



# LokSeam<sup>®</sup>

Technical/Installation Information

# IMPORTANT NOTICE

**READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE LOKSEAM® ROOFING SYSTEM. ABC DETAILS MUST BE FOLLOWED AS A MINIMUM TO INSURE APPROPRIATE WARRANTIES WILL BE ISSUED.**

**ALWAYS INSPECT EACH AND EVERY PANEL AND ALL ACCESSORIES BEFORE INSTALLATION. NEVER INSTALL ANY PRODUCT IF ITS QUALITY IS IN QUESTION. NOTIFY ABC IMMEDIATELY IF ANY PRODUCT IS BELIEVED TO BE OUT OF TOLERANCE, SPECIFICATION OR HAS BEEN DAMAGED DURING SHIPMENT.**

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

## Ice Dam Disclaimer

ABC designs its standing seam roofs to meet the load requirements dictated by governing codes and project specifications, including applicable snow loads. However, NCI expressly disclaims responsibility for weathertightness or roof point loading issues or other hazards resulting from ice dam situations. Any time ice and snow can melt on the main body of the roof and refreeze at the eave or in the shadow of an adjacent wall, an ice dam situation may develop. In addition to local climate, ice dam formation is affected by many other factors, including but not limited to, roof insulation R value, roof panel color, interior temperature of building, heater location in building, eave overhangs, parapet walls, shading of building roof areas from adjacent trees, parapets, buildings, etc. These factors are design and maintenance issues and are outside the control of NCI. NCI specifically disclaims any liability for damage due to ice dam formation, although the following issues should be taken into consideration concerning standing seam roofs installed in freezing climates:

- Always use field seamed panels. These machine-folded seams are more durable when subjected to occasional icing.
- Eliminate "cold" eave overhangs and parapet walls from the building design. Roof overhangs outside the heated envelope of the building will tend to be colder than the roof areas over the heated envelope. Simple roof designs are preferred. Parapet walls at the eave allow ice and snow to collect due to shading effects and the lower roof temperatures caused thereby.
- Make sure the interior of the building is adequately insulated and the heating is properly distributed. Inadequate insulation in the roof and/or improper heat distribution causes heat flow through the main body of the roof. On days when the temperature is below freezing, this heat gain can cause ice and snow to melt and refreeze at the eave where the roof is colder.
- Lay out the building to prevent the eaves and other roof areas from being shaded during the winter. This may mean eliminating adjacent trees or reconsidering roof geometries.
- Consider using self-regulating heating cables at the eaves to mitigate the effects of ice dams.
- On building designs using attics, over-insulate the attic floor and provide adequate ventilation in the attic. This will reduce heat transfer through the roof resulting in more consistent roof temperatures between eave and field of roof.
- Increase the degree of diligence with respect to underlayment materials at roof areas prone to icing. This may include valleys, eaves, dormers and roof areas near dormers, parapets and the like where shading may occur.

For more information on this subject, please refer to the MCA's Metal Roof Design For Cold Climates manual.

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

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, ABC reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. **To ensure you have the latest information available, please inquire or visit our website at [abcmetalroofing.com](http://abcmetalroofing.com).** Application details are for illustration purposes only and may not be appropriate for all environmental conditions, building designs or panel profiles. Projects should be designed to conform to applicable building codes, regulations and accepted industry practices. If there is a conflict between this manual and project erection drawings, the erection drawings will take precedence.

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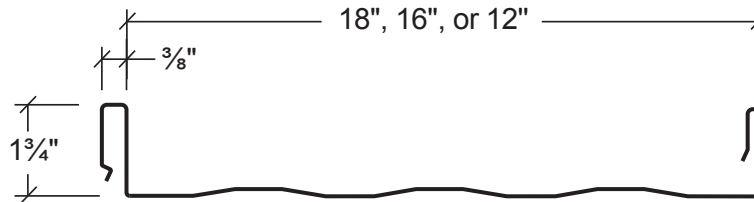
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# ROOFING SYSTEM

## GENERAL DESCRIPTION



Coverage Widths - 18", 16" or 12"

Minimum Slope - 3:12

Panel Attachment - Concealed Fastening Systems, Standard and UL 90 Clips

Panel Substrate - Galvalume® (standard)

Gauge - Standard: 24 (18", 16", 12" widths); Optional: 22 (18", 16", 12" widths), 26 (12" width only)

Finishes - Striated (standard)\* or Embossed Striated (optional)

Coatings - Signature® 200, Signature® 300, Signature® 300 Metallic

## PRODUCT SELECTION CHART

PRODUCT	Signature® 300 Metallic			Signature® 300			Signature® 200			Galvalume Plus®		
	26-Ga.	24Ga.	22-Ga.	26-Ga.	24Ga.	22-Ga.	26-Ga.	24Ga.	22-Ga.	26-Ga.	24Ga.	22-Ga.
LokSeam®												
12" Wide	■	■	■	■	■	■	■	■	■	●	●	■
16" Wide		●	■		●	■		●	■		●	●
18" Wide		●	■		●	■		●	■		●	●

Signature® is a registered trademark of NCI Group, Inc. Galvalume Plus® is a registered trademark of BIEC International.

- — Available in any quantity.
- — Minimum quantity may be required.

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

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

# ROOFING SYSTEM

## ARCHITECT/ENGINEER INFORMATION

1. **LokSeam®** is a snap-together, integral batten roof system, available in three widths: 18", 16", and 12". Factory applied mastic inside of female leg of panel is standard.
2. The minimum recommended slope is 3:12. For slopes less than 3:12, call ABC.
3. **LokSeam®** is a UL 90 rated, structural roofing panel. This panel can be installed directly over purlins or bar joists. It does not require a solid substructure for support (Caution: See Note 14).
4. Watertight and aesthetically pleasing endlaps may be accomplished through the use of swaged and prepunched panels (16" panels can be swaged but not punched). ABC recommends the use of prepunched back-up plates at the endlap for weathertightness. Prepunching of the panels is available for the endlap condition only. (**Swaged endlaps require the roof erection to proceed from left to right as viewed from the eave looking toward the ridge.**) Roofs with no endlaps may be erected from either direction. For panel lengths over 40', please inquire. When using an alternate endlap detail as shown on **Pages LS-37 and LS-53** do not order panels with prepunched endlaps.
5. Panels can be installed on roofs with a transition by using ABC's die-formed rib covers.
6. Narrower widths, heavier gauges, striations and embossing minimize oil canning. Industry standard is 18" wide, 24-gauge. Oil canning is not a cause for rejection.
7. The substructure (eave to ridge) must be on plane with a tolerance of 1/4" in 20' and 3/8" in 40'.
8. All panels require end sealant at eave and valley conditions; however, for illustration purposes, this sealant is not shown on all drawings. See **Page LS-36** for panel end sealant detail.
9. For proper fastener application, see **Pages LS-24 and LS-25**.
10. All drawings and trim dimensions in this manual are based on a 1 1/4" wall thickness ("R" Panel) and a slope of 3:12. Other wall panel thicknesses as well as roof slopes may affect various dimensions on drawings and trim. If you have any questions, call ABC.
11. **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.**
12. **Avoid restricting the thermal expansion and contraction of the LokSeam® panels. (ie: Do not attach panels to the substructure at both the eave and ridge.)**
13. **LokSeam® panels are not designed to be work platforms.** Avoid any unnecessary foot traffic on **LokSeam®** panels. If foot traffic is required, protect the roof panels by using some type of roof pad, temporary deck, or walkway.
14. **When installing LokSeam® 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. (1/4" thick radiant barrier insulation may be used as an alternative to blanket insulation.)**
15. **As with all standing seam roof systems, sound attenuation (example: blanket insulation) should be installed between the panels and open framing, such as purlins or joists, to prevent "roof rumble" during windy conditions.**
16. **Applications over solid deck such as rigid insulation over a metal deck or a wood deck may require additional acoustical consideration to ensure that thermal vibration noises are isolated from the building interior. This is especially important if the bottom of the deck is left open to the interior or in cathedral ceiling applications.**
17. **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 ABC's **LokSeam®** roof system. Therefore, other bracing may be required to conform to A.I.S.C. or A.I.S.I. specifications.

## ENGINEERING

### UNDERWRITERS LABORATORIES APPROVAL

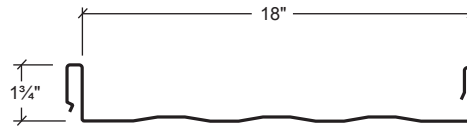
Construction Number	Panel Width (in.)	Gauge	Clip Type	Clip Spacing	Substrate	UL-2218 Impact Resistance	UL-263 Fire Rating	UL-580 Rating
254	12"	22 min.	UL 90	5'-0"	Open Framing	Class 4	Class A	Class 90
254	12"	24 min.	UL 90	4'-0"	Open Framing	Class 4	Class A	Class 90
255	18" max.	24 min.	UL 90	4'-0"	Open Framing	Class 4	Class A	Class 90
303	18" max.	24 min.	UL 90	4'-0"	Composite System	Class 4	Class A	Class 90
342	18" max.	24 min.	UL 90	4'-0"	Composite System	Class 4	Class A	Class 90
343	18" max.	24 min.	UL 90	3'-0"	Plywood	Class 4	Class A	Class 90
414	18" max.	24 min.	UL 90	3'-0"	Plywood	Class 4	Class A	Class 90
436	18" max.	24 min.	UL 90	4'-0"	Plywood	Class 4	Class A	Class 90
445	12"	22 min.	UL 90	5'-0"	Open Framing	Class 4	Class A	Class 90
445	12"	24 min.	UL 90	4'-0"	Open Framing	Class 4	Class A	Class 90
446	18" max.	24 min.	UL 90	4'-0"	Open Framing	Class 4	Class A	Class 90
448	18" max.	24 min.	UL 90	4'-0"	Composite System	Class 4	Class A	Class 90
486	18" max.	24 min.	UL 90	4'-0"	Composite System	Class 4	Class A	Class 90
508A	18" max.	24 min.	UL 90	3'-0"	Composite System	Class 4	Class A	Class 90
543	12" max.	22 min.	UL 90	5'-0"	Open Framing	Class 4	Class A	Class 90
543	18" max.	24 min.	UL 90	4'-0"	Open Framing	Class 4	Class A	Class 90
544	18" max.	24 min.	UL 90	4'-0"	Composite System	Class 4	Class A	Class 90

#### NOTES

1. Wind uplift test procedures are in accordance with Underwriters Laboratories Standard UL-580 under "Tests For Uplift Resistance of Roof Assemblies".
2. A detailed installation method is available for each Construction Number above and can be found in the UL Roofing Materials and Systems Directory. The panels must be installed in a certain manner to achieve the published results.
3. The panel qualifies for a Class A fire rating in compliance with Underwriters Laboratories Standard UL-263.
4. The panel system is listed under following Fire Resistance Design Numbers: P225, P227, P230, P237, P265, P268, P508, P510, P512, P701, P711, P720, P722, P726, P731, P734, P801, P815, and P819. Refer to the UL Fire Resistance Directory for specific construction methods and hourly ratings.
5. **LokSeam®** panels carry a Class 4 rating under UL-2218 "Test Standard For Impact Resistance".

# ENGINEERING

## LokSeam® PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	F <sub>y</sub>	WEIGHT	l <sub>xe</sub>	S <sub>xe</sub>	Maxo	l <sub>xe</sub>	S <sub>xe</sub>	Maxo
GAUGE	(KSI)	(PSF)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)
24	50	1.25	0.0321	0.0403	1.2066	0.0682	0.0465	1.3912
22	50	1.60	0.0446	0.0594	1.7795	0.0957	0.0655	1.9620

### NOTES

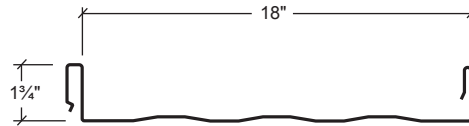
1. All calculations for the properties of **LokSeam®** panels are calculated in accordance with the 2012 edition of the North American Specification for Design of Cold-Formed Steel Structural Members.
2. l<sub>xe</sub> is for deflection determination.
3. S<sub>xe</sub> is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.

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



# ENGINEERING

## LokSeam® PANEL



### ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

24- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	148.4	103.1	75.7	58.0	45.8	37.1	30.7
2-SPAN	LIVE LOAD	128.7	89.4	65.7	50.3	39.7	32.2	26.6
3-SPAN	LIVE LOAD	160.9	111.7	82.1	62.8	49.7	40.2	33.2
4-SPAN	LIVE LOAD	150.2	104.3	76.6	58.7	46.4	37.6	31.0

22- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	200.0	145.3	106.8	81.8	64.6	52.3	43.2
2-SPAN	LIVE LOAD	189.8	131.8	96.8	74.1	58.6	47.5	39.2
3-SPAN	LIVE LOAD	200.0	164.8	121.1	92.7	73.2	59.3	49.0
4-SPAN	LIVE LOAD	200.0	153.8	113.0	86.5	68.4	55.4	45.8

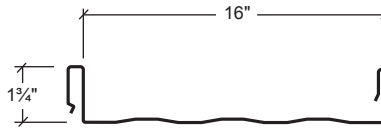
**NOTES:**

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

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# ENGINEERING

## LokSeam® PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	F <sub>y</sub>	WEIGHT	I <sub>xe</sub>	S <sub>xe</sub>	Maxo	I <sub>xe</sub>	S <sub>xe</sub>	Maxo
GAUGE	(KSI)	(PSF)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)
24	50	1.34	0.0361	0.0452	1.3527	0.0758	0.0520	1.5570
22	50	1.71	0.0500	0.0666	1.9938	0.1052	0.0731	2.1921

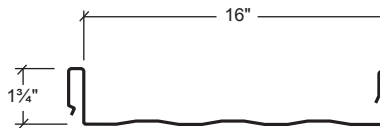
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		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	166.1	115.3	84.7	64.9	51.3	41.5	34.4
2-SPAN	LIVE LOAD	144.8	100.5	73.9	56.6	44.7	36.2	29.8
3-SPAN	LIVE LOAD	181.0	125.7	92.3	70.7	55.9	45.2	37.4
4-SPAN	LIVE LOAD	169.0	117.3	86.2	66.0	52.1	42.2	34.9

22- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	200.0	162.4	119.3	91.3	72.2	58.5	48.3
2-SPAN	LIVE LOAD	200.0	147.7	108.5	83.1	65.6	53.2	43.9
3-SPAN	LIVE LOAD	200.0	184.6	135.6	103.8	82.0	66.5	54.9
4-SPAN	LIVE LOAD	200.0	172.4	126.6	97.0	76.6	62.1	51.3

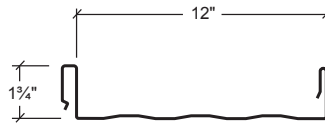
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24	50	1.41	0.0472	0.0597	1.7888	0.0953	0.0682	2.0429
22	50	1.81	0.0663	0.0878	2.6292	0.1313	0.0954	2.8577

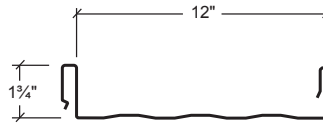
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# ENGINEERING

## LokSeam® PANEL



### ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

24- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	200.0	151.3	111.2	85.1	67.3	54.5	45.0
2-SPAN	LIVE LOAD	190.8	132.5	97.3	74.5	58.9	47.7	39.4
3-SPAN	LIVE LOAD	200.0	165.5	121.7	93.2	73.6	59.6	49.3
4-SPAN	LIVE LOAD	200.0	154.6	113.6	87.0	68.7	55.7	46.0

22- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	200.0	200.0	155.5	119.1	94.1	76.2	63.0
2-SPAN	LIVE LOAD	200.0	194.8	143.1	109.6	86.6	70.1	57.9
3-SPAN	LIVE LOAD	200.0	200.0	178.9	136.9	108.2	87.6	72.4
4-SPAN	LIVE LOAD	200.0	200.0	167.0	127.9	101.0	81.8	67.6

**NOTES:**

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

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

# GENERAL INFORMATION

## PRODUCT CHECKLIST

<p><b>LokSeam® Panel</b></p> <p>18" 16" 12"</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p><b>Back-Up Plate</b></p> <ul style="list-style-type: none"> <li>• For use at ridge and endlaps</li> <li>• Prepunched</li> <li>• 16-gauge red oxide</li> </ul> <p>HW-7762 18" <input type="checkbox"/> HW-7766 16" <input type="checkbox"/> HW-7764 12" <input type="checkbox"/></p>	<p><b>Floating Rake Support</b></p> <ul style="list-style-type: none"> <li>• 20' Length</li> <li>• 14-gauge red oxide</li> <li>• Factory slots</li> </ul> <p>1 3/4" 2 1/4"</p> <p>HW-4680 <input type="checkbox"/></p>
<p><b>Clips</b></p> <p>Standard - HW-6200 <input type="checkbox"/> UL 90 - HW-6400 <input type="checkbox"/></p>	<p><b>Bearing Plate Standard</b></p> <ul style="list-style-type: none"> <li>• 16-gauge red oxide</li> <li>• For use with rigid-board insulation</li> </ul> <p>5" 3 1/2"</p> <p>HW-7500 <input type="checkbox"/></p>	<p><b>Support Plates</b></p> <p>10 1/16" 1" SPECIFY ANGLE 11 11/16" SPECIFY ANGLE</p> <p>Floating Ridge/Hip P-141 <input type="checkbox"/> Fixed Ridge P-140 <input type="checkbox"/></p>
<p><b>Ridge Flash, Floating</b></p> <ul style="list-style-type: none"> <li>• 4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p>2 1/2" 4" 1 1/4" 120° SPECIFY ANGLE</p> <p>T-5087 <input type="checkbox"/></p>	<p><b>Ridge Flash for Vent</b></p> <ul style="list-style-type: none"> <li>• 4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> <li>• For use with vent material</li> </ul> <p>2 1/2" 5 1/2" 1 1/4" 120° 95° 1" COLOR</p> <p>T-5089 <input type="checkbox"/></p>	<p><b>Ridge Flash for Vent</b></p> <ul style="list-style-type: none"> <li>• 4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> <li>• For use with vent material</li> </ul> <p>2 1/2" 5 1/2" 1 1/4" 1 3/8" 120° 95° 1" COLOR SPECIFY ANGLE</p> <p>FL-540 <input type="checkbox"/></p>
<p><b>Ridge/Hip Flash, Fixed</b></p> <ul style="list-style-type: none"> <li>• 4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p>6 1/2" 120° SPECIFY ANGLE COLOR</p> <p>T-5075 <input type="checkbox"/></p>	<p><b>Peak Cap</b></p> <ul style="list-style-type: none"> <li>• 4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p>10 1/4" 5" 135° 5/8" COLOR SPECIFY ANGLE</p> <p>T-5085 <input type="checkbox"/></p>	<p><b>Box Rake</b></p> <p>4" 5" 90° 135° 5/8" COLOR</p> <p>T-5235 <input type="checkbox"/></p>

NOTE: All trim to be 24-gauge material unless noted

# GENERAL INFORMATION

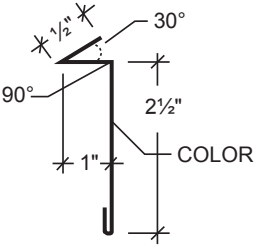
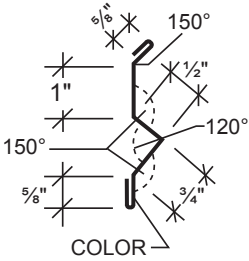
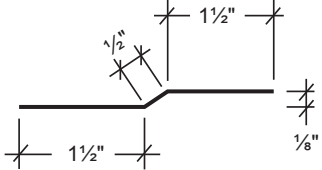
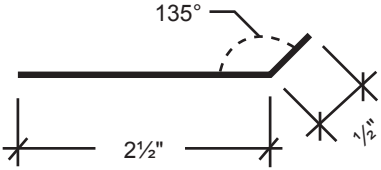
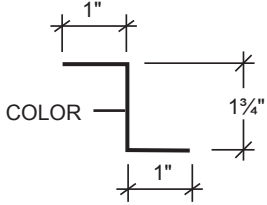
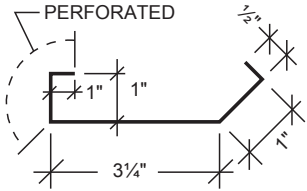
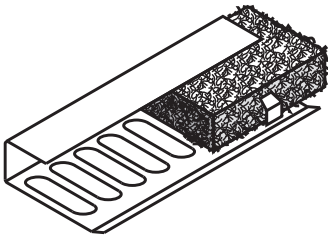
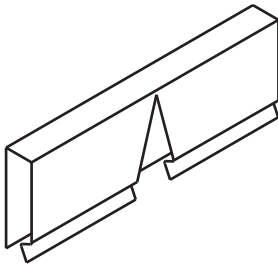
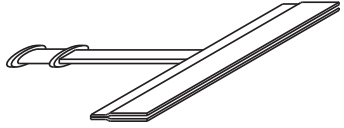


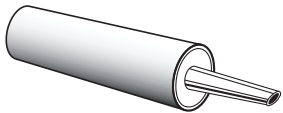
## PRODUCT CHECKLIST

<p><b>Eave Trim</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5141 <input type="checkbox"/></p>	<p><b>Eave Trim w Drip Edge</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> <li>Max bend 6:12 pitch</li> </ul> <p style="text-align: right;">T-5151 <input type="checkbox"/></p>	<p><b>Box Gutter</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5261 <input type="checkbox"/></p>
<p><b>Box Gutter w/Drip Edge</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5271 <input type="checkbox"/></p>	<p><b>Snow Gutter</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5291 <input type="checkbox"/></p>	<p><b>Gutter End</b></p> <p style="text-align: right;">T-5281 <input type="checkbox"/></p> <p><b>Gutter Strap</b></p> <p style="text-align: right;">T-5281 <input type="checkbox"/></p>
<p><b>Valley Trim - Standard</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5093 <input type="checkbox"/></p>	<p><b>Valley Trim - Extended</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5097 <input type="checkbox"/></p>	<p><b>Parapet High Side Eave Flash-Fixed</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5211 <input type="checkbox"/> T-5213 <input type="checkbox"/></p>
<p><b>Parapet High Side Eave Flash-Floating</b></p> <ul style="list-style-type: none"> <li>4:12 PITCH STANDARD UNLESS SPECIFIED OTHERWISE</li> </ul> <p style="text-align: right;">T-5215 <input type="checkbox"/></p>	<p><b>Parapet Rake Flash</b></p> <p style="text-align: right;">T-5217 <input type="checkbox"/></p>	<p><b>Parapet Rake Cleat</b></p> <p style="text-align: right;">T-5219 <input type="checkbox"/></p>

NOTE: All trim to be 24-gauge material unless noted  
SUBJECT TO CHANGE WITHOUT NOTICE

# GENERAL INFORMATION

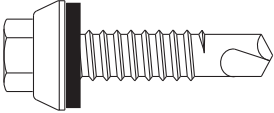
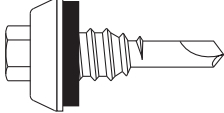
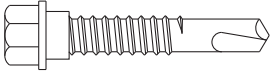
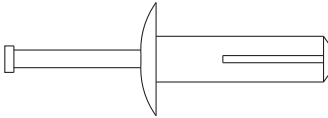
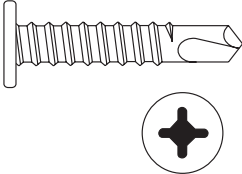
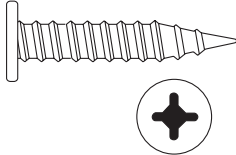
## PRODUCT CHECKLIST

<p><b>Counterflash</b></p>  <p>T-5255 <input type="checkbox"/></p>	<p><b>Alternate Counterflash</b></p>  <p>T-5221 <input type="checkbox"/></p>	<p><b>Offset Cleat</b></p>  <p>T-5131 <input type="checkbox"/></p>
<p><b>Continuous Cleat</b></p>  <p>T-5121 <input type="checkbox"/></p>	<p><b>Zee Closure</b></p>  <p>T-5014 <input type="checkbox"/></p>	<p><b>Perforated Vent Drip</b></p>  <p>FL-254 <input type="checkbox"/></p>
<p><b>Metal Vent Material</b></p>  <p>HW-525 <input type="checkbox"/></p>	<p><b>Rib Cover</b></p>  <p>FL-565 <input type="checkbox"/></p>	<p><b>Panel Hemming Tool</b></p>  <p>HW-602 <input type="checkbox"/></p>
<p><b>Tape Sealer</b></p> <ul style="list-style-type: none"> <li>• For use at eave, ridge, and endlaps</li> </ul>  <p>Tri-Bead</p> <p>HW-504 <input type="checkbox"/></p>	<p><b>Tape Sealer</b></p> <ul style="list-style-type: none"> <li>• For use at valleys with through fasteners</li> </ul>  <p>Triple Bead</p> <p>HW-502 <input type="checkbox"/></p>	<p><b>Tube Sealant</b></p> <ul style="list-style-type: none"> <li>• Paintable</li> <li>• Urethane</li> </ul>  <p>HW-540 — WHITE <input type="checkbox"/>  HW-541 — GRAY <input type="checkbox"/>  HW-544 — ALMOND <input type="checkbox"/>  HW-542 — MED. BRONZE <input type="checkbox"/></p>




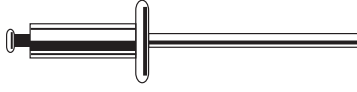



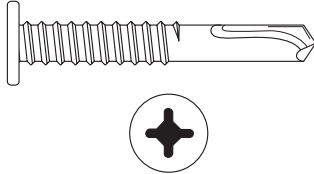
## GENERAL INFORMATION

### PRODUCT CHECKLIST

<p><b>Fastener #1E</b></p> <ul style="list-style-type: none"> <li>Panel to eave strut</li> <li>Standard endlap</li> <li>Panel to valley plate (fixed)</li> <li>Floating Rake or Parapet Rake</li> </ul>  <p>1/4" - 14 x 1 1/4" Long Life Driller 5/16" Hex Washer Head with sealing washer <input type="checkbox"/></p>	<p><b>Fastener #4</b></p> <ul style="list-style-type: none"> <li>zee closure to panel at ridge (without back-up plate)</li> </ul>  <p>1/4" - 14 x 7/8" Lap Tek 5/16" Hex Washer Head with 5/8" O.D. washer <input type="checkbox"/></p>
<p><b>Fastener #5</b></p> <ul style="list-style-type: none"> <li>Rake support to purlin</li> </ul>  <p>1/4" - 14 x 1 1/4" Shoulder Tek 2 5/16" Hex Washer Head no washer <input type="checkbox"/></p>	<p><b>Fastener #11</b></p> <ul style="list-style-type: none"> <li>Parapet rake flash to masonry parapet wall</li> </ul>  <p>1/4" x 1 1/4" Nail Drive Masonry Anchor <input type="checkbox"/></p>
<p><b>Fastener #12A</b></p> <ul style="list-style-type: none"> <li>Clip to purlin</li> <li>Offset cleat/panel starter to eave strut or valley plate</li> </ul>  <p>12-11 x 1" Pancake Head with #3 Drill Point #2 Quadrex Drive <input type="checkbox"/></p>	<p><b>Fastener #13A</b></p> <ul style="list-style-type: none"> <li>Clip to plywood</li> <li>zee closure to plywood</li> <li>Offset cleat to plywood</li> </ul>  <p>12-11 x 1" Pancake Head Type A #2 Quadrex Drive <input type="checkbox"/></p>

# GENERAL INFORMATION

## PRODUCT CHECKLIST

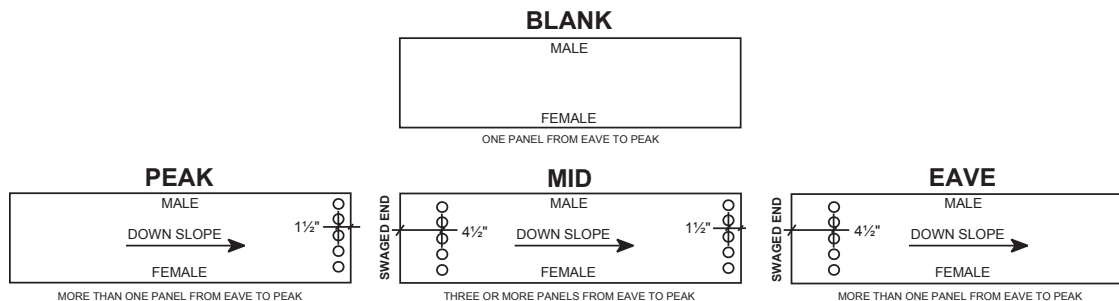
<p><b>Fastener #14</b></p> <ul style="list-style-type: none"> <li>• Trim to trim</li> <li>• Trim to panel</li> </ul>  <p>1/8" x 0.337" Pop Rivet stainless steel</p> <input type="checkbox"/>	<p><b>Fastener #14A</b></p> <ul style="list-style-type: none"> <li>• zee Closure to angle at floating hip</li> </ul>  <p>1/8" x 0.525" Pop Rivet stainless steel</p> <input type="checkbox"/>
<p><b>Fastener #210</b></p> <ul style="list-style-type: none"> <li>• For clip attachment in a composite roof assembly</li> <li>• Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications</li> <li>• Length to be determined by insulation thickness and metal deck depth</li> </ul>  <p>14 x 3" Deck Screw #3 Phillips Truss Head</p> <input type="checkbox"/>	<p><b>Fastener #211</b></p> <ul style="list-style-type: none"> <li>• For clip attachment in a composite roof assembly</li> <li>• Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications</li> <li>• Length to be determined by insulation thickness and metal deck depth</li> </ul>  <p>14 x 4" Deck Screw Driller #3 Phillips Truss Head</p> <input type="checkbox"/>
<p><b>Fastener #15D</b></p> <ul style="list-style-type: none"> <li>• For clip attachment in a composite roof assembly</li> <li>• Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications</li> <li>• Length to be determined by insulation thickness and metal deck depth</li> </ul>  <p>14 x 6" Deck Screw #3 Phillips Truss Head</p> <input type="checkbox"/>	<p><b>Fastener #16</b></p> <ul style="list-style-type: none"> <li>• Clip to joist</li> <li>• Offset cleat/panel starter to joist</li> </ul>  <p>12 x 24 x 1/4" #2 Quadrex Drive</p> <input type="checkbox"/>

## GENERAL INFORMATION

### ORDERING INFORMATION

When ordering **LokSeam®** panels without technical assistance from ABC, 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 LS-31.**
2. Panel Designations - Each panel must have a designation to be properly manufactured. These designations are: Blank, Peak, Mid and Eave.
3. Panels may be specified as: "Notched" for folding hem at eave. Add 3" to panel length. If factory notching is requested, panels will be notched 1½" at both ends. **Note: Notching is only available for Blank Panels.**



4. 16" wide panels can be swaged but not prepunched.
5. If you are using an endlap with an offset cleat as shown on **pages LS-37 and LS-53**, you must also specify that the panels *not be prepunched*. Panels will still be swaged as normal. If your specific detail is not in this manual or if you have questions concerning panel length, designation, or product application, call your ABC sales representative.

