trim

Place the End Wall Trim over the Butyl tape and overlap the ends 4". See lapping diagram in this manual.

## Outside Closure

Place the Outside Closure over the top of the Butyl Tape.

## Tube Sealant

Apply Tube Sealant along the length of the Outside Closure.

## Trim Wood Screw

Fasten trim with Wood Screws spaced 18" apart along the length of the trim, the rib. See lapping diagram.

## Panel

Install the panel and overhang the panel a minimum of 1" beyond the eave edge. See panel squaring method in this manual.

## Moisture Barrier

Install moisture barrier according to the manufacturer's recommended procedure.

## Roof Substrate

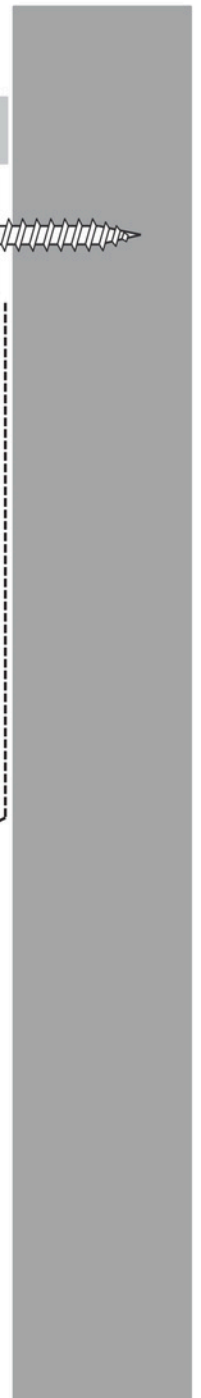
Install the roof substrate according to local building code requirements.

## Butyl Tape

Apply Butyl Tape along the length of the panel.

