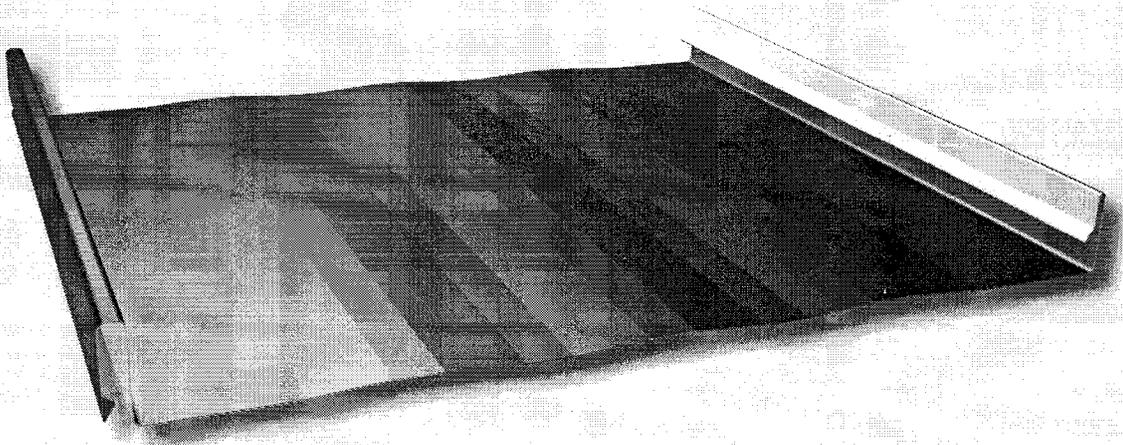




STEEL BUILDINGS, INC.

Weather Snap-16

TECHNICAL/ERECTION INFORMATION



WWW.WHIRLWINDSTEEL.COM



WHIRLWIND STEEL BUILDINGS, INC.

8234 Hansen Rd. | Houston, TX 77075 | (Phone) 713.946.7140 | (US Wats) 800.324.9992

Weather Snap-16®

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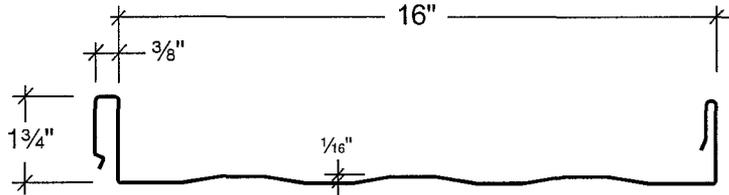
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Weather Snap-16[®]

ROOFING SYSTEMS



GENERAL DESCRIPTION



Coverage Width - 16"

Minimum Slope - 3:12

Panel Attachment - Standard and UL90 Clips (concealed fastening systems)

Panel Substrate - Galvalume[®] (standard)

Gauge: 24 Optional: 22

Finishes - Striated (standard)*

Coatings - KYNAR 500[®]

Other colors, finishes, gauges, and materials may be available; please inquire.

* Striated panels are standard to reduce "oil canning".



ARCHITECT/ENGINEER/ERECTOR INFORMATION

1. The minimum recommended slope is 3:12. For slopes less than 3:12, call Whirlwind.
2. Roofs with no endlaps may be erected from either direction. For panel lengths over 45', please inquire.
3. Panels can be installed on roofs with a transition by using Whirlwind's die-formed rib covers.
4. Heavier gauges and striations minimize oil canning. **Oil canning is not a cause for rejection.**
5. The substructure (eave to ridge) must be on plane with a tolerance of 1/4" in 20' and 3/8" in 40'.
6. All panels require end sealant at eave and valley conditions; however, for illustration purposes, this sealant is not shown on all drawings. See Page **WS-14** for panel end sealant detail.
8. For proper fastener application, see Page **WS-7** and **WS-8**.
9. All drawings and trim dimensions in this manual are based on a 1 1/4" wall thickness (Super Span Panel). Other wall panel thicknesses may affect various dimensions on drawings and trim. If you have any questions, call Whirlwind.
10. **The information in this manual is believed to be correct and accurate. It should not be used for any specific application without being reviewed by a registered professional engineer. All metal roofs should be designed by a registered, professional engineer for loads specified by the governing code, including the higher pressures encountered at the edge zones of the roof.**
11. **Avoid restricting the thermal expansion and contraction of the Weather Snap-16 panels. (ie: Do not attach panels to the substructure at both the eave and ridge.)**
12. **Weather Snap-16 panels are not designed to be work platforms.** Avoid any unnecessary foot traffic on **Weather Snap-16** panels. If foot traffic is required, protect the roof panels by using some type of roof pad, temporary deck, or walkway.
13. **When installing Weather Snap-16 panels over open framing with blanket insulation: (A) install insulation parallel to purlins or joists, or (B) install insulation across purlins or joists and compress it with pinch bars.**
14. A vapor retarder may be necessary to protect roofing components when high interior 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) Projects where outside winter temperatures below 40°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 and masonry, plaster finishes and fuel burning heaters.

CAUTION

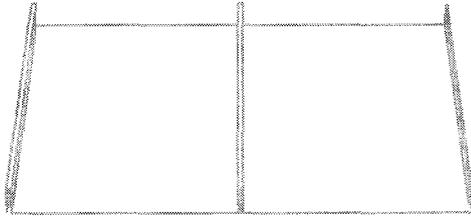
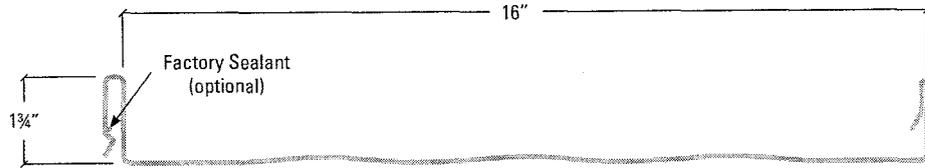
Diaphragm capabilities and purlin stability are not provided by Whirlwind's **Weather Snap-16** roof system. Therefore, other bracing may be required to conform to any and all code requirements.
All roof systems should be designed by a registered professional engineer for loads specified by the governing code(s), including the higher pressure encountered at the edge zones and corner zones of the roof.



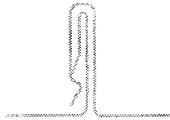
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WEATHER SNAP -16



Two Panels Show Above



Side Lap Detail

WEATHER SNAP-16 DESIGN PROPERTIES						
GAUGE/ THICKNESS	F _y (KSI)	F _b (KSI)	TOP IN COMPRESSION		BOTTOM IN COMPRESSION	
			I _x (In ² -Ft)	M _a (Kip-In/Ft)	I _x (In ² -Ft)	M _a (Kip-In/Ft)
24	50	1.26	0.0803	1.6467	0.0855	1.7817

NOTES:

1. All section properties are calculated in accordance with the 2001 edition of the *North American Specification For Design Of Cold-Formed Steel Structural Members*.
2. I_x is for deflection determination.
3. M_x is allowable bending moment.

MATERIALS

Unless otherwise specified, the exposed surfaces of all panels shall be either clear acrylic coated or factory painted GALVALUME®. GALVALUME® is a zinc-aluminum alloy coating that is applied to the base steel material. Acrylic coated GALVALUME® shall have a Coating Class AZ55 (0.55 ounces (combined total of both sides) per square foot). Factory painted GALVALUME® shall have a minimum Coating Class AZ50 (0.50 ounces (combined total of both sides) per square foot). GALVALUME® coated steel for panels shall conform to ASTM A792, Structural Quality. The 24 gauge panel shall conform to Grade 50 (50 ksi minimum yield strength). All material shall be ordered to a minimum decimal thickness. Minimum ordered thickness for coated steel products always includes the thickness of the coating.

PAINTED FINISH

All painted GALVALUME® shall be factory coated by a firm which coats coil products exclusively. The coater shall be responsible for ensuring color consistency, paint film hardness, and paint film thickness. Each side of the GALVALUME® will be coated with 0.2 mils baked-on primer before the color coating. The panel shall receive a KYNAR 500® Fluoropolymer finish coat on the exposed side. Thickness of the finish coat will be a nominal 1.0 mils (including the primer coat). A baked-on straight polyester wash coat will be applied on the non-exposed side. Thickness of the wash coat will be a nominal 0.5 mils (including the primer coat).

LIMITED MATERIAL WARRANTY

Specific conditions concerning each finish shall be covered in detail on the written warranty issued, on request, with each building. GALVALUME® panels shall have a twenty-five year limited warranty providing that GALVALUME® panels will not rupture, fail structurally, or perforate within a period twenty-five years after shipment due to exposure to normal atmospheric corrosion. The clear acrylic finish does not carry a warranty. The factory coated GALVALUME® panel shall have a thirty-year limited color finish warranty from excessive chalking and color change (fading), peeling and cracking. The wash coat does not carry a warranty.

- **UL CONSTRUCTION NO. 254**
- **UL 580 UP-LIFT TESTED**
- **CLASS 90 RATED**
- **UL 2218 HAIL IMPACT RESISTANT TESTED**
- **INCLINED: UNLIMITED**
- **IMPACT: CLASS 4**
- **FLORIDA PRODUCT APPROVAL**
- **FL# 1845.4**

ROOF PANELS

Panel coverage will be 16" to the weather and shall be side seamed manually using a "snap-lock" design. Maximum panel length shall be 45'-0". An optional factory applied bead of non-skinning butyl sealant can be placed in the female side of the corrugation. The minimum recommended roof slope is 3:12. Panels can be installed on a transition by using Whirlwind's die-formed rib covers. Weather Snap-16 roof panels are part of a roof system. All of the components of the roof system (clips, end dams, back-up plates, etc.) must be factory furnished for any warranty or uplift considerations. All roof systems shall be installed in accordance with the Whirlwind Erection Manual. Panels shall be secured to intermediate framing members with clips at each purlin panels shall be furnished square cut. Panels are not swaged.

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Claremore, OK
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Lathrop, CA
(866) 922-2216

Freeport, MN
(888) 836-7203



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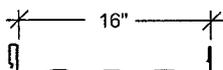
Weather Snap-16®

GENERAL INFORMATION

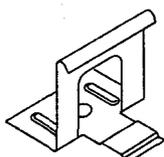


PRODUCT CHECKLIST

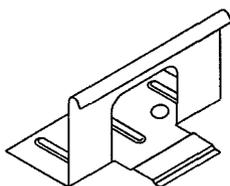
Weather Snap-16



Clip, Standard

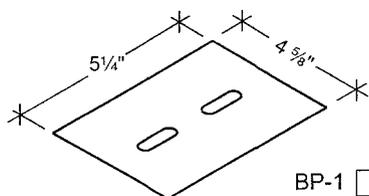


Clip, UL90



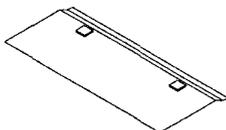
Bearing Plate
Standard

- 16 gauge red oxide
- For use with rigid-board insulation

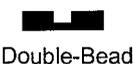


Back-Up Plate

- For use at ridge and endlaps
- 16 gauge red oxide



Tape Sealer



Double-Bead

- For use at eave, ridge, and endlaps

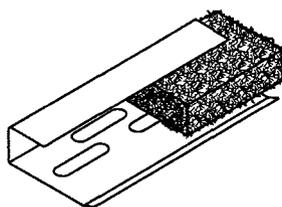


Triple Bead

- For use at valleys with through fasteners

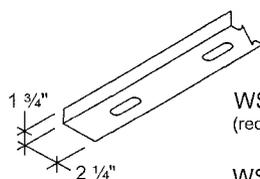


Metal Vent Material

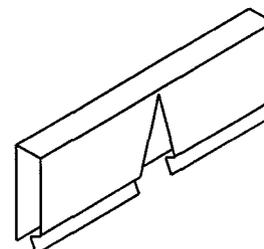


Floating Rake Support

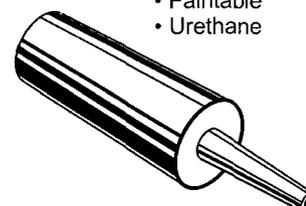
- 20' length
- 14 gauge
- Factory slots



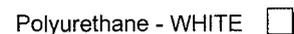
Rib Cover



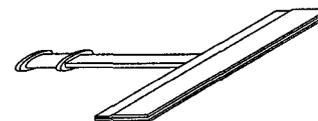
Tube Sealant



- Paintable
- Urethane

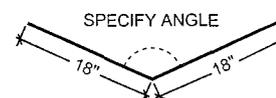


Panel Hemming Tool



Hip / Valley Plate

- 14 GA pre-galvanized
- 10'-0" lengths





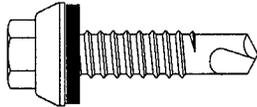
Weather Snap-16®

GENERAL INFORMATION



PRODUCT CHECKLIST

Fastener #3

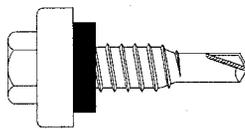


- Panel to eave strut
- Standard endlap
- Panel to valley plate(fixed)

#12 x 1/4" Long Life Self-Drilling



Fastener #4

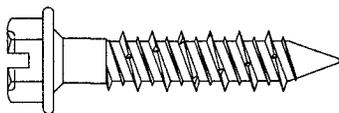


- "Z" closure to panel at ridge (without back-up plate)

#14x7/8" Long-Life Lap-Tek Self-Drilling

Con-Mate

- Alternate counter flash to masonry wall

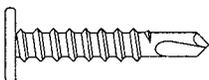


1/4"x1 1/4" Atlas Con-Mate (Teal Oxyseal III)



Fastener #12A

- Clip to purlin
- Offset cleat/panel starter to eave strut or valley plate



#12x1" #2 Self-Drilling Pancake Phillips Head Screw - Zinc



Fastener #5

- Rake support to purlin

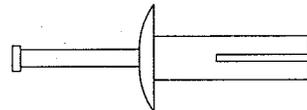


14x1 1/4" Tek-2 Shouldered No Sealing Washer, Zinc



Fastener #11

- Parapet rake flash to masonry parapet wall

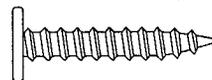


1/4"x1 1/4" Nail Drive Masonry Anchor



Fastener #13A

- Clip to plywood
- "Z" closure to plywood
- Offset cleat to plywood



#12x1" #2 Self-Tapping Pancake Phillips Head Screw - Zinc





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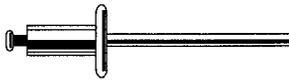
GENERAL INFORMATION



PRODUCT CHECKLIST

Fastener #14

- Trim to trim
- Trim to panel

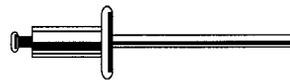


1/8" diameter x 3/16" grip range
stainless steel



Fastener #14A

- "Z" Closure to angle at floating hip



1/8" diameter x 3/16" grip range
stainless steel



Fastener #15A

- For clip attachment in a composite roof assembly
- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



14x1 5/8" Deck Screw Driller
#3 Phillips Truss Head



Fastener #15B

- For clip attachment in a composite roof assembly
- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



14x2 7/8" Deck Screw Driller
#3 Phillips Truss Head



Fastener #15C

- For clip attachment in a composite roof assembly
- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



14x4 1/2" Deck Screw Driller
#3 Phillips Truss Head



Fastener #15D

- For clip attachment in a composite roof assembly
- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth



14x6" Deck Screw Driller
#3 Phillips Truss Head



NOTE: All trim to be 24 gauge material unless noted



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GENERAL INFORMATION



ORDERING INFORMATION

When ordering **Weather Snap-16** panels without technical assistance from Whirlwind, the following must be provided:

1. Panel Length - The length of each panel should include the proper overhang at the eave, endlap, and peak as required. Refer to specific details in this manual for the proper overhang at these locations.
Add 1½" to the panel length for all panels to be hemmed as shown on page WS-26.
2. If your specific detail is not in this manual or if you have questions concerning panel length, designation, or product application, call your Whirlwind sales representative.

