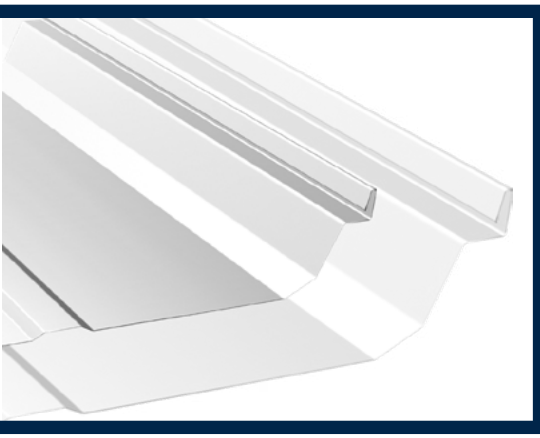
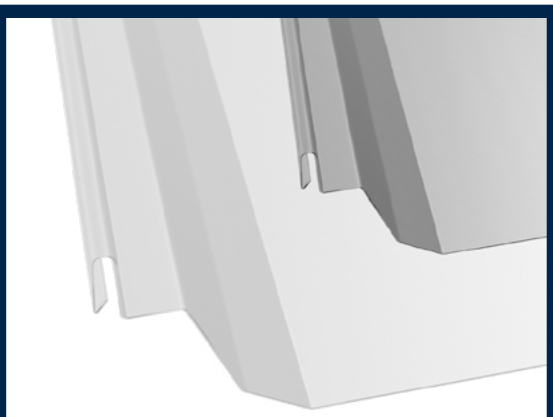
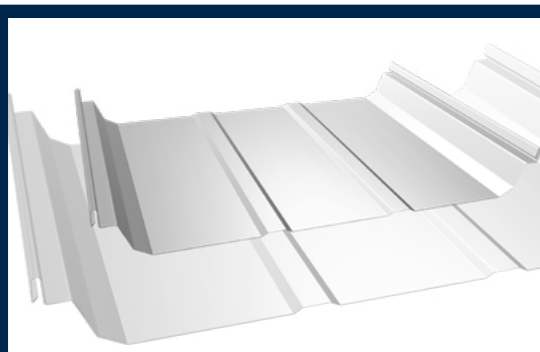
WHIRLWINDSTEEL
BUILDINGS & COMPONENTS

# TECHNICAL ERECTION MANUAL SUPER SEAM II

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Houston, TX 77075

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(713) 946 7140

(832) 553 4992 Fax

# IMPORTANT NOTICE

PLEASE READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING INSTALLATION OF THE SUPER SEAM II ROOFING SYSTEM.

IF THERE IS A CONFLICT BETWEEN PROJECT ERECTION DRAWINGS PROVIDED OR APPROVED BY WHIRLWIND STEEL BUILDINGS, INC AND DETAILS IN THIS MANUAL, PROJECT ERECTION DRAWINGS WILL TAKE PRECEDENCE.

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## Features and Benefits

1. **DESIGN INTEGRITY**
   Whirlwind's Super Seam II roof system begins and ends in the high, reducing the risk of leakage at the rake that can occur when finishing in the low. The panel seam is sealed with a factory-applied hot-melt mastic, a superior grade to mastics applied in the field.
2. **FLOATING ROOF**
   The Super Seam II roof was designed to cope with the forces of expansion and contraction. This is accomplished by allowing the panels to freely move up and down the roof slope. Due to this design feature, the system offers no diaphragm capabilities or purlin stability.
3. **SLIDING CLIPS The Two Inch Sliding Clip provides 1-1/4" movement in either direction for a total of 2-1/2" of thermal movement.** The clip provides a 3/8" or 1-3/8" clearance at the purlin to reduce water ponding on low pitch roofs. This clip is an integral part of maintaining panel module.
4. **UL90 RATING**
   The Super Seam II roof system has 12 different UL90 construction numbers, each of which is available with several options.
5. **FIRE RESISTANCE RATINGS**
   The roof system qualifies for use in several UL design assemblies and carries a UL "Class A" fire rating.
6. **SIMPLICITY**
   No field seaming is required. The panels simply snap together forming a self-locking seal.
7. **FLEXIBILITY**
   Whirlwind's Super Seam II roof system offers welcome flexibility to the erector. Wall covering can be erected before or after the roof is installed. Panel installation is an uninterrupted procedure.
8. **EASE OF INSTALLATION**
   The erector has the option to install each side of the roof separately or both sides simultaneously, which greatly increases the speed and convenience of erection. Being reversible end-for-end, sheets do not have to be special ordered for each side of the building. No field notching of panels at endlaps or ridge is required.
9. **FORGIVING SYSTEM**
   The Super Seam II roof system design allows for the roof to be finished in the "high" when an out-of-square condition or other factors cause the roof to terminate up to 4" out of module.
10. **BUILDING LENGTH**
    Odd length footage building roofs can be terminated by field bending the panel or specially designed variable termination trim at the rake.
11. **PRE-PUNCHED PANELS AND COMPONENTS**
    Whirlwind's pre-punched system, combined with self-engaging back-up plates, assures panel module and speeds up roof installation.
12. **DURABILITY**
    Every unpainted panel is manufactured from acrylic coated Galvalume, your assurance of the Whirlwind commitment to quality.
13. **COLORS AND FINISHES**
    Super Seam II is available in a wide variety of popular colors.

    Vise-Grip® is a registered trademark of American Tool Companies, Inc.

    Galvalume ® is a registered trademark of BIEC International, Inc.

CAUTION
Application and design details are for illustration purpose only and may not be appropriate for all environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.

## Read this First

CAUTION
Application and design details are for illustration purposes only, and may not be appropriate for all environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.

CAUTION
Super Seam II is a snap together roof system. Use of a mechanical seaming tool on the Super Seam II roof system may damage panels, void all warranties, and will void all engineering data.

In order to design, quote or order a Super Seam II roof system, you must determine which system you need, based on building width and insulation requirements.

**Low Fixed System -** Double slope buildings 80' wide or less and single slope buildings 40' wide or less, with or without a 3/8", thermal spacer. See Insulation/Thermal Spacer Selection Chart below.

**High Fixed System -** Double slope buildings 80' wide or less and single slope buildings 40' wide or less, with 3/8", 5/8" or 1" thermal spacers. See Insulation/Thermal Spacer Selection Chart below.

Fixed systems utilize fixed clips that do not allow the roof panels to float on the substructure. For this reason, use fixed systems only on pre-engineered metal buildings with purlins, subject to the building width restrictions and purlin bracing design. Do not use fixed systems on buildings with bar joist construction or metal decks.

**Low Floating System -** Double slope buildings any width or single slope buildings any width, with or without 3/8", thermal spacer. See Insulation/Thermal Spacer Selection Chart below.

**High Floating System** - Double slope buildings any width or single slope buildings any width with 3/8", 5/8" or 1" thermal spacer. See Insulation/Thermal Spacer Selection Chart below.

Thermal calculations should be performed for each project to ensure that the thermal movement of the roof is not greater than the floating clip's capacity. Various densities of blanket insulation may affect the installation and or the appearance of a metal roof system. The installer is responsible for selecting the proper clip and thermal spacer for their conditions.

INSULATION/THERMAL SPACER SELECTION CHART

| Insulation Thickness | Low System | High System |
|---|---|---|
| No Insulation | 3/8" Thermal Spacer | Do Not Use See Low System |
| 3" Insulation | Thermal Spacer Not Recommended | 1" Thermal Spacer Recommended |
| 4" Insulation | Thermal Spacer Not Recommended | 5/8" Thermal Spacer Recommended |
| 6" Insulation | Low System Not Recommended | 3/8" Thermal Spacer Recommended |

WARNING
Do not use blanket insulation thicker than 6" between the roof panel purlin framing. As with all standing seam roof systems, sound attenuation (example: blanket insulation) should be installed between the panels and open framing, such as purlins or joists, to prevent "roof rumble" during windy conditions.

Applications over solid deck, such as rigid insulation over a metal deck or a wood deck, may require additional acoustical consideration to ensure that thermal vibration noises are isolated from the building interior. This is especially important if the bottom of the deck is left open to the interior or in cathedral ceiling applications.

A vapor retarder may be necessary to protect roofing components when high humidity is a factor. The need for a vapor retarder, as well as the type, placement, and location should be determined by an architect or engineer. The following are examples of conditions that may require a vapor retarder; (A) a project where outside winter temperatures below 40 degrees F. are anticipated and where average winter interior relative humidity of 45% or greater is expected; (B) building usages with high humidity interiors such as indoor swimming pools, textile manufacturing operations, food, paper, or other wet-process industrial plants; (C) construction elements that may release moisture after the roof is installed, such as interior concrete, masonry or plaster work and fuel burning heaters.

THERMAL SPACER DISCLAIMER
The above thermal spacer chart is intended to be used as a general guideline only. Because of the various densities of insulation currently available, the manufacturer cannot guarantee that this chart will be accurate in all situations. Further, the manufacturer does not specifically require that the roofing contractor use thermal spacers with it's Super Seam II roof system. However, please review the following information:
Although the manufacturer does not require a thermal spacer, the architect or building owner may.
In certain environments, the compression of the fiberglass insulation without a thermal spacer, may create a thermal break which can cause condensation to form on the purlins/joists.
On uninsulated buildings, eliminating the thermal spacer (1) will increase "roof rumble", and (2) you may encounter problems holding panel module.
When a high clip is used without a thermal spacer (1) you may encounter problems holding panel module, and (2) foot traffic on the panel ribs may result in bent clips.
Using a low clip with too much insulation or too thick a thermal spacer (1) may cause "purlin read", (2) may cause difficulty in properly installing the panel side laps, and (3) you may encounter problems holding panel module.

## UL90 Construction Numbers

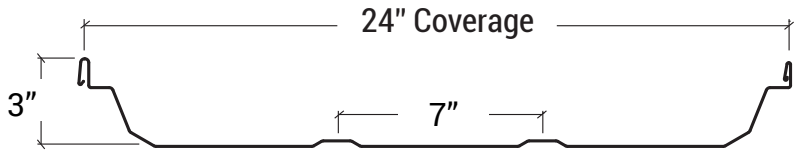
| UNDERWRITERS LABORATORIES APPROVAL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Construction Number | Panel Width (In.) | Gauge | Clip Type | Clip Spacing | Substrate | UL-2218 Impact Resistance | UL-263 Fire Rating | UL-580 Rating |
| 165 | 24 | 24 min. | B | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |
| 180B | 24 | 24 min. | A | 5'-0" | Composite System | Class 4 | Class A | Class 90 |
| 205 | 24 | 24 min. | A | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |
| 205A | 24 | 24 min. | B | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |
| 286 | 24 | 24 min. | A | 5'-0" | Plywood | Class 4 | Class A | Class 90 |
| 308B | 24 | 24 min. | A | 5'-0" | Composite System | Class 4 | Class A | Class 90 |
| 534 | 24 | 24 min. | B | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |
| 535 | 24 | 24 min. | A | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |
| 536 | 24 | 24 min. | B | 5'-0" | Composite System | Class 4 | Class A | Class 90 |
| 537 | 24 | 24 min. | B | 5'-0" | Composite System | Class 4 | Class A | Class 90 |
| 541 | 24 | 26 min. | B | 5'-0" | Plywood | Class 4 | Class A | Class 90 |
| 165 | 24 | 24 min. | A | 5'-0" | Open Framing | Class 4 | Class A | Class 90 |

Clip type: **A** (Sliding); **B** (Floating); **C** (Utility)

NOTES:

1. Wind uplift test procedures are in accordance with Underwriters Laboratories Standard UL-580 under "Tests For Uplift Resistance of Roof Assemblies.
2. A detailed installation method is available for each Construction Number above and can be found in the UL Roofing Materials and Systems Directory or at http://www.ul.com. The panels must be installed in a certain manner to achieve the published results.
3. The panel qualifies for a Class A fire rating in compliance with Underwriters Laboratories Standard UL-263.
4. The panel system is listed under the following Fire Resistance Design Numbers: P225, P227, P230, P237, P265, P268, P508, P510, P512, P701, P711, P717, P720, P722, P726, P731, P734, P736, P801, P803, P814, P815, and P819. Refer to the UL Fire Resistance Directory for specific construction methods and hourly ratings.
5. Super Seam II panels carry a Class 4 rating under UL-2218 "Test Standard For Impact Resistance."
6. FLORIDA BUILDING CODE PRODUCT APPROVAL Super Seam II roofing system details and engineering load tables have been examined by the State of Florida and comply with the 2020 Florida Building Code Product Approval Number (FL#17700-R3).

## 24" Section Properties/Load Tables




| SECTION PROPERTIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Panel Gauge | Fy (KSI) | Weight (PSF) | NEGATIVE BENDING | | | POSITIVE BENDING | | |
| | | | Ixe (IN. 4/FT.) | Sxe (IN. 3/FT.) | Maxo (KIP-IN.) | Ixe (IN. 4/FT.) | Sxe (IN. 3/FT.) | Maxo (KIP-IN.) |
| 26 | 50 | 1.02 | 0.1025 | 0.0694 | 2.0764 | 0.2202 | 0.0901 | 2.6987 |
| 24 | 50 | 1.23 | 0.1355 | 0.0951 | 2.8477 | 0.2803 | 0.1156 | 3.4612 |
| 22 | 50 | 1.56 | 0.1837 | 0.1332 | 3.9877 | 0.3640 | 0.1504 | 4.5020 |

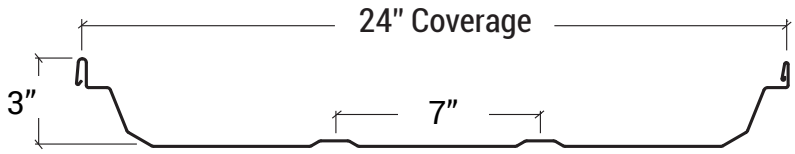
**NOTES:**

1. All calculations for the properties of Super Seam II panels are calculated in accordance with the 2012 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members.
2. Ixe is for deflection determination.
3. Sxe is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.

The engineering data contained herein is for the expressed use of customers and design professionals. Along with this data, it is recommended that the design professional have a copy of the most current version of the North American Specification for the Design of Cold-Formed Steel Structural Members published by the American Iron and Steel Institute to facilitate design. This specification contains the design criteria for cold-formed steel components. Along with the specification, the designer should reference the most current building code applicable to the project job site in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

# ENGINEERING

## 24" Section Properties/Load Tables



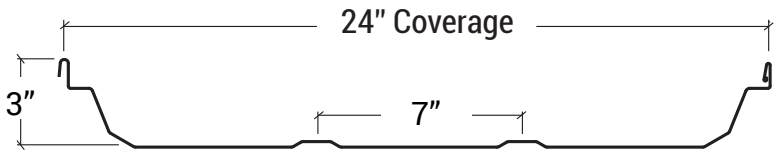

| 26 Gauge (Fy = 50 KSI) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPAN TYPE | LOAD TYPE | SPAN IN FEET | | | | | | |
| | | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 |
| SINGLE | LIVE | 146.9 | 122.4 | 104.9 | 91.8 | 81.6 | 72.0 | 59.5 |
| 2-SPAN | LIVE | 146.9 | 122.4 | 104.9 | 86.5 | 68.4 | 55.4 | 45.8 |
| 3-SPAN | LIVE | 146.9 | 122.4 | 104.9 | 91.8 | 81.6 | 69.2 | 57.2 |
| 4-SPAN | LIVE | 146.9 | 122.4 | 104.9 | 91.8 | 79.8 | 64.6 | 53.4 |
| 24 Gauge (Fy = 50 KSI) | | | | | | | | |
| SPAN TYPE | LOAD TYPE | SPAN IN FEET | | | | | | |
| | | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 |
| SINGLE | LIVE | 204.0 | 170.0 | 145.7 | 127.5 | 113.3 | 92.3 | 76.3 |
| 2-SPAN | LIVE | 204.0 | 170.0 | 145.7 | 118.7 | 93.8 | 75.9 | 62.8 |
| 3-SPAN | LIVE | 204.0 | 170.0 | 145.7 | 127.5 | 113.3 | 94.9 | 78.4 |
| 4-SPAN | LIVE | 204.0 | 170.0 | 145.7 | 127.5 | 109.4 | 88.6 | 73.2 |
| 22 Gauge (Fy = 50 KSI) | | | | | | | | |
| SPAN TYPE | LOAD TYPE | SPAN IN FEET | | | | | | |
| | | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 |
| SINGLE | LIVE | 296.9 | 247.5 | 212.1 | 185.6 | 148.2 | 120.1 | 99.2 |
| 2-SPAN | LIVE | 296.9 | 247.5 | 212.1 | 166.2 | 131.3 | 106.3 | 87.9 |
| 3-SPAN | LIVE | 296.9 | 247.5 | 212.1 | 185.6 | 164.1 | 132.9 | 109.9 |
| 4-SPAN | LIVE | 296.9 | 247.5 | 212.1 | 185.6 | 153.2 | 124.1 | 102.6 |

NOTES:

1. THE ABOVE LOADS ARE NOT FOR USE WHEN DESIGNING PANELS TO RESIST WIND UPLIFT.
2. Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members."
3. Allowable loads are applicable for uniform loading and spans without overhangs.
4. LIVE load capacities are for those loads that push the panel against its supports. The applicable limit states are flexure, shear, combined shear and flexure, web crippling at end and interior supports, and a deflection limit of L/180 under strength-level loads.
5. Panel pullover and screw pullout capacity must be checked separately using the screws employed for each particular application when utilizing this load chart.
6. The use of any field seaming equipment or accessories, including but not limited to clips, fasteners, and support plates other than the provided by the manufacturer may (eave, backup, rake, etc.) damage panels, void all warranties, and will void all engineering data.
7. This material is subject to change without notice. Please contact Whirlwind for most current data.

The engineering data contained herein is for the expressed use of customers and design professionals. Along with this data, it is recommended that the design professional have a copy of the most current version of the North American Specification for the Design of Cold-Formed Steel Structural Members published by the American Iron and Steel Institute to facilitate design. This specification contains the design criteria for cold-formed steel components. Along with the specification, the designer should reference the most current building code applicable to the project job site in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

## General Description

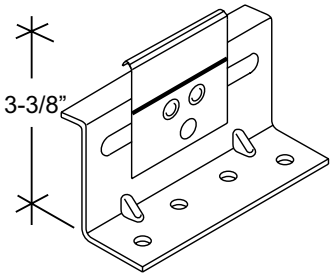



| | |
|---|---|
| Coverage Width | 24" with Minor Ribs- Pre-punched 6 holes |
| Minimum Slope | 1/4: 12 |
| Panel Attachment | Low, High (Fixed, Floating), Utility |
| Panel Substrate | Galvalume Clear Acrylic (standard) |
| Gauge | 22 and 24 GA* |
| Finishes | Smooth with Minor Ribs |
| Coatings | Galvalume Clear Acrylic, SMP CERAM-A-STAR® |

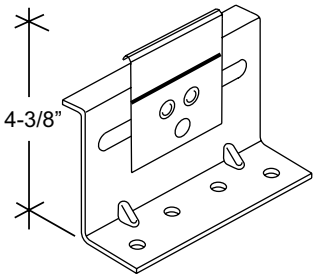
* Minimum order or additional set-up fee required.

CAUTION
Diaphragm capabilities and purlin stability are not provided by Whirlwind's Super Seam II Roof system. Therefore, other bracing may be required to conform to A.I.S.C or A.I.S.I. Specifications.

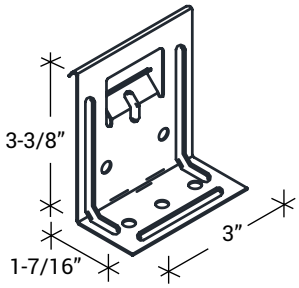
## Product Checklist



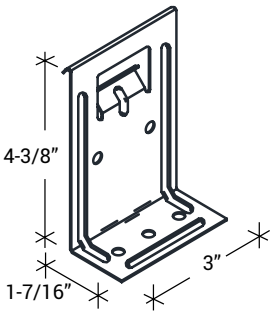

☐ **HW-2102 - 2” LOW SLIDING CLIP**




☐ **HW-2104 - 2” HIGH SLIDING CLIP**



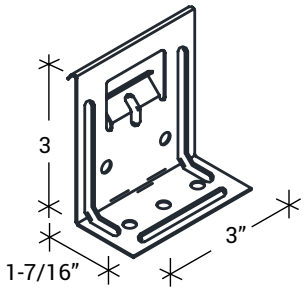

☐ **HW-200 FIXED CLIP, LOW**



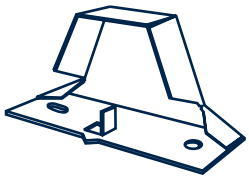

☐ **HW-204 FIXED CLIP, HIGH**

**CLIP, UTILITY**

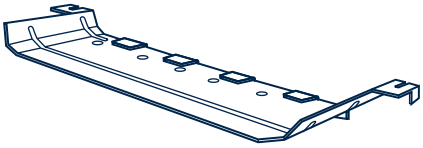
- For fixed application that does not require the insulation clearance provided by the low and high clips .
- For applications over a solid deck




☐ **HW-208 UTILITY CLIP**

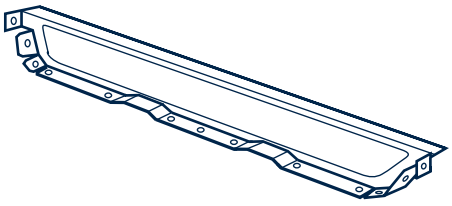


☐ **HW-426 - INSIDE CLOSURE FOR USE AT EAVE**



For use at endlaps and at the ridge.
Pre-punched
16 Gauge pre-painted

☐ **SS2BUP(24”) - BACK-UP PLATE 24”**

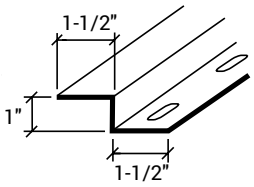


For use at ridge or high eave
24 Gauge

☐ **SS2ED (24”) END DAM**

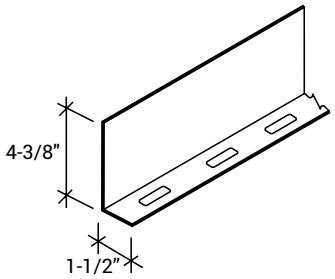
# GENERAL INFORMATION

## Product Checklist



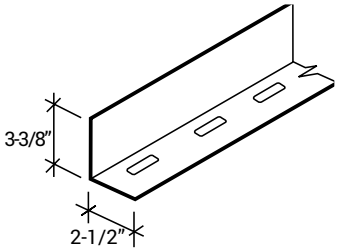

8'-0" length
14 gauge painted
Factory slots
For use with high clips

☐ **EP-501 (HW-7616) - EAVE PLATE, HIGH**



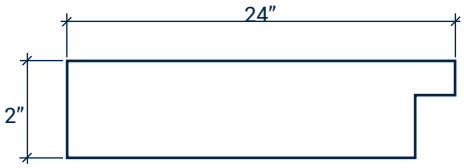

20'-0" length
14 Gauge painted
Factory slots
For use with high clips

☐ **SS2RSLP (RED-OXIDE) - RAKE SUPPORT, HIGH**
☐ **SS2RSLG (GALVANIZED) - RAKE SUPPORT, HIGH**

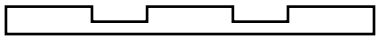



20'-0" length
14 Gauge painted
Factory slots
For use with low clips

☐ **SS2RSLP (RED-OXIDE) - RAKE SUPPORT, LOW**
☐ **SS2RSLG (GALVANIZED) - RAKE SUPPORT, LOW**

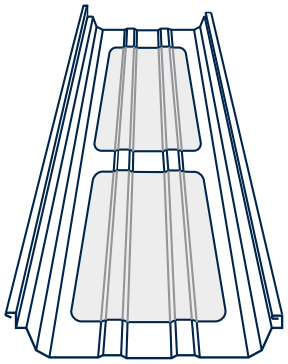



☐ **SB-501 SPACE BAR**



Used at valleys and roof curbs

☐ **TRIPLE BEAD TAPE SEALER**



Super SeamPlus - 24"
Insulated - with Stiffener
Plate and 10 fasteners
10'-3" long

☐ **LIGHT TRANSMITTING PANEL UL90 - REINFORCED**
☐ **LIGHT TRANSMITTING PANEL UL90 - REINFORCED/UV RESISTANT**

Used at the eave plate, eave strut, end dams, ridge caps and trim connections.

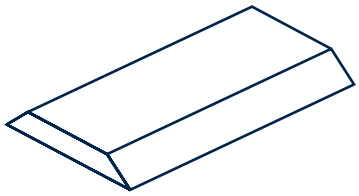
☐ **TAPE SEALER - 1" x 3/32"**

Used at the end lap.

☐ **TAPE SEALER - 1-1/2" x 3/32"**

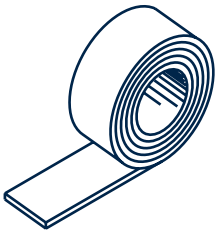
# GENERAL INFORMATION

## Product Checklist



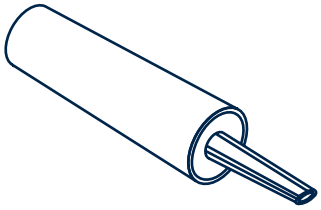
Used to fill void at minor ribs of the panel at the eave and valleys

☐ **TAPE SEALER-MINOR RIB PRE-CUT BEVELED 1-3/8" x 1-7/32" x 4"**

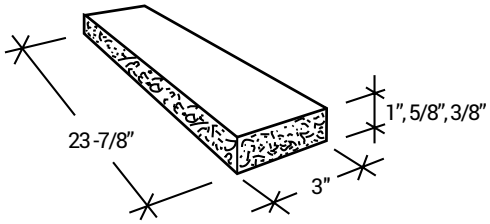


Used to hold insulation in place at the rake, eave, and at any insulation splices

☐ **DOUBLE FACED TAPE 1-1/2" x 180' ROLLS**



☐ **TUBE CAULKING**

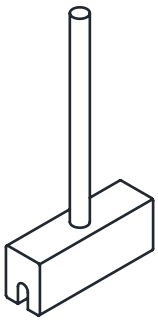



**THERMAL SPACER**

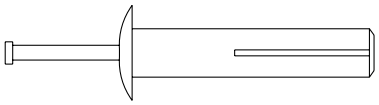
☐ **SSTS- 38**
☐ **SSTS- 58**
☐ **SSTS**

Refer to page SSII-6 for proper use of thermal spacers.

If a problem is encountered in fully snapping the seams together, such as an incorrectly installed clip, damaged panel lip or a bubble caused by faulty assembly, the shaping tool should enable the seam to be locked with minimal effort.

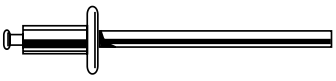


☐ **HW-600 SHAPING TOOL**



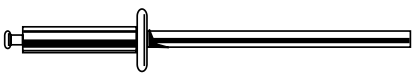
Special application fastener
For use on masonry

☐ **1/4" x 1-1/4" NAIL DRIVE MASONRY ANCHOR**



Gutter strap to snow gutter
Trim to trim connections

☐ **1/8" x 3/16" POP RIVET**

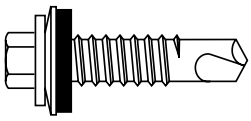


Snow gutter to eave plate
End Dam to back-up angle at hip condition

☐ **1/8" x 3/8" POP RIVET**

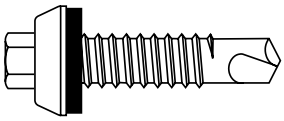
# GENERAL INFORMATION

## Product Checklist



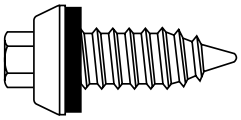
Clip to purlin with up to 4” insulation thickness
Eave plate to eave strut
Inside closure to eave plate or eave strut
Mid-slope fixed plate to purlin
Light transmitting panel trim

- ☐ **1/4 x 14 x 1-1/4" DRILLER 5/16" HEX WASHER HEAD WITH 5/8” O.D.**
- ☐ **1/4 x 14 x 2" DRILLER 5/16" HEX WASHER HEAD WITH 5/8” O.D. WASHER FOR INSULATION OVER 4" THICKNESS**



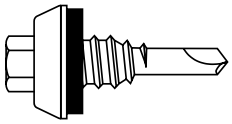
Panel to eave plate, eave strut, or valley plate
Rake angle to roof panel
End Dam
Endlap

- ☐ **1/4 x 14 x 1-1/4” HTZ TEKS 2**



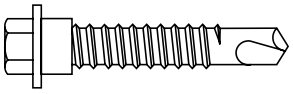
Use in place of Fasteners
1/4” x 14 x 1-1/4” LONG LIFE TEK 2
1/4” X 14 X 7/8” LONG LIFE S.D.S.