## Panel Wood Screw

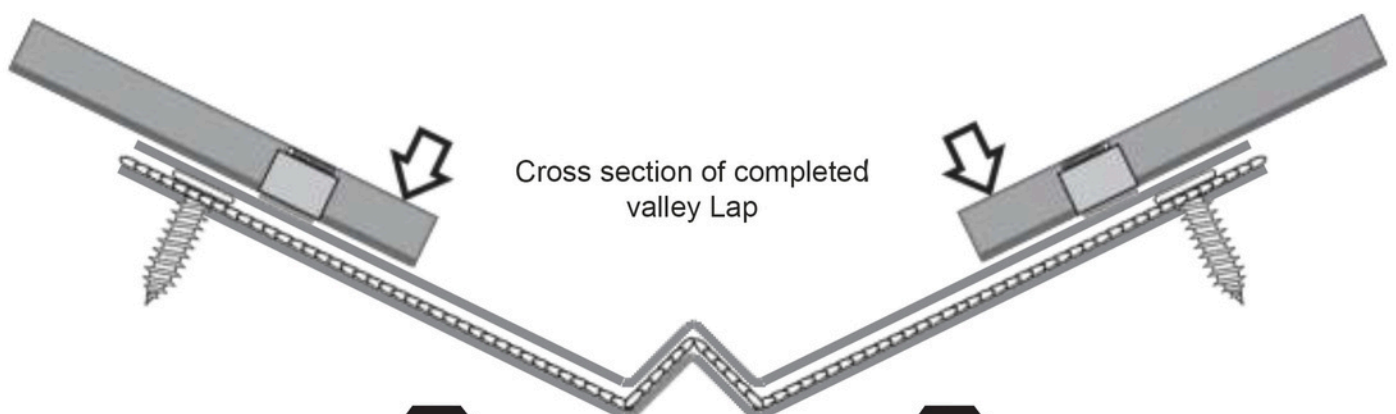
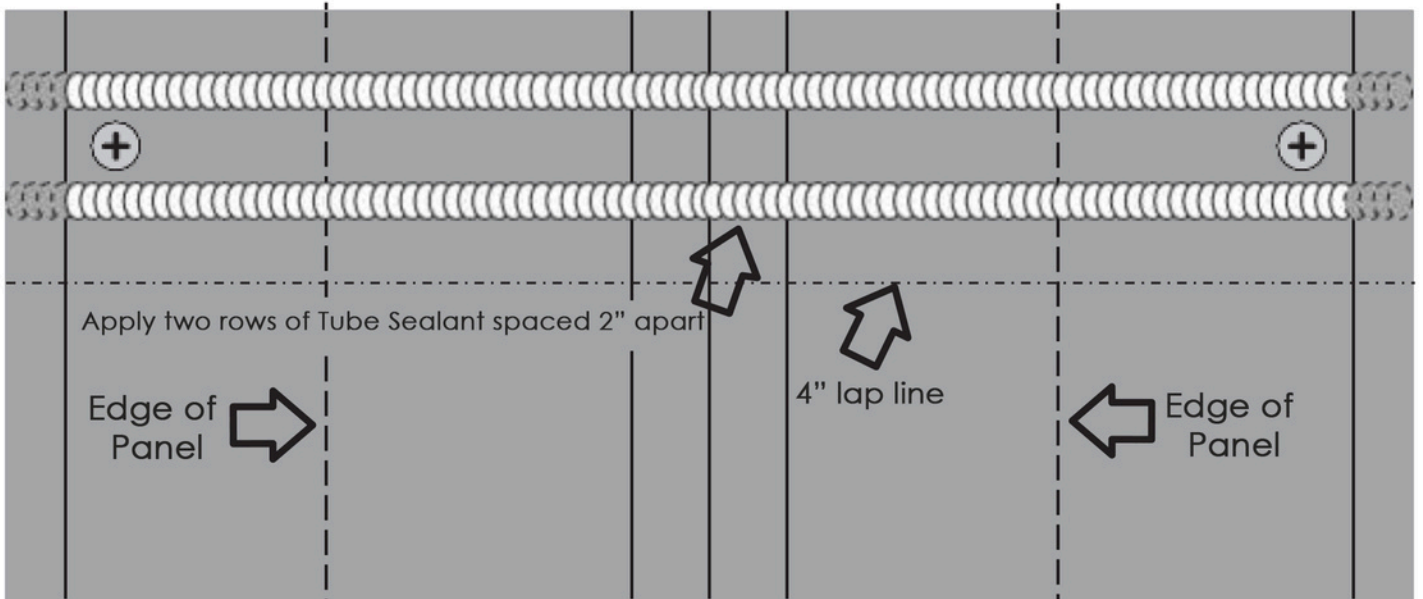
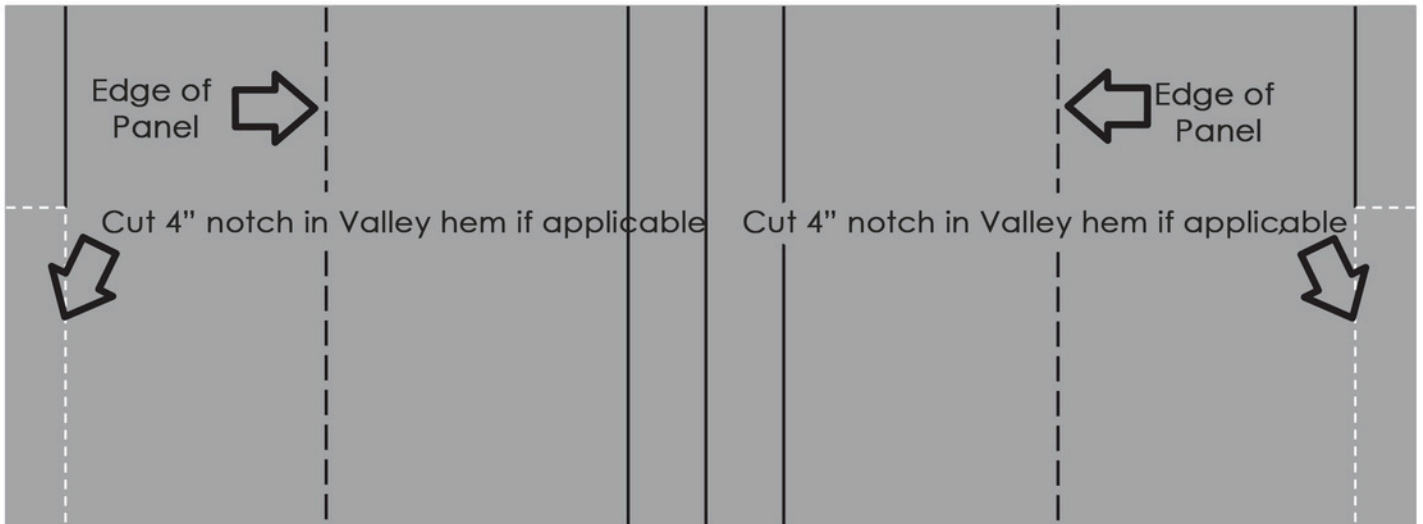
Fasten panels to the roof substrate using Wood Screws spaced according to the recommended fastening pattern and frequency, and in compliance with local building codes.