INSTALLATION GUIDELINES

I. Pre-Order

- A. Prior to ordering panels, all dimensions should be confirmed by field measurement.

II. Jobsite Storage and Handling

- A. Check the shipment against the shipping list.
- B. Damaged material must be noted on Bill of Lading.
- C. Panel crates should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
- D. 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.

III. Application Checklist

- A. Check substructure for proper alignment and uniformity to avoid panel distortion.
- B. Periodic check of panel alignment is crucial to proper panel alignment.
- C. If there is a conflict between this manual and the erection drawings, the erection drawings will take precedence.



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GENERAL INFORMATION



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.
3. The substructure (eave to ridge) must be on plane tolerance of 1/4" in 20' and 3/8" in 40'.
4. It is critical that the purlins or bar joists at the ridge and endlaps be located exactly as detailed and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the ridge or endlaps to foul as the panels expand and contract.
5. Peak Purlin Spacing
 - Floating Ridge: 18" (9" from center line of ridge to web of purlin).
 - Fixed Ridge: 10" (5" from center line of ridge to web of purlin).

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

Diaphragm capabilities and purlin stability are not provided by Whirlwind's **Weather Snap-16** roof system. Therefore, other bracing may be required to conform to any and all code requirements.

All roof systems should be designed by a registered professional engineer for loads specified by the governing code(s), including the higher pressure encountered at the edge zones and corner zones of the roof.



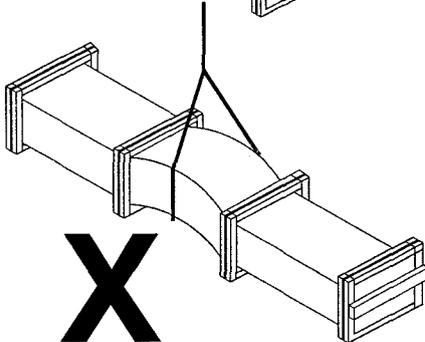
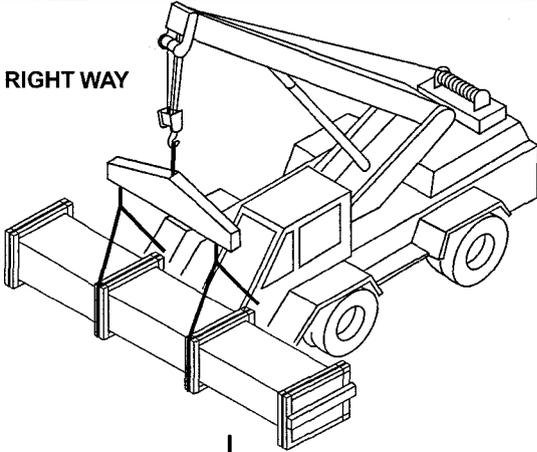
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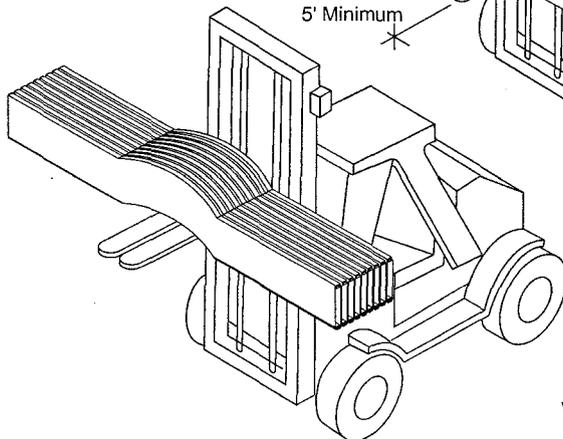
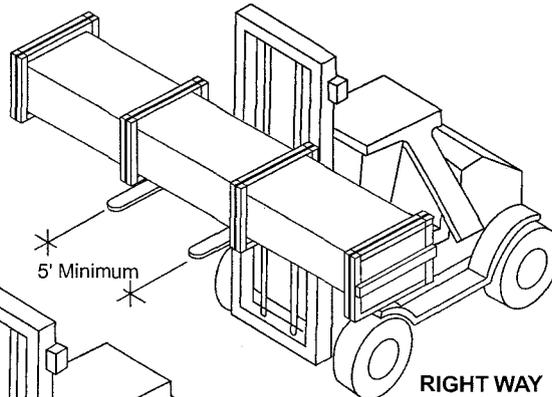
GENERAL INFORMATION



RIGHT WAY



WRONG WAY



WRONG WAY

UNLOADING

Upon receiving material, check shipment against shipping list for shortages and damages. Whirlwind will not be responsible for shortages or damages reported after seven (7) days from shipment or pick-up.

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.

CAUTION

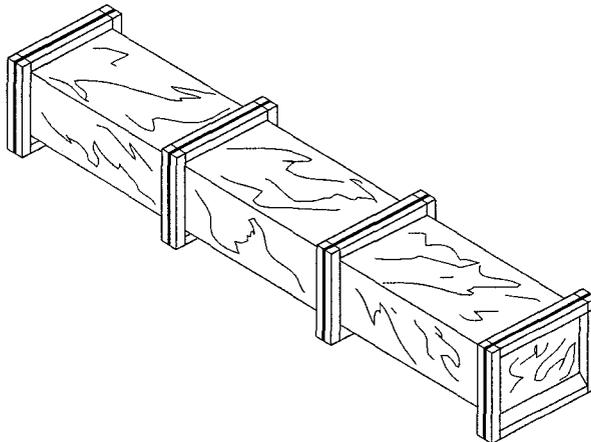
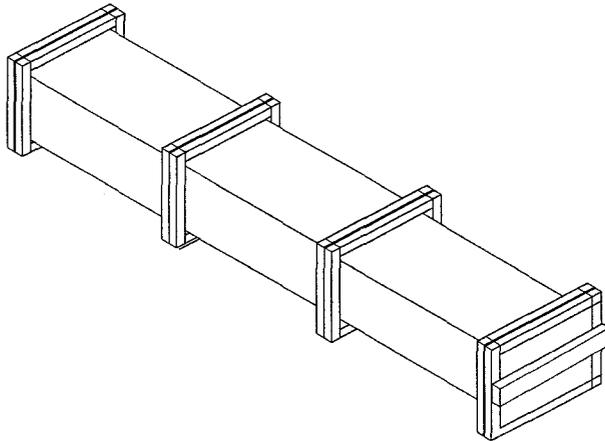
Improper unloading and handling of bundles and crates may cause bodily injury or material damage. The manufacturer is not responsible for bodily injuries or material damages during unloading and storage.



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GENERAL INFORMATION



UNLOADING
(continued)

**BLOCK AND BAND
WITH CARDBOARD CARTON**

This method of bundling is used for orders that are to be picked up by the customer or shipped by common carrier. 2 x 4's are strapped under the cartons to allow access for straps or a forklift. Bundles less than 25' long may be handled by a forklift. The forklift should have at least 5' between forks. Cartons longer than 25' should be lifted utilizing a spreader bar with nylon straps.

FULL CRATE

This method is used on all overseas shipments or by customer's order. Handling requirements are the same as block and band.

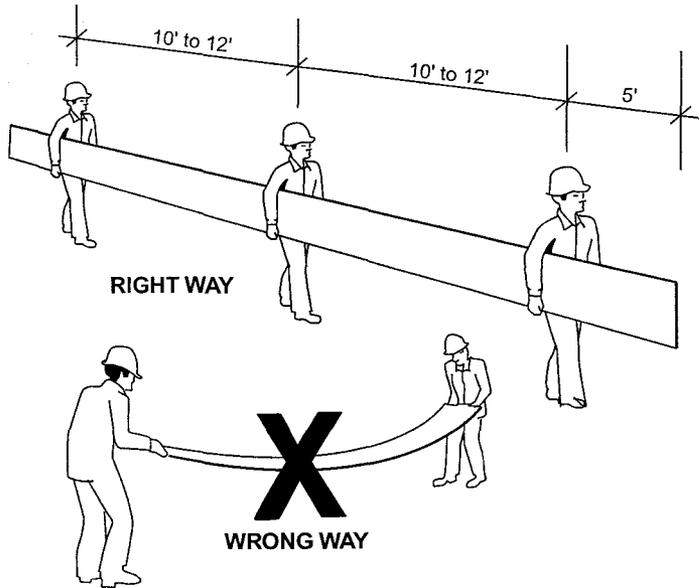


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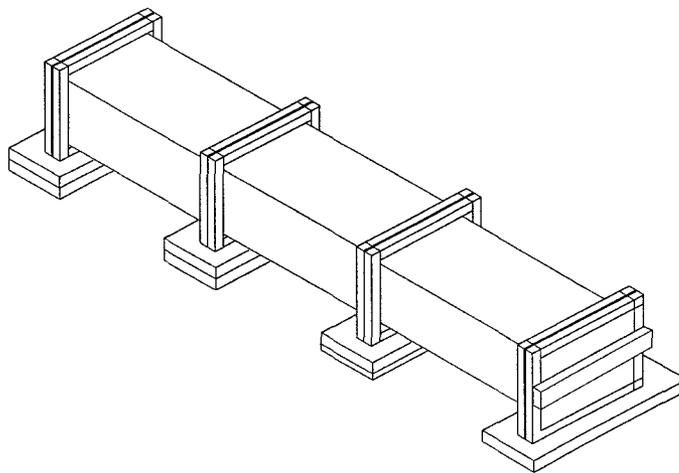
HANDLING/ PANEL STORAGE

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.

NOTE

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



Store bundled sheets off the ground sufficiently high 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.

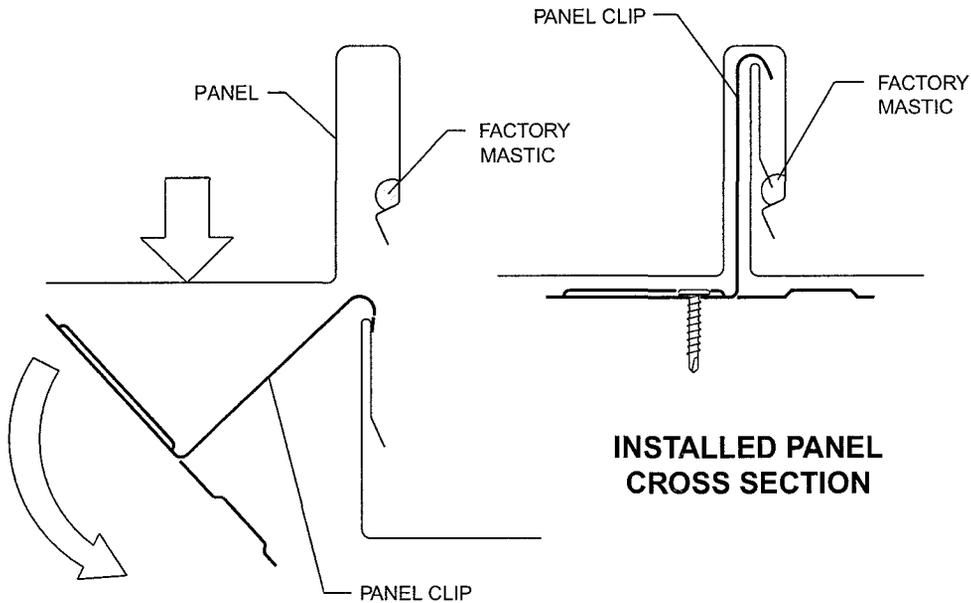
PROLONGED STORAGE OF SHEETS IN A BUNDLE IS NOT RECOMMENDED.

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

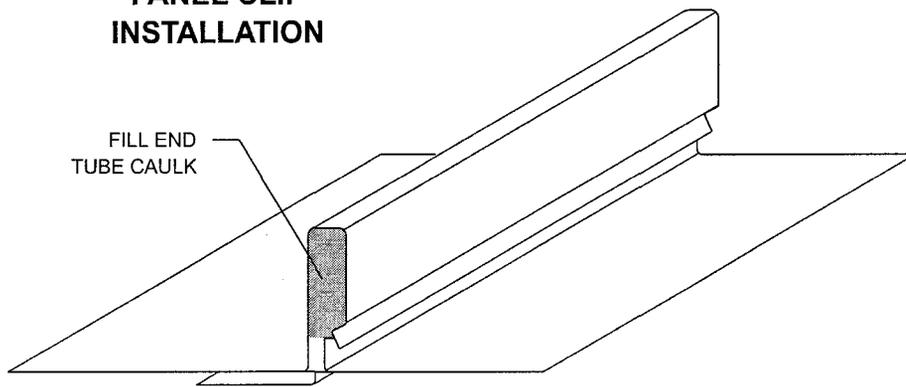
Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.