- ☐ **17 x 1” TYPE AB LONG LIFE 5/16”HEX WASHER HEAD WITH SEALING WASHER**



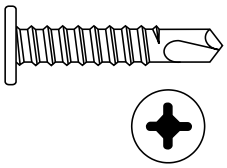
Ridge and other flashing to End Dam
Gutter to panel
Gutter to strap
Trim to trim connections

- ☐ **1/4 x 14 x 7/8” LONG LIFE S.D.S. 5/16” HEX WASHER HEAD WITH SEALING WASHER**



Rake support to purlin
Floating eave plate to eave strut

- ☐ **1/4” x 14 x 1-1/4” SHOULDER TEK 2 5/16” HEX WASHER HEAD, NO WASHER**

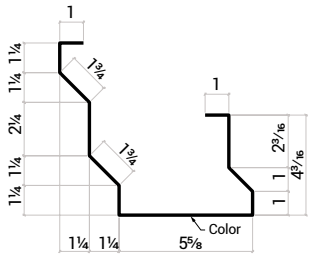


Support plate to purlins at valley and hip conditions
Rake angle to purlins

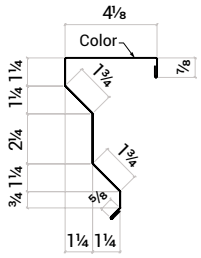
- ☐ **12 x 1” #2 PANCAKE HEAD DRILLER**

# GENERAL INFORMATION

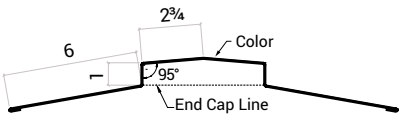
## Product Checklist



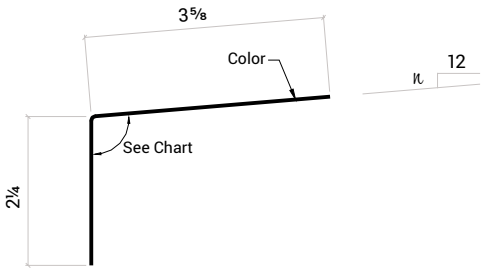

☐ **GU-52 SHADOW GUTTER**



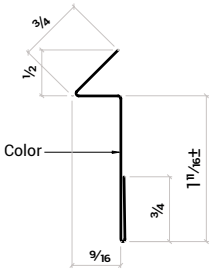

☐ **RT-540 SHADOW RAKE**



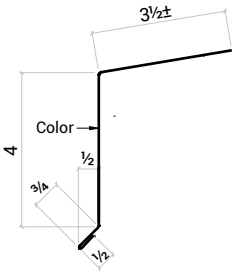

☐ **RC-51 RIDGE CAP**



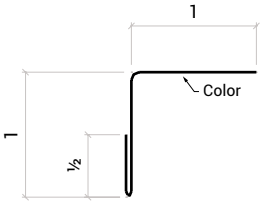

☐ **GC-10 GUTTER COUNTER FLASH**




☐ **RS-501 RAKE SLIDE**

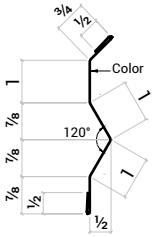



☐ **ET-62 SIMPLE EAVE TRIM**

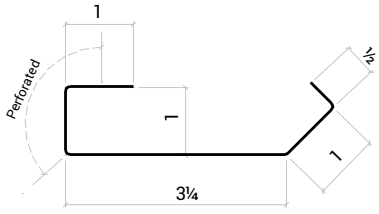



☐ **TT-622 PARAPET RAKE CLEAT**

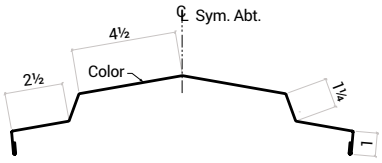

☐ **TT-623 RAKE PARAPET FLASHING**




☐ **MT-601 COUNTER FLASH**




☐ **FL-254 PERFORATED VENT DRIP**




☐ **FL-300 VENTED RIDGE**

## Preparatory Requirements

1. Make sure a rake angle or an alternate structural flat surface has been installed on top of the purlins to accept the “Rake Support”.
2. The walls do not have to be erected before the roof is installed. However, for the purpose of this manual, we have assumed that the wall panels have been installed. If the roof is installed before the walls, the installer must note the required panel overhang at the eave and use the correct counter flash per the erection drawings.
3. All primary and secondary framing must be erected, plumbed, and square with bolts tightened according to accepted building practices.
4. The substructure (eave to ridge) must be on plane with a tolerance of 1/4” in 20’ and 3/8” in 40’.
5. Super Seam II can be erected on various types of construction. However, for the purpose of this manual, we have assumed that the roof will be installed on a new, pre-engineered metal building.
6. Super Seam II roof panels are furnished in 24” widths.
7. It is critical that the purlins or joists at the ridge and endlaps be exactly located as detailed in this manual and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the endlaps or end dams to foul the purlin or the back-up plate to foul the clip as the panels expand and contract.
8. Peak purlin spacing - 16” (from the centerline of the building) and 16” for a 9” continuous vent.
9. Read recommended erection practices on pages SSII-38 and SSII-39 before proceeding with roof installation.
10. Whirlwind recommends the use of a screw gun with a speed range of 0 - 2000 RPM to properly install all fasteners referenced in this manual. Tools rated to 4000 RPM should never be used for self-drilling fasteners typically supplied with metal building components.
11. Field cutting of the panels should be avoided where possible. If field cutting is required, the panels must be cut with nibblers, snips, or shears to prevent edge rusting. Do not cut the panels with saws, abrasive blades, grinders, or torches.

NOTE
It is the responsibility of the erector to install this roof using safe construction practices that are in compliance with OSHA regulations. Whirlwind is not responsible for the performance of this roof system if it is not installed in accordance with the instructions shown in this manual. Deviations from these instructions and details must be approved in writing by Whirlwind.

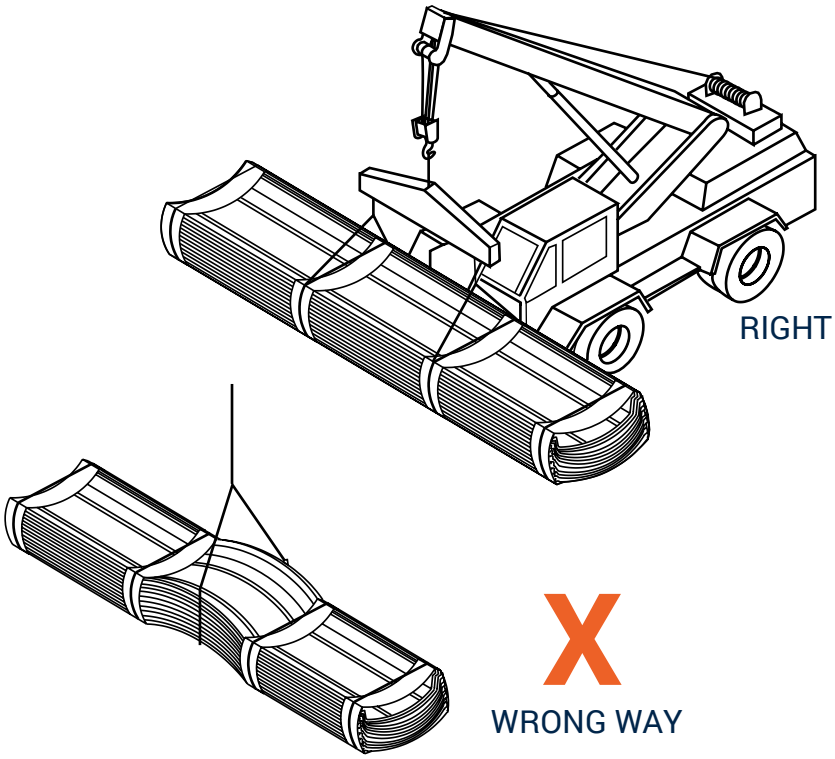
CAUTION
Diaphragm capabilities and purlin stability are not provided by Whirlwind’s Super Seam II roof system. Therefore, other bracing may be required.

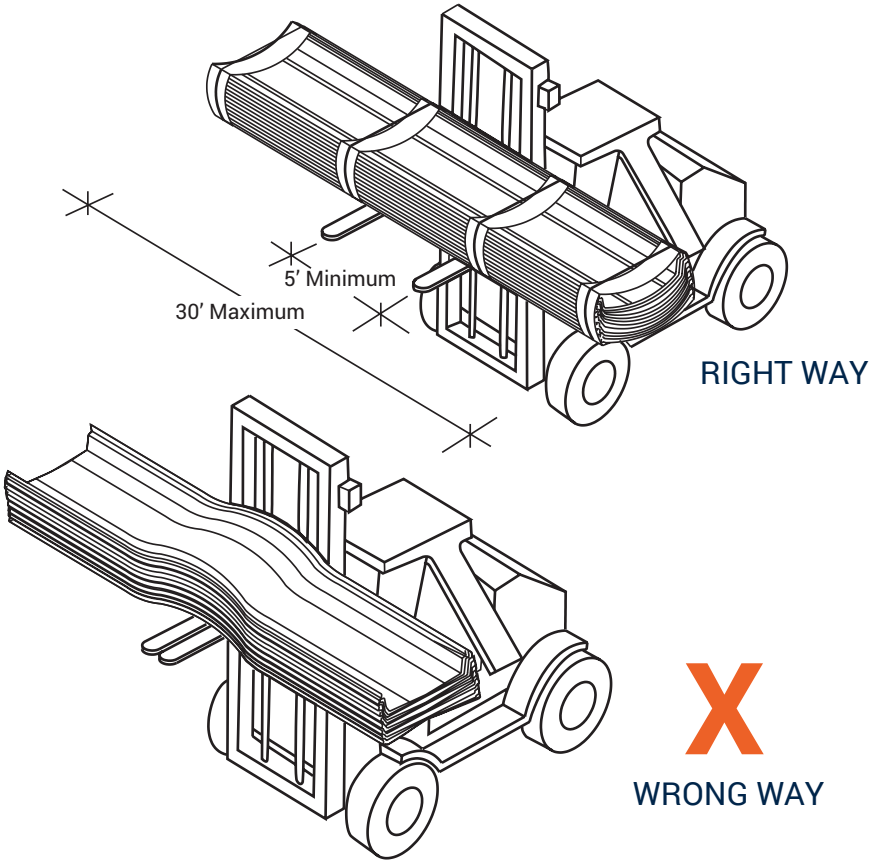
CAUTION
The minimum recommended slope for the roof system is 1/4 on 12. A slope of less than 1/4 on 12 could cause severe ponding and will void material warranties.

CAUTION
Application and design details are for illustration purposes only and may not be appropriate for all environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.

WARNING
Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing, or resting on them. WHIRLWIND DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand, or rest on or near these light transmitting panels or that they comply with any OSHA regulation.

## Unloading




Spreader bar required on panels over 30 feet.

Upon receiving material, check shipment against shipping list for shortages and damages. The manufacturer will not be responsible for shortage or damage unless noted on the shipping list.

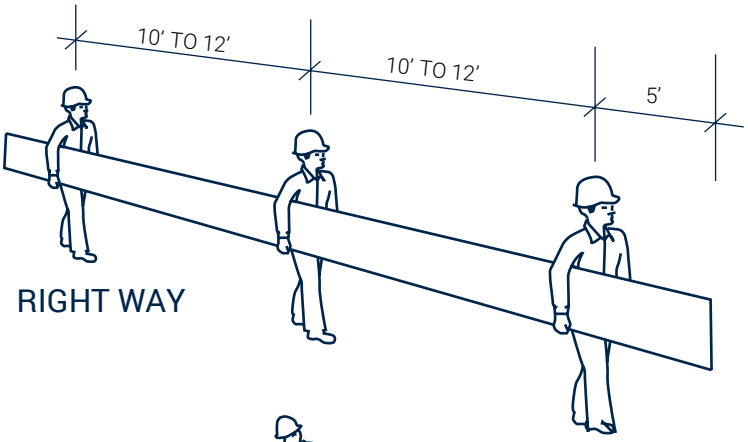
Each bundle should be lifted at its center of gravity. Where possible, bundles should remain banded until final placement on roof. If bundles must be opened, they should be retied before lifting.

When lifting bundles with a crane, a spreader bar and nylon straps should be used. NEVER USE WIRE ROPE SLINGS, OR CHAINS THEY WILL DAMAGE THE PANELS.

When lifting bundles with a forklift, forks must be a minimum of five feet apart. Do not transport open bundles. Drive slowly when crossing rough terrain to prevent panel buckling.

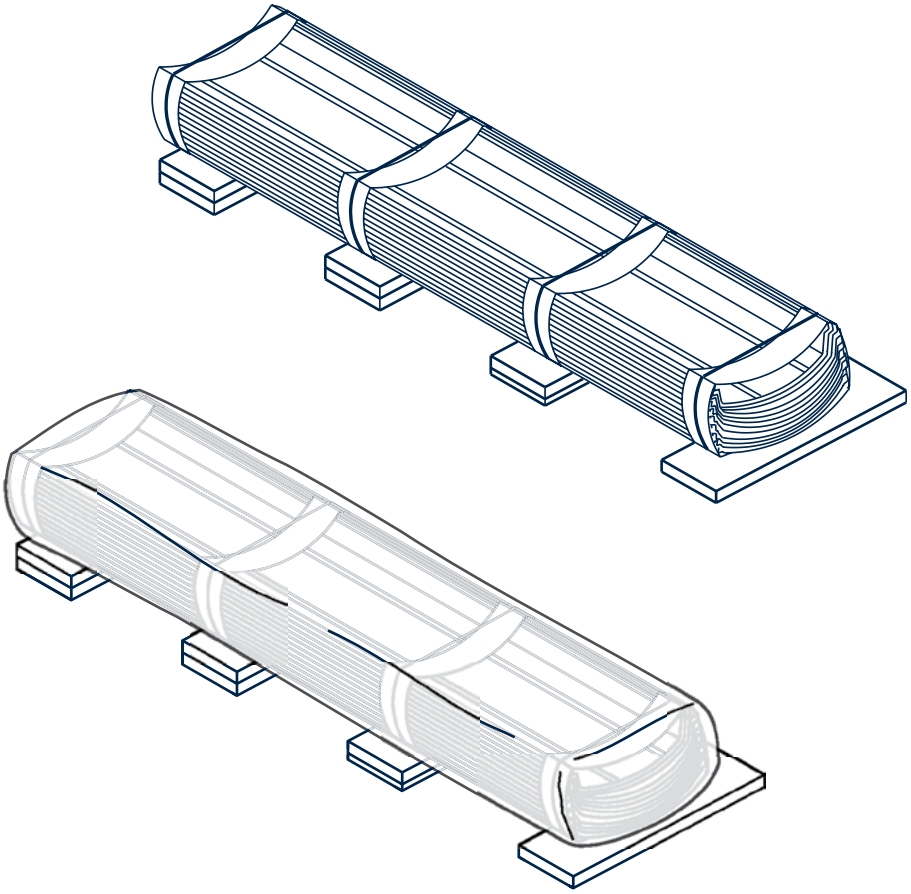
CAUTION
Improper unloading and handling of bundles and crates may cause bodily injury or material damage. The manufacturer is not responsible for bodily injuries or material damages during unloading and storage.

## Handling & Panel Storage




RIGHT WAY

WRONG WAY



Standing on one side of the panel, lift it by the seam. If the panel is over 10' long, lift it with two or more people on one side of the panel to prevent buckling.

Do not pick panels up by the ends.

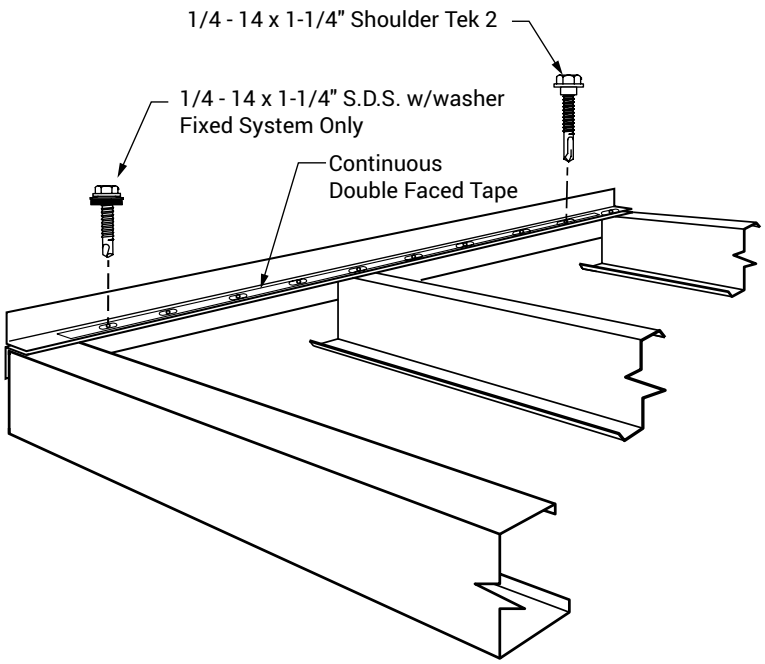
NOTE
Protective gloves should always be used while handling panels. OSHA safety regulations must be followed at all times.

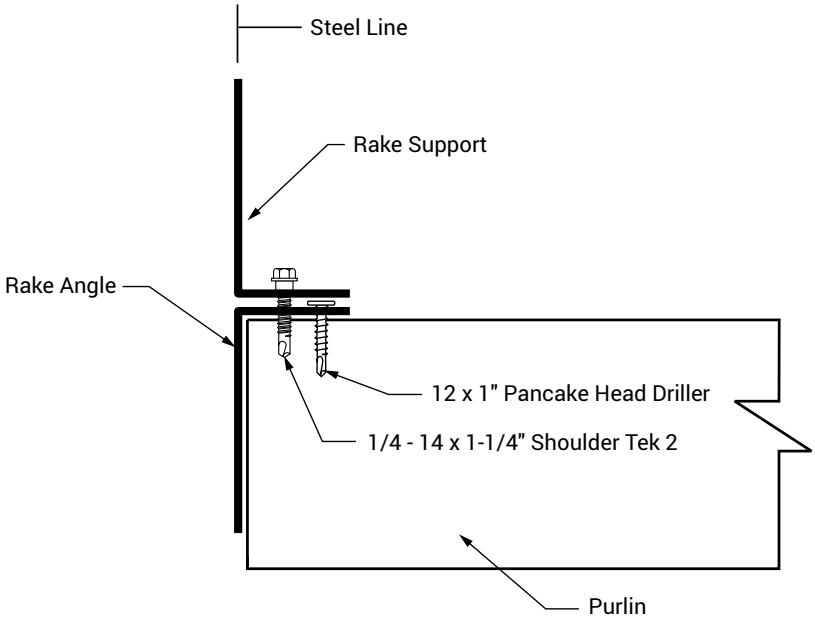
Store bundle sheets off the ground sufficiently high enough to allow air circulation beneath bundle and to prevent rising water from entering bundle. Slightly elevate one end of bundle. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground**. PROLONGED STORAGE OF SHEETS IN A BUNDLE IS NOT RECOMMENDED.**

If conditions do not permit immediate erection, extra care should be taken to protect sheets from staining or water marks.

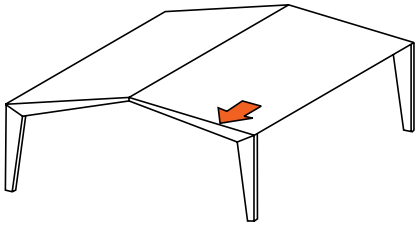
Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.

BAND ONLY
This method is used on all orders, unless otherwise specified by customer. The panels are banded together, causing them to curl up. This enhances the strength of the bundles. Panels bundled in this manner may be handled by a forklift in lengths to 30'. The forklift should have at least 5' between forks. Lengths in excess of 30' must be lifted utilizing a spreader bar. Special care must be given during handling to avoid damage to the locking edges of the panels.




## Step 1 - Rake Support



Attach the rake support on top of the rake angle with the proper self-drilling fasteners on 2'-0" centers with a fastener in the first and last pre-punched slot. The vertical leg is to be installed square with the eave. Center fasteners in slots.

FASTENER REQUIREMENTS

**FIXED SYSTEM**

Purlins- Fastener

1/4 - 14 x 1-1/4" S.D.S. w/washer

Joist- Fastener

12-24 x 1-1/4" Tek 4.5

**FLOATING SYSTEM**

Purlins- Fastener

1/4" - 14 x 1-1/4" Shoulder Tek 2

Joist- Fastener

1/4" - 14 x 1-1/4" Shoulder Tek 2

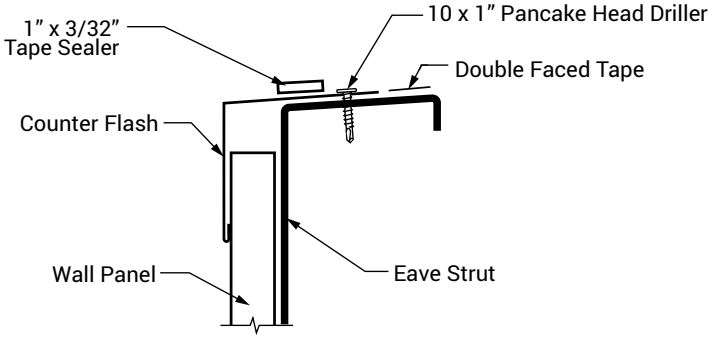
**IT IS IMPORTANT THAT THE RAKE SUPPORT IS INSTALLED STRAIGHT AND SQUARE WITH THE EAVE AS IT CONTROLS THE ALIGNMENT OF THE ROOF SYSTEM.**

Install double faced tape continuously to the top of the horizontal leg of the rake support. This will help hold the insulation in place at the rake.

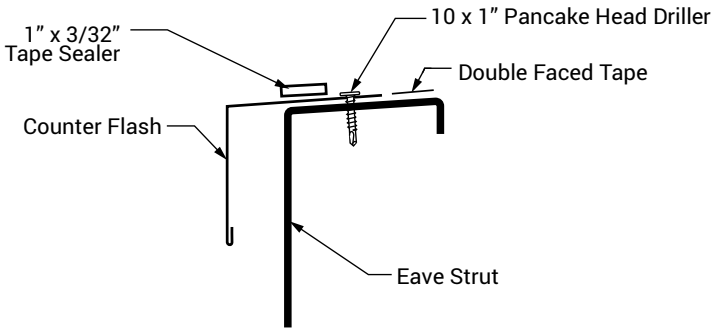
CAUTION
(For Floating Systems Only)
It is important that shoulder fasteners are installed through the CENTER of the slotted holes of the rake support to allow for expansion and contraction.

CAUTION
ALL PRIMARY AND SECONDARY FRAMING SHOULD BE ERECTED, PLUMBED, AND BOLTS TIGHTENED PRIOR TO SHEETING.

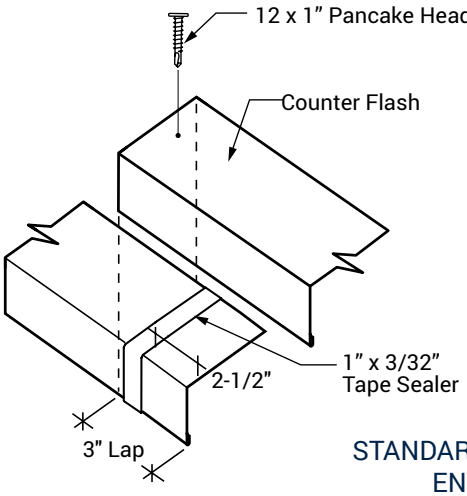
## Step 2 - Low System Eave



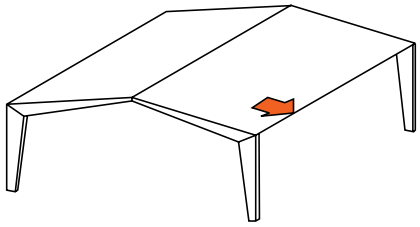

WALL PANEL INSTALLED BEFORE ROOF




WALL PANEL INSTALLED AFTER ROOF




STANDARD COUNTER FLASH
ENDLAP DETAIL



NOTE
Prior to installation of the wall system make sure the webs of the eave struts are vertical and plumb along entire eave line

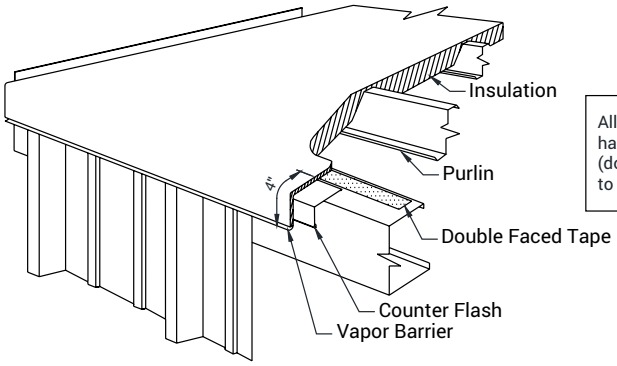
For applications in which the wall panels have already been erected, install standard counter flash to the eave strut with fastener 10 x1" pancake head driller. Trim must be pulled tight to wall panels before fastening to eave strut. For applications in which the wall panels have not been erected, hold the counter flash away from the eave strut the depth of the wall panel. Use two fasteners per 10' piece.

For low systems lay 1" x 3/32" tape sealer on top of the counter flash.

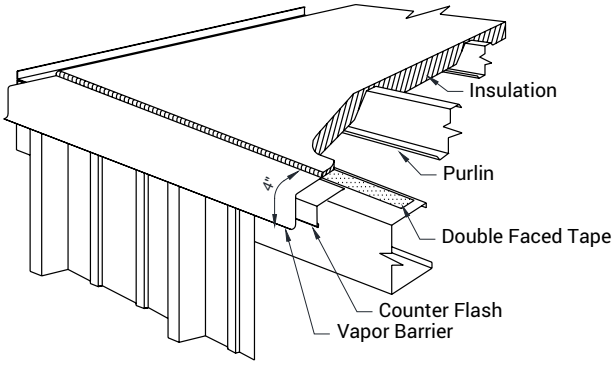
Install double faced tape along the length the top leg of the counter flash. Double faced tape must be up-slope from 1" x 3/32" tape sealer.

Lap counter flash 3". Lay 1" x 3/32" tape sealer between the trim pieces, approximately 2-1/2" from the end of the bottom piece.

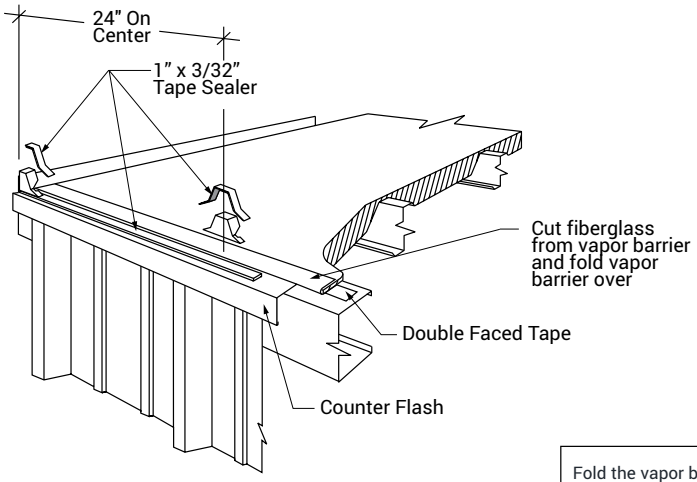
## Step 2A - Low System Eave / Metal Inside Closure



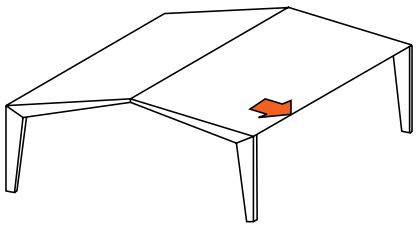

Allow approximately 4" of insulation to hang past the double faced tape (down-slope) before sticking the insulation to the double faced tape.




Cut and remove approximately 4" of fiberglass from the vapor barrier.



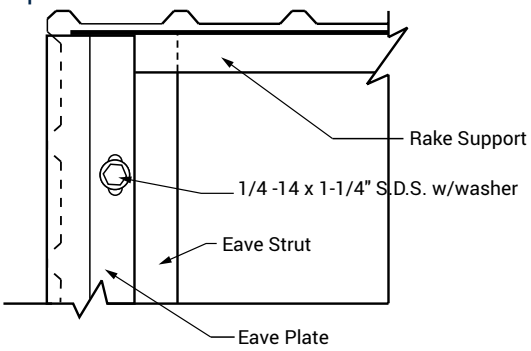

Fold the vapor barrier back over the insulation (up-slope).



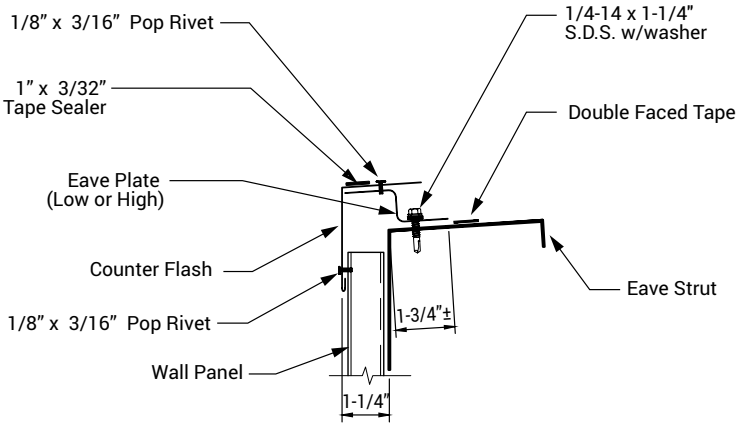
Using fastener 1/4 -14 x 1-1/4" S.D.S. w/ washer, attach the first inside closure to the eave strut, locating the face of the inside closure with the steel line. **NOTE THAT THE FIRST INSIDE CLOSURE MUST BE FIELD CUT IN HALF TO FILL THE VOID UNDER THE PARTIAL RIB.** Locate additional closures on 24" centers from the first closure to maintain panel module, attaching each with fastener 1/4 -14 x 1-1/4" S.D.S. w/washer. Install two fasteners per closure. The first fastener should be installed through the slotted hole to allow for any adjustment that may be required. Place 1" x 3/32" tape sealer on the top and side of each closure to complete the seal at the eave. These may be pre-taped before installation. To maintain panel module, metal inside closures must be installed on 24" centers. Measure from tab to tab located on the metal inside closure. Roll out insulation from eave to peak, laying the side of the insulation on top of the rake support. The first roll should be 3' wide. This will keep insulation sidelaps 1' from panel sidelaps. Allow approximately 4" of insulation to hang past the double faced tape (down-slope) before sticking the insulation to the double faced tape. Cut and remove the fiberglass approximately 4" and fold the vapor barrier back over the insulation (up-slope).

CAUTION
The fiberglass insulation must not interfere with the 1" x 3/32" tape sealer which provides a positive seal at the eave.

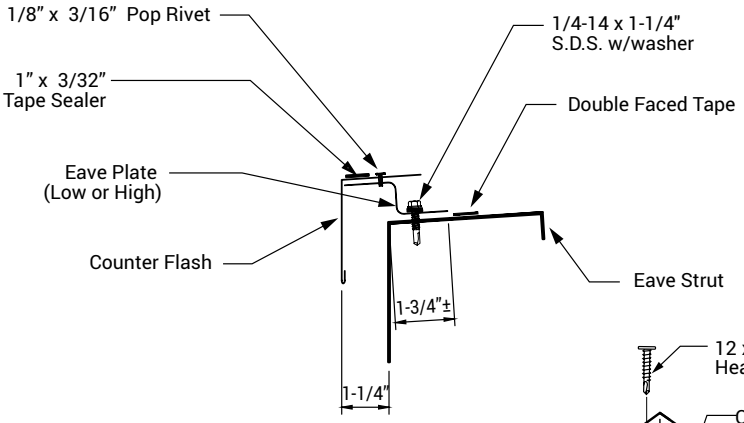
If the top elevation of the eave member is adjusted by 1" this step is not required



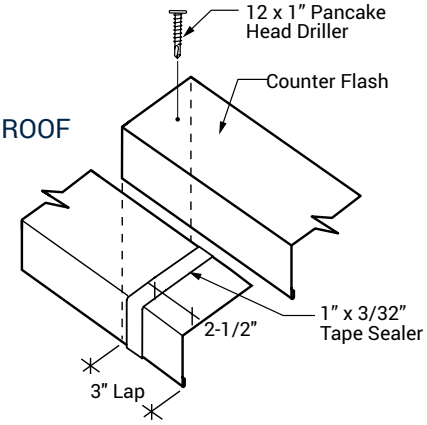

NOTE
Prior to installation of the wall system make sure the webs of the eave struts are vertical and plumb along entire eave line




WALL PANEL INSTALLED BEFORE ROOF

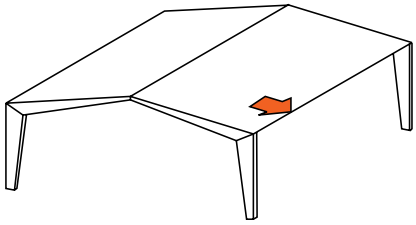



WALL PANEL INSTALLED AFTER ROOF




STANDARD COUNTER FLASH ENDLAP DETAIL

## Step 2B - High System Eave



Wall panel installed before roof

Install the high eave plate flush with the face of the wall panel. Install fastener 1/4 -14 x 1-1/4" S.D.S. w/washer in each pre-punched slot (12" on center) of the eave plate. The first eave plate will butt against the rake support. You may install all of the eave plates at this time.