# Valley Lapping

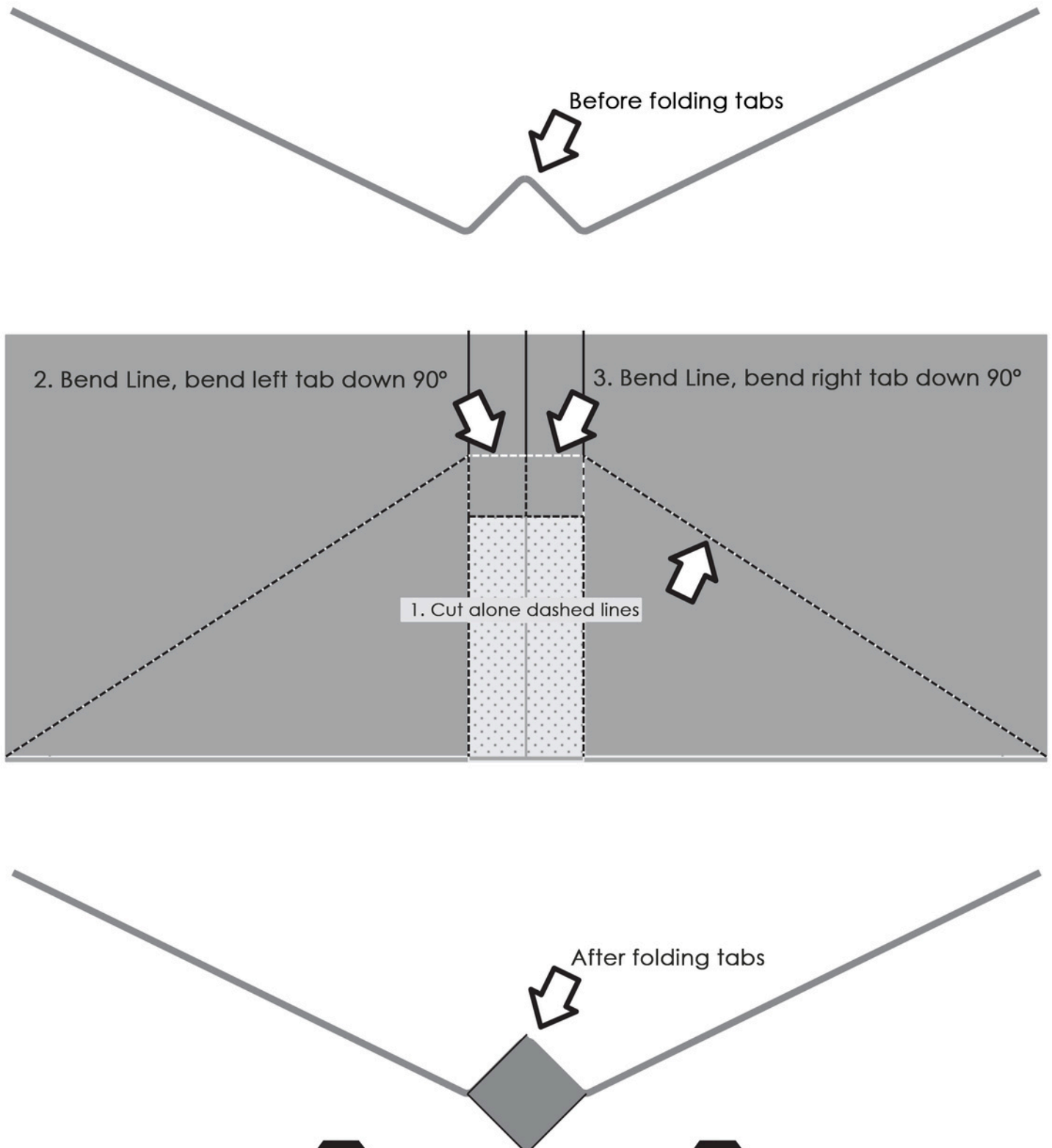
↓ After cutting notches and applying Tube Sealant, slide the up slope valley into the hem groove (if applicable) while lapping over the top of the low slope v. alley 4". ↓





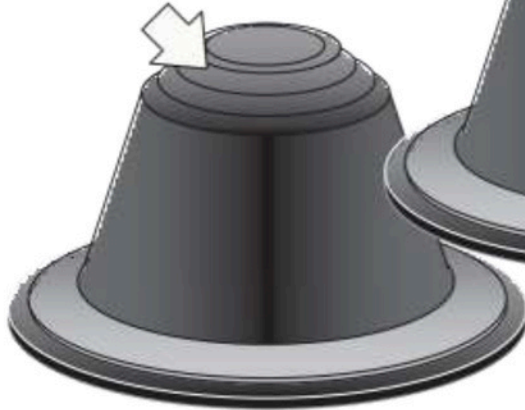
## Valley Cutting at Eave

Valley starter cutting diagram with water diverter tabs.



## Pipe Flashing

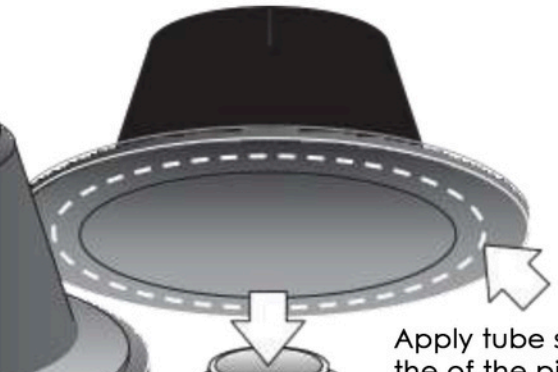
Cut pipe flashing along the pipe diameter marking.