### INSTALLATION GUIDELINES

- I. Pre-Order
  - A. Prior to ordering panels, all dimensions should be confirmed by field measurement.
- II. Job site 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.

# GENERAL INFORMATION

## PREPARATORY REQUIREMENTS

1. A single pitch eave strut must be used with the **LokSeam®** Roof System.
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. The substructure (eave to ridge) must be on plane tolerance of  $\frac{1}{4}$ " in 20' and  $\frac{3}{8}$ " in 40'.
5. 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.
6. 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).
7. ABC can furnish **LokSeam®** roof panels in 18", 16" and 12" widths. However, for the purpose of this manual, we have assumed that the roof panels will be 18" wide.

### CAUTION

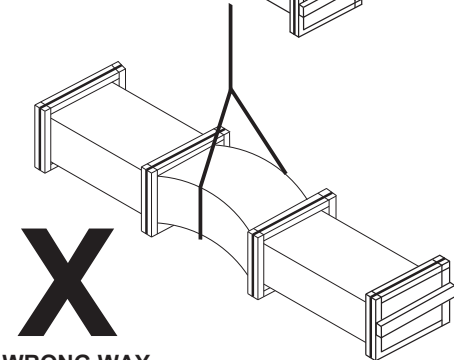
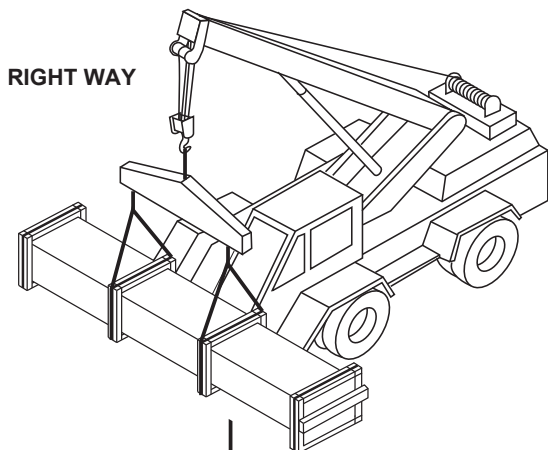
Application and design details are for illustration purposes only, and may not be appropriate for all environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.

### CAUTION

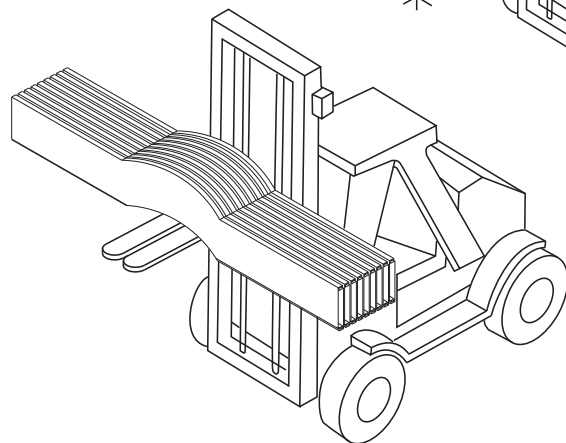
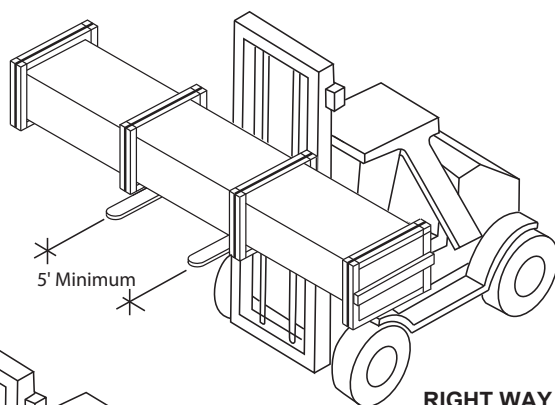
Diaphragm capabilities and purlin stability are not provided by ABC's **LokSeam®** roof system. Therefore, other bracing may be required to conform to A.I.S.C. or A.I.S.I. specifications.

## GENERAL INFORMATION

### UNLOADING



**WRONG WAY**



**WRONG WAY**

Upon receiving material, check shipment against shipping list for shortages and damages. ABC 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.

**CAUTION**

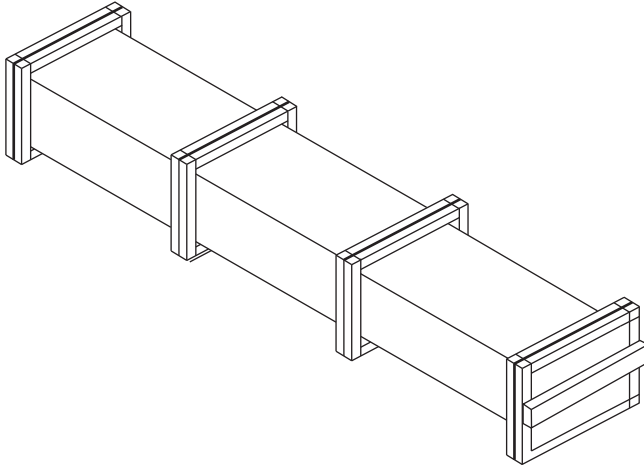
Improper unloading and handling of bundles and crates may cause bodily injury or material damage. The manufacturer is not responsible for bodily injuries or material damages during unloading and storage.

# GENERAL INFORMATION

## UNLOADING (continued)

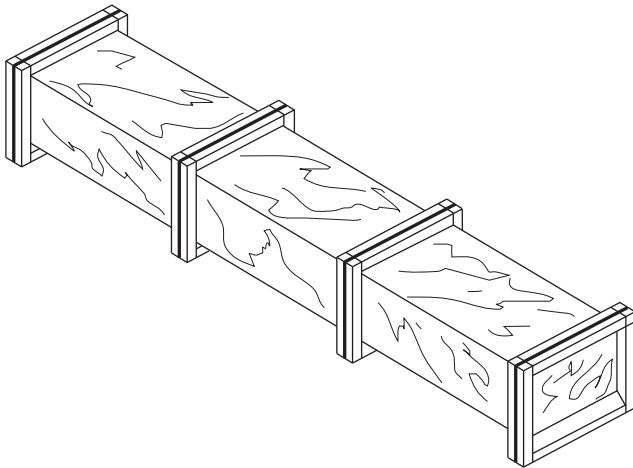
### BLOCK AND BAND WITH CARDBOARD CARTON

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.

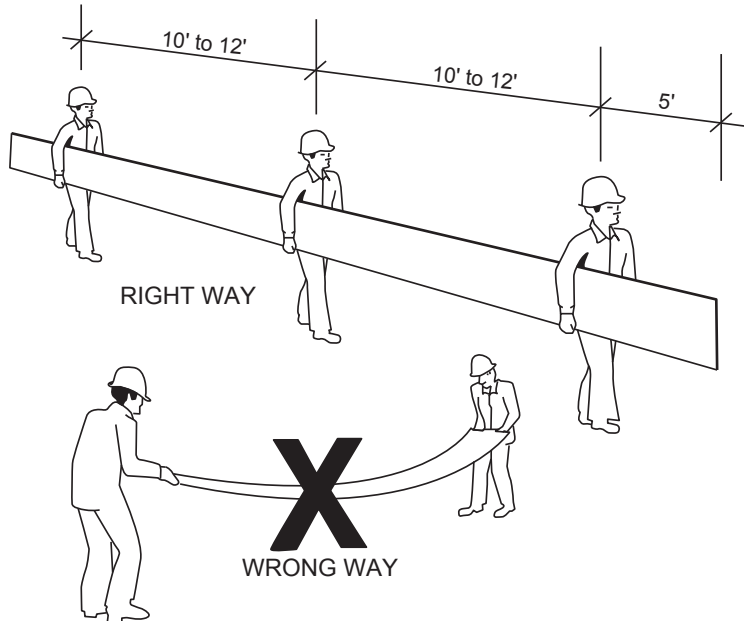


### FULL CRATE

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



## 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.

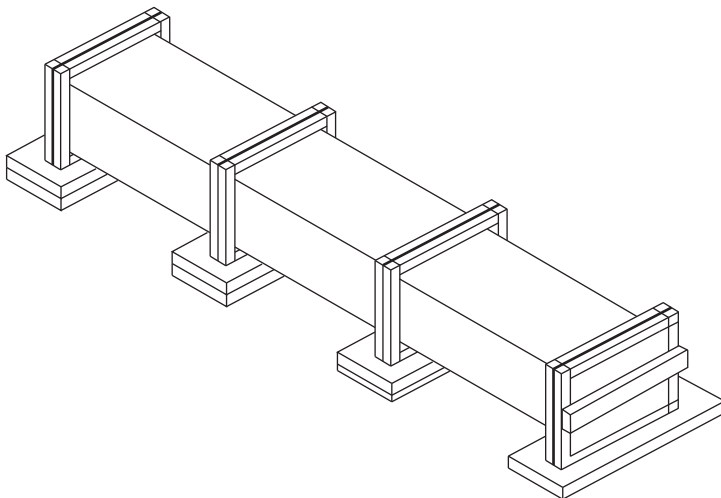
#### NOTE

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.

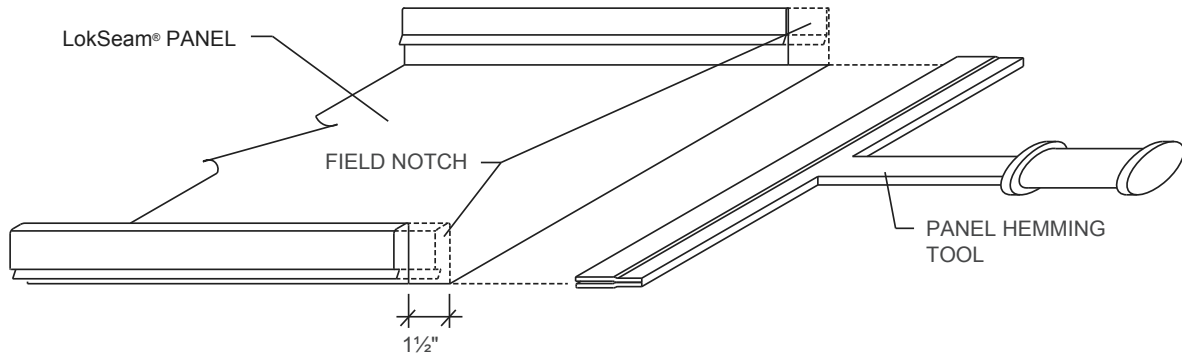
**PROLONGED STORAGE OF SHEETS IN A BUNDLE IS NOT RECOMMENDED.** If conditions do not permit immediate erection, extra care should be taken to protect sheets from white rust or water marks.

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.

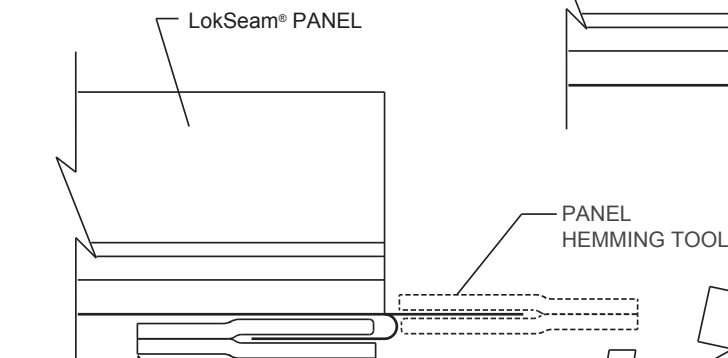
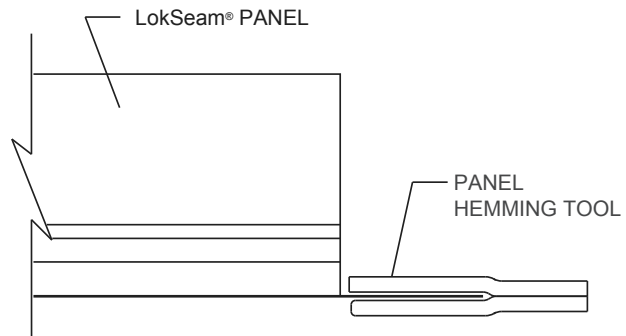


# GENERAL INFORMATION

## FIELD HEMMING PANEL END

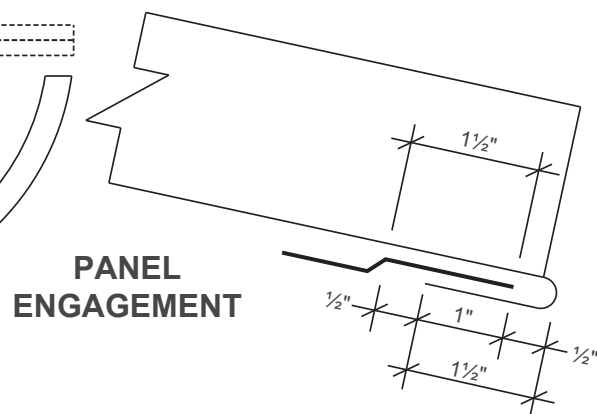


### NOTCHING PANEL END



### FORMING OPEN HEM

### ENGAGING HEMMING TOOL



### PANEL ENGAGEMENT

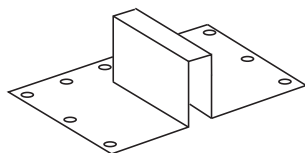
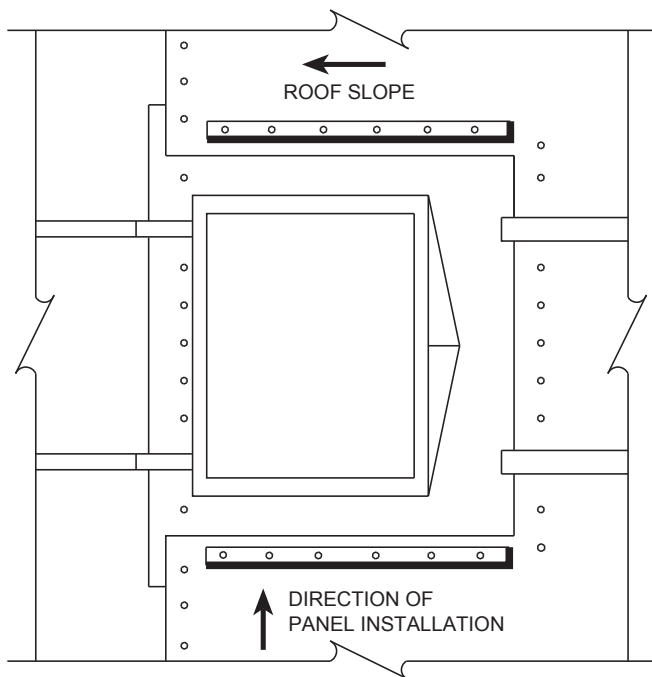
#### NOTES:

1. Field notch male and female legs of panel 1 1/2". (Factory notching is available, call ABC)
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 ABC.

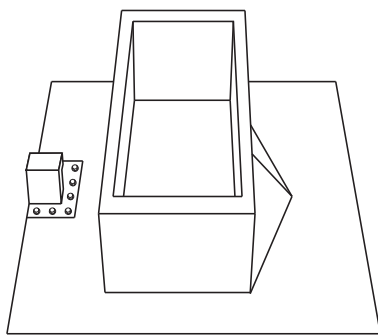


## SPECIAL ERECTION TECHNIQUES

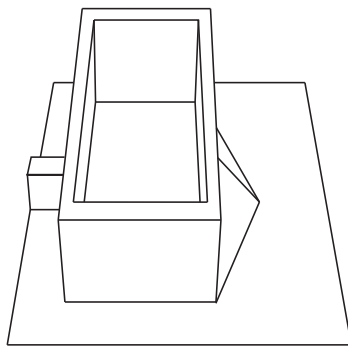
### ROOF CURB INSTALLATION INSTRUCTIONS



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



**ROOF CURB WITH  
LOOSE CAP CELL**



**ROOF CURB WITH FACTORY  
ATTACHED CAP CELL**

**ABC recommends that only one-piece .080 Aluminum (Min.) roof curbs be used with the LokSeam® 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.

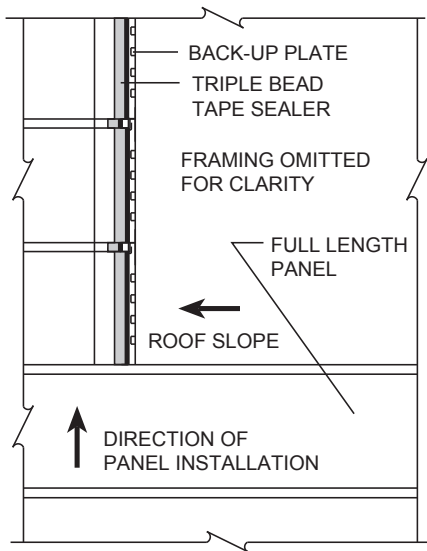
For the purpose of these instructions, a curb with a factory attached cap cell is illustrated. Panels are assumed to be blank and installed right to left.

**CAUTION**

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

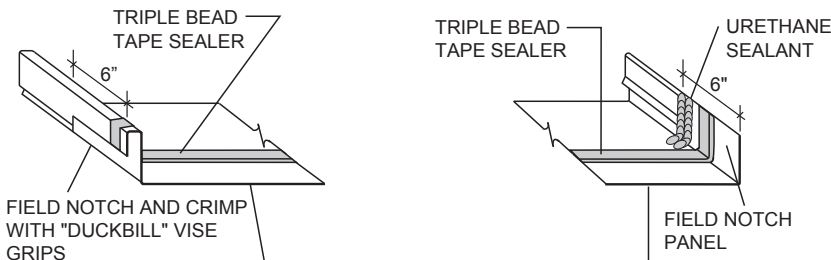
# SPECIAL ERECTION TECHNIQUES

## ROOF CURB INSTALLATION INSTRUCTIONS (continued)

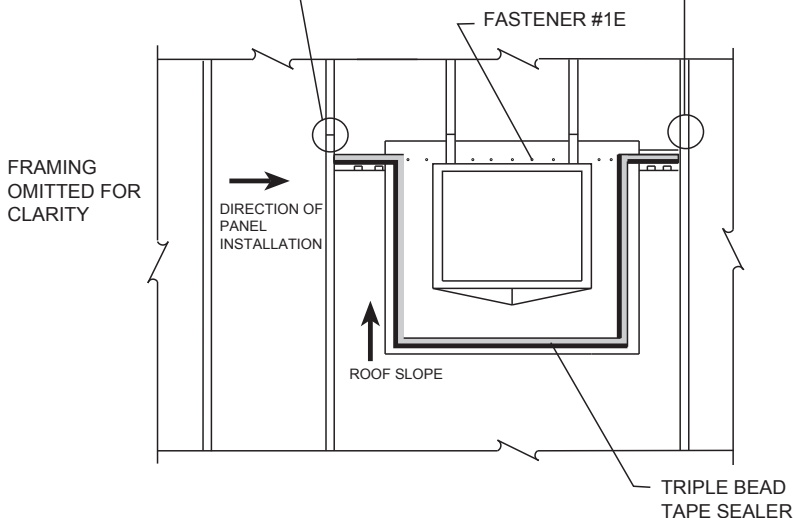


Full length panels may be installed up to the curb location. All panel runs affected by a roof curb must have field endlaps at the upslope and downslope end of the curb. Provision must be made for this condition by ordering two panels 12" longer than the panels immediately adjacent to the curb. The panels do not need to be ordered with pre-punched holes. Install all bottom panels, engaging backup 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 urethane sealant vertically to the downslope end of the notch.

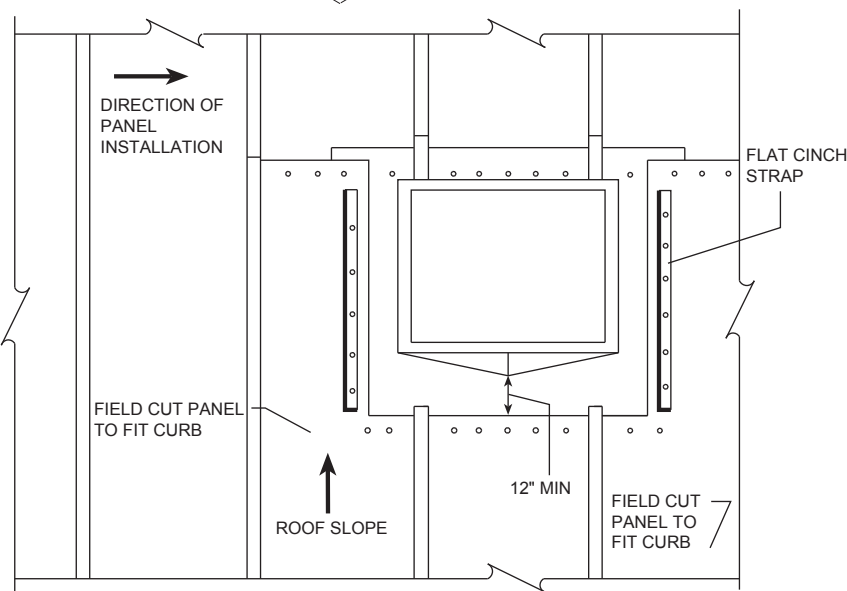
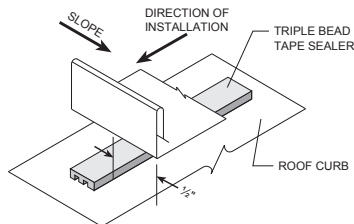
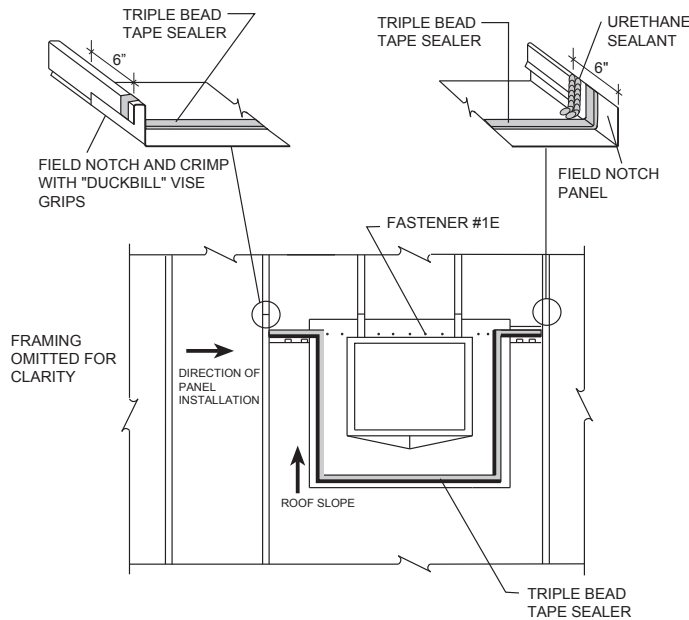


**CAUTION**

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

## SPECIAL ERECTION TECHNIQUES

### 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 #1E 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 urethane sealant 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 ABC) Fasten cinch straps and top panels with Fastener #1E at 3" o.c. Fasteners must go through the triple bead tape sealer.

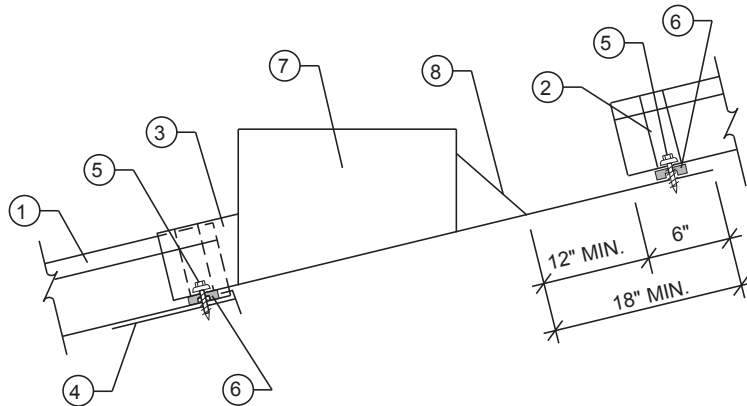
Full length panels may now once again be used.