Install counter flash by attaching to wall panel with fastener 1/8" x 3/16" pop rivet. Use three fasteners per 10' piece.

Lay 1" x 3/32" tape sealer across the top of the counter flash flush with the outside edge. Install double faced tape along the length of the bottom leg of the eave plate

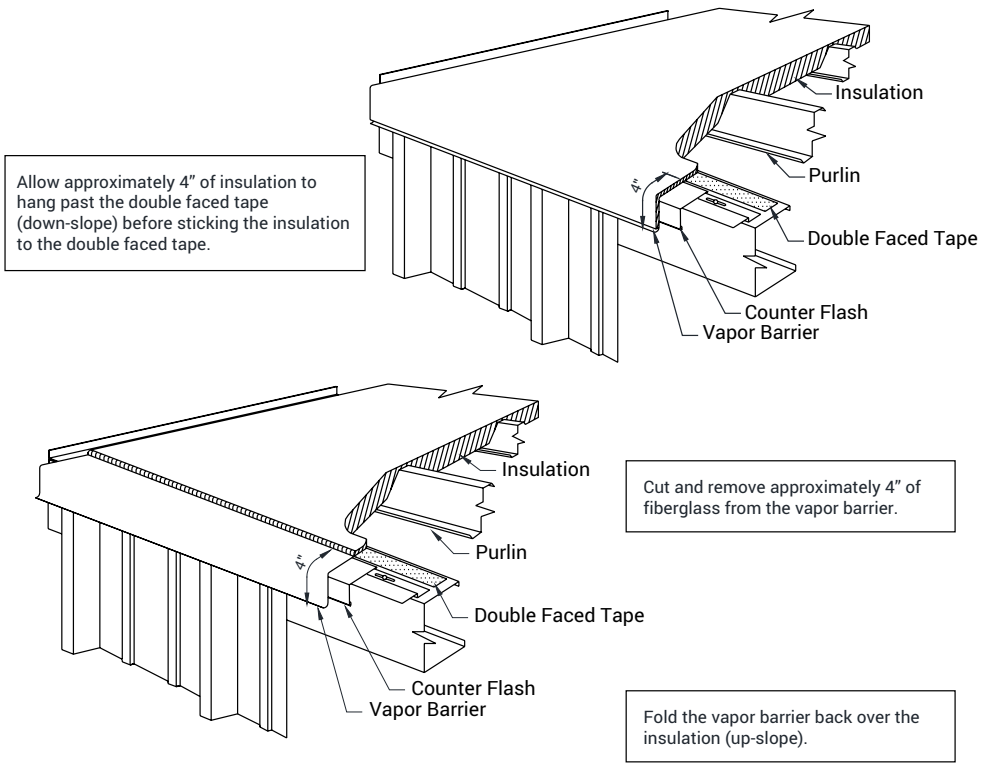
Wall panel installed after roof

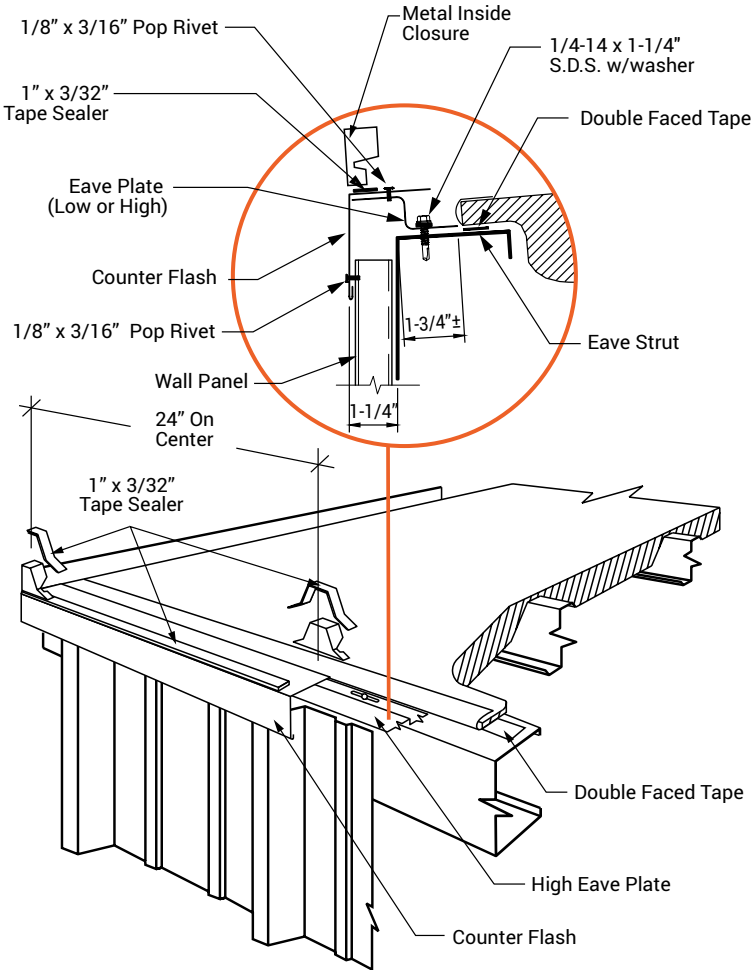
For applications in which the walls have not been erected, install the high eave plate top leg at the depth of the wall panel. Attach the counter flash to the top leg of the eave plate with two 1/8" x 3/16" pop rivet per 10' piece. Fastener 1/4 -14 x 1-1/4" S.D.S. w/washer in each pre-punched slot (12" on center) of the eave plate. The first eave plate will butt against the rake support. You may install all of the eave plates at this time.

Lay 1" x 3/32" tape sealer across the top of the eave plates, flush with the outside edge. Install double faced tape along the length of the bottom leg of the eave plate.

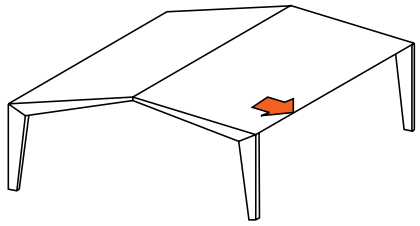
Trim laps

Lap counter flash 3". Lay 1" x 3/32" tape sealer between the trim pieces, approximately 2-1/2" from the end of the bottom piece.




## Step 2C - High System Eave / Metal Inside Closure

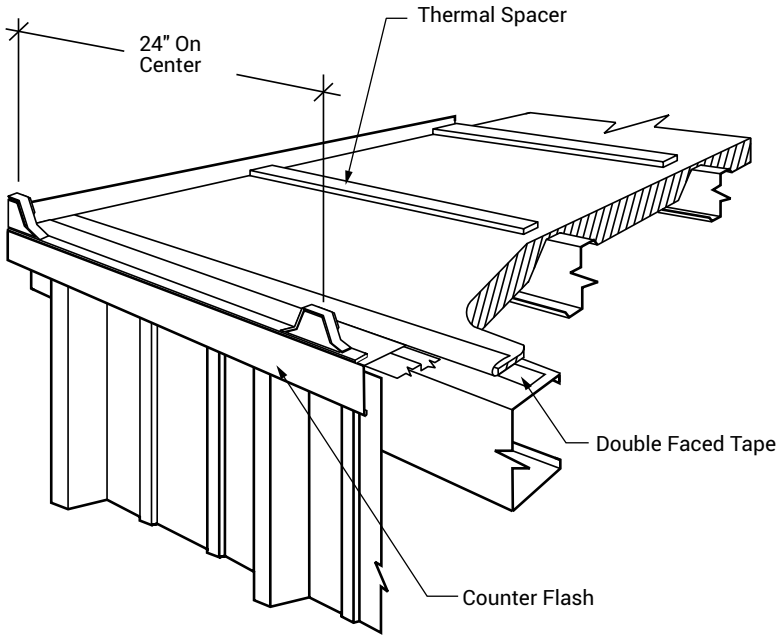


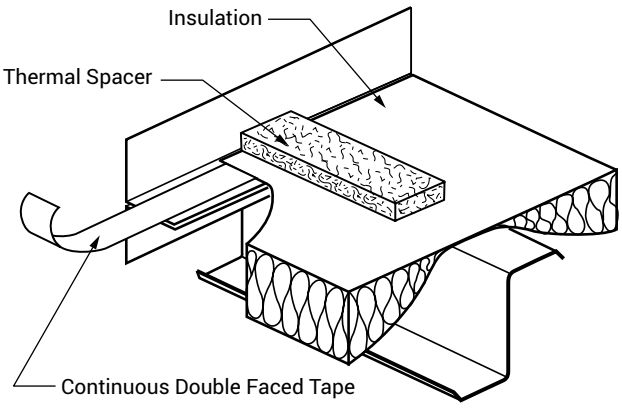
Using fastener 1/4 -14 x 1-1/4" S.D.S. w/ washer, attach the first inside closure to the eave plate, locating the face of the inside closure with the down-slope edge of the eave plate. **NOTE THAT THE FIRST INSIDE CLOSURE MUST BE FIELD CUT IN HALF TO FILL THE VOID UNDER THE PARTIAL RIB.**

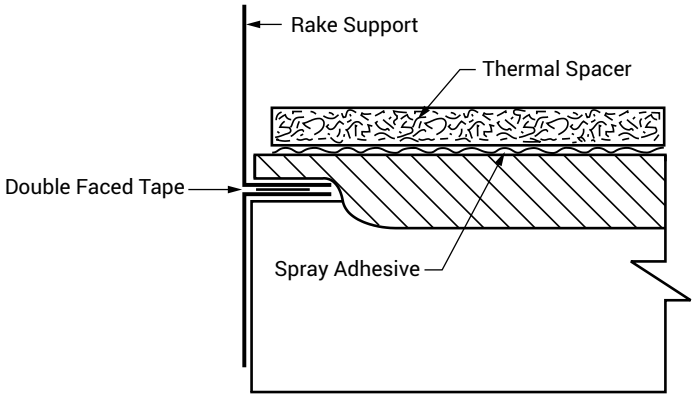
Locate additional closures on 24" centers from the first closure to maintain panel module, attaching each with fastener 1/4 -14 x 1-1/4" S.D.S. w/washer. Install two fasteners per closure. The first fastener should be installed through the slotted hole to allow for any adjustment that may be required. Place 1" x 3/32" tape sealer on the top and side of each closure to complete the seal at the eave. These may be pre-taped before installation. Measure from tab to tab located on the metal inside closure.

Roll out insulation from eave to peak, laying the side of the insulation on top of the rake support. The first roll should be 3' wide. This will keep insulation sidelaps 1' from panel sidelaps. Allow approximately 4" of insulation to hang past the double faced tape (down-slope) before sticking the insulation to the double faced tape. Cut and remove the fiberglass approximately 4" and fold the vapor barrier back over the insulation (up-slope).

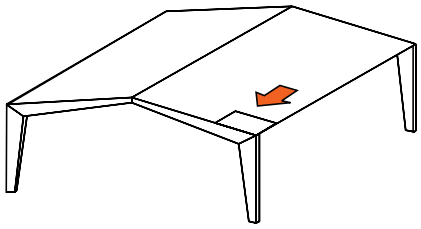
CAUTION
The fiberglass insulation must not interfere with the 1" x 3/32" tape sealer which provides a positive seal at the eave.



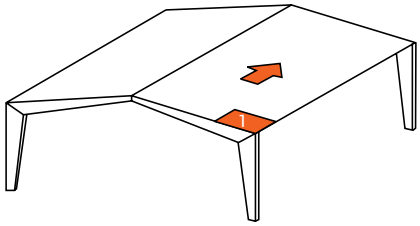

## Step 3 - Thermal Spacer (For High System Only)



Position the thermal spacer on top of the insulation over each purlin and against the rake support prior to installing the roof panel.

Using spray adhesive, adhere the thermal spacer to the insulation. The thermal spacer increases the insulation capacity along the purlins.

## Step 4 - First Panel



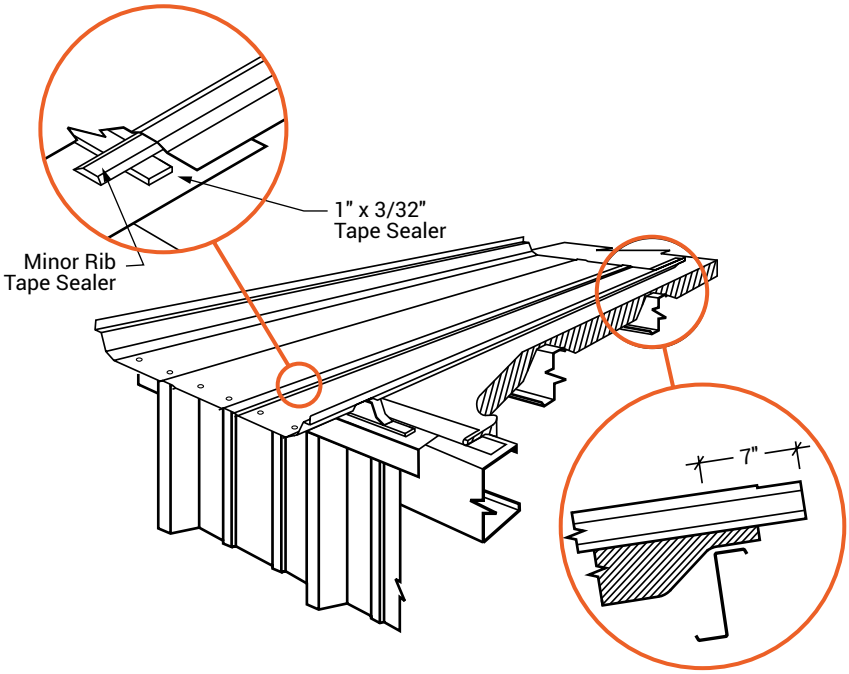
Apply minor rib tape sealer to the underside of the minor ribs of the panel. Position so that this tape sealer will cross the 1" x 3/32" tape sealer on the eave trim (for low systems) or on the high eave plate (for high systems) when the panel is installed.

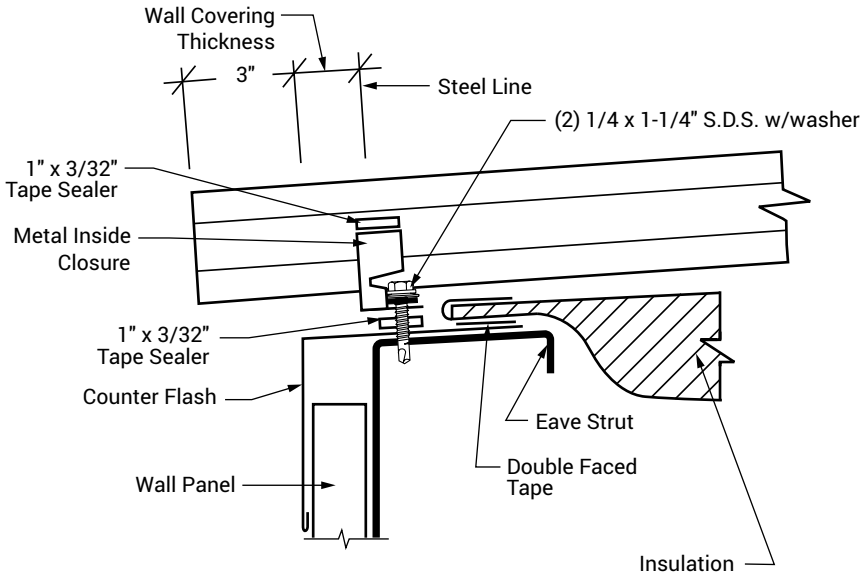
Position the panel so that it overhangs the eave strut by the thickness of the wall covering plus 3". The upper end of the panel must be 7" beyond the web of the purlin.

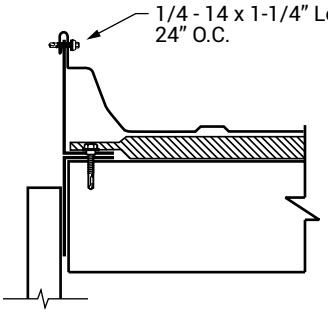
**The 7" dimension is the most critical dimension in the roof system and must be maintained over all other dimensions**

**PRE-PUNCHED PANEL HOLES AT THE EAVE ARE INTENDED TO BE PART OF THE GUTTER OVERHANG AND WILL BE HIDDEN BY THE GUTTER. FOR A BUILDING WITH SCULPTURED EAVE TRIM, THE PRE-PUNCHED HOLES WILL BE USED TO ATTACH THE EAVE TRIM TO THE PANEL.**

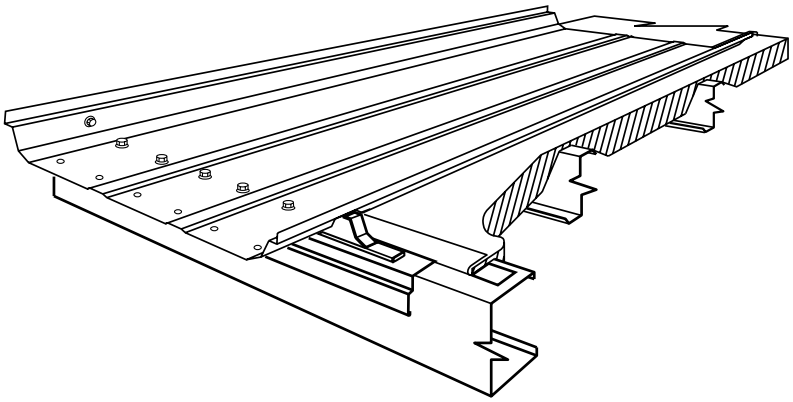
Lay the female lip of the panel over the rake support. Fasten the panel to the rake support with fastener 1/4 - 14 x 1-1/4" Long Life S.D.S. 24" o.c.

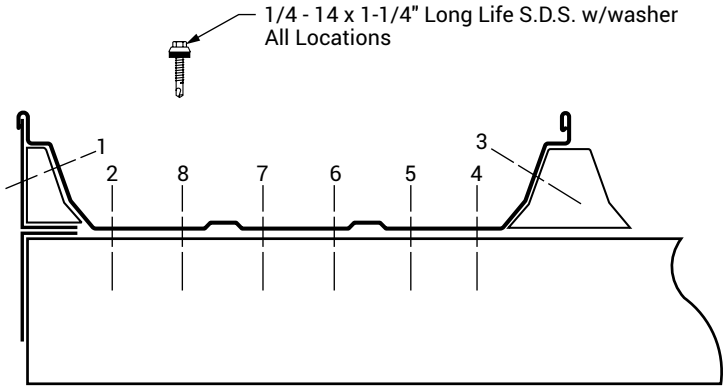


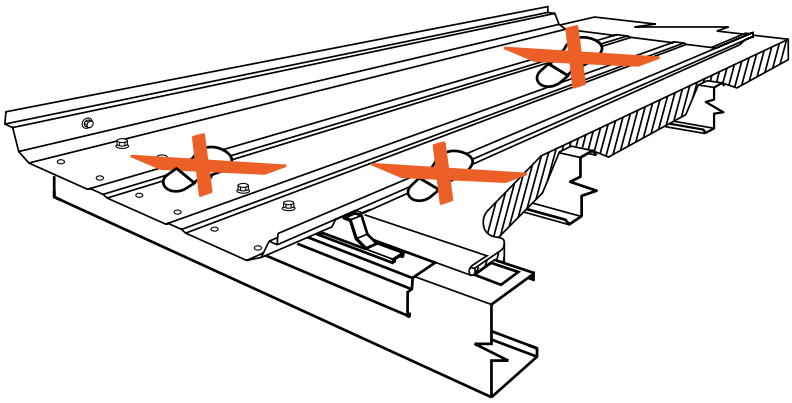



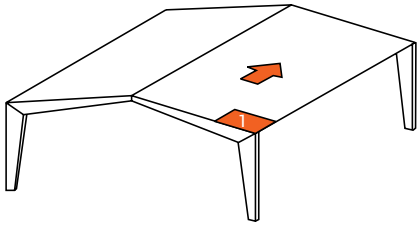
## Step 4 - First Panel (Continued)






FASTENER SEQUENCE
FIRST RUN - EAVE






Attach the panel to the eave strut and metal inside closures with fastener 1/4 - 14 x 1-1/4" Long Life S.D.S. w/washer. Eight fasteners are required at this location.

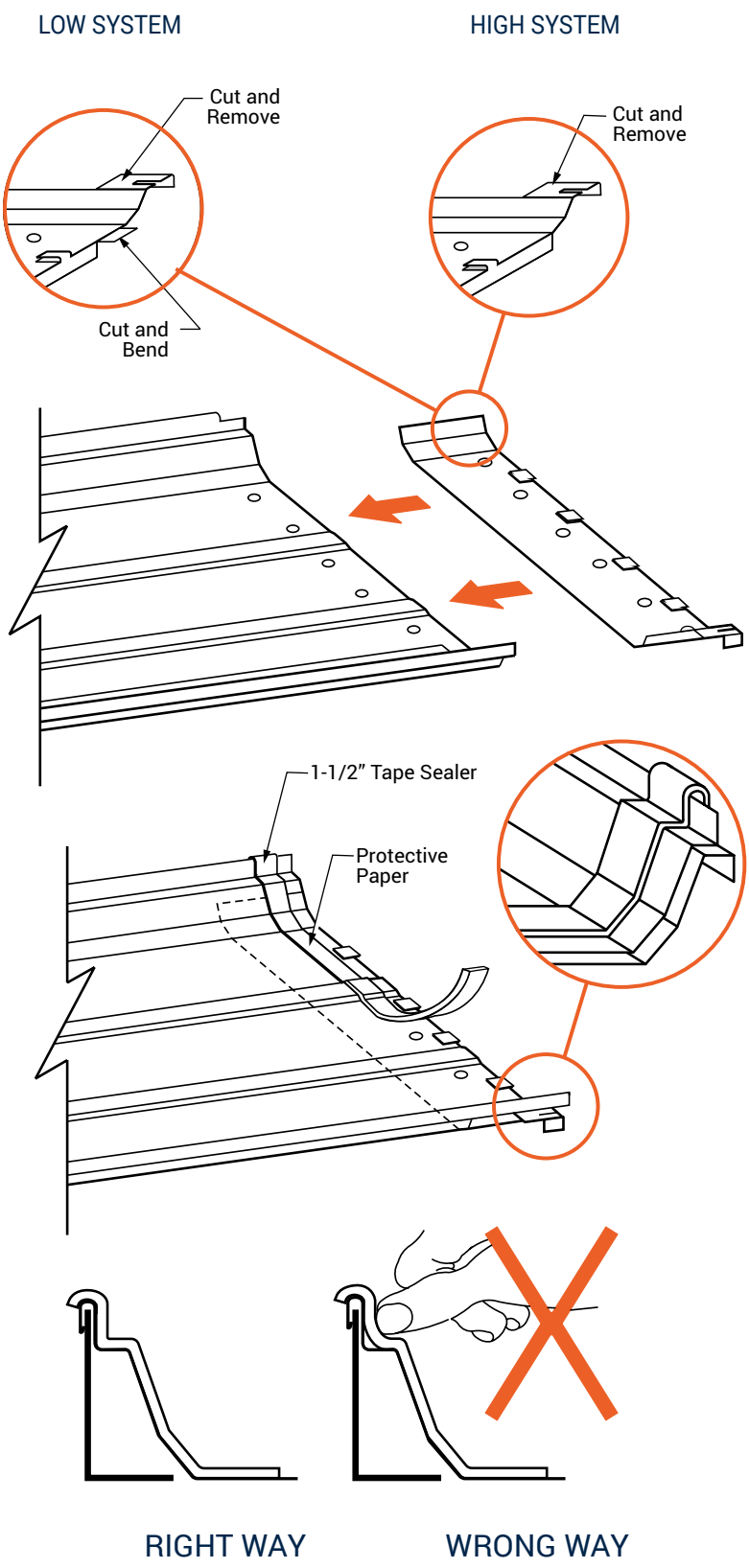
**NOTE: IT IS ESSENTIAL THAT THE ERECTOR MAINTAIN A 24" MODULE AT THE EAVE, WITH THE PROPER INSTALLATION OF THE INSIDE CLOSURES AND BY INSTALLING FASTENERS IN THE PROPER SEQUENCE.**

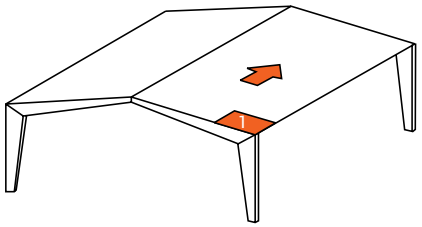
NOTE
We recommend the installer pre-drill the holes for fastener 1 and 3 to prevent pushing the flange of the closure out of alignment.

CAUTION
Do not, under any circumstance, step on the panel at the seam or at the panel ends until the adjacent side, end panels, or eave fasteners are fully attached. The roof panel may not support the weight of a man at these locations and could affect panel module.

CAUTION
The roof should be swept clean of any drill shavings at the end of each day to prevent rust.

## Step 5 - Back-up Plate



NOTE
All back-up plates on first panel run will require field modification to avoid fouling rake support.

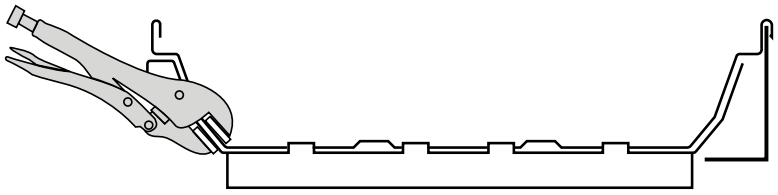
Slide a back-up plate onto end of panel; make sure the teeth on top of the back-up plate are on top of the panel. Visually check to see that the holes in the panel align with the holes in the back-up plate.

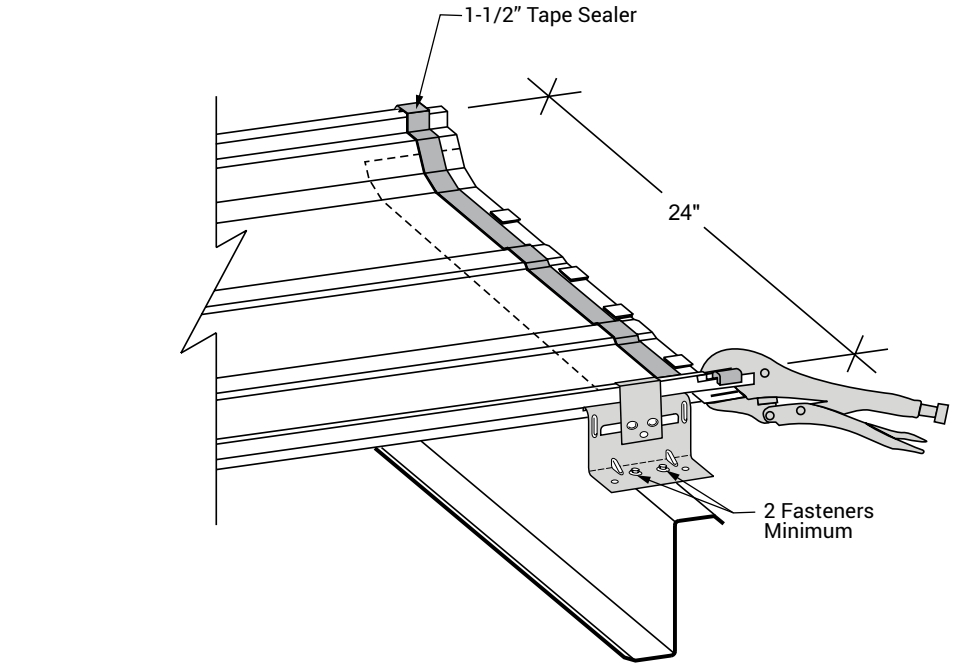
Place tape sealer over the entire width of the panel. It must be centered directly over the pre-punched holes, following the panel configuration.

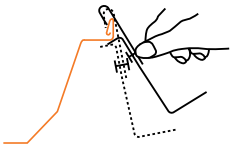
NOTE
Tape Sealer will be 1-1/2" x 3/32" depending on condition. See steps 7 and 9.

CAUTION
Forcing the tape sealer back into the corners will lessen the thickness of the tape sealer where it is needed most.

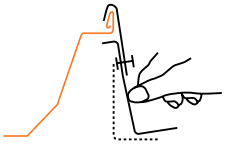
## Step 6 - Clip Installation



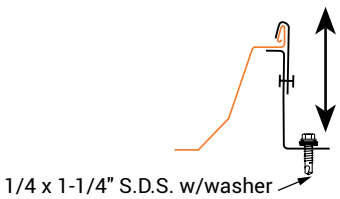


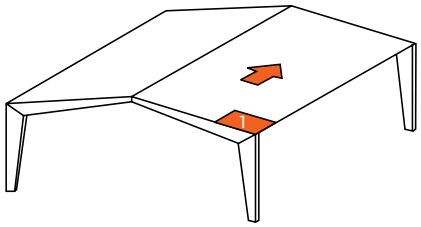
• Position the clip over the male leg of the panel as shown, and rotate clip downward.



• With the uppper clip firmly seated, position the base firmly against the purlin flange.




• When properly positioned, the vertical legs of the upper and lower sections of the clip will be 90° to the purlin flange pointed upward, as shown.



Before installing the first clip, clamp the male side of the panel to the side of the back-up plate with a pair of vise grips. This will help maintain panel module at the endlaps. Install a clip on the male leg of the panel at the endlap. This should be the first clip installed as it controls the 24" module for the remainder of the panel. Install clips on all remaining purlins.

FASTENER REQUIREMENTS

**FLOATING SYSTEM**

Purlins - Fastener

1/4 -14 x 1-1/4" S.D.S. w/washer

Joist - Fastener

1/4 - 14 x 1" Tek 5 w/washer

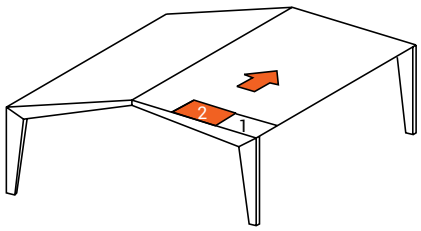
(Two fasteners per clip)

CAUTION
The panel clip has factory applied mastic in the upper lip. This mastic is compressed when the clip is rotated in place. If, for some reason, a clip must be removed, a new clip must be used.

IMPORTANT
As each clip is installed, maintain a 24" panel module.

NOTE
The floating clip is designed so it can only be properly seated when the upper portion of the clip (the tab) is centered on the base.