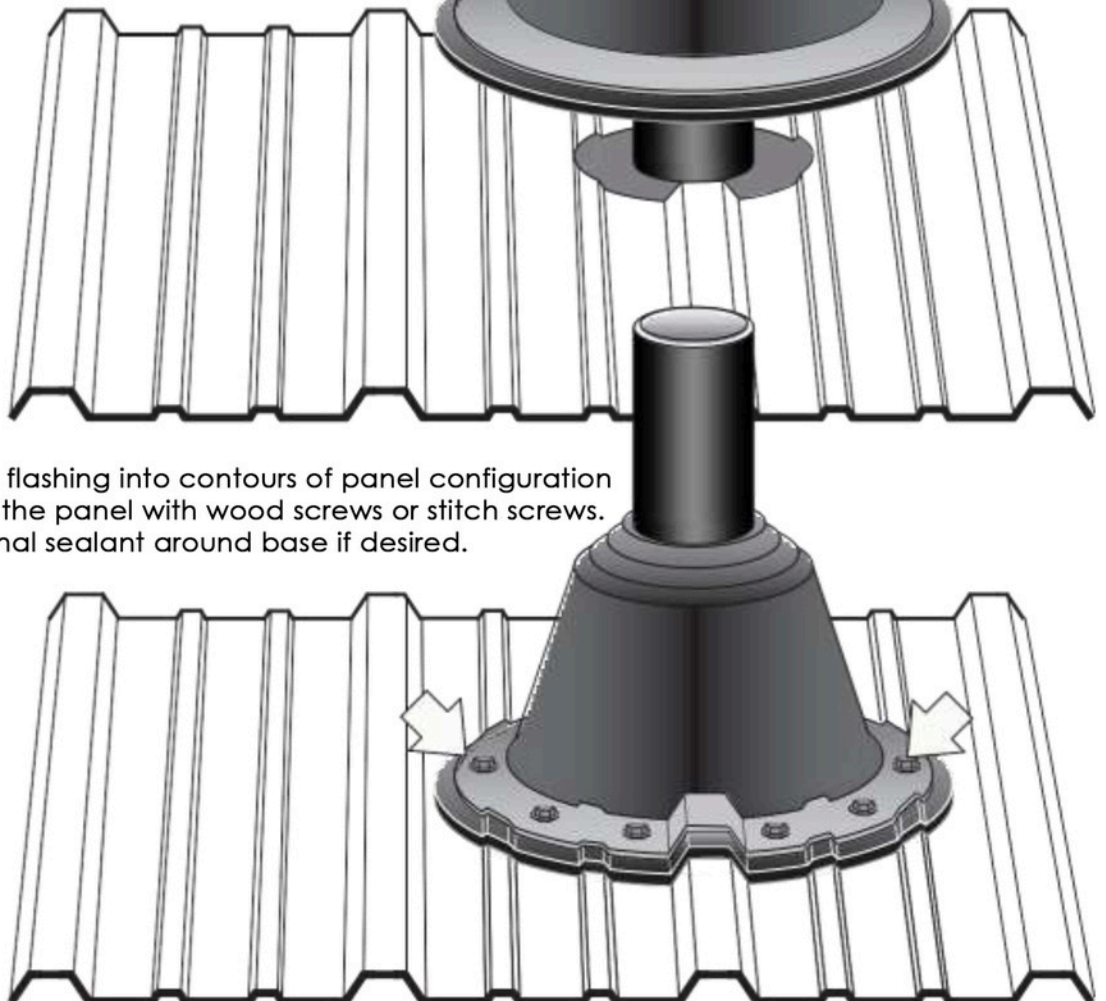
Slide pipe flashing down over the pipe.



Apply tube sealant to the top of the pipe flashing.