**CAUTION**

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

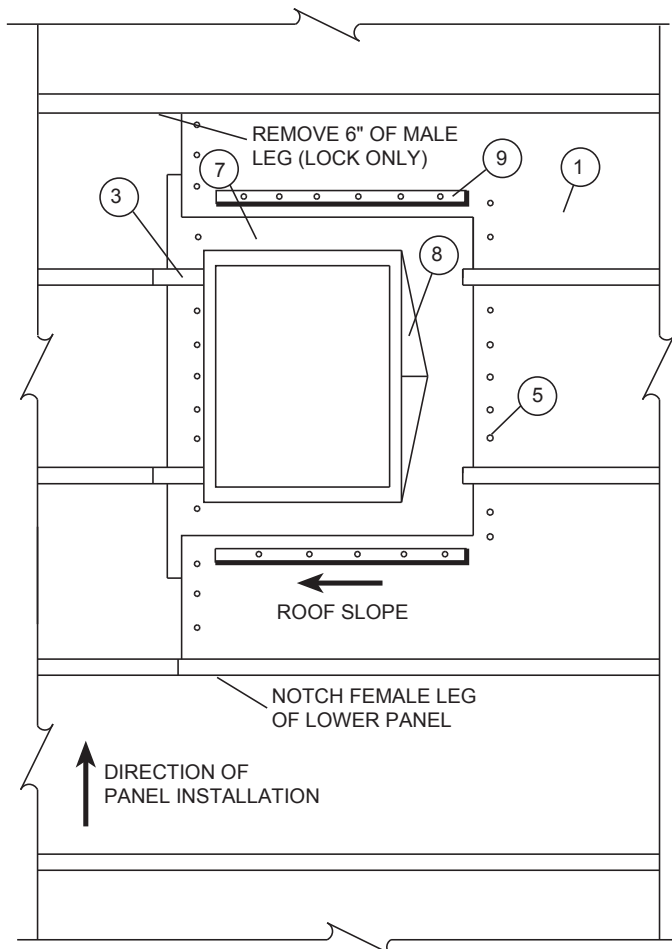
# SPECIAL ERECTION TECHNIQUES

## ROOF CURB INSTALLATION INSTRUCTIONS (continued)



1. LokSeam® Panel
2. Urethane Sealant
3. Outside Cap Cell
4. Back-up Plate
5. Fastener #1E
6. Tri-bead Tape Sealer
7. Roof Curb Made From Structural Aluminum (Min. .080 Thickness)
8. Water Diverter
9. Cinch Strap, Flat

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

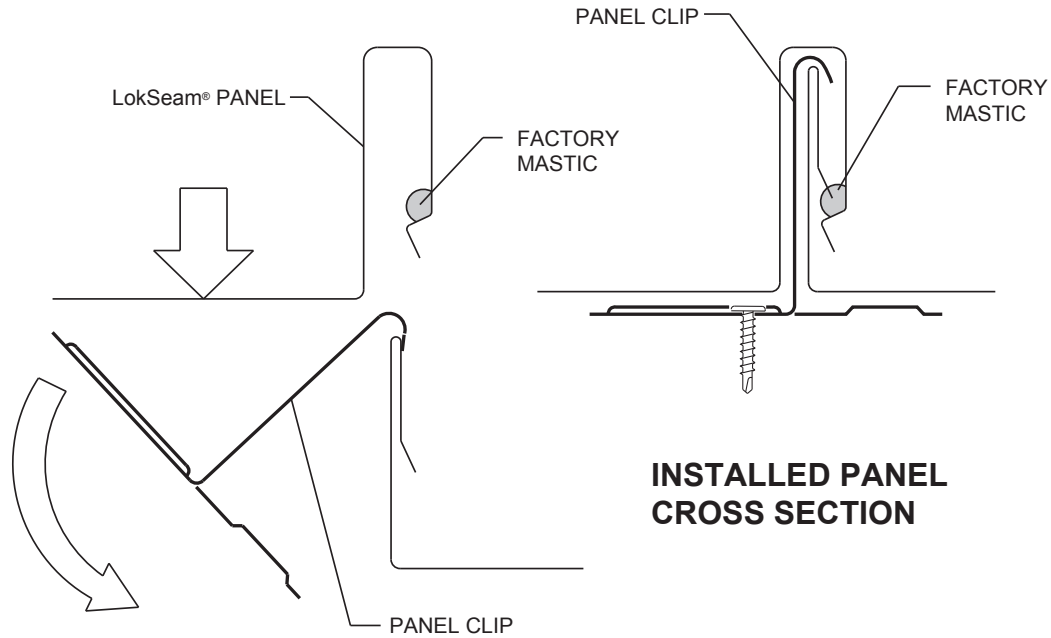


### CAUTION

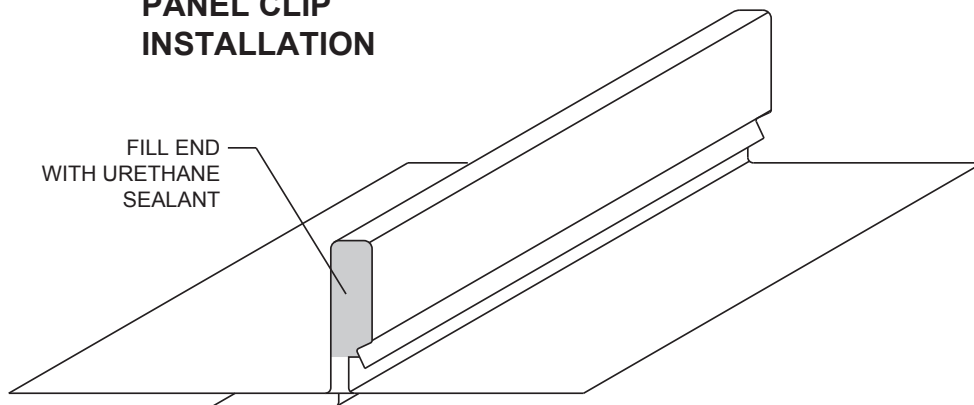
It is the user's responsibility to ensure that openings cut into the roof for installation of roof curbs comply with State, Federal and OSHA regulations and laws, including, but not limited to, guarding roof openings with plywood, fixed standard railings, or other acceptable safety controls that prevent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

## DETAIL

### PANEL



### PANEL CLIP INSTALLATION



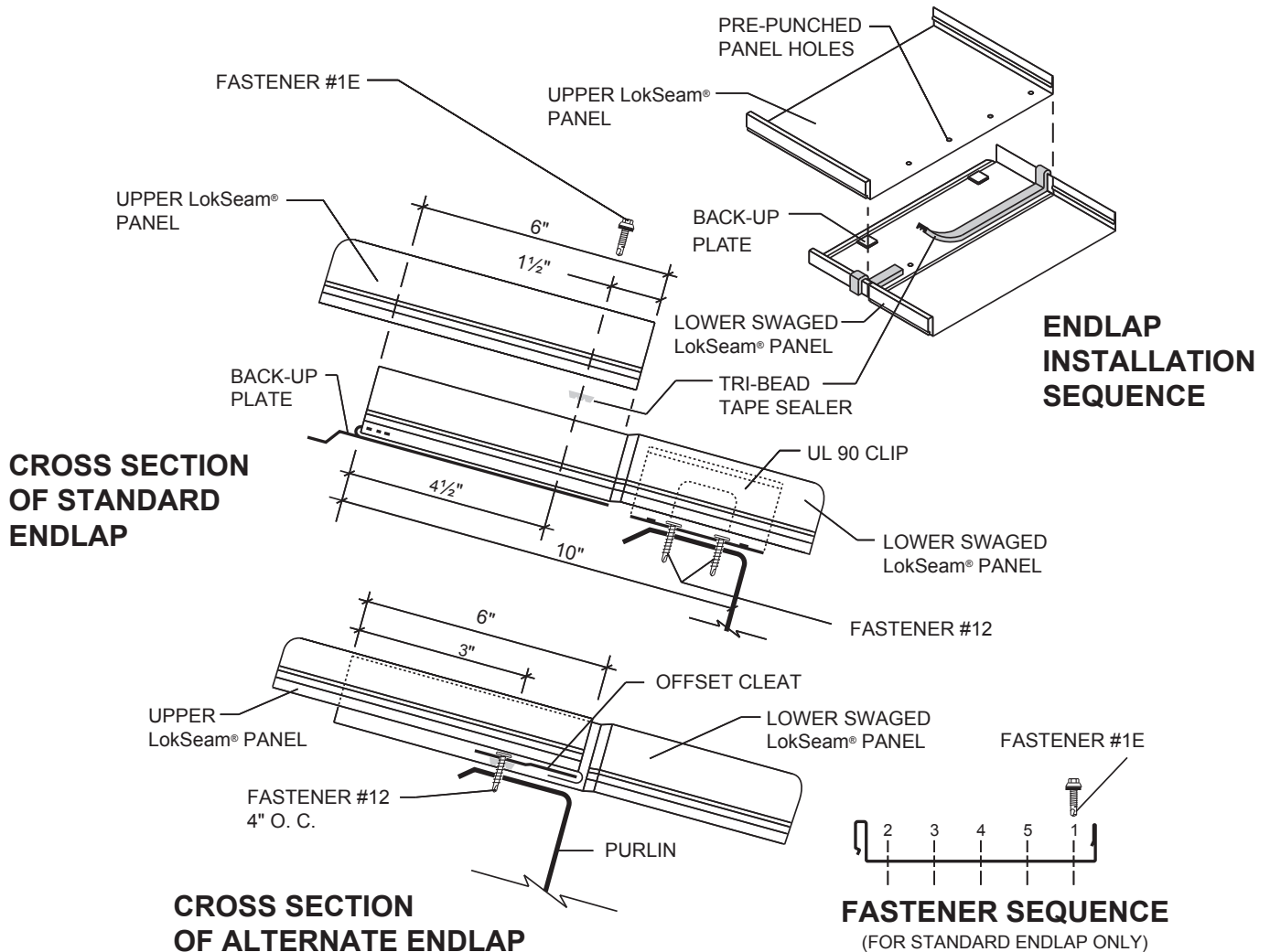
### PANEL END SEALANT DETAIL

#### NOTES:

1. Fill end of panel seam at eave and valleys with urethane sealant.
2. For UL 90 rating, UL 90 clips with two fasteners must be used.

# DETAIL

## OPEN FRAMING ENDLAP

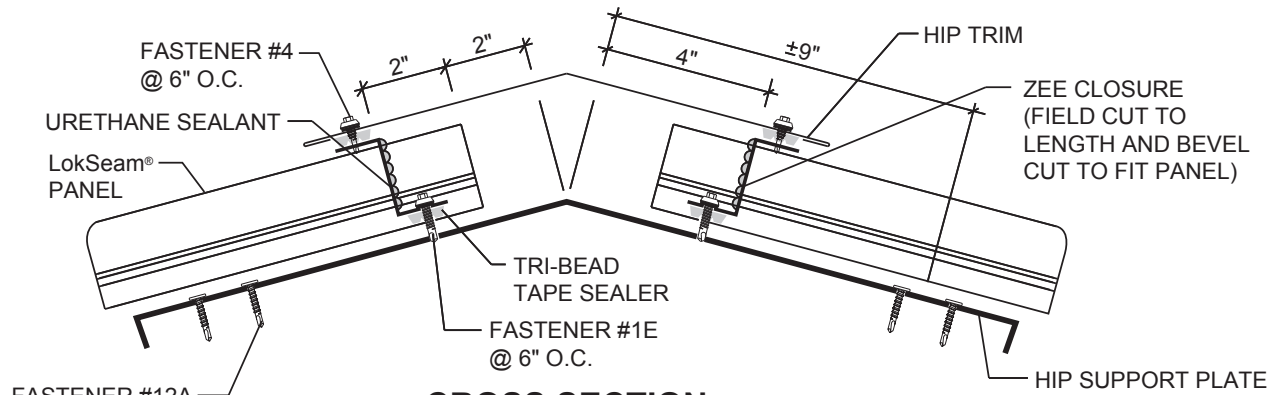


**NOTES:**

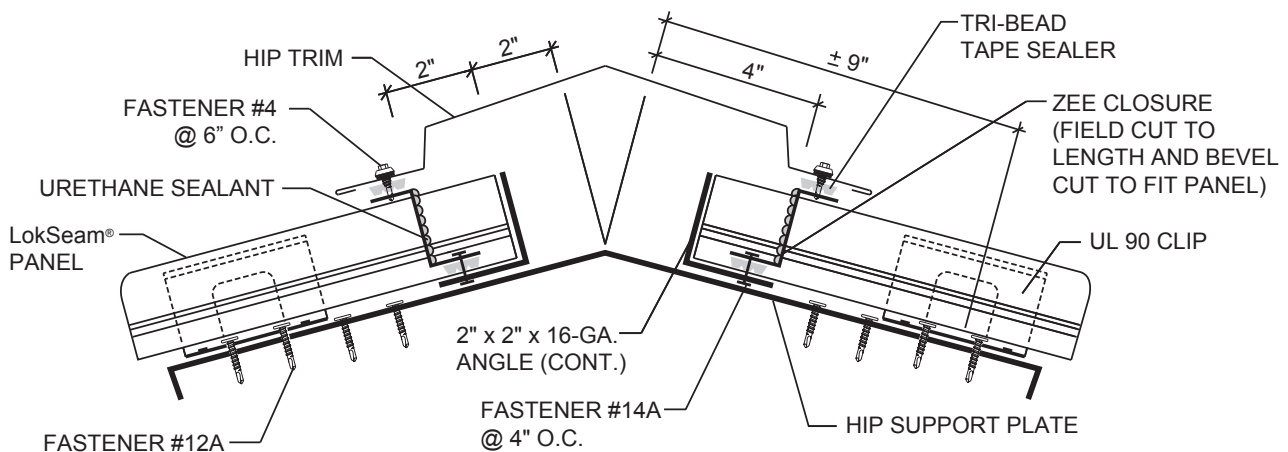
1. A UL 90 rating is not available on roofs over open framing with endlaps.
2. Install bottom panel so that the eave has the proper overhang (refer to eave details). The swaged, upslope end of the panel should be 10" from the web of the purlin.
3. Slide a prepunched back-up plate onto the end of the panel; make sure the teeth on top of the back-up plate are on top of the panel. Visually check to see that the holes in the back-up plate align with the prepunched holes in the panel.
4. Place Tri-Bead tape sealer over the entire width of the panel. It must be centered directly over the prepunched holes.
5. Using an awl to align the holes, install top panel by lapping it over the swaged portion of the bottom panel. Install Fastener #1E in the prepunched holes in the proper sequence.
6. Endlaps require roof erection to proceed from left to right as viewed from the eave looking toward the ridge.
7. When using the alternate endlap method, LokSeam® panels should be ordered without the prepunched endlap holes. Panels will be swaged as normal. Order the upper endlap panel 1 1/2" longer than normal for the panel hem. See Page LS-26 for ordering information.
8. 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.

## DETAIL

### OPEN FRAMING HIP



### CROSS SECTION OF FIXED HIP



### CROSS SECTION OF FLOATING HIP

#### NOTES:

##### Fixed Hip

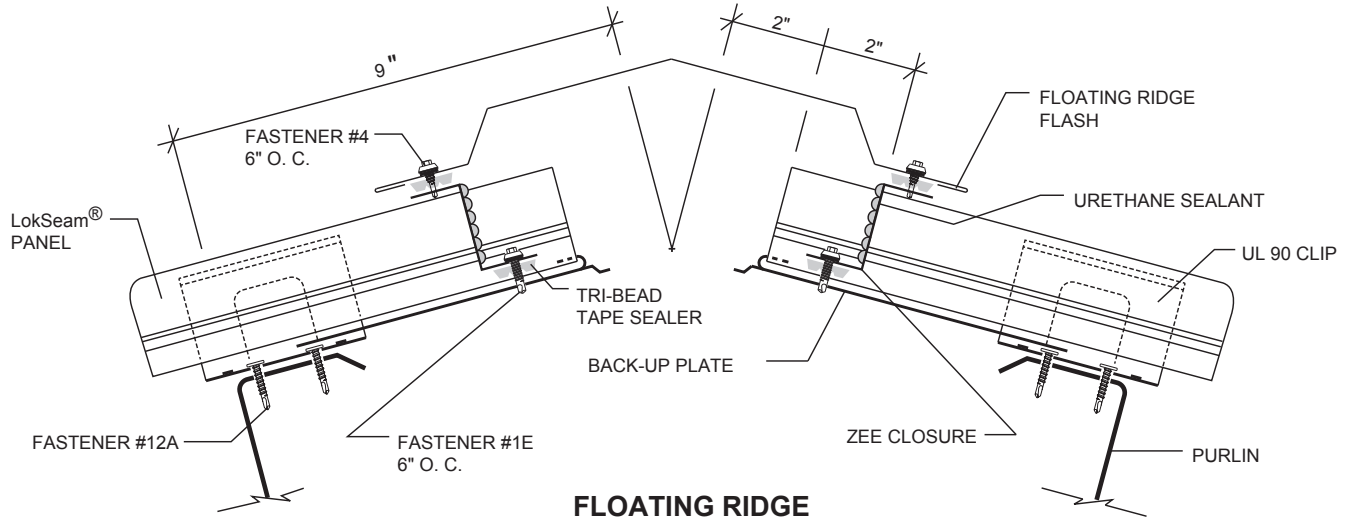
1. Do not use this detail with the fixed eave or valley details.
2. Install hip support plate, notching downturned leg at purlin locations.
3. Bevel cut and install panels to follow slope of hip.
4. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be 3½" from the center of the hip.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 4" from center of hip.

##### Floating Hip

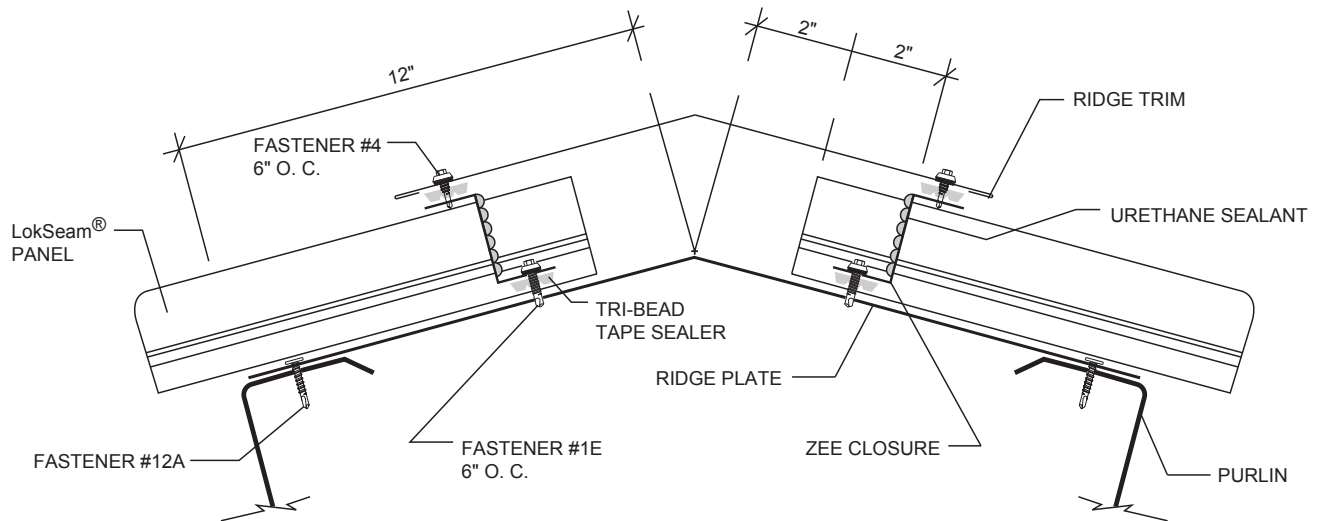
1. Do not use this detail with the floating eave or valley details.
2. Install hip support plate, notching downturned leg at purlin locations.
3. Bevel cut and install panels to follow slope of hip.
4. Install Tri-Bead tape sealer to panels, running parallel to the hip. Center of tape sealer should be 3½" from center of hip.
5. Slide a length of 2" x 2" x 16-gauge angle under the panels. **Do not fasten 2" x 2" angle to hip support plate. This will restrain the panels from floating.**
6. Bevel cut and install zee closures to panels and 2" x 2" angle with Fastener #14A at 4" o.c. Vertical leg of zee closure should be 4" from center of hip. Seal sides and top of zee closures to panel seams with urethane sealant.

# DETAIL

## OPEN FRAMING RIDGE



## FLOATING RIDGE



## FIXED RIDGE

### NOTES:

#### Floating Ridge

1. Do not use this detail with a floating eave or valley details.
2. Install back-up plate onto end of panel.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 1½" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
6. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closure.
7. Attach ridge flash to zee closure with Fastener #4 at 6" o.c.

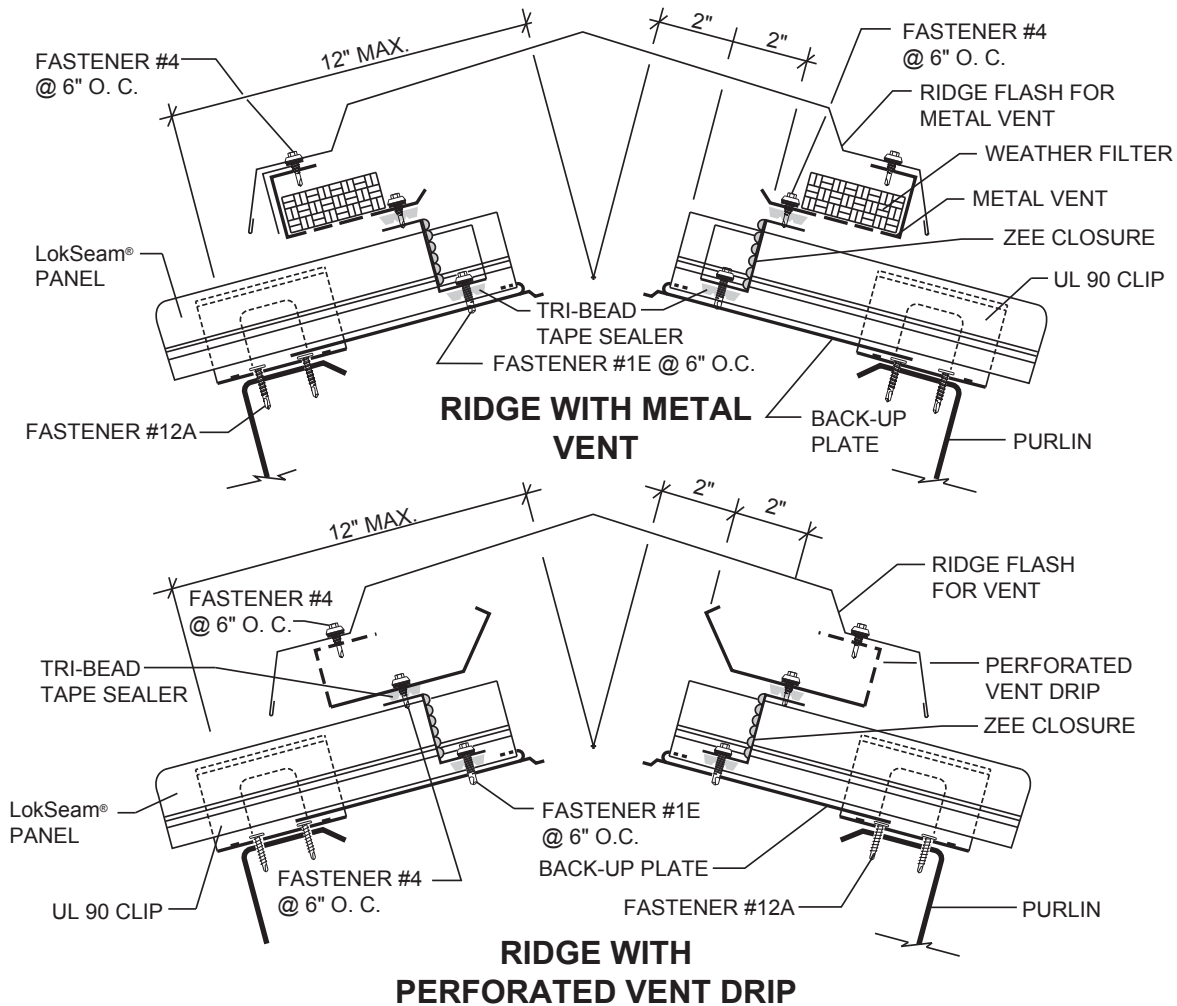
#### Fixed Ridge

1. Use this detail with a fixed eave or valley detail.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
5. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closure.
6. Attach ridge flash to zee closure with Fastener #4 at 6" o.c.



## DETAIL

### OPEN FRAMING VENTED RIDGE



**NOTES:**

**Ridge With Metal Vent**

1. Do not use this detail with floating eave or valley details.
2. Install back-up plate onto end of panel.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 1½" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
6. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closure.
7. Install vented metal to outside closures with Fastener #4 at 6" o.c.
8. Attach ridge flash with Fastener #4 at 6" o.c. to vented metal.
9. **Balance vent exhaust at ridge with vent intake at eave or soffit.**

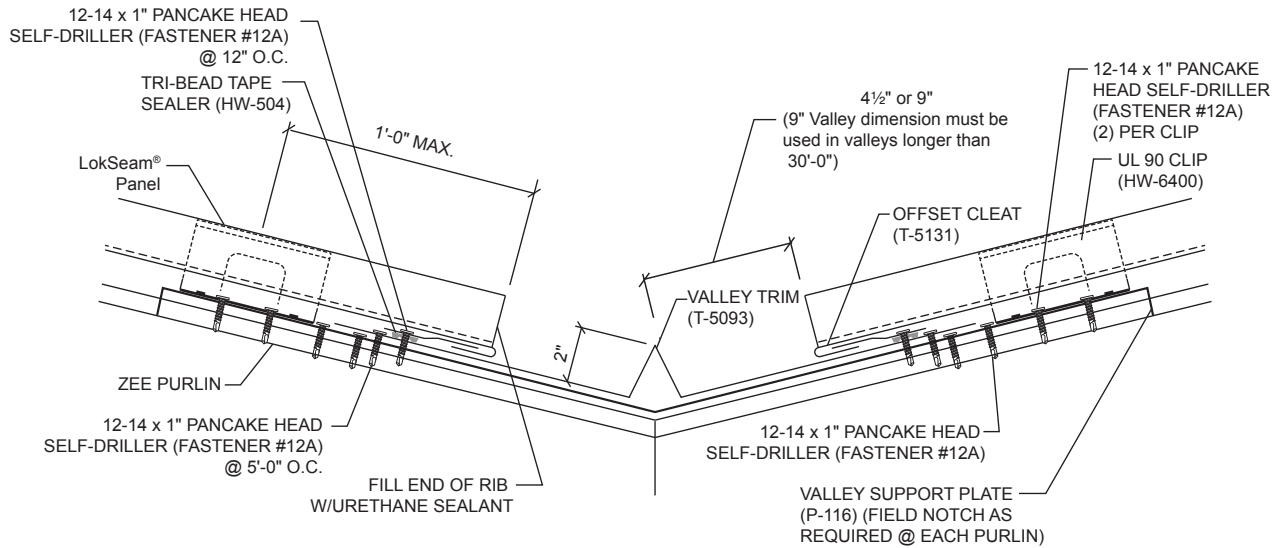
**Ridge With Perforated Vent Drip**

1. Do not use this detail with floating eave or valley details.
2. Vented ridge detail should be used in conjunction with soffit and/or eave vents to provide proper circulation and to prevent weather infiltration during high winds.
3. Install back-up plate and zee closure as in Notes 2-6 above.
4. Attach vent drip to zee closures with Fastener #4 at 6" o.c. Seal laps in vent drip with urethane sealant.
5. Attach ridge flash to vent drip with Fastener #4 at 6" o.c.

