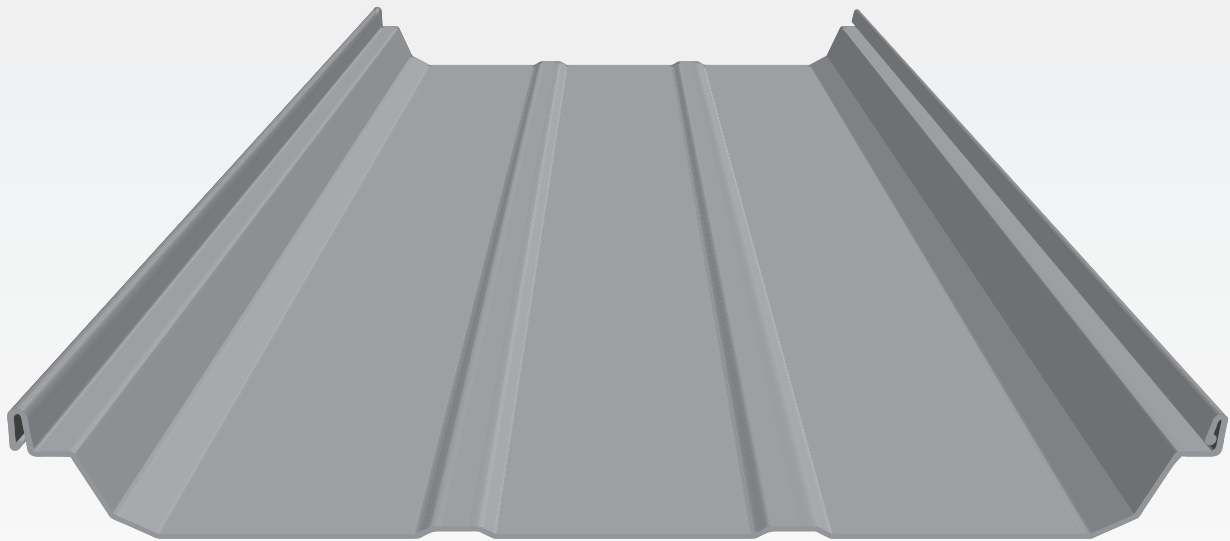


# Central-Loc<sup>®</sup>

## Installation Guide



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by accurately providing quality products  
right when you need them. Every time.***

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NOTICE: *The application and detail drawings in this manual are strictly for illustration purposes and may not be applicable to all building designs or product installations. Projects should conform to local building codes. Central States Manufacturing is not responsible for the performance of the material if it is not installed correctly.*

*Information contained in this booklet was in effect at the time of publication and is subject to change without notice.*

# IMPORTANT INFORMATION

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Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, Central States reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. To insure you have the latest

information available, please inquire or visit our website. Application details in this manual may not be appropriate for all environmental conditions, building designs, or panel profiles. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices. Insulation is not shown in these details for clarity.



**READ THIS MANUAL COMPLETELY PRIOR TO INSTALLATION.**

**IF THERE IS A CONFLICT BETWEEN PROJECT ERECTION DRAWINGS PROVIDED OR APPROVED BY CENTRAL STATES AND DETAILS IN THIS MANUAL, PROJECT ERECTION DRAWINGS WILL TAKE PRECEDENCE.**

## **OSHA REGULATIONS**

It is the responsibility of the erector to install this roof using safe construction practices that are in compliance with OSHA regulations. The manufacturer 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 the manufacturer.

## **BRACING**

Diaphragm capabilities and purlin stability are not provided by the Central Seam Plus roof system. Therefore, other bracing may be required.

## **ROOF PITCH**

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.

## **ENGINEERING**

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.

## **LIGHT TRANSMITTING PANELS**

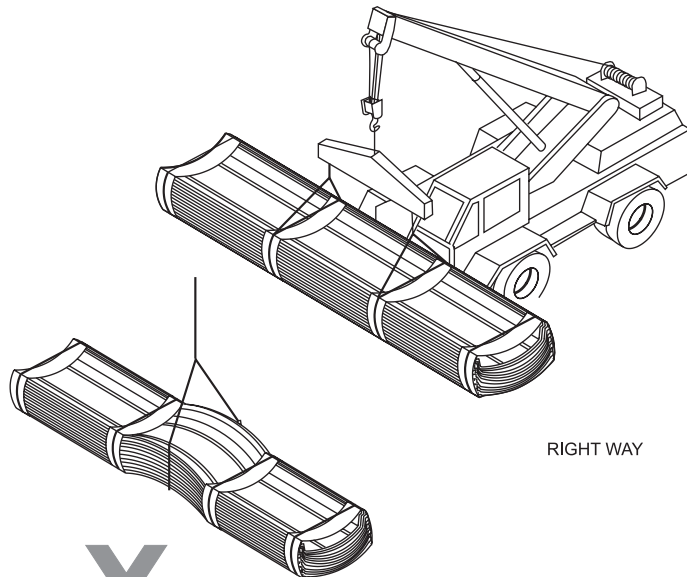
Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. THE MANUFACTURER DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand or rest on or near these light transmitting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

# PREPARATORY REQUIREMENTS

---

1. A single pitch eave strut must be used.
2. Make sure a rake angle or an alternate structural flat surface has been installed on top of the purlins to accept the "Rake Support".
3. 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.
4. All primary and secondary framing must be erected, plumbed and squared with bolts tightened according to accepted building practices.
5. The substructure (eave to ridge) must be on plane with a tolerance of 1/4" in 20' and 3/8" in 40'.
6. Central-Loc 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.
7. Central-Loc roof panels are available in 24" and 18" widths. However, for the purpose of this manual, we have assumed that the roof panels will be 24" wide.
8. 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 outside closures to foul the purlin or the back-up plate to foul the clip as the panels expand and contract.
9. Peak purlin spacing - 12" (from the centerline of the building) or 16" for a 9" continuous vent.
10. For the purpose of this manual, we have assumed that this is a standard roof. If your roof is to be UL 90 rated, see UL 90 requirements in the Central-Loc product guide.
11. Read recommended erection practices before proceeding with roof installation.
12. The manufacturer 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.
13. 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.

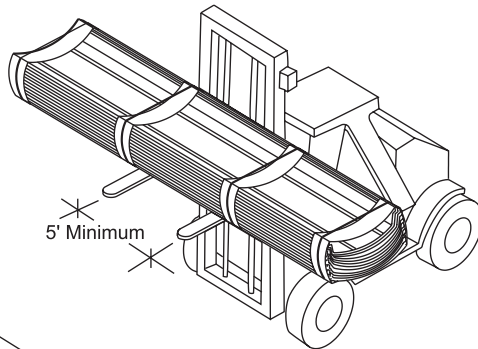
# SPECIFICATIONS



RIGHT WAY

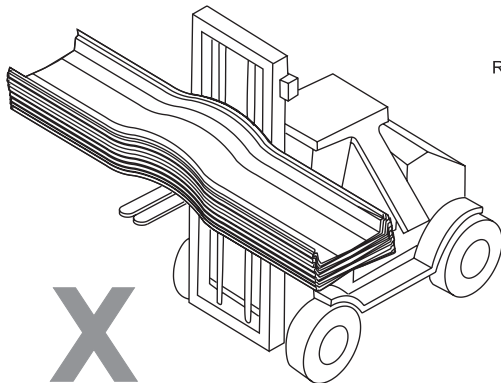


WRONG WAY



5' Minimum

RIGHT WAY



WRONG WAY

## UNLOADING

Upon receiving material, check shipment against shipping list for shortages and damages. The manufacturer will not be responsible for shortages or damages unless they are 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.

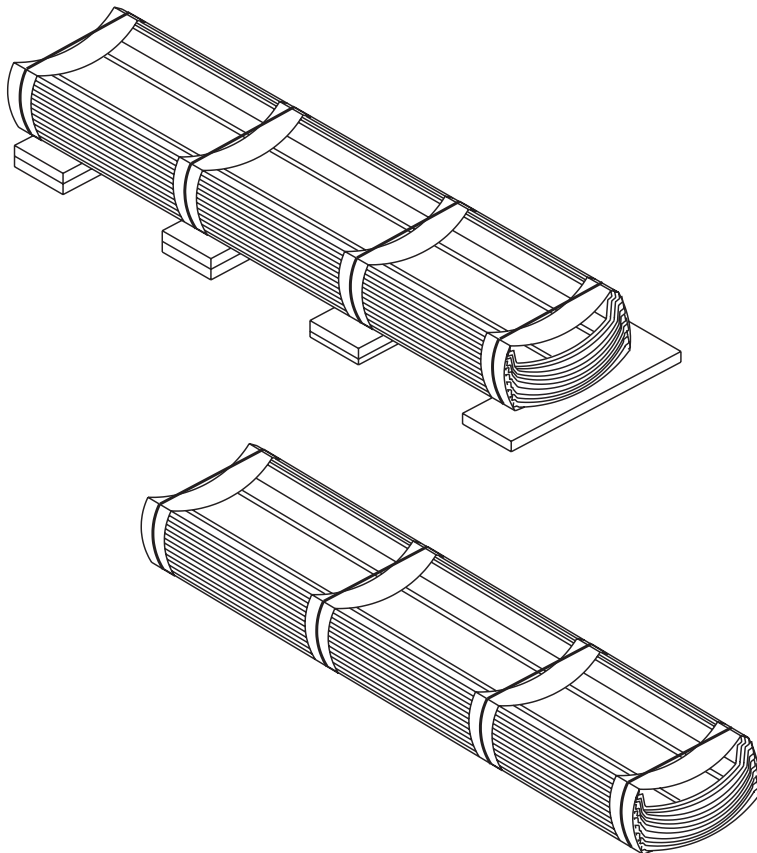
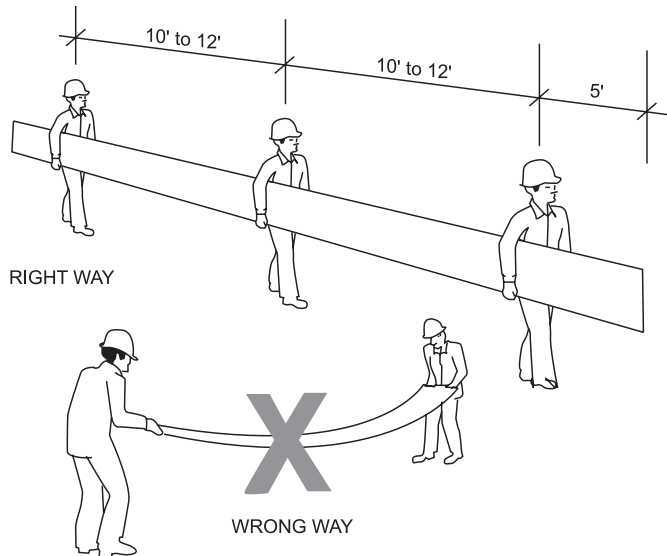
When lifting bundles with a crane, a spreader bar and nylon straps should be used. NEVER USE WIRE ROPE OR CHAIN SLINGS. THEY WILL DAMAGE THE PANELS.

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.



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.

# GENERAL INFORMATION



## HANDLING/PANEL STORAGE

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.

Store bundled 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.

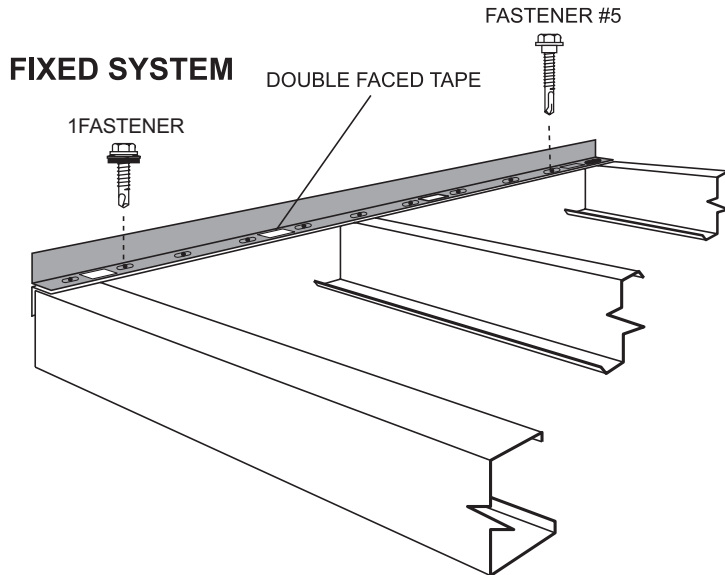
**Protective gloves should always be used while handling panels.  
OSHA safety regulations must be followed at all times.**

**NOTE**

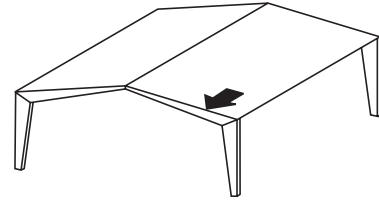
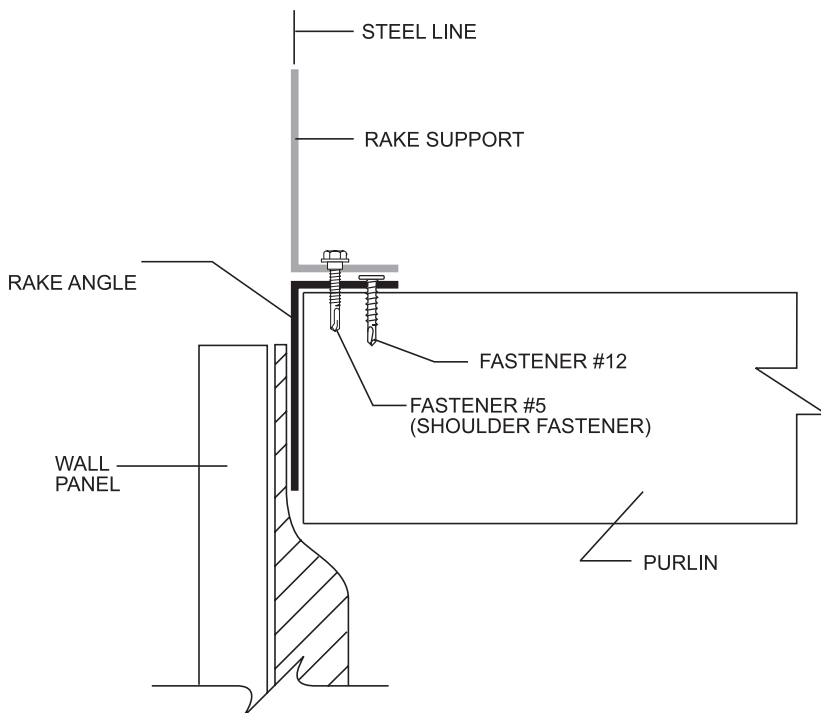
## STEP 1

# ERECTION SEQUENCE

### FLOATING SYSTEM



### FIXED SYSTEM



### 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- 1FASTENER  
Joists- Fastener #6
- **Floating System**  
Purlins- Fastener #5  
Joists- Fastener #5 (predrill)

**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 6" pieces of double faced tape on 3'-0" centers 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.

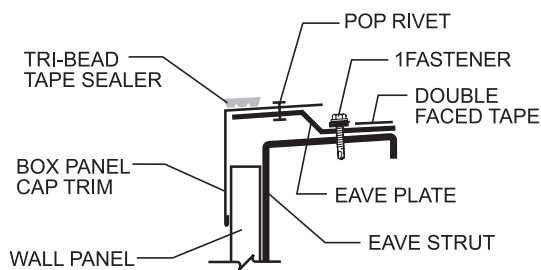
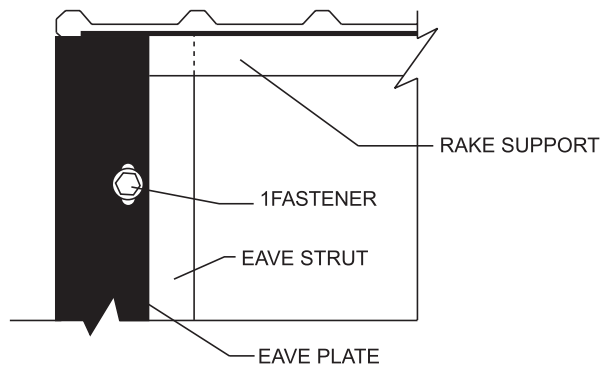
**ALL PRIMARY AND SECONDARY FRAMING SHOULD BE ERECTED, PLUMBED, AND BOLTS TIGHTENED PRIOR TO SHEETING.**



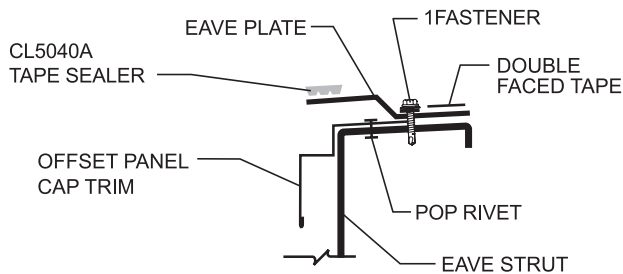


# STEP 2A

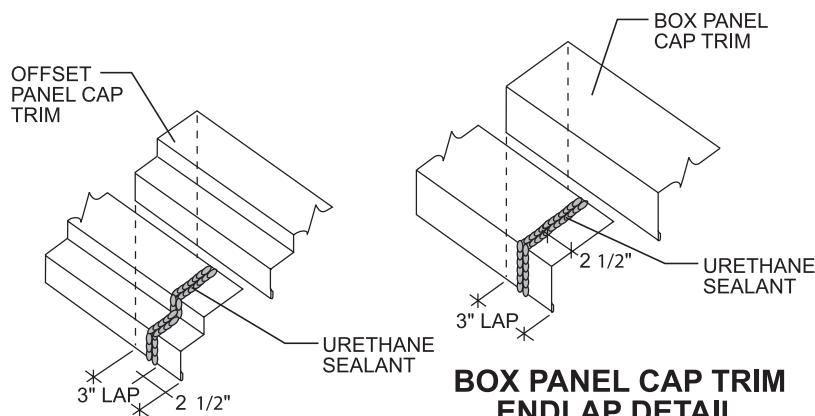
## ERECTION SEQUENCE



### WALL PANEL INSTALLED BEFORE ROOF

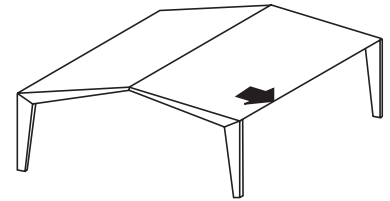


### WALL PANEL INSTALLED AFTER ROOF



### OFFSET PANEL CAP TRIM ENDLAP DETAIL (SPECIAL ORDER)

### BOX PANEL CAP TRIM ENDLAP DETAIL



### EAVE

### Wall Panels Installed Before Roof

Install eave plates flush with the outside of the high crowns of the wall panels. Install 1FASTENER in pre-punched slot (1'-0" 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 box panel cap trim to the top of the eave plates with pop rivets. Use two fasteners per 10' piece and three fasteners per 20' piece. Trim must be pulled tight to wall panels before fastening to eave plates.

Lay CL5040A tape sealer across the top of the box panel cap trim, flush with the outside edge.

Install double faced tape along the length of the top leg of the box panel cap trim. Double faced tape must be upslope from the CL5040A tape sealer.

### Wall Panels Installed After Roof

Install offset panel cap trim (special order) to eave strut with pop rivets. Use two fasteners per 10' piece and three fasteners per 20' piece.

Install eave plates flush with the outside of the offset panel cap trim. Install 1FASTENER in each pre-punched slot (1'-0" 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.

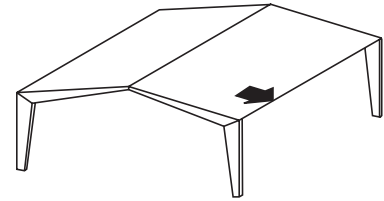
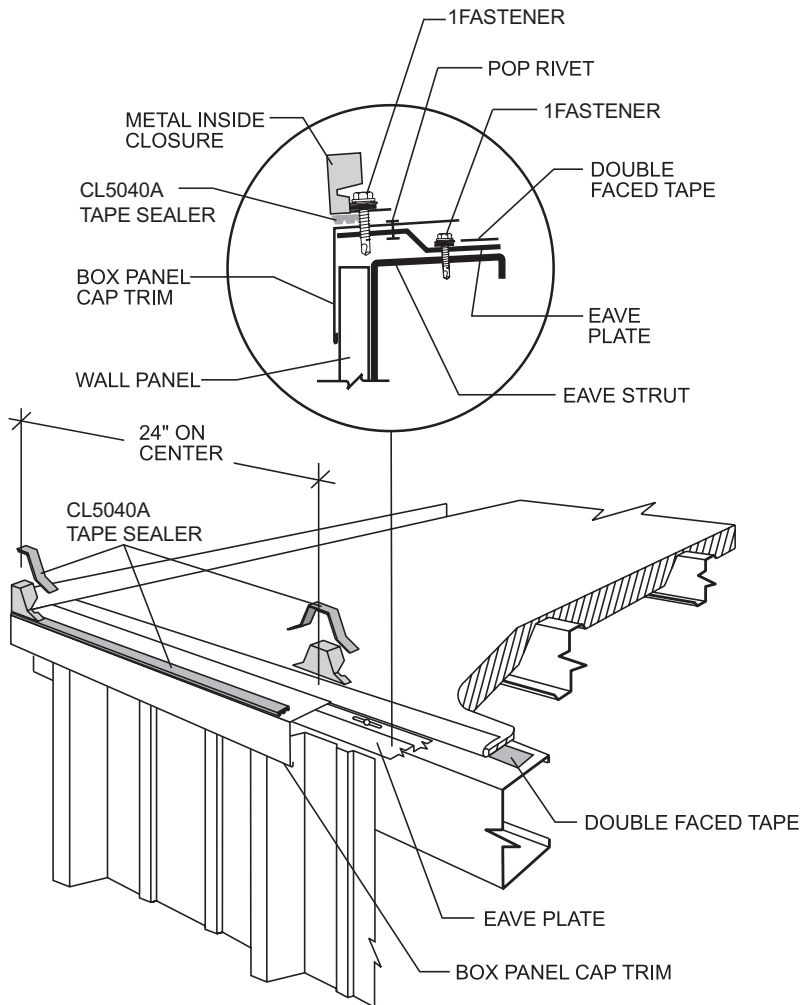
Lay CL5040A tape sealer across the top of the eave plates, flush with the outside edge. Install double faced tape along the length of the bottom leg of the eave plate.

### TRIM LAPS

Lap box or offset panel cap trim 3". Apply two beads of urethane sealant between the trim pieces, approximately 2 1/2" from the end of the bottom piece.

## STEP 2B

# ERECTION SEQUENCE



## EAVE/ METAL INSIDE CLOSURE

Using 1FASTENER, attach the first inside closure to the eave plate, locating the face of the inside closure with the downslope 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.**

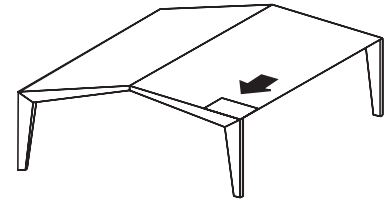
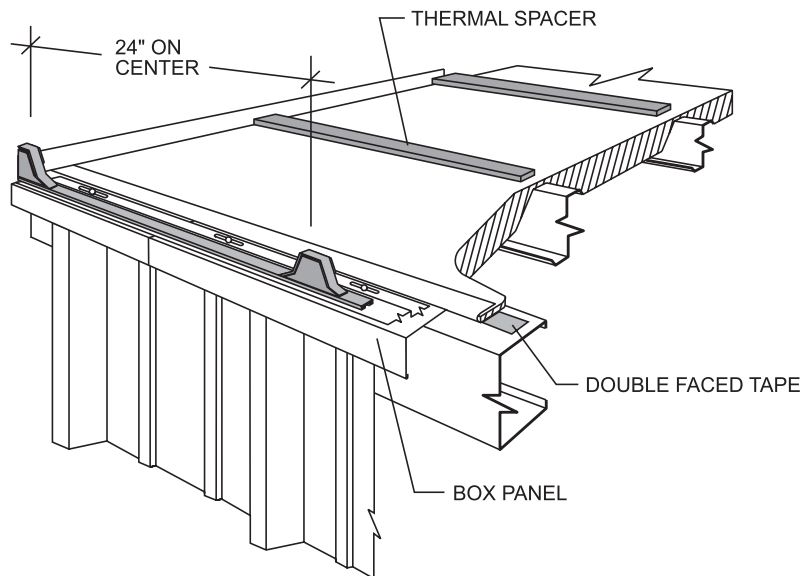
Locate additional closures on 24" centers from the first closure to maintain panel module, attaching each with 1FASTENER. Install two fasteners per closure. The first fastener should be installed through the slotted hole to allow for any adjustment that may be required. Place CL5040A tape sealer on the 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 (downslope) 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 (upslope).