## Step 7 - Endlap - Panel




NOTE
Step 7 applies only where more than one panel is used in a single slope.

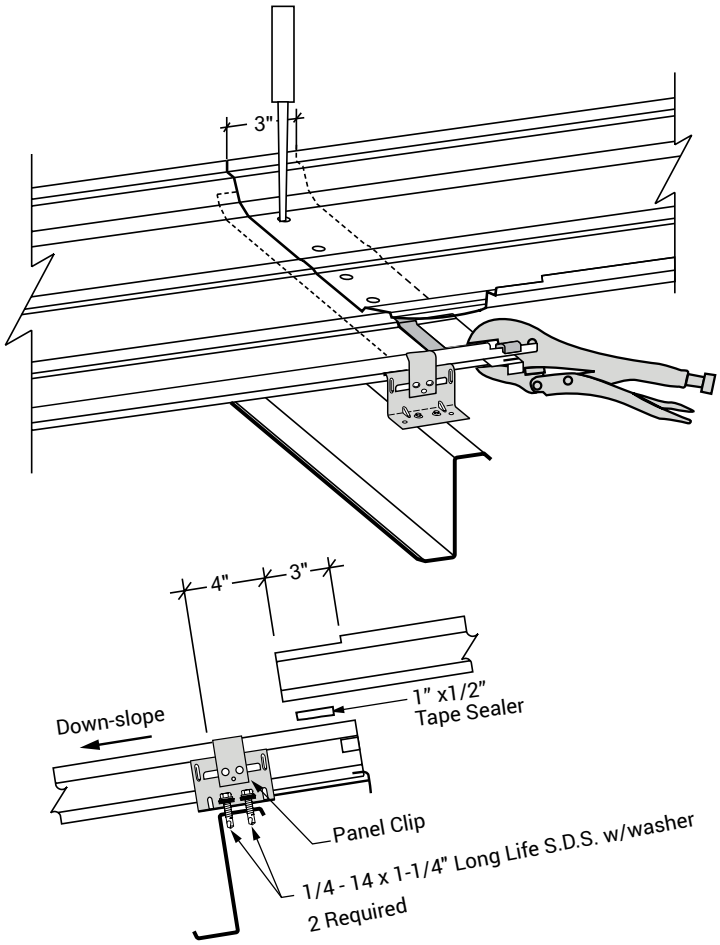
Position female lip of upper panel over rake support, while holding male side of panel up away from the tape sealer. Using an awl, align the hole nearest the female side of the top panel with the corresponding hole in the lower panel and the back-up plate.

Once this is accomplished, rotate the male side of the upper panel down to rest on the vise grips.

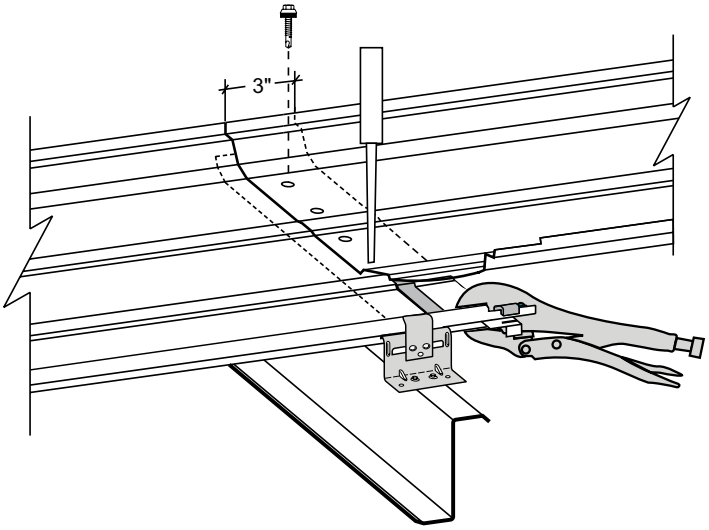
Make sure the panel notches are aligned.

Remove awl and insert in the middle hole nearest the male leg. Install fastener 1/4 -14 x 1-1/4" Long Life S.D.S. w/washer in the hole by the female leg.

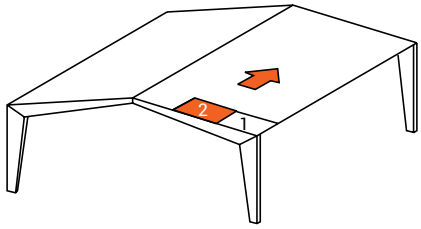
CAUTION
The roof should be swept clean of any drill shavings at the end of each day to prevent rust.




1/4 - 14 x 1-1/4" Long Life S.D.S. w/washer



## Step 8 - Standard Endlap

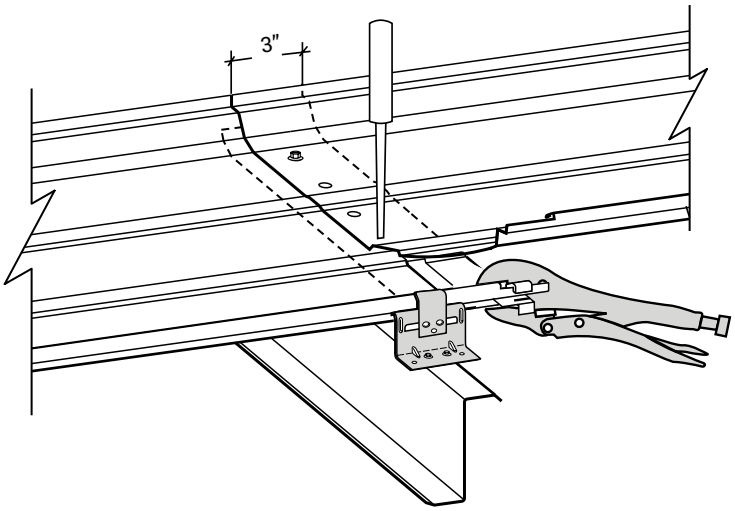


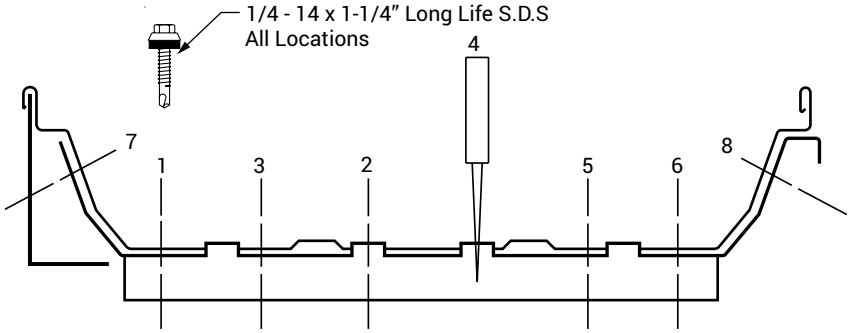

NOTE
Step 8 applies only where more than one panel is used in a single slope.

All holes in the upper and lower panels and the back-up plate should now be aligned. Make sure that the panel notches are aligned. Install fastener 1/4 -14 x 1-1/4" Long Life S.D.S. in sequence 2 and 3. Remove vise grips and install remaining fasteners in sequence 4, 5, 6, 7, 8.

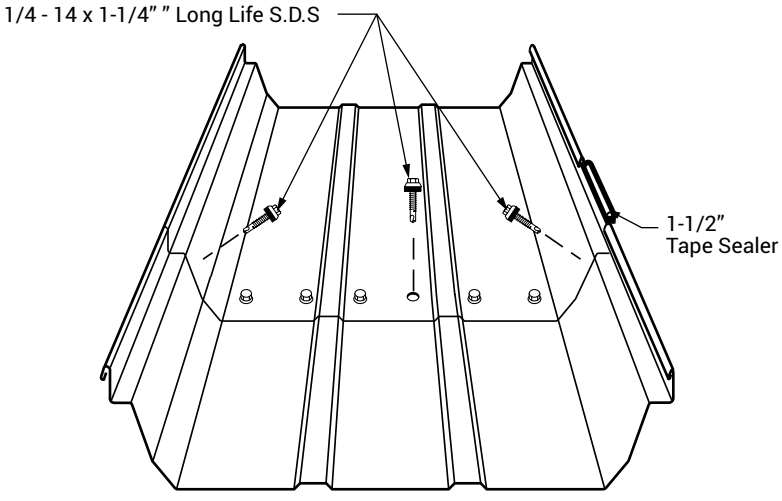
Apply 1-1/2" x 3/32" tape sealer over the notched portion of these male legs.

Repeat the endlap procedures as required for each panel until the ridge or high eave is reached.

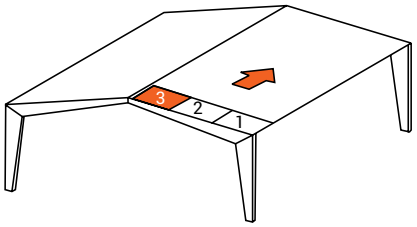


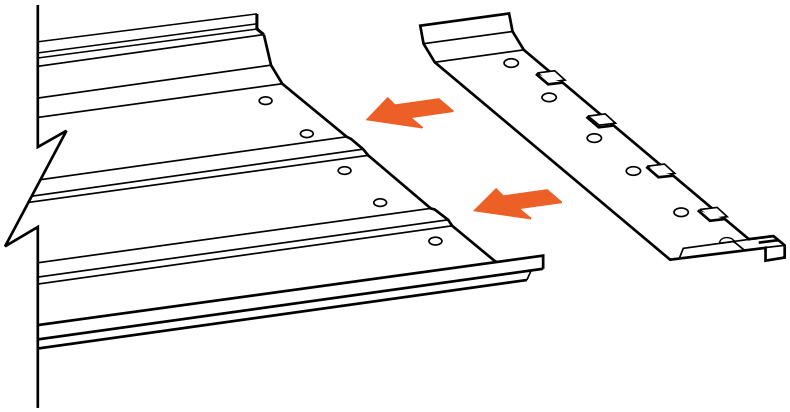




FASTENER SEQUENCE FIRST RUN - ENDLAP



## Step 9 - Ridge Panel



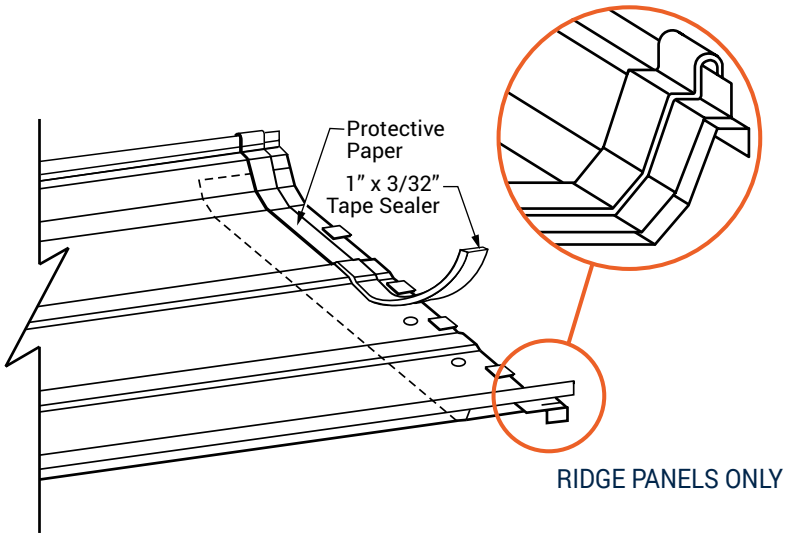



At the ridge, install a back-up plate as in Step 5. The back-up plate is necessary to maintain panel module.

Install 1"x 3/32" tape sealer over pre-punched holes. Be sure to place the tape sealer over the male leg. **DO NOT REMOVE THE PROTECTIVE PAPER AT THIS TIME EXCEPT AT THE MALE LEG.**

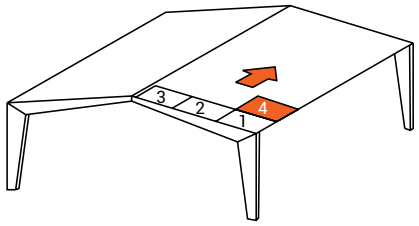
Install clips on ridge panel as in Step 6.

CAUTION
Placing the tape sealer over the male leg of the panel is important. Without it, water could be driven behind the end dam by a strong wind.




RIDGE PANELS ONLY

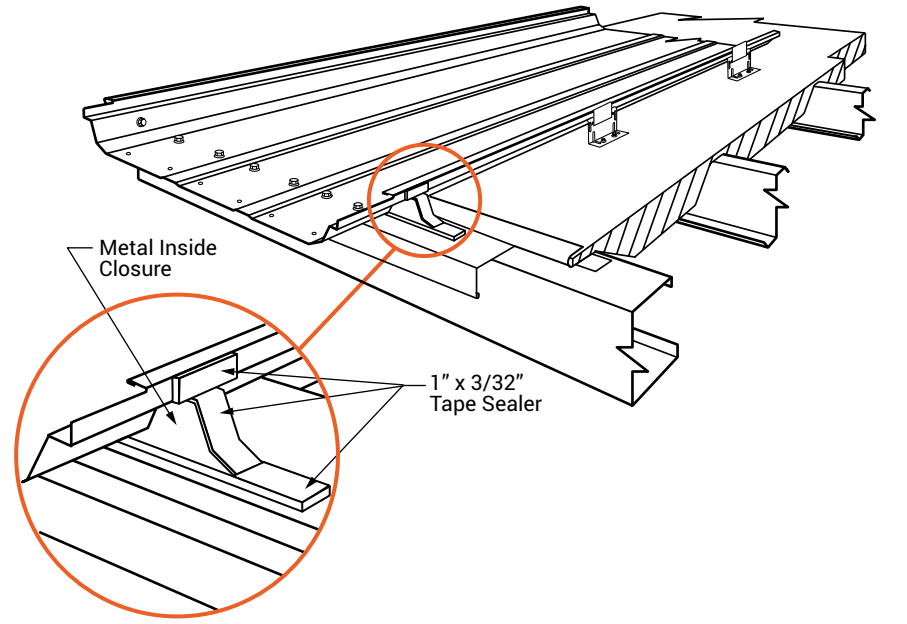
## Step 10 - Subsequent Runs Eave

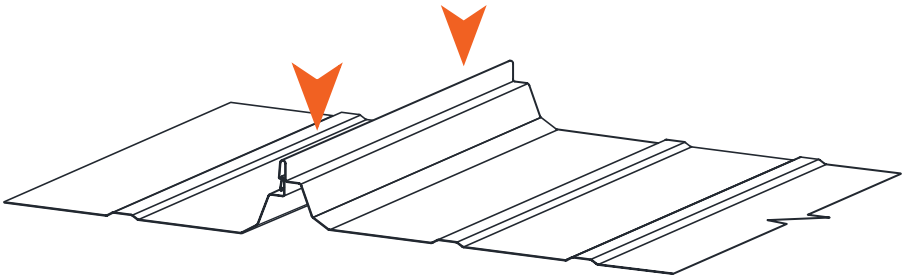


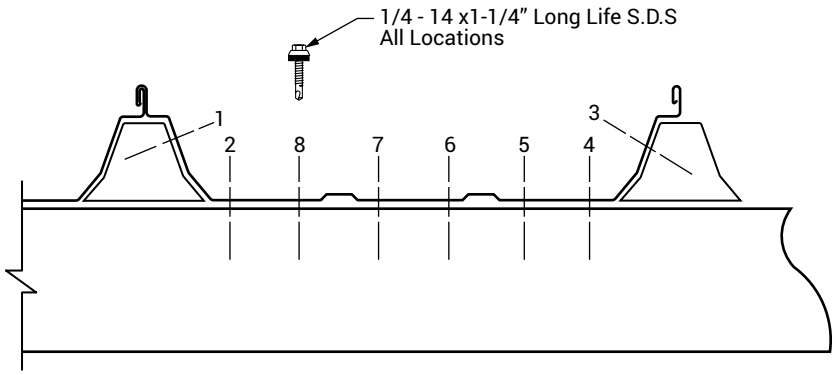

Apply tape sealer to the male leg of the first panel run directly over the inside closure. This will prevent water infiltration through the end of the seam. Install the next run of insulation and another inside closure using fastener 1/4 -14 x 1-1/4" S.D.S. w/washer. The second run of roof is now ready to install.

Position the panel with the female lip resting on top of the male leg. Align panel flush with adjacent panel. ONCE THE PANELS ARE SNAPPED TOGETHER, NO FURTHER ALIGNMENTS CAN BE MADE. Press down on the seam, snapping the two panels together. It is important to begin at one end of the panel and work to the other, applying pressure continuously all the way along the seam to avoid a bubble in the seam. Make certain the seams are fully locked together, particularly at the clips where greater resistance will be encountered.

Install fastener 1/4 -14 x 1-1/4" Long Life S.D.S at eave in the proper sequence. Eight fasteners are required at this location.

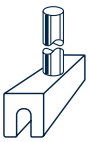




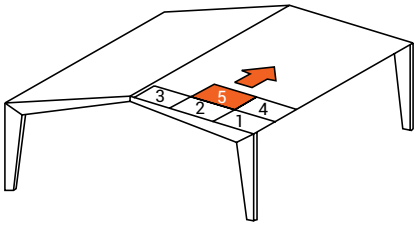

FASTENER SEQUENCE SUBSEQUENT RUNS - EAVE

CAUTION
Never use a hammer to force the panels to snap together. This will cause severe damage to the panel and will nullify any warranty.



CAUTION
If a problem is encountered in fully snapping the seams together, such as an incorrectly installed clip, damaged panel lip, or a bubble caused by faulty assembly. The shaping tool should enable the seam to be locked with minimal effort.

## Step 11 - Subsequent Runs Endlap

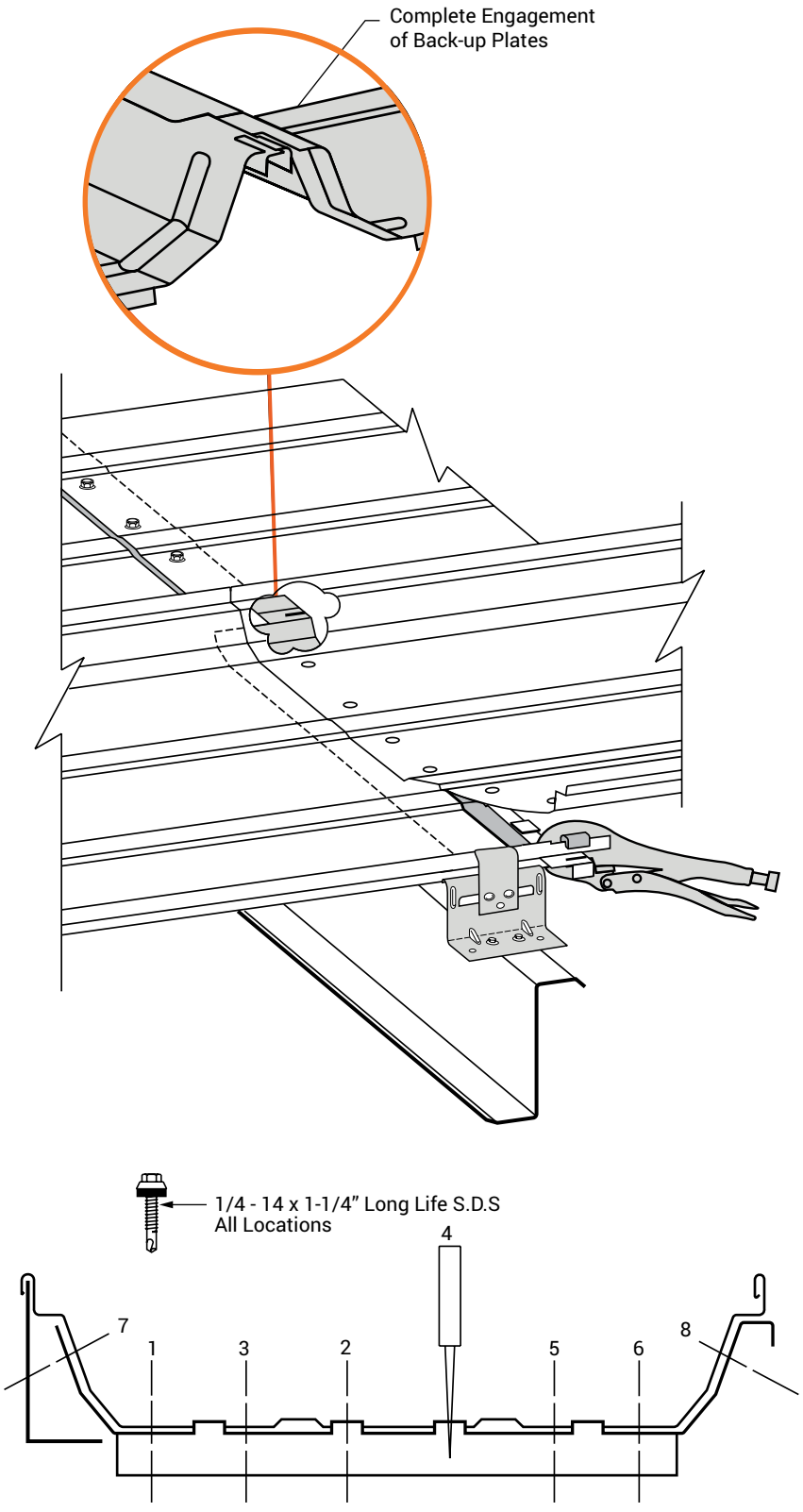



Install back-up plate and tape sealer as in Step 5. However, on this and all subsequent runs, care must be taken to engage the tab on the side of the back-up plate into the slot of the adjacent back-up plate. This procedure will assist in maintaining a 24" panel module.

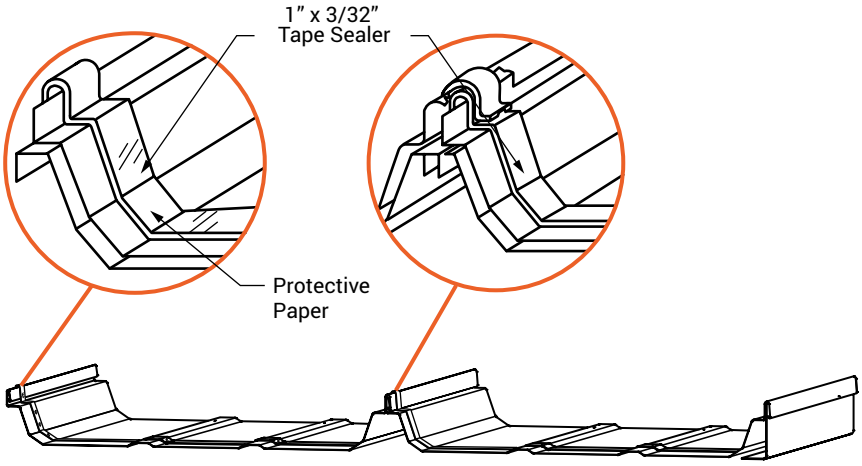
Install clips as described in Step 6.

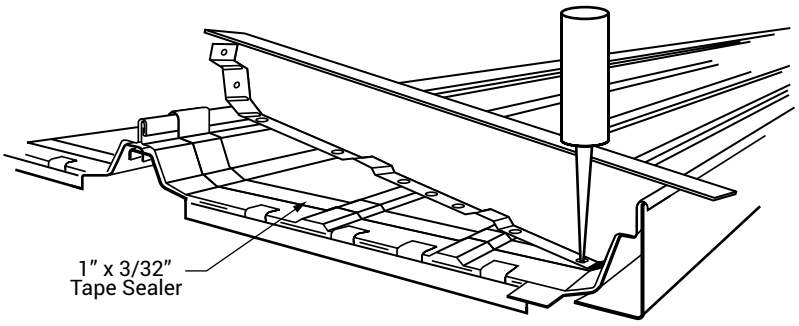
Install upper panel as described in Steps 7 & 8.

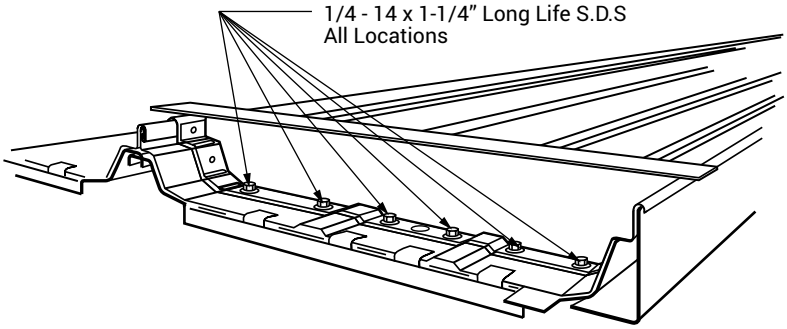
Repeat the endlap procedures as required for each panel until the ridge is reached.



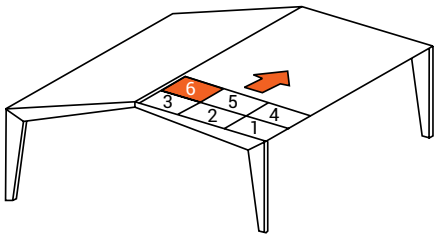

FASTENER SEQUENCE SUBSEQUENT RUNS - ENDLAP




## Step 12 - Subsequent Runs Ridge End Dam




Install back-up plate and panel clips. Go to the previously installed ridge panel and peel protective paper from tape sealer. Apply tape sealer to the ridge panel just installed. Be sure to seal to the mastic on the previous panel.

Note:
Always stay one panel run behind with the End Dams, otherwise, the next panel cannot be installed.

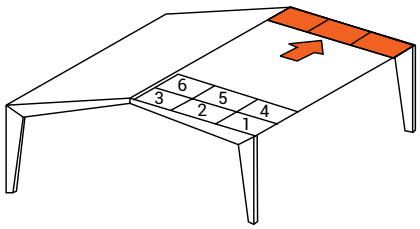
Install the End Dam in previous ridge panel. Rotate end dam into position contacting the female side of the panel first. Using an awl, align the first hole on the female side of the end dam with the corresponding hole in the panel and back-up plate. Remove the awl and install Fastener 1/4 -14 x 1-1/4" Long Life S.D.S in the hole. Push the other end of the End Dam into position and align the holes with the awl. Remove the awl and install fastener 1/4 -14 x 1-1/4" Long Life S.D.S in all remaining holes except for the hole at the panel seam. Do not install the panel seam fastener at this time.

Check panel alignment at this time (See page SSII-38).

Continue installing the roof until all but the last panel run has been installed.

Panel module should be checked every third or fourth run.

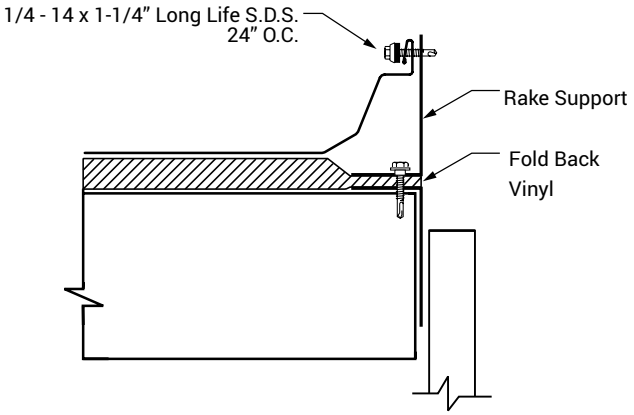
## Step 13 - Last Panel Run

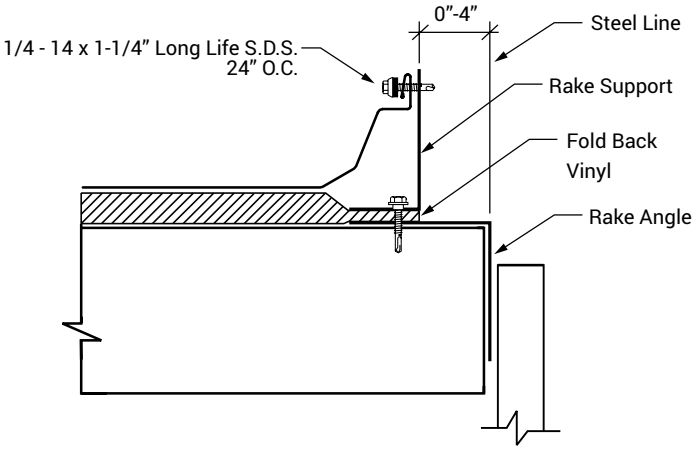



This roof system is designed to finish in the high on even footage buildings by using 24" panels on the last run.

After laying the last insulation run, install the rake support over the insulation along the steel line. Lay the last panel run. Fasten the male leg temporarily to the rake support with 1/4 -14 x 1-1/4" Long Life S.D.S or with C clamps.

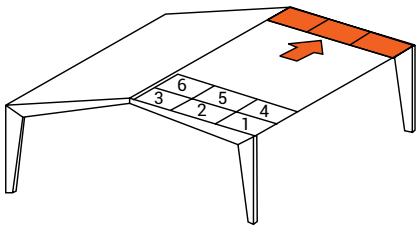
The rake support angle may be from 0" to 4" away from the steel line to correct an out of square condition.




CAUTION
The roof should be swept clean of any drill shavings at the end of each day to prevent rust.

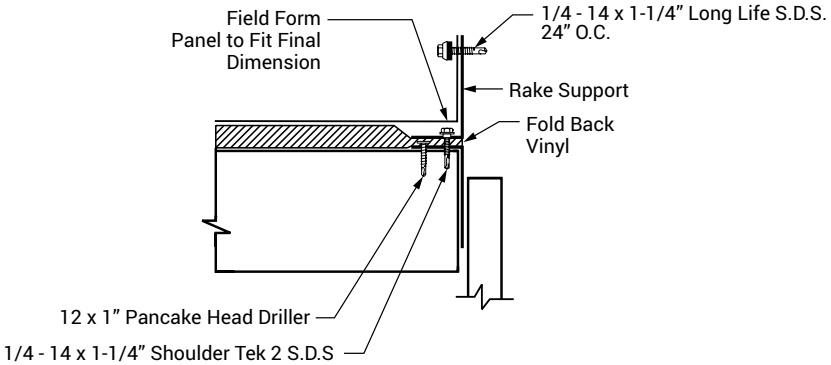
## Step 13A - Last Panel Run (Optional) (Continued)

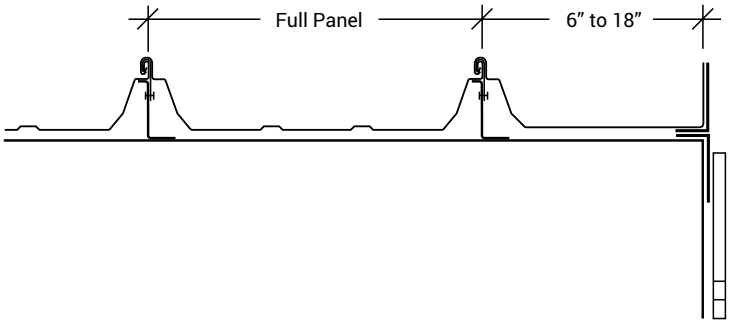



The roof is designed to finish in the high on even footage buildings. Odd length buildings and variations in erection practices may dictate that an alternate detail be used.