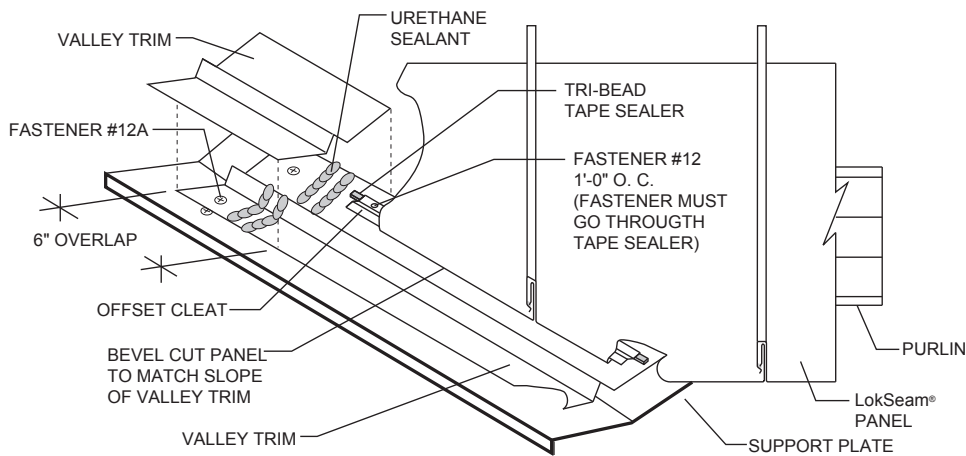
**Metal vent material must have urethane sealant at all lap conditions.**

# DETAIL

## OPEN FRAMING FLOATING VALLEY



**CROSS SECTION OF  
FLOATING OVER PURLINS**



**ISOMETRIC VIEW OF VALLEY**

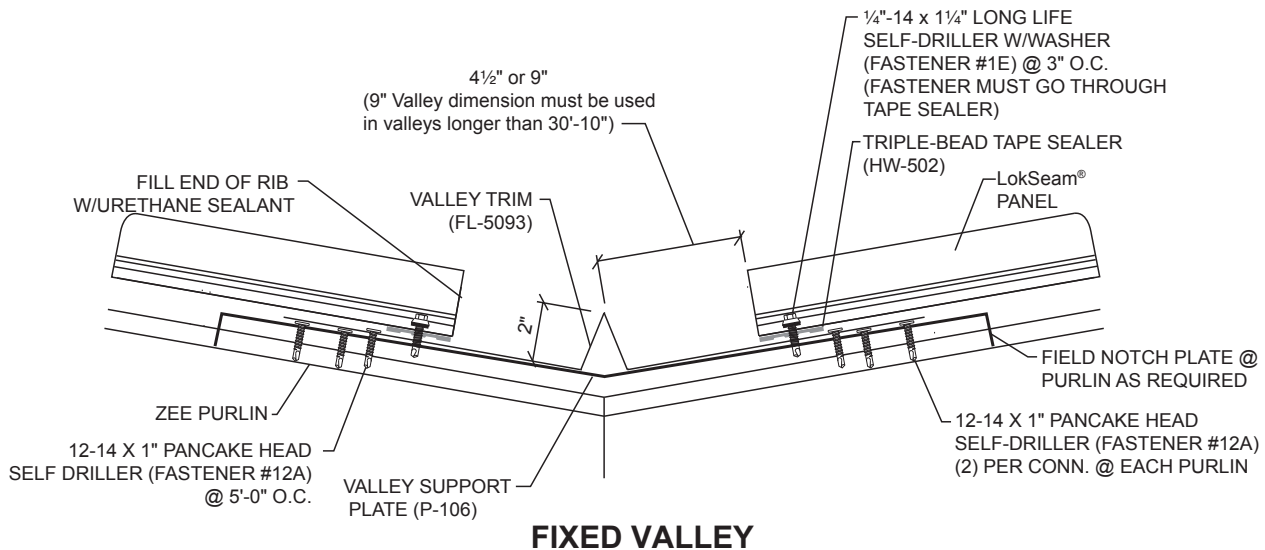
**NOTES:**

**VALLEY WITH OFFSET CLEAT**

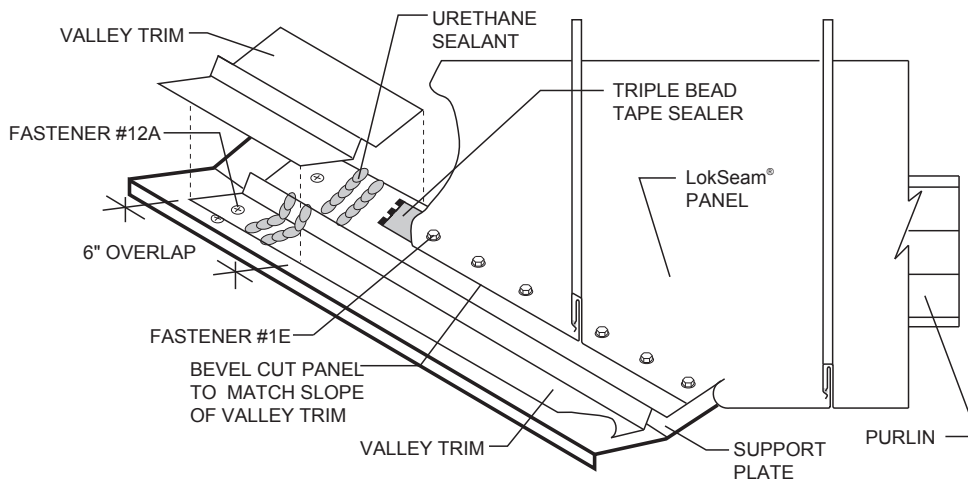
1. For valleys longer than 30', use extended valley trim (see page LS-22).
2. **Panels must be attached to substructure at the ridge, high eave or hip to prevent them from sliding downslope.**
3. Offset cleat is installed continuous along slope of valley over Tri-bead tape sealer with Fastener #12A at 1'-0" o.c. **Fasteners must go through tape sealer.**
4. **Add 1½" to panel length for the panel hem.**
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends at valley.

## DETAIL

### OPEN FRAMING FIXED VALLEY



**FIXED VALLEY**



**ISOMETRIC VIEW OF VALLEY**

**Valley must be designed to support the panels between the purlins.  
(ie: channel, angle or plate)**

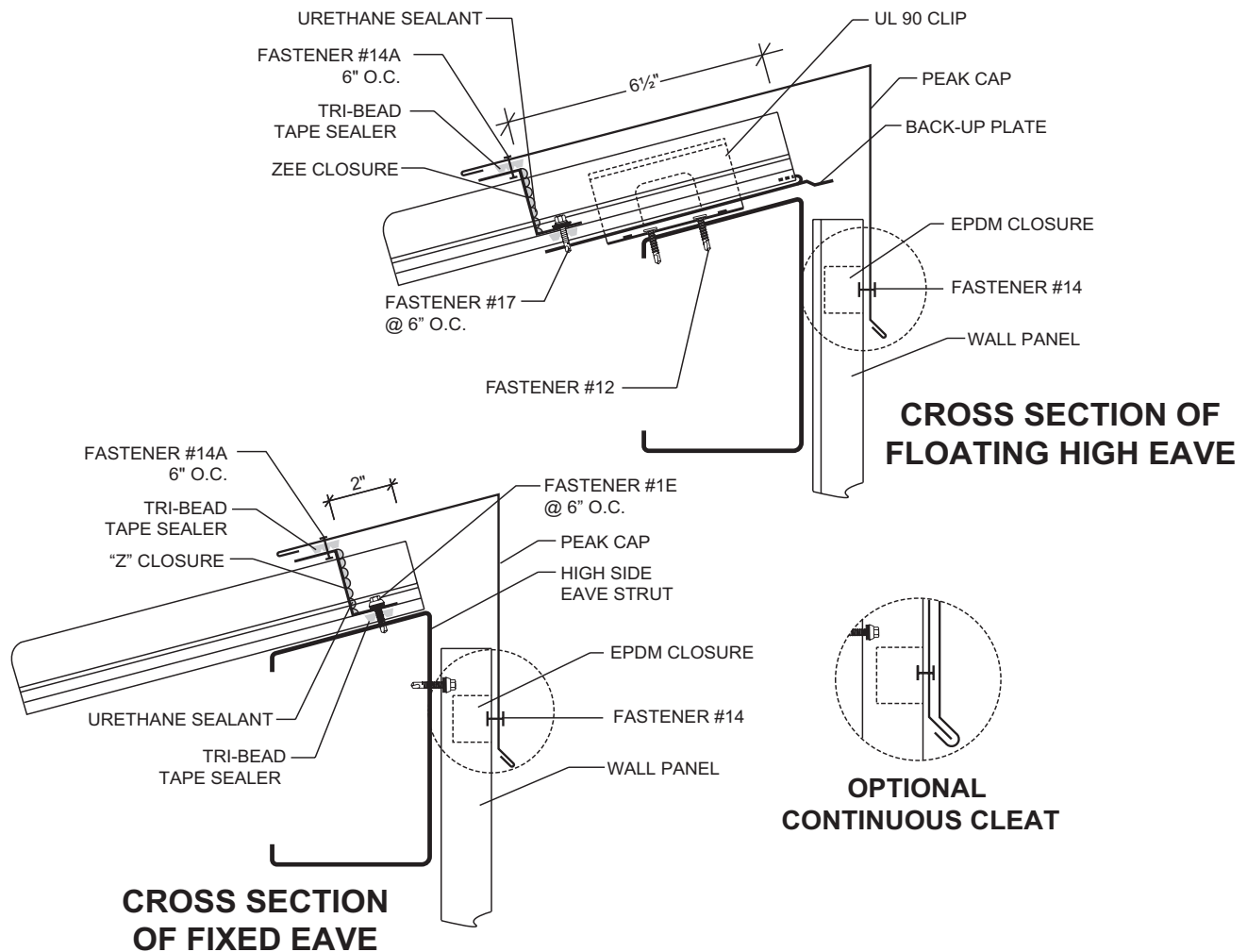
**NOTES:**

**FIXED VALLEY**

1. For valleys longer than 30', use extended valley trim (see page LS-22).
2. **Do not use this detail with the fixed ridge or hip details.**
3. Ends of panels should be 4 1/2" minimum from the vertical leg of valley trim.
4. Install Triple Bead tape sealer continuously under LokSeam® panel.
5. Attach panel to support plate with Fastener #1E at 3" o.c. **Fasteners must go through tape sealer under panel.**
6. **See "Panel End Sealant Detail" on page LS-36 to seal panel ends at valley.**

# DETAIL

## OPEN FRAMING HIGH EAVE



**NOTES:**

**Floating High Eave**

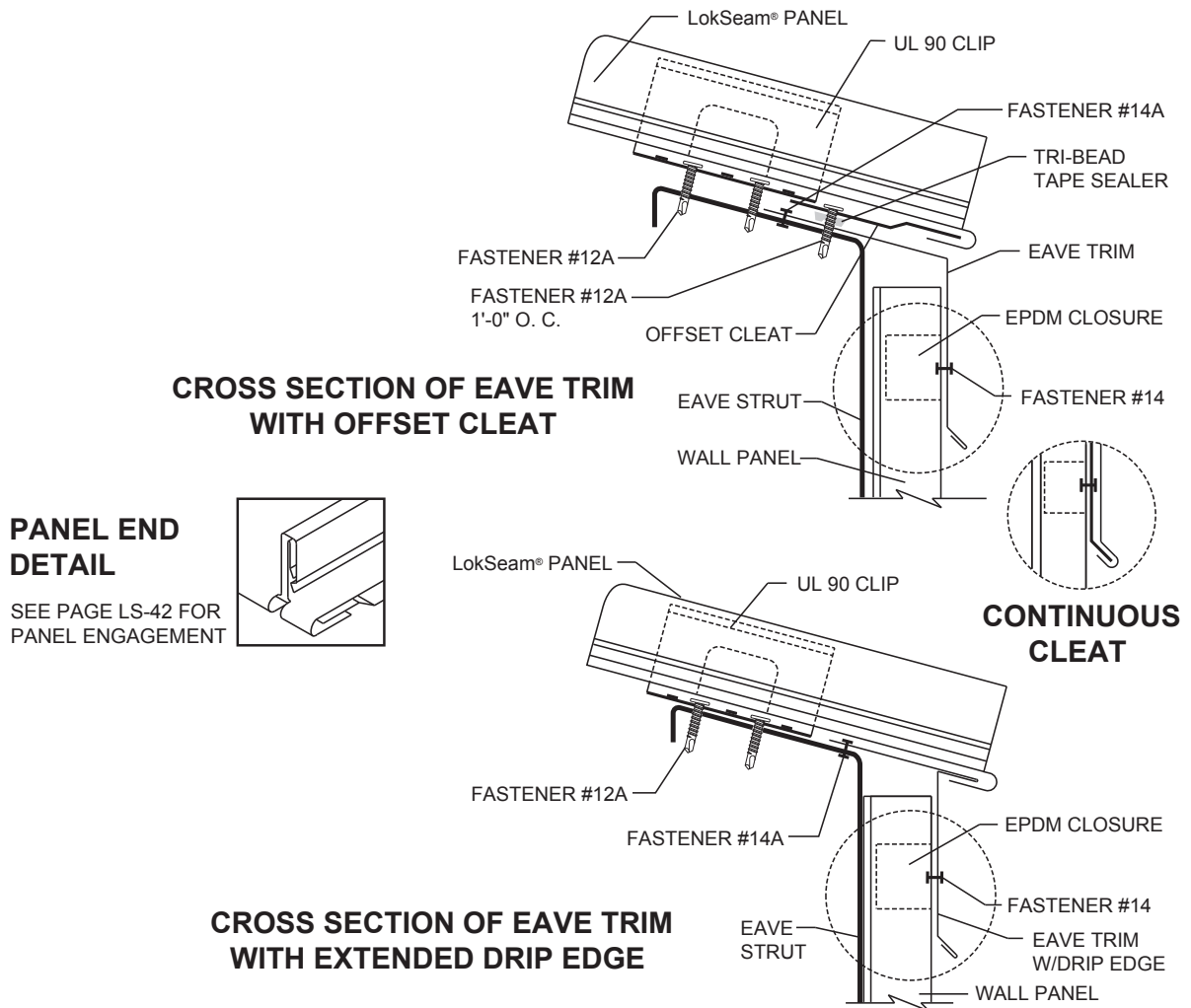
1. Do not use this detail with the floating eave or valley details.
2. Install panel and clips.
3. Install backup plate onto end of panel.
4. Field cut zee closures to fit panel width.
5. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 6" from the end of the panel.
6. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 6 1/2" from end of panel.
7. Seal ends of zee closures to panel seams with urethane sealant. Install Tri-Bead tape sealer to top leg of zee closure.
8. Attach peak cap to zee closure with Fastener #14A at 6" o.c.

**Fixed High Eave**

1. Use this detail with a floating eave or valley detail.
2. Install panel and clips.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 1 1/2" from the end of the panel.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
6. Seal ends of zee closures to panel seams with urethane sealant. Install Tri-Bead tape sealer to top leg of zee closure.
7. Attach peak cap to zee closure with Fastener #14A at 6" o.c.

## DETAIL

### OPEN FRAMING FLOATING EAVE WITH EAVE TRIM



**NOTES:**

**Eave with Offset Cleat**

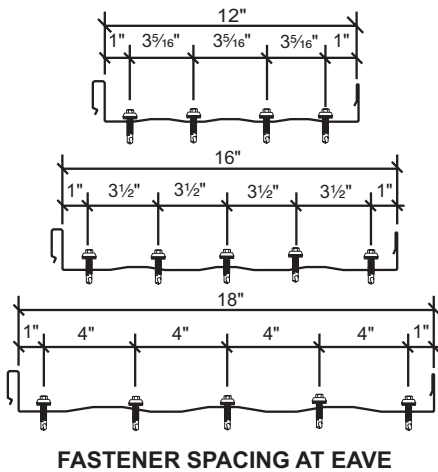
1. The offset cleat method of attachment should be used when ridge, high side eave or endlap is fixed to the substructure. Panels must be attached at one of these points to prevent them from sliding downslope.
2. Attach offset cleat to eave strut with Fastener #12A at 1'-0" o.c.
3. To field hem panel, see page LS-31.
4. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.

**Eave with 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 LS-31.
4. See "Panel End Sealant Detail" on page LS-36.

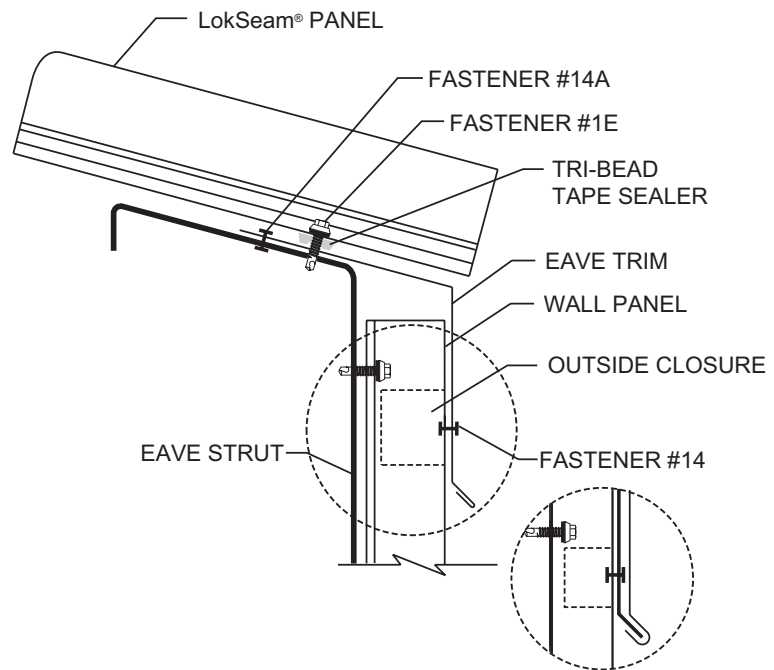
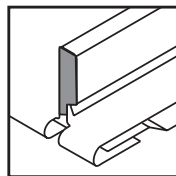
# DETAIL

## OPEN FRAMING FIXED EAVE WITH EAVE TRIM



### PANEL END DETAIL

FILL END OF RIB WITH  
URETHANE SEALANT



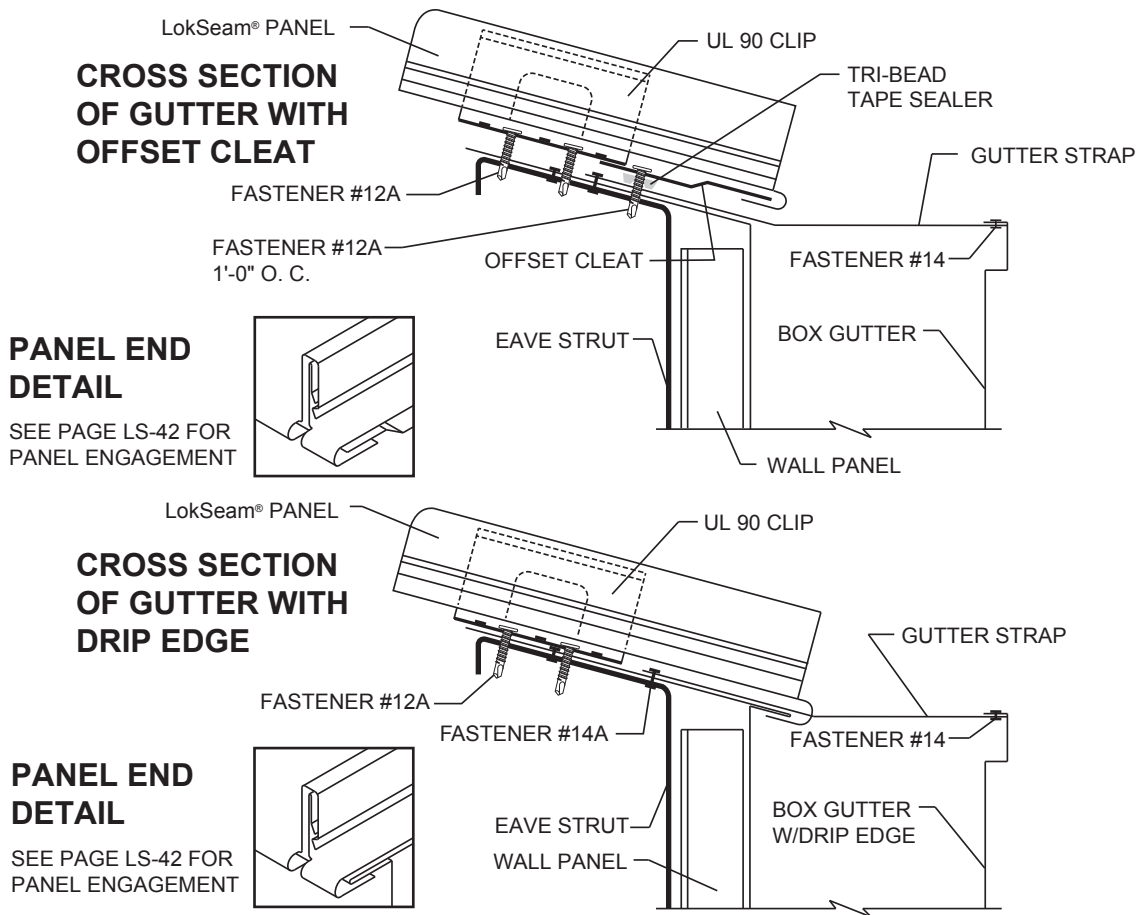
### OPTIONAL CONTINUOUS CLEAT

#### NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach eave trim to eave strut with Fastener #14A (3 fasteners per 10' piece).
3. Apply Tri-Bead tape sealer to slope leg of eave trim. Edge of tape sealer should align with edge of eave strut.
4. Install panel and fasten to eave strut with Fastener #1E at the spacing shown in the above diagram.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.

## DETAIL

### OPEN FRAMING FLOATING EAVE WITH GUTTER



**NOTES:**

**Offset Cleat**

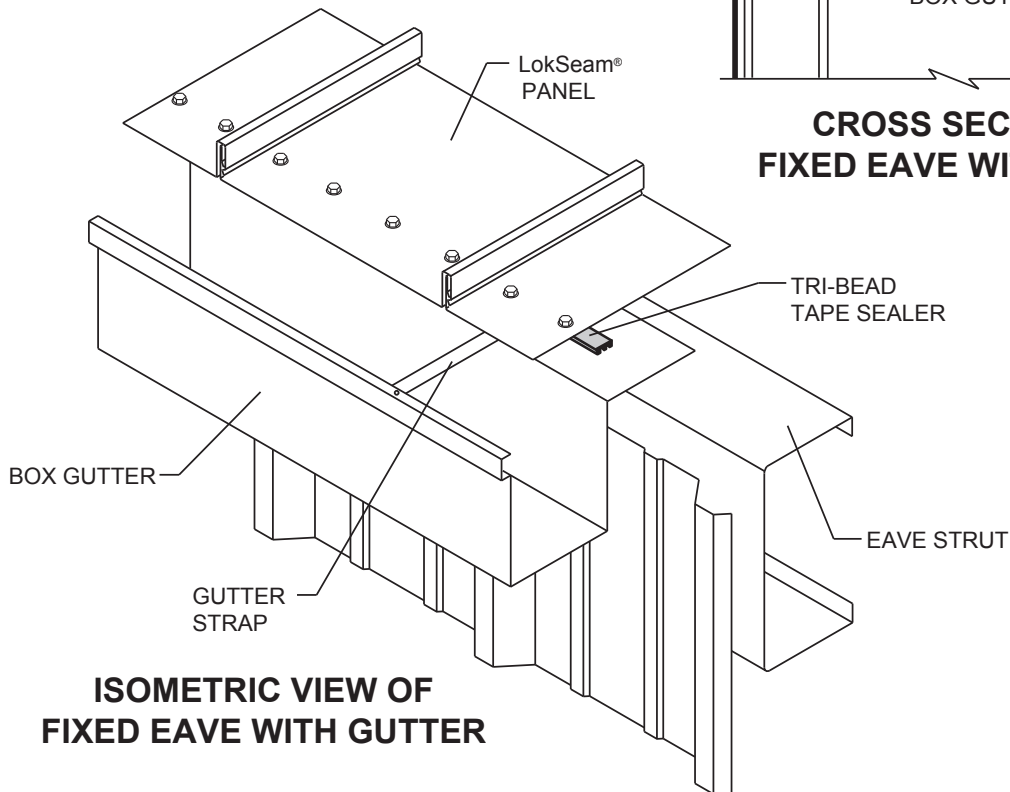
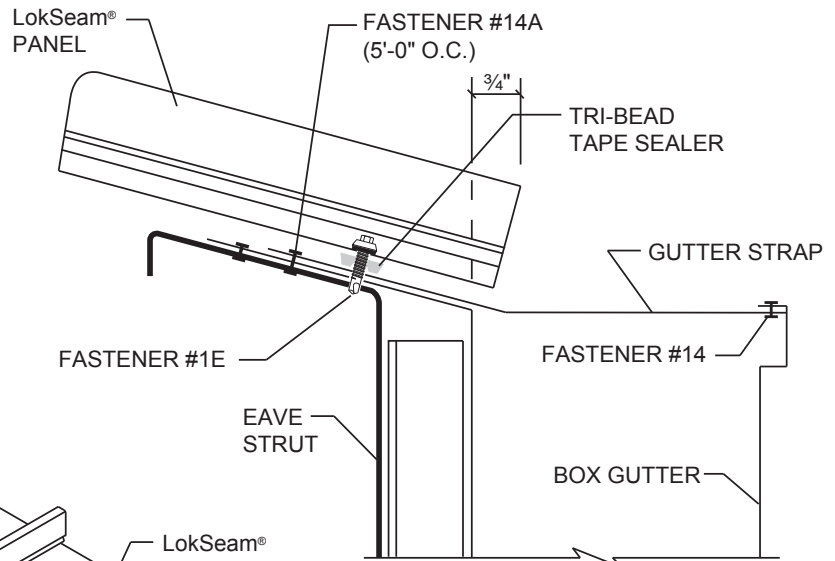
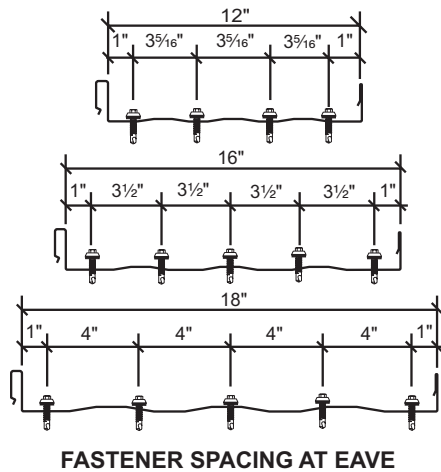
1. The offset cleat method of attachment should be used when ridge, high eave or endlap is fixed to the substructure.
2. Panels must be attached at one of these points to prevent them from sliding downslope.
3. Attach offset cleat to eave strut with Fastener #12A at 1'-0" o.c.
4. To field hem panel, see page LS-31.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.
6. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page LS-48 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 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 #14A at 3'-0" o.c.
4. To field hem panel, see page LS-31.
5. Notch panel hem for gutter strap.
6. See "Panel End Sealant Detail" on page LS-36 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 ABC.
8. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page LS-48 for the gutter detail for these areas.

# DETAIL

## OPEN FRAMING FIXED EAVE WITH GUTTER



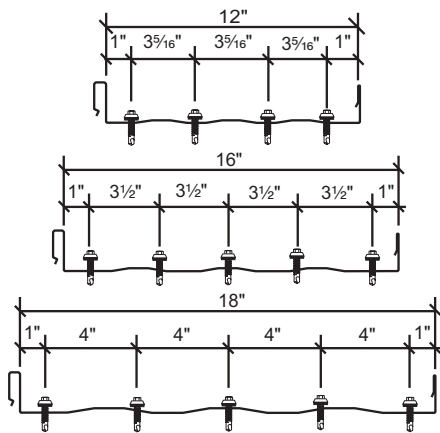
**NOTES:**

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter to eave strut with Fastener #14A (3 fasteners per 10' piece).
3. Install gutter straps every 3'-0" of gutter length. Attach to outside leg of gutter and to eave strut with Fastener #14A.
4. Apply Tri-Bead tape sealer to slope leg of gutter. Edge of tape sealer should align with outside edge of eave strut.
5. Install panel and fasten to eave strut with Fastener #1E at the spacing shown in the above diagram.
6. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.
7. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher.