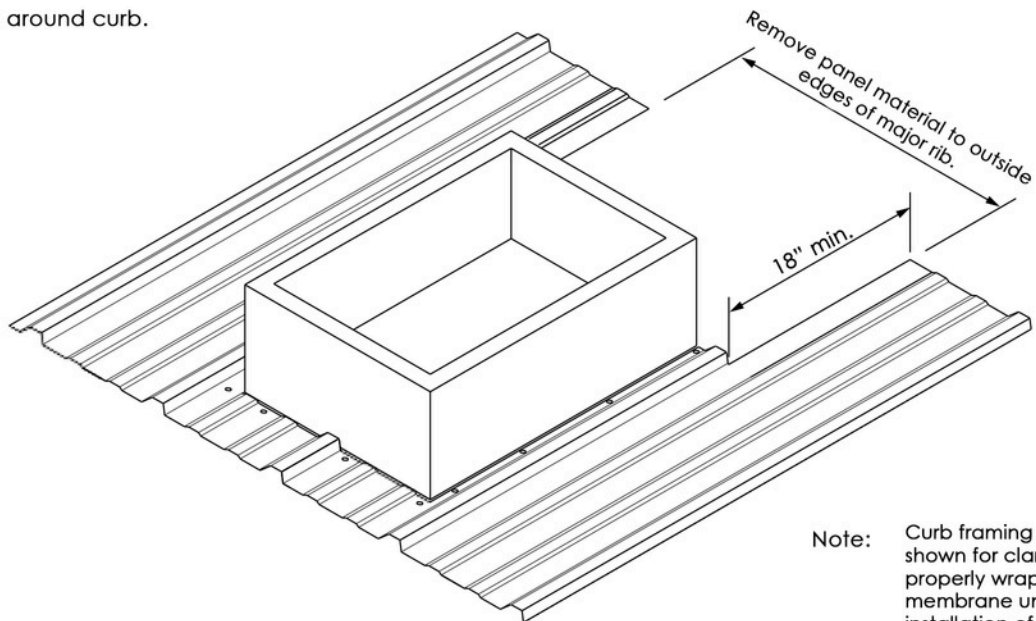
Press the pipe flashing into contours of panel configuration and fasten to the panel with wood screws or stitch screws. Apply additional sealant around base if desired.



## CURB DETAIL (Chimneys & Skylights)

### STEP 1

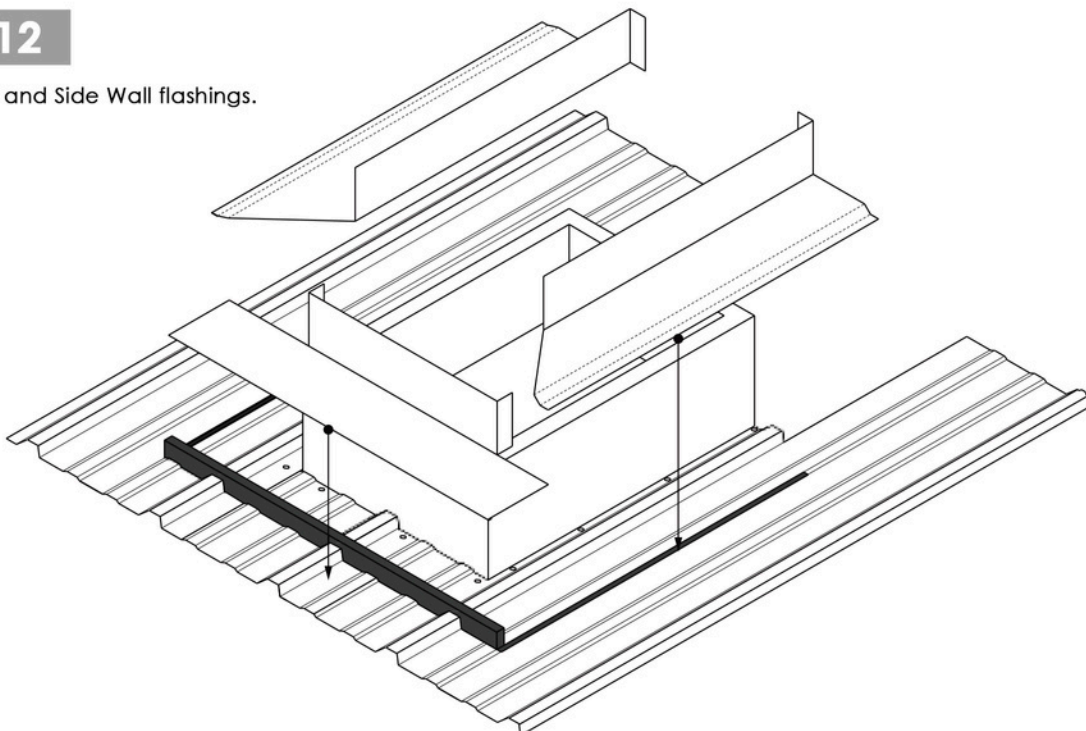
Install panels around curb.