When terminating in an odd dimension, field cut and bend a 3" vertical leg on the panel.

After laying the last insulation run, install the rake support over the insulation along the steel line. Lay the last panel run. Fasten the male leg temporarily to the rake support with 1/4 -14 x 1-1/ 4" Long Life S.D.S or with C clamps.



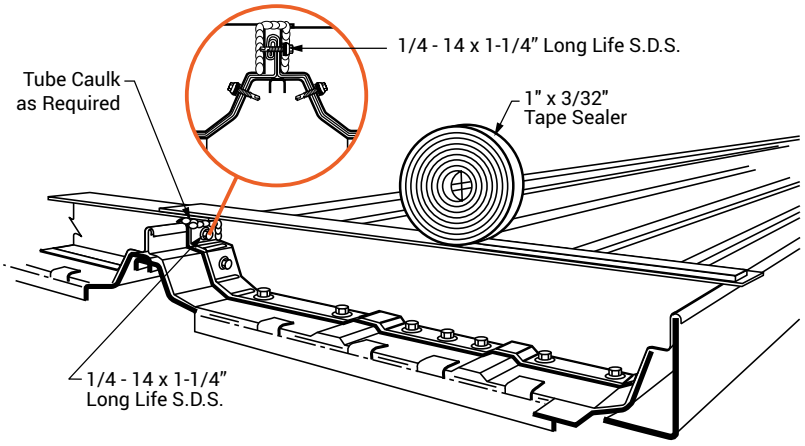

PARTIAL PANEL (6" TO 18" SPACE PANEL MUST BE FIELD FORMED)

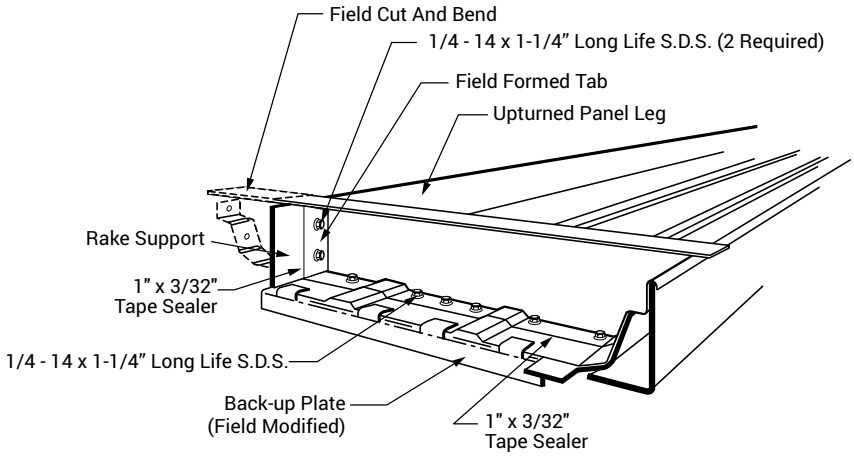
CAUTION
The roof should be swept clean of any drill shavings at the end of each day to prevent rust.

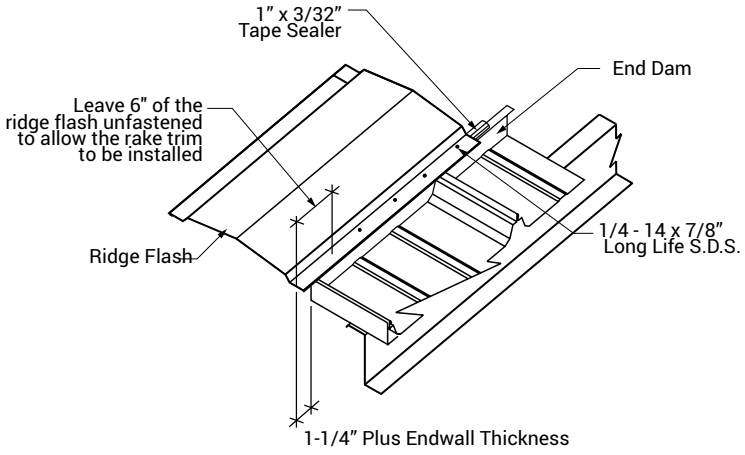
At trim laps 1/8" x 3/16" pop rivet should be installed maximum 1" on center at vertical surfaces.

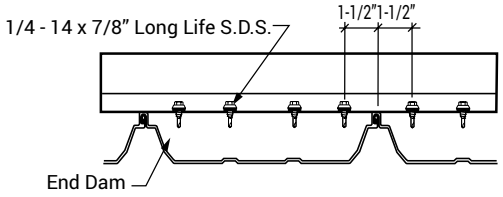
At trim laps 1/4 - 14 x 7/8" Long Life S.D.S. fasteners should be installed maximum 1" on center at horizontal surfaces.

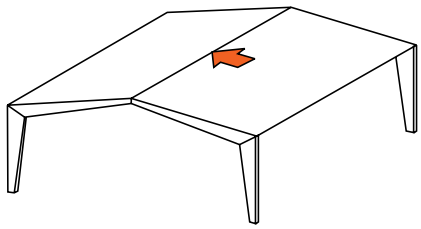
## Step 14 - Ridge End Dam Flashing



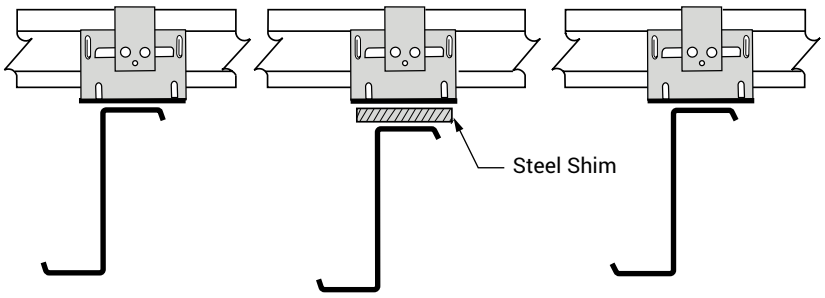
Install fastener 1/4 - 14 x 1-1/4" Long Life S.D.S. In the remaining hole at the panel seam of all end dams. The fastener must go through the panel seam and the corresponding hole of the adjacent end dam.

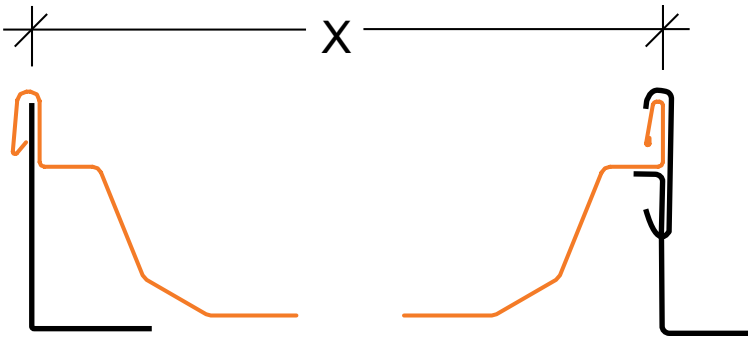
Use tube caulking to fill any voids around panel seam on up-slope side of end dam. Apply 1" x 3/32" tape sealer to the top of the end dam.

The final end dam on the last panel may require field modification. A tab should be formed by the web of the end dam for attachment to the upturned leg of the roof panel (field formed). This tab should be attached to the panel and angle with fastener 1/4 - 14 x 1-1/4" Long Life S.D.S. (2 required).

Install the ridge flashing starting and ending 2-1/2" outside the steel line. Fasten the ridge flashing to the end dams with fastener 1/4 - 14 x 7/8" Long Life S.D.S. Install a fastener 1-1/2" from panel seam on both sides of panel. Install additional fasteners directly above minor ribs of panel. Four fasteners are required at each panel. Leave 6" unfastened on each end to allow for the rake trim to be installed later. DO NOT FASTEN THROUGH THE LOCK OF THE STANDING SEAM.

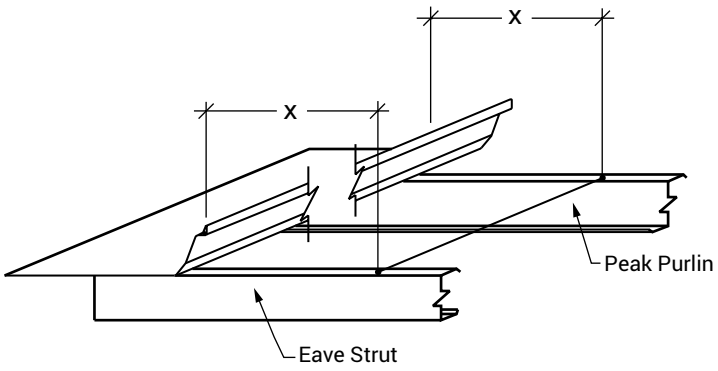
## Recommended Erection Practices




FIRST PANEL

LAST COMPLETED PANEL RUN




### CORRECTING OUT-OF-PLANE SUBSTRUCTURE

Occasionally a purlin may be encountered that is lower (out-of-plane) than those adjacent to it. When a clip is attached to this purlin, it will go down further than those adjacent to it, distorting the seam. This can cause the next panel sidelap to be difficult to snap together in this area. To compensate for this lower purlin, a steel shim may be placed under the clip to bring it up to the proper height (in plane). This shim should be no thicker than 1/4". If 1/4" is not enough, then structural modification will be necessary.

Avoid "stair-stepping" of the panels at the eave. This will cause problems engaging back-up plates at the endlap and ridge.

Any "stripped out" fasteners at the endlaps or end dams should be immediately replaced with #17 x 1" Type AB fastener. Place a 1" long piece of 1" x 3/32" tape sealer over the "stripped out" hole before installing #17 x 1" Type AB fastener. This will allow the fastener threads to be coated with tape sealer and provide a good seal.

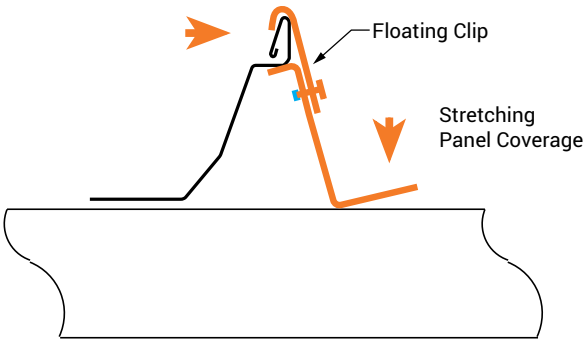
**NEVER ALLOW PANELS TO COME INTO CONTACT WITH LEAD, COPPER, GRAPHITE, GASOLINE, OR OTHER HARSH CHEMICALS AS THIS WILL VOID THE GALVALUME® WARRANTY.**

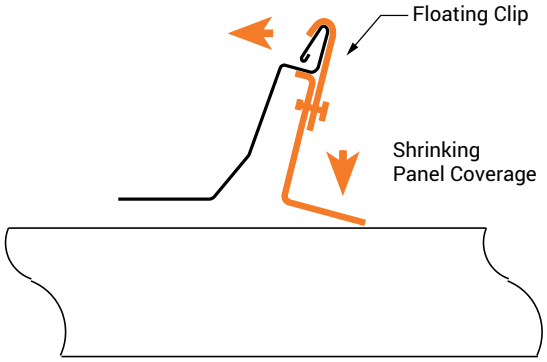
### CHECK ROOF FOR PANEL ALIGNMENT

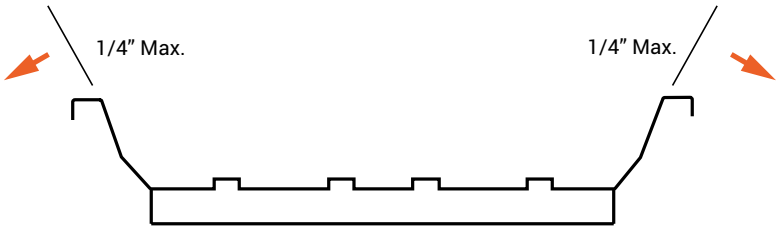
Check the roof every three or four runs for panel alignment as it is being erected. This can be accomplished by two different means.

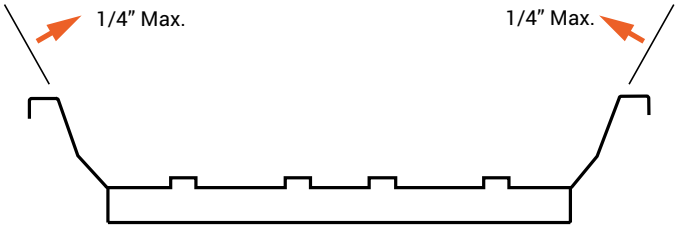
1. Measure from the rake support to the seam of the last completed panel run. Take measurements at the ridge, eave, and all endlaps.
2. Attach a stringline to the eave plate and ridge purlin, running parallel to the rake support. The stringline should stay ahead of the work and can be moved across the roof as construction progresses. Measure from the stringline back to the last completed panel run. Take measurements at the ridge, eave, and all endlaps.

## Recommended Erection Practices (Continued)




ADJUSTING PANEL WIDTH
FLOATING CLIP ONLY

NOTE
**Do not adjust panel width more than 1/2" on any panel area.**

To stretch panel coverage, install a floating clip at the panel endlap or ridge with the base angled away from the panel. As the fastener is installed through the base of the clip and into the purlin, the clip base will rotate down to the purlin causing the top of the clip to move outward, stretching the panel coverage. Install the remainder of the clips as usual.

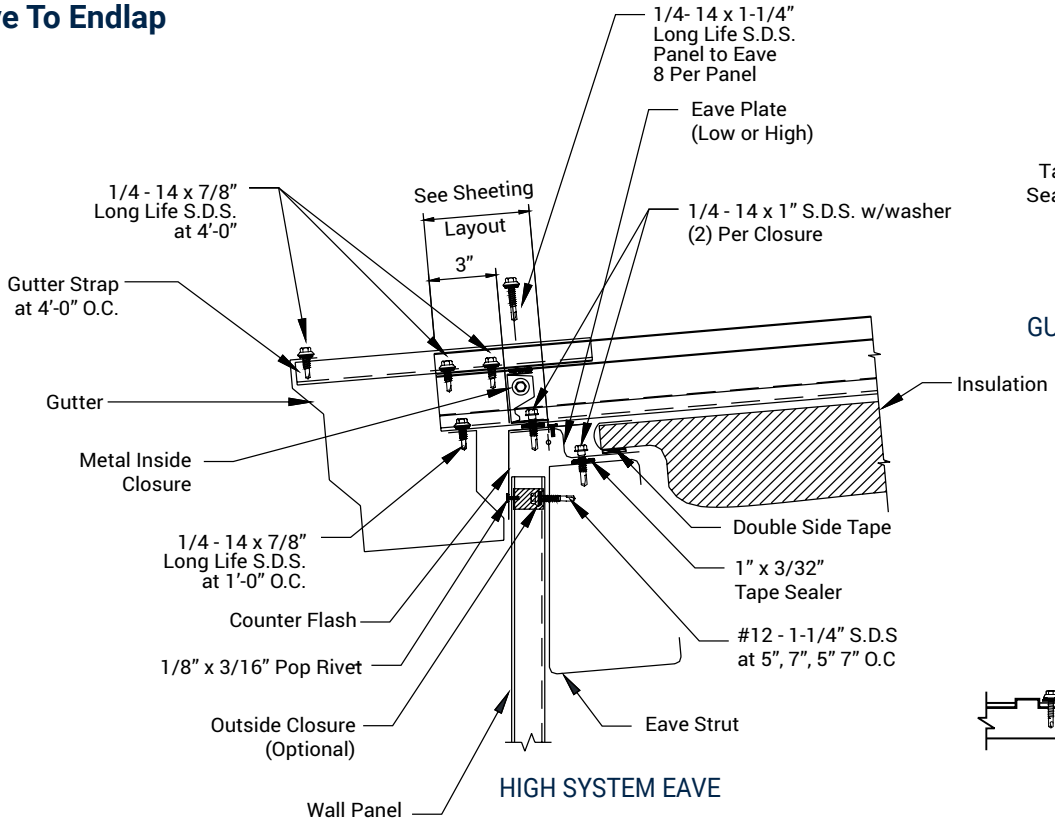
To shrink panel coverage, install a clip at the panel endlap or ridge with the base angled toward the panel. As the fastener is installed through the base of the clip and into the purlin, the clip base will rotate down to the purlin causing the top of the clip to move inward, shrinking panel coverage. Install the remainder of the clips as usual.

FIXED AND FLOATING CLIPS

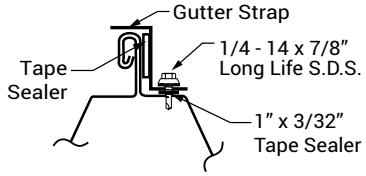
To stretch panel coverage, bend the sides of the back-up plate out and install at endlap or ridge. Do not bend either side more than 1/4". Install clips as usual.

To shrink panel coverage, bend the sides of the back-up plate in and install at endlap or ridge. Do not bend either side more than 1/4". Install clips as usual.

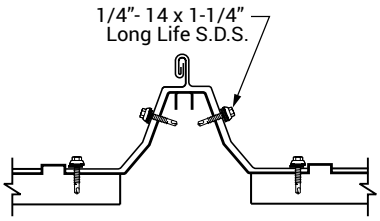
## Eave To Endlap




HIGH SYSTEM EAVE



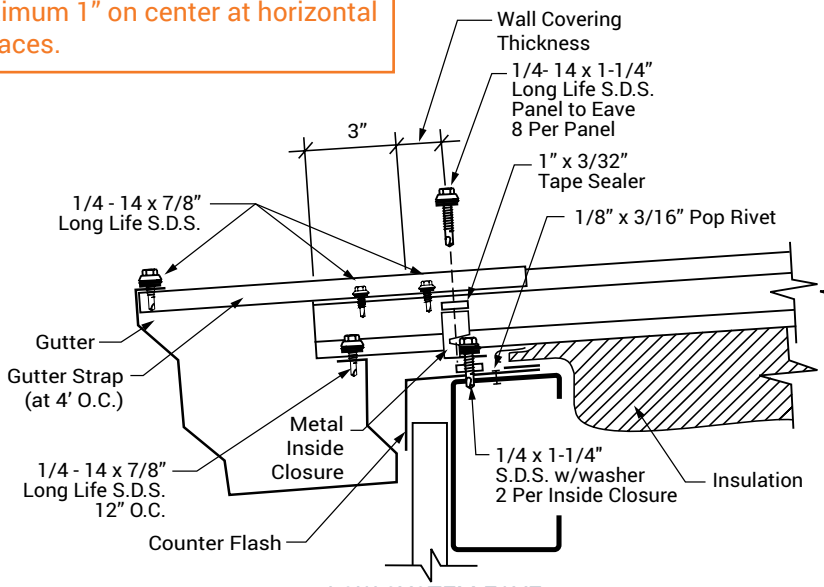

GUTTER STRAP END VIEW



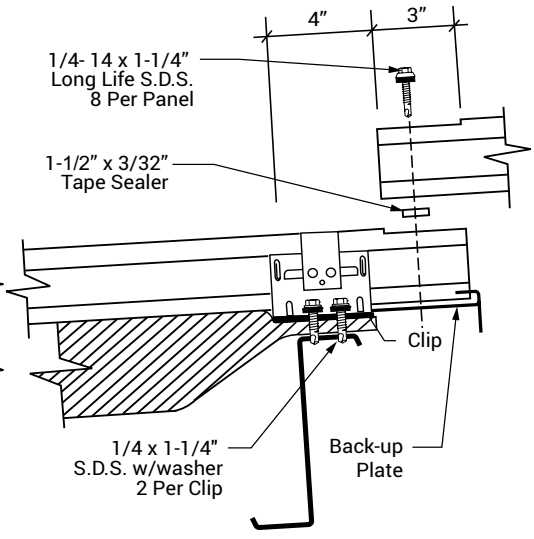

ENDLAP END VIEW

At trim laps 1/8" x 3/16" Pop Rivet should be installed maximum 1" on center at vertical surfaces.

At trim laps 1/4 - 14 x 7/8" Long Life S.D.S. fasteners should be installed maximum 1" on center at horizontal surfaces.




LOW SYSTEM EAVE

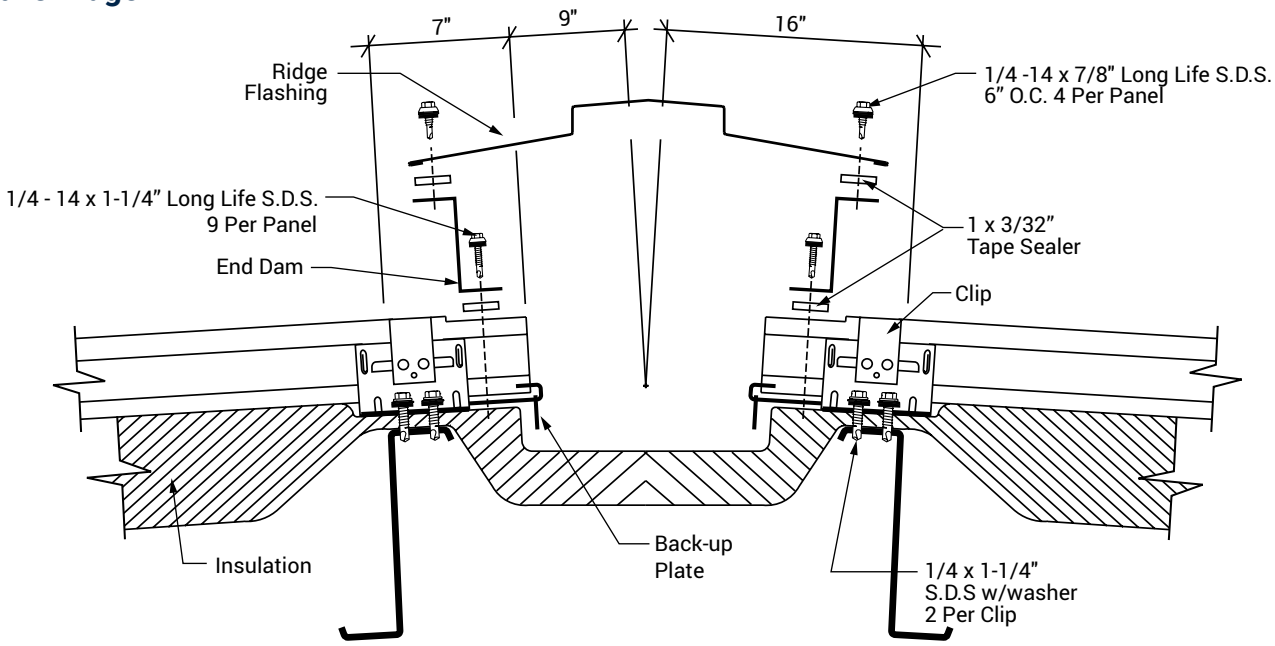



ENDLAP

NOTE:
1. The above gutter should not be used in areas that experience snow loads of 20 PSF or higher.

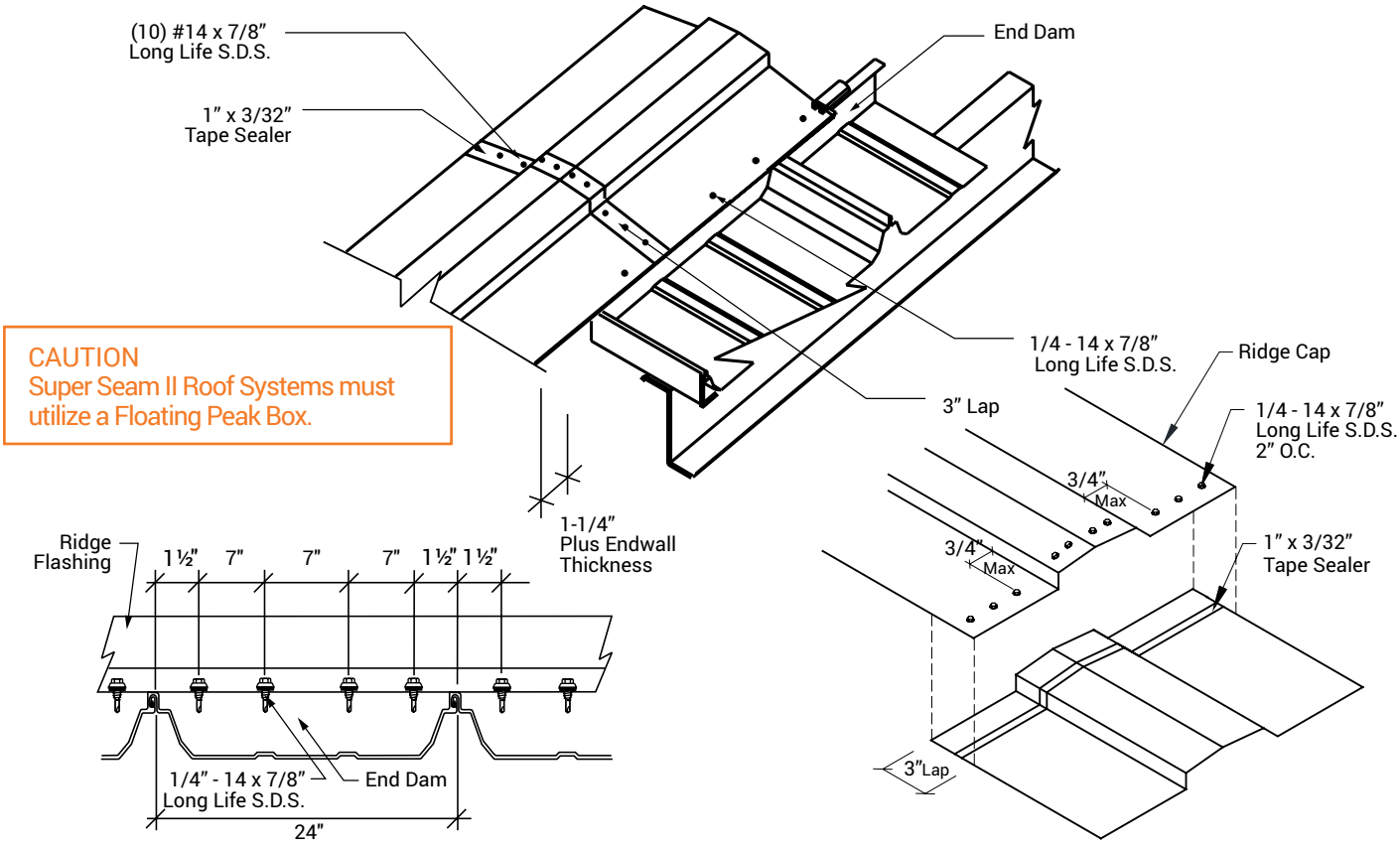
**SEE PAGES SSII-13-14 FOR FASTENER SELECTION**

## Trim Details Ridge




The 7" panel overhang at the purlin is critical to the proper installation of the roof. Regardless of the peak purlin spacing this dimension must be maintained. Adjust the width of the ridge cap to meet this requirement.

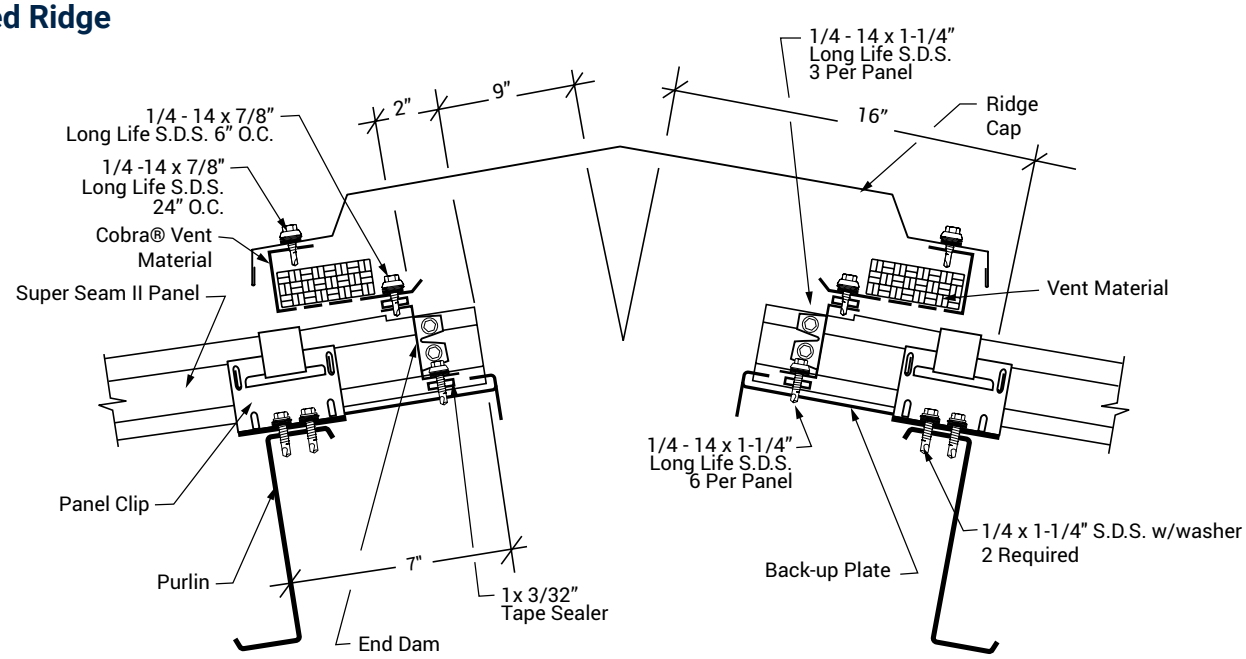
Install the ridge flashing starting and ending 1-1/4" plus endwall thickness outside the steel line. Install ridge flashing with 1/4 -14 x 7/8" Long Life S.D.S. w/washer. Install a fastener 1-1/2" from panel seam on both sides of panel. Install additional fasteners directly above minor ribs of panel. Four fasteners are required at each panel. Leave 6" unfastened on each end to allow for the rake trim to be installed later. **DO NOT FASTEN THROUGH THE LOCK OF THE STANDING SEAM.**

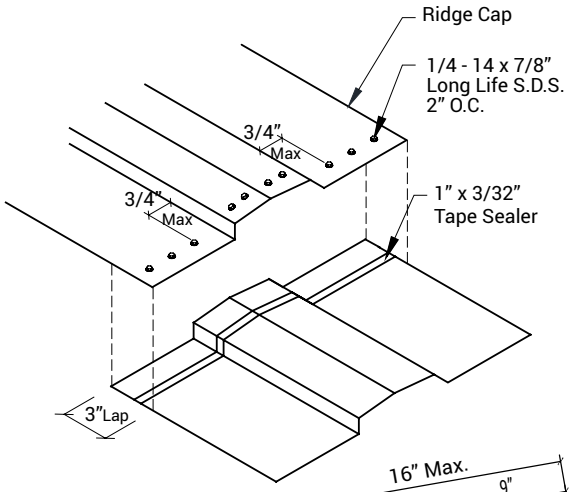



CAUTION
Super Seam II Roof Systems must utilize a Floating Peak Box.