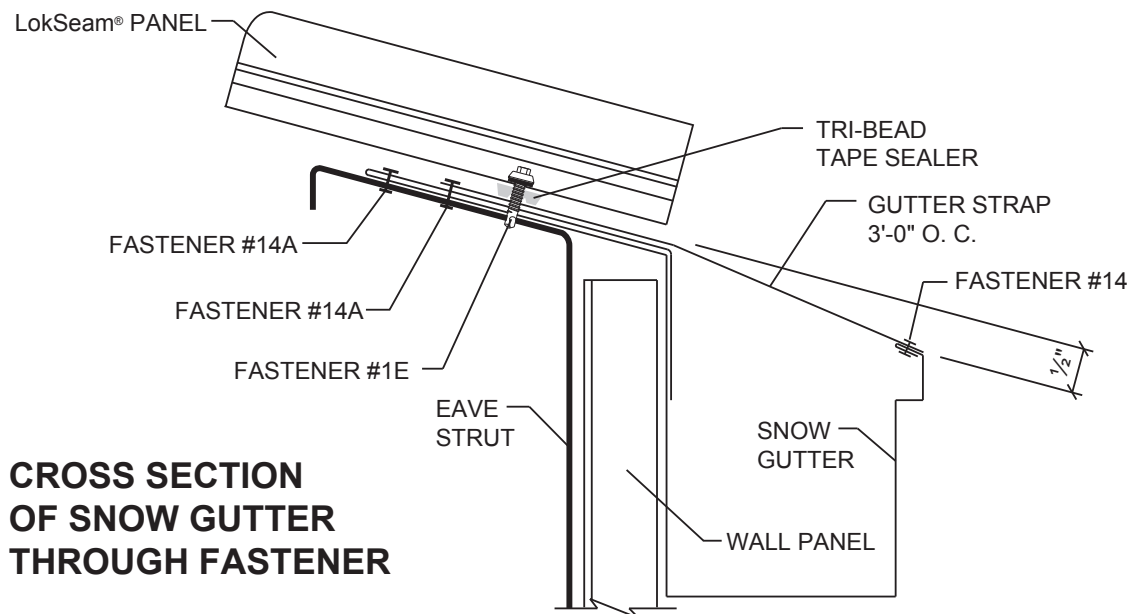


## DETAIL

### OPEN FRAMING SNOW GUTTER



FASTENER SPACING AT EAVE



CROSS SECTION OF SNOW GUTTER THROUGH FASTENER

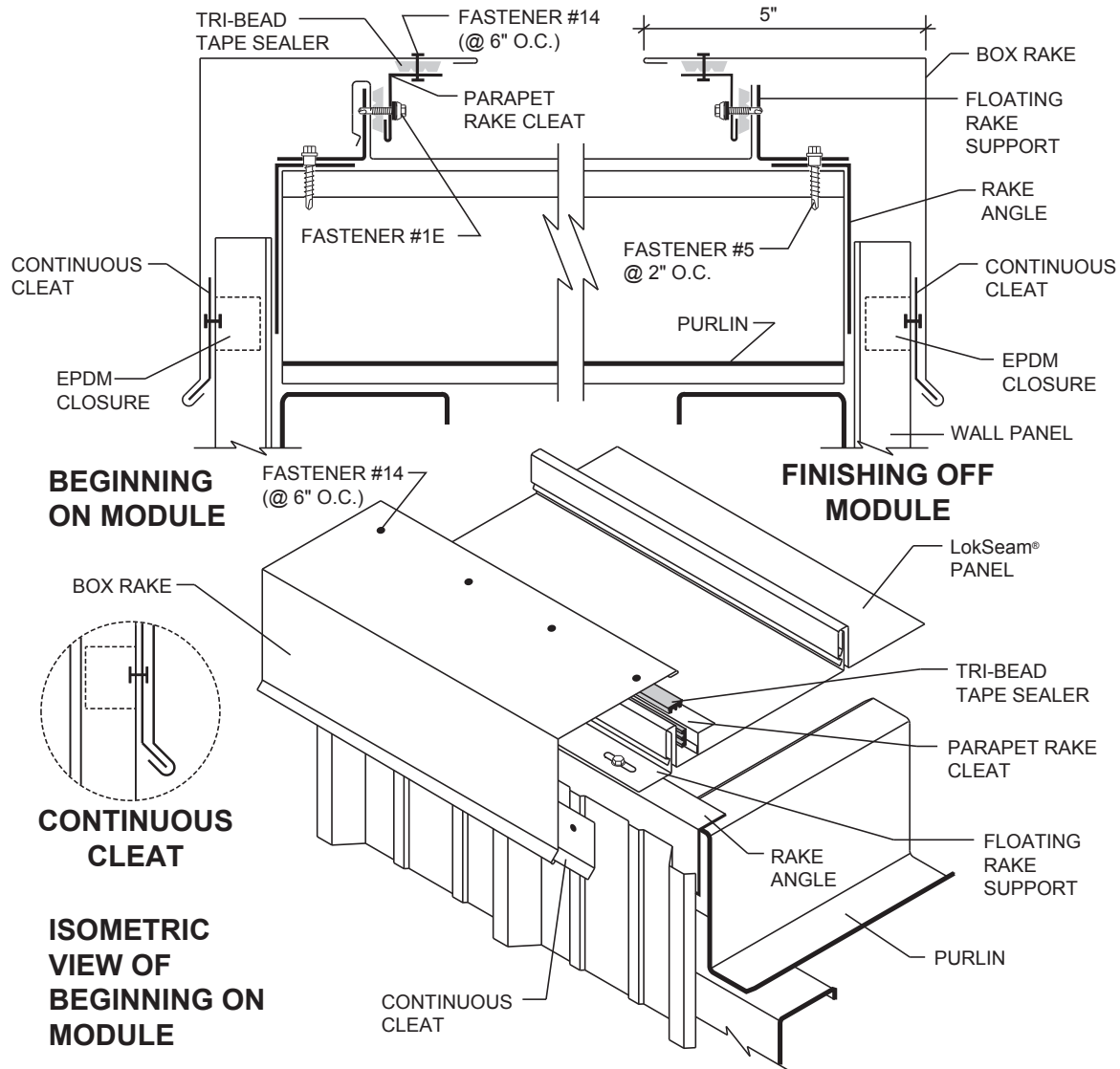
**NOTES:**

**Through Fastened**

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter to eave strut with Fastener #14A (3 fasteners per 10' piece).
3. Attach gutter straps to gutter with Fastener #14 at 3'-0" o.c.
4. Apply Tri-Bead tape sealer to slope leg of gutter.
5. Install panel and fasten to eave strut with Fastener #1E at the spacing shown in the above diagram.
6. See "Panel End Sealant Detail at Eave" on page LS-36 to seal panel ends.

# DETAIL

## OPEN FRAMING FLOATING RAKE

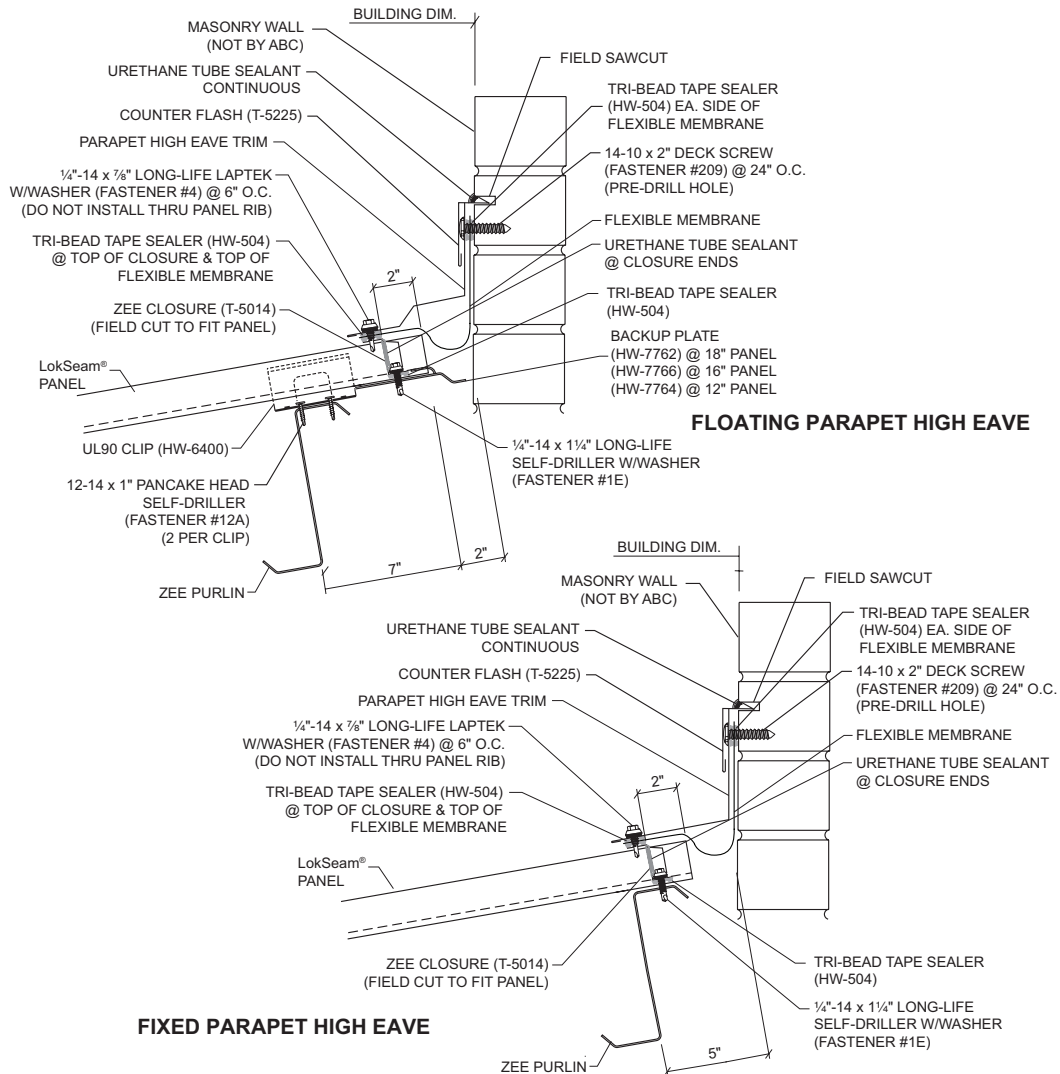


**NOTES:**

1. The top dimension of the rake trim will be affected by the wall panel thickness.
2. Install floating rake support with Fastener #5 at 2'-0" o.c.
3. Engage female leg of panel over rake support.
4. Apply Tri-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener #1E at 2'-0" o.c.  
**FASTENERS MUST GO THROUGH RAKE SUPPORT.**
5. Apply Tri-Bead tape sealer to top of parapet rake cleat and attach rake trim to parapet rake cleat with Fastener #14A 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.

## DETAIL

### OPEN FRAMING PARAPET HIGH EAVE



**NOTES:**

**Floating Parapet High Eave**

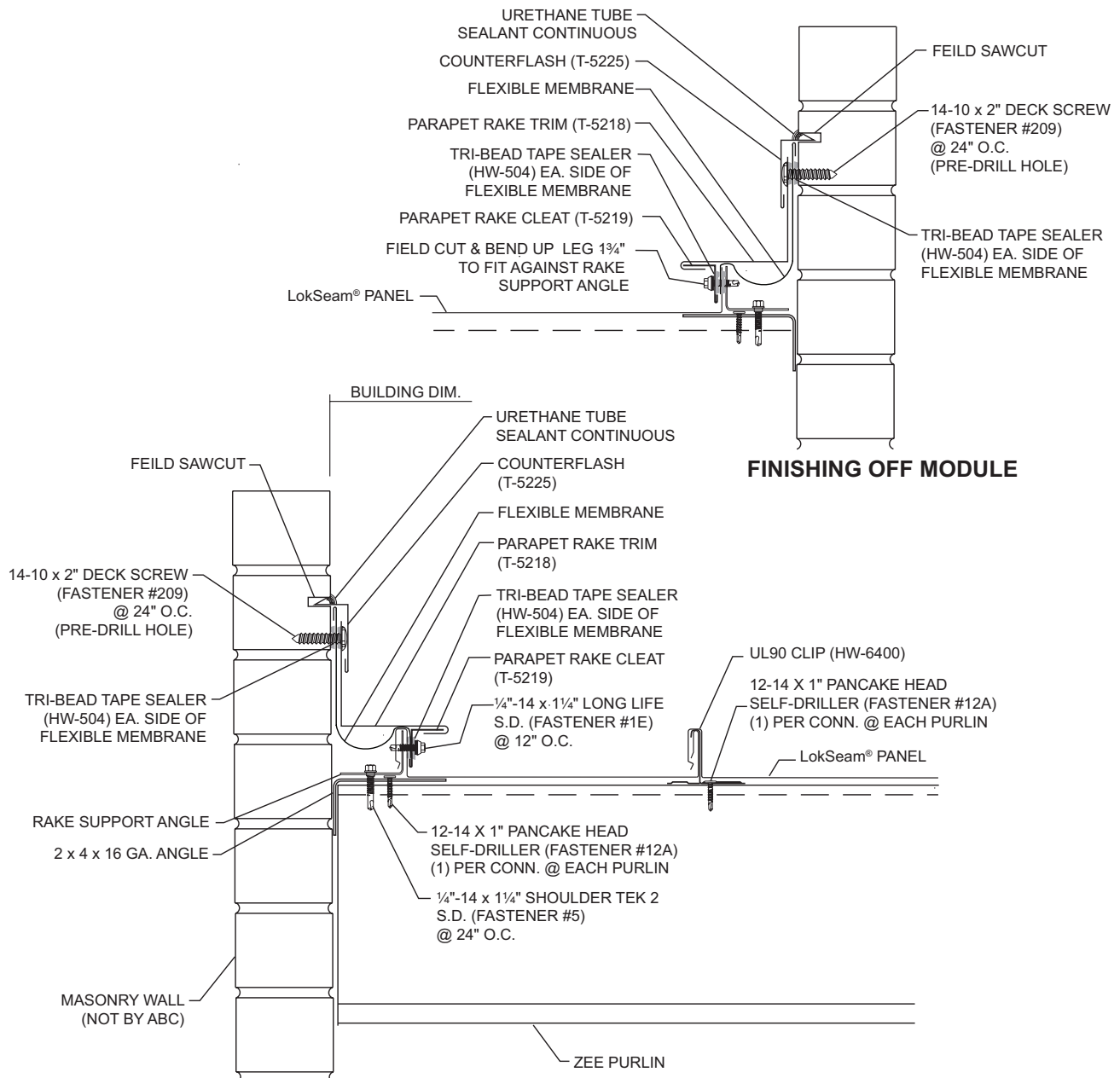
1. Do not use this detail with the floating eave or valley details.
2. Install back-up plate onto end of panel.
3. Field cut zee closures to fit panel width.
4. Apply Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closures should be zee from end of panels.
6. Seal ends of zee closures to the panel seams with urethane sealant. Apply Tri-Bead tape sealer to the top leg of zee closures.
7. Attach parapet high side eave trim to zee closure with Fastener #4A at 6" o.c.
8. Seal counterflash to parapet wall with urethane sealant.

**Fixed Parapet High Eave**

1. Use this detail with a floating eave or valley detail.
2. Install panels and clips.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of the tape sealer should be 1½" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" o.c. Vertical leg of zee closures should be 2" from end of panels.
6. Seal ends of zee closures to the panel seams with urethane sealant. Apply Tri-Bead tape sealer to the top leg of zee closures.
7. Attach parapet high side eave trim to zee closure with Fastener #4A at 6" o.c.

# DETAIL

## OPEN FRAMING FLOATING PARAPET RAKE



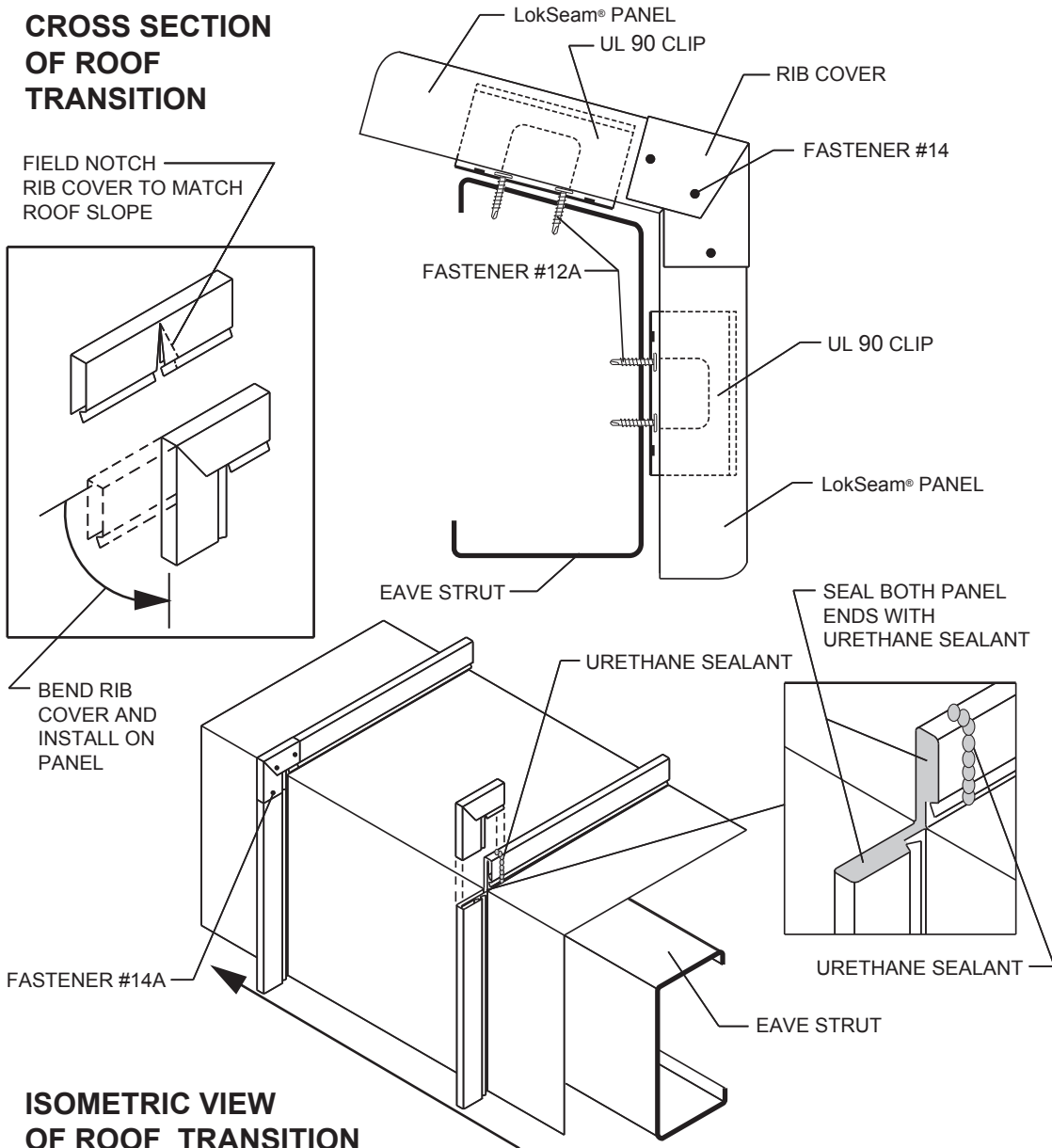
**NOTES:**

1. Install floating rake support with Fastener #5 at 2'-0" o.c. Fasteners must be installed in center of slot.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel. Install flexible membrane and parapet rake cleat to panel leg with Fastener #1E at 2'-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.

## DETAIL

### OPEN FRAMING ROOF TRANSITION

#### CROSS SECTION OF ROOF TRANSITION



#### ISOMETRIC VIEW OF ROOF TRANSITION

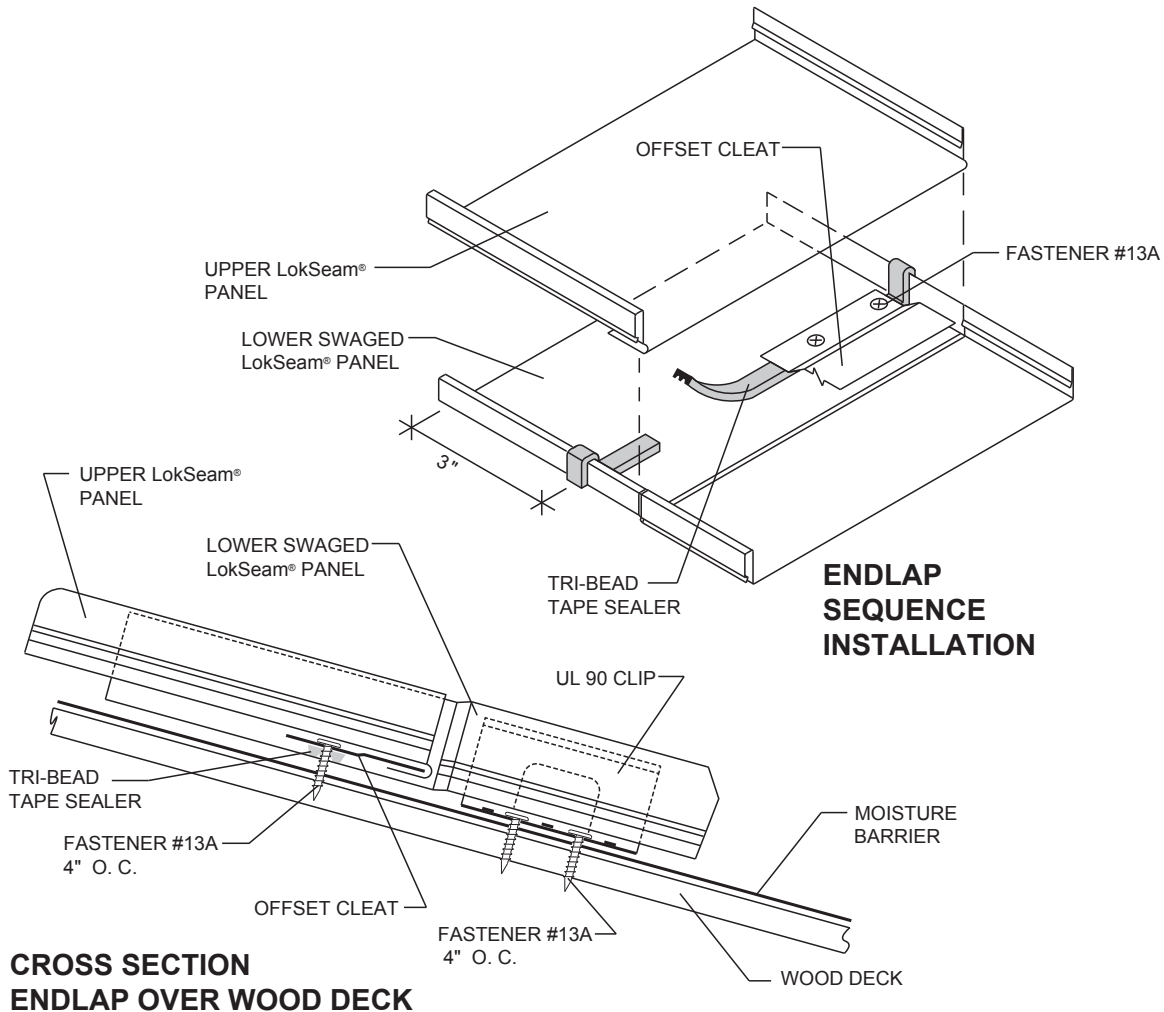
#### INSTALLATION DIRECTION

#### 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 urethane sealant.
4. Field notch rib cover to allow it to bend to the proper angle.
5. Field apply a bead of urethane sealant over rib before applying rib cover.
6. **Do not use this detail inside the building envelope.**

# DETAIL

## WOOD DECK ENDLAP



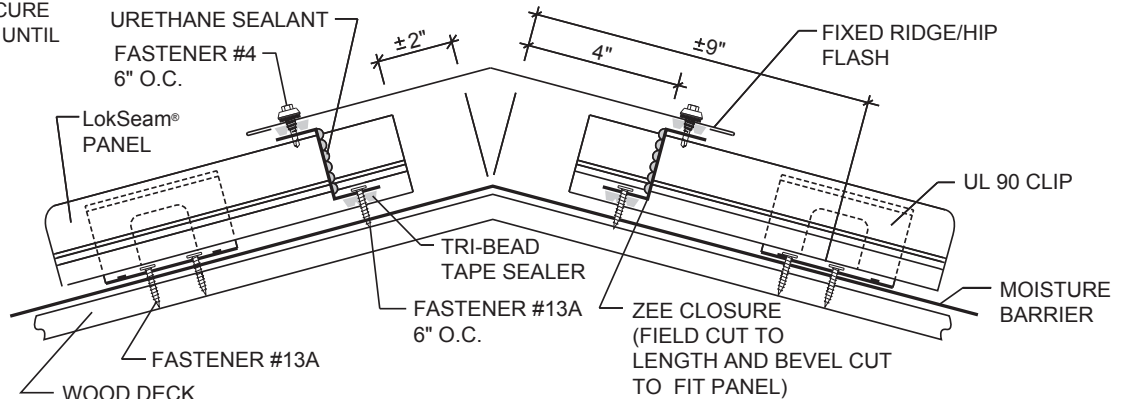
**NOTES:**

1. The above endlap detail must be used with the floating eave or valley details. The fixed detail must be used at the ridge or hip. The above detail also requires that the LokSeam® panels be ordered without prepunched endlaps. Panels will be swaged as normal. Order the upper endlap panel 1½" longer than normal for the panel hem. See Page LS-26 for ordering information.
2. Install bottom panel so that eave has proper overhang (refer to Eave Details).
3. At upslope end of bottom panel, place Tri-Bead tape sealer over entire width of panel. Center of tape sealer should be 4½" from end of panel.
4. Install offset cleat across width of panel (over tape sealer) with Fastener #13A at 4" o.c. **Fasteners must go through tape sealer.**
5. Field notch male and female legs of panel 1½" and bend panel to form an open hem.
6. Clip spacing should not exceed 4'-0" o.c. for 24-gauge panels or 5'-0" o.c. for 22-gauge panels

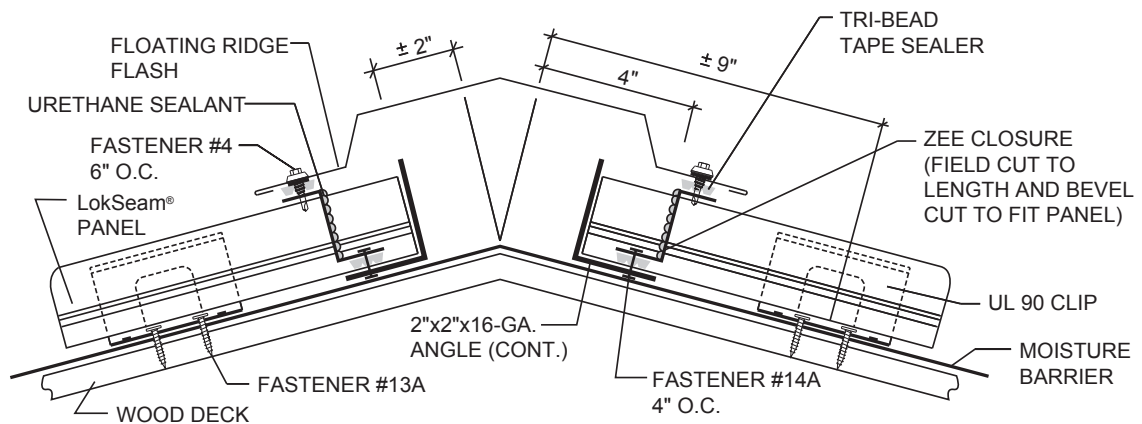
## DETAIL

### WOOD DECK HIP

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



### FIXED HIP OVER WOOD DECK



### FLOATING RIDGE/HIP OVER WOOD DECK

#### NOTES:

##### Fixed Hip

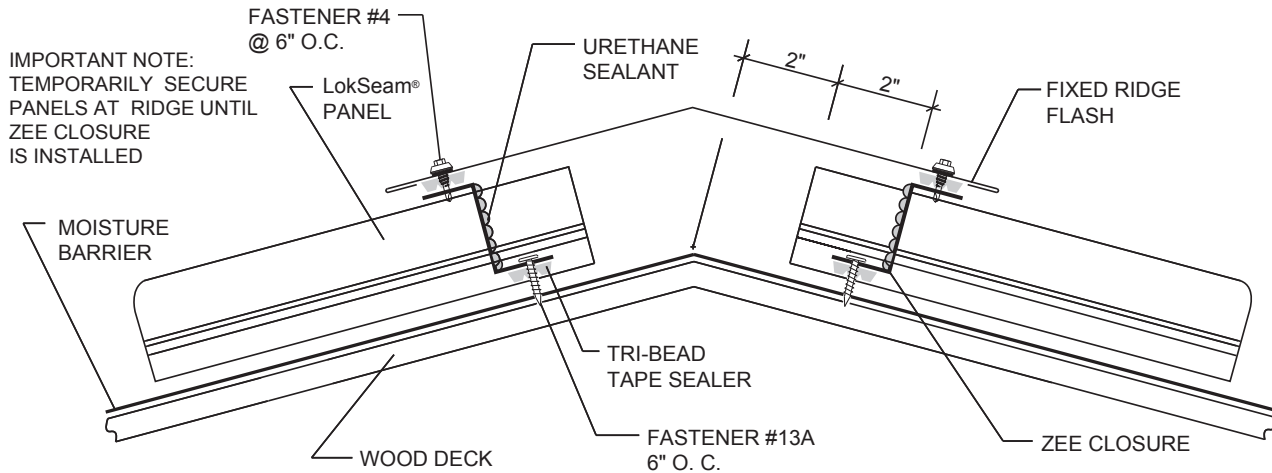
1. Do not use this detail with the fixed eave or valley details.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to panels, running parallel to the hip. Center of tape sealer should be 3½" from the center of the hip.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 4" from center of hip.