**TYPICAL DETAILS
PANEL**



**PANEL CLIP
INSTALLATION**



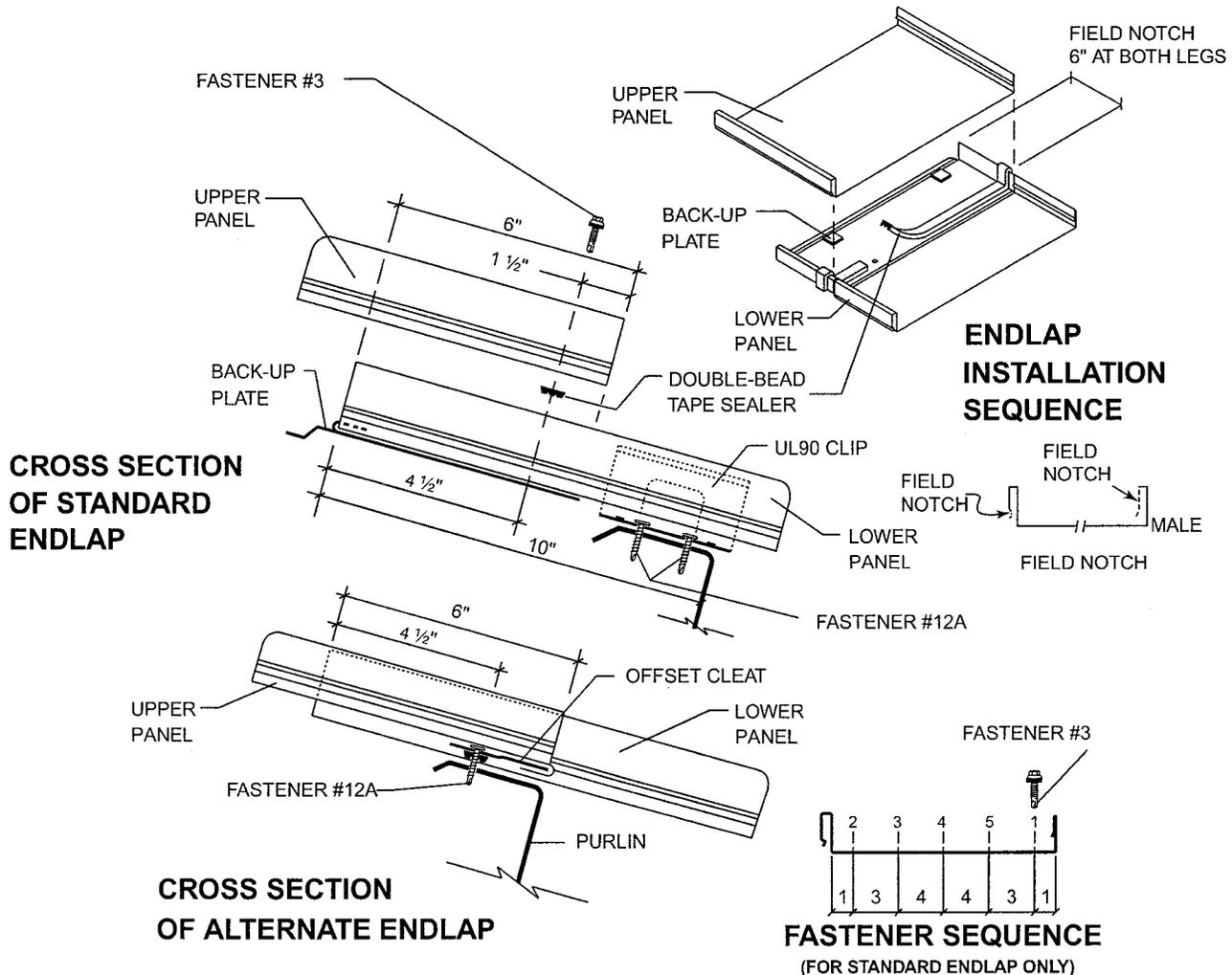
PANEL END SEALANT DETAIL

NOTES:

1. Fill end of panel seam at eave and valleys with tube caulk.
2. For UL90 rating, UL90 clips with two fasteners must be used.



**TYPICAL DETAILS
 ENDLAP**

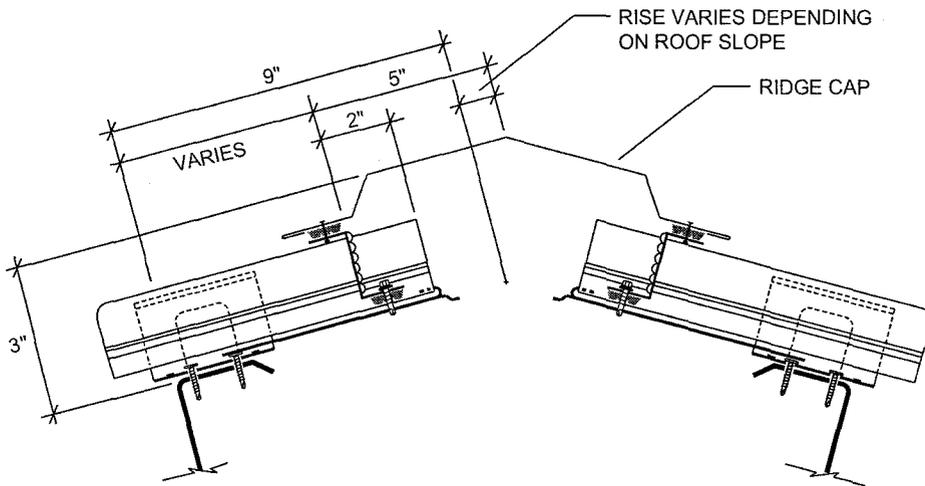
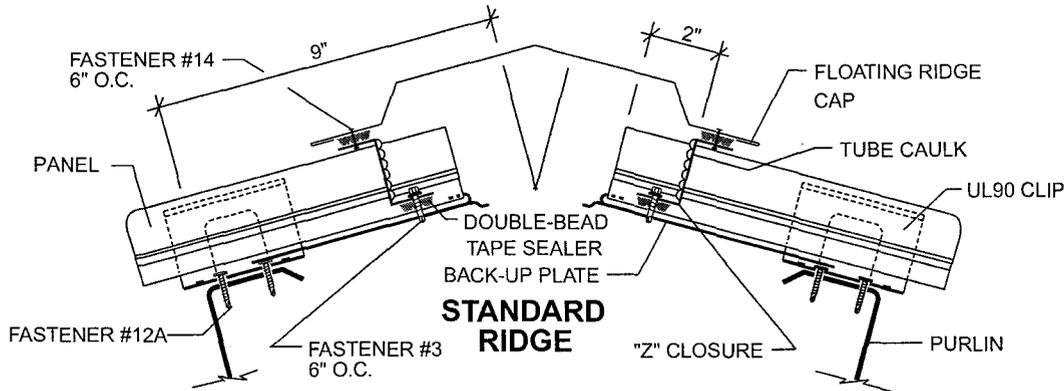


NOTES:

1. A UL 90 rating is not available on roofs over open framing with endlaps.
2. The bottom panel must have the first 6" of both legs on the upslope end field notched as shown.
3. Install bottom panel so that the eave has the proper overhang (refer to eave details). The notched upslope end of the panel should be 10" from the web of the purlin.
4. Slide a back-up plate onto the end of the panel; make sure the teeth on top of the back-up plate are on top of the panel.
5. Place Double-Bead tape sealer over the entire width of the panel. It must be placed exactly as shown.
6. Install top panel by snapping it over the notched portion of the bottom panel. Install Fastener #3 in the proper sequence.
7. Endlaps require roof erection to proceed from left to right as viewed from the eave looking toward the ridge.
8. When using the alternate endlap method, order the upper endlap panel 1½" longer than normal for the panel hem. See Page WS-9 for ordering information.
9. When using the alternate endlap detail, use the offset cleat method of attachment at the eave or valley and the fixed detail at the ridge or hip.



**TYPICAL DETAILS
 FLOATING RIDGE**



PANEL OVERHANG CALCULATION

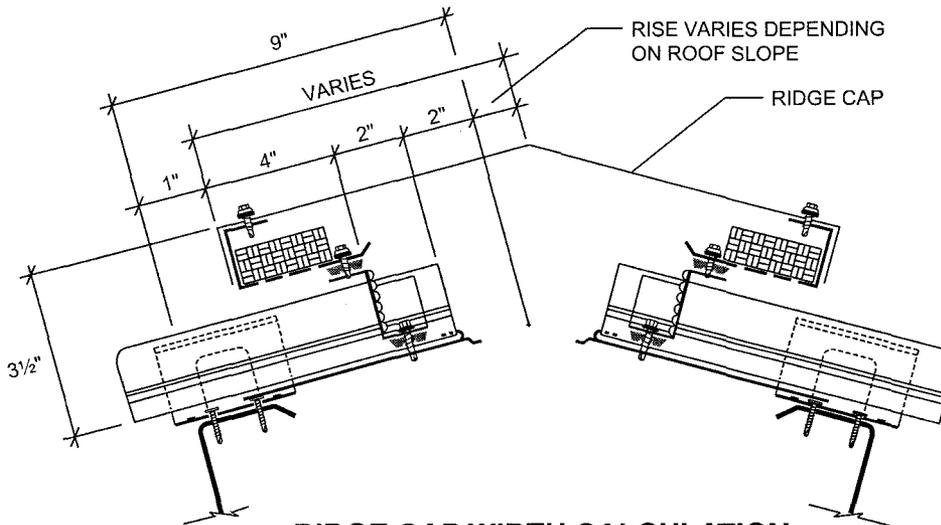
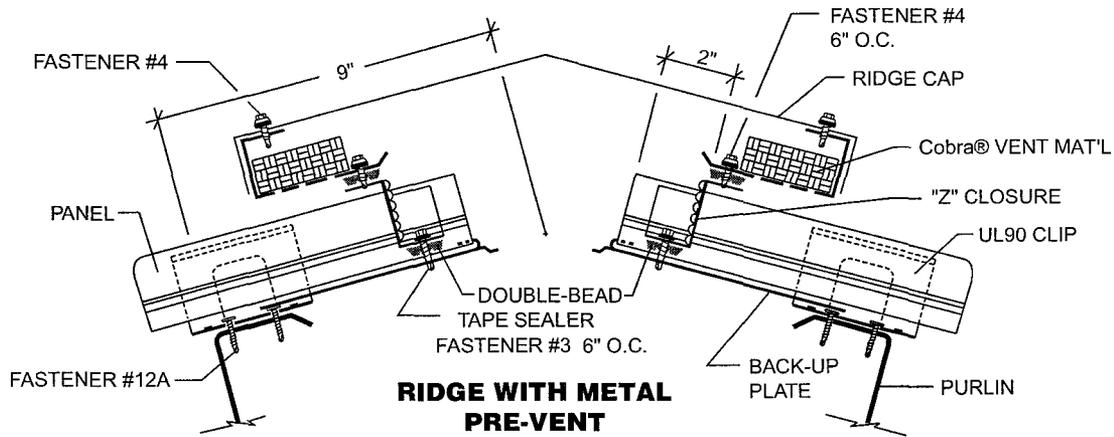
NOTES

Standard Ridge Flash Conditions

1. Do not use this detail with the offset cleat method of attachment at the eave or valley.
2. Install back-up plate onto end of panel.
3. Field cut "Z" closures to fit panel width.
4. Install Double-Bead tape sealer to panels. The center of tape sealer should be 1½" from end of panel.
5. Install "Z" closures to panels with Fastener #3, 6" o.c. Vertical leg of "Z" closure should be 2" from end of panel.
6. Seal end of "Z" closure to panel seam with tube caulk. Install Double-Bead tape sealer to top of "Z" closure.
7. Attach ridge cap to "Z" closure with Fastener #14, 6" o.c.



**TYPICAL DETAILS
VENTED RIDGE**



NOTES:

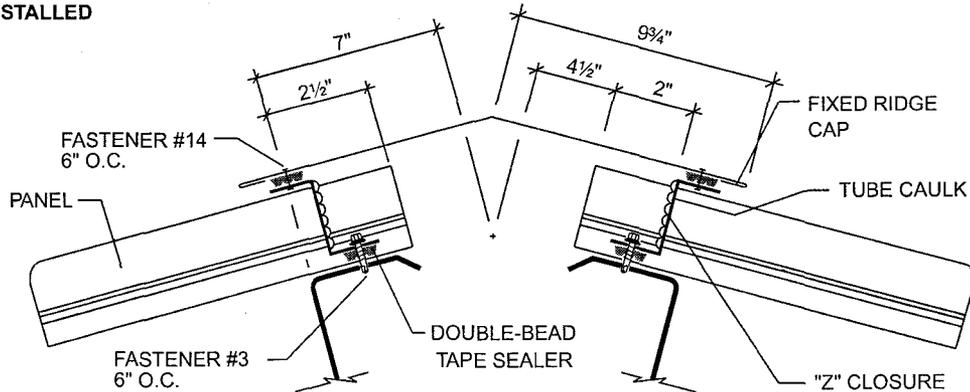
Ridge With Metal PreVent

1. Do not use this detail with the offset cleat method of attachment at the eave or valley.
2. Install back-up plate onto end of panel.
3. Field cut "Z" closures to fit panel width.
4. Install Double-Bead tape sealer to panels. The center of tape sealer should be 1 1/2" from end of panel.
5. Install "Z" closures to panels with Fastener #3 at 6" o.c. Vertical leg of "Z" closure should be 2" from end of panel.
6. Seal end of "Z" closure to panel seam with tube caulk. Install Double-Bead tape sealer to top of "Z" closure.
7. Install vented metal to outside closures with Fastener #4 at 6" o.c.
8. Attach ridge cap with Fastener #4 at 1'-0" o.c. to vented metal.
9. Ridge Cap width will vary depending on the roof slope. Refer to section above for calculating the correct width.

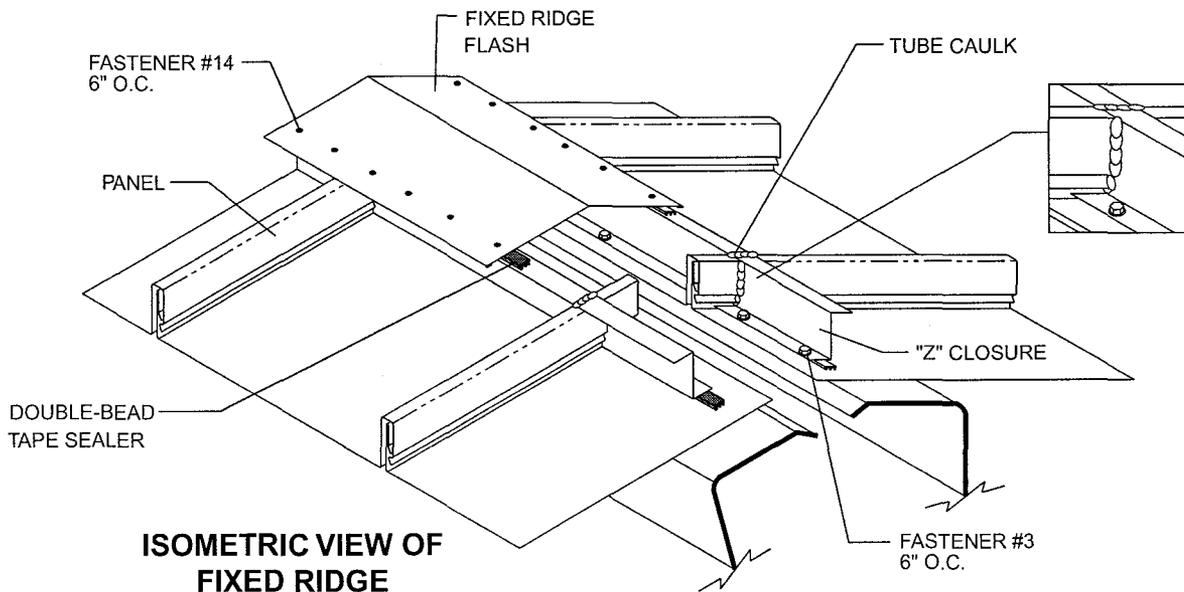


**TYPICAL DETAILS
FIXED RIDGE**

**IMPORTANT NOTE:
TEMPORARILY SECURE PANELS
AT RIDGE UNTIL "Z" CLOSURE
IS INSTALLED**



**CROSS SECTION OF
FIXED RIDGE**



**ISOMETRIC VIEW OF
FIXED RIDGE**

NOTES:

1. Do not use this detail with the fixed eave or valley details.
2. Peak purlin spacing for fixed ridge is 5" from the centerline of ridge to web of purlin. If this dimension is not used, a special ridge flash will be required.
3. The upslope end of the panel is 2 1/2" from the web of the peak purlin.
4. Field cut "Z" closures to fit panel width.
5. Install Double-Bead tape sealer to panels. Center of tape sealer should be 1 1/2" from end of panel.
6. Install "Z" closures to peak purlin with Fastener #3 at 6" o.c. Vertical leg of "Z" closure should be 2" from end of panel.
7. Seal end of "Z" closure to panel seam with tube caulk.
8. Attach ridge flash to "Z" closure with Fastener #14 at 6" o.c.
9. Purlin spacing and ridge cap width may need to be adjusted on extremely steep slopes.