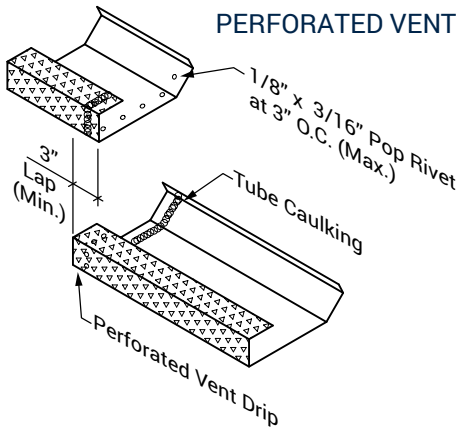
**SEE PAGES SSII-13-14 FOR FASTENER SELECTION**

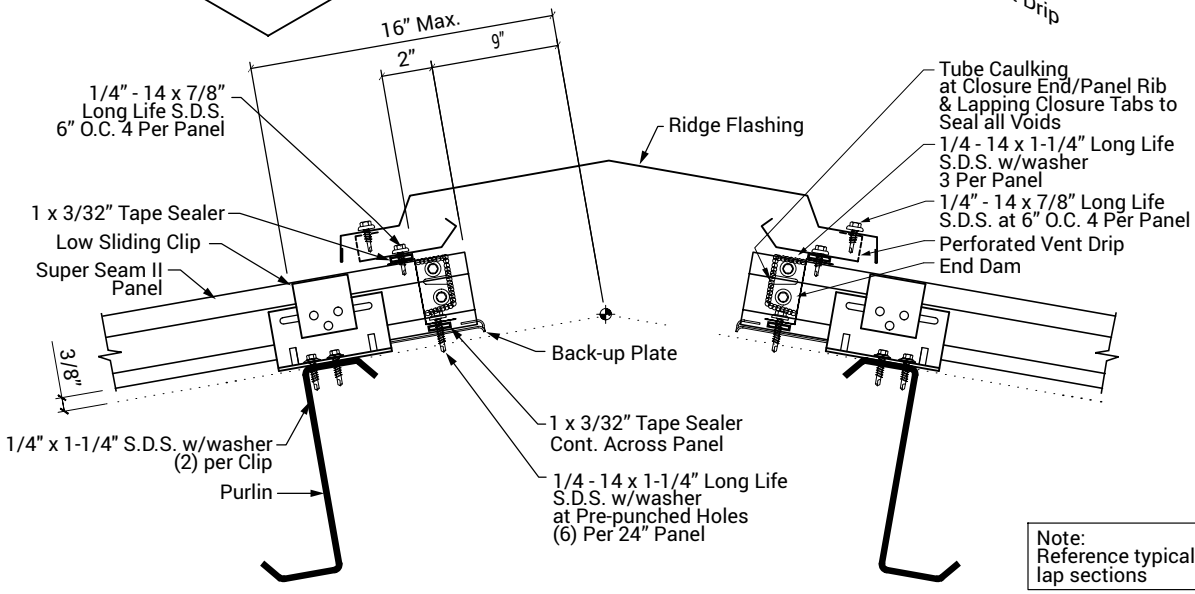
## Vented Ridge



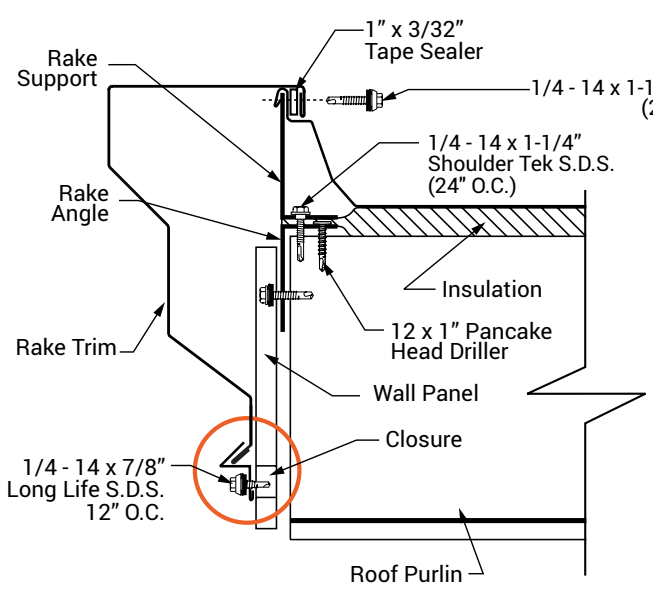

PERFORATED VENT DRIP



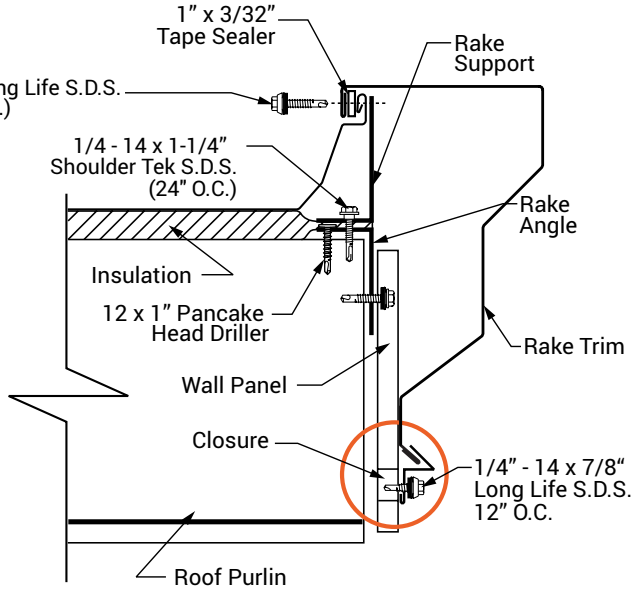




Note:
Reference typical trim lap sections

## Trim Details Rake



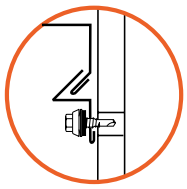

BEGINNING RAKE TRIM



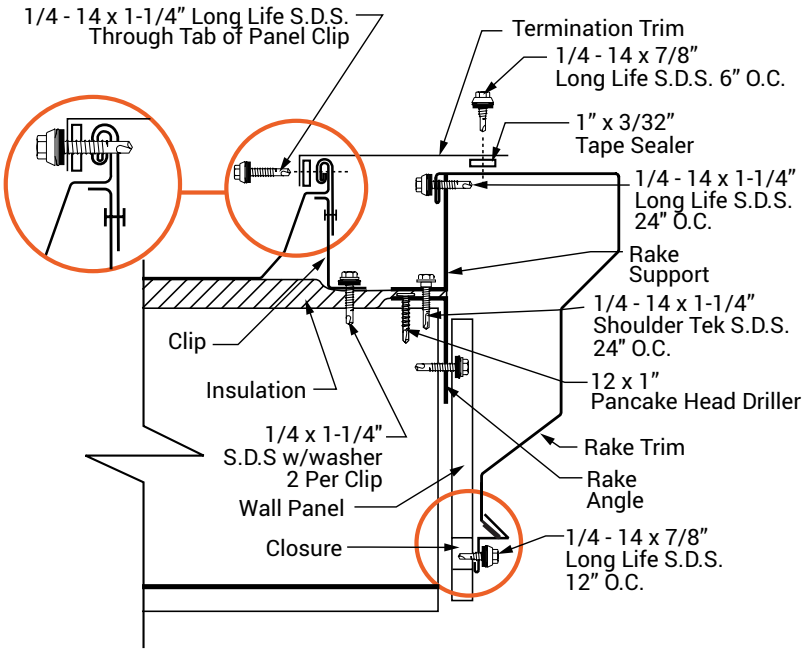

TERMINATION RAKE TRIM
ON MODULE

At trim laps 1/8" x 3/16" Pop Rivet should be installed maximum 1" on center at vertical surfaces.

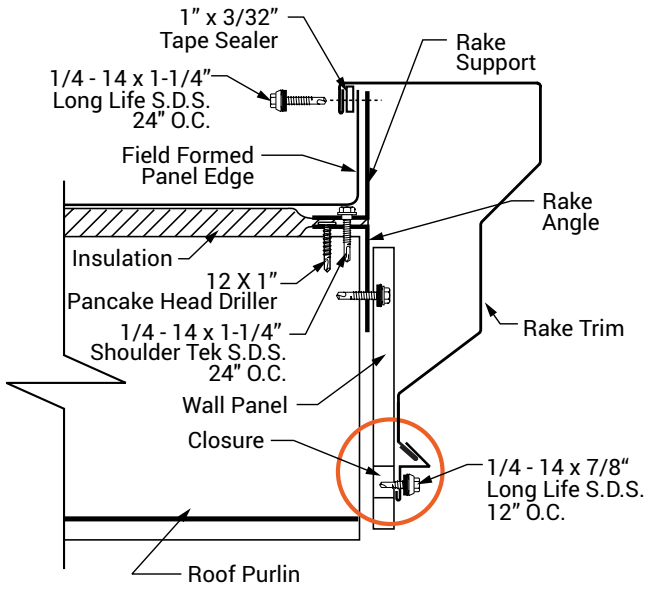
At trim laps 1/4 - 14 x 7/8" Long Life S.D.S. fasteners should be installed maximum 1" on center at horizontal surfaces.



RAKE SLIDE
(FOR FLOATING SYSTEMS ONLY)



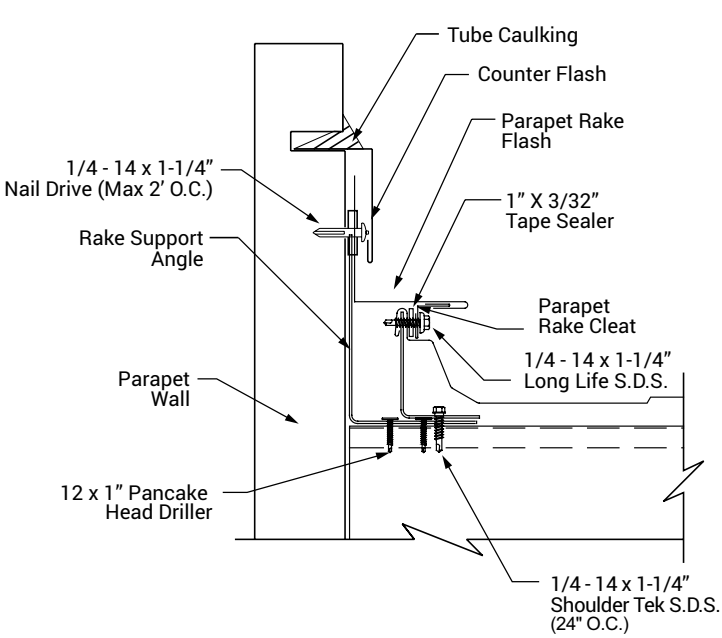

TERMINATION RAKE TRIM
OFF MODULE



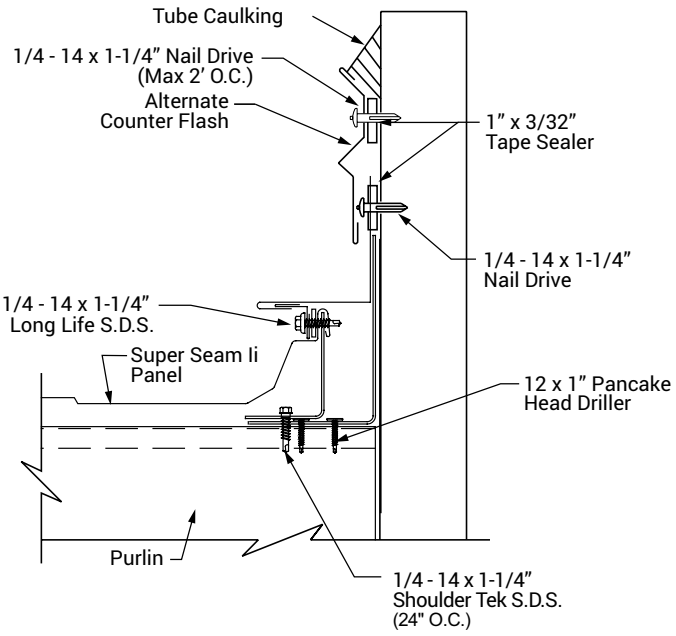

TERMINATION RAKE TRIM
OFF MODULE (OPTIONAL)

**SEE PAGES SSII-13-14 FOR FASTENER SELECTION**

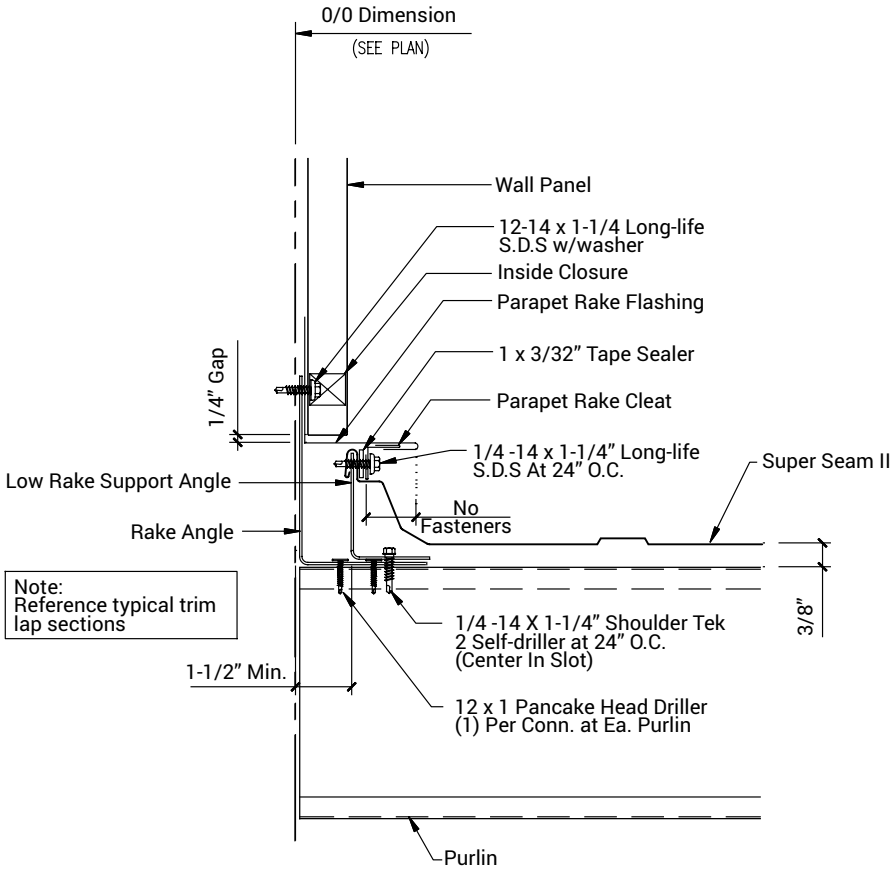
## Trim Details Rake




BEGINNING PARAPET RAKE




TERMINATION PARAPET RAKE

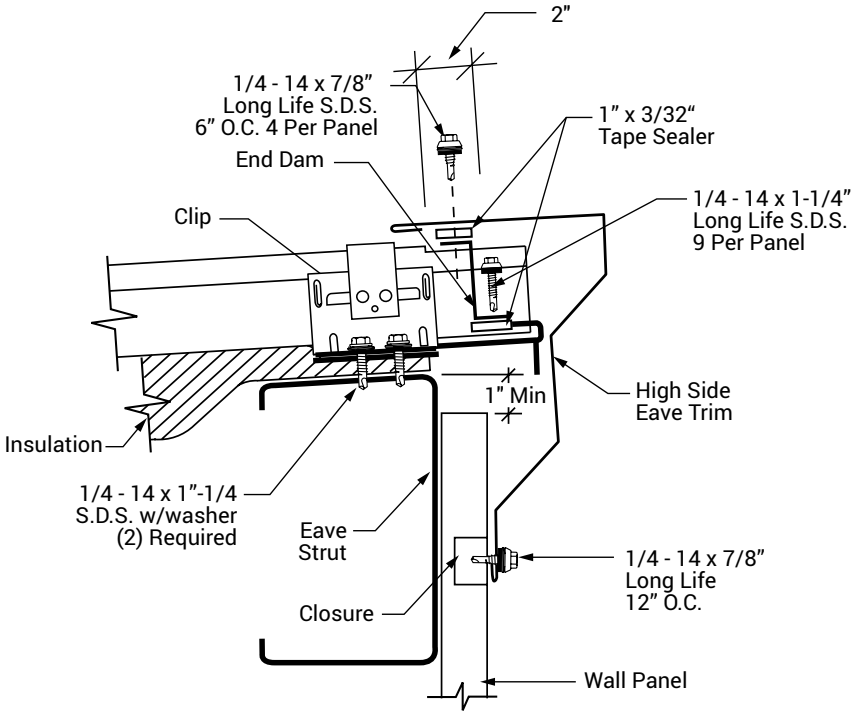



TERMINATION PARAPET RAKE
(OPTIONAL)

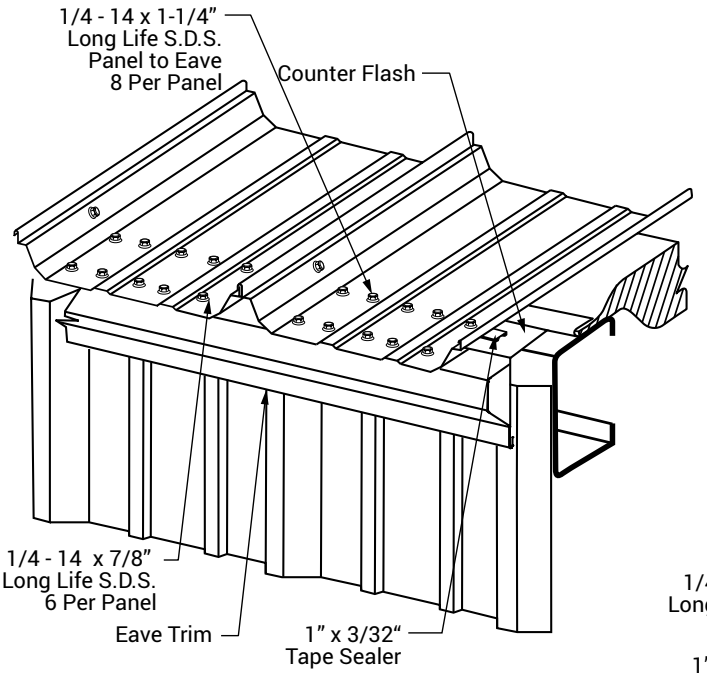
## Trim Details Eave

At trim laps 1/8" x 3/16" Pop Rivet should be installed maximum 1" on center at vertical surfaces.

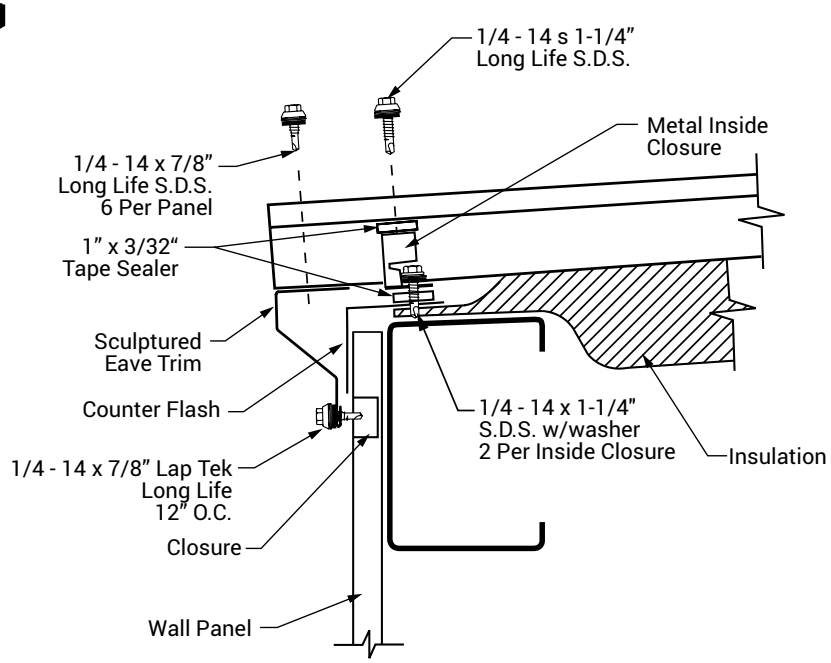
At trim laps 1/4 - 14 x 7/8" Long Life S.D.S. fasteners should be installed maximum 1" on center at horizontal surfaces.




HIGH EAVE




LOW EAVE WITH
SCULPTURED EAVE TRIM

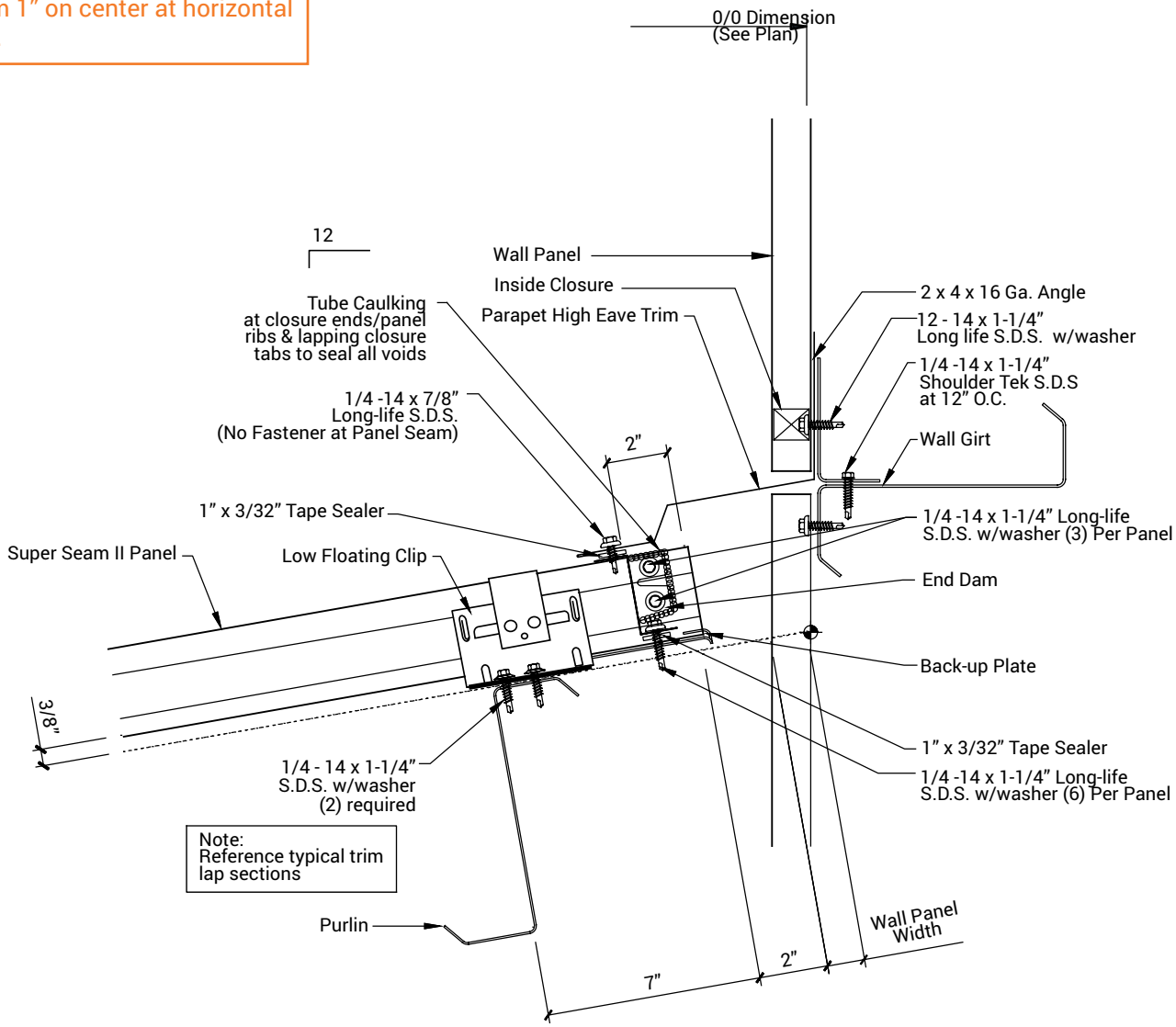



NOTE:
1. This optional sculptured eave trim is available. However, under certain conditions it may induce staining of wall panels.
2. Place the 1/4 - 14 x 7/8" Long Life S.D.S. through the pre-punched holes in the roof panel.

## Trim Details Eave - High Eave Parapet

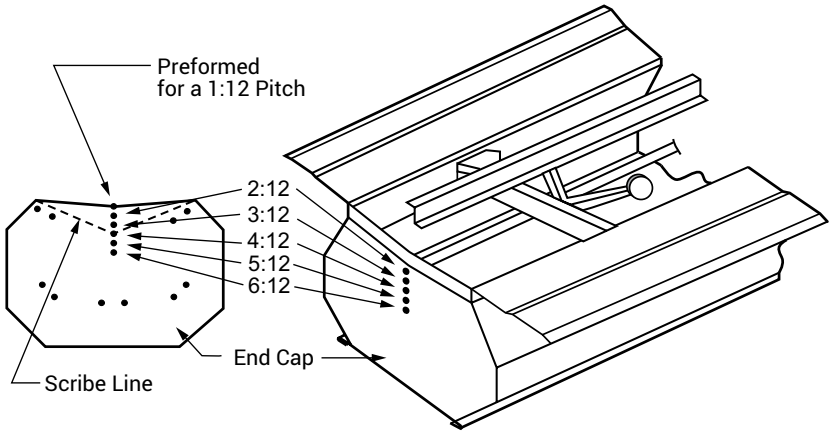
At trim laps 1/8" x 3/16" Pop Rivet should be installed maximum 1" on center at vertical surfaces.

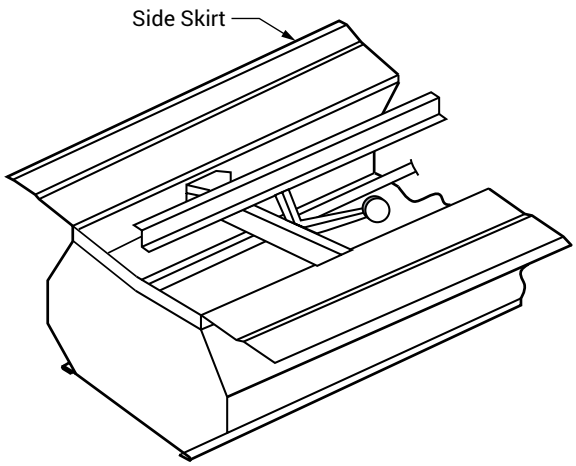
At trim laps 1/4 - 14 x 7/8" Long Life S.D.S. fasteners should be installed maximum 1" on center at horizontal surfaces.

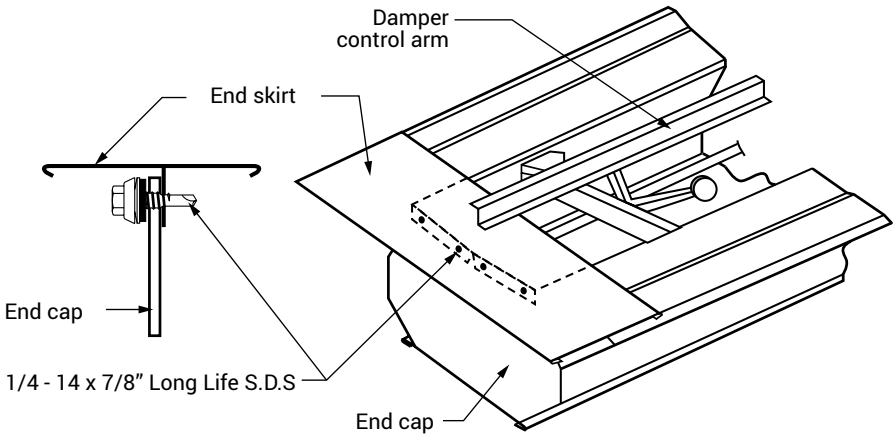



NOTE:
1. High side purlin is 12" down-slope.

## Ridge Ventilator Installation



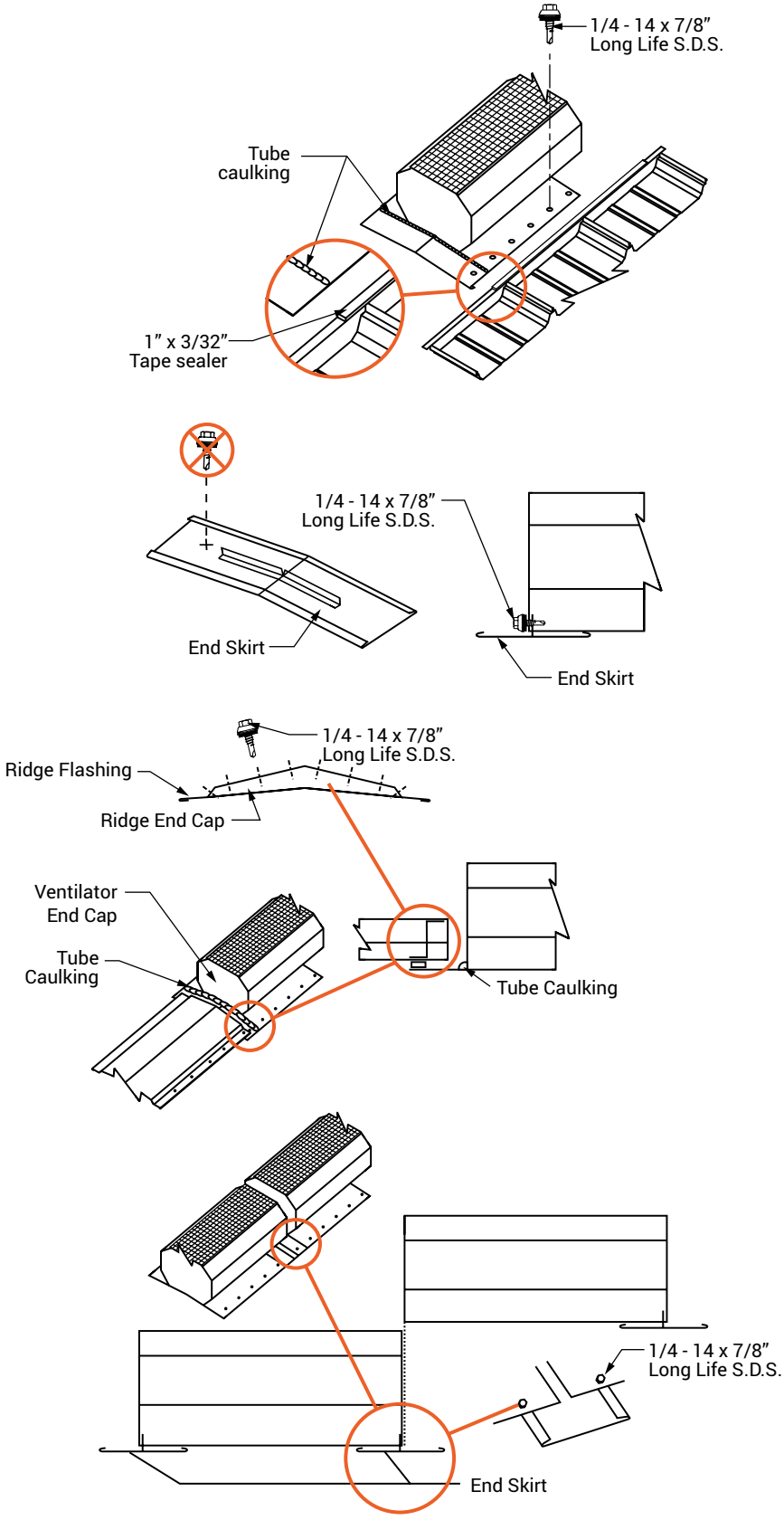




NOTE
**Whirlwind does not recommend the use of a ridge ventilator on standing seam roof systems. Sidewall or endwall exhaust fans or other ventilating methods should be considered. These details are for your convenience only. Only a 9" ridge ventilator can be used with this standing seam roof system. Do not use ridge ventilators on any roof over 200' in width or with a slope less than 1:12 or greater than 6:12.**

Turn ventilator over and place gently on its top. Note that the end cap is pre-formed for a 1:12 roof pitch. The five bench mark dots represent 2:12, 3:12, 4:12, 5:12, and 6:12 roof pitches. Draw a line between indicated corners and the appropriate dot for the roof pitch. Cut and remove that portion of the end cap. On 5:12 and 6:12 roof pitches see vent manufacturer's special instructions for the installation of the vent skirt. The end cap is now ready to receive the end skirt.