The fiberglass insulation must not interfere with the CL5040A tape sealer which provides a positive seal at the eave.

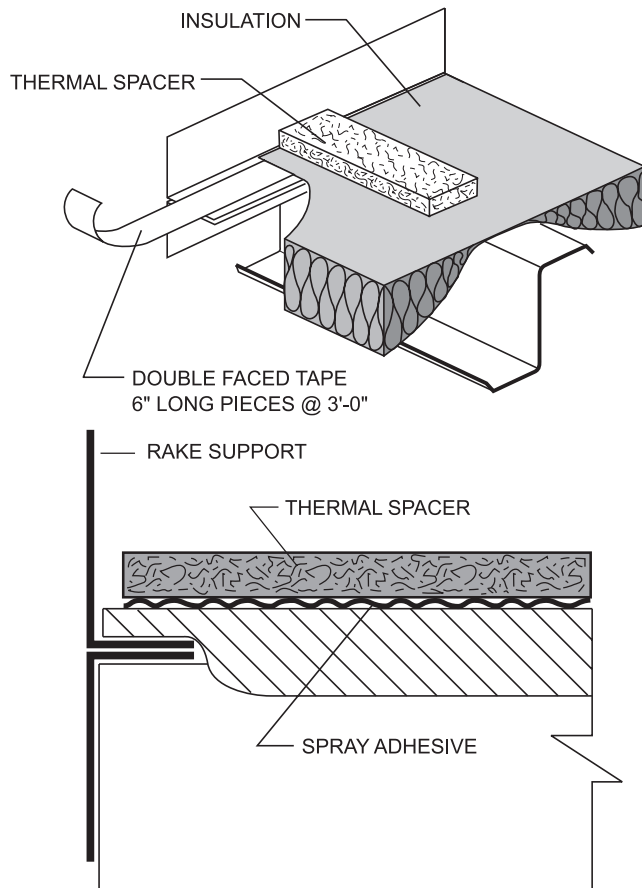


# STEP 3 ERECTION SEQUENCE



## THERMAL SPACER (FOR HIGH SYSTEM ONLY)

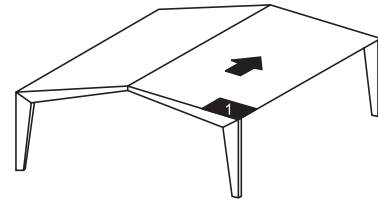
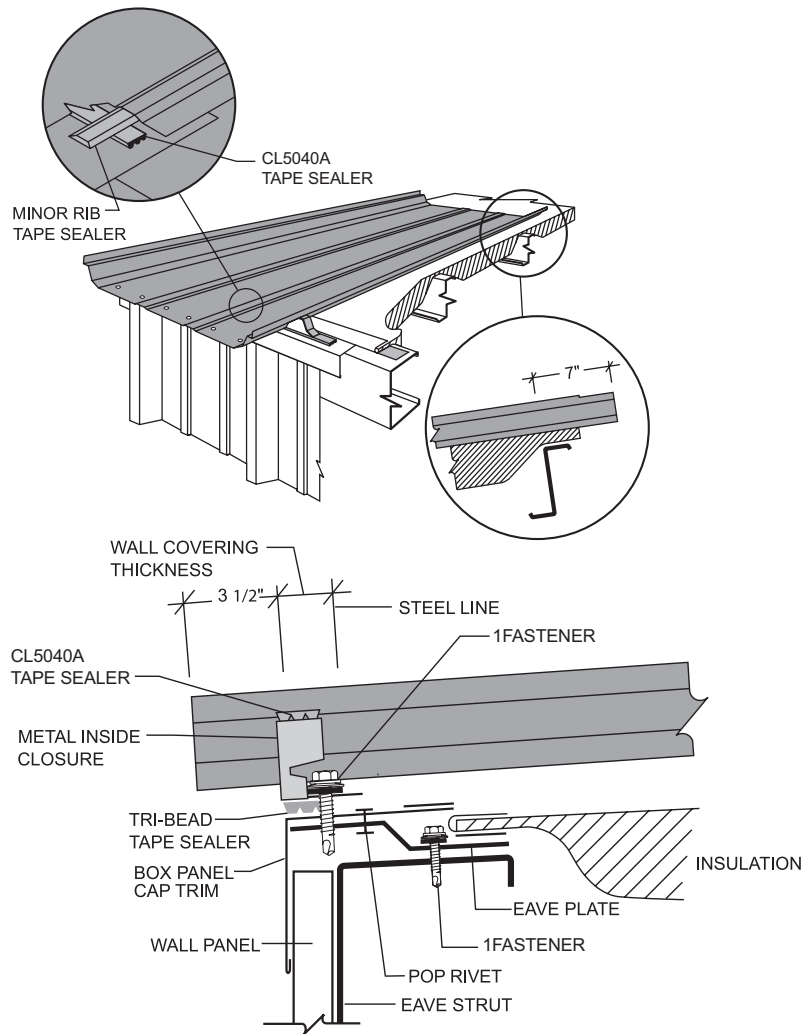
Position the thermal spacer on top of the insulation over each purlin and against the rake support prior to installing the roof panel.



Using spray adhesive, (not by CSMI) adhere the thermal spacer to the insulation. The thermal spacer increases the insulation capacity along the purlins.

## STEP 4

# ERECTION SEQUENCE

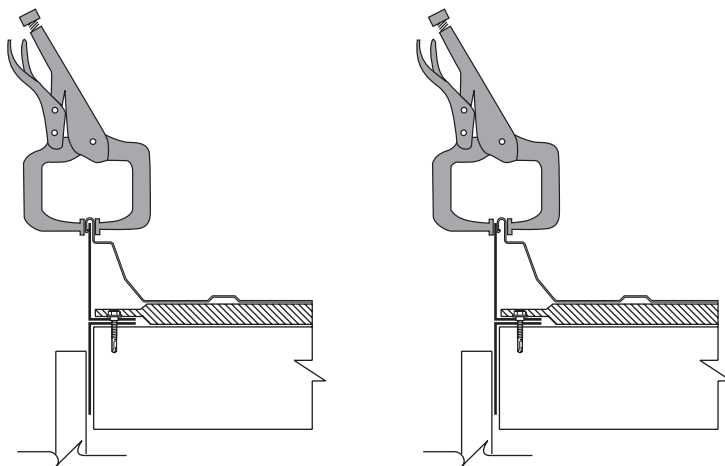


## FIRST PANEL

**Apply minor rib tape sealer to the underside of the minor ribs of the panel.** Position so that this tape sealer will cross the CL5040A 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  $3\frac{1}{2}"$ . The upper end of the panel must be  $7"$  beyond the web of the purlin.

**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.**



**Low System**

**High System**

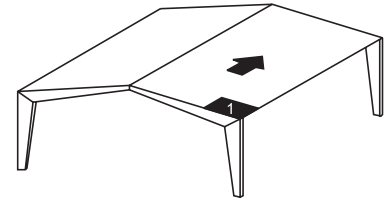
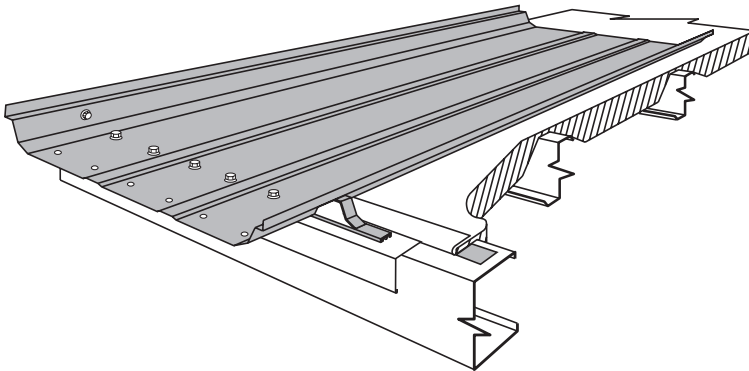
**Low System:** Lay the female lip of the panel over the rake support.

**High System:** Lay the female lip of the panel beside the rake support.

### Continue with either system:

To prevent wind damage, secure the female lip to the rake support with vise grips or temporary fasteners. Fasteners must go through rake support (1FASTENER). The panel will not be fastened permanently to the rake support until the rake trim is installed.

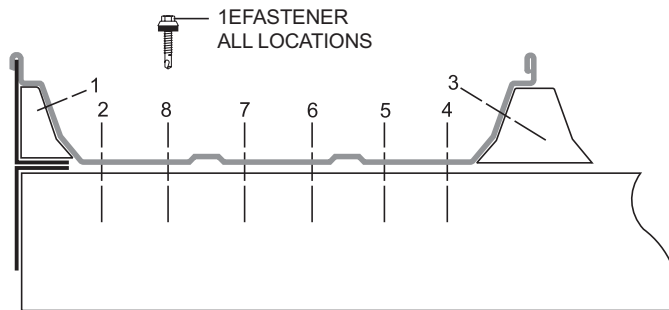
## STEP 4 continued ERECTION SEQUENCE



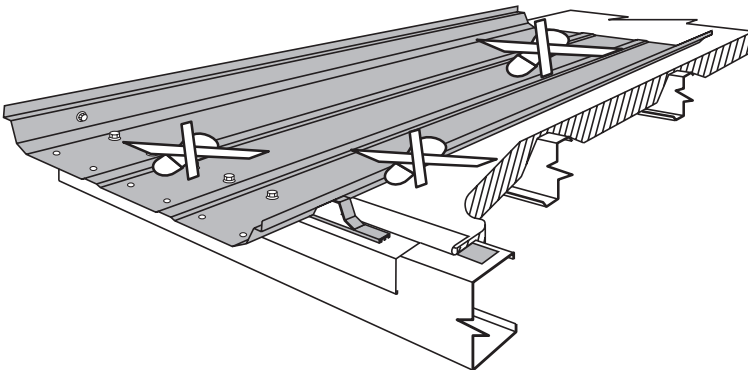
### FIRST PANEL (Continued)

Attach the panel to the eave strut and metal inside closures with 1EFASTENER. 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.**



### FASTENER SEQUENCE FIRST RUN - EAVE



### CAUTION

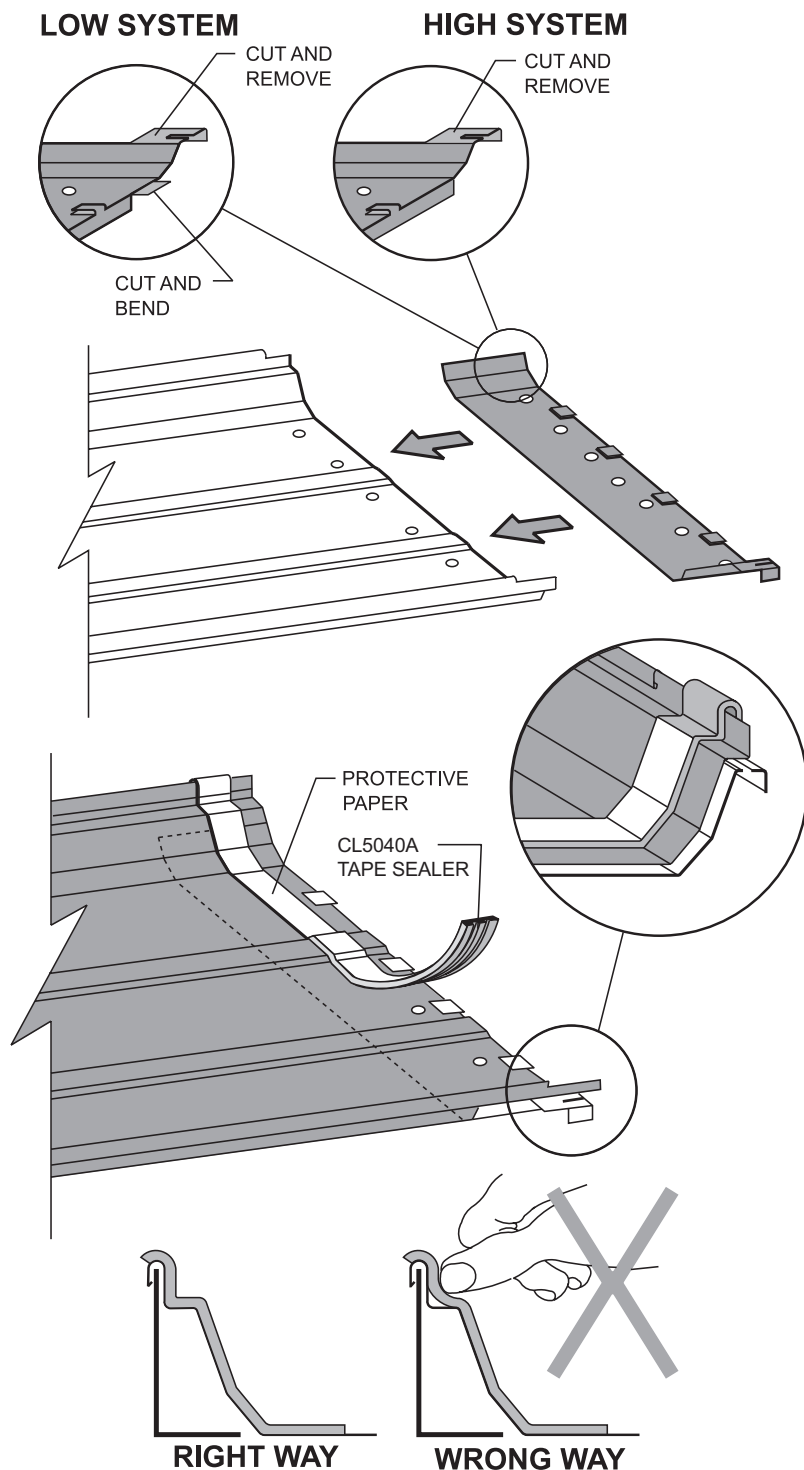
Do not, under any circumstance, step on the panel at the seam or at the panel ends until the adjacent side, end panels or eave fasteners are fully attached. The roof panel may not support the weight of a man at these locations and could affect panel module.



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

## STEP 5

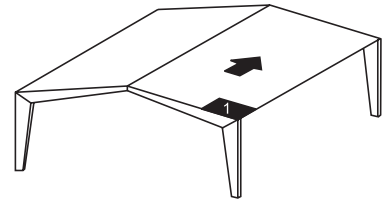
# ERECTION SEQUENCE



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



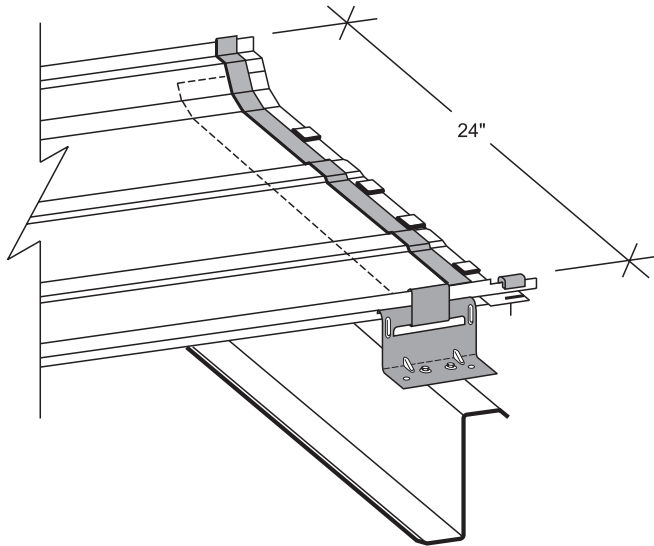
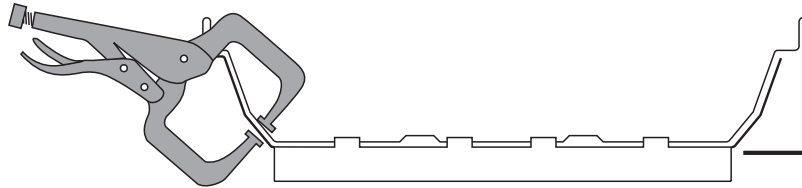
# STEP 6 ERECTION SEQUENCE



## CLIP INSTALLATION

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. Remove vise grips and install clips on all remaining purlins.



## FASTENER REQUIREMENTS

**Purlins** - 1FASTENER

**Joists** - Fastener #6  
(Two fasteners per clip)

## CAUTION

For UL 90 Roofs, see page 5  
for special requirements.

## CAUTION

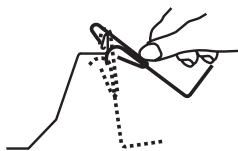
The panel clip has factory applied mastic in the upper lip. This mastic is compressed when the clip is rotated in place. If, for some reason, a clip must be removed, a new clip must be used.

## IMPORTANT

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

## NOTE

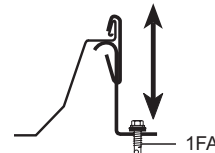
The floating clip is designed so it can only be properly seated when the upper portion of the clip (the tab) is centered on the base.



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



- With the upper clip firmly seated, position the base firmly against the purlin flange.

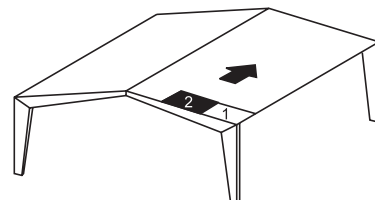
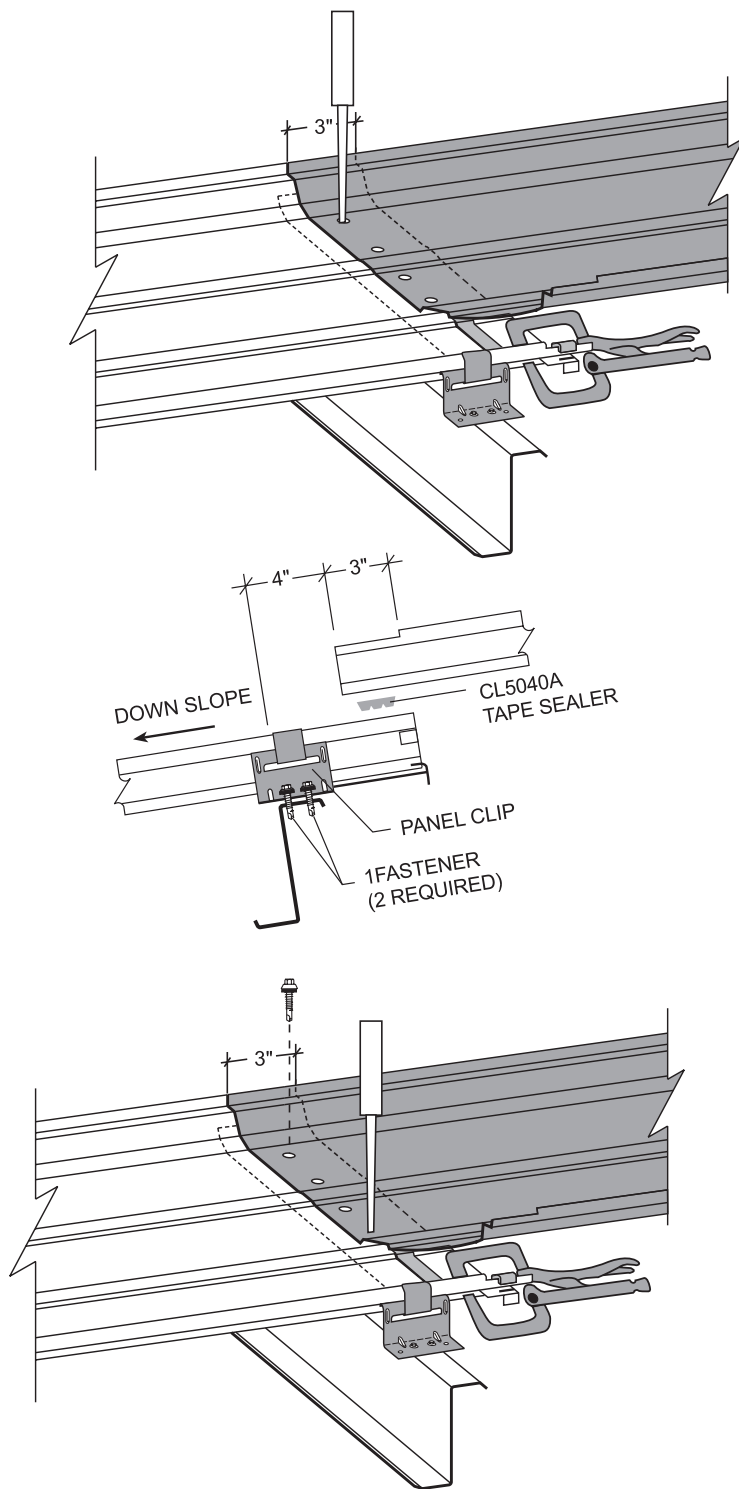


- When properly positioned, the vertical legs of the upper and lower sections of the clip will be 90° to the purlin flange pointed upward, as shown.

1FASTENER

## STEP 7

# ERECTION SEQUENCE



### 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.

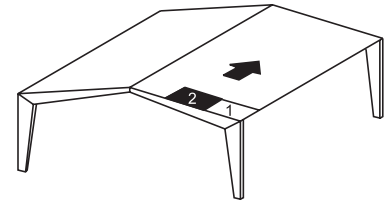
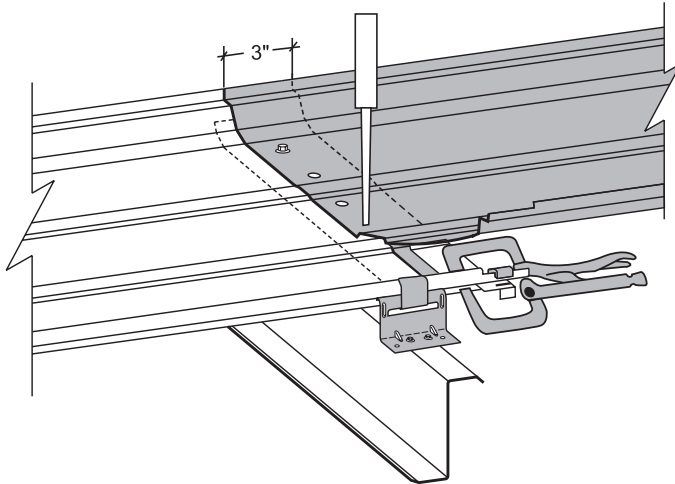
Remove awl and insert in the middle hole nearest the male leg. Install 1FASTENER in the hole by the female leg.