##### Floating Hip

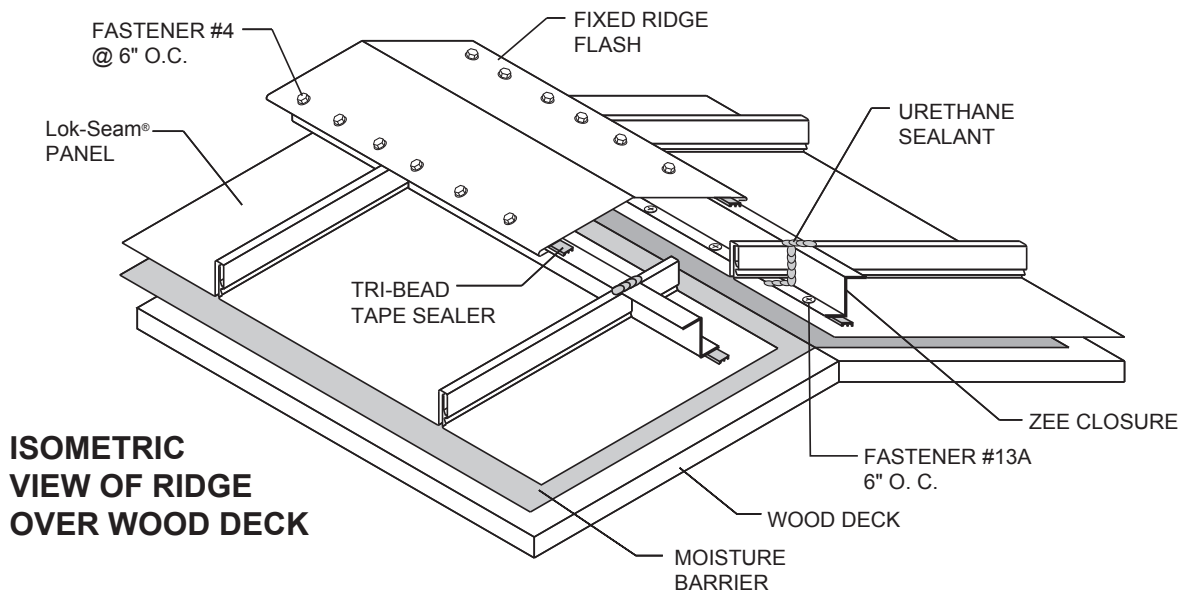
1. Do not use this detail with the floating eave or valley details.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Slide a length of 2" x 2" x 16-gauge angle under the panels.
5. Install zee closures to panels and 2" x 2" angle with Fastener #14A at 4" o.c. Vertical leg of zee closure should be 4" from center of ridge. Seal sides of zee closures to panel seams with urethane sealant.

# DETAIL

## WOOD DECK FIXED RIDGE



## STANDARD RIDGE OVER WOOD DECK



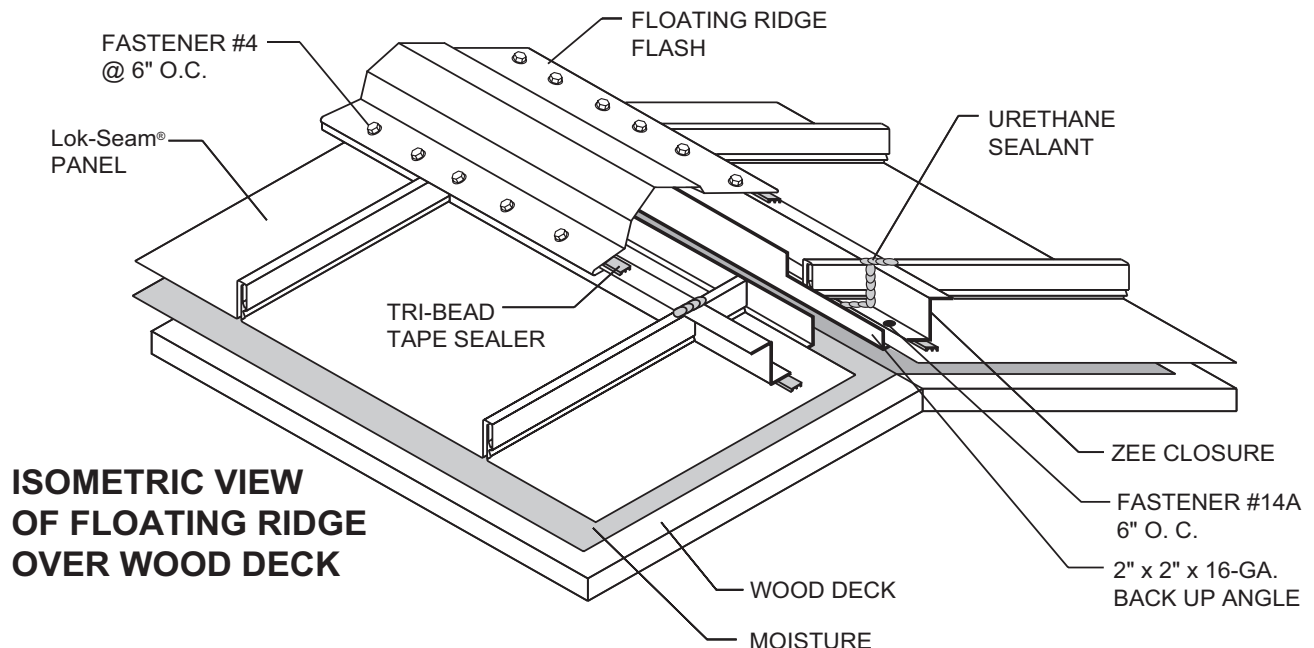
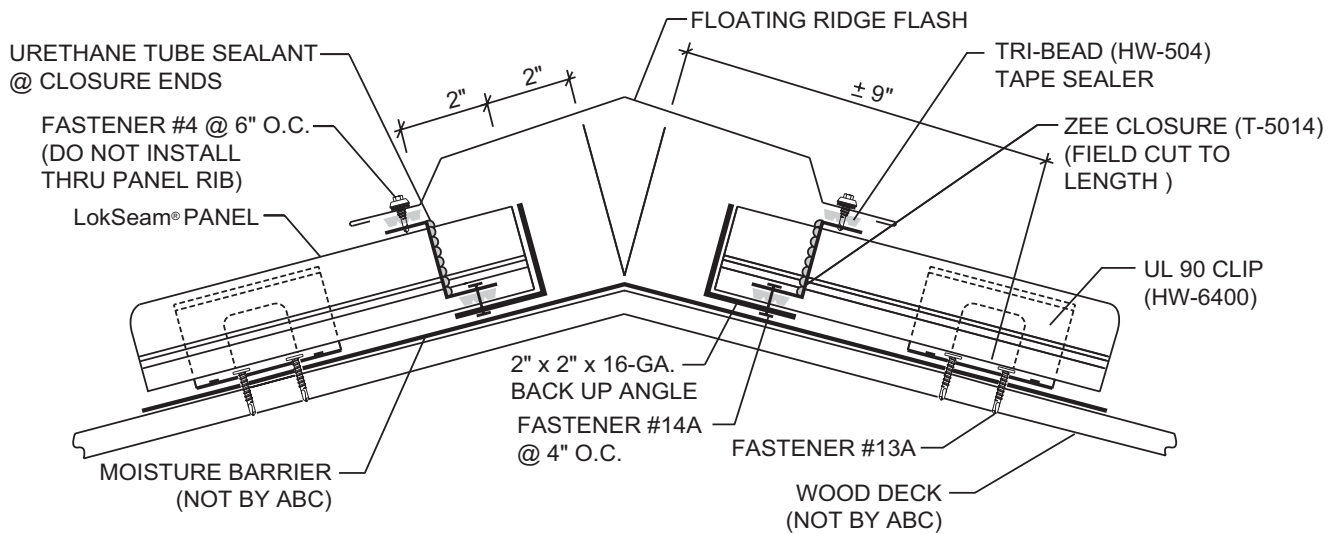
**NOTES:**

1. Do not use this detail with the fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 2" from end of panel. Fasteners must go through tape sealer.
5. Seal end of zee closure to panel seams with urethane sealant.
6. Clip spacing should not exceed 4'-0" o.c. for 24-gauge panels or 5'-0" o.c. for 22-gauge panels.



## DETAIL

### WOOD DECK FLOATING RIDGE



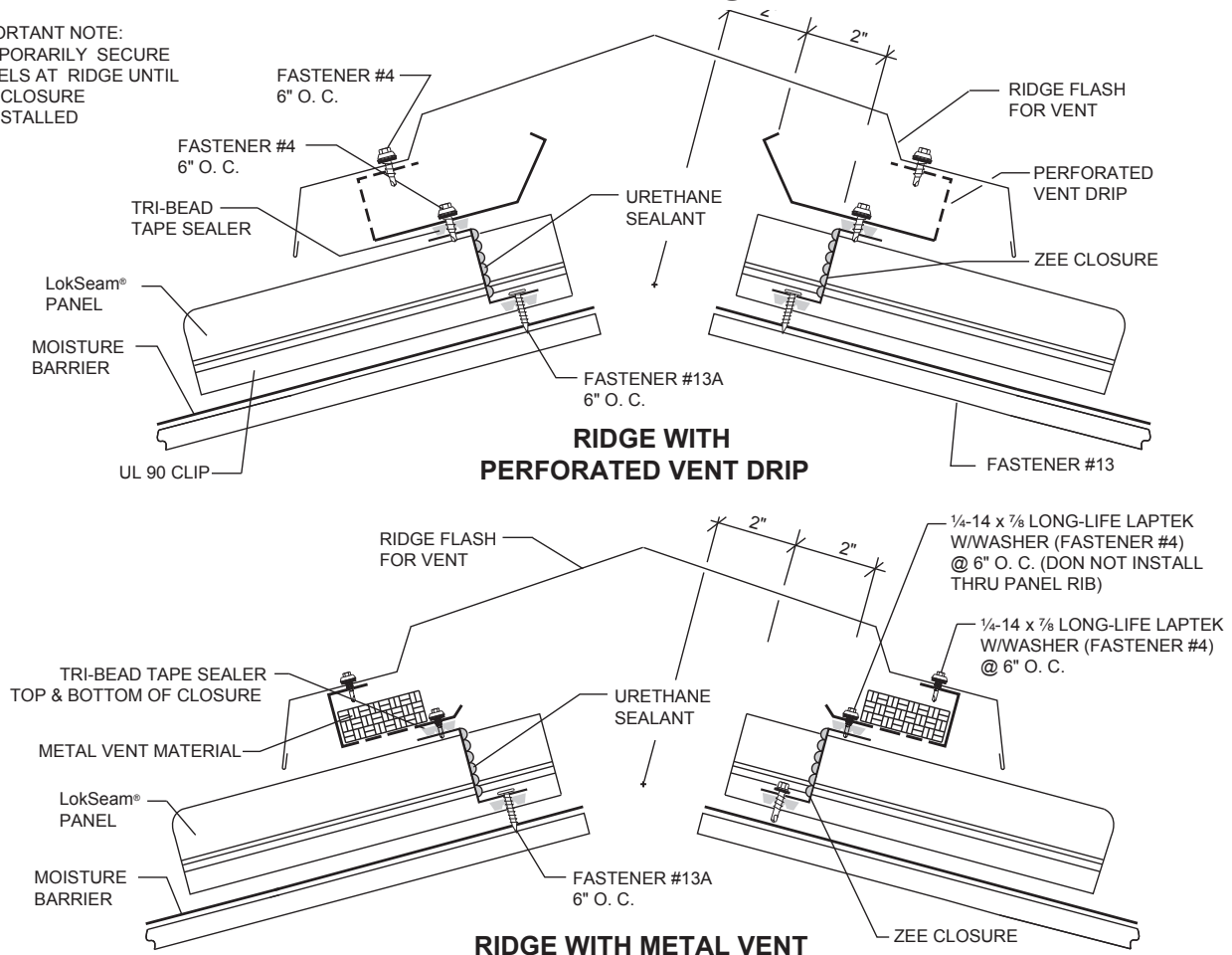
**NOTES:**

1. Do not use this detail with floating eave or valley details.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. The center of tape sealer should be 1½" from end of panel.
4. Slide a length of 2" x 2" x 16 gauge angle under the panels.
5. Install zee closures to panels and 2" x 2" angle with Fastener #14A at 4" o.c. Vertical leg of zee closure should be 4" from center of ridge. Seal sides of zee closures to panel seams with urethane sealant.

# DETAIL

## WOOD DECK VENTED RIDGE

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



### NOTES:

#### Ridge With Perforated Vent Drip

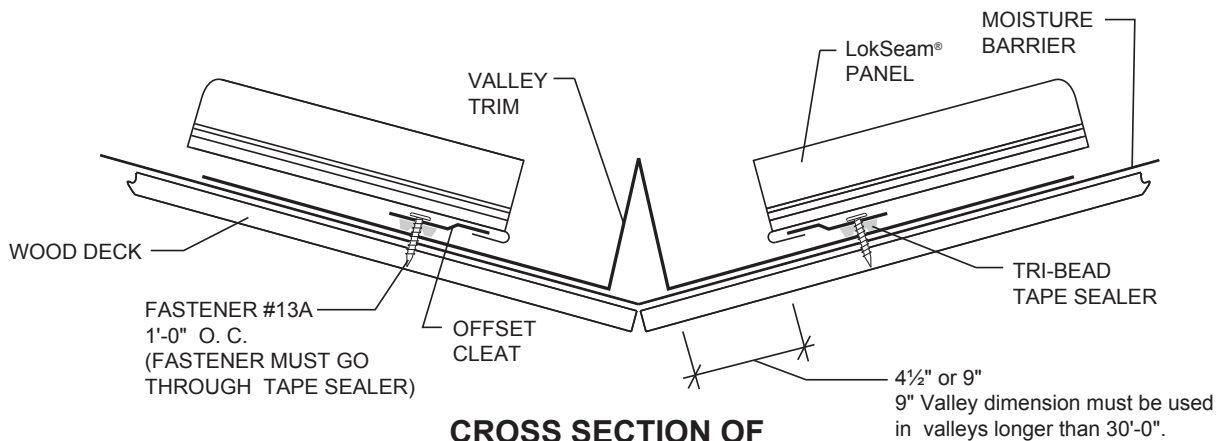
1. Do not use this detail with the fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 2" from end of panel. Fasteners must go through tape sealer.
5. Seal end of zee closure to panel seams with urethane sealant.
7. Install vented metal to outside closures with Fastener #4 at 6" o.c.
8. Attach ridge flash with Fastener #4 at 6" o.c. to vented metal.
9. Metal vent material must have urethane sealant at all lap conditions.

#### Ridge With Metal Vent

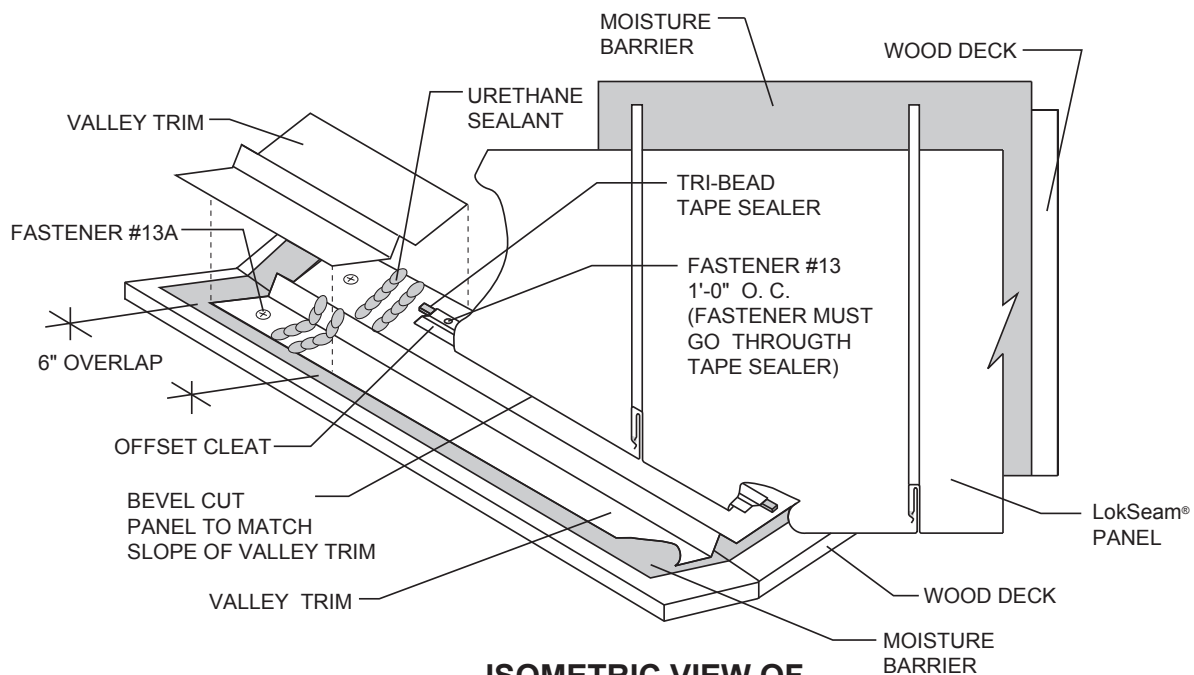
1. Do not use this detail with the fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 2" from end of panel. Fasteners must go through tape sealer.
5. Seal end of zee closure to panel seams with urethane sealant.
7. Install vented metal to outside closures with Fastener #4 at 6" o.c.
8. Attach ridge flash with Fastener #4 at 6" o.c. to vented metal.
9. **Balance vent exhaust at ridge with vent intake at eave or soffit. Metal vent material must have urethane sealant at all trim lap conditions.**

## DETAIL

### WOOD DECK FLOATING VALLEY



### CROSS SECTION OF FLOATING VALLEY WITH OFFSET CLEAT



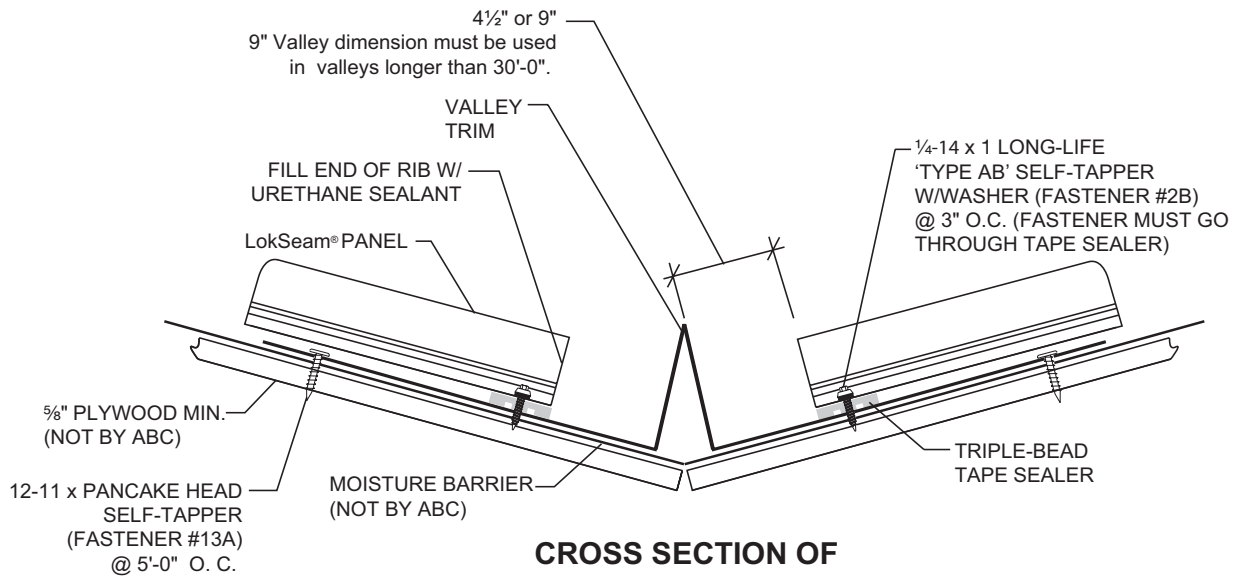
### ISOMETRIC VIEW OF FLOATING VALLEY WITH OFFSET CLEAT

#### NOTES:

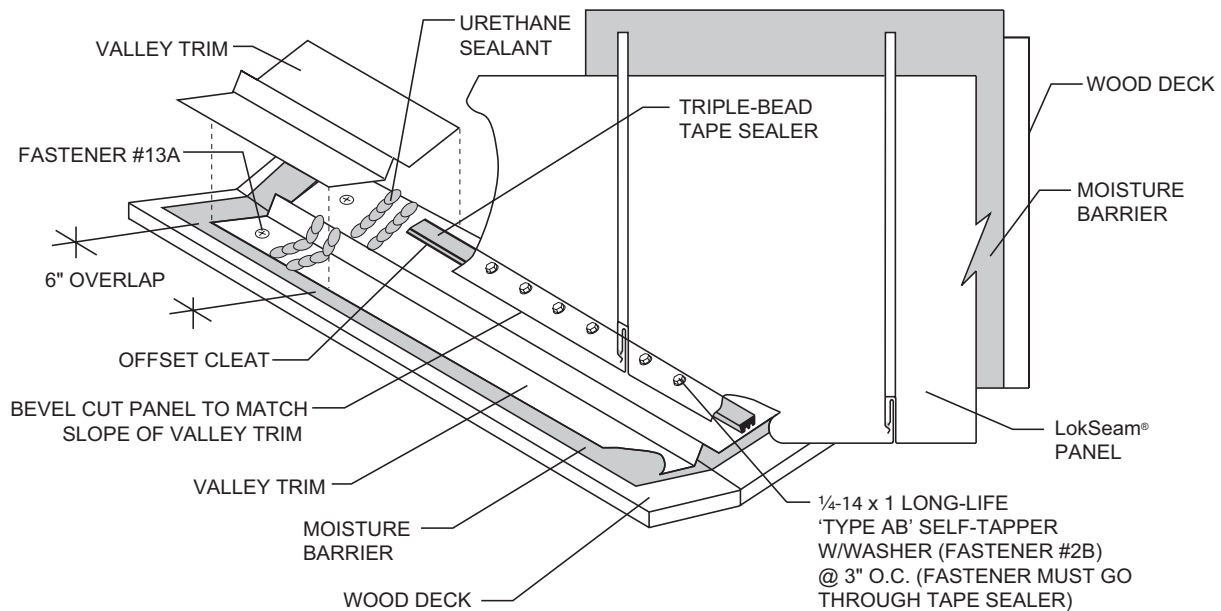
1. For valleys longer than 30', use extended valley trim (see page LS-22).
2. **Panels must be attached to substructure at the ridge or hip to prevent them from sliding downslope.**
3. Offset cleat is installed continuous along slope of valley over Tri-Bead tape sealer with Fastener #13A at 1'-0" o.c. **FASTENERS MUST GO THROUGH TAPE SEALER.**
4. Add 1½" to the panel length for panel hem.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends at valley.

# DETAIL

## WOOD DECK FIXED VALLEY



### CROSS SECTION OF FIXED VALLEY



### ISOMETRIC VIEW OF FIXED VALLEY

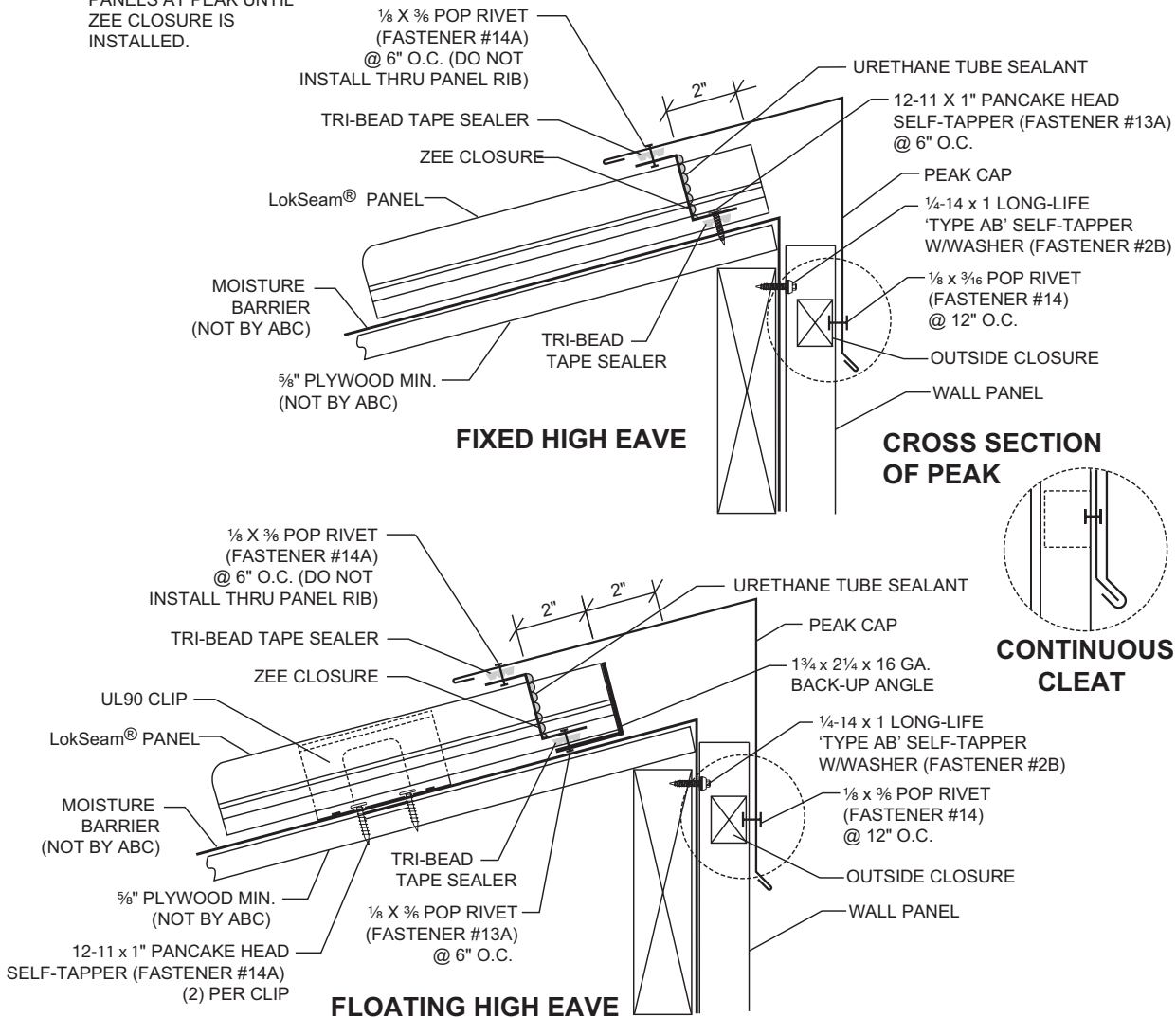
**NOTES:**

1. For valleys longer than 30', use extended valley trim (see page LS-22).
2. **Do not use this detail with fixed ridge or hip details.**
3. Apply Triple-Bead tape sealer continuously under LokSeam® panel.
4. Attach panels to wood deck with Fastener #2B at 3" on center.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends at valley.

## DETAIL

### WOOD DECK HIGH EAVE

TEMPORARILY SECURE PANELS AT PEAK UNTIL ZEE CLOSURE IS INSTALLED.