Note: Curb framing and underlayment not shown for clarity. Curb must be properly wrapped with approved membrane underlayment prior to installation of panels/flashings

### STEP 12

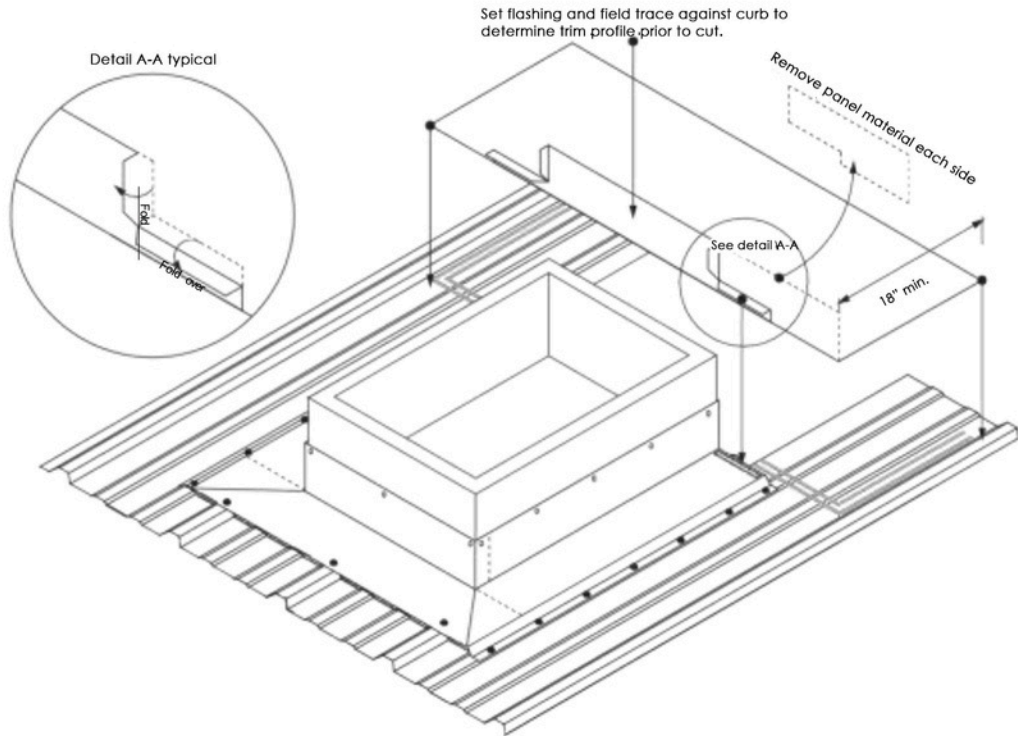
Apply End Wall and Side Wall flashings.



## CURB DETAIL (Chimneys & Skylights) (Cont.)

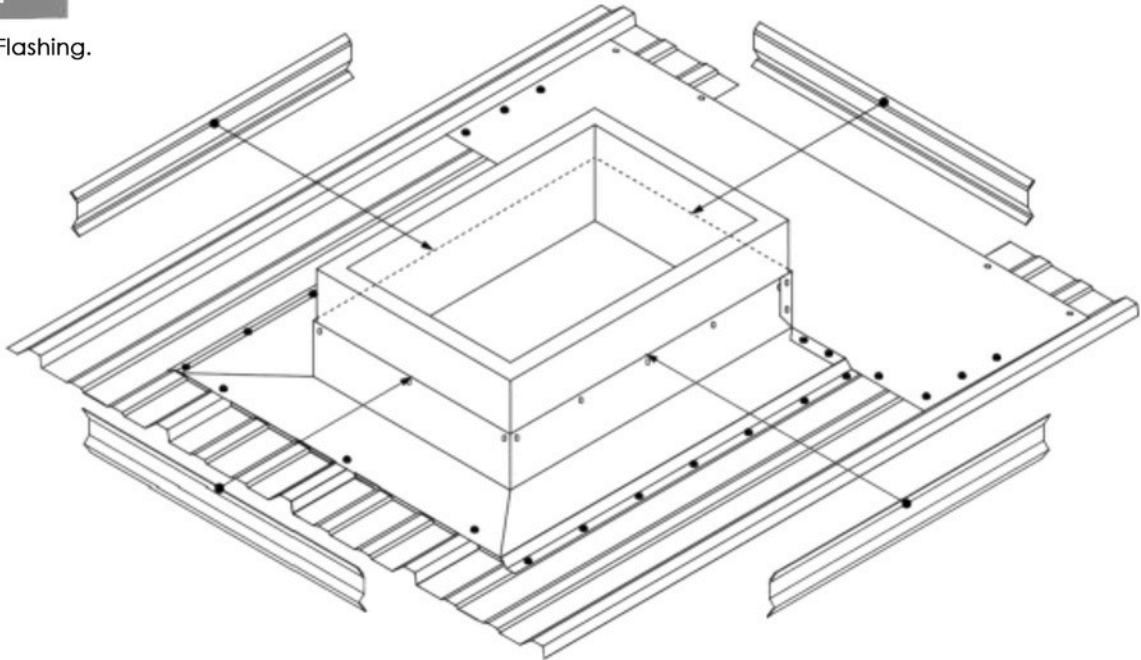
### STEP 3

Install low wall flashing.



### STEP 4

Install Counter Flashing.