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





# STEP 8 ERECTION SEQUENCE



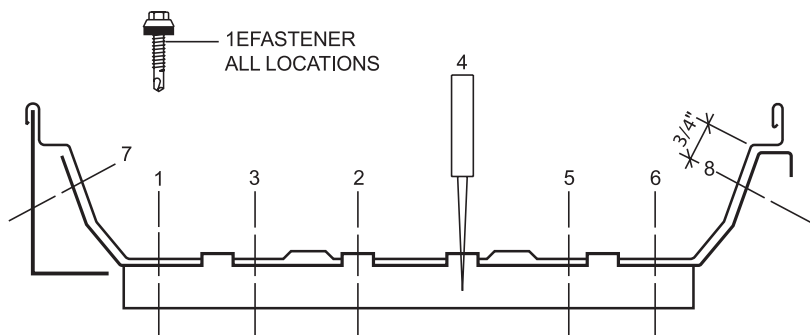
## STANDARD ENDLAP

### NOTE

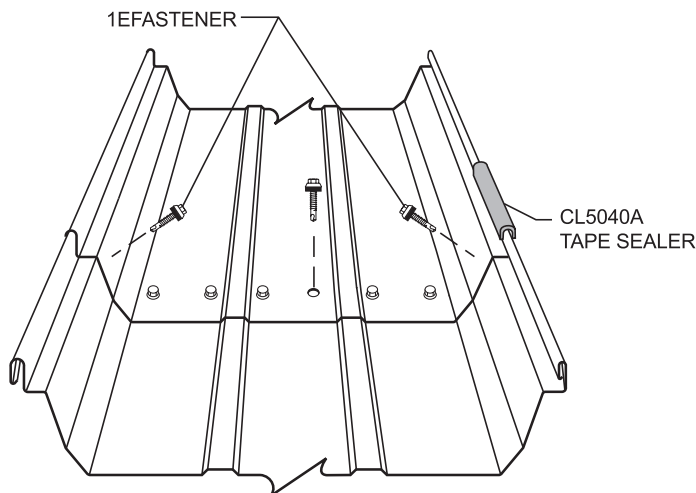
Step 8 applies only where more than one panel is used in a single slope.

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 1EFASTENER in sequence 2 and 3. Remove vise grips and install remaining fasteners in sequence 4, 5, 6.



## FASTENER SEQUENCE FIRST RUN-ENDLAP

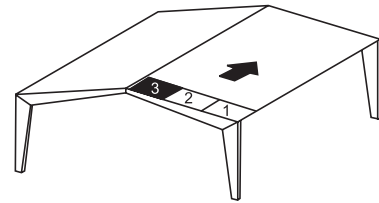


Apply CL5040A tape sealer over the notched portion of these male legs.

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

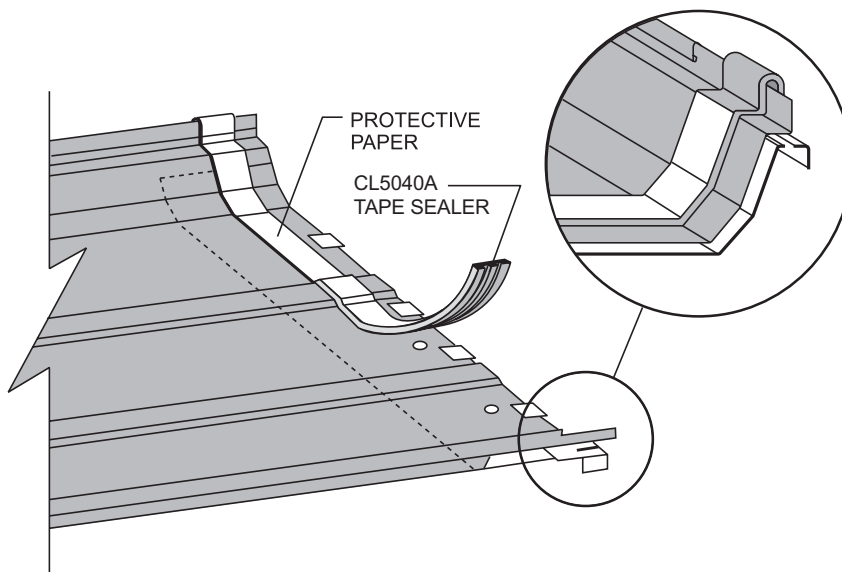
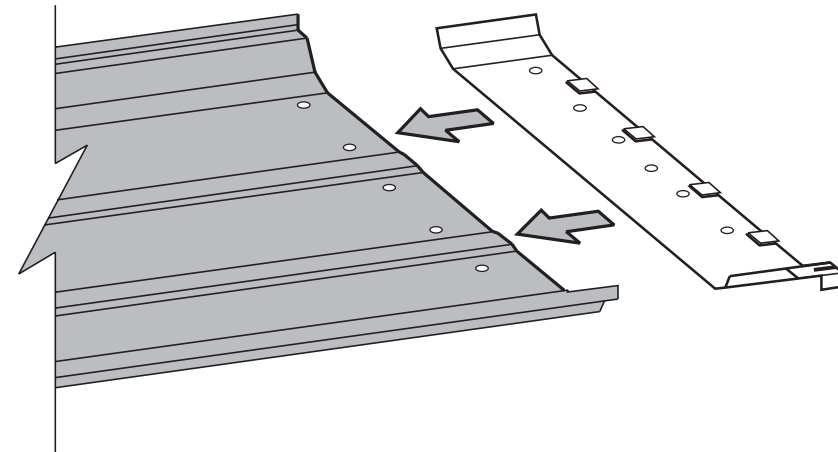
## STEP 9

# ERECTION SEQUENCE



### 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 CL5040A tape sealer over prepunched 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.**

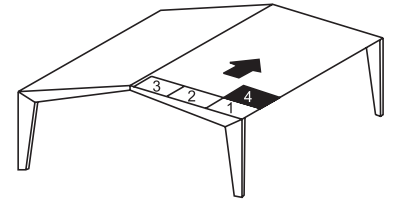
Install clips on ridge panel as in Step 6.

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



# STEP 10

## ERECTION SEQUENCE

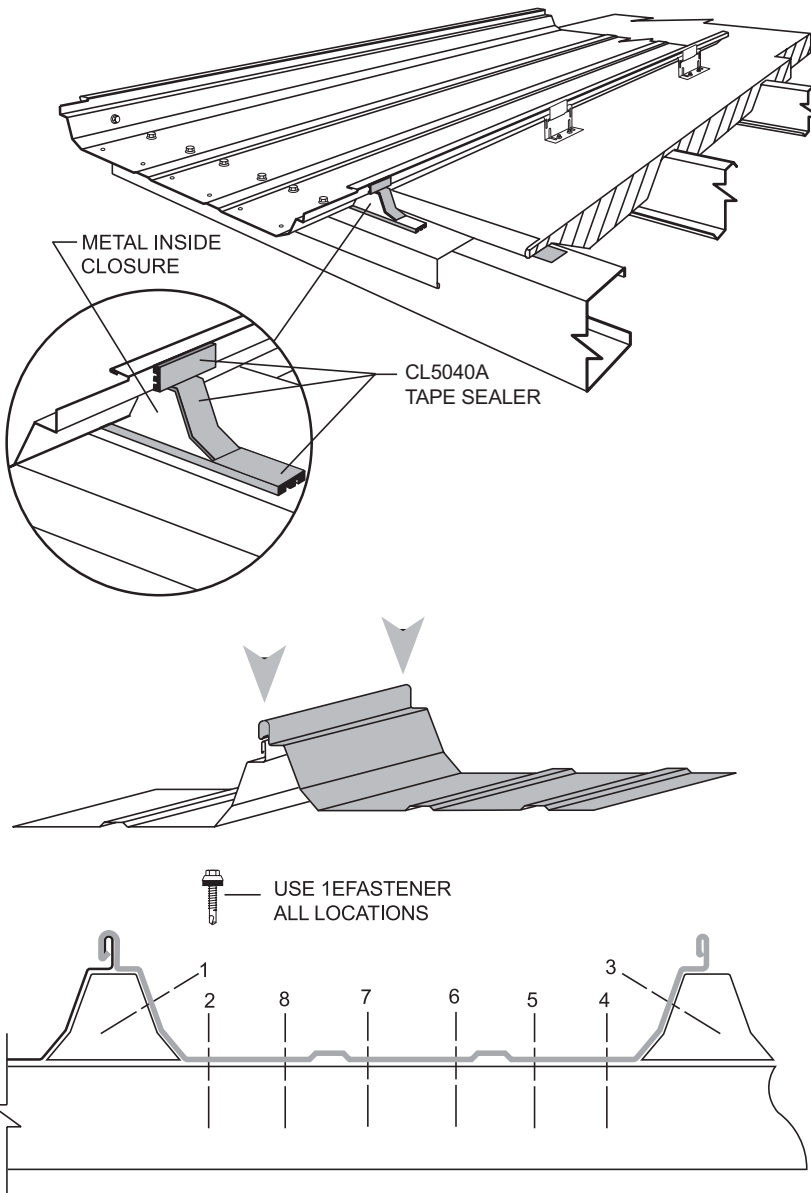


### SUBSEQUENT RUNS EAVE

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 1FASTENER. 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 fasteners at eave in the proper sequence. Eight fasteners are required at this location.



### FASTENER SEQUENCE SUBSEQUENT RUNS - EAVE

#### CAUTION

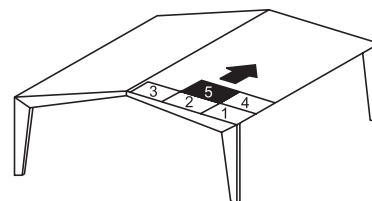
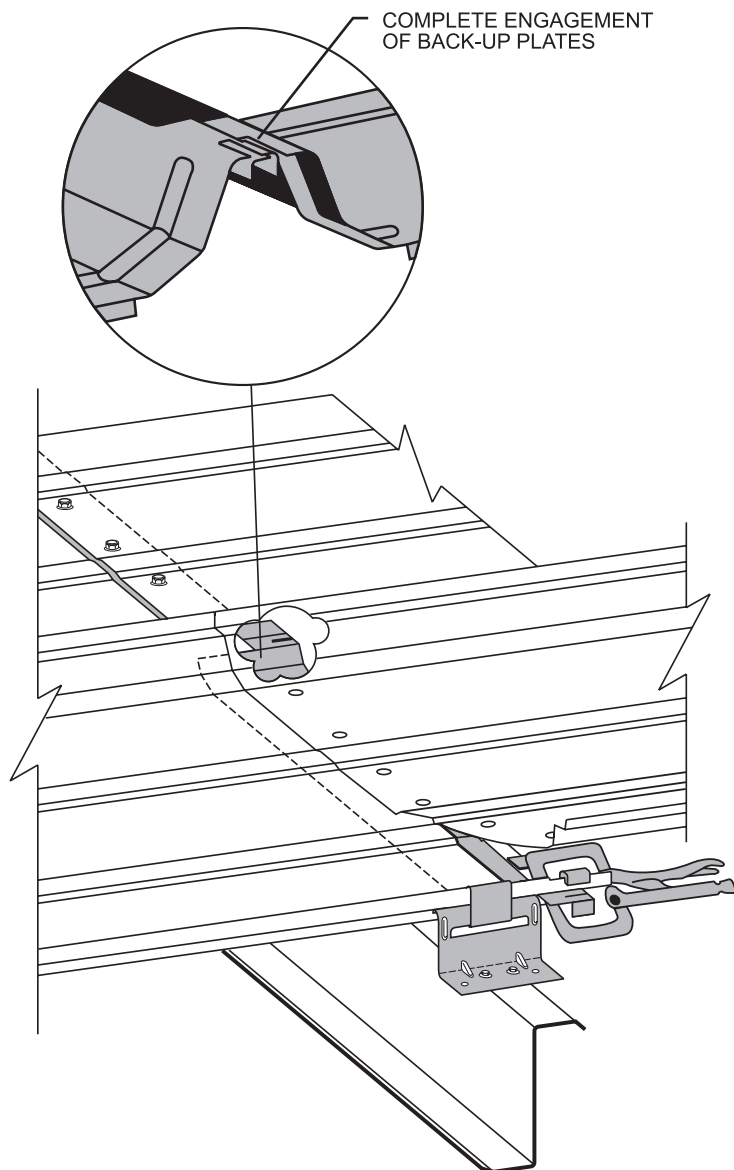
Never use a hammer to force the panels to snap together. This will cause severe damage to the panel and will nullify any warranty.

#### 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

## ERECTION SEQUENCE

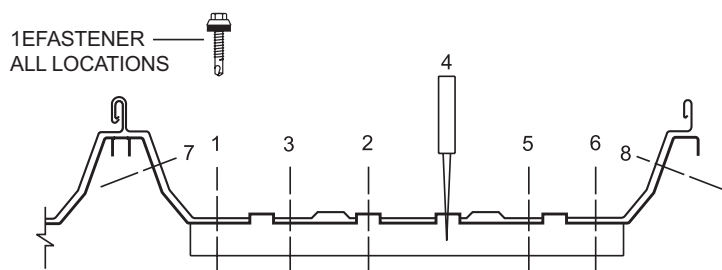


### SUBSEQUENT RUNS ENDLAP

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 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.

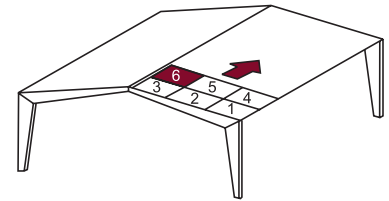
Install upper panel as described in Steps 7 & 8.



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

# STEP 12

## ERECTION SEQUENCE

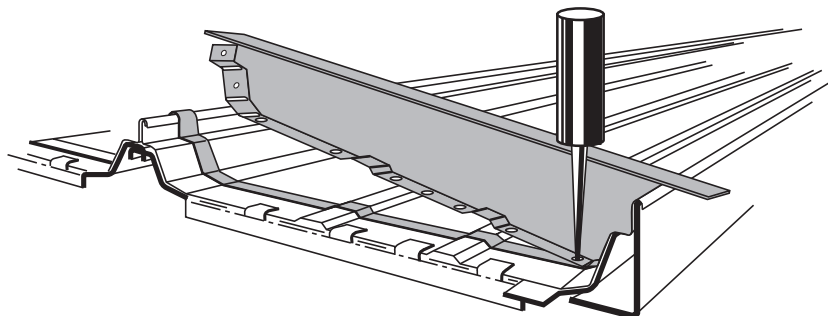
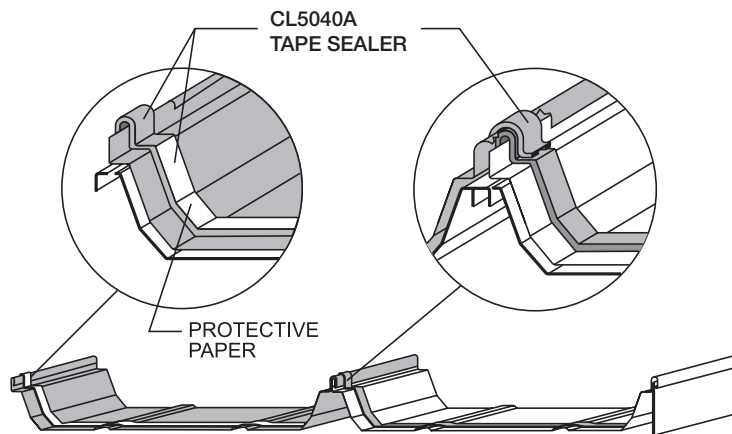


### SUBSEQUENT RUNS RIDGE/OUTSIDE CLOSURE

Install back-up plate and panel clips. Go to the previously installed ridge panel and peel

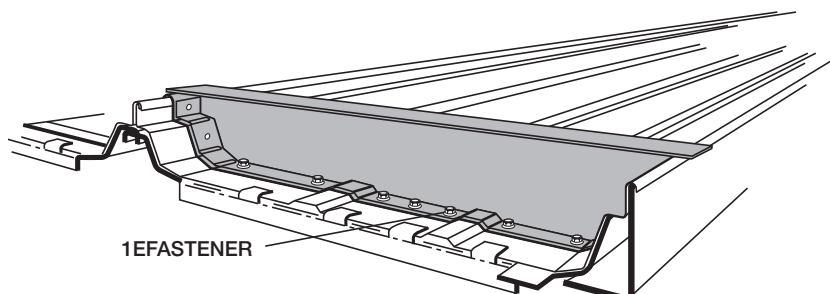
#### NOTE

Always stay one panel run behind with the outside closures, otherwise, the next panel cannot be installed.



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.

Install the outside closure in previous ridge panel. Rotate outside closure into position contacting the female side of the panel first. Using an awl, align the first hole on the female side of the outside closure with the corresponding hole in the panel and back-up plate. Remove the awl and install 1EFASTENER in the hole.



Push the other end of the outside closure into position and align the holes with the awl. Remove the awl and install 1EFASTENER in all remaining holes except for the hole at the panel seam. **Do not install the panel seam fastener at this time.**

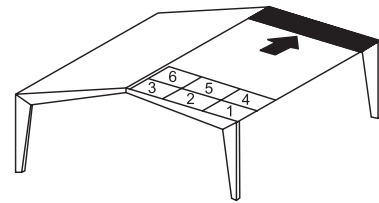
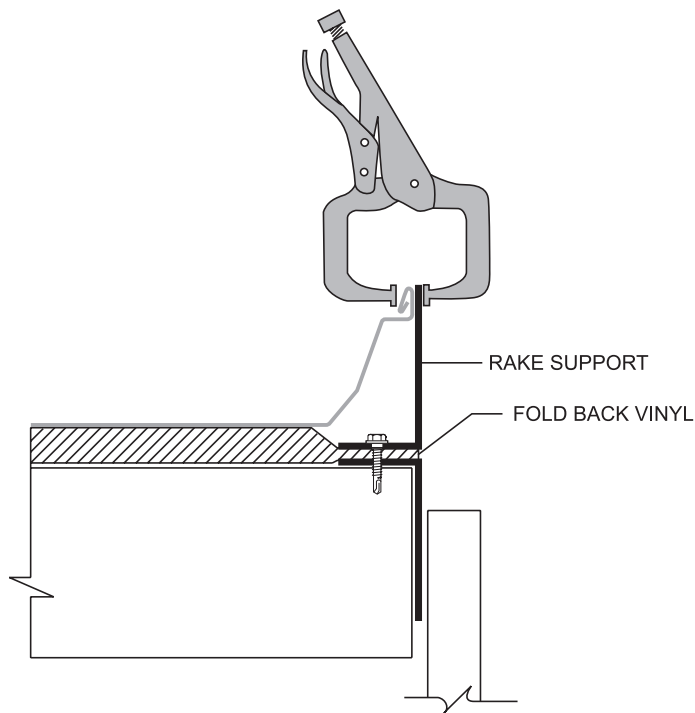
Check panel alignment at this time (See page 25).

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 13A

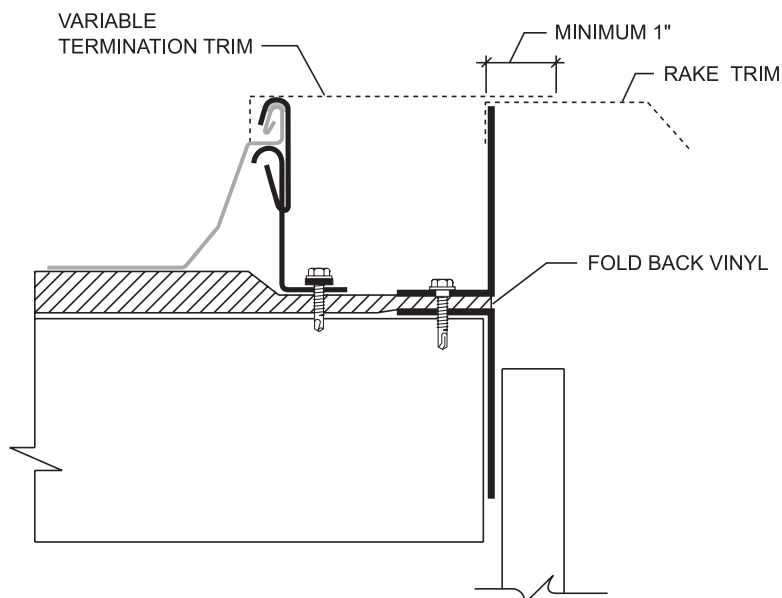
# ERECTION SEQUENCE



## LAST PANEL RUN

This roof system is designed to finish in the high on even footage buildings by using 24", 18", or 12" 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. Temporarily fasten the male leg to the rake support with vise grips.



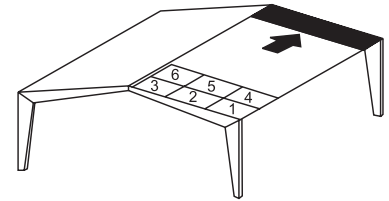
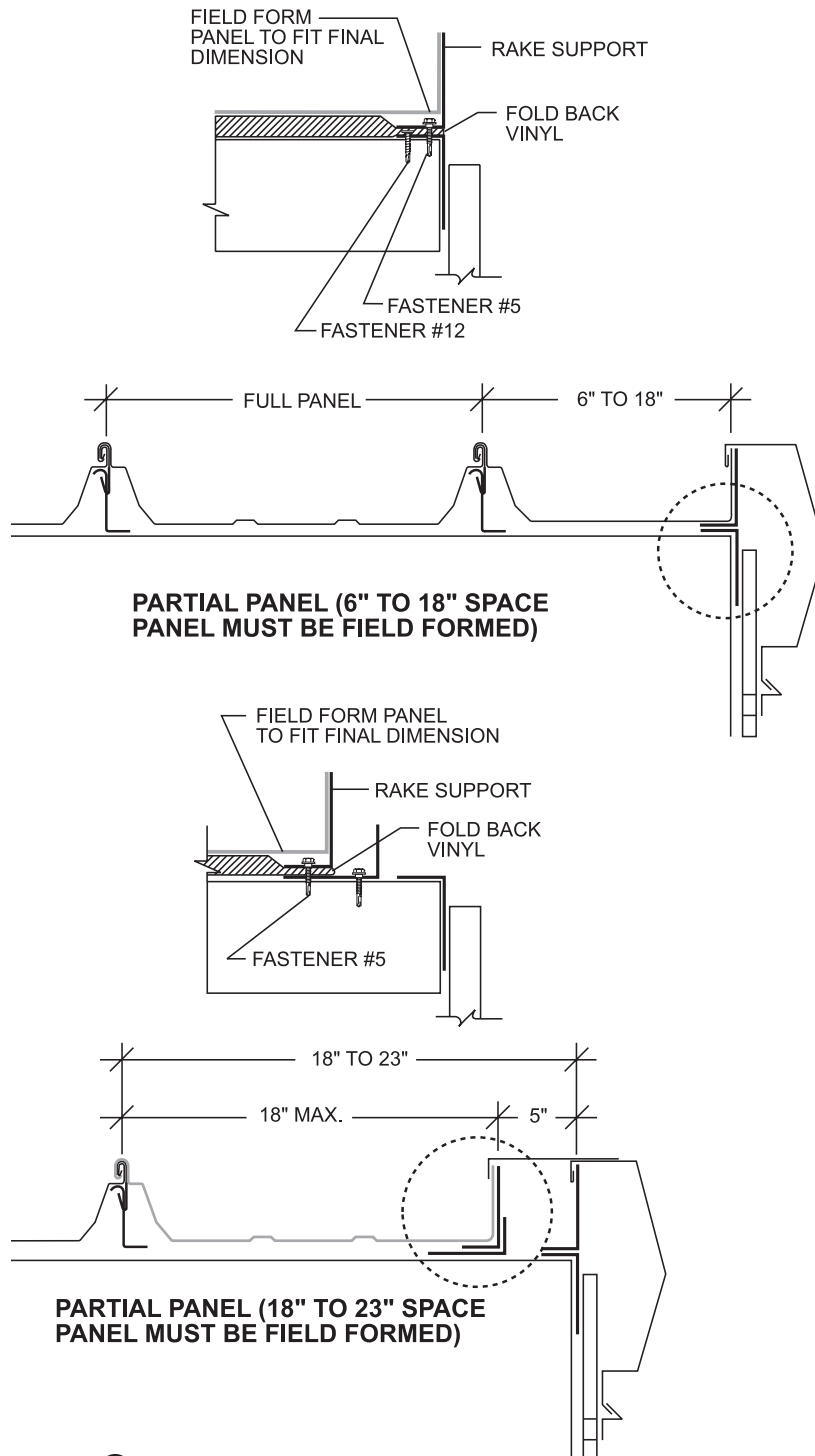
If the panel ends 2" - 4" away from the rake support due to an out-of-square condition or other factors, simply install the panel clips. This system allows for the roof to be trimmed in the high.