**NOTES:**

**Fixed High Eave**

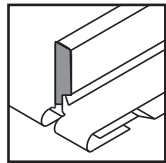
1. Do not use this detail with fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Apply Tri-Bead tape sealer to panels. The center of tape sealer should be 1 1/2" from the end of the panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
5. Seal ends of zee closures to panel seams with urethane sealant. Install Tri-Bead tape sealer to top leg of zee closure.
6. Attach peak cap to zee closure with Fastener #14A at 6" o.c.

**Floating High Eave**

1. Do not use this detail with floating eave or valley details.
2. Field cut zee closures to fit panel width.
3. Apply Tri-Bead tape sealer to panels. The center of tape sealer should be 1 1/2" from the end of the panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
5. Seal ends of zee closures to panel seams with urethane sealant. Install Tri-Bead tape sealer to top leg of zee closure.
6. Attach peak cap to zee closure with Fastener #14A at 6" o.c.

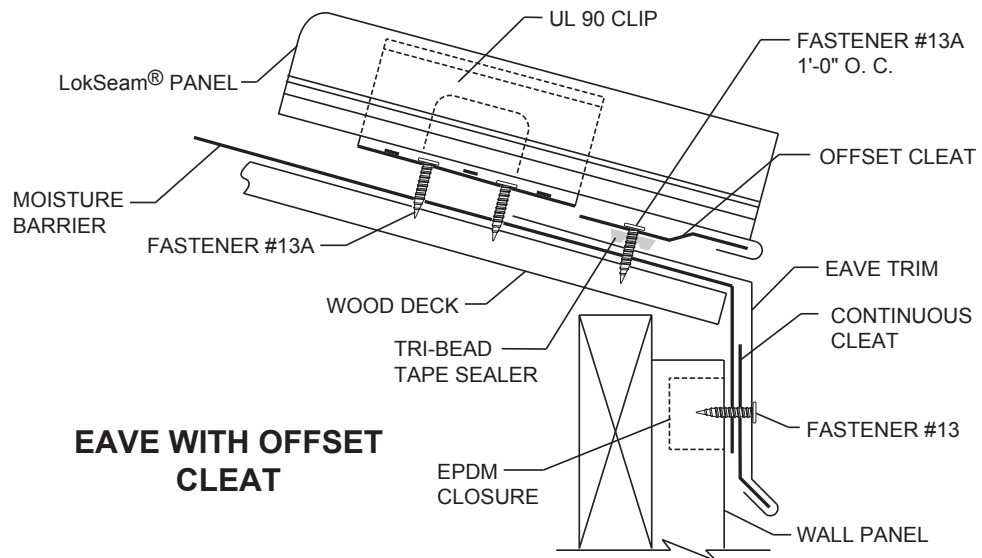
# DETAIL

## WOOD DECK FLOATING EAVE WITH EAVE TRIM

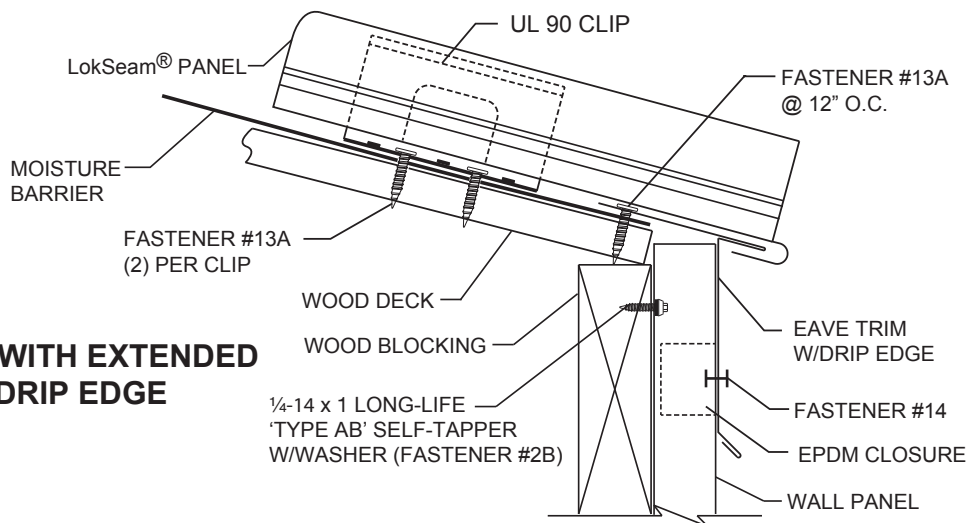


### PANEL END DETAIL

FILL END OF RIB WITH  
URETHANE SEALANT



### EAVE WITH OFFSET CLEAT



### EAVE WITH EXTENDED DRIP EDGE

#### NOTES:

##### Eave with Offset Cleat

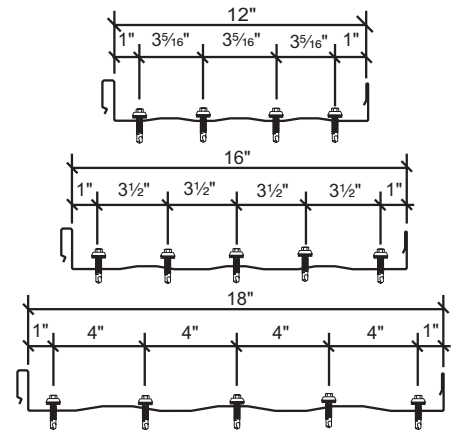
1. Panels must be attached to substructure at the ridge, high eave, endlap or hip to prevent them from sliding downslope.
2. Offset cleat is installed continuous along eave over Tri-Bead tape sealer with Fastener #13A at 1'-0" o.c.  
**FASTENERS MUST GO THROUGH TAPE SEALER.**
3. Clip spacing should not exceed 4'-0" o.c. for 24-gauge panels or 5'-0" o.c. for 22-gauge panels.
4. Add 1½" to the panel length for the panel hem.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends at valley.

##### Eave with Extended Drip Edge

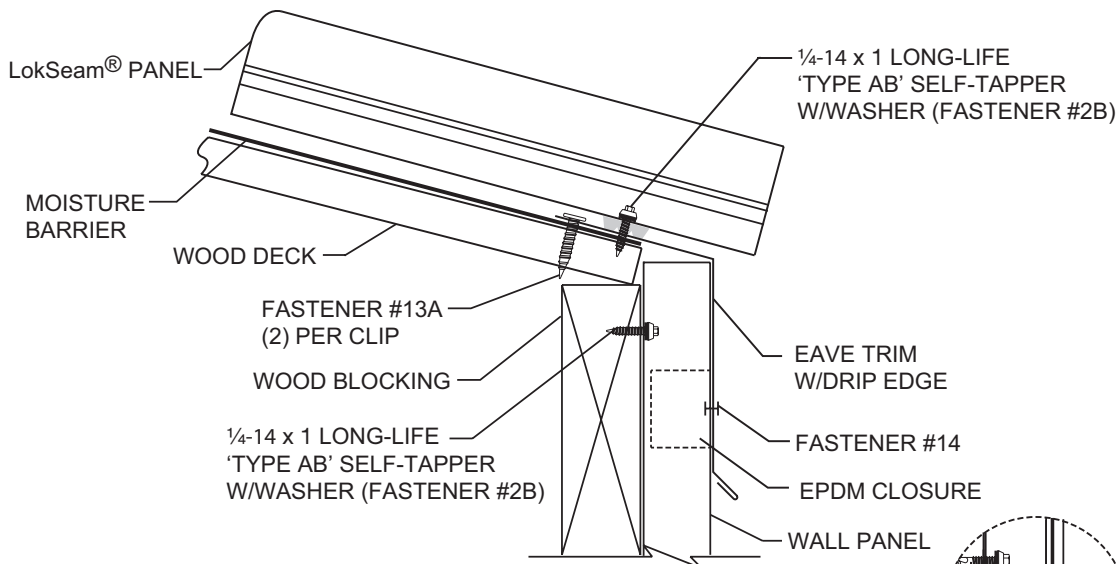
1. Panels must be attached to substructure at the ridge, high eave, endlap or hip to prevent them from sliding downslope.
2. Attach eave trim to the wood deck with Fastener #13A at 2'-0" o.c.  
**FASTENERS MUST GO THROUGH TAPE SEALER.**
3. To field hem panel, see page LS-31.
4. See "Panel End Sealant Detail" on page LS-36.

## DETAIL

### WOOD DECK FIXED EAVE WITH EAVE TRIM

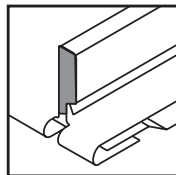


**FASTENER SPACING AT EAVE**

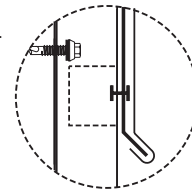


#### PANEL END DETAIL

FILL END OF RIB WITH URETHANE SEALANT



#### OPTIONAL CONTINUOUS CLEAT



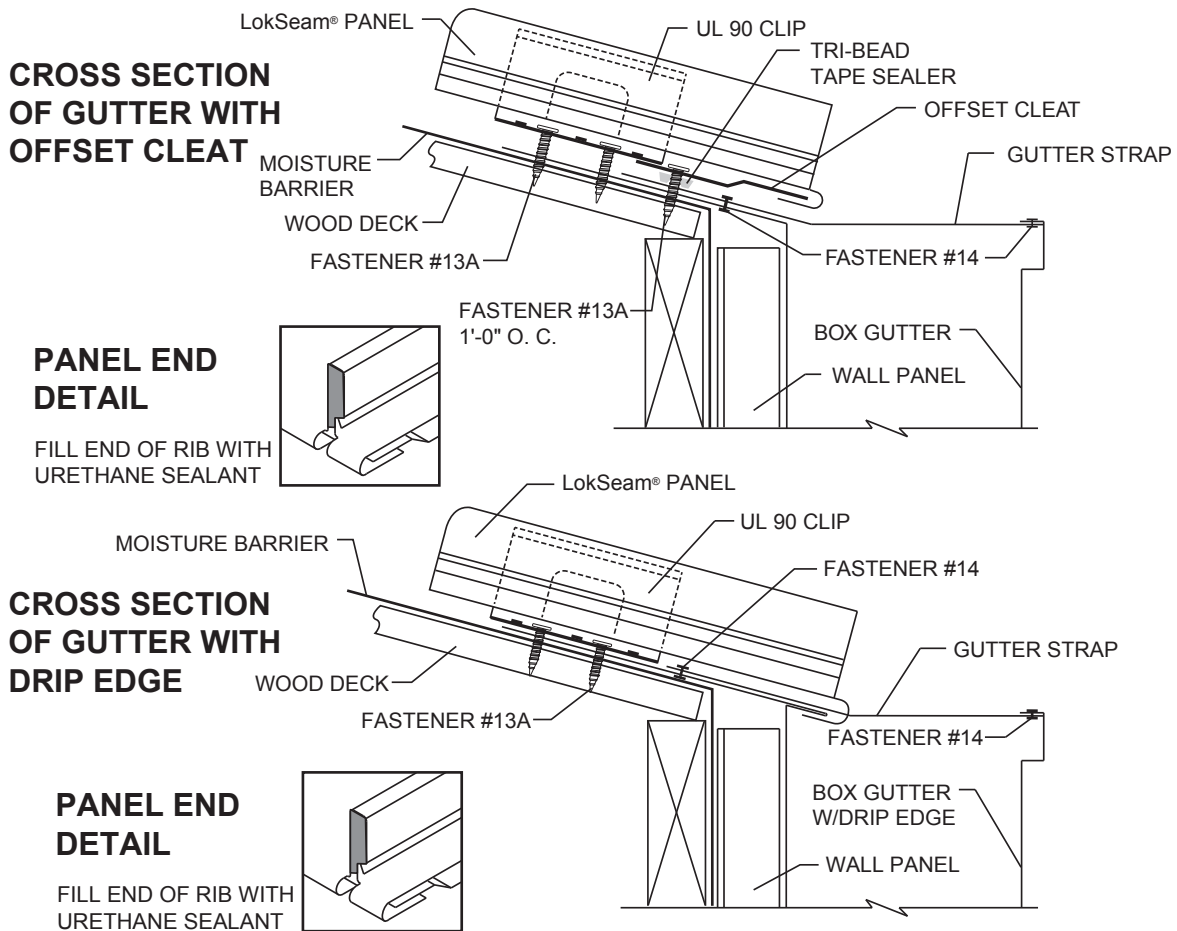
#### NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach eave trim to wood deck with Fastener #13A (3 fasteners per 10' piece).
3. Apply Tri-Bead tape sealer to slope leg of eave trim. Edge of tape sealer should align with edge of wood deck.
4. Install panel and fasten to wood deck with Fastener #2B.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.



# DETAIL

## WOOD DECK FLOATING EAVE WITH GUTTER



**NOTES:**

**Offset Cleat**

1. The offset cleat method of attachment should be used when ridge, peak 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 wood deck with Fastener #13A at 1'-0" o.c.
3. To field hem panel, see page LS-31
4. See "Panel End Sealant Detail" on page LS-36 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 LS-48 for the gutter detail for these areas.

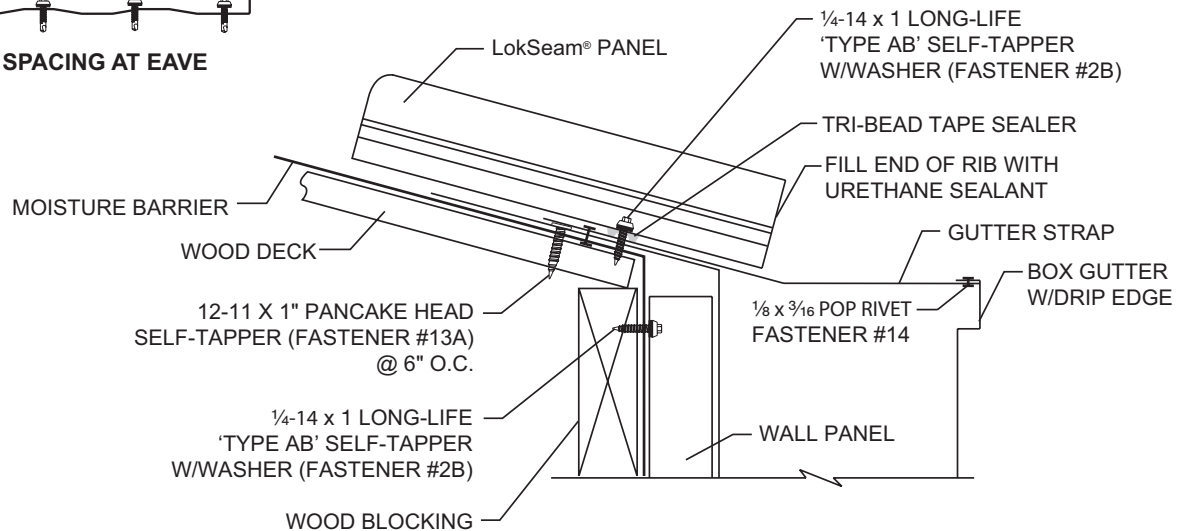
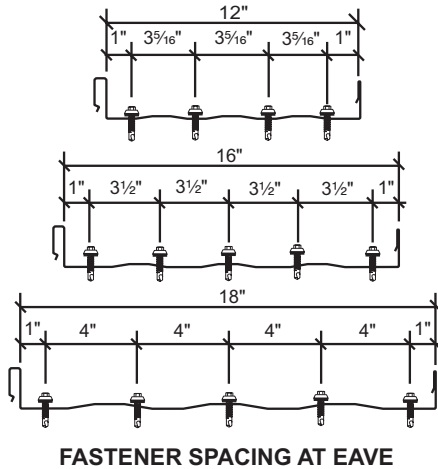
**Gutter with Drip Edge**

1. The gutter with drip edge method of attachment should be used when ridge, high 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 wood deck with Fastener #13A 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 LS-31.
5. Notch panel hem for gutter strap.
6. See "Panel End Sealant Detail" on page LS-36 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 ABC.
8. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page LS-48 for the gutter detail for these areas.



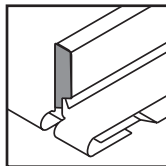
## DETAIL

### WOOD DECK FIXED EAVE WITH GUTTER



#### PANEL END DETAIL

FILL END OF RIB WITH URETHANE SEALANT



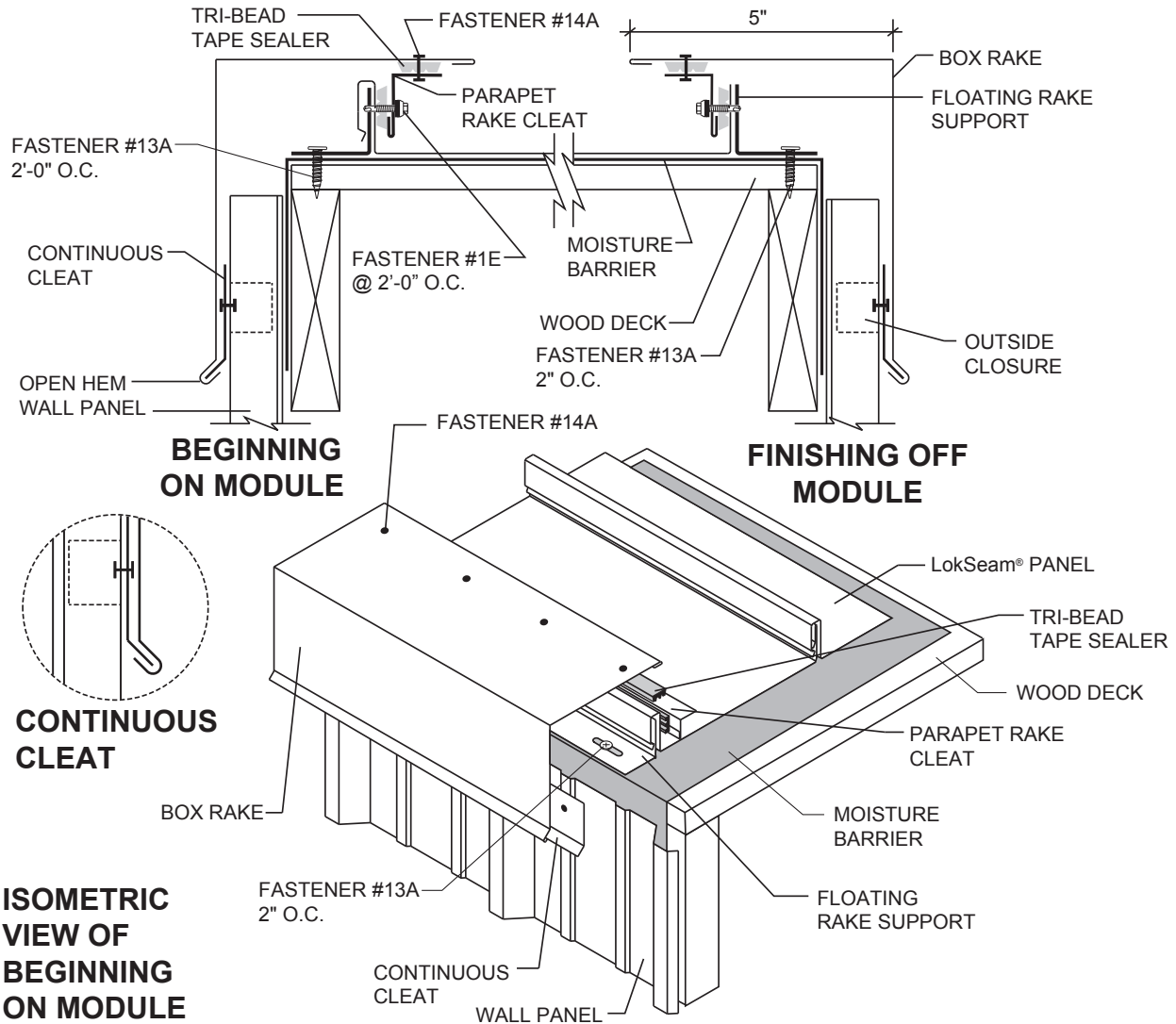
#### NOTES:

##### Fixed Eave with Gutter

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter to wood deck with Fastener #13A (3 fasteners per 10' piece)
3. Install gutter straps every 3'-0" of gutter length. Attach to outside leg of gutter and slope leg of gutter with Fastener #14.
4. Apply Tri-Bead tape sealer to slope leg of gutter. Edge of tape sealer should align with edge of wood deck.
5. Install panel and fasten to wood deck with fastener #2B at the spacing shown in the above diagram.
6. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.
7. The above gutter should not be used in areas that experience snow loads of 10 PSF or greater.

# DETAIL

## WOOD DECK FLOATING RAKE

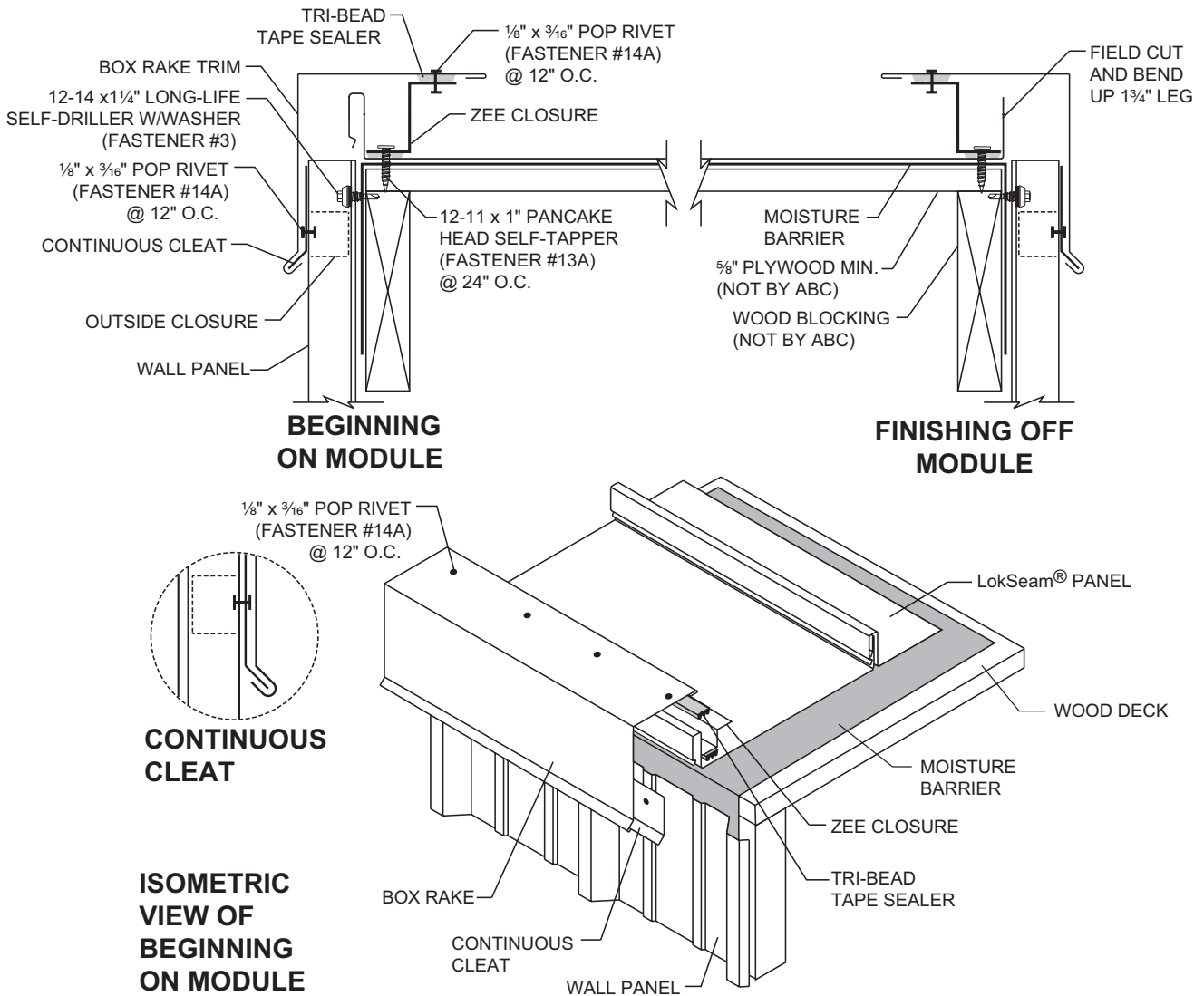


**NOTES:**

1. The top dimension of the rake will be affected by the wall panel thickness.
2. Install floating rake support with Fastener #13A at 2'-0" o.c. (Install Fastener #13A so as not to restrict the movement of the rake support).
3. Engage female leg of panel over rake support.
4. Apply Tri-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener #1E at 2'-0" o.c.  
**FASTENERS MUST GO THROUGH RAKE SUPPORT.**
5. Apply Tri-Bead tape sealer to top of parapet rake cleat and attach rake trim to parapet rake cleat with Fastener #14A 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. The bottom hem of the rake trim is "open".
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.

## DETAIL

### WOOD DECK FIXED RAKE

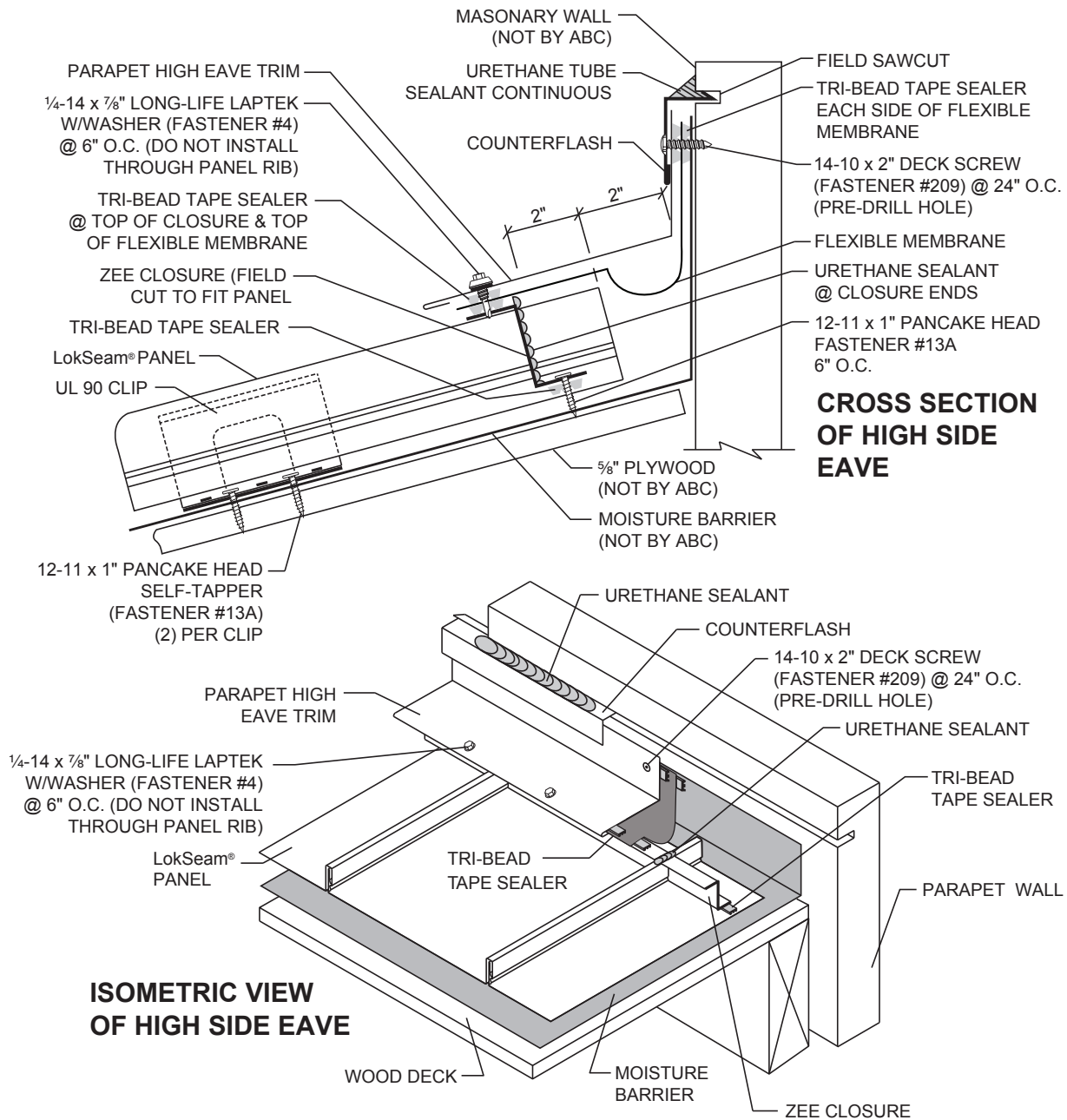


**NOTES:**

1. Apply Tri-Bead tape sealer to bottom leg of zee closure.
2. Install zee closure to panel with Fastener #13A at 12" on center.
3. Apply Tri-Bead tape sealer to top leg of zee closure and attach rake trim to zee closure with Fastener #14A at 12" on center.
4. If roof finishes on module, finishing detail will be similar to starting detail. If roof finishes off module, field cut panel and bend a 1/3/4" leg before installing zee closure.