WHIRLWIND STEEL BUILDINGS, INC.

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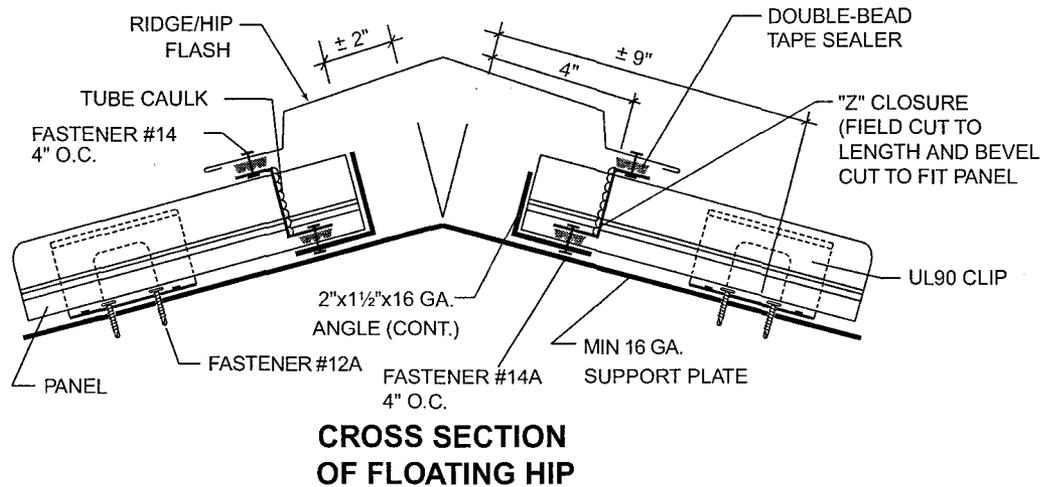
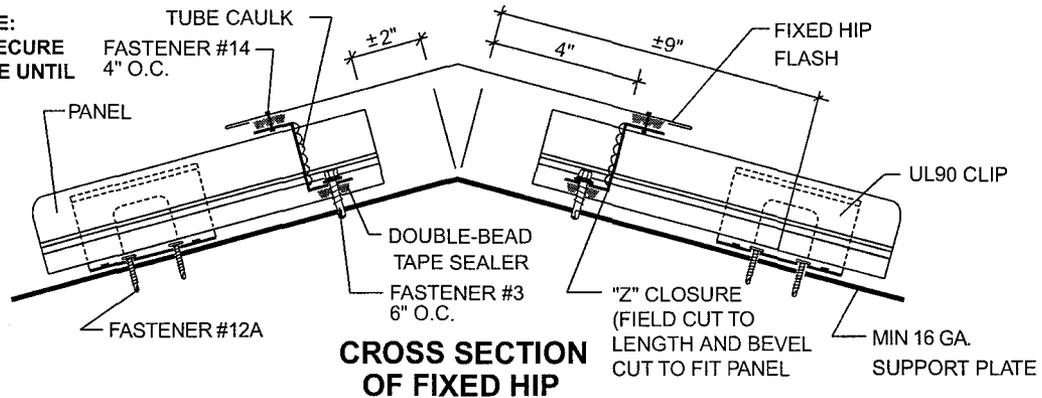
Weather Snap-16®

DESIGN



TYPICAL DETAILS HIP

IMPORTANT NOTE:
TEMPORARILY SECURE
PANELS AT RIDGE UNTIL
"Z" CLOSURE
IS INSTALLED



NOTES:

Fixed Hip

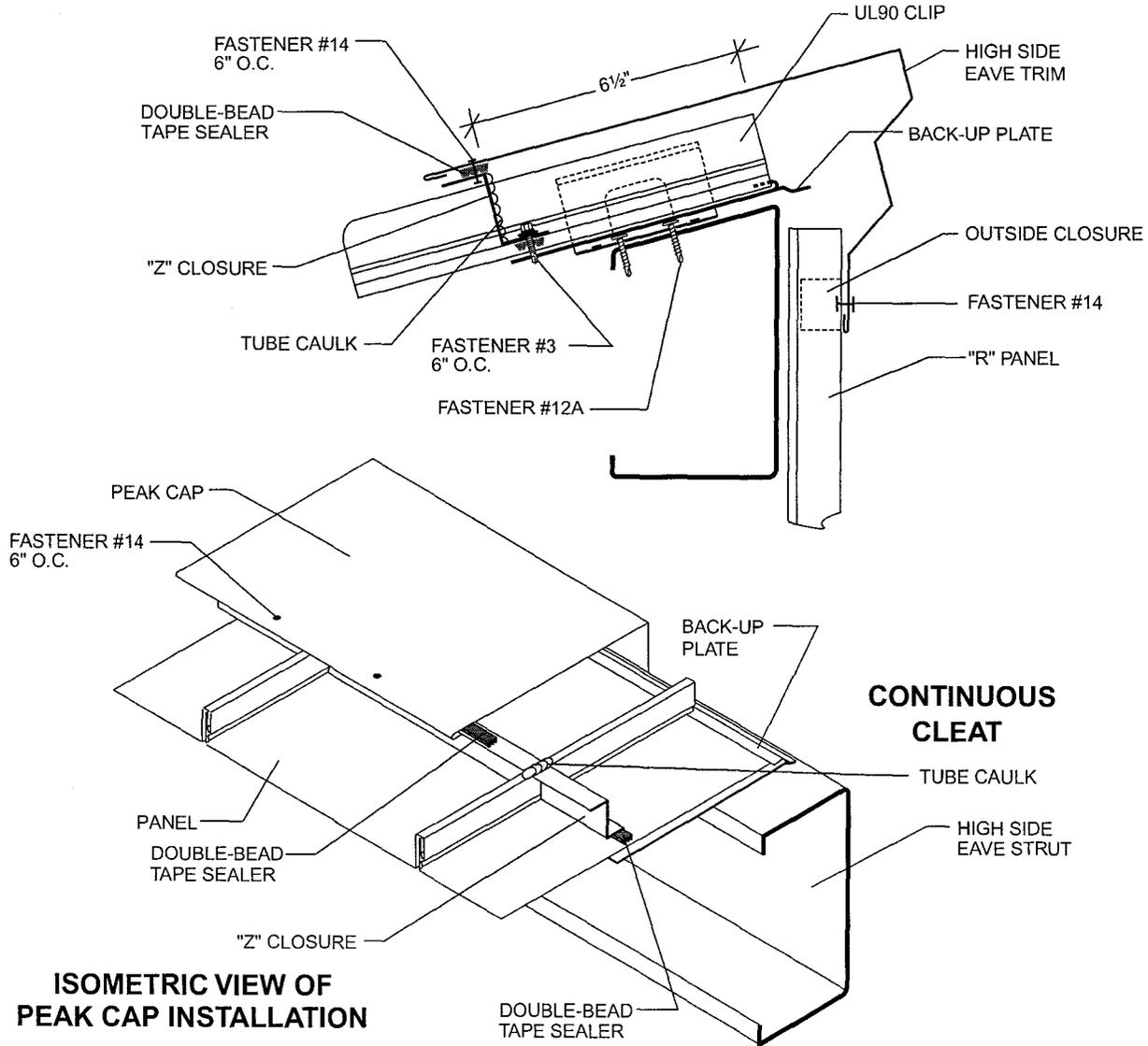
1. Do not use this detail with the fixed eave or valley details.
2. Hip must be designed to support the panels between the purlins (ie: channel, angle or plate).
3. Bevel cut and install panels to follow slope of hip.
4. Install Double-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be 3½" from the center of the hip.
5. Install "Z" closures to panels with Fastener #3 at 6" o.c. Vertical leg of "Z" closure should be 4" from center of hip.

Floating Hip

1. Do not use this detail with the offset cleat method of attachment at the eave or valley.
2. Bevel cut and install panels to follow slope of hip.
3. Install Double-Bead tape sealer to panels, running parallel to the hip. Center of tape sealer should be 3½" from center of hip.
4. Slide a length of 2" x 1½" x 16 gauge angle under the panels. Do not fasten 2" x 1½" angle to hip support plate. This will restrain the panels from floating.
5. Bevel cut and install "Z" closures to panels and 2" x 1½" angle with Fastener #14A at 4" o.c. Vertical leg of "Z" closure should be 4" from center of hip. Seal sides and top of "Z" closures to panel seams with tube caulk.



**TYPICAL DETAILS
 FLOATING PEAK**

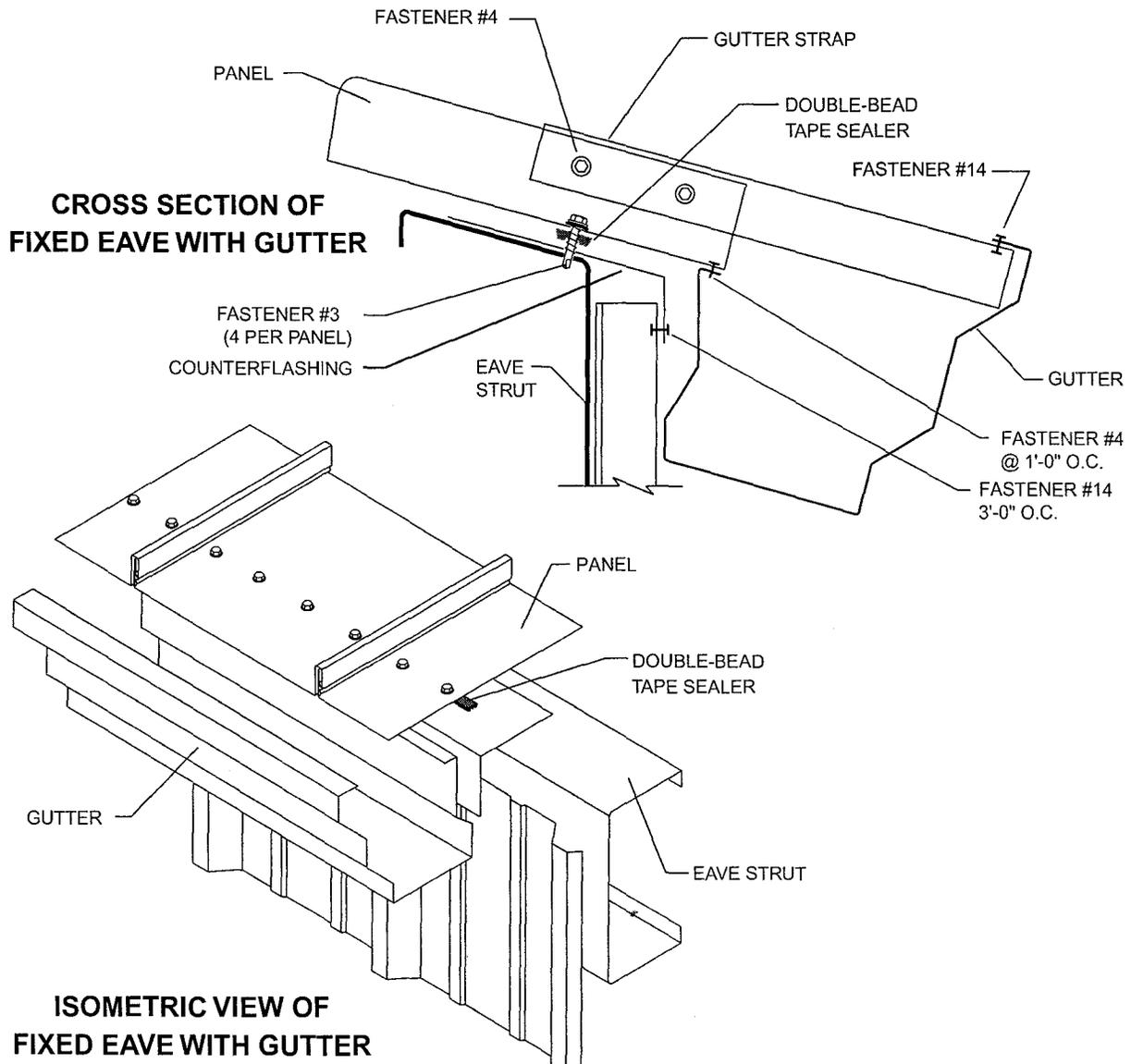


NOTES:

- 1 Do not use this detail with the offset cleat method of attachment at the eave or valley.
2. Install panel and clips.
3. Install backup plate onto end of panel.
4. Field cut "Z" closures to fit panel width.
5. Install Double-Bead tape sealer to panels. The center of tape sealer should be 6" from the end of the panel.
6. Install "Z" closures to panels with Fastener #3 at 6" o.c. Vertical leg of "Z" closure should be 6 1/2" from end of panel.
7. Seal ends of "Z" closures to panel seams with tube caulk. Install Double-Bead tape sealer to top leg of "Z" closure.
8. Attach peak cap to "Z" closure with Fastener #14 at 6" o.c.



**TYPICAL DETAILS
 FIXED EAVE**

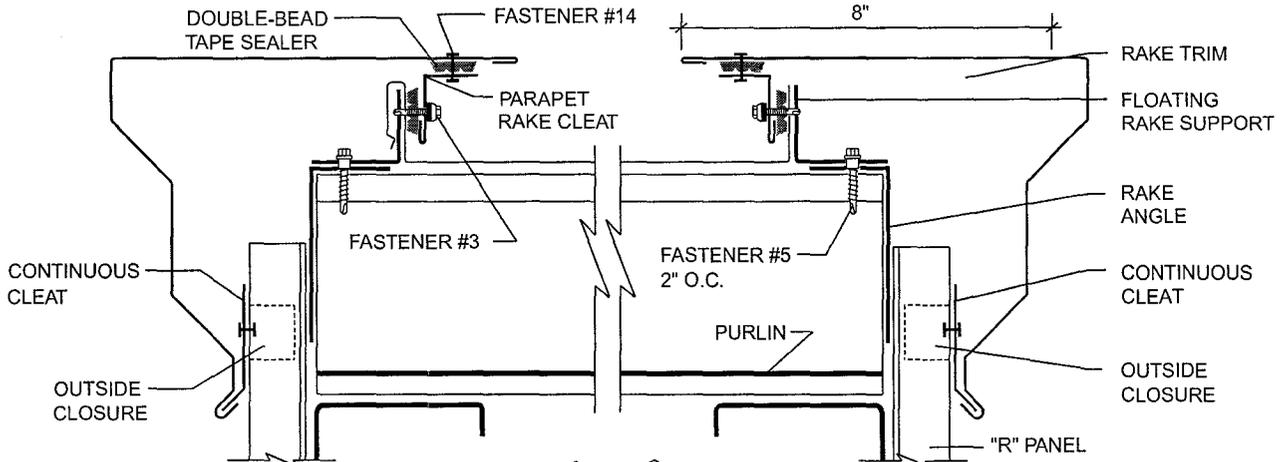


NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter counterflashing to wall panel with Fastener #14 at 3'-0" o.c.
3. Apply Double-Bead tape sealer to slope leg of counterflashing. Edge of tape sealer should align with outside edge of eave strut.
4. Install panel and fasten to eave strut with four Fastener #3.
5. Attach gutter to roof panel with Fastener #4 at 1'-0" o.c.
6. Install gutter straps every 2'-8" of gutter length. Attach to outside leg of gutter with Fastener #14A and to roof panel high rib with (2) Fastener #4.
7. See "Panel End Sealant Detail" on page WS-14 to seal panel ends.
8. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page WS-50 for the gutter detail for these areas.