Position end skirt onto end cap. Be sure the down-turned angle of the end skirt is inside of and up against the end cap. Attach end skirt to ventilator end cap with fastener 1/4 - 14 x 7/8" Long Life S.D.S. in four places.

## Ridge Ventilator Installation (Continued)



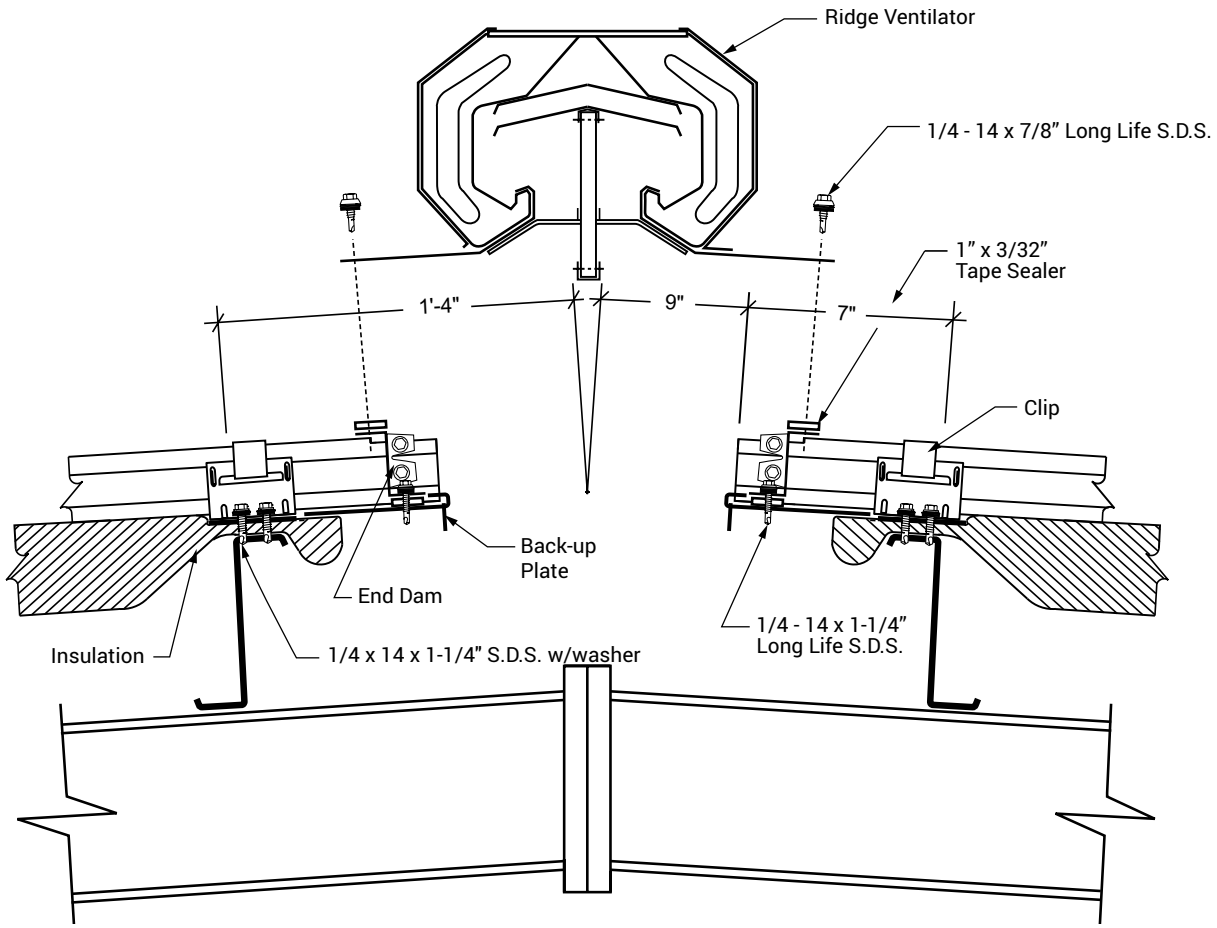

Apply 1" x 3/32" tape sealer to top of end dams. Install ventilator making sure to center in opening. Attach ventilator to end dams with fastener 1/4 - 14 x 7/8" Long Life S.D.S. on 6" centers. Use caulking to seal between the outside of the ventilator and the end skirt.

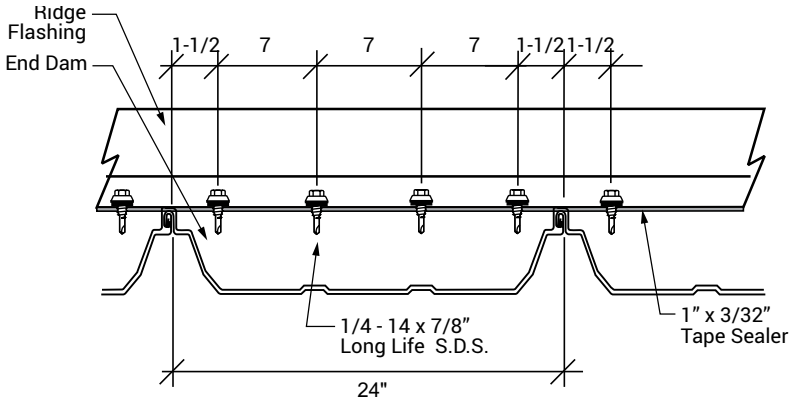
Install the ridge flashing as in step 14, except for those pieces on either side of ventilator. These will lay on top of, and seal to, the ventilator end skirt with a ridge end cap. Use 1" x 3/32" tape sealer to seal the ridge end cap to the ridge flashing and the end skirt. Use fastener 1/4 - 14 x 7/8" Long Life S.D.S. To install the end cap. Six fasteners are required to tie the end cap to the ventilator end skirt. Eight fasteners are required to tie the end cap to the ridge flashing.

For continuous ventilators, install end skirts on both ends of the first ventilator and one end of all following ventilators. Attach ventilator to end dams as outlined above. Install an additional fastener 1/4 - 14 x 7/8" Long Life S.D.S. Through the corner of the side skirt and into the end skirt.

Do not connect more than 3 vents to the same linkage.

## Ridge Ventilator

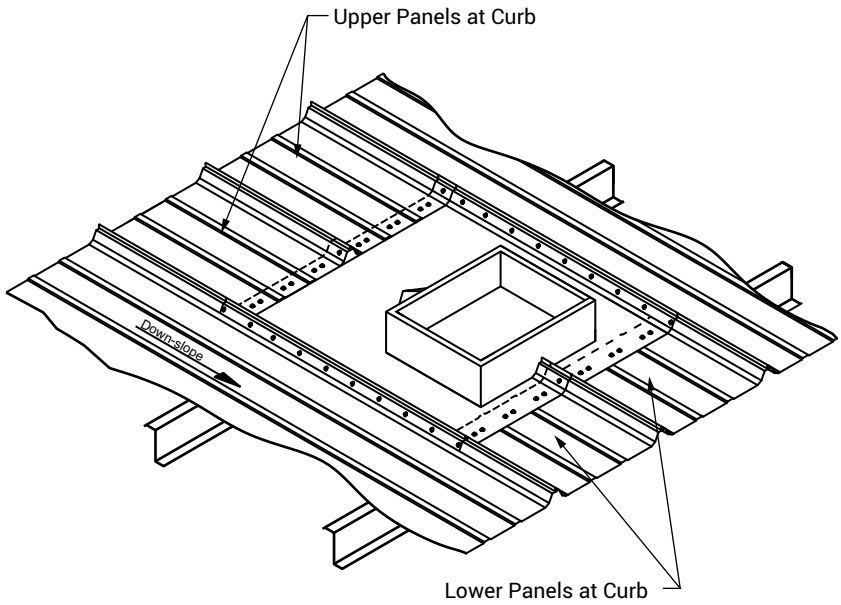


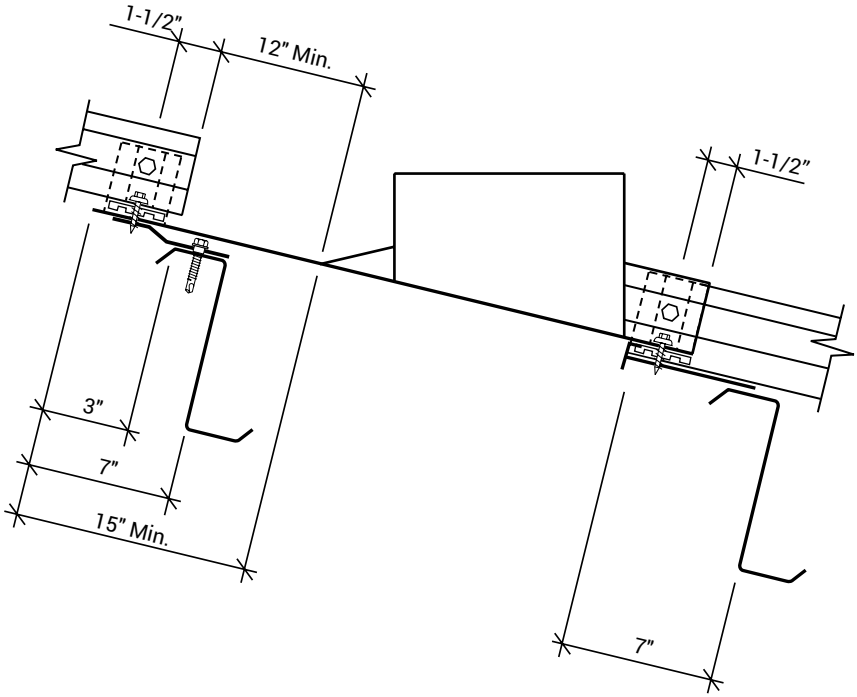

NOTES

1. Only 9" ridge ventilators can be used with this standing seam roof system.
2. Do not use ridge ventilators on any roof over 200' in width or with a slope less than 1:12 or greater than 6:12.

## Installing Roof Curb with Roof




ROOF CURB CROSS SECTION



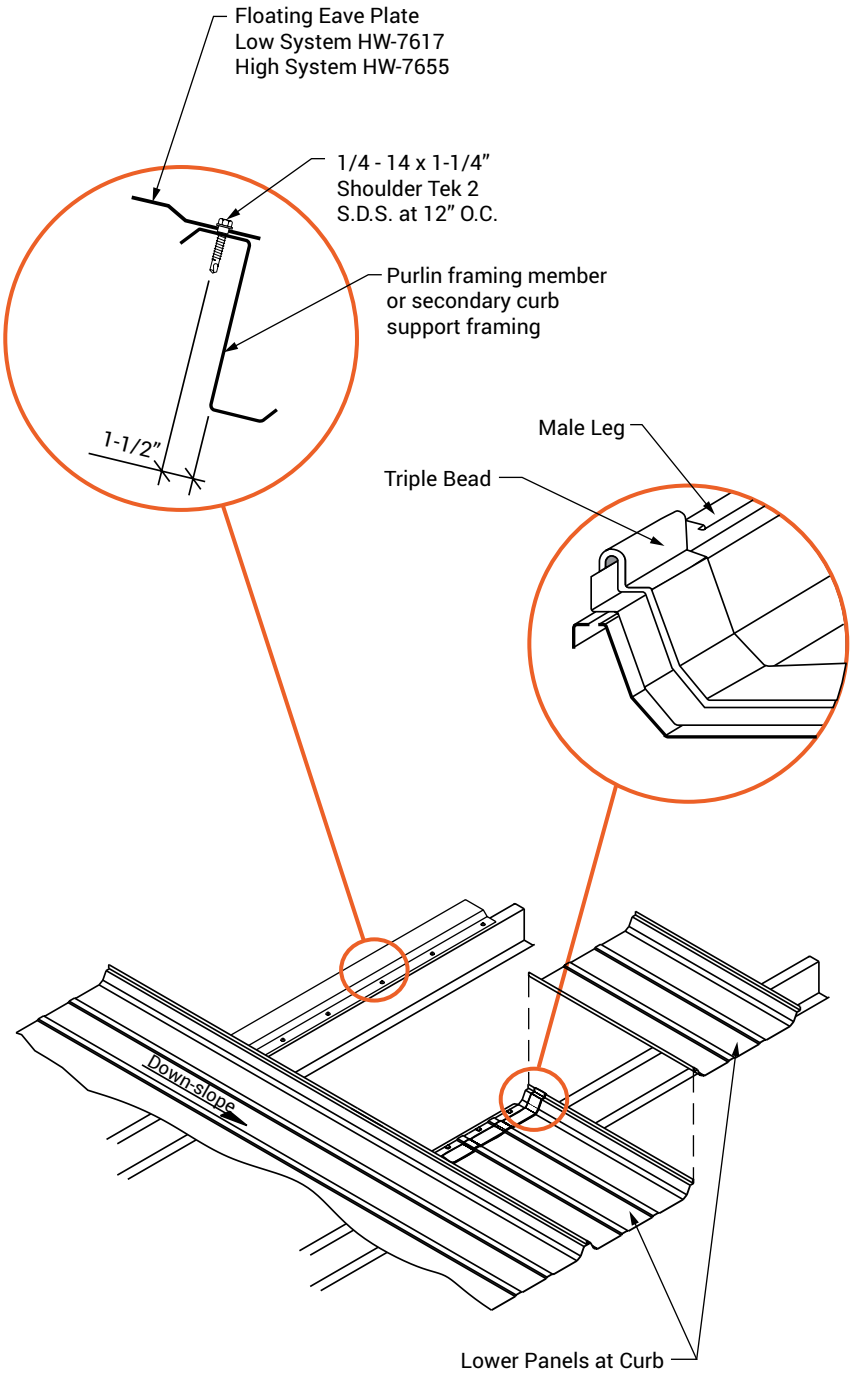

The manufacturer recommends that only one-piece .080 aluminum curbs be used on it's standing seam roof systems. The curb flange is constructed to match the configuration of the panel. The side flange extends to the next natural seam in the roof panel and conforms to the seam configuration. Cap strips, furnished by the curb manufacturer, secure the curb to the roof panels. The roof curb is installed under the roof panels on the up-slope end and on top of the roof panels on the down-slope end. Support framing should be installed before curb installation. Back-up plates (for the roof panels at the down-slope end of the curb), a floating eave plate (for the up-slope end of the curb), long-life fasteners and Triple Bead tape sealer must be ordered for each curb.

These curbs may be installed as the roof is being installed or after the roof has been installed. Since the curb sides are an integral part of the roof seam, the curb must align with the roof panel seams. If the curb can be shifted up to 12" to either side, the curb can be pre-ordered and be installed with the roof panels or installed after the roof is in place. If the curb placement is critical, install the curb support framing at the desired location and roof over it. Measure the panel rib locations in reference to the required curb opening and order the roof curb for each location. The curbs can then be installed in each location, ensuring an exact fit.

ATTENTION
**All curbs must be installed over support framing, supplied by the metal building manufacturer or the curb supplier. Support framing must be properly located to provide "endlap" conditions at the up-slope and down-slope ends of the curb. Refer to Roof Curb Cross Section for critical dimensions.**

WARNING
**It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.**

## Installing Roof Curb with Roof (Continued)

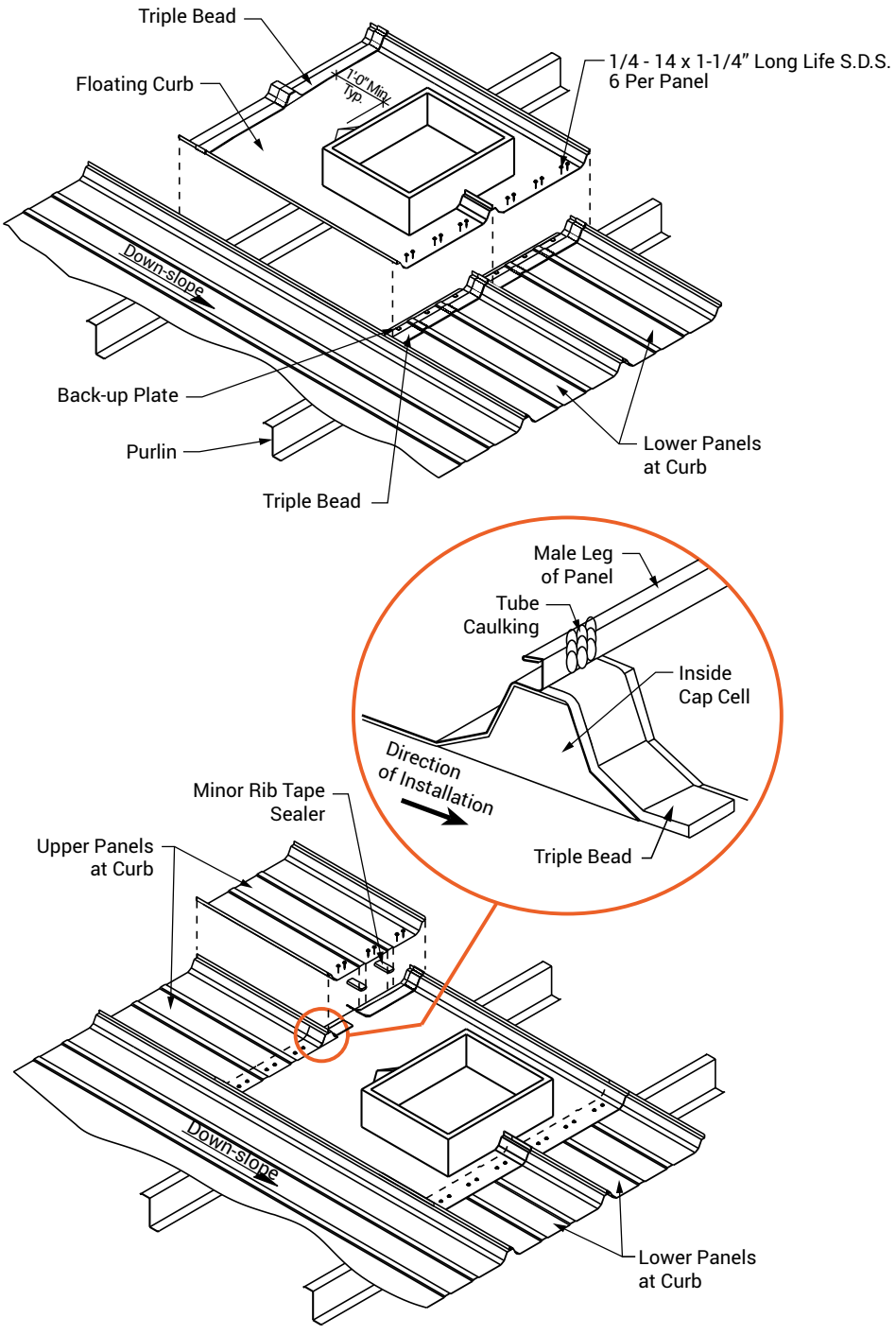



Install curb support framing at curb location. Install full length roof panels up to curb location. Install lower panels at down-slope end of curb. If the lower panels are field cut to length, you must (1) cut the down-slope end, leaving a factory cut at the curb end or (2) if the curb end of the panel is field cut, notch the male leg as it is done in the factory. Place Triple Bead tape sealer across the full width of each panel as it is installed. To determine how far down on the panel to place the tape sealer, temporarily lay the curb in place and mark the down-slope edge of the curb on the first panel. This will give you a reference point as to how far down-slope to place the tape sealer. It is critical that the tape sealer be installed across each panel individually so that the tape sealer can be placed over the male leg. This will provide a seal in the panel seam when the next panel is installed. Install back-up plates onto each of the lower panels.

WARNING

**It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.**

## Installing Roof Curb with Roof (Continued)



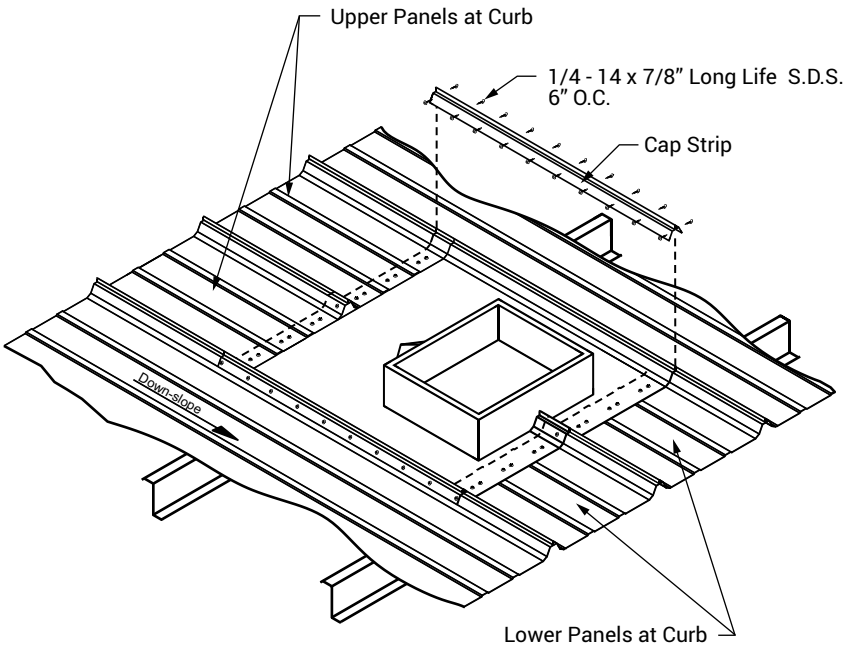

Install the roof curb on top of the lower roof panels and the curb support framing. Do not attach the curb to the support framing as this may prevent the curb from floating with the roof. Fasten the down-slope end of the roof curb to the lower roof panels and back-up plates with fastener 1/4" - 14 x 1-1/4" Long Life S.D.S. as at a standard endlap. This will require six fasteners in the pan of the panel and one in each trapezoid for a total of eight fasteners per panel. Fasteners must go through the Triple Bead.

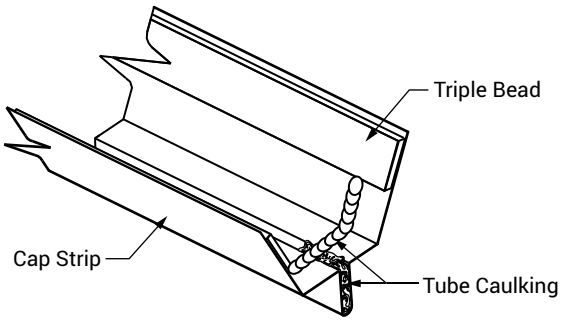
WARNING
**It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.**

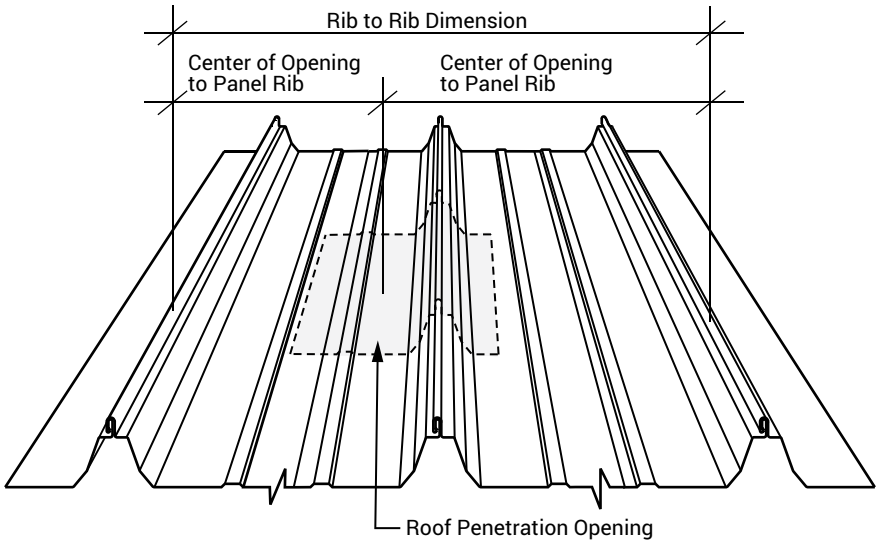
Install Triple Bead across the width of the up-slope end of the roof curb. Use the down-slope end of the inside cap cell, which is welded to the roof curb, as a guide for placement of the tape sealer.

Apply minor rib tape sealer to the underside of the minor ribs on the down-slope end of the upper panels. Install the upper panels with fastener 1/4 - 14 x 1-1/4" Long Life S.D.S as at a standard endlap. This will require six fasteners in the pan of the panel and one in each trapezoid for a total of eight fasteners per panel. Fasteners must go through the Triple Bead tape sealer. The down-slope edge of these panels should be flush with the down-slope edge of the inside cap cell. Apply tube caulking to the male leg of all panels directly over the inside cap cell. This will prevent water infiltration through the end of the panel seam.

## Installing Roof Curb with Roof (Continued)




After all upper panels have been installed, install full length panel at side of curb. This panel will engage the male leg of the adjacent upper and lower panels. The female leg of this full length panel will overlap the leg of the roof curb.

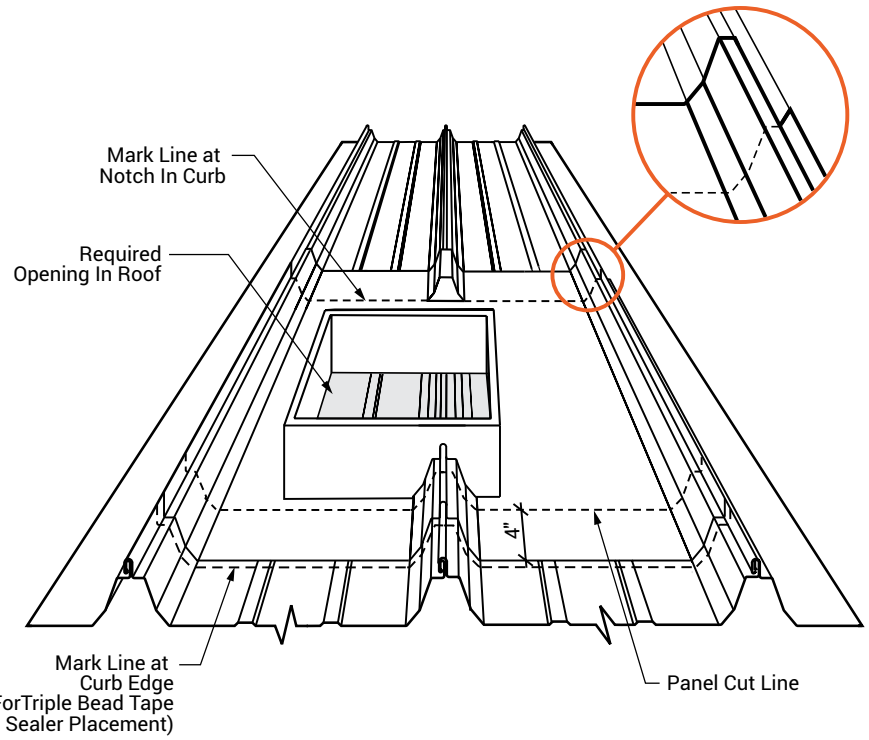
Cap strips will be installed, full length, along both sides of the curb to seal the curb to the roof panels. Turn the cap strips upside down and install Triple Bead to both sides and along the full length of the cap strip. Lower edge of tape sealer should be flush with the lower edge of the cap strip. Apply a generous bead of urethane sealant at both ends of the seam portion of the cap strip. Install each cap strip over the curb/roof panel sidelap with the lower end of the cap strip even with the lower end of the curb. Force the cap strip down tightly to the curb/roof panel sidelap and fasten both sides with fastener 1/4" - 14 x 7/8" Long Life at 6" on center.

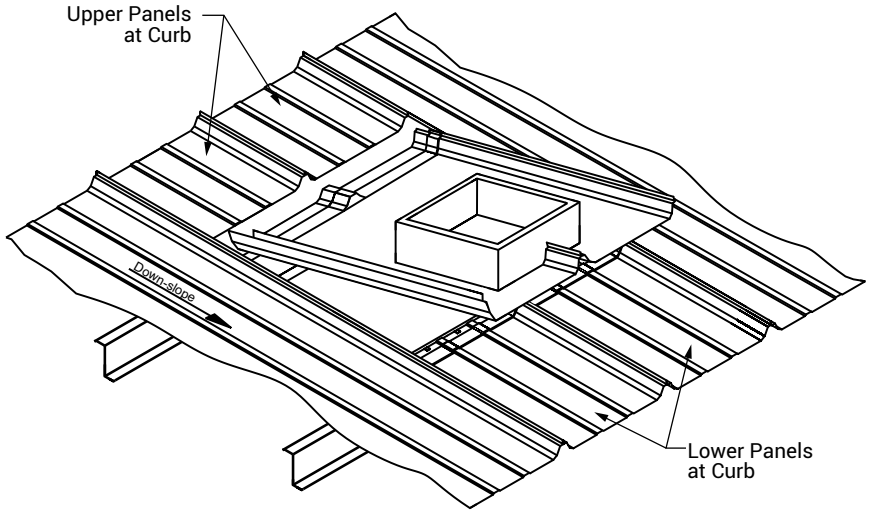
## Installing Roof Curb After Roof Installation

When curbs must be installed in an exact location, the curb support framing can be installed before beginning the roof. When a curb is to be added after the roof is installed, the curb framing must be installed from below the roof after the roof panels have been cut for installation of the curb.