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



# STEP 13B

## ERECTION SEQUENCE



### LAST PANEL RUN (OPTIONAL)

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 field formed panel. Temporarily fasten the formed leg of the panel to the rake support with vice grips, or temporary fasteners (1EFASTENER).

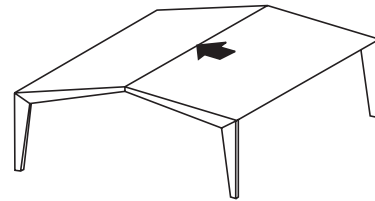
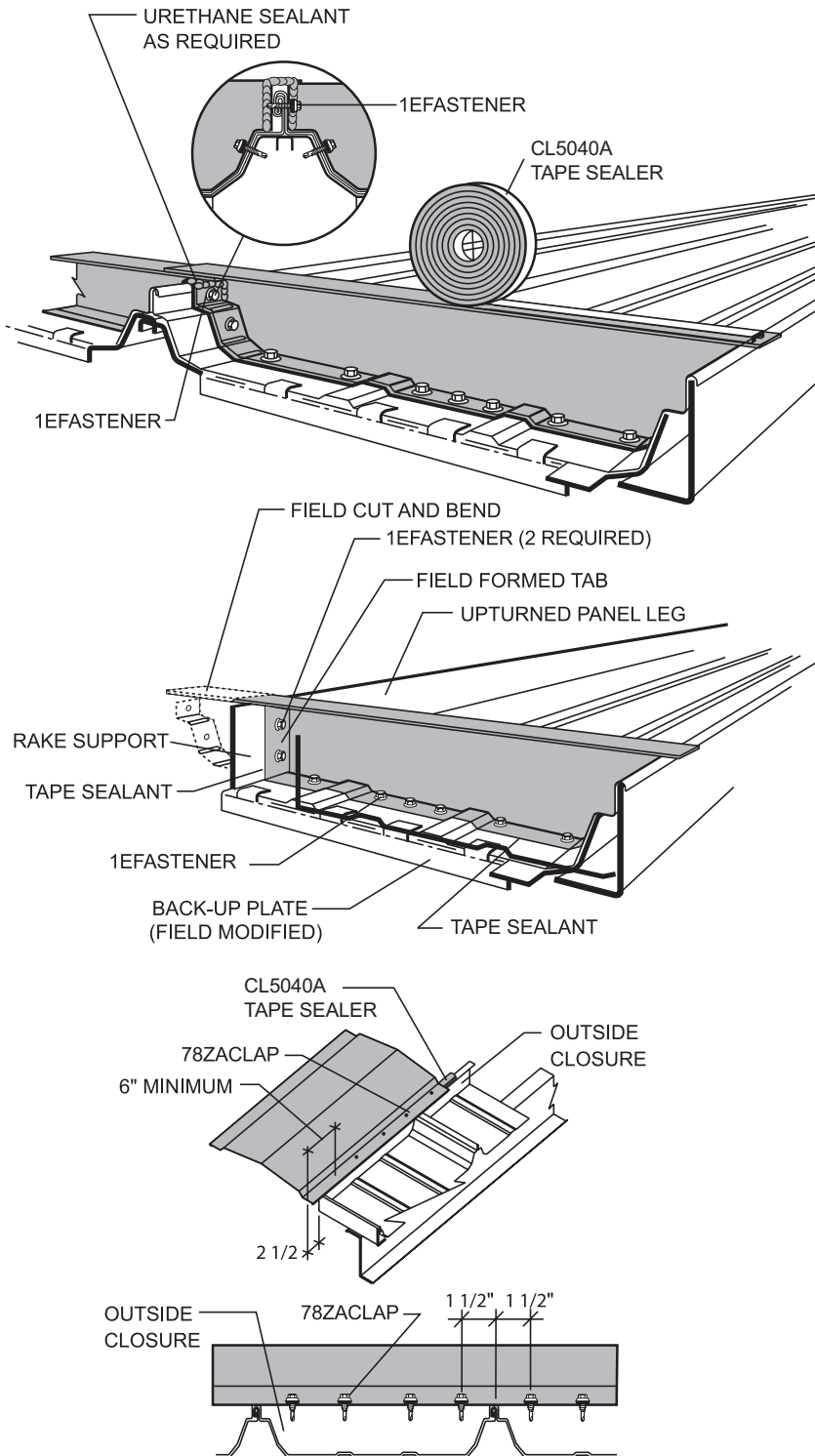
The combination of field formed panel and Variable Termination Trim may be used to accommodate large dimensions as shown.



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

## STEP 14

# ERECTION SEQUENCE



## RIDGE-OUTSIDE CLOSURE/FLASHING

Install 1FASTENER in the remaining hole at the panel seam of all outside closures. The fastener must go through the panel seam and the corresponding hole of the adjacent outside closure.

Use urethane sealant to fill any voids around panel seam on upslope side of outside closure. Apply CL5040A tape sealer to the top of the outside closure.

The final outside closure on the last panel may require field modification. A tab should be formed by the web of the outside closure for attachment to the upturned leg of the roof panel (field formed). This tab should be attached to the panel and angle with 1FASTENER (2 required).

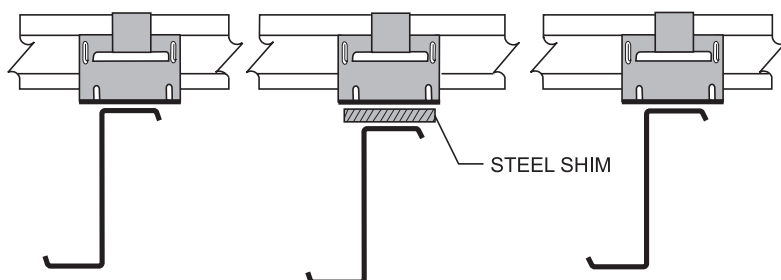
Install the ridge flashing starting and ending 2 1/2" outside the steel line. Fasten the ridge flashing to the outside closures with 78ZACLAP. Install a fastener 1 1/2" from panel seam on both sides of panel. Install additional fasteners directly above minor ribs of panel. Four fasteners are required 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.**

For floating peak box installation see page 30.



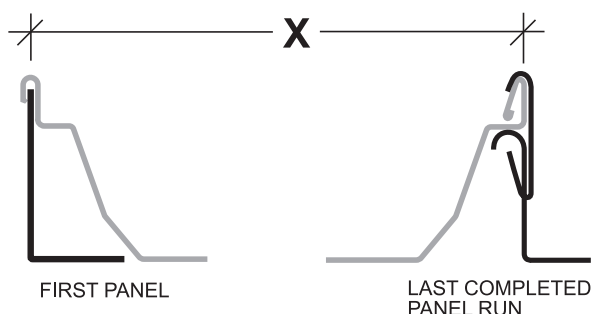
# SPECIAL ERECTION TECHNIQUES

## RECOMMENDED ERECTION PRACTICES 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.

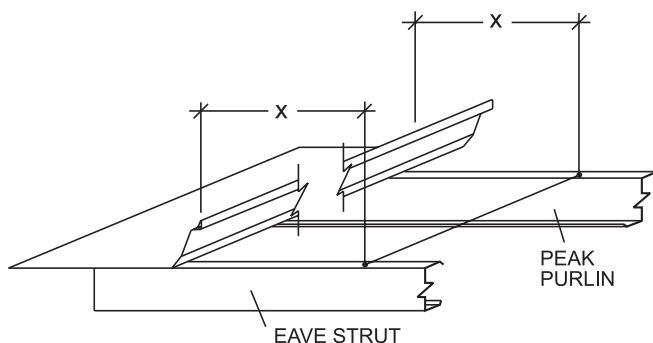
Avoid "stair-stepping" of the panels at the eave. This will cause problems engaging back-up plates at the endlap and ridge. This also will create the need to warp the cinch strap (if used) over the high rib forcing it to align with the holes in the adjacent panel.



Any "stripped out" fasteners at the endlaps or outside closures should be immediately replaced with Fastener #2A. Place a 1" long piece of CL5040A tape sealer over the "stripped out" hole before installing Fastener #2A. 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.

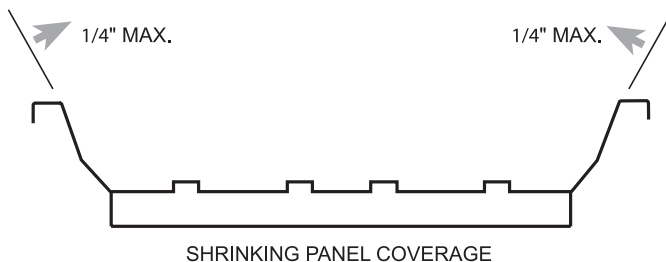
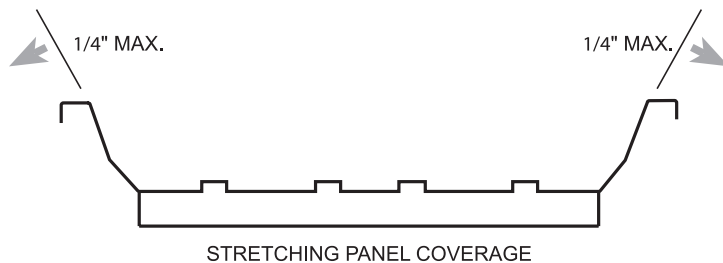
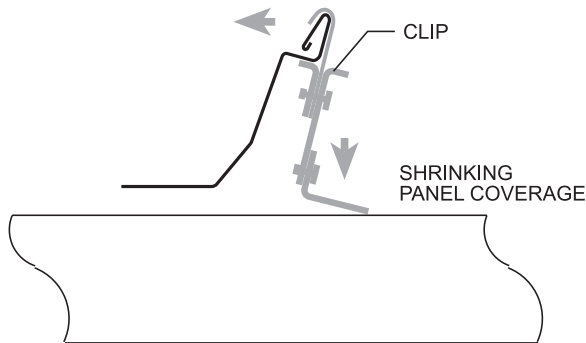
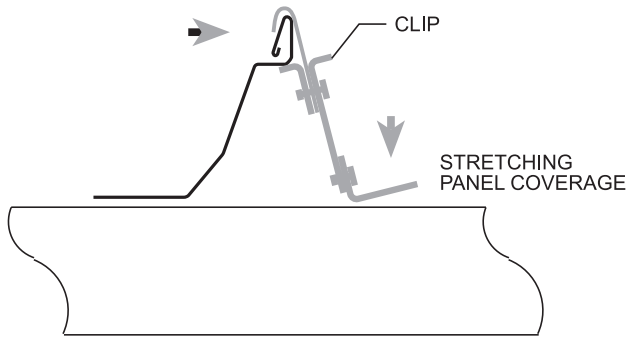
1. Measure from the rake support to the seam of the last completed panel run. Take measurements at the ridge, eave, and all endlaps.
2. Attach a stringline to the eave plate and ridge purlin, running parallel to the rake support. The stringline should stay ahead of the work and can be moved across the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

# SPECIAL ERECTION TECHNIQUES

## RECOMMENDED ERECTION PRACTICES (CONTINUED) ADJUSTING PANEL WIDTH

### NOTE

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



### SLIDING CLIP ONLY

To stretch panel coverage, install a 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.

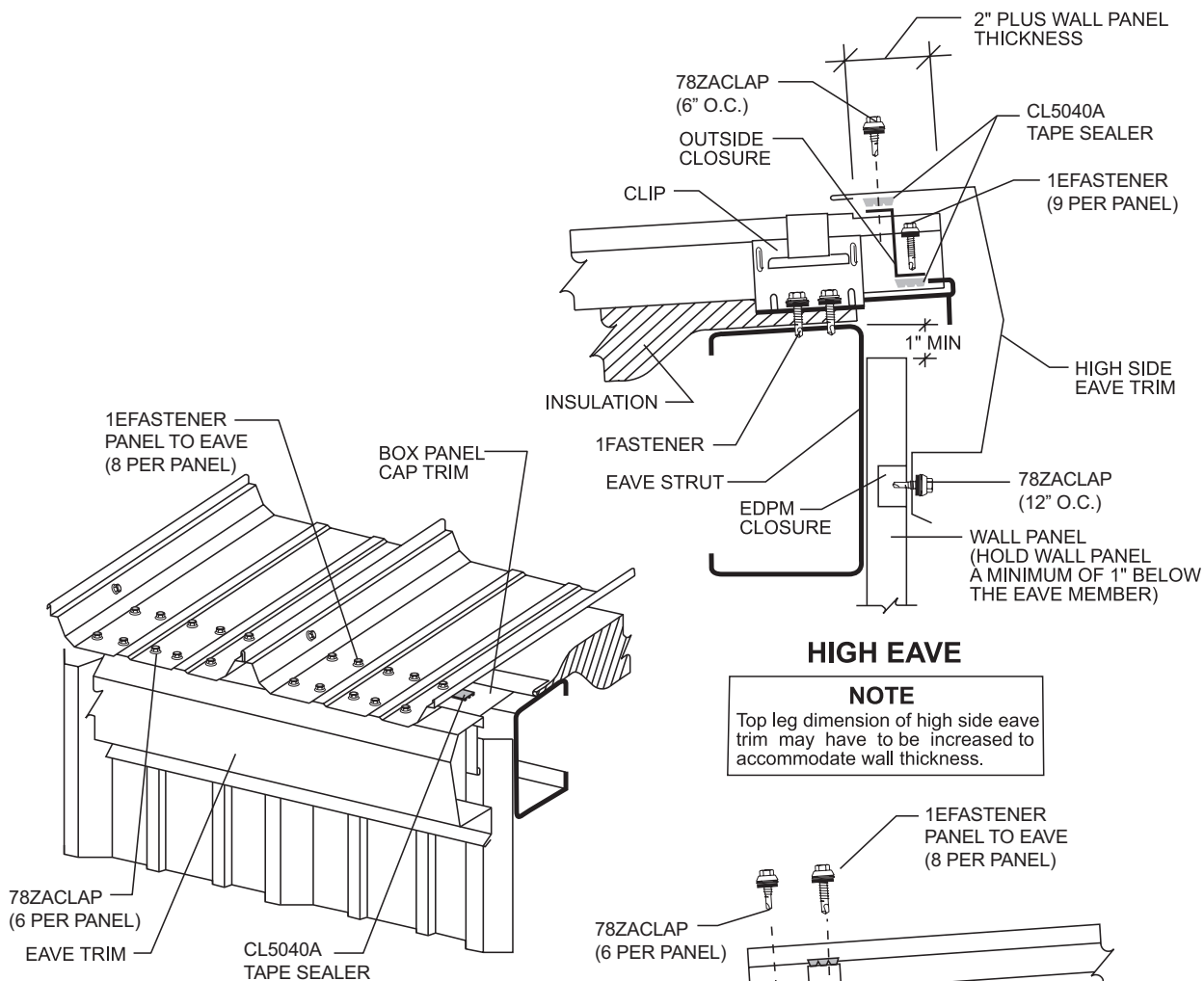
### FIXED AND FLOATING CLIPS

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.

# TRIM DETAILS

## EAVE

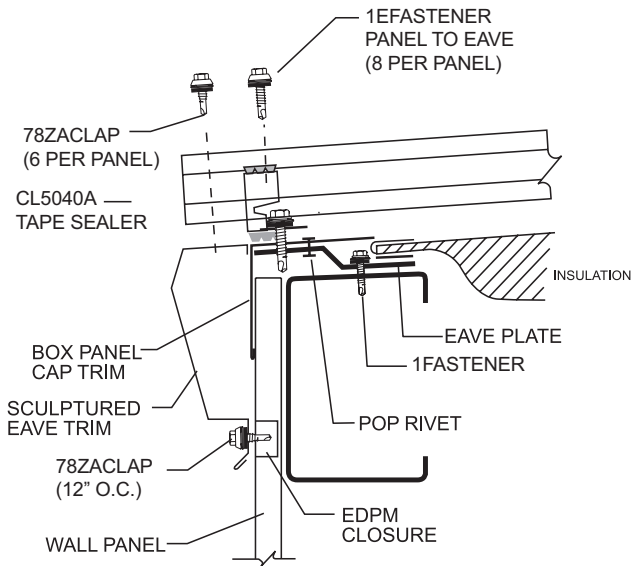


### HIGH EAVE

#### NOTE

Top leg dimension of high side eave trim may have to be increased to accommodate wall thickness.

### LOW EAVE WITH SCULPTURED EAVE TRIM

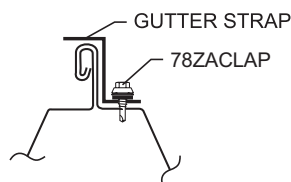
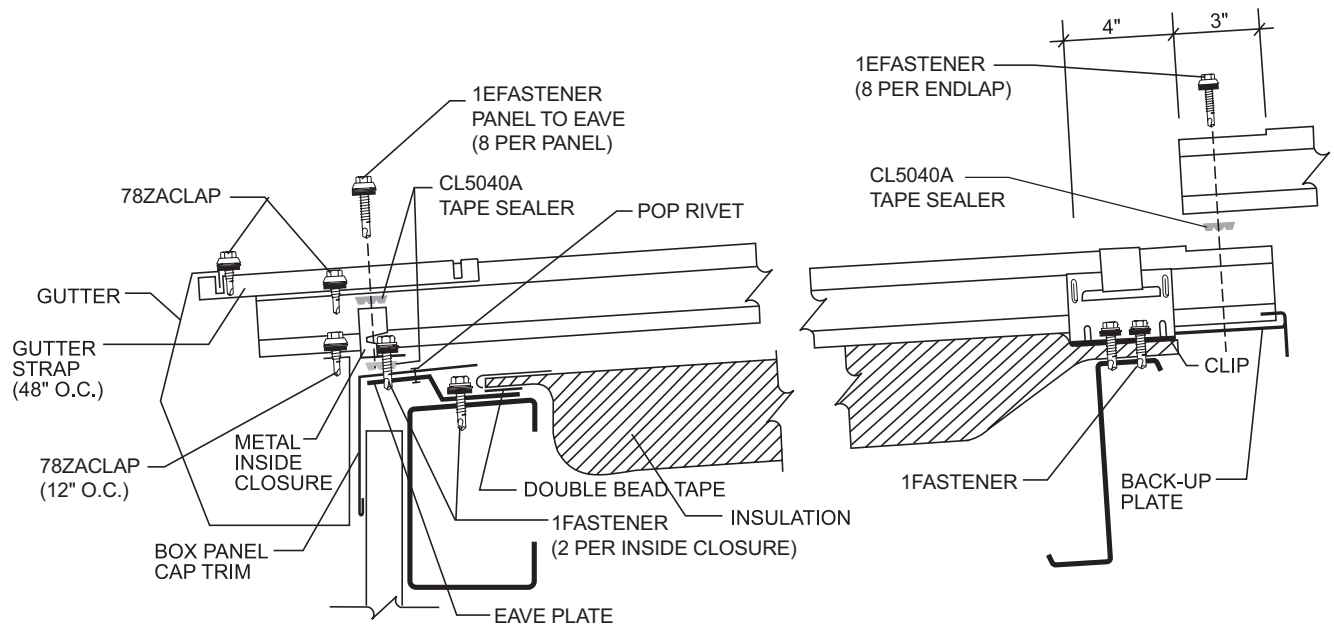


**THIS OPTIONAL SCULPTURED EAVE TRIM IS AVAILABLE. HOWEVER, UNDER CERTAIN CONDITIONS IT MAY INDUCE STAINING OF WALL PANELS.**

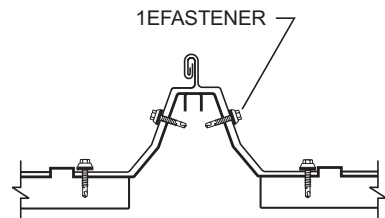
**NOTE**

# TRIM DETAILS

## EAVE TO ENDLAP



**GUTTER STRAP END VIEW**



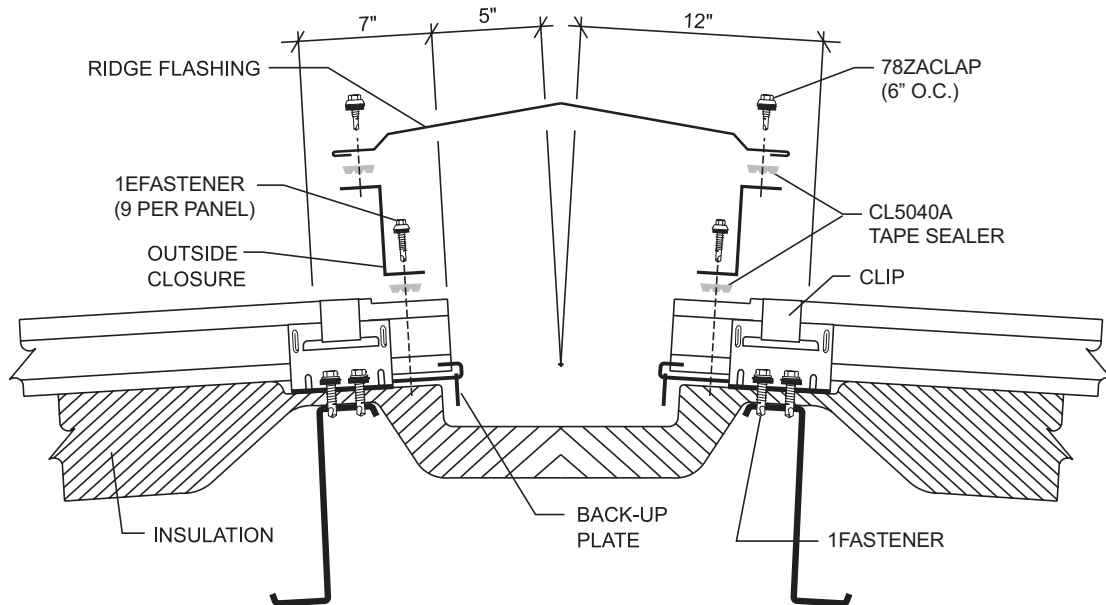
**ENDLAP END VIEW**



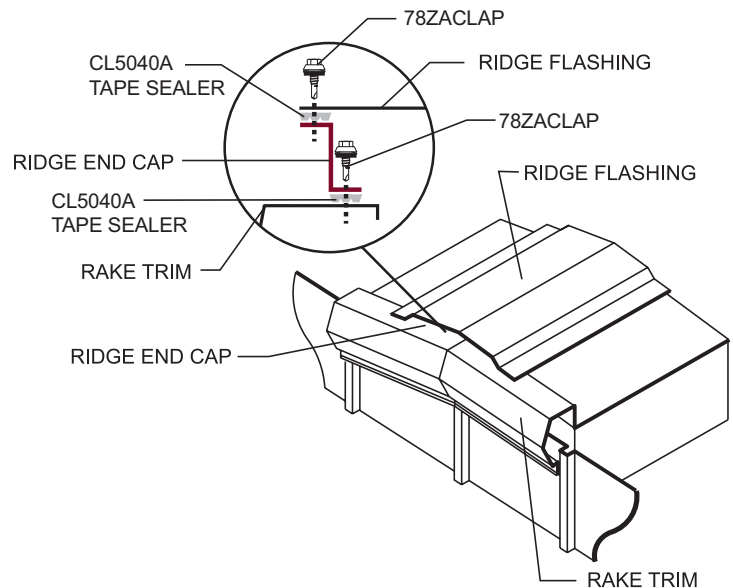
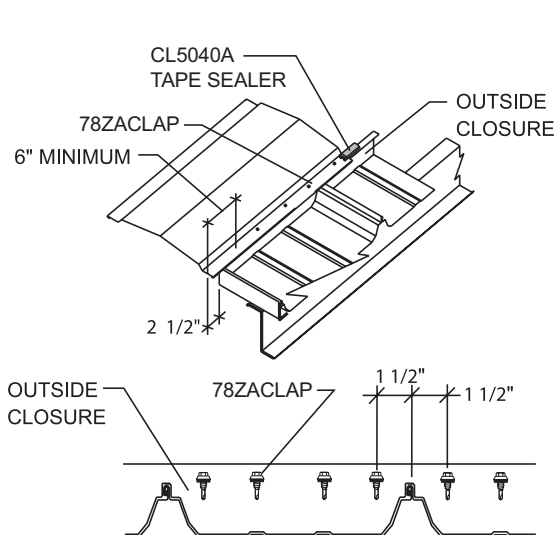
**THE ABOVE GUTTER SHOULD NOT BE USED IN AREAS THAT EXPERIENCE SNOW LOADS OF 10 PSF OR HIGHER. SEE PAGE 37 FOR THE GUTTER DETAIL FOR THESE AREAS.**