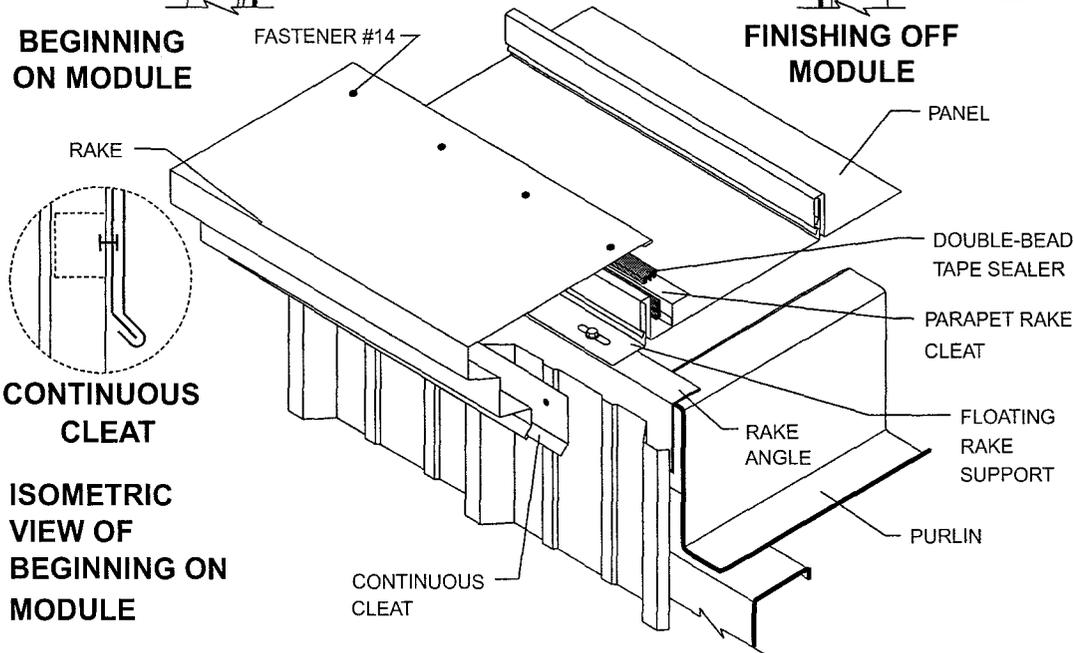


**TYPICAL DETAILS
FLOATING RAKE**



**BEGINNING
ON MODULE**

**FINISHING OFF
MODULE**



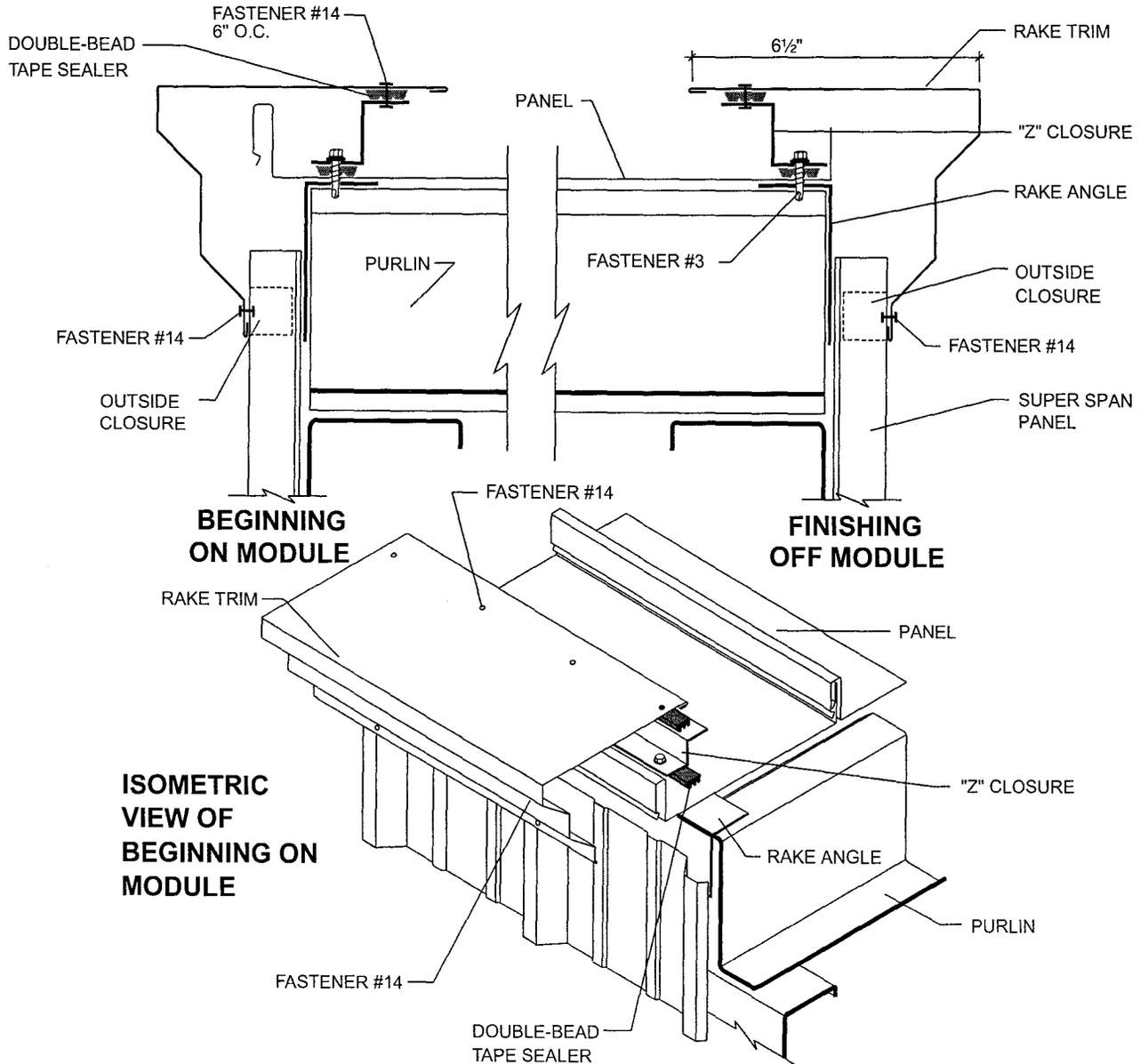
**ISOMETRIC
VIEW OF
BEGINNING ON
MODULE**

NOTES:

1. Using a wall panel other than a 1 1/4" "R" Panel will affect the top dimension of the box rake.
2. Install floating rake support with Fastener #5 at 2'-0" o.c.
3. Engage female leg of panel over rake support.
4. Apply Double-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener #3 at 2'-0" o.c. **FASTENERS MUST GO THROUGH RAKE SUPPORT.**
5. Apply Double-Bead tape sealer to top of parapet rake cleat and attach rake trim to parapet rake cleat with Fastener #14 at 6" o.c.
6. Use continuous cleat to hold bottom of rake trim in place. Fasten continuous cleat to each high rib of wall panel.
7. If roof finishes on module, finishing detail will be similar to starting detail. If roof finishes off module, field cut and bend last panel run to fit against floating rake support. Install parapet rake cleat, tape sealer and rake trim as previously described.
8. If rake trim is not to be immediately installed, temporarily fasten panels to rake support to prevent wind damage.
9. The top dimension of the rake will be affected by the wall panel thickness.



**TYPICAL DETAILS
 FIXED RAKE**

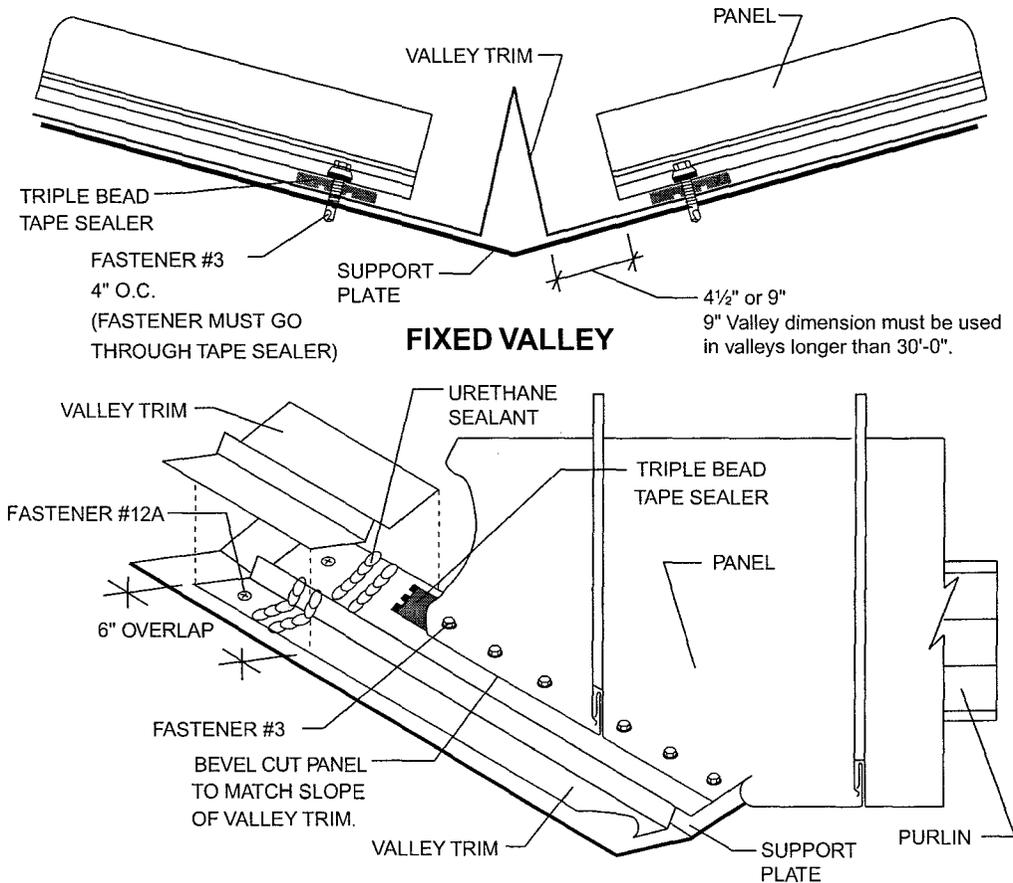


NOTES:

1. Do not use this detail on panel lengths over 20'-0".
2. Using a wall panel other than a 1 1/4" Super Span Panel will affect the top dimension of the rake trim.
3. Install "Z" closure to panel with Fastener #3 at 1'-0" o.c. on top of Double-Bead tape sealer. Apply additional tape sealer to top leg of "Z" closure.
4. Lap all "Z" closures 2". Seal laps with tube caulk.
5. If roof finishes on module, finishing rake detail will be similar to starting detail. If roof finishes off module, field cut and bend panel and install "Z" closure using Fastener #3 at 1' o.c.
6. Attach rake trim to "Z" closure with Fastener #14 at 6" o.c.



**TYPICAL DETAILS
 VALLEY**



**Valley must be designed to support the panels between the purlins.
 (ie: Channel, Angle or Plate)**

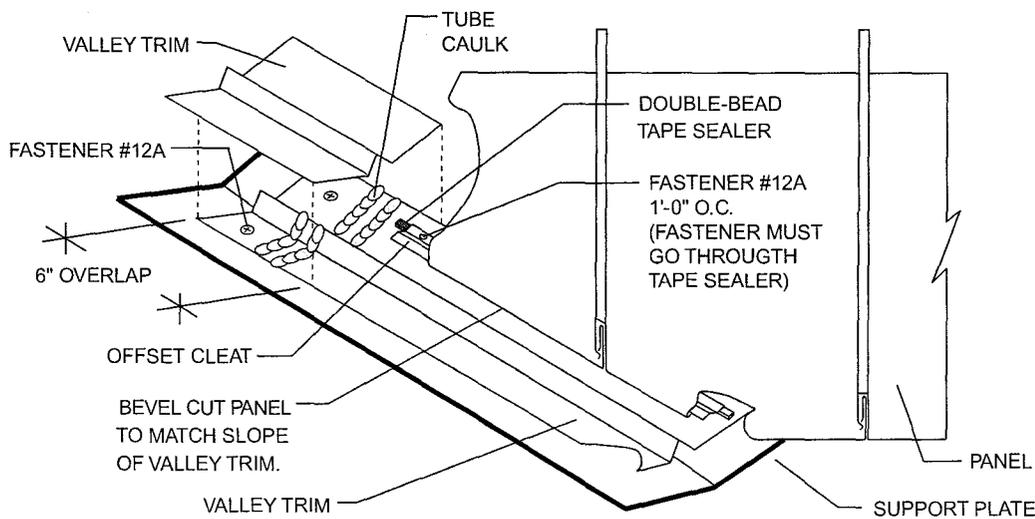
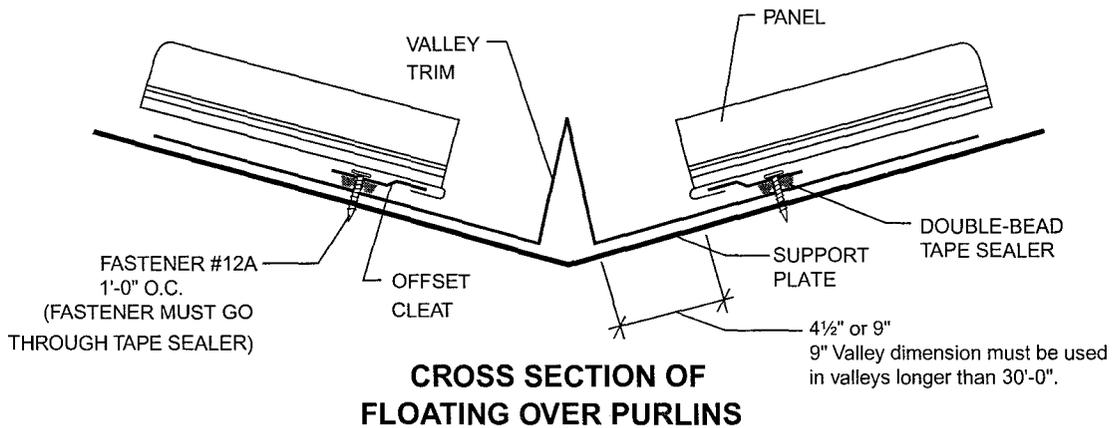
NOTES:

FIXED VALLEY

1. For valleys longer than 30', use extended valley trim.
2. **Do not use this detail with the fixed ridge or hip details.**
3. Ends of panels should be 4½" minimum from the vertical leg of valley trim.
4. Install Triple Bead tape sealer continuously under panel.
5. Attach panel to support plate with Fastener #3 at 4" o.c. **Fasteners must go through tape sealer under panel.**
6. See "Panel End Sealant Detail" on page WS-14 to seal panel ends at valley.