# DETAIL

## WOOD DECK FIXED PARAPET HIGH EAVE

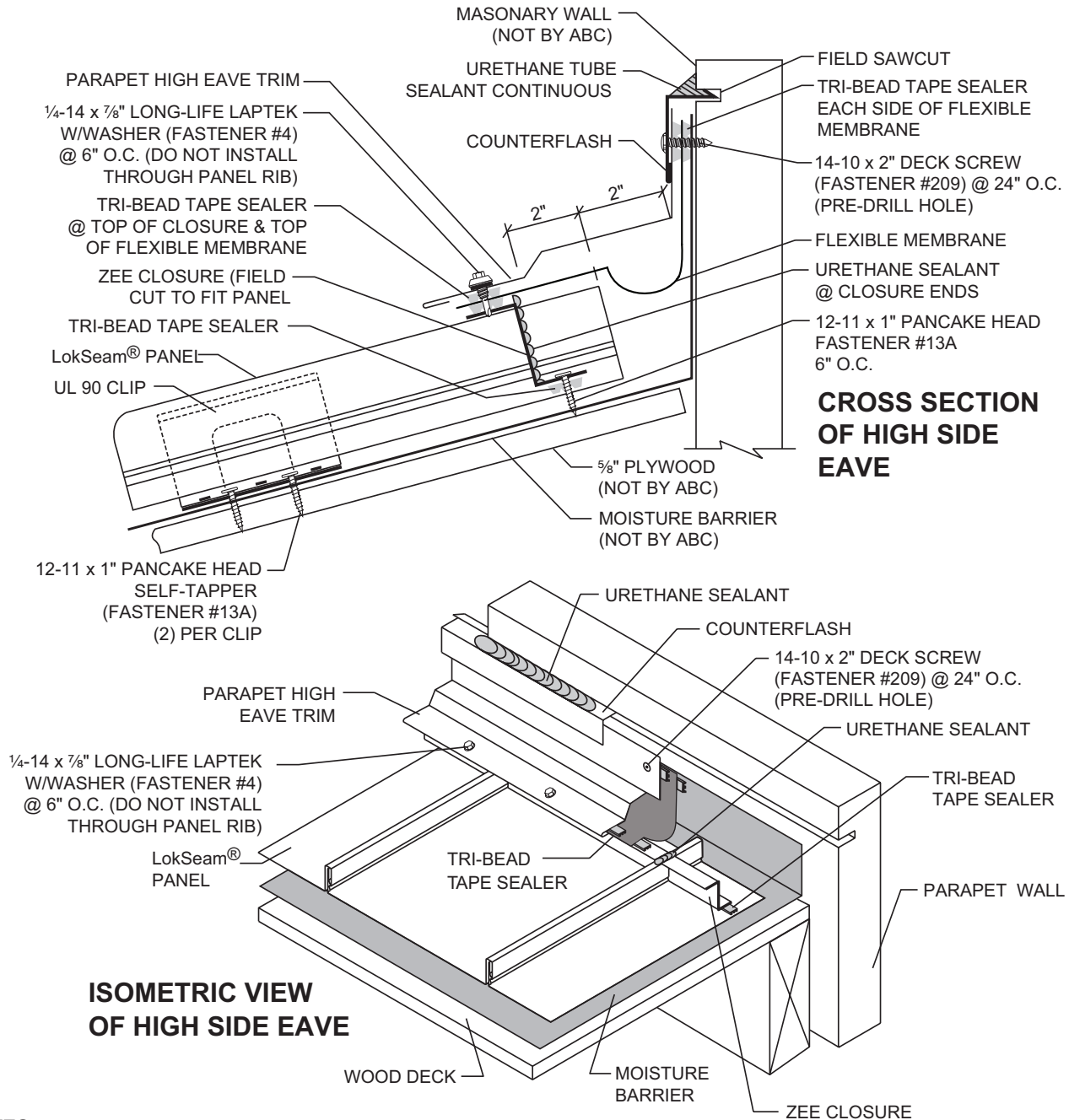


**NOTES:**

1. Do not use this detail with fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Apply Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closures should be 2" from end of panels.
5. Seal ends of zee closures to the panel seams with urethane sealant. Apply Tri-Bead tape sealer to the top leg of zee closures.
6. Attach parapet high side eave trim to zee closure with Fastener #4 at 6" o.c.
7. Seal counterflash to parapet wall with urethane sealant.

## DETAIL

### WOOD DECK FLOATING PARAPET HIGH EAVE

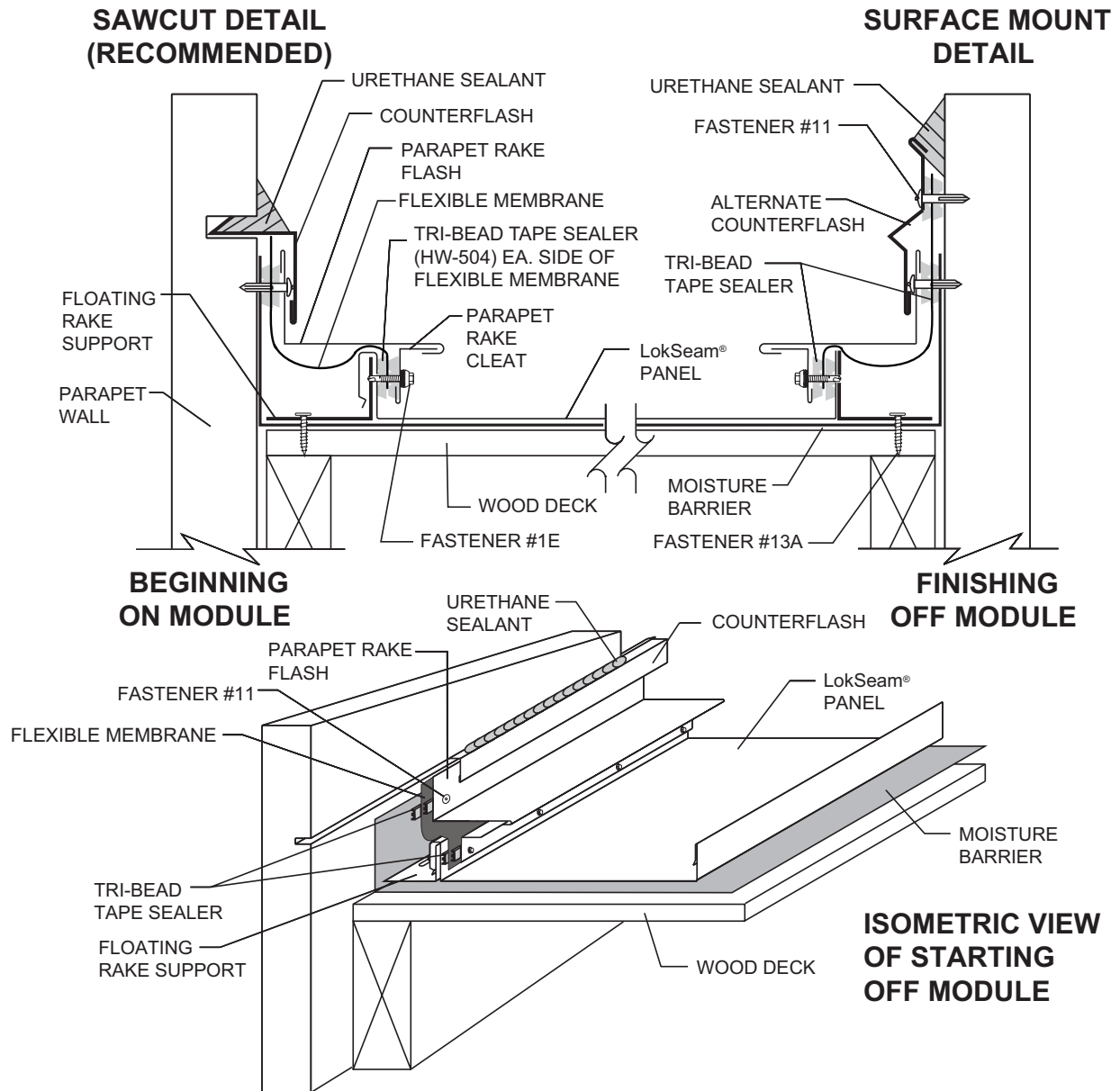


**NOTES:**

1. Do not use this detail with fixed eave or valley details.
2. Field cut zee closures to fit panel width.
3. Apply Tri-Bead tape sealer to panels. Center of tape sealer should be 1½" from end of panel.
4. Install zee closures to panels with Fastener #13A at 6" o.c. Vertical leg of zee closures should be 2" from end of panels.
5. Seal ends of zee closures to the panel seams with urethane sealant. Apply Tri-Bead tape sealer to the top leg of zee closures.
6. Attach parapet high side eave trim to zee closure with Fastener #4 at 6" o.c.
7. Seal counterflash to parapet wall with urethane sealant.

# DETAIL

## WOOD DECK FLOATING PARAPET RAKE

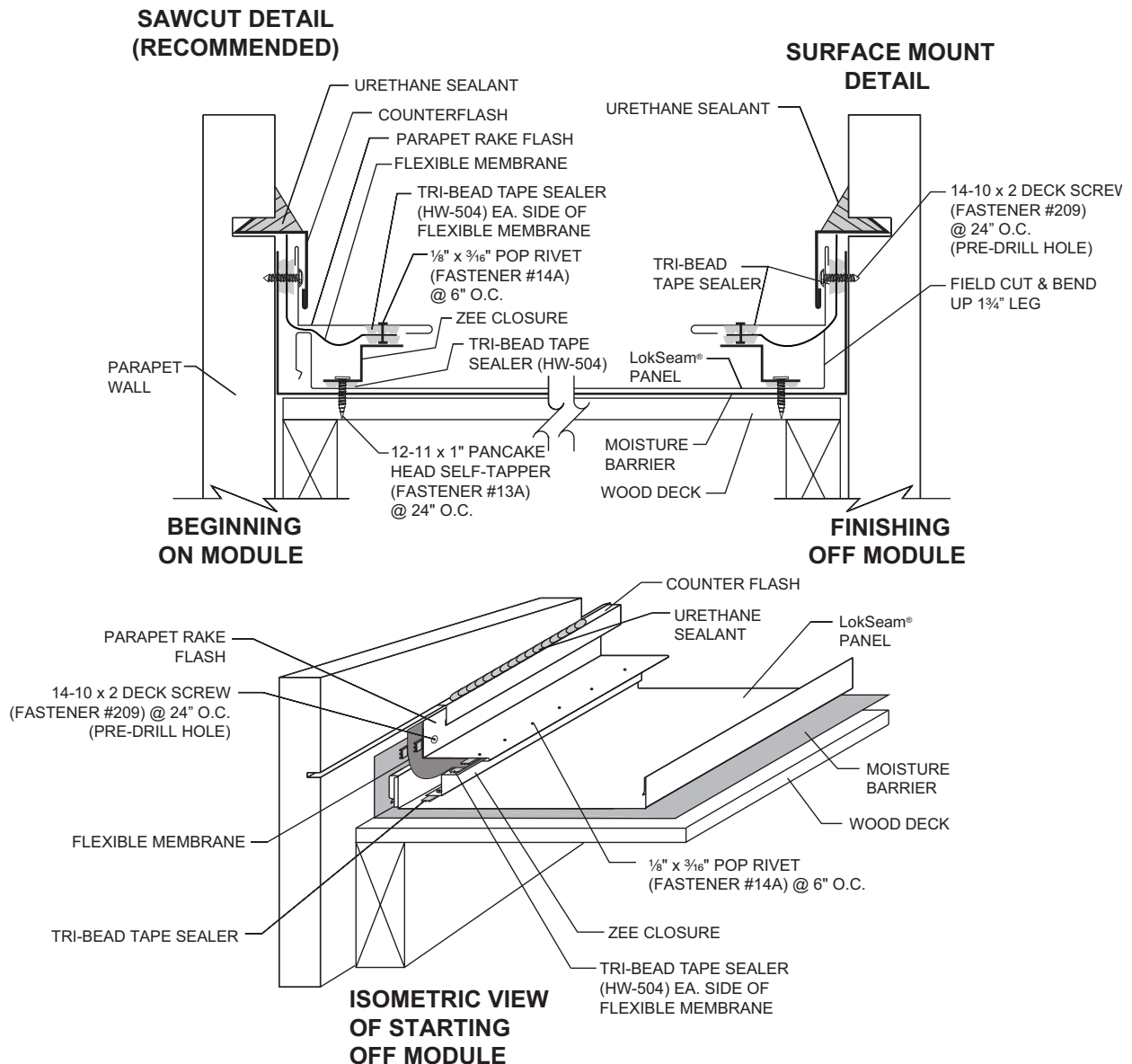


**NOTES:**

1. Install floating rake support with Fastener #13A at 2'-0" o.c. (Install Fastener #13A so as not to restrict the movement of the rake support).
  2. Engage female leg of panel over rake support.
  3. Apply Tri-Bead tape sealer to vertical leg of panel. Install flexible membrane and parapet rake cleat to panel leg with Fastener #1E at 2'-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.

## DETAIL

### WOOD DECK FIXED PARAPET RAKE



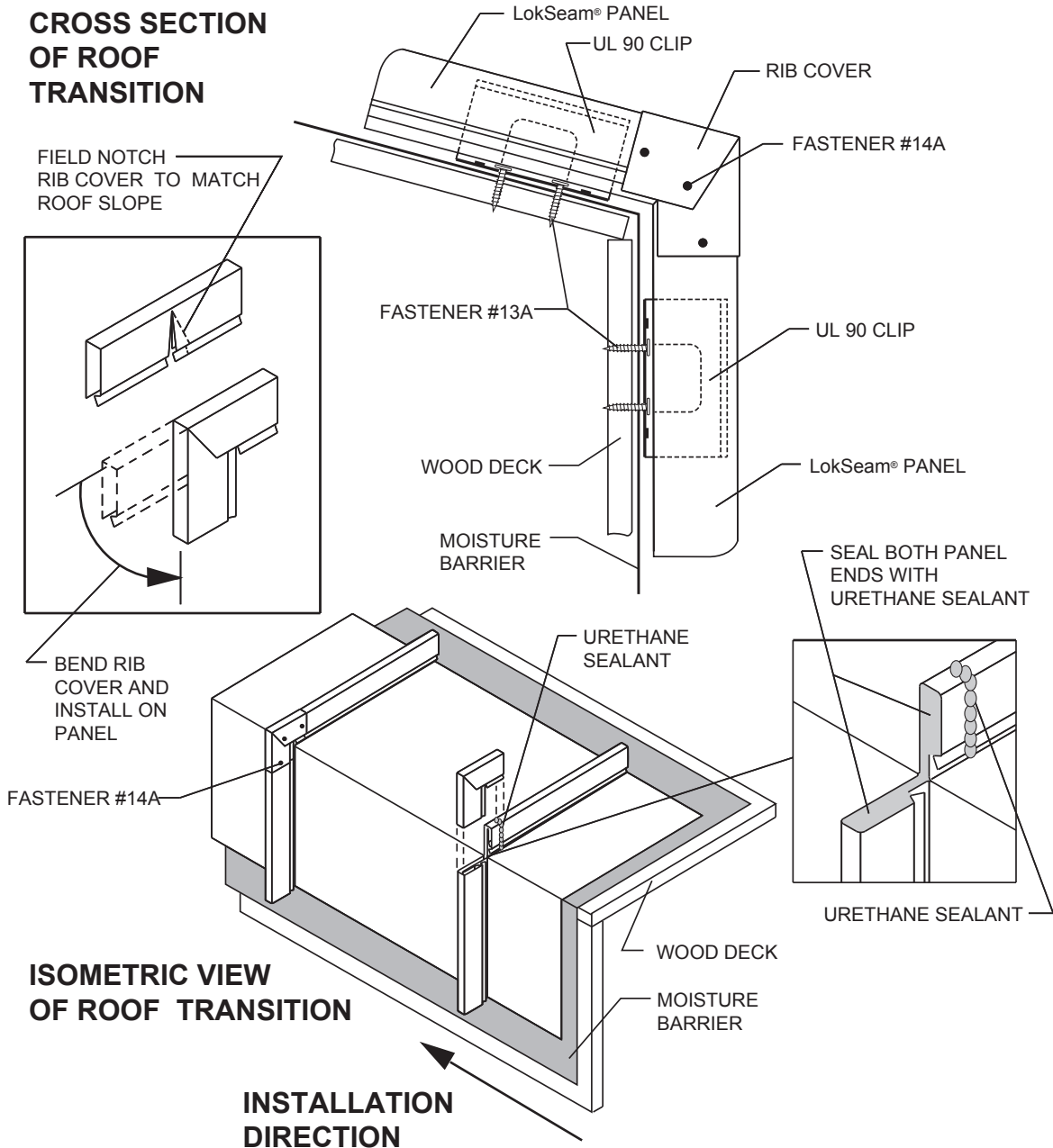
**NOTES:**

1. Apply Tri-Bead tape sealer to bottom leg of zee closure.
2. Install zee closure to panel with fastener #13A at 12" on center.
3. Apply Tri-Bead tape sealer to top leg of zee closure.
4. Attach flexible membrane to Tri-Bead tape sealer on top of zee closure and add a second run of Tri-Bead tape sealer on top of the flexible membrane.
5. Attach parapet rake trim to zee closure with Fastener #14A at 12" on center.
6. If roof finishes on module, finishing detail will be similar to starting detail. If roof finishes off module, field cut panel and bend a 1¼" leg before installing zee closure.



# DETAIL

## WOOD DECK ROOF TRANSITION



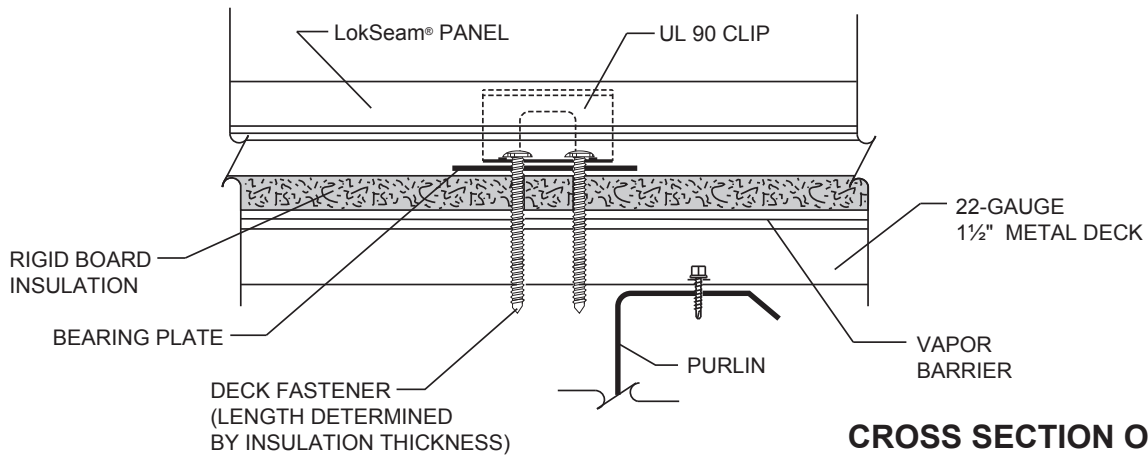
**NOTES:**

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 urethane sealant.
4. Field notch rib cover to allow it to bend to the proper angle.
5. Field apply a bead of urethane sealant over rib before applying rib cover.
6. A moisture barrier must be installed and extended a minimum of 12" up slope and behind the fascia to the bottom.
7. **Do not use this detail inside the building envelope.**

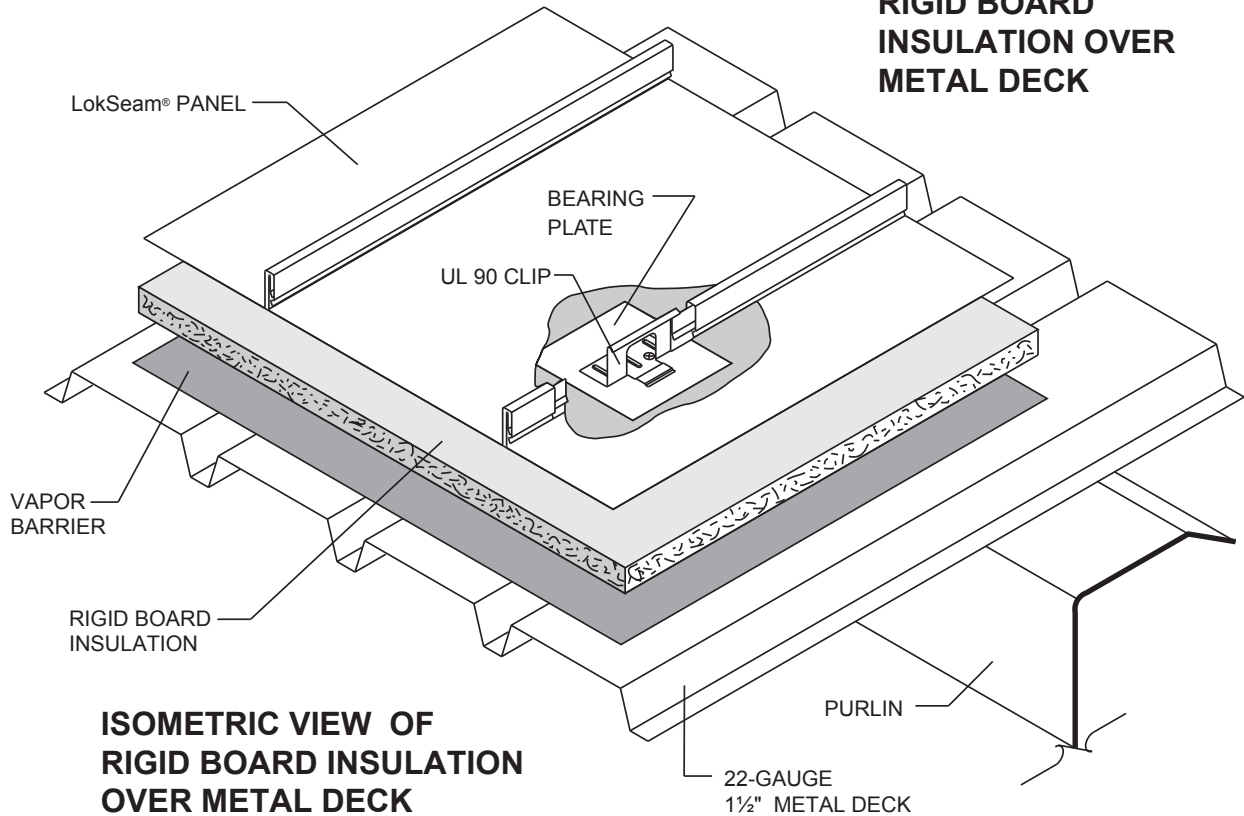


## DETAIL

### RIGID BOARD INSULATION OVER METAL DECK



**CROSS SECTION OF RIGID BOARD INSULATION OVER METAL DECK**



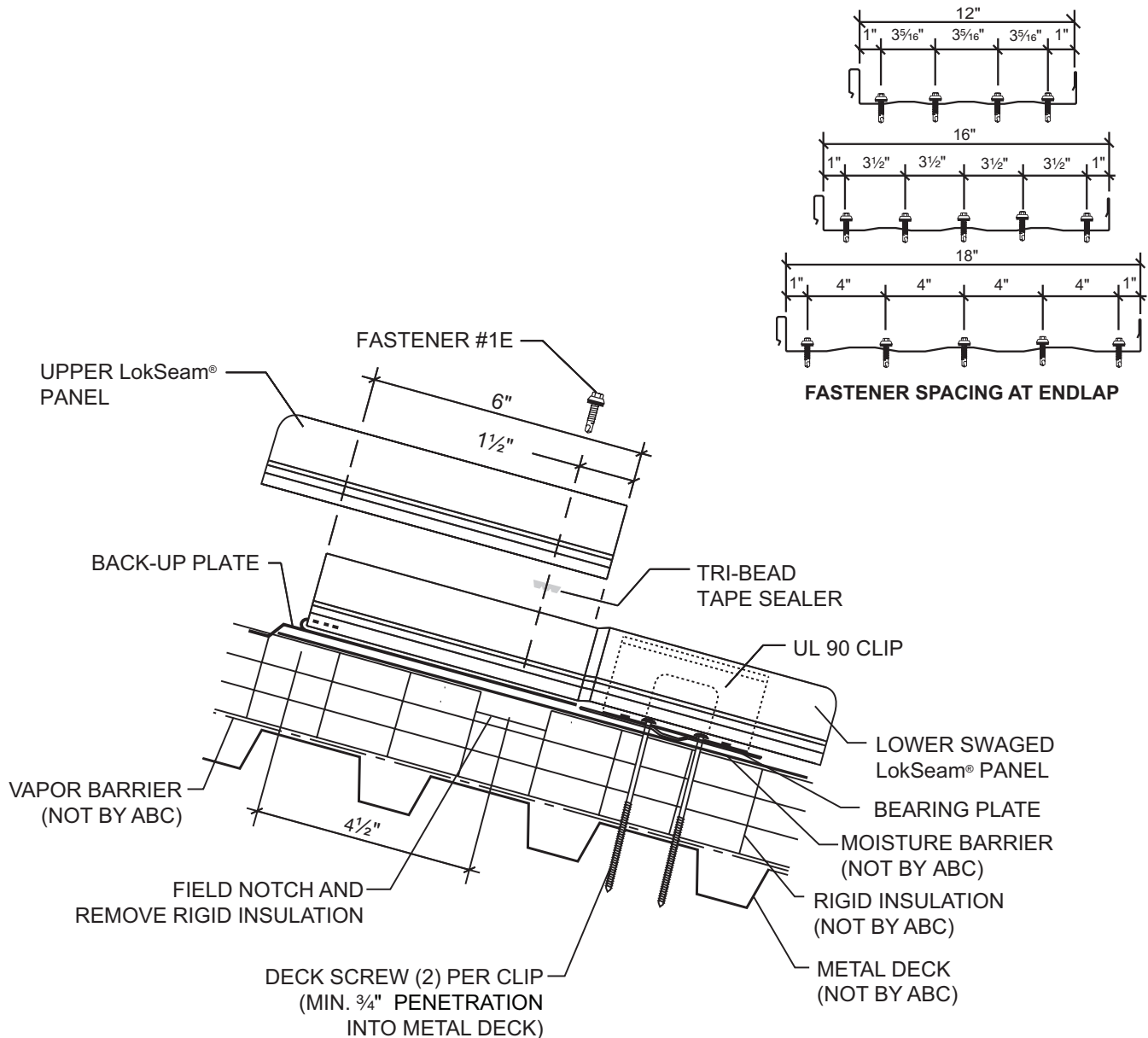
**ISOMETRIC VIEW OF RIGID BOARD INSULATION OVER METAL DECK**

**NOTES:**

1. Metal deck to be 1½" deep, 22-gauge.
2. Rigid board insulation to be 1" - 4" thick.
3. Clips and bearing plates to be installed simultaneously with two Deck Fasteners into the metal deck. Length of fasteners to be determined by thickness of insulation plus depth of metal deck. Fasteners should extend ¼" below metal deck.
4. Some composite systems require additional acoustical consideration. Contact your architect and/or engineer for proper acoustical design.

# DETAIL

## METAL DECK ENDLAP