# TRIM DETAILS

## RIDGE



Install the ridge flashing starting and ending 2" outside the steel line. Fasten the ridge flashing to the outside closures with 78ZACLAP. Install a fastener 1" 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.**



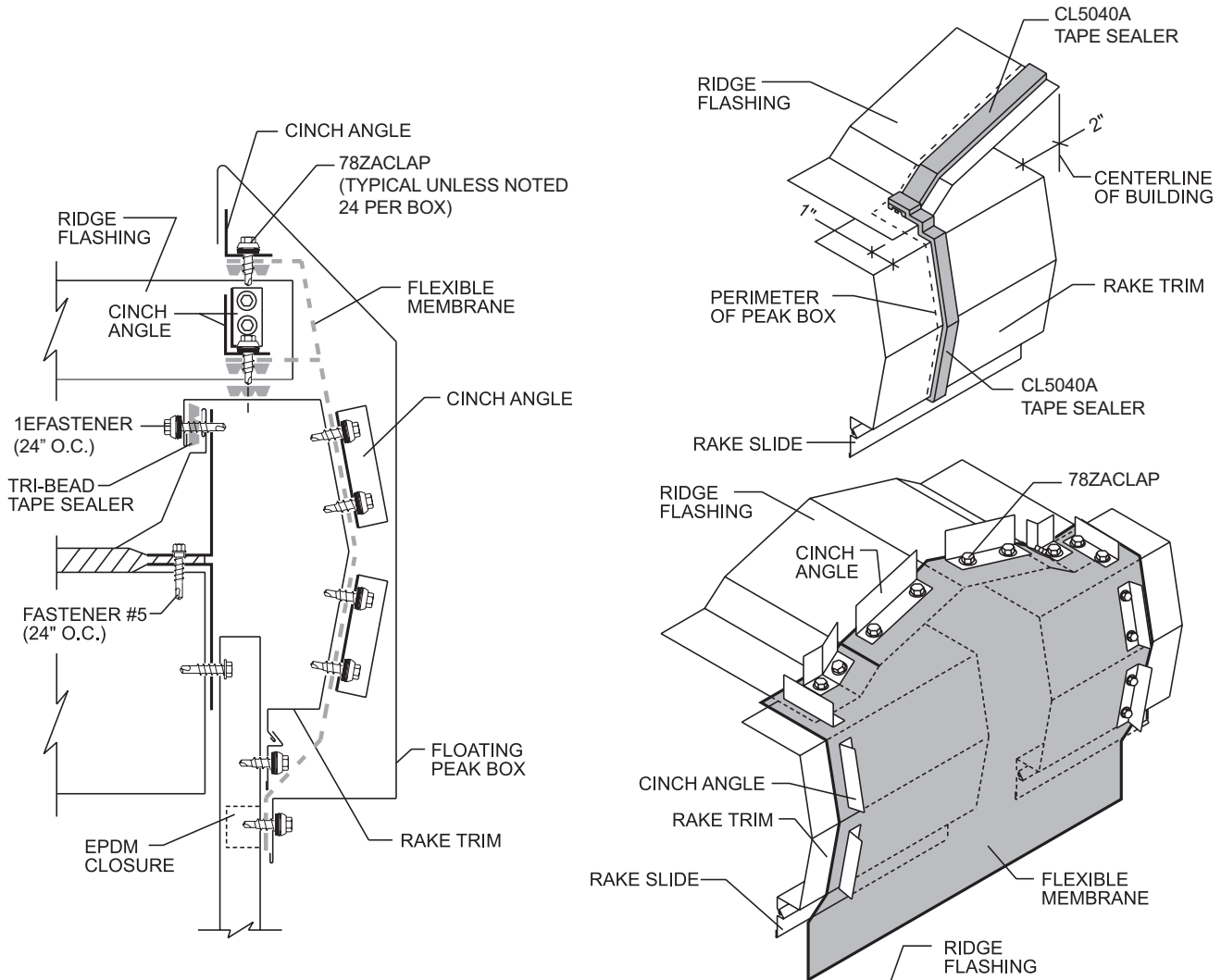
If you do not have a peak box, install a ridge end cap for each end of the ridge flashing.

Floating systems utilize a floating peak box, see page 34.

**NOTE**

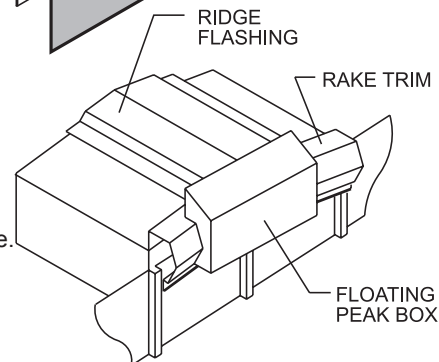
# TRIM DETAILS

## FLOATING PEAK BOX



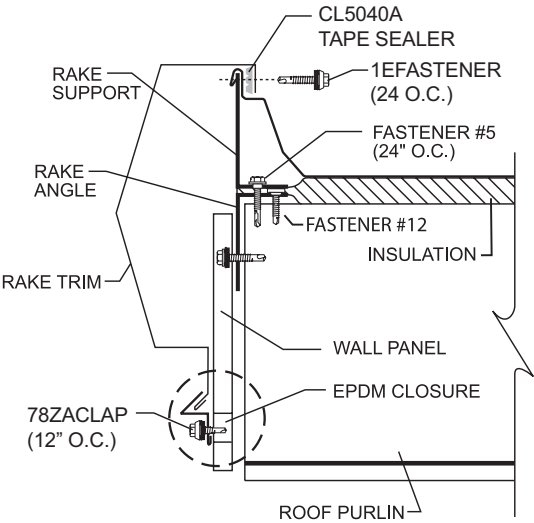
### FLOATING PEAK BOX INSTALLATION

1. Install rake trim on each side of ridge to within 2" of centerline of building.
2. Install ridge flash so that it is on top leg of rake trim, 1" back from outside edge.
3. Temporarily set peak box in place and mark perimeter of box on rake trim and ridge flash. Remove peak box.
4. Just inside mark, install tape sealer continuously across ridge flash, then down the face of rake trim on both sides of ridge.
5. Place flexible membrane over tape sealer and hold in place with cinch angles. Cinch angles should be attached with 78ZACLAP. To prevent leaks, flexible membrane should be tight against ridge flash and rake trim with no wrinkles at the sealed edges.
6. Hook top of peak box over cinch angles installed on top of ridge flash and attach bottom of peak box to endwall with 78ZACLAP.

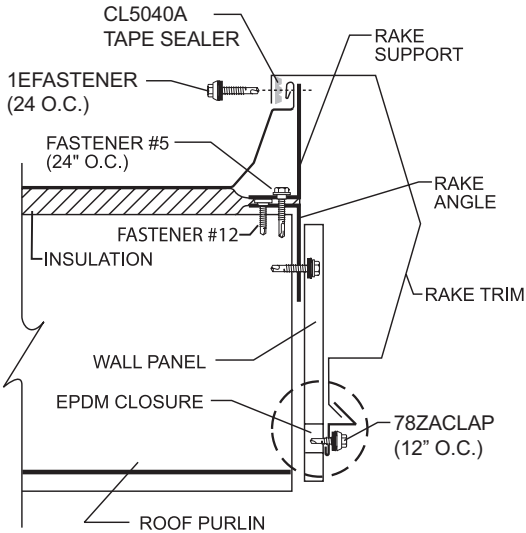


# TRIM DETAILS

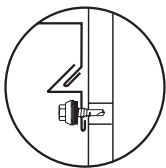
## RAKE



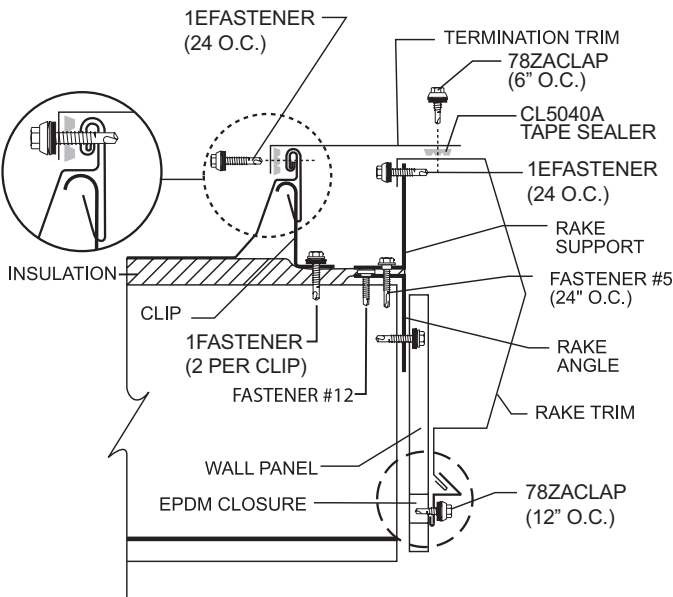
**BEGINNING RAKE TRIM**



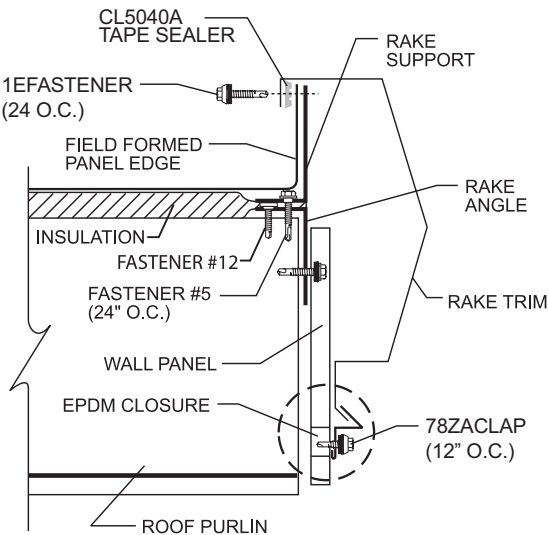
**TERMINATION RAKE TRIM ON MODULE**



**RAKE SLIDE**  
(FOR FLOATING SYSTEMS ONLY)



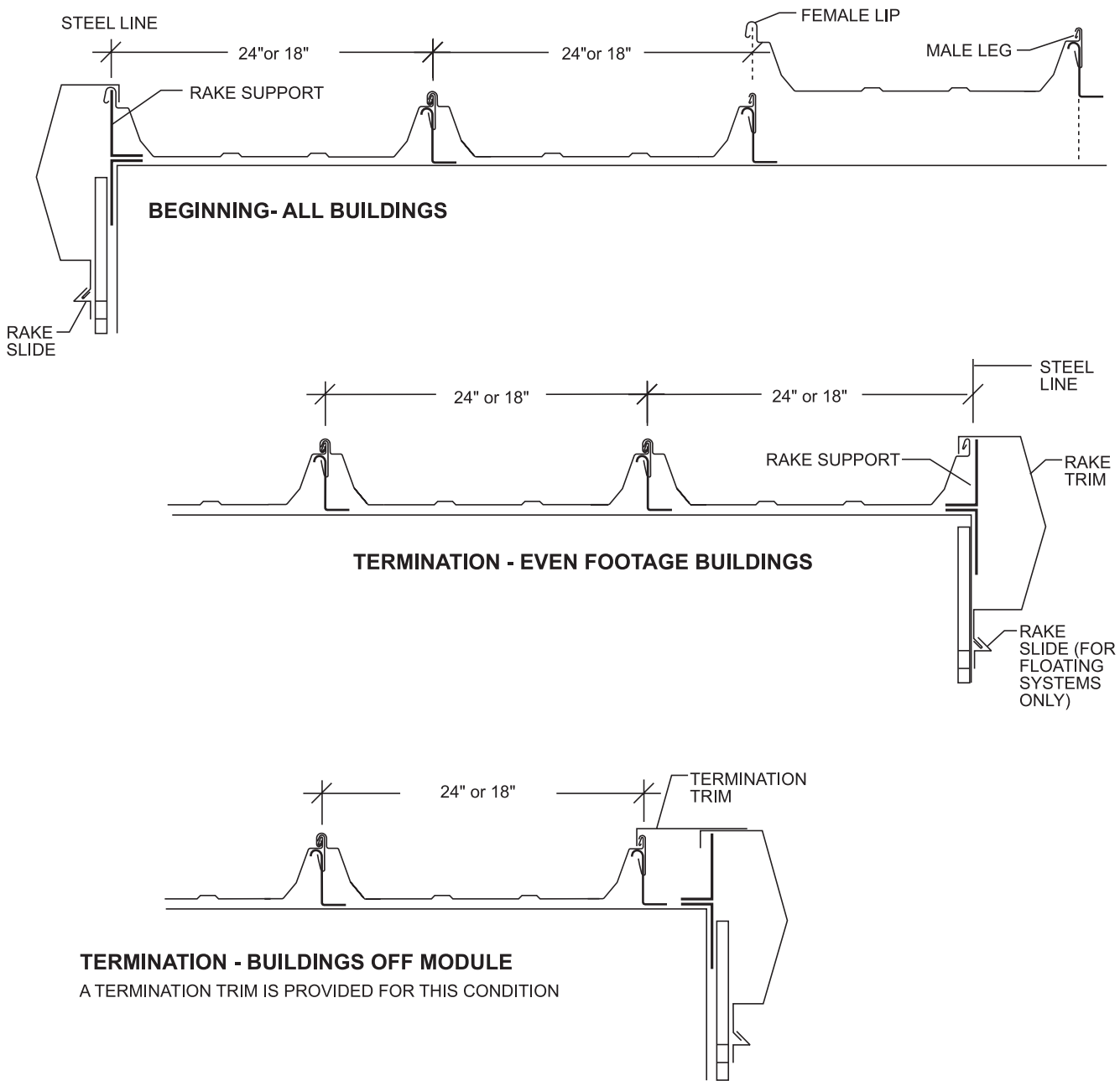
**TERMINATION RAKE TRIM OFF MODULE**



**TERMINATION RAKE TRIM OFF MODULE (OPTIONAL)**

# TRIM DETAILS

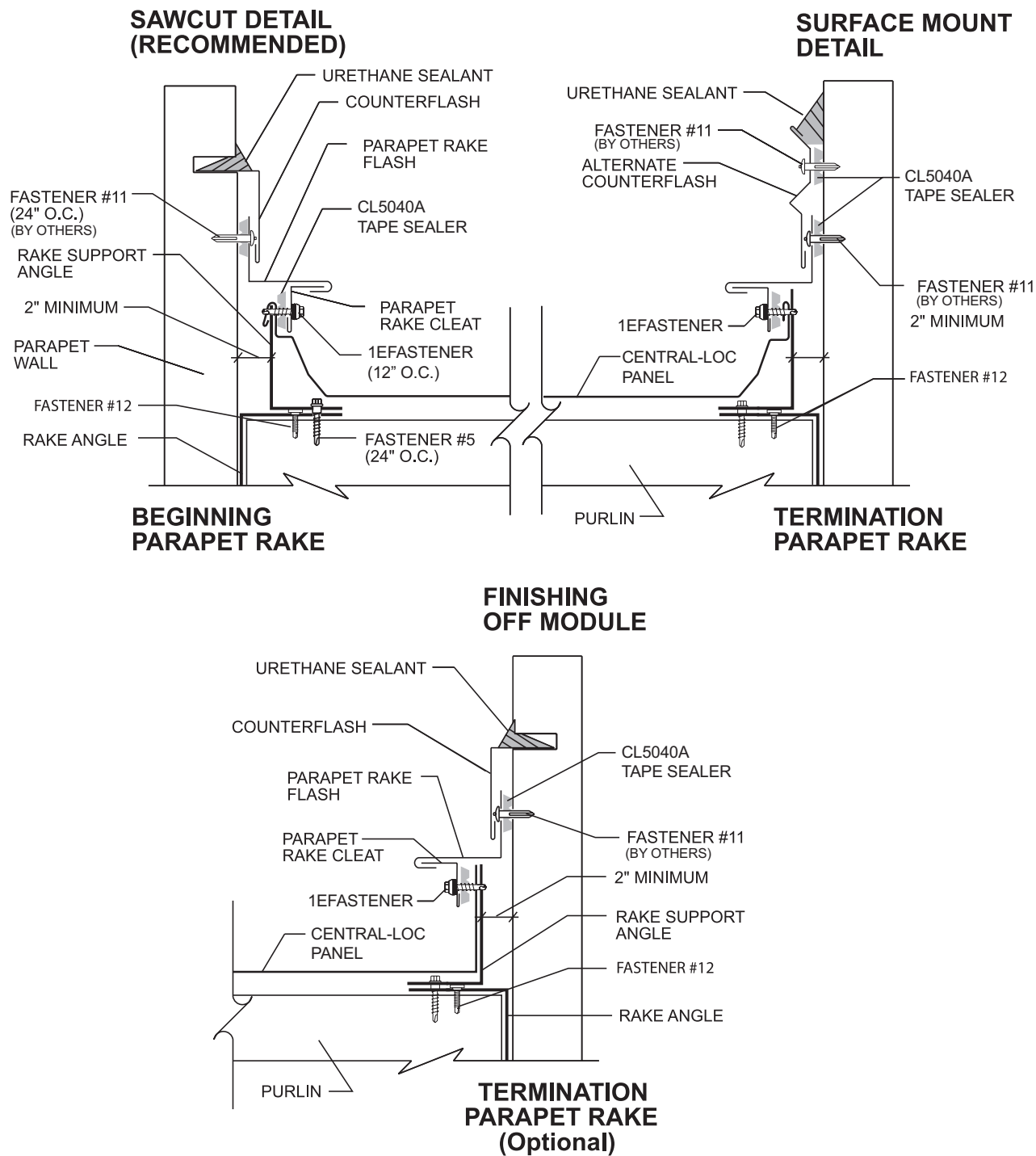
## RAKE TO RAKE





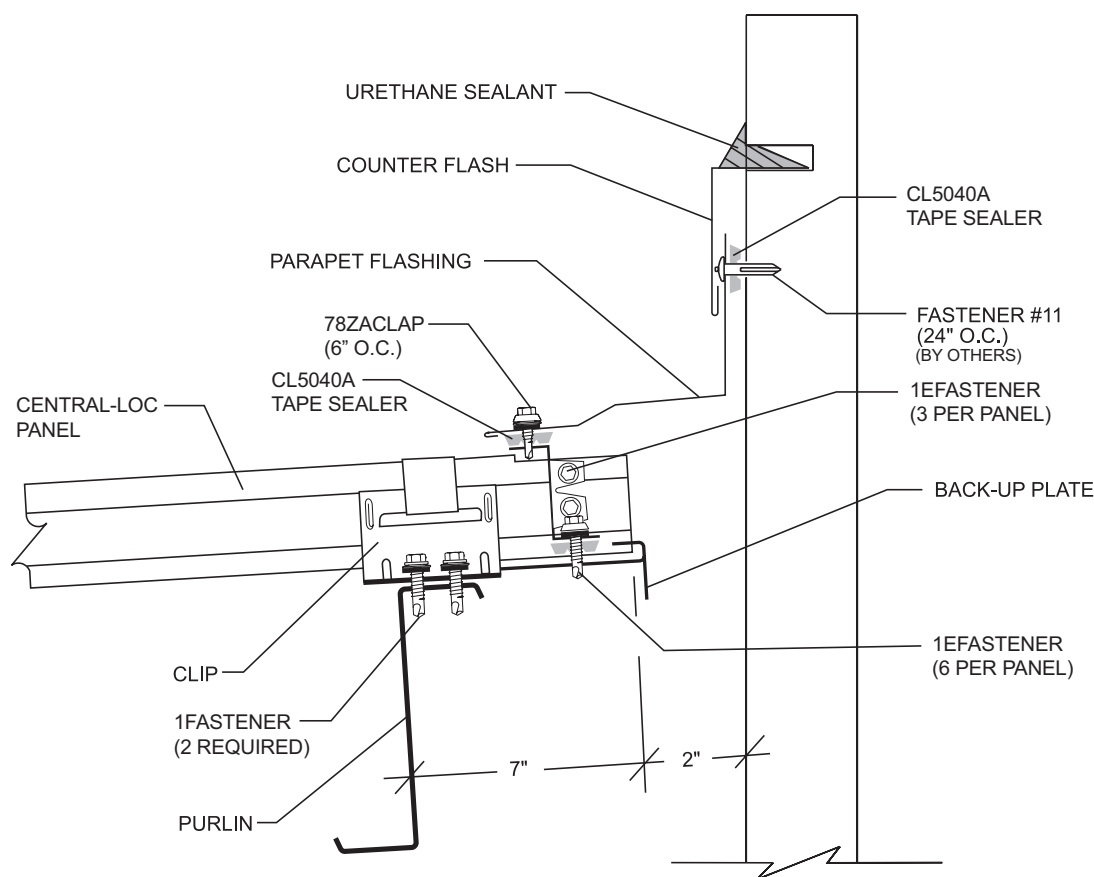
# TRIM DETAILS

## RAKE PARAPET



# TRIM DETAILS

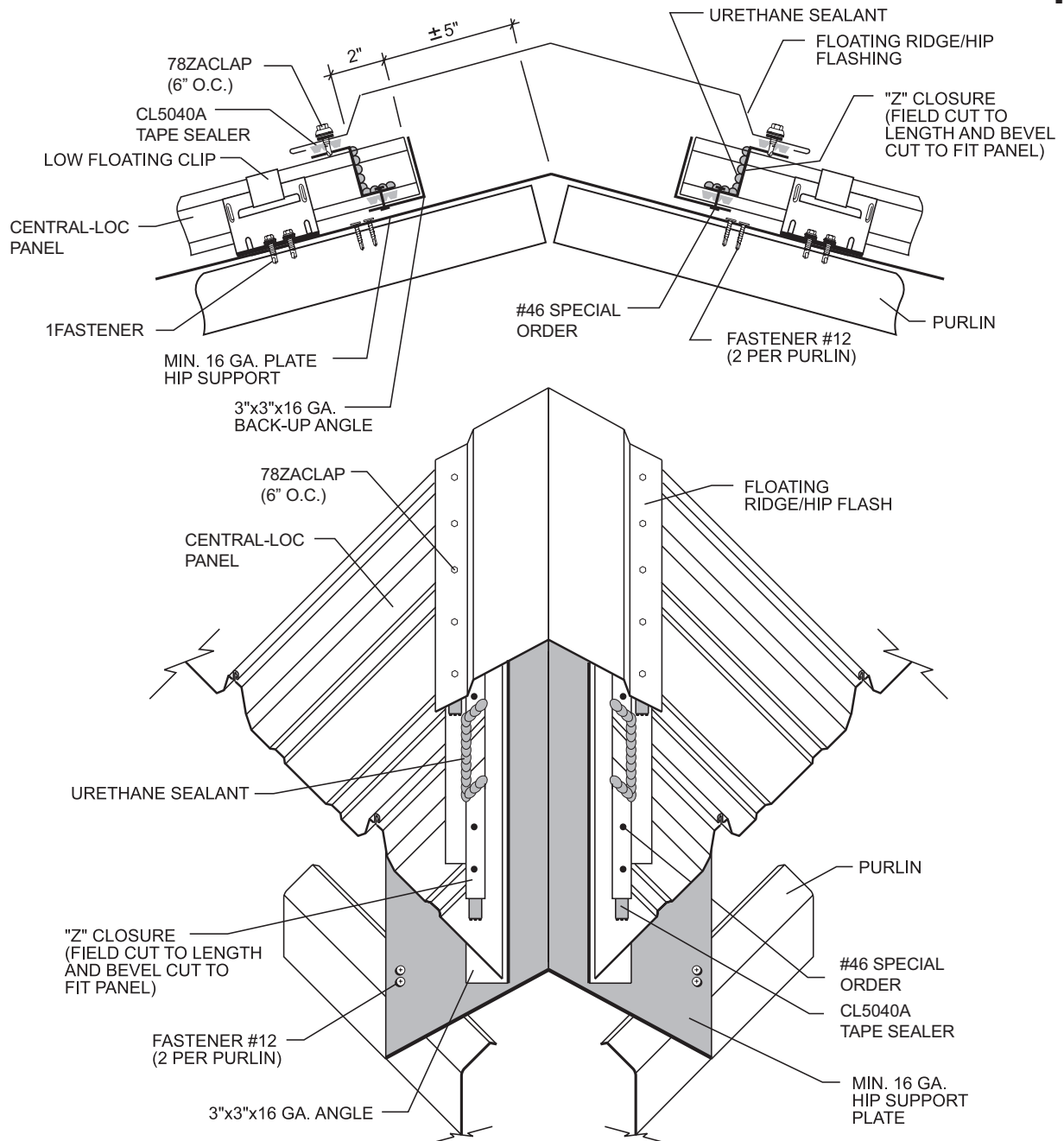
## HIGH EAVE PARAPET



High side purlin is 9" down slope.