**TYPICAL DETAILS
 VALLEY**



ISOMETRIC VIEW OF VALLEY

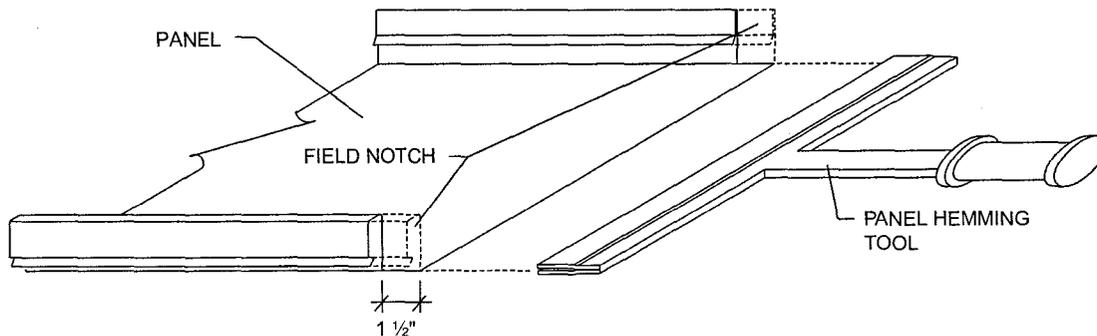
NOTES:

VALLEY WITH OFFSET CLEAT

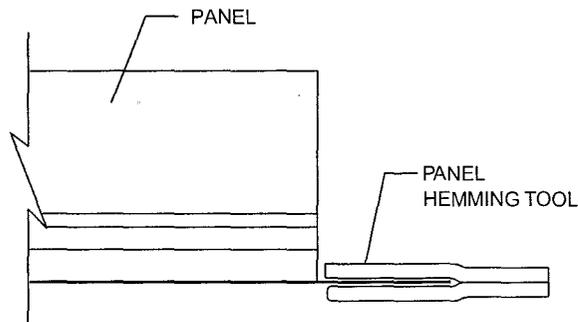
1. For valleys longer than 30', use extended valley trim.
2. Panels must be attached to substructure at the ridge or hip to prevent them from sliding downslope.
3. Offset cleat is installed continuous along slope of valley over Double-Bead tape sealer with Fastener #12A at 1'-0" o.c. Fasteners must go through tape sealer.
4. Clip spacing should not exceed 4'-0" o.c. for 24 gauge panels or 5'-0" o.c. for 22 gauge panels.
5. Add 1½" to panel length for the panel hem.
6. See "Panel End Sealant Detail" on page WS-14 to seal panel ends at valley.



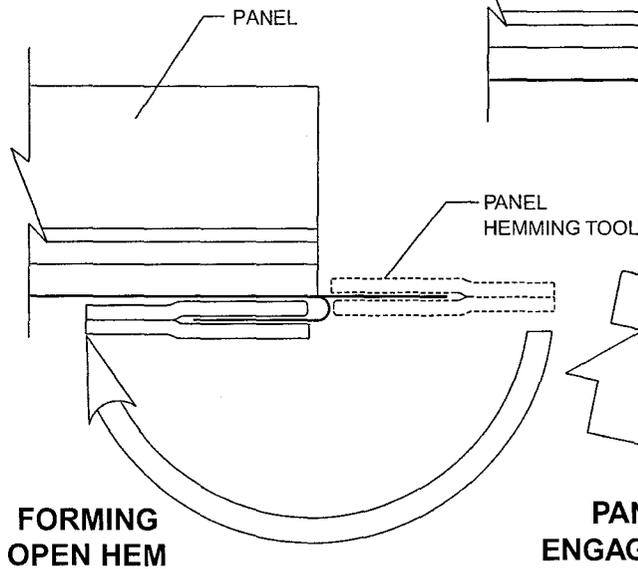
**TYPICAL DETAILS
 FIELD HEMMING PANEL END**



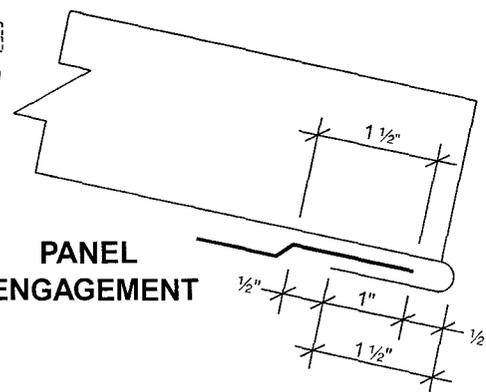
**NOTCHING
 PANEL END**



**ENGAGING
 HEMMING TOOL**



**PANEL
 ENGAGEMENT**

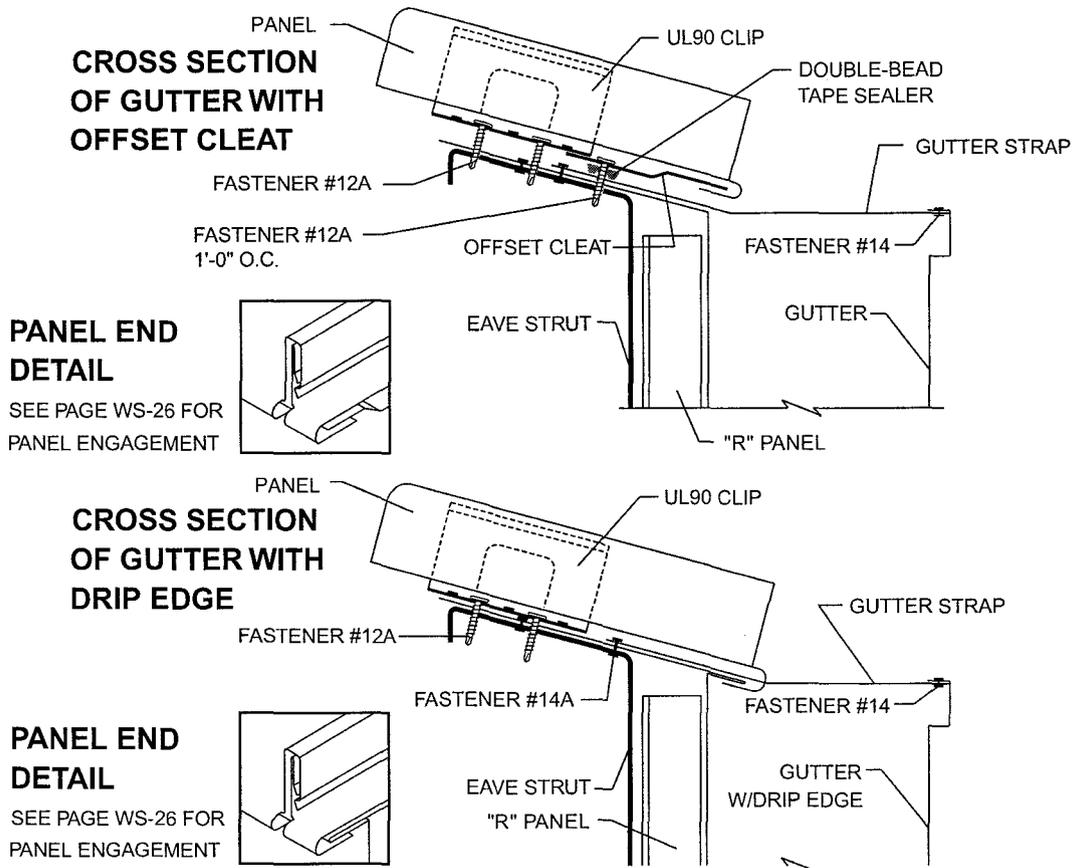


NOTES:

1. Field notch male and female legs of panel 1 1/2".
2. Engage panel hemming tool onto protruding panel.
3. Bend panel down to form an open hem.
4. Hem may be tightened with a pair of vise grip "duck bills."
5. Panel engagement shown above is for panel runs up to 100' long. For panel runs over 100' long, please call Whirlwind.



**TYPICAL DETAILS
GUTTER**



NOTES:

Offset Cleat

1. The offset cleat method of attachment should be used when ridge, high side eave or endlap is fixed to the substructure. Panels must be attached at one of these points to prevent them from sliding downslope.
2. Attach offset cleat to eave strut with Fastener #12A at 1'-0" o.c.
3. To field hem panel, see page WS-26.
4. See "Panel End Sealant Detail" on page WS-14 to seal panel ends.
5. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page WS-50 for the gutter detail for these areas.

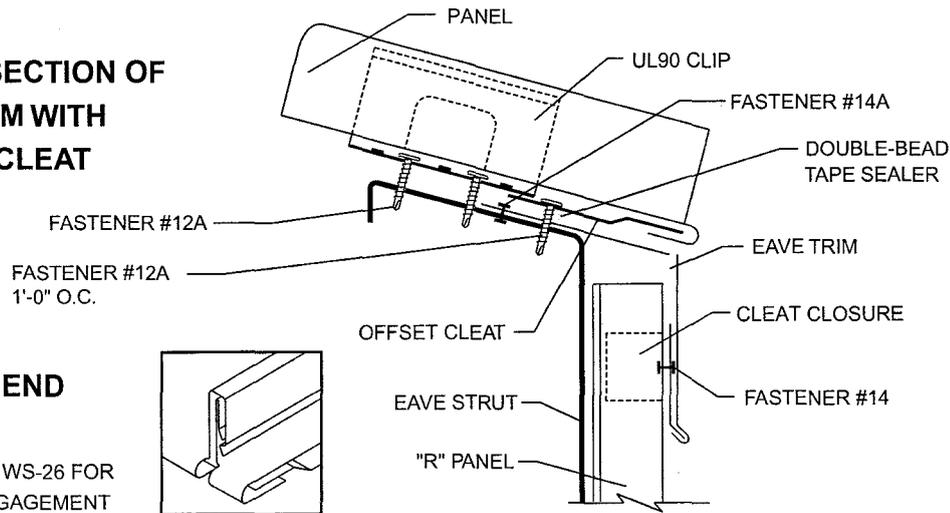
Gutter with Drip Edge

1. The gutter with drip edge method of attachment should be used when ridge, high side eave or endlap is fixed to the substructure. Panels must be attached at one of these points to prevent them from sliding downslope.
2. Install gutter to eave strut with Fastener #14A at 2'-0" o.c.
3. Attach gutter straps to gutter with Fastener #14 at 3'-0" o.c.
4. To field hem panel, see page WS-26.
5. Notch panel hem for gutter strap.
6. See "Panel End Sealant Detail" on page WS-14 to seal panel ends.
7. This detail may be used on roofs with pitches of 4:12 or less. For roofs with pitches greater than 4:12, call Whirlwind.
8. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page WS-50 for the gutter detail for these areas.



**TYPICAL DETAILS
EAVE TRIM**

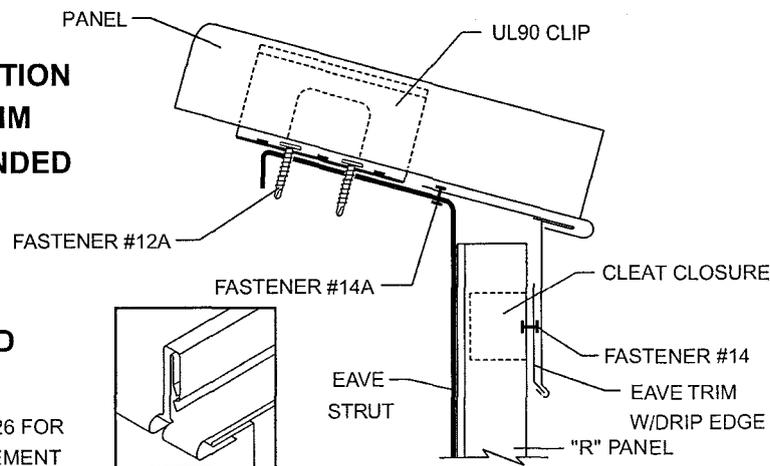
**CROSS SECTION OF
EAVE TRIM WITH
OFFSET CLEAT**



**PANEL END
DETAIL**

SEE PAGE WS-26 FOR
PANEL ENGAGEMENT

**CROSS SECTION
OF EAVE TRIM
WITH EXTENDED
DRIP EDGE**



**PANEL END
DETAIL**

SEE PAGE WS-26 FOR
PANEL ENGAGEMENT

NOTES:

Offset Cleat

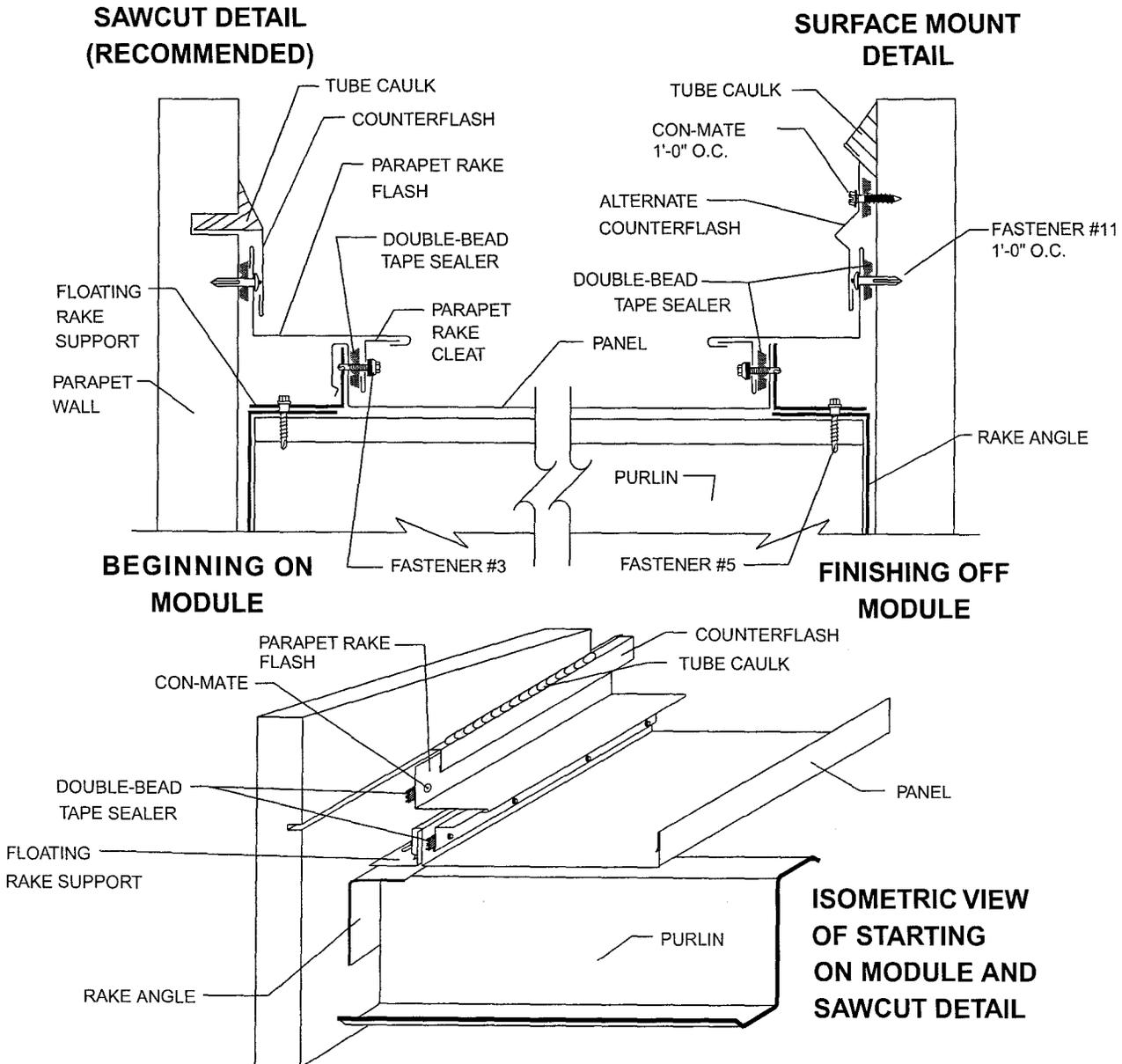
1. The offset cleat method of attachment should be used when ridge, high side eave or endlap is fixed to the substructure. Panels must be attached at one of these points to prevent them from sliding downslope.
2. Attach offset cleat to eave strut with Fastener #12A at 1'-0" o.c.
3. To field hem panel, see page WS-26.
4. See "Panel End Sealant Detail" on page WS-14 to seal panel ends.