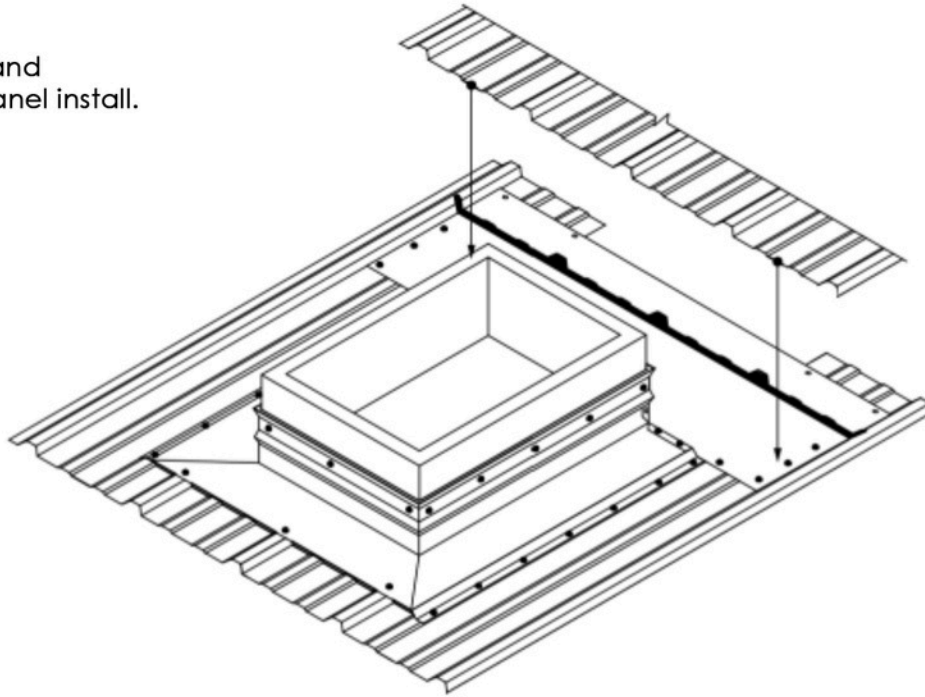




## CURB DETAIL (Chimneys & Skylights) (Cont.)

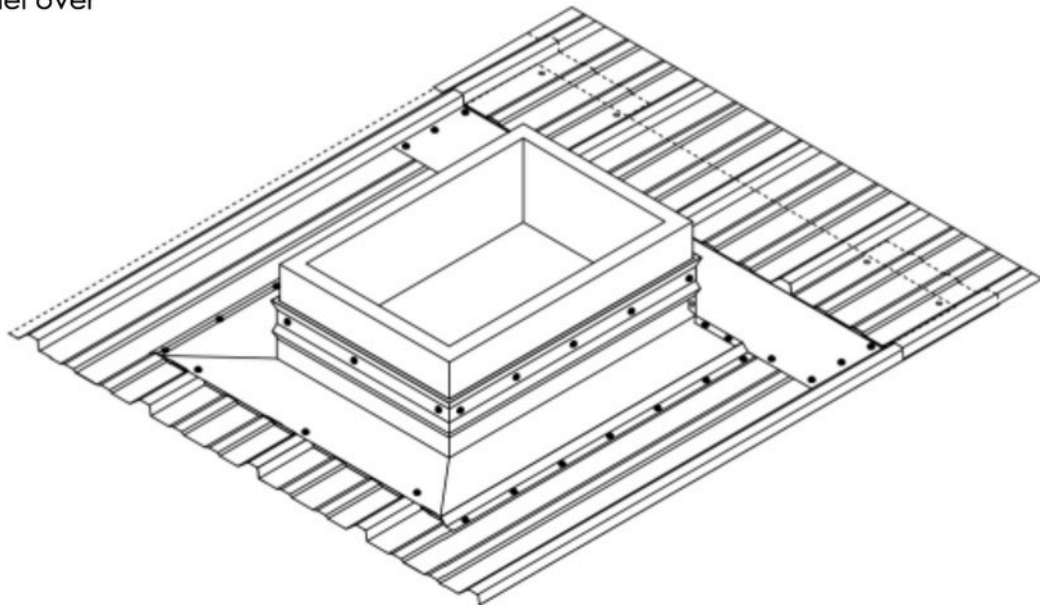
### STEP 5

Install foam closure and  
prepare for upper panel install.