# TRIM DETAILS

## HIP



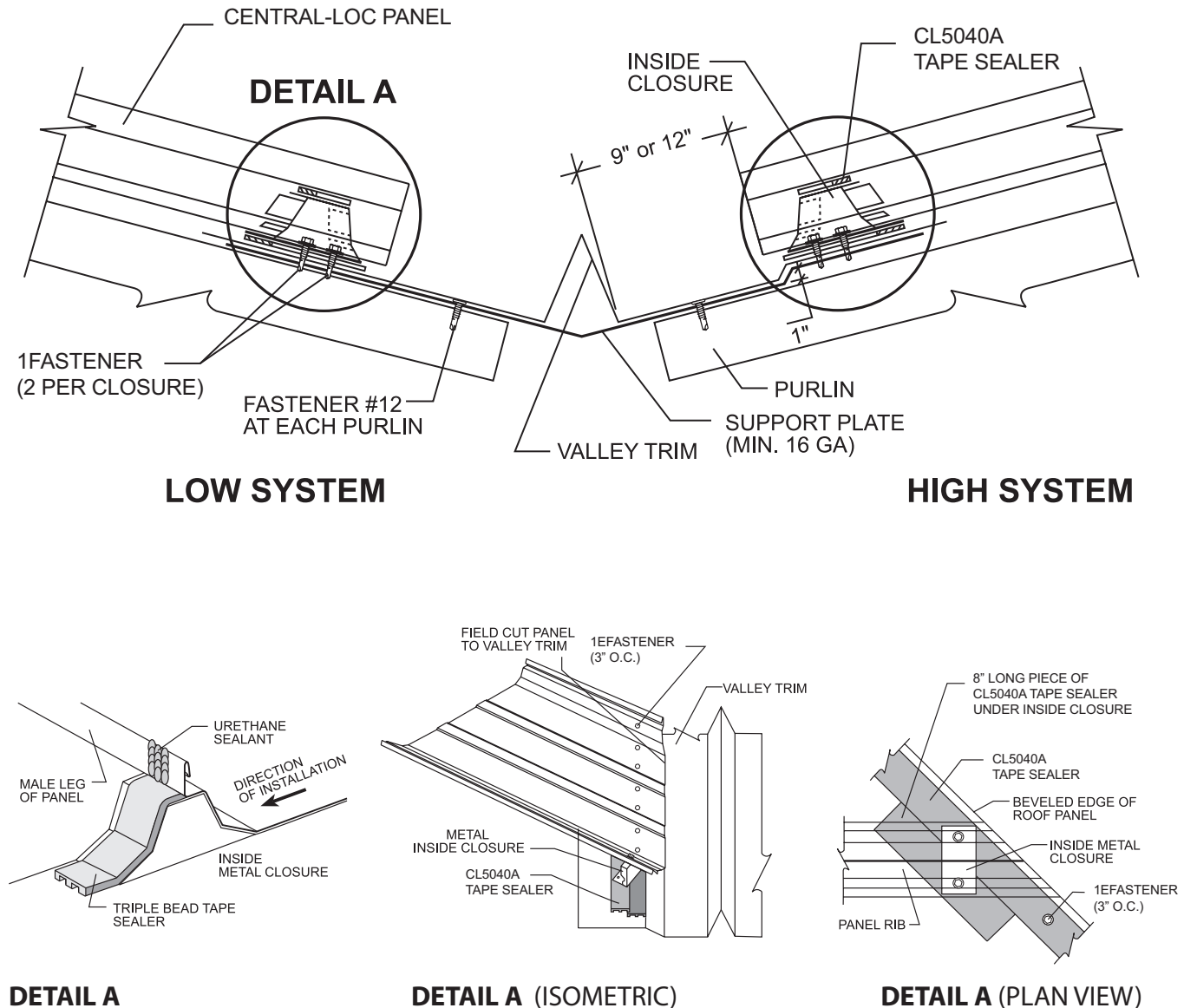
All trapezoidal panels are extremely difficult to install at hips and valleys in a weathertight manner. The use of these details should only be attempted by installation crews that are highly experienced.

In order to assure weathertightness, CSMI recommends one of its vertical leg standing seam systems for use on roofs that require hips and valleys.



# TRIM DETAILS

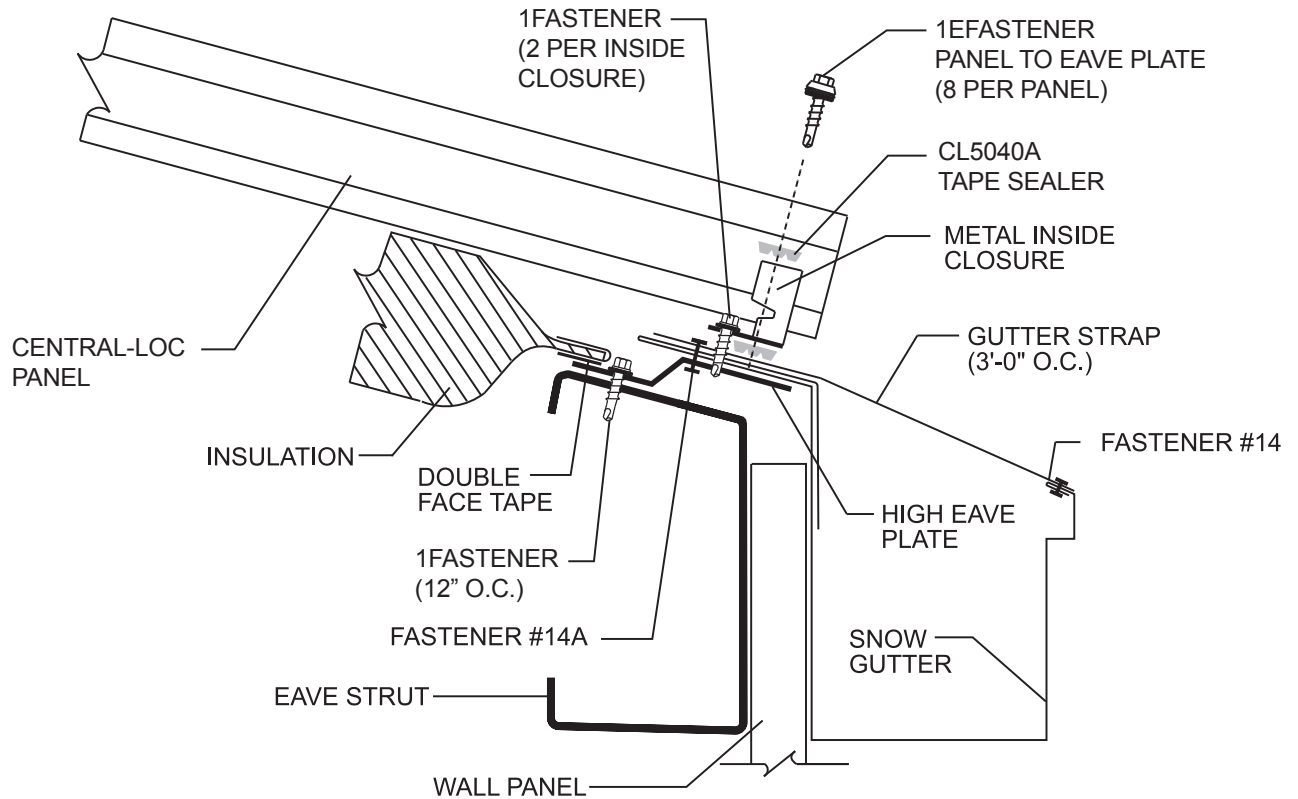
## VALLEY



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, CSMI recommends one of its vertical leg standing seam systems for use on roofs that require hips and valleys.

## SNOW GUTTER



### NOTES:

1. Attach gutter to eave plate with Fastener #14A (3 fasteners per 10' piece).
2. Install gutter straps 3'-0" O.C.
3. Apply CL5040A tape sealer to slope leg of gutter.
4. Use minor rib tape sealer to fill voids in panel at minor ribs as shown on page 23.
5. Install panel with 1EFASTENER at prepunched holes. **Panel must not overhang into gutter.**
6. Front top edge of gutter must not project above the plane of the panel pan.
7. Snow gutter is non-standard.

[illegible]





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## Specifications and special erection techniques



# SPECIFICATIONS

---

## SECTION 07610 - Metal Roofing

Specifier: Notation [#] means that text following is a specifier's note or sample.

### PART 1 - GENERAL

#### 1.01 DESCRIPTION

# Specifier: Do not alter paragraph A. except by adding section title in brackets.

A. General:

1. Furnish all labor, material, tools, equipment and services for all preformed roofing as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Structural steel: Section 05100.
2. Steel joists: Section 05200 or 05400.
3. Flashing and sheet metal: Section 07600.

# Specifier: Delete references to sections not used and add any references which become pertinent.

#### 1.02 QUALITY ASSURANCE

A. Applicable standards:

1. SMACNA: "Architectural Sheet Metal Manual" Sheet Metal and Air Conditioning Contractors National Association, Inc.
2. AISC: "Steel Construction Manual" American Institute of Steel Construction.
3. AISI: "Cold Form Steel Design Manual," American Iron and Steel Institute.
4. ASTM A792-83-AZ50: Specifications for steel sheet, aluminum-zinc alloy coated (galvanized) by the hot dip process, general requirements (Galvalume®).
5. ASTM E 1514-93: "Standard Specification for Structural Standing Seam Steel Roof Panel Systems", American Society for Testing and Materials.
6. UL: "Tests for Uplift Resistance of Roof Assemblies", Underwriters Laboratories, Inc.
7. UL: "Test Standard for Impact Resistance", Underwriters Laboratories, Inc.
8. ASTM E 1680-95: "Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems", American Society for Testing and Materials.
9. ASTM E 1646-95: "Standard Test Method for Water

Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference", American Society for Testing and Materials.

B. Manufacturer's qualifications:

1. Manufacturer has a minimum of three years experience in manufacturing metal roof systems of this nature. Panels specified in this section shall be produced in a factory environment (not job site roll formed) with fixed-base roll forming equipment assuring the highest level of quality control. A letter from the manufacturer certifying compliance will accompany the product material submittals.

C. Installation contractor's qualifications:

1. Installer of the system shall be an approved installer, certified by the manufacturer, before beginning of installation of the metal roof system, specifically for the Central-Loc® roof system and meet the following minimum criteria:
  - a. Maintain a \$250,000 general liability coverage for each loss.
  - b. Maintain sufficient worker's compensation coverage as mandated by law.
  - c. Has no viable claims pending regarding negligent acts or defective workmanship on previously performed or current projects.
  - d. Has not filed for protection from creditors under any state or federal insolvency or debtor relief statutes or codes.
- e. Project foreman is the person having received specific training in the proper installation of the specified system and will be present to supervise whenever material is being installed. Specific training program shall include the following: 1. The instructor must have a minimum of 10 years' experience. 2. A formal curriculum. 3. Classroom instruction with review and thorough understanding of the specific product's technical manual. 4. Hands-on mock-up instruction with a review and thorough understanding of the specific product's details. 5. The installer must pass a written and oral exam.
- f. Provide five references from five different architects or building owners for projects that have been in service for a minimum of two years, stating satisfactory performance by the installer.
- g. Provide certification letter that installer has a minimum of three years' of metal product installation experience immediately preceding the date upon which work is to commence.

# SPECIFICATIONS

## D. Pre-installation Conference:

1. Prior to installation of roofing system, conduct a pre-installation conference at the project site.
2. Attendance: Owner, Architect, Contractor, Project Superintendent, and Roof Applicator
3. Agenda:
  - a. Roofing details and agenda
  - b. Critical work sequencing and review of phasing plan
  - c. Inspection sequencing

## 1.03 SYSTEM PERFORMANCE REQUIREMENTS

### A. Performance Testing:

1. Metal roof system must be tested in accordance with Underwriters Laboratories, Inc. (UL) Test Method 580 "Tests for Uplift Resistance of Roof Assemblies".
2. Metal roof system must be installed in accordance with UL Construction method [# choose one]:
  - ☐ 180B (min. 14 gauge purlin, 5'-0" on center max. with 29 gauge "D" panel and low/high fixed/floating/ articulating clips. Rigid insulation to be min. 1" thick) or
  - ☐ 205 (min. 16 gauge purlin, 5'-0" on center max. with low/high fixed/floating clips) or
  - ☐ 205A (min. 16 gauge purlin, 5'-0" on center max with articulating clips, with Light Transmitting Panels) or
  - ☐ 286 (min. 5/8" plywood deck with fixed/articulating clips at 5'-0" on center max.) or
  - ☐ 308B (min. 14 gauge purlin, 5'-0" on center max., min. 1" thick rigid insulation and 22 gauge 1 1/2" deep metal deck with fixed, floating or articulating clips at 5'-0" on center max.) or
  - ☐ 534 (min. 16 gauge purlin, 5'-0 1/4" on center max. with low/high floating/articulating clips with Light Transmitting Panels) or
  - ☐ 535 (min. 16 gauge purlin, 5'-0 1/4" on center max. with low/high fixed/floating clips without Light Transmitting Panels) or
  - ☐ 536 (min. 1" thick rigid insulation and min. 22 gauge Type A, B, F, or N metal deck with low/high floating/ articulating clips at 5'-0" on center max.) or
  - ☐ 537 (min. 16 gauge purlin, 5'-0 1/4" on center max., min. 1" thick rigid insulation and 29 gauge 9/16" deep metal deck with floating clips at 5'-0 1/4" on center max.) or
  - ☐ 541 (min. 5/8" plywood deck with low/high floating/ articulating clips at 5'-0" on center max.). See the current UL Roofing Materials and Systems Directory for requirements of each Construction Method.
3. Resist the roof design pressures calculated in accordance with [# choose one: SBBCL, UBC, BOCA, ASCE or an applicable national or local building code]. Determine panel bending and clip-to-panel strength by testing in accordance with ASTM E 1592-95. Capacity for gauge, span or loading other than those tested may be determined by

interpolating test results.

4. Metal roof system must meet the air infiltration requirements of ASTM E 1680-95 when tested with a 6.24 PSF pressure differential with resulting air infiltration of 0.251 cfm/sq ft.
5. Metal roof system must meet the water penetration requirements of ASTM E 1646-95 when tested with a 12.00 PSF pressure differential with no uncontrollable water leakage when five gallons per hour of water is sprayed per square foot of roof area.
6. Metal roof system must qualify for a Class 4 rating when tested in accordance with Underwriters Laboratories, Inc. UL-2218 "Test Standard For Impact Resistance"

# Specifier: Select construction method for paragraph A.1. and applicable building code for paragraph A.2.

## 1.04 DESIGN REQUIREMENTS

### A. Roof Design Loads:

1. Design criteria shall be in accordance with [# choose one: MBMA, SBBCL, UBC, BOCA, ASCE or an applicable national or local building code.]
2. Dead Loads
  - a. The dead load shall be the weight of the SSSMR system. Collateral loads, such as sprinklers, mechanical and electrical systems, and ceilings shall not be attached to the panels.
3. Live Loads
  - a. The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load of -20 psf.
4. Roof Snow Loads
  - a. The design roof snow loads shall be as shown on the contract drawings.
5. Wind Loads
  - a. The design wind uplift for the roof system shall be as shown on the contract drawings. The design uplift force for each connection assembly shall be that pressure given for the area under consideration, multiplied by the tributary load area of the connection assembly. The safety factor listed below shall be applied to the design force and compared against the ultimate capacity. Prying shall be considered when calculating fastener design loads.
    - aa. Single fastener in each connection - 3.0
    - bb. Two or more fasteners in each connection. - 2.25
6. Thermal Loads
  - a. Roof panels shall be free to move in response to the expansion and contraction forces resulting from a total temperature range of \_\_\_\_°F during the life of the structure. [Choose temperature differential based on Max. and Min. for specific area IAW MBMA Climatological Data]

# SPECIFICATIONS

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# Specifier: Select applicable building code for paragraph A.1 Select Temperature differential for paragraph A.6.

## B. Framing Members Supporting the SSSMR System

1. Any additions/revisions to framing members supporting the SSSMR system to accommodate the manufacturer/fabricator's design shall be submitted for review and approval. New or revised framing members and their connections shall be designed in accordance with [AISC-] [AISI-] [SJI-] design specifications. Maximum deflection under applied live load, snow, or wind load shall not exceed [choose one: L/180, U240] of the span length.

## 1.05 SUBMITTALS

### A. Shop drawings:

1. Submit complete shop drawings and erection details, approved by the metal roofing manufacturer, to the architect (owner) for review. Do not proceed with manufacture of roofing materials prior to review of shop drawings and field verification of all dimensions. Do not use drawings prepared by the architect (owner) for shop or erection drawings.
2. Shop drawings show methods of erection, elevations and plans of roof and wall panels, sections and details, anticipated loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied and proposed identification of component parts and their finishes.

### B. Performance Tests:

1. Submit certified test results by a recognized testing laboratory or manufacturer's lab (witnessed by a professional engineer) in accordance with specified test methods for each panel system.

### C. Calculations:

1. Submit engineering calculations defining cladding loads for all roof areas based on specified building codes, allowable clip loads and required number of fasteners to secure the panel clips to the designated substructure.
2. Compute uplift loads on clip fasteners with full recognition of prying forces and eccentric clip loading.
3. Calculate holding strength of fasteners in accordance with submitted test data provided by Fastener Manufacturer based on length of embedment and properties of materials.
4. Submit drainage calculations for valley, gutter, and downspout designs for a rainfall intensity (inches per hour) of [# choose one: 5 year or 25 year recurrence] for a 5 minute duration. (See MBMA Low Rise Building Systems Design Manual Section A22 for Wind, Snow, Seismic, and Rain Data by County)
5. Submit thermal calculations and details of floating clip,

flashing attachments, and accessories certifying the free movement in response to the expansion/ contraction forces resulting from a total temperature differential of 110° F.

### D. Samples:

1. Submit samples and color chips for all proposed finishes.
  - a. Submit one 8 inch long sample of panel, including clips.
  - b. Submit two 3 inch x 5 inch color chip samples in color selected by the architect (owner).

### E. Warranty(s):

Metal roof system manufacturer, upon final acceptance for project, furnish a warranty.

1. Covering bare metal against rupture, structural failure and perforation due to normal atmospheric corrosion exposure for a period of 20 years.
2. Covering paint finish against chalking and fading for a period of thirty (30) years for roof panels and wall panels with the CentralGuard™ paint system.
3. Submit specimen copy of manufacturer's Weathertightness Warranty, including evidence of application for warranty and manufacturer's acceptance of the applicator and warranty conditions.

### F. Test Reports:

1. Submit Test Reports showing that metal panels meet the air infiltration requirements of ASTM E 1680-95 when tested with a 6.24 PSF pressure differential with resulting air infiltration of 0.251 cfm/sq ft.
2. Submit Test Reports showing that metal panels meet the water penetration requirements of ASTM E 1646-95 when tested with a 12.00 PSF pressure differential with no uncontrollable water leakage when five gallons per hour of water is sprayed per square foot of roof area.

### G. Metal roof system fabrication certification:

1. Submit a letter from the metal panel manufacturer certifying the Central-Loc® panels have been produced in a factory environment (not job site) with fixed-base roll forming equipment.

### H. Installation contractor's qualifications:

1. Submit certificate from manufacturer certifying that installer of the metal roof system has met all of the criteria outlined in "1.02 C. Installer's qualifications" and is an authorized installer certified by the manufacturer within one year of the beginning of installation of the metal roof system.
2. Submit the formal syllabus for the classroom and hands-on training.

# SPECIFICATIONS

3. Submit five references from five different architects or building owners for projects that have been in service for a minimum of two years, stating satisfactory performance by the installation contractor.

## 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

### A. Delivery:

1. Deliver metal roof system to job site properly packaged to provide protection against transportation damage.

### B. Handling:

1. Exercise extreme care in unloading, storing and erecting metal roof system to prevent bending, warping, twisting and surface damage.

### C. Storage:

1. Store all material and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation of metal roof system to prevent condensation build-up between each panel or trim/flashing component.

## 1.07 WEATHERTIGHTNESS WARRANTY

A. The Contractor shall provide to the Owner, a single source warranty signed by the roofing manufacturer of the Standing Seam Roof System as outlined below:

1. For a period of [choose one: twenty (20), fifteen (15), ten (10), or five (5)] years from the date of substantial completion, the roofing manufacturer WARRANTS to the Building Owner ("Owner"): that the roofing manufacturer's furnished roof panels, flashing, and related items used to fasten the roof panels and flashing to the roof structure ("Roof System") will not allow intrusion of water from the exterior of the roofing manufacturer's Roof System into the building envelope, when exposed to ordinary weather conditions and ordinary wear and usage. The Date of substantial completion is the date that is certified by the Architect, Owner, or Owner's Representative, when the roofing manufacturer's Roofing System is completed and accepted by or on behalf of the Owner.
2. The roofing manufacturer shall have the SOLE AND EXCLUSIVE obligation for all warranty work commencing on the date of substantial completion and under all circumstances, terminates on the [# insert appropriate number of years] year anniversary of the date certified as Substantial Completion of the roofing manufacturer's Roof System. During the period in which the roofing manufacturer has any warranty obligation, the roofing manufacturer shall take appropriate actions necessary to cause the non-performing portions of the Roof System to perform their proper functions.

### B. Roofing Manufacturer's Liability

1. The total liability of the roofing manufacturer under this warranty is [choose one: limited solely to two (2) times the cost of the roofing manufacturer's Roof System as invoiced to the roofing manufacturer's customer, or limited solely to four (4) times the cost of the roofing manufacturer's Roof System as invoiced to the roofing manufacturer's customer, or unlimited]. The roofing manufacturer shall have the right to charge to the liability account, all reasonable expenses (including, but not limited to, investigation expenses) incurred in satisfying the requirements of this warranty.

### C. Field Quality Control

1. During installation, provide for two on-site inspections of roof application by qualified technical representative of the manufacturer.
2. Upon completion of installation, provide final inspection by a technical representative of roofing manufacturer to confirm that roofing system has been installed in accordance with manufacturer's requirements.
3. At completion of project, submit manufacturer's quality report of field inspections, including final inspection punch list.

## PART 2 - PRODUCTS

Central-Loc's structural standing seam metal roof system; minimum slope of 1/4:12

### 2.01 MATERIALS

#### A. Metal roof system profile:

1. 3 inch high rib x [# choose one: 24 inch or 18 inch] wide panel.

#### B. Metal roof system style:

1. Trapezoidal rib, positive snap together, standing seam, utilizing male and female rib configurations, with factory applied hot melt mastic in female rib.