Eave with Extended Drip Edge

1. The eave with extended drip edge method of attachment should be used when ridge, high side eave or endlap is fixed to the substructure. Panels must be attached at one of these points to prevent them from sliding downslope.
2. Attach eave trim to eave strut with Fastener #14A at 2'-0" o.c.
3. To field hem panel, see page WS-26.
4. See "Panel End Sealant Detail" on page WS-14.
5. This detail may be used on roofs with pitches of 4:12 or less. For roofs with pitches greater than 4:12, call Whirlwind.



**PARAPET DETAILS
 FLOATING RAKE**



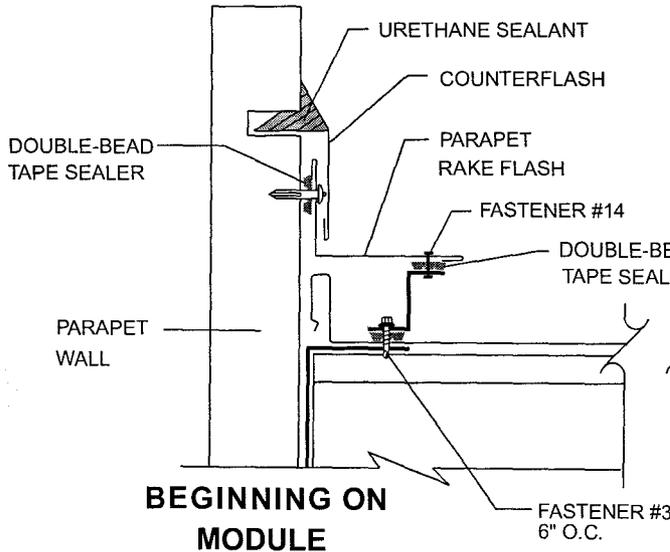
NOTES:

1. Install floating rake support with Fastener #5 at 2'-0" o.c.
2. Engage female leg of panel over rake support.
3. Apply Double-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener #3 at 1'-0" o.c. **FASTENERS MUST GO THROUGH RAKE SUPPORT.**
4. Engage open hem of parapet rake flash onto parapet rake cleat and fasten top leg to parapet wall with Fastener #11.
5. If roof finishes on module, finishing detail will be similar to starting detail. If roof finishes off module, field cut and bend last panel run to fit against floating rake support. Install parapet rake cleat, tape sealer, and parapet rake flash as previously described.
6. If parapet rake flash is not to be immediately installed, temporarily fasten panels to rake support to prevent wind damage.

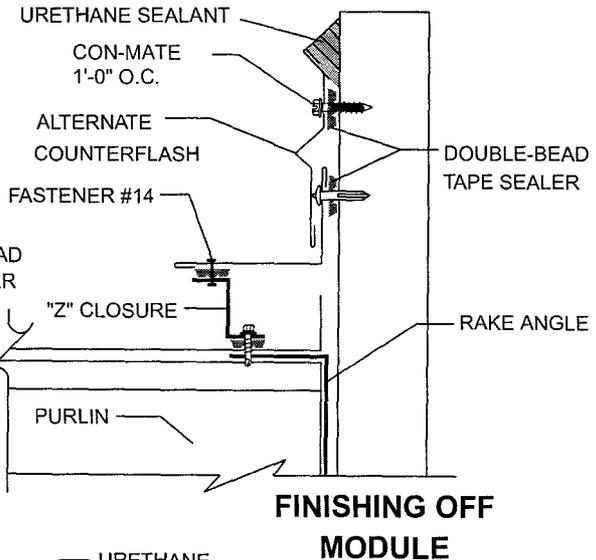


**PARAPET DETAILS
 FIXED RAKE**

**SAWCUT DETAIL
 (RECOMMENDED)**

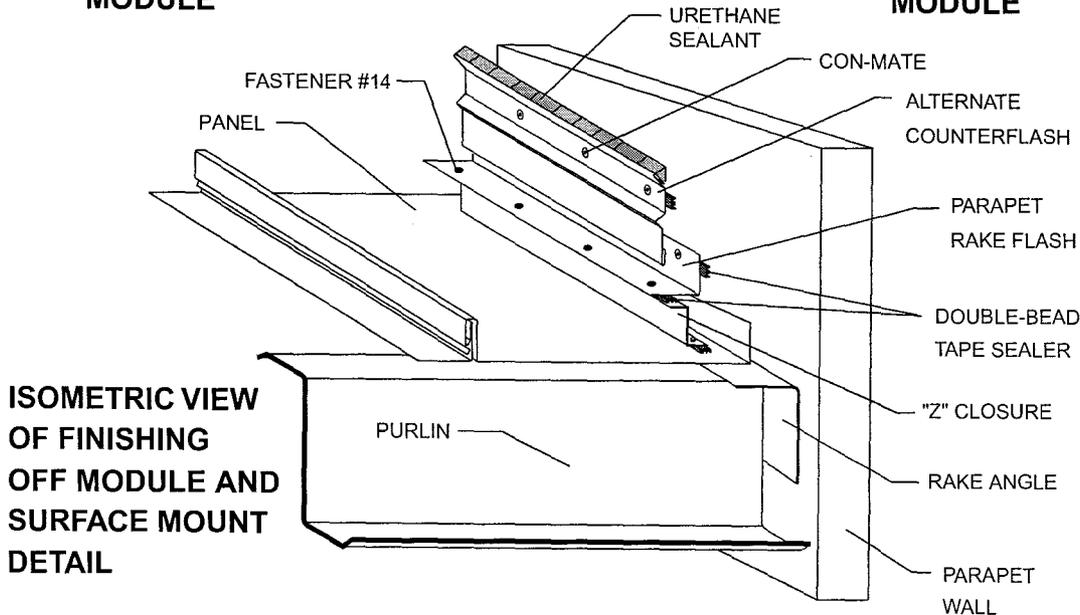


**SURFACE MOUNT
 DETAIL**



**BEGINNING ON
 MODULE**

**FINISHING OFF
 MODULE**



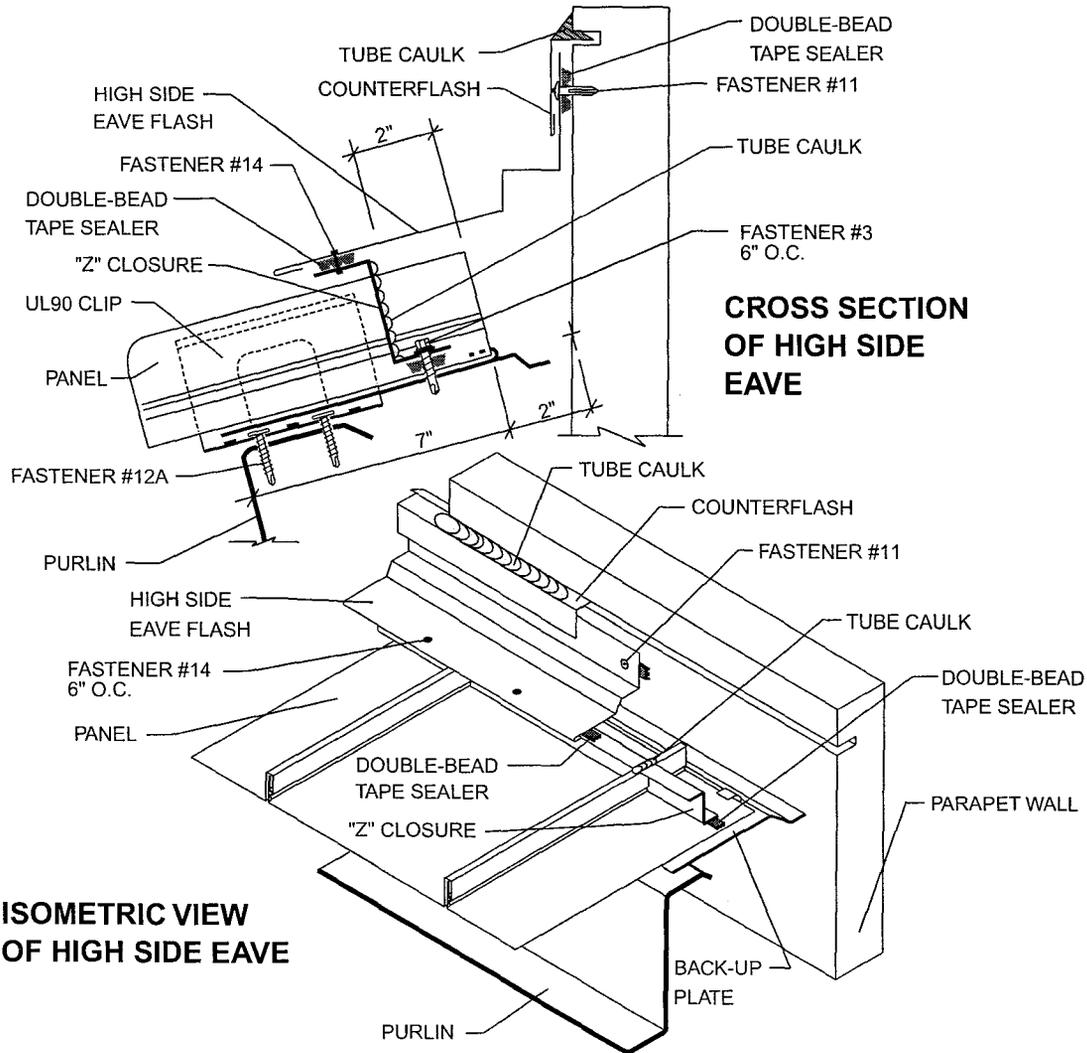
**ISOMETRIC VIEW
 OF FINISHING
 OFF MODULE AND
 SURFACE MOUNT
 DETAIL**

NOTES:

1. Do not use this detail on panel lengths over 20'-0".
2. Install "Z" closure to panel with Fastener #3 at 1'-0" o.c. on top of Double-Bead tape sealer. Apply additional tape sealer to top leg of "Z" closure.
3. Lap all "Z" closures 2". Seal laps with tube caulk.
4. If roof finishes on module, finishing rake detail will be similar to starting detail. If roof finishes off module, field cut and bend panel and install "Z" closure using Fastener #3 at 6" o.c.
5. Attach parapet rake flash to "Z" closure with Fastener#14 at 6" o.c.
6. Seal counterflash to parapet wall with tube caulk.



**PARAPET DETAILS
 HIGH SIDE EAVE**

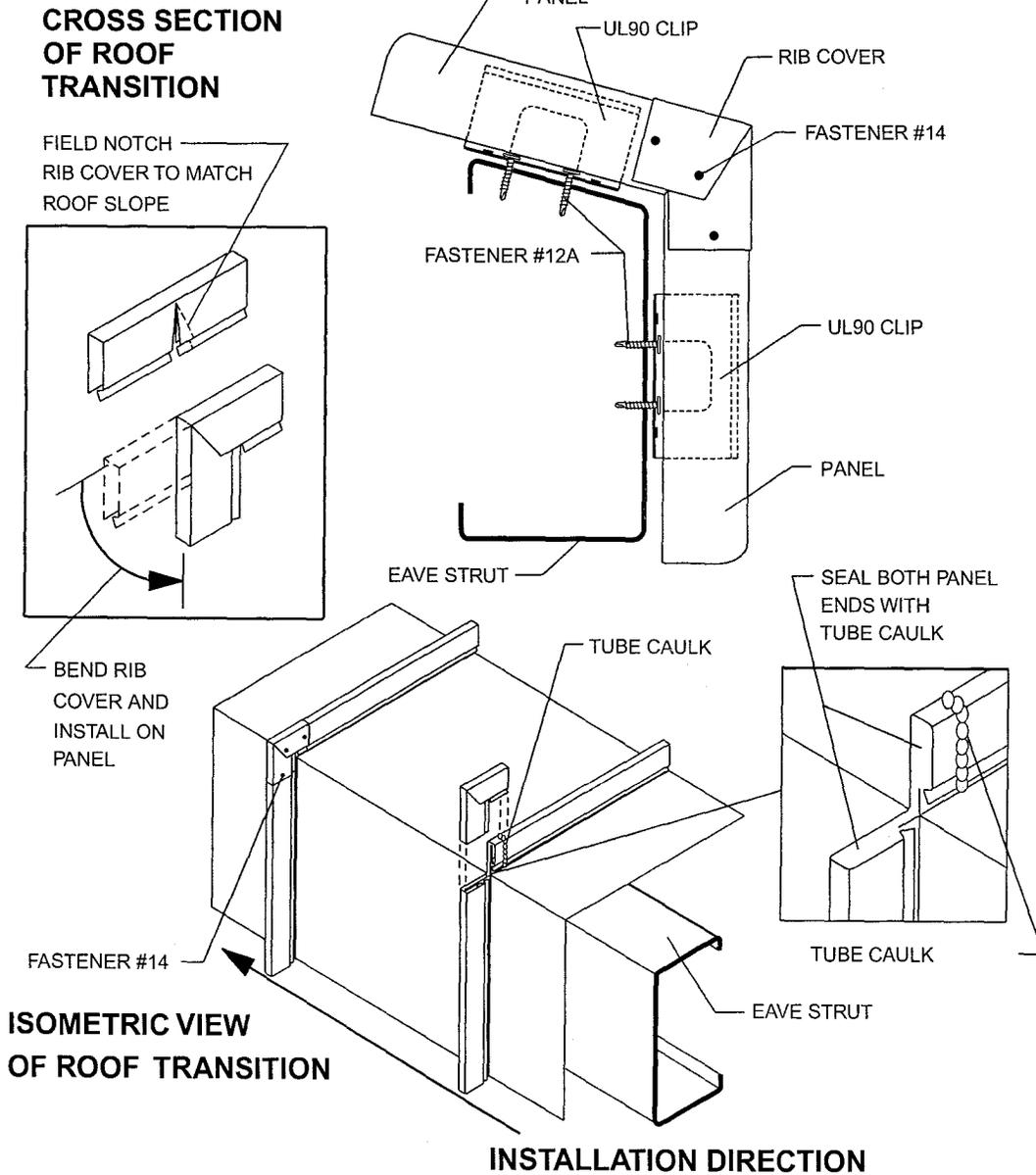


**ISOMETRIC VIEW
 OF HIGH SIDE EAVE**

- NOTES:**
1. Do not use this detail with the offset cleat method of attachment at the eave or valley.
 2. Install back-up plate onto end of panel.
 3. Field cut "Z" closures to fit panel width.
 4. Apply Double-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
 5. Install "Z" closures to panels with Fastener #3 at 6" o.c. Vertical leg of "Z" closures should be 2" from end of panels.
 6. Seal ends of "Z" closures to the panel seams with tube caulk. Apply Double-Bead tape sealer to the top leg of "Z" closures.
 7. Attach parapet high side eave trim to "Z" closure with Fastener #14 at 6" o.c.
 8. Seal counterflash to parapet wall with tube caulk.