After roof is installed, identify the exact location for the curb. Measure from the center of the required opening to the nearest panel rib in each direction. Also, determine how many panels will be affected by the curb (minimum clearance between vertical wall of curb opening and panel rib is 6") and measure from center of rib of first panel affected to center of rib of last panel affected (if 24" panel module was not held during roof installation, this dimension will be critical). This information will be required to fabricate the curb so that it will fit the location exactly.

## Installing Roof Curb After Roof Installation (Continued)




Once curb is ready to be installed, lay curb on roof and align opening in the curb with the exact location the opening is required in the roof. At the up-slope end of the roof curb, the roof panels will be cut on a line even with the beginning of the notch at the vertical leg on each side of the roof curb. Secondly, trace a line along the down-slope edge of the roof curb. The roof panels will be cut on a line 4" up-slope from this line.

Cut roof panels from rib of first panel affected by curb to rib of last panel affected along the top and bottom cut lines previously marked.

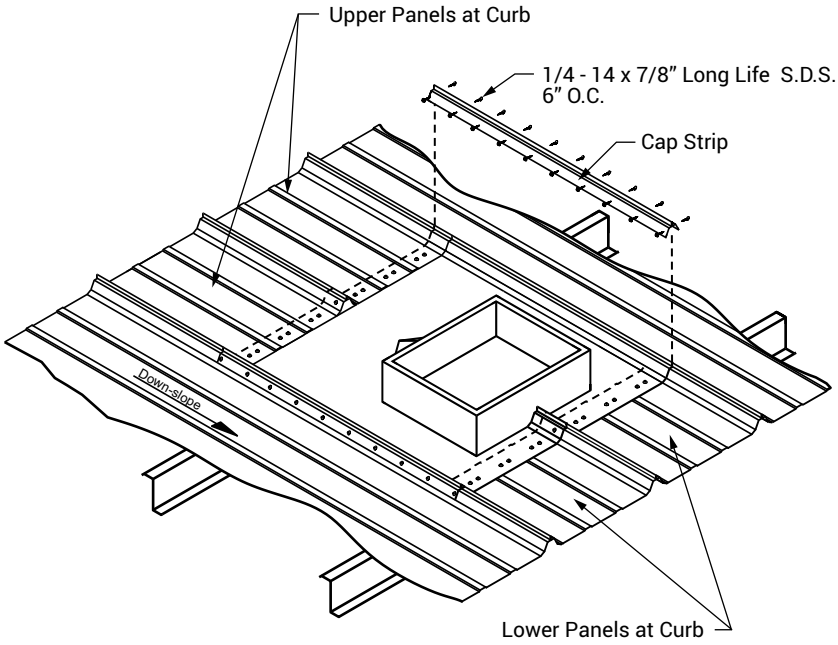
At the down-slope end of the roof opening, install back-up plates onto the ends of the cut roof panels and Triple Bead across the full width of these roof panels. The down-slope edge of the tape sealer should be on the line previously traced along the down- slope edge of the roof curb. The up-slope edge of the tape sealer will be approximately 1-1/2" from the end of the cut panel.

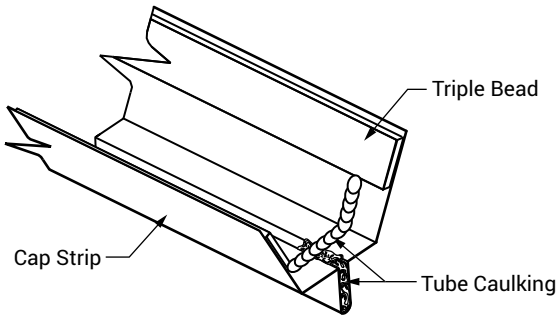
Apply Triple Bead across the full width of the up-slope end of the roof curb. The down-slope edge of the tape sealer will align with the down-slope edge of the inside cap cells welded to the roof curb.

Install the roof curb under the roof panels at the up-slope end and on top of the panels at the down-slope end. This will require that you lift the roof panels up slightly at the up-slope end to allow the upper flange of the roof curb to slide under the panels. Spray some soapy water on the tape sealer to prevent it from sticking to the roof panels until you have the curb completely in place.

WARNING
**It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.**

## Installing Roof Curb After Roof Installation (Continued)

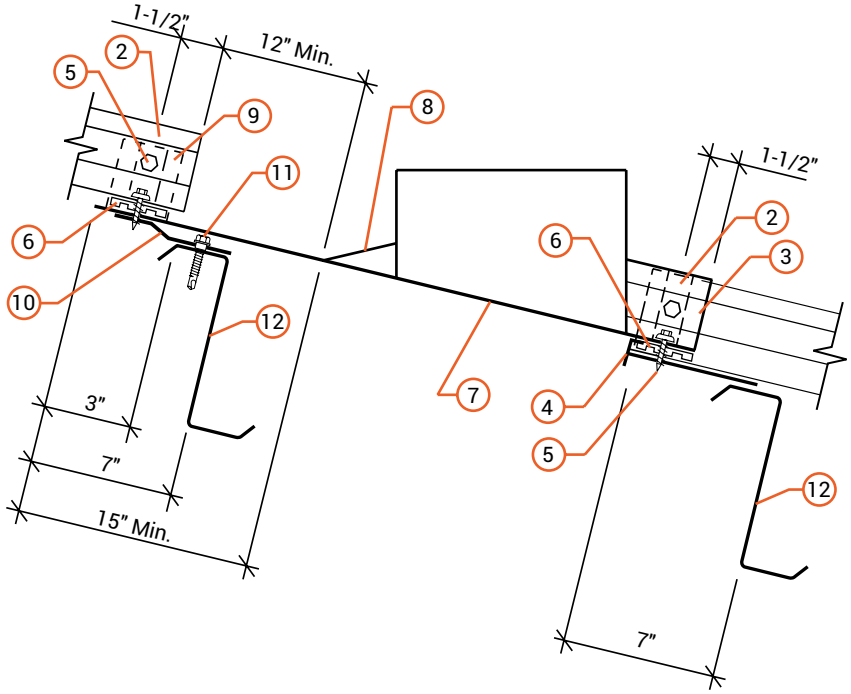



Cap strips will be installed, full length, along both sides of the curb to seal the curb to the roof panels. Turn the cap strips upside down and install Triple Bead to both sides and along the full length of the cap strip. Lower edge of tape sealer should be flush with the lower edge of the cap strip. Apply a generous bead of urethane sealant at both ends of the seam portion of the cap strip. Install each cap strip over the curb/roof panel sidelap with the lower end of the cap strip even with the lower end of the curb. Force the cap strip down tightly to the curb/roof panel sidelap and fasten both sides with fastener 1/4 - 14 x 7/8" Long Life S.D.S. at 6" on center.

WARNING
It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.

## Roof Curb Cross Section



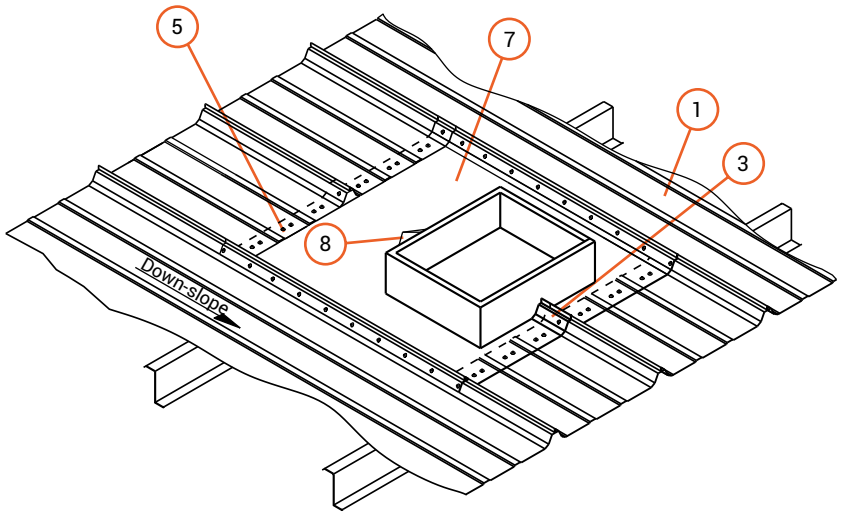

1. Super Seam II Panel
2. Tube Caulk
3. Outside Cap Cell
4. Back-Up Plate
5. Fastener 1/4 - 14 x 1-1/4" Long Life S.D.S.
6. Triple Bead
7. Roof Curb
8. Water Diverter
9. Inside Cap Cell
10. Floating Eave Plate
11. 1/4 - 14" x 1-1/4" Shoulder Tek 2
12. Purlin Framing Member or Secondary Curb Support Framing.

CAUTION
The above curb type and installation instructions must be used for curbs to be included in a weathertightness warranty.

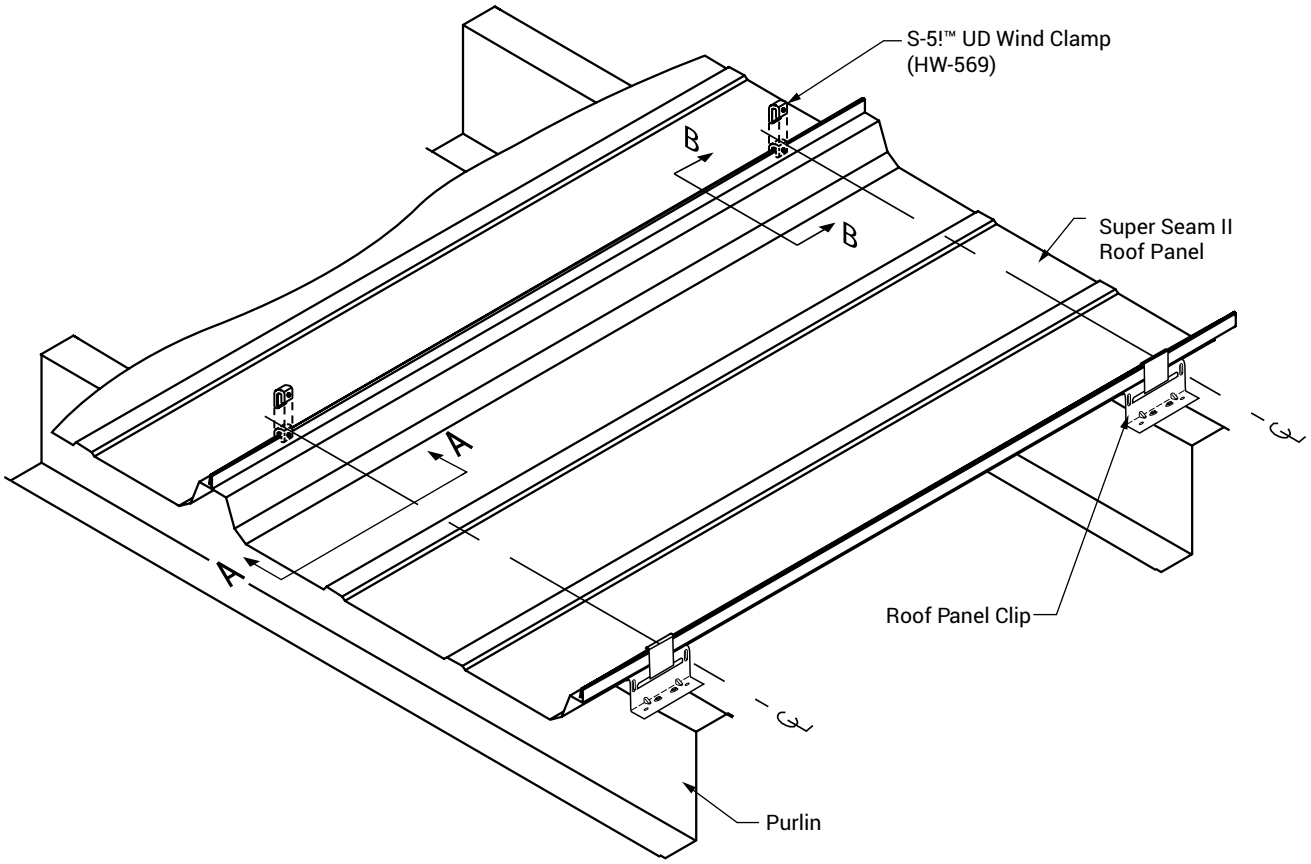
ATTENTION
All curbs must be installed over support framing, supplied by the metal building manufacturer or the curb supplier. Support framing must be properly located to provide "endlap" conditions at the up-slope and down-slope ends of the curb. Refer to Roof Curb Cross Section for critical dimensions.

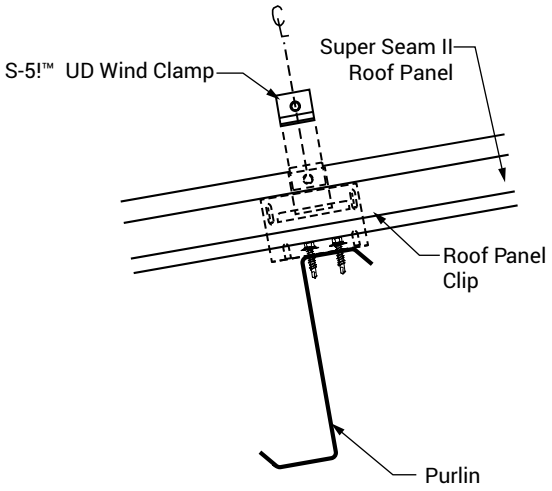
WARNING
It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal, and OSHA regulations and laws, including but not limited to guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent fall-through.

ROOF CURB ISOMETRIC

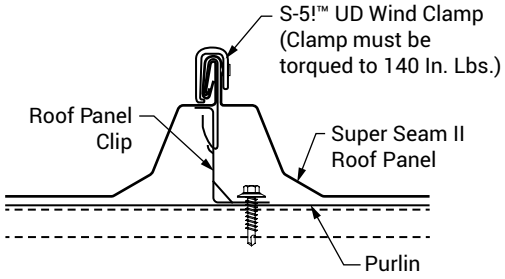


## S-5! Super Seam II Wind clamp Installation Location



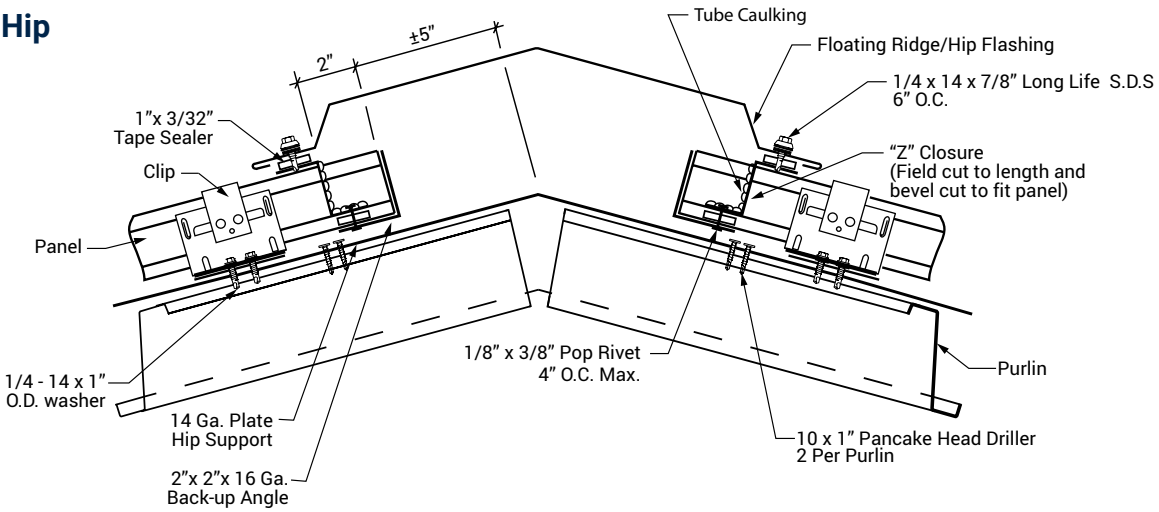

SECTION A-A

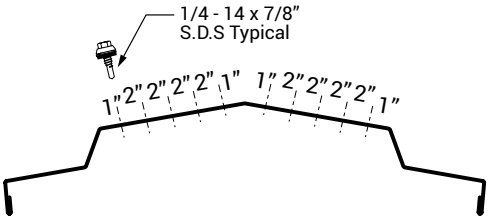


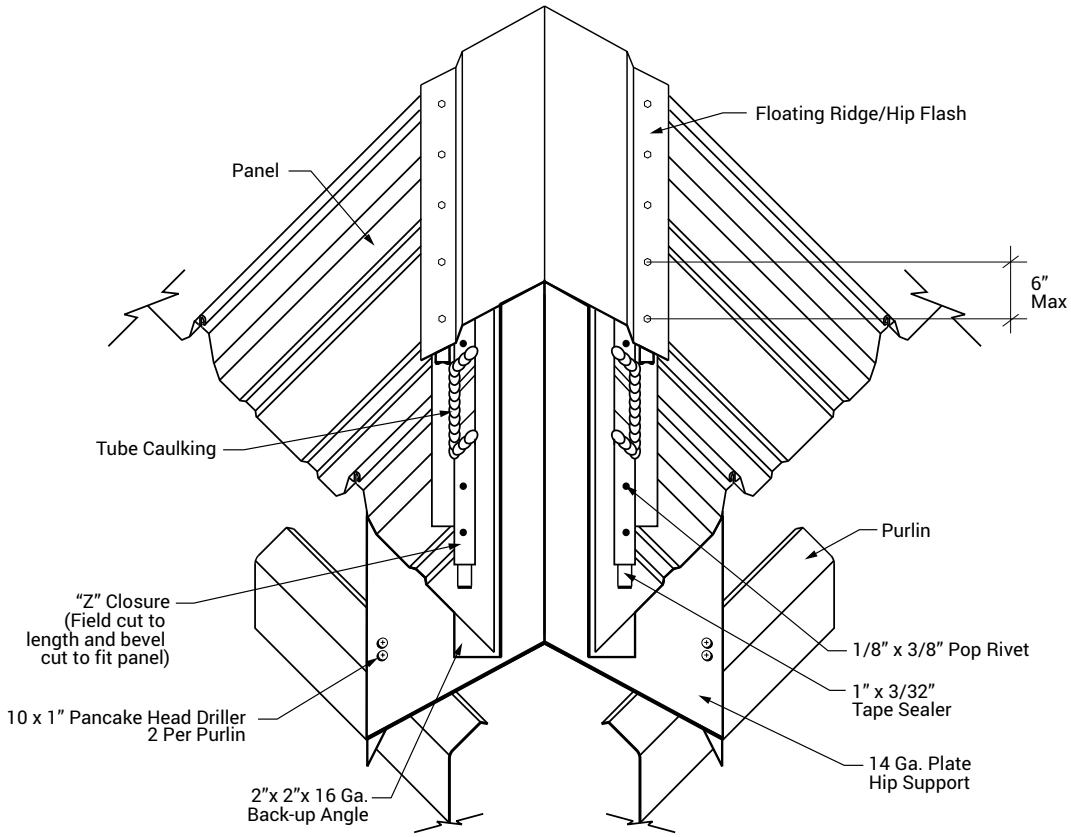

SECTION B-B

NOTES:
1. Torque set screw to 140 in-Lbs.
2. Application zone and feasibility of wind clamps must be determined by a Registered Professional Engineer.

## Trim Details Hip

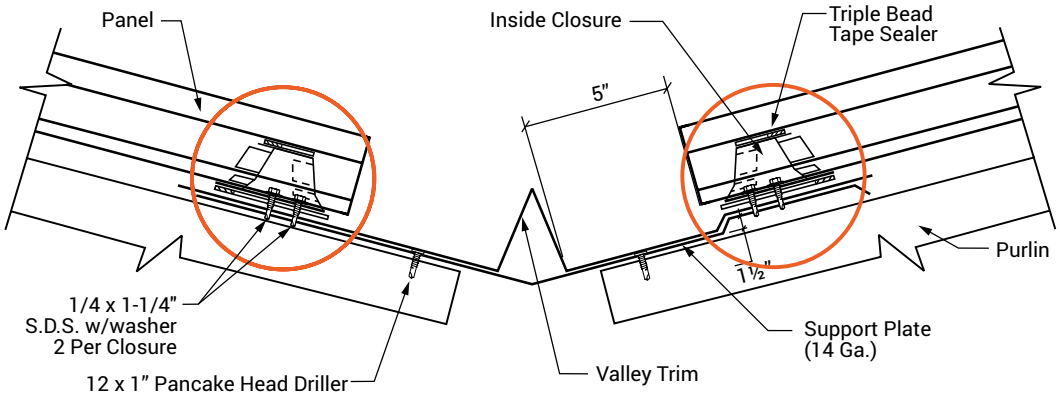


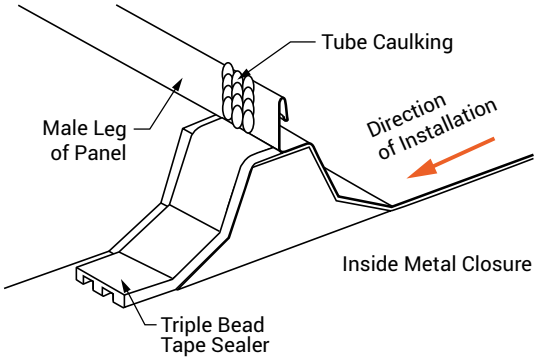



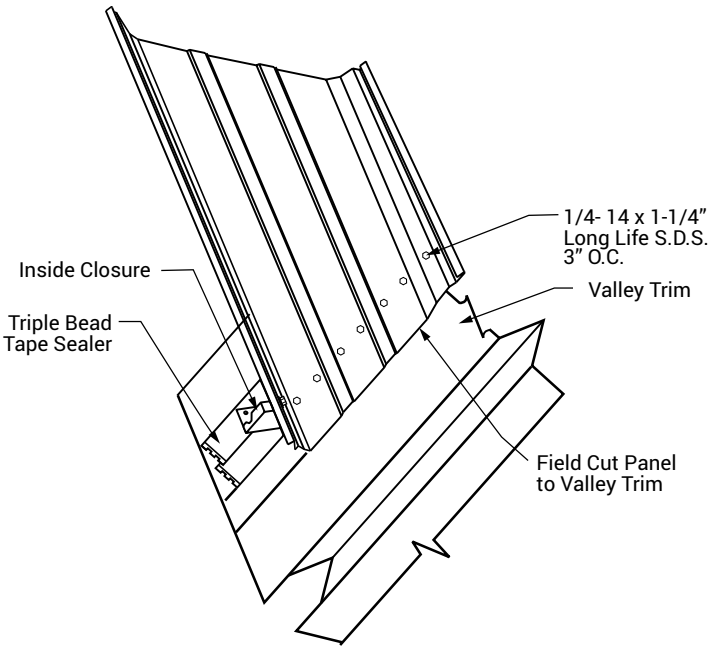



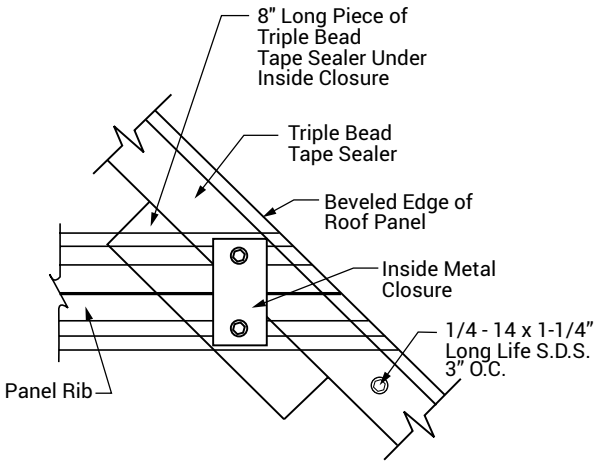

CAUTION
All trapezoidal panels are extremely difficult to install at hips and valleys in a weathertight manner. The use of these details should only be attempted by installation crews that are highly experienced. In order to assure weathertightness, Whirlwind recommends one of its vertical leg standing seam systems for use on roofs that require hips and valleys.

## Trim Details Valley




CAUTION
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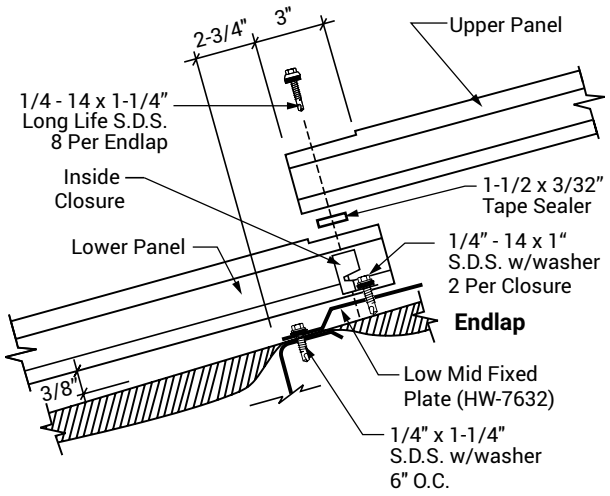
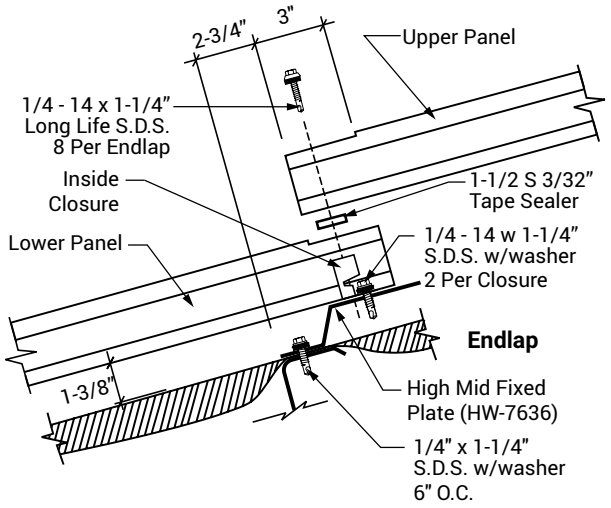
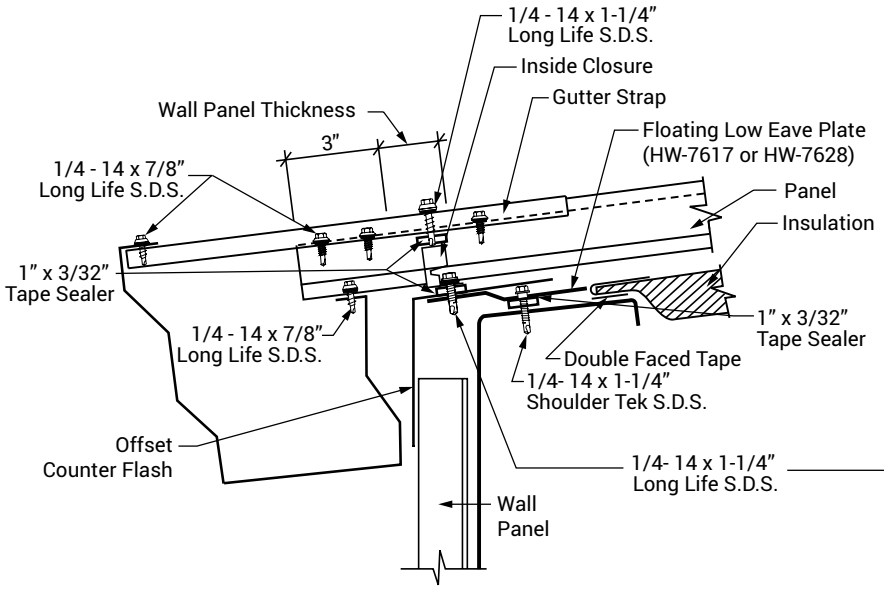
## Mid Slope Fixed Condition



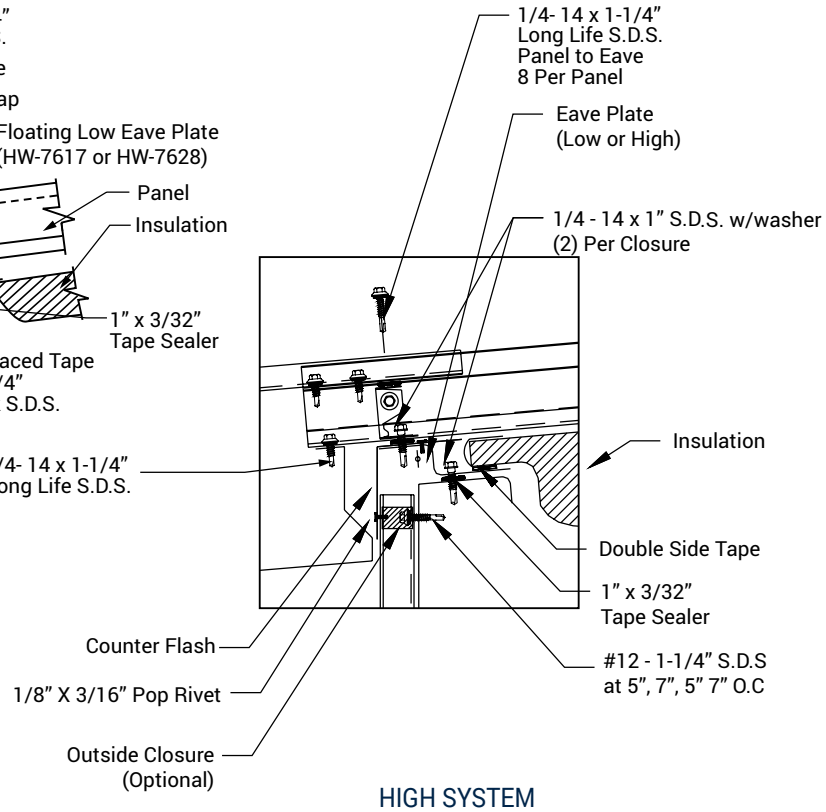

LOW SYSTEM




HIGH SYSTEM




LOW SYSTEM




HIGH SYSTEM

## NOTES

1. This special detail is for use when a panel run exceeds the thermal movement capabilities of the panel clip. Please refer to page SSII-6.
2. A positive panel attachment is made at the mid-point in the panel run allowing for thermal movement to the eave and ridge.
3. The standard floating ridge condition must be used in conjunction with this special eave detail.
4. The floating eave plate must be used to allow for panel movement at the eave.
5. Floating clips have a maximum movement of 1-1/4" in each direction. Thermal calculations must be performed for each project to ensure that the thermal movement of the roof will not exceed the design of the clips and slot in the floating eave plate.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