#### C. Gauge: [choose one]

1. 22 gauge (UL 90 rated - Underwriters Laboratories).
2. 24 gauge (UL 90 rated - Underwriters Laboratories).

#### D. Substrate:

1. Galvalume® steel sheet, minimum yield of 50,000 PSI.

#### E. Clip:

1. Two piece floating clip providing thermal expansion or contraction (UL 90 rated - Underwriters Laboratories).
2. One piece fixed clip 22 gauge with factory applied mastic

# SPECIFICATIONS

(UL 90 rated - Underwriters Laboratories).

- D. Curbs shall be constructed to match slope of roof and provide a level top surface for mounting equipment.
- E. Curb flanges shall be constructed to match configuration of roof panels.
- F. Curb manufacturer will provide their own curb structural support system that can be installed between the purlins that will allow proper thermal movement of the curb with the roofing system.
- G. Submit roof curb manufacturer's shop drawings to metal roof system manufacturer for approval before fabrication of curbs.

## 2.05 PREFABRICATED ROOF JACKS

- A. Pipe flashings shall be a one piece [# choose one: EPDM (ethylene propylene diene monomer) molded rubber boot having a serviceable temperature range of -60°F to 270°F (for standard applications) or neoprene molded rubber boot having a serviceable temperature range of -45°F to 250°F (for exposure to petrochemicals) or silicone molded rubber boot having a serviceable temperature range of -100°F to 450°F (for high temperature applications)] and shall be resistant to ozone and ultraviolet rays. Units shall have an aluminum flanged base ring. Do not install pipe flashings through any panel seams - install ONLY in the flat portion of the panel.

## PART 3 - EXECUTION

### 3.01 SURFACE CONDITIONS

- A. Examination:
  - 1. Inspect installed work of other trades and verify that such work is complete to a point where this work may continue.
  - 2. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions. This specifically includes verifying that secondary structurals and/or decking are installed to meet UL and building code requirements. Coordinate with metal roof system manufacturer to insure that reduced clip spacings at eave, rake, ridge and corner areas are accommodated.
- B. Discrepancies:
  - 1. In event of discrepancy, notify the architect (owner).
  - 2. Do not proceed with installation until discrepancies have been resolved.

### 3.02 INSTALLATION

- A. Install metal roof system so that it is weathertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.
- B. Install metal roof system in accordance with manufacturer's instructions and shop drawings.
- C. Provide concealed anchors at all panel attachment locations.

- D. Install panels plumb, level and straight with seams and ribs parallel, conforming to design as indicated.

### 3.03 ROOF CURB INSTALLATION

- A. Comply with metal roof system manufacturer's approved shop drawings, instructions and recommendations for installation of roof curbs. Refer to metal roof system manufacturer's standard installation details. Anchor curbs securely in place with provisions for thermal and structural movement.

### 3.05 CLEANING, PROTECTION

- A. Dispose of excess materials and remove debris from site.
- B. Clean work in accordance with manufacturer's recommendations.
- C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the architect (owner), any work that becomes damaged prior to final acceptance.
- D. Touch up minor scratches and abrasions.
- E. Do not allow panels or trim to come into contact with dissimilar metals such as copper, lead, graphite or cast iron. Water run-off from these materials is also prohibited. This specifically includes condensate from roof top A/C units.

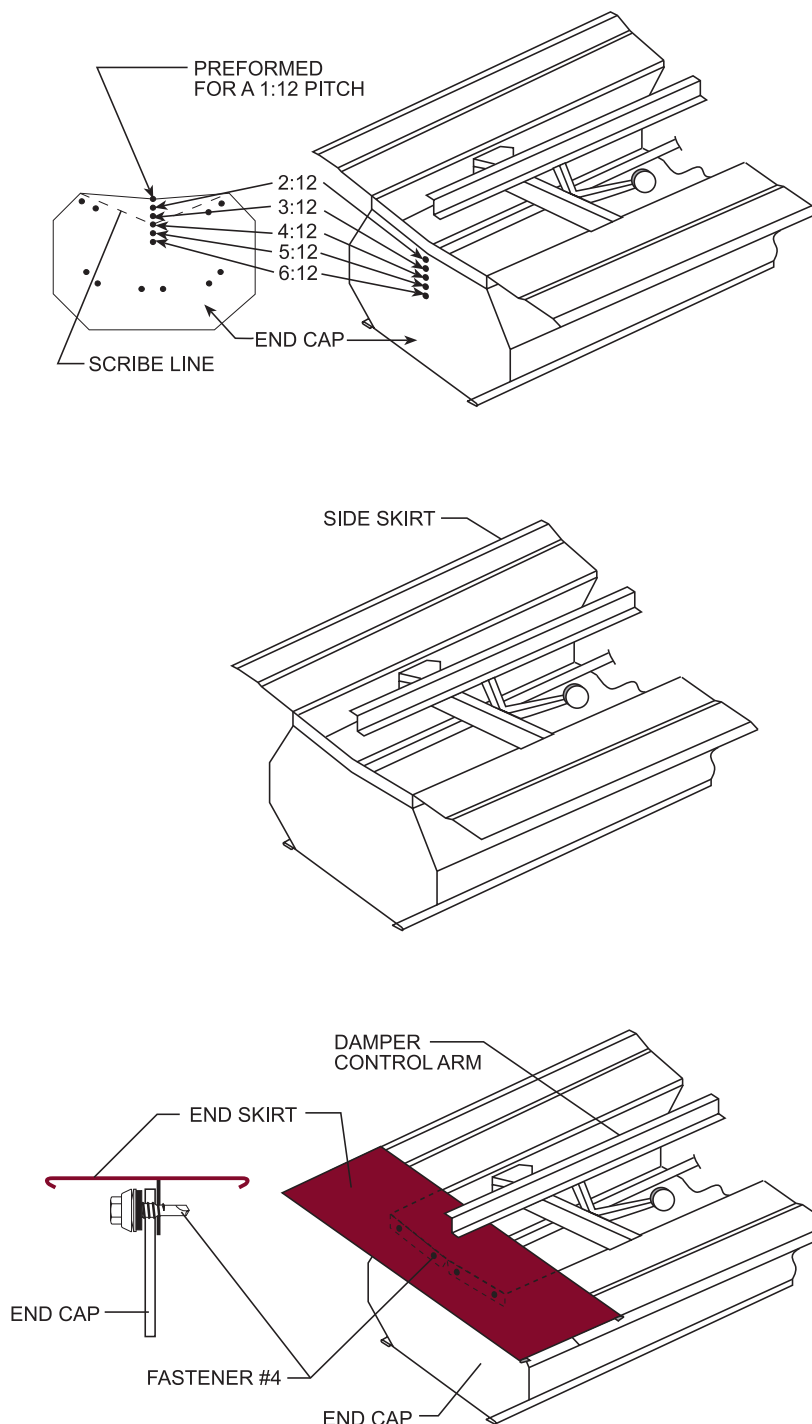
### END OF SECTION

**DISCLAIMER:** *Central States® makes no warranty, express or implied, as to the merchantability or fitness for any particular purpose of any product manufactured by an optional manufacturer. If you choose to use a product manufactured by an optional manufacturer, as defined herein, you take the product as is and at your own risk. Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. Central States® reserves the right to discontinue products at any time or change specifications and/or designs without notice and without incurring obligation.*

**To insure you have the latest information available, please contact Central States® or visit [www.centralstatesmfg.com](http://www.centralstatesmfg.com).**



# SPECIAL ERECTION TECHNIQUES



## RIDGE VENTILATOR INSTALLATION

### NOTE

CSMI 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 SSR 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.

Reposition 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 #4 in four places.

# SPECIAL ERECTION TECHNIQUES

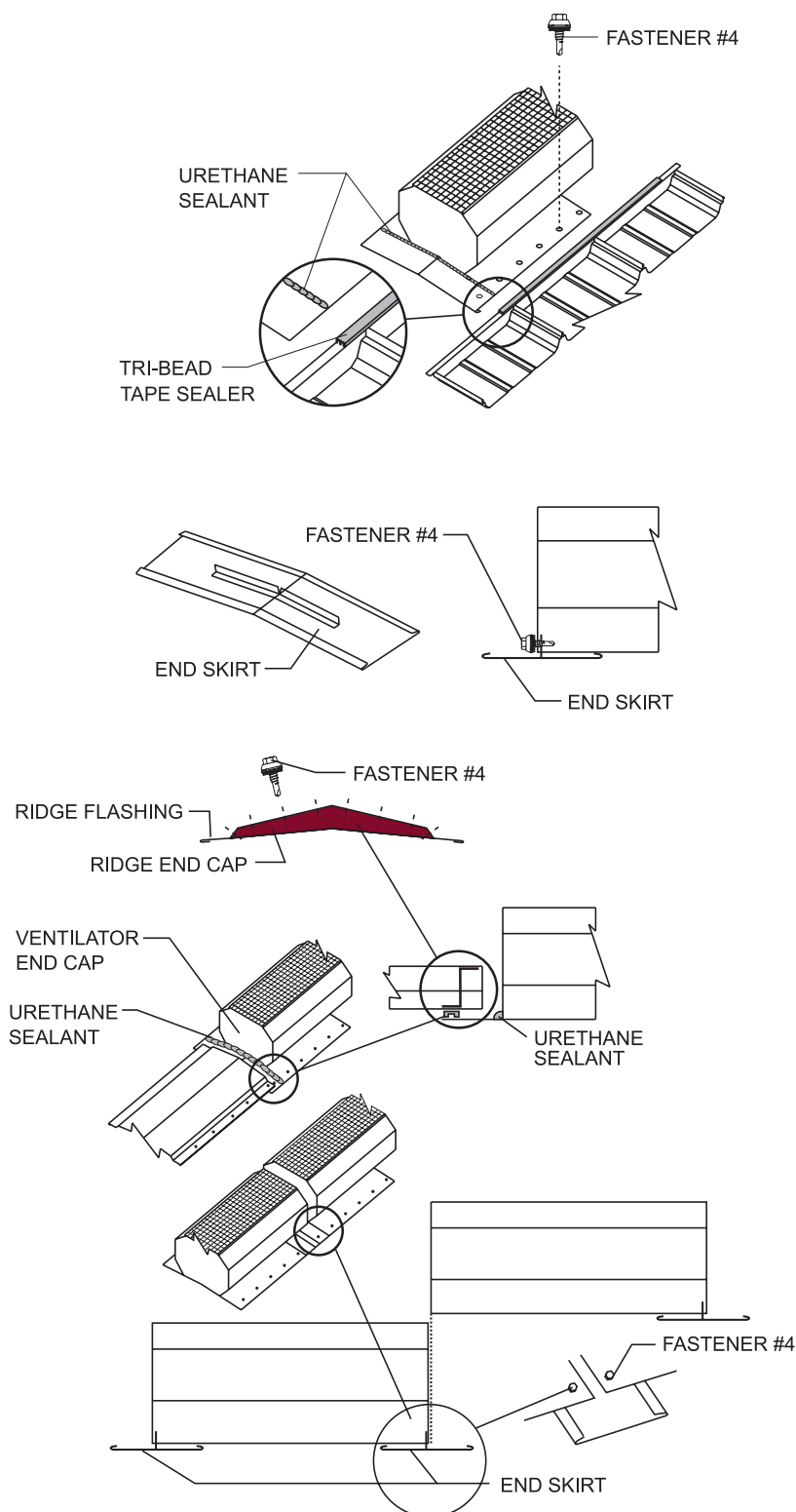
## RIDGE VENTILATOR INSTALLATION (CONTINUED)

Apply Tri-Bead tape sealer to top of outside closures. Install ventilator making sure to center in opening. Attach ventilator to outside closures with Fastener #4 on 6" centers. Use urethane sealant 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 Tri-Bead tape sealer to seal the ridge end cap to the ridge flashing and the end skirt. Use Fastener #4 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 outside closures as outlined above. Install an additional Fastener #4 through the corner of the side skirt and into the end skirt.

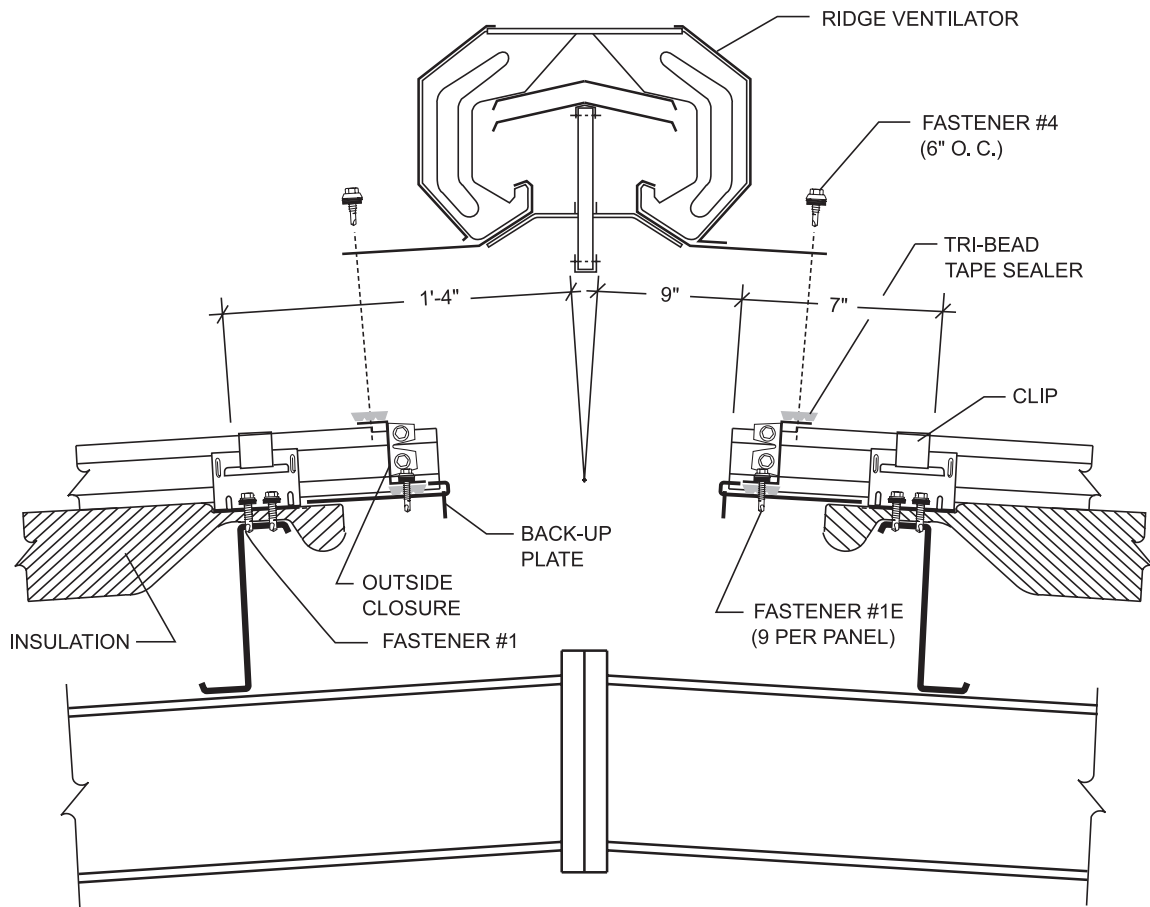
Do not connect more than 4 vents to the same linkage.





# SPECIAL ERECTION TECHNIQUES

## RIDGE VENTILATOR



### NOTES:

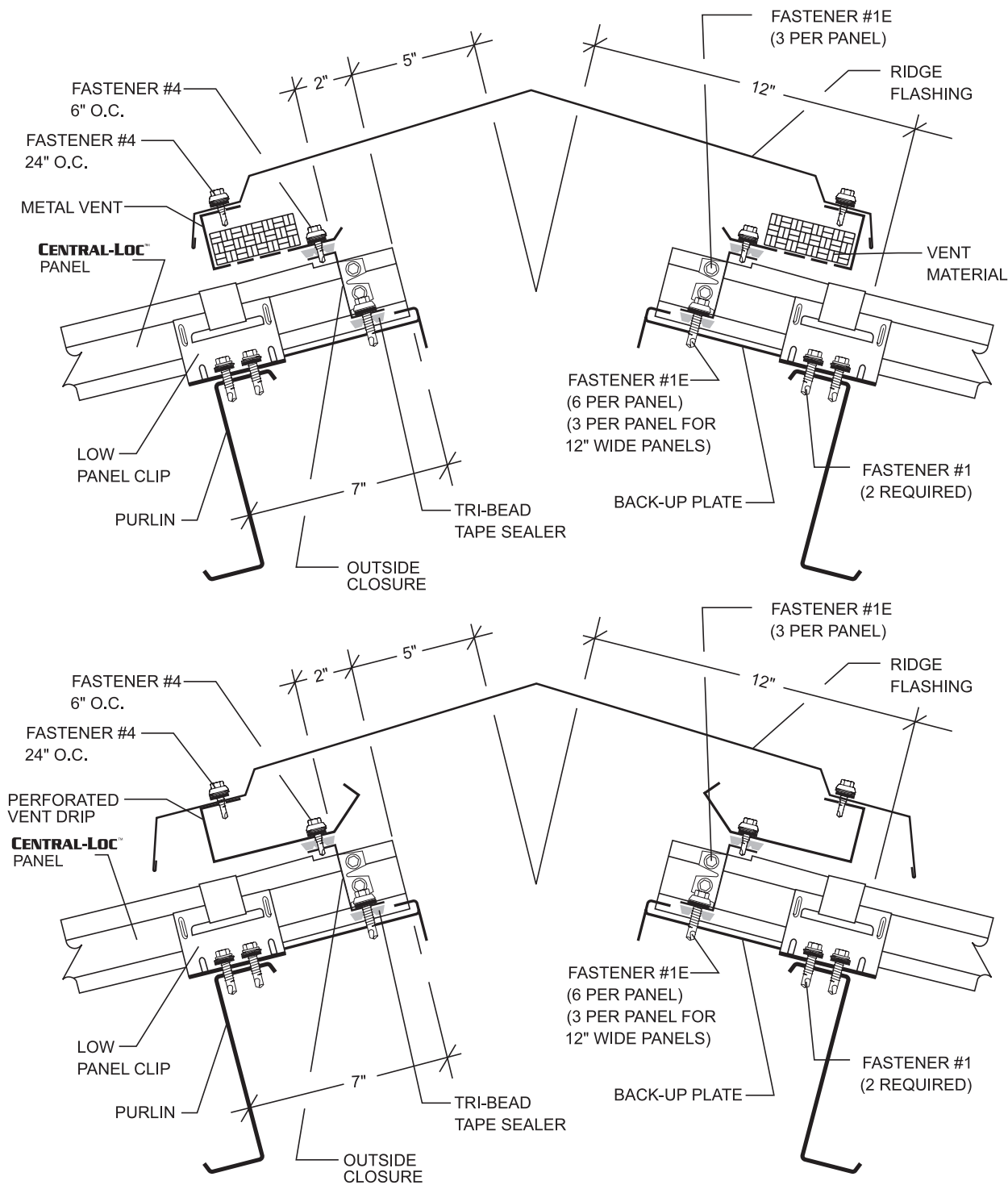
ONLY 9" RIDGE VENTILATORS CAN BE USED WITH THIS SSR SYSTEM.

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

**SEE PRODUCT GUIDE FOR FASTENER SELECTION.**

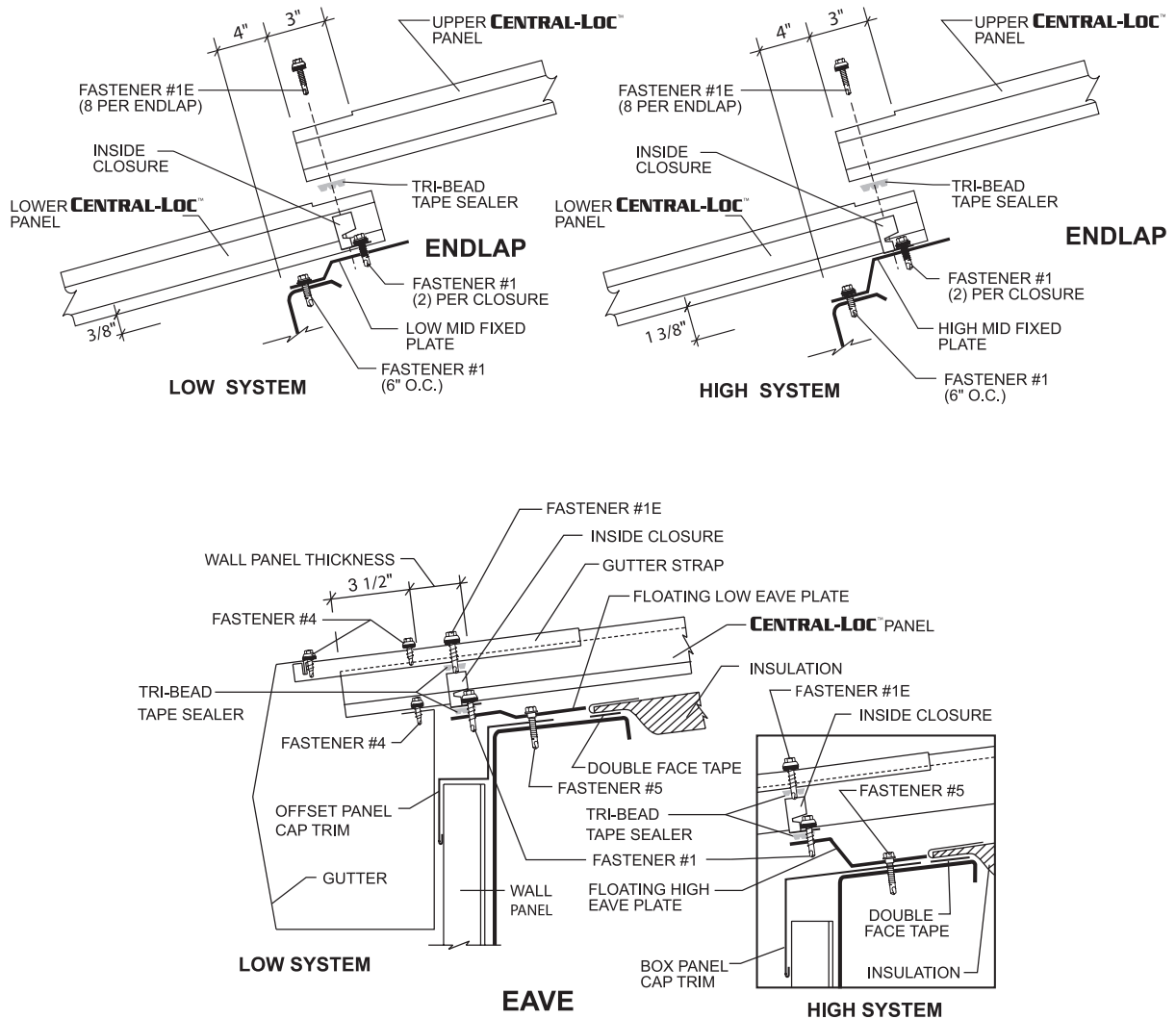
# SPECIAL ERECTION TECHNIQUES

## VENTED RIDGE



# SPECIAL ERECTION TECHNIQUES

## MID SLOPE FIXED CONDITION



### 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 5.
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" in each direction. Articulating 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.