ROOF TRANSITION

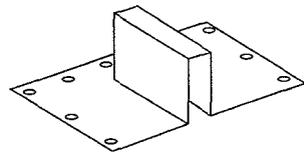
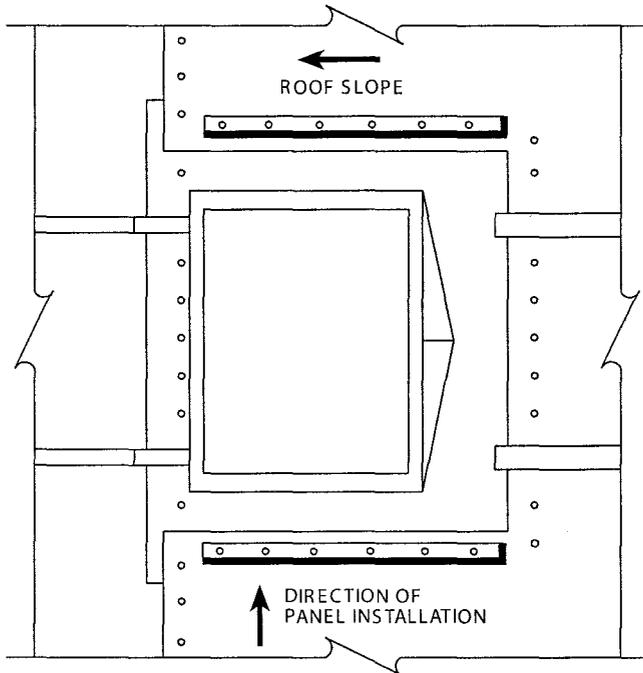


NOTES:

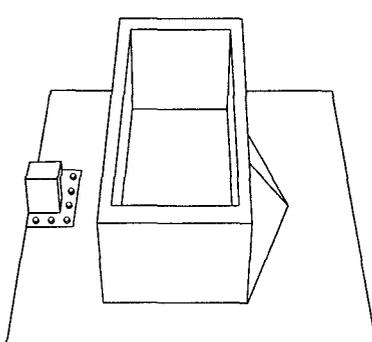
1. Do not use this detail with the fixed ridge or hip details.
2. Field cut legs of panels and bend to required angle.
3. Fill both exposed ends of panel with tube caulk.
4. Field notch rib cover to allow it to bend to the proper angle.
5. Field apply a bead of tube caulk over rib before applying rib cover.
6. Do not use this detail inside the building envelope.



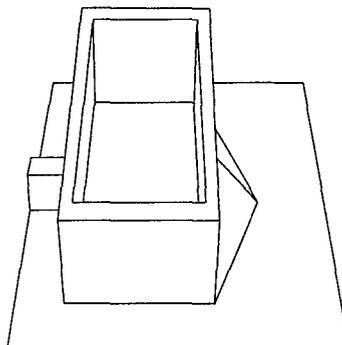
ROOF CURB INSTALLATION INSTRUCTIONS



**LOOSE CAP CELL
 (SPECIFY LEFT OR RIGHT—
 RIGHT SHOWN)**



**ROOF CURB WITH
 LOOSE CAP CELL**



**ROOF CURB WITH FACTORY
 ATTACHED CAP CELL**

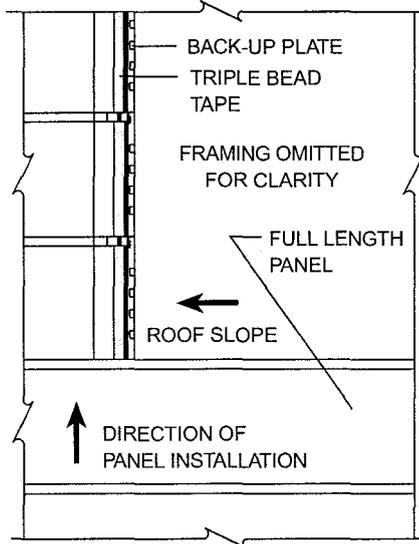
Whirlwind recommends that only one-piece roof curbs be used with the Weather Snap 16 roof system. The roof curb will be installed under the roof panels on the upslope end and over the panels at the downslope end. To accomplish this, the roof panels must be endlapped at the upslope and downslope end of the curb. This allows both ends of the curb to shed water and places the heavier gauge metal of the curb under the roof panels for better resistance to foot traffic. The exception is at the downslope end where the curb is on top of the roof panels. Since there are endlaps at this area, back-up plates provide support. Cinch straps (18 gauge Galvalume®) furnished by the curb manufacturer are used at the sides of the curb to form a compression seal.

Outside cap cells (for bottom) are used to seal the panel to the roof curb. If curb placement is not critical (within 12"), the cap cells may be factory attached to the curb. If the curb must be located in a precise location, order the cap cells loose for field installation.

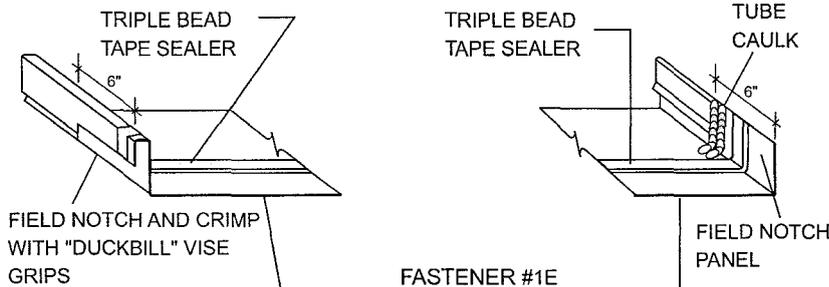
For the purpose of these instructions, a curb with a factory attached cap cell is illustrated.



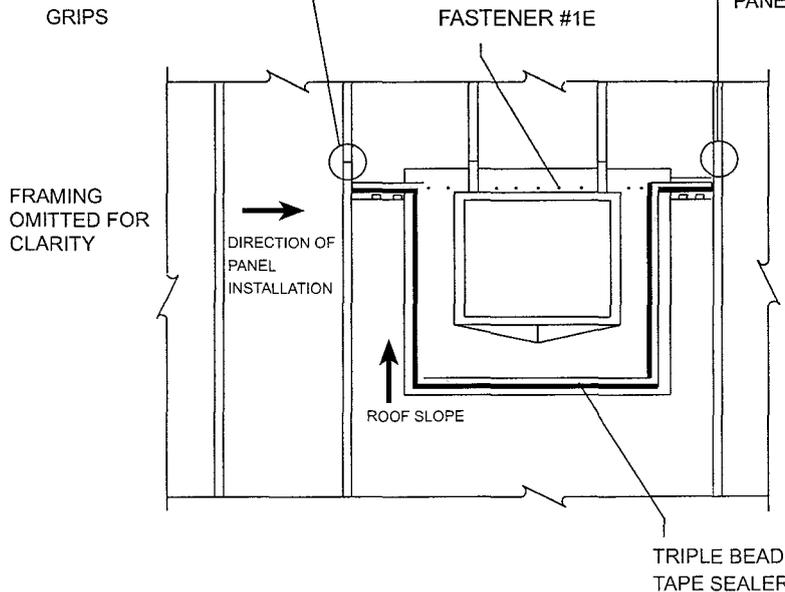
ROOF CURB INSTALLATION INSTRUCTIONS (continued)



Full length panels may be installed up to the curb location. All panel runs affected by a roof curb must have field endlaps at the upslope and downslope end of the curb. Provision must be made for this condition by ordering two panels 12" longer than the panels immediately adjacent to the curb. The panels do not need to be ordered with prepunched holes. Install all bottom panels, engaging back-up plates and apply triple bead tape sealer to each panel as it is being installed. **It is critical that the tape sealer be installed across the full panel width.** Failure to follow this procedure will cause the curb to leak during rains coupled with high winds.



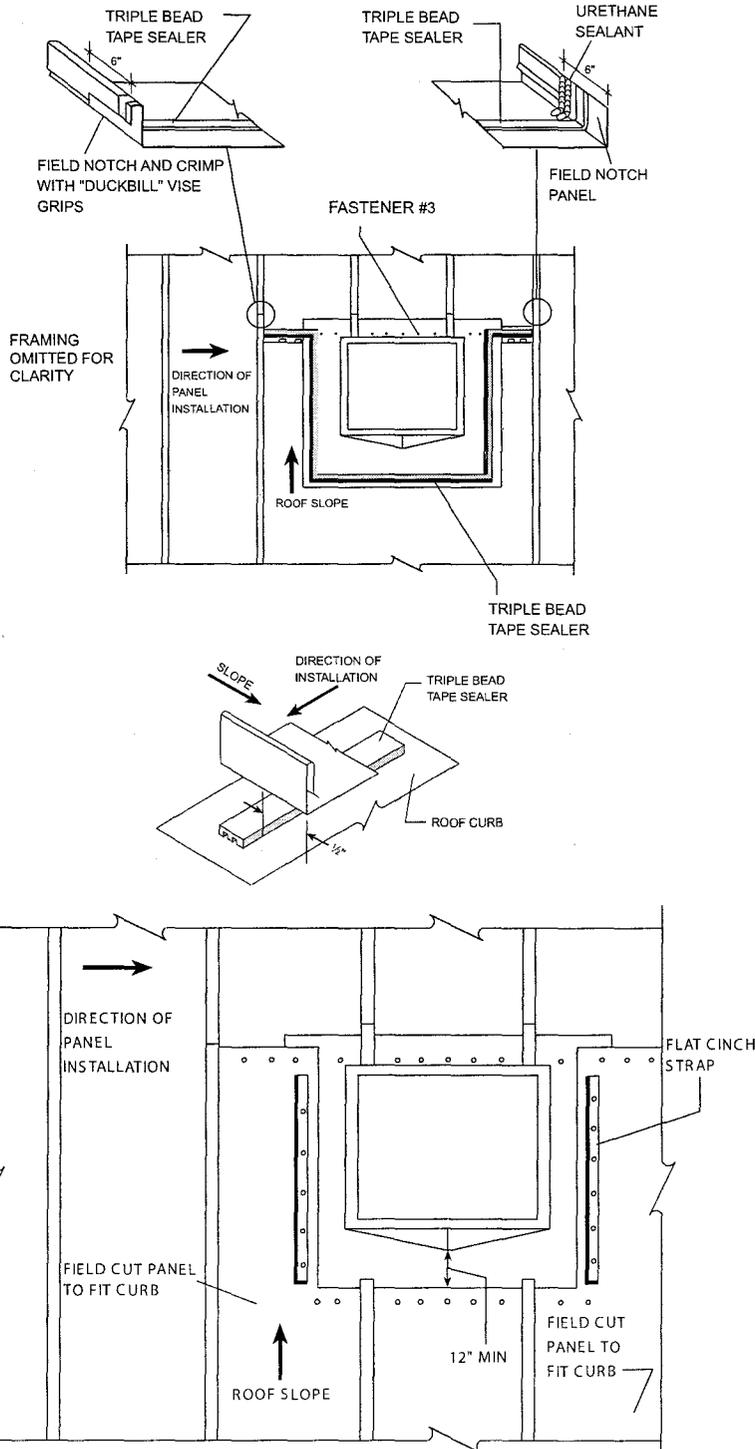
The first downslope panel immediately adjacent to the last full length panel will require field notching of the female leg for a distance of 6". Notch the panel just above the lock in the female leg. The remaining portion of the female leg will need to be crimped with "duckbill" vise grips.



The last downslope panel immediately adjacent to the first full length panel after the curb will require field notching of the male leg for a distance of 6". Notch the panel by removing the male "lock" leg only. Apply two beads of tube caulk vertically to the downslope end of the notch.



ROOF CURB INSTALLATION INSTRUCTIONS (continued)



Install curb on top of bottom panels and curb support framing. When using a loose cap cell, the curb flange must be notched out to accept the panel rib. Apply triple bead tape sealer to the sides and upslope end of curb. Fasten the downslope end of curb to the bottom roof panels and back-up plates with Fastener #3 at 3" o.c. Fasteners must go through the tape sealer.

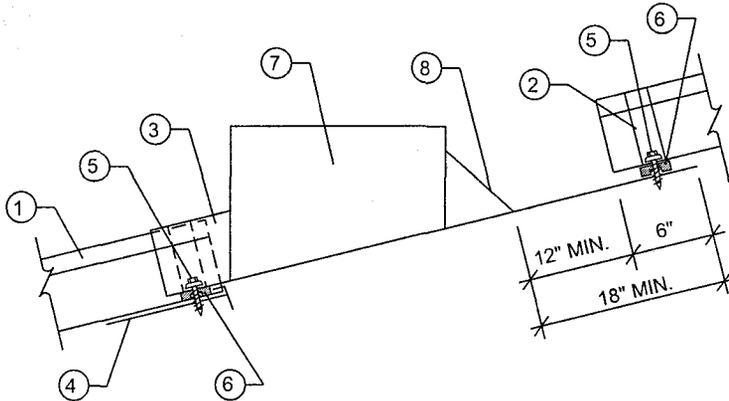
Install the top run of panels cutting the panels at each side of the curb to fit. Apply tube caulk to seams of all panels on the upslope end of the curb. End of top panels should be a minimum of 12" from the point of the water diverter. The top panel should lap onto the curb 6".

Install cinch straps at sides of curb to form a compression seal (cinch straps not by Whirlwind) Fasten cinch straps and top panels with Fastener #3 at 3" o.c. Fasteners must go through the triple bead tape sealer.

Full length panels may now once again be used.



ROOF CURB INSTALLATION INSTRUCTIONS (continued)



- 1. Weather Snap-16 Panel
- 2. Tube Caulk
- 3. Outside Cap Cell
- 4. Back-up Plate
- 5. Fastener #3
- 6. Triple Bead Tape Sealer
- 7. Roof Curb
- 8. Water Diverter
- 9. Cinch Strap, Flat

When ordering curbs, specify one-piece curbs as shown on this page.