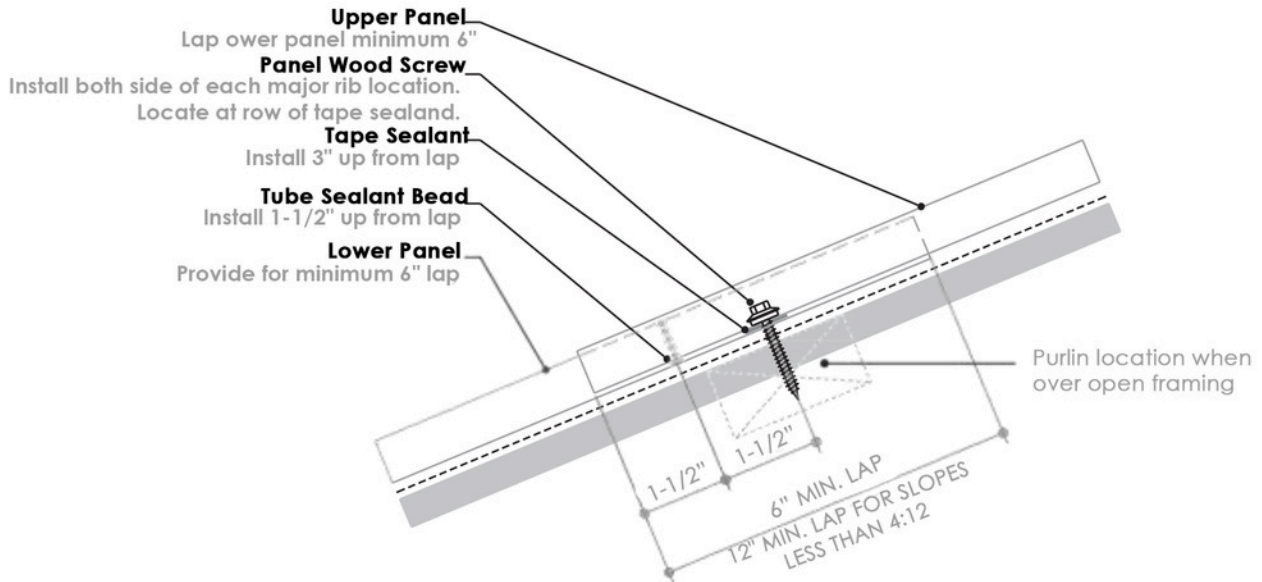
### STEP 6

Fasten upper panel over  
Low Wall flashing



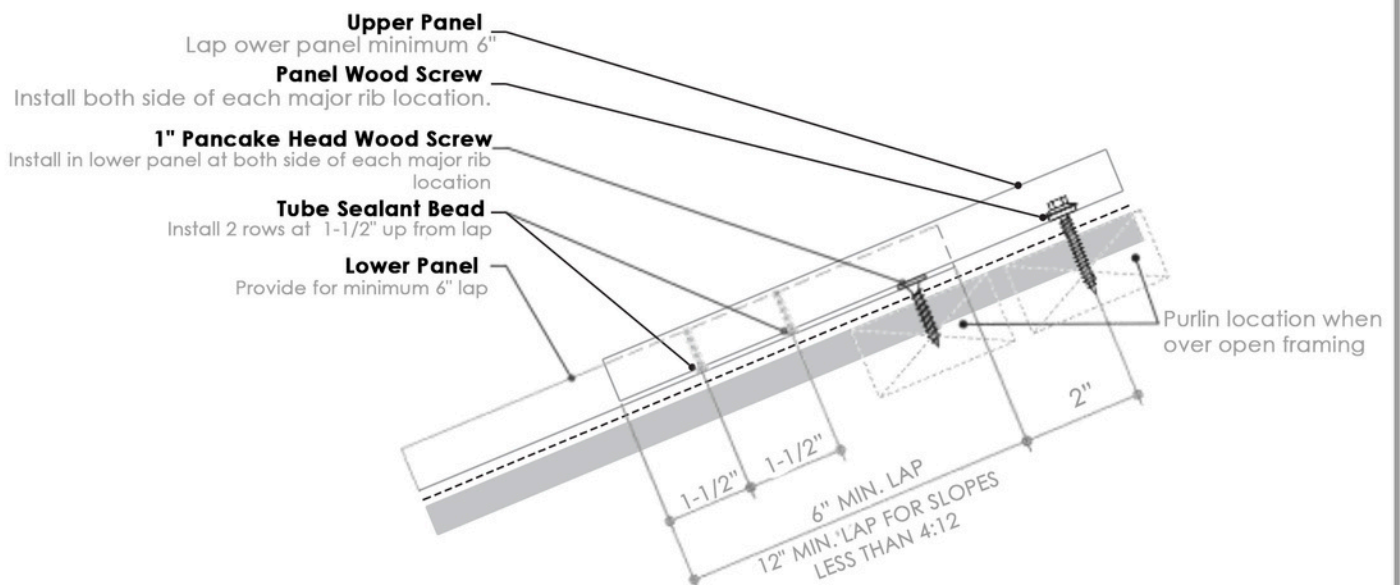
## PANEL ENDLAP DETIL (Short Run)

Use when total panel run is less than 35 feet



## PANEL ENDLAP DETIL (Long Run)

Use when total panel run is 35 feet or greater





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