# SPECIAL ERECTION TECHNIQUES

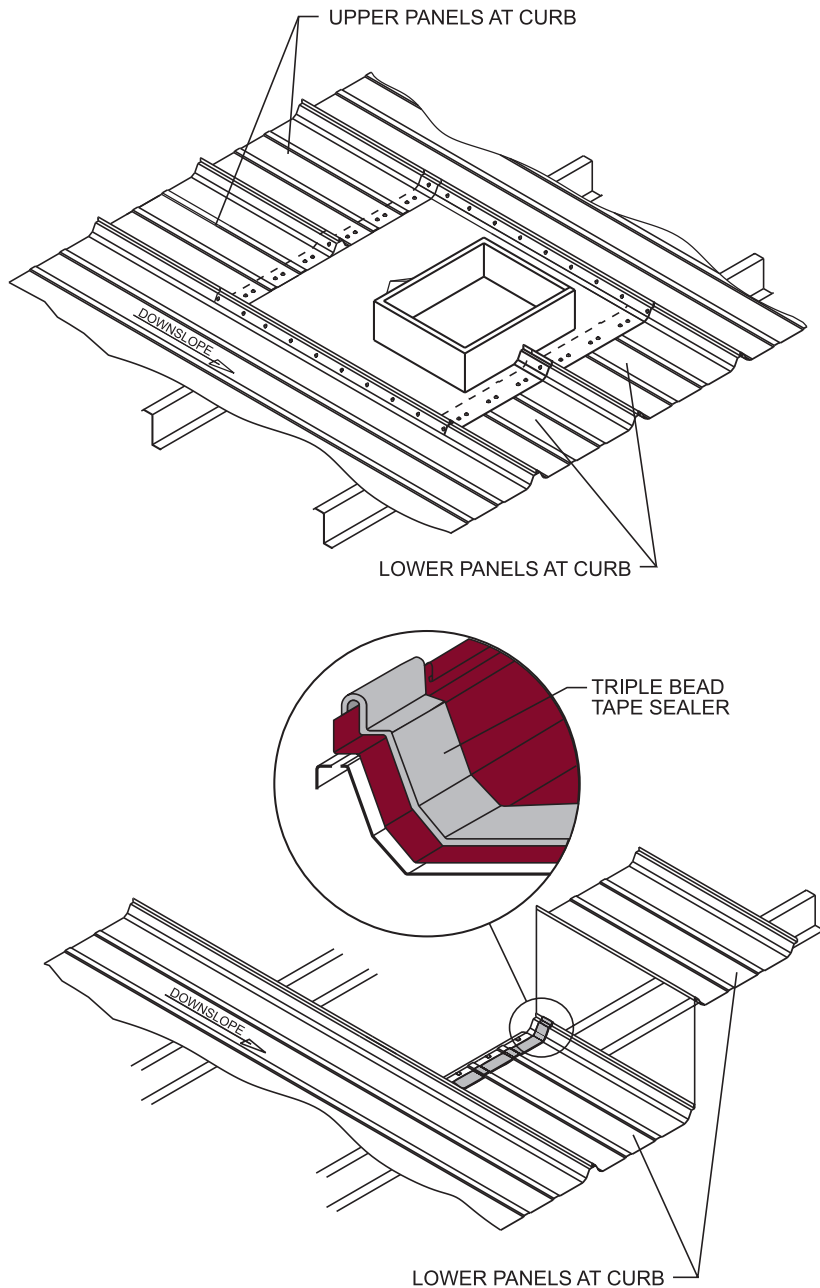
## ROOF CURB INSTALLATION

CSMI recommends that only one-piece aluminum curbs, such as those manufactured by LM Curb (800-284-1412) be used on its standing seam roof systems. The curb flange is constructed to match the configuration of the panel. The side flanges extend to the next natural seam in the roof panels and conform 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 upslope end and on top of the roof panels on the downslope end. Support framing should be supplied by the curb manufacturer. Back-up plates (for the roof panels at the down 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.

### INSTALLING CURB WITH ROOF

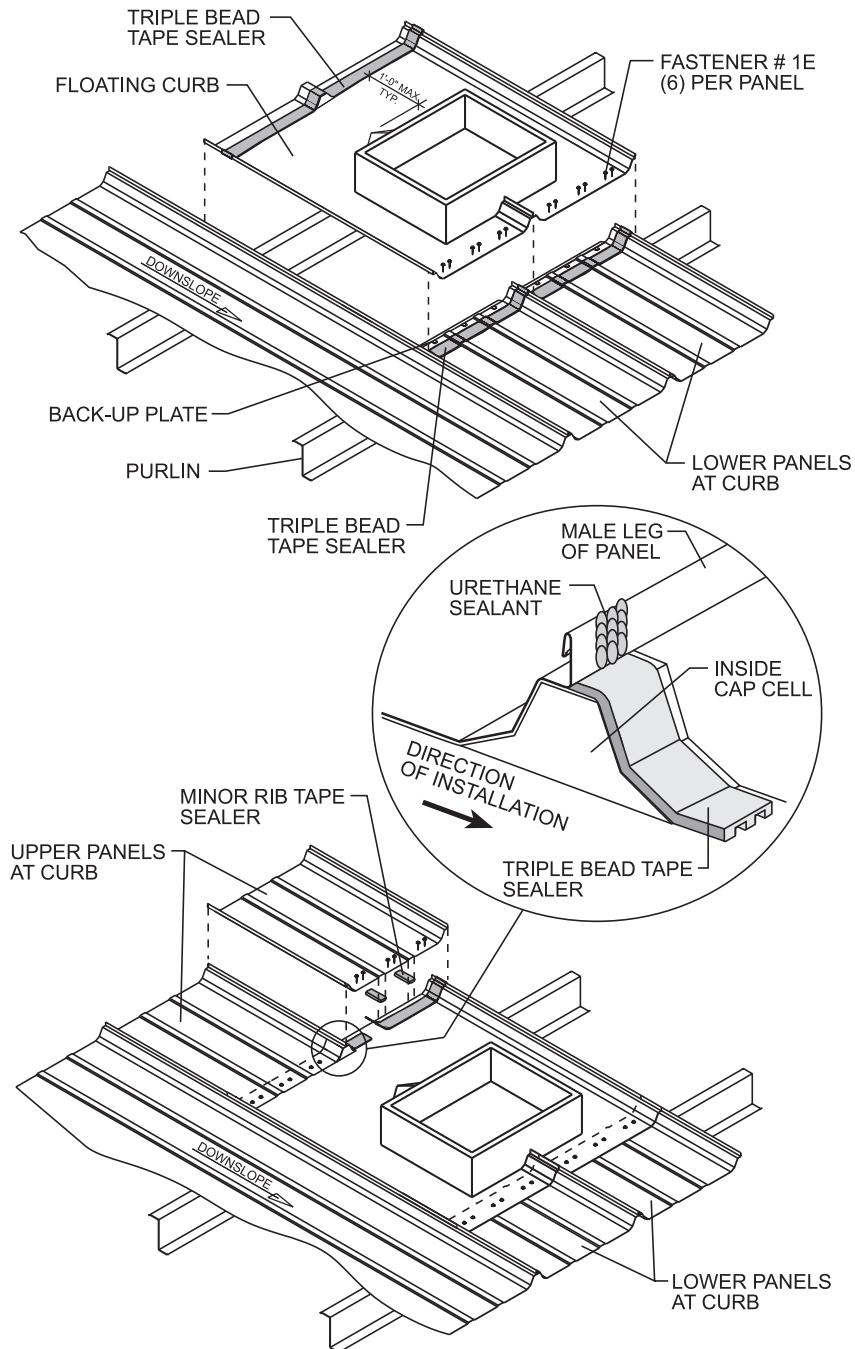
Install curb support framing at curb location. Install full length roof panels up to curb location. Install lower panels at downslope end of curb. **If the lower panels are field cut to length, you must (1) cut the downslope end, leaving a factory cut at the curb end or (2) if the curb end of the panel 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.



# SPECIAL ERECTION TECHNIQUES

## INSTALLING 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 #1E 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.



Install Triple Bead tape sealer across the width of the upslope 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 #1E 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 urethane sealant 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.

# SPECIAL ERECTION TECHNIQUES

## INSTALLING CURB WITH ROOF (Continued)

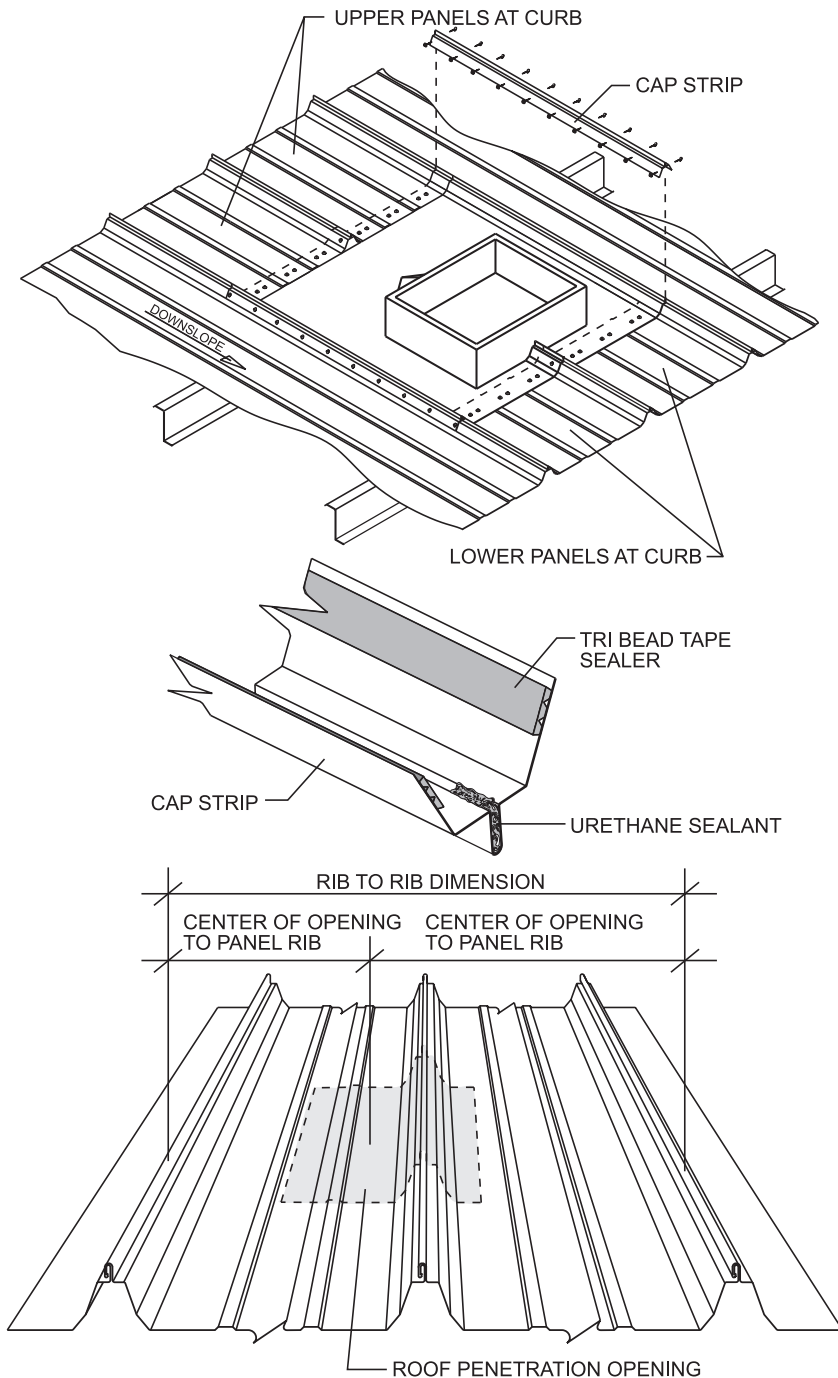
After all upper panels have been installed, install full length panel at side of curb. This panel will engage the male leg of the adjacent upper and lower panels. The female leg of this full length panel will overlap the leg of the roof curb.

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 Tri Bead tape sealer 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 #4 at 6" on center.

## INSTALLING 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.





# SPECIAL ERECTION TECHNIQUES

## INSTALLING CURB AFTER ROOF (Continued)

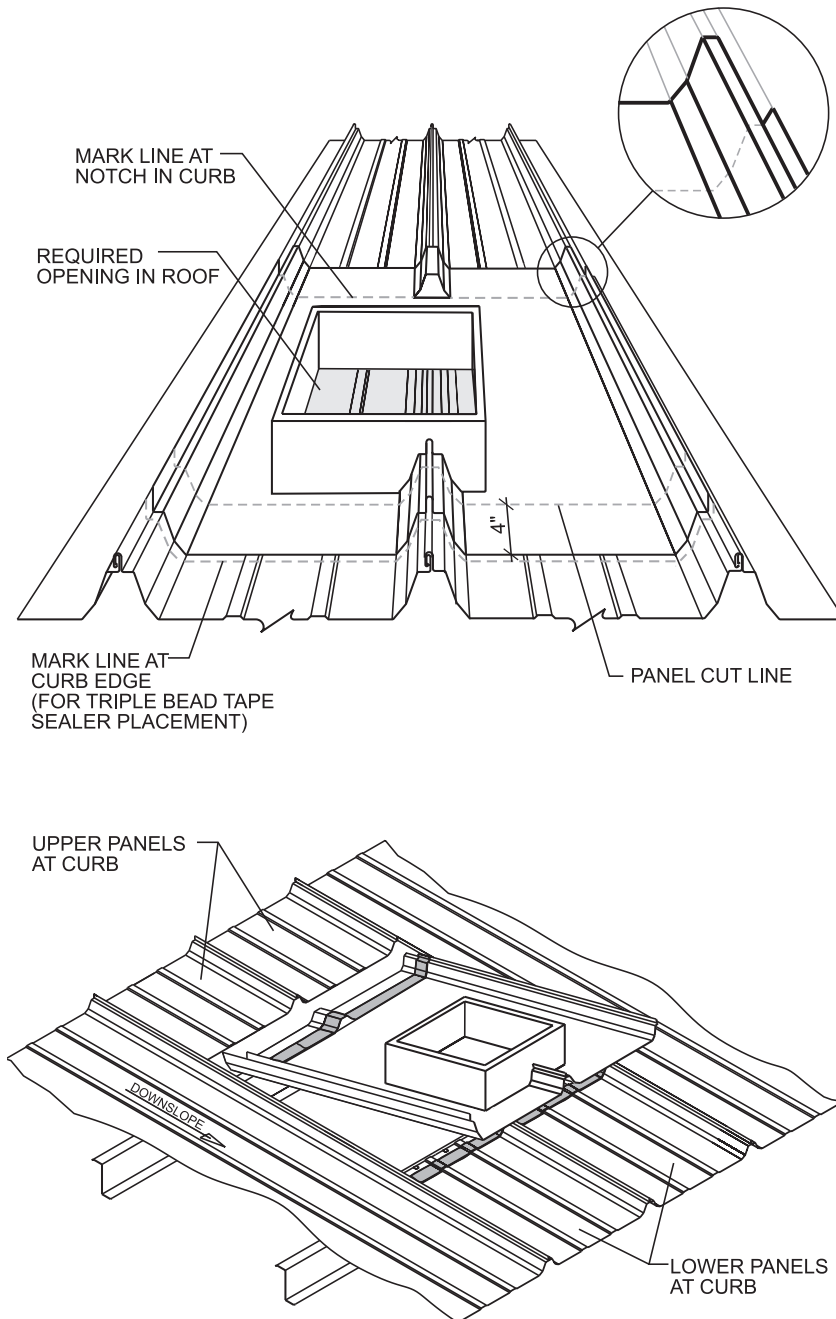
Once curb is ready to be installed, lay curb on roof and align opening in the curb with the exact location the opening is required in the roof. At the up slope end of the roof curb, the roof panels will be cut on a line even with the beginning of the notch at the vertical leg on each side of the roof 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 tape sealer 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 downslope 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 tape sealer 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.

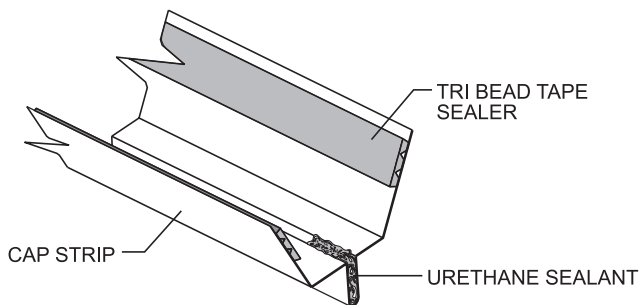
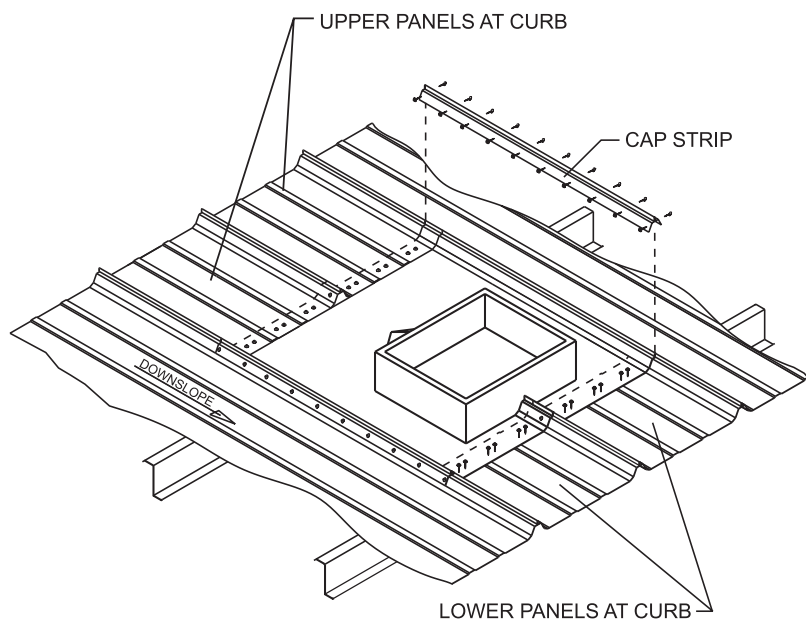
Install the roof curb under the roof panels at the up slope end and on top of the panels at the down slope end. This will require that you lift the roof panels up slightly at the up slope end to allow the upper flange of the roof curb to slide under the panels. Spray some soapy water on the tape sealer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



# SPECIAL ERECTION TECHNIQUES

## INSTALLING CURB AFTER ROOF (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 Tri Bead tape sealer 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 #4 at 6" on center.



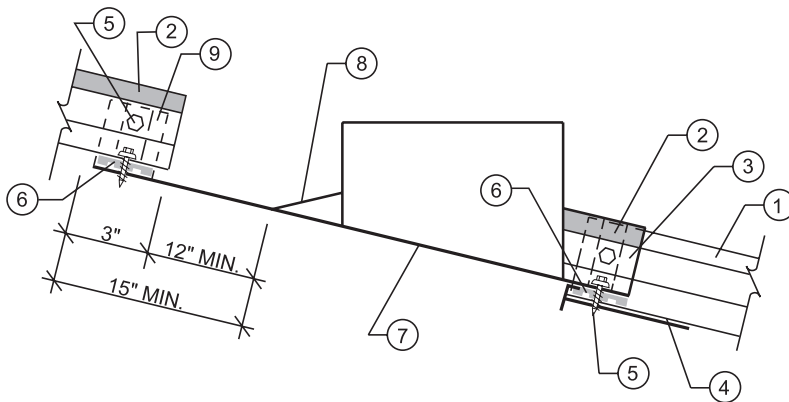


# SPECIAL ERECTION TECHNIQUES

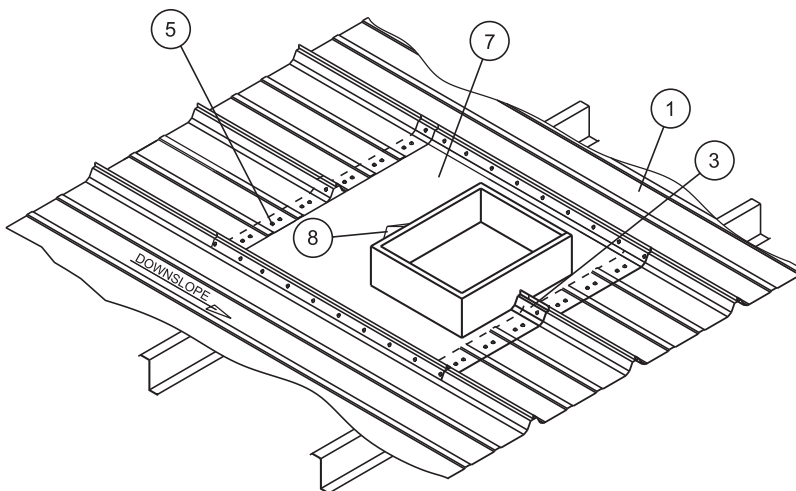
## ROOF CURB CROSS SECTION

1. **CENTRAL-LOC®** Panel
2. Urethane Sealant
3. Outside Cap Cell
4. Back-up Plate
5. Fastener #1E
6. Triple Bead Tape Sealer
7. Roof Curb
8. Water Diverter
9. Inside Cap Cell

## ROOF CURB CROSS SECTION



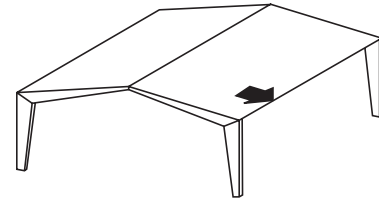
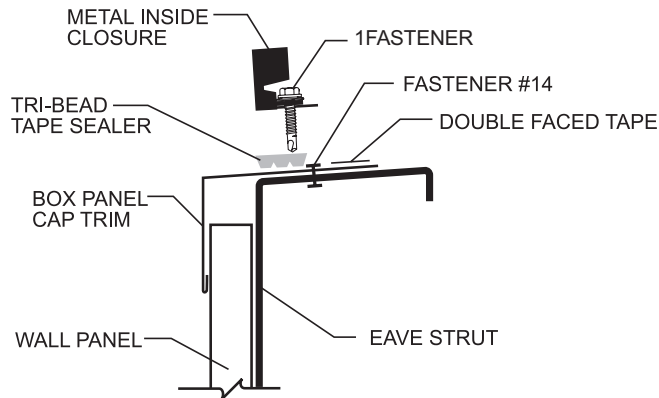
## ROOF CURB ISOMETRIC



Curbs can be ordered from LM Curbs at 1-800-284-1412.

## STEP 2B

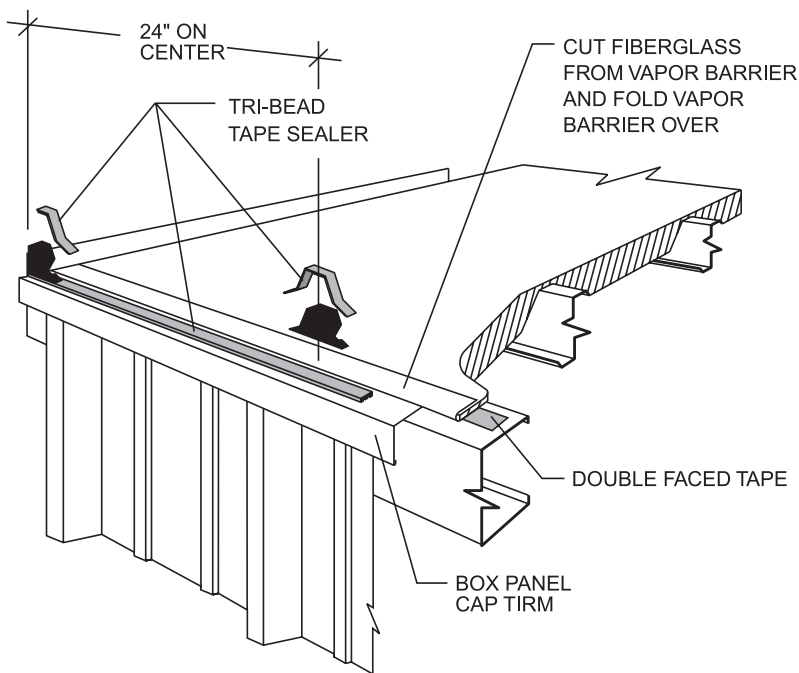
# ERECTION SEQUENCE



## LOW SYSTEM EAVE WITH NO EAVE PLATE

Using 1FASTENER, 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 1FASTENER. 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 CL5040A 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 (downslope) 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 (upslope).

The fiberglass insulation must not interfere with the CL5040A tape sealer which provides a positive seal at the eave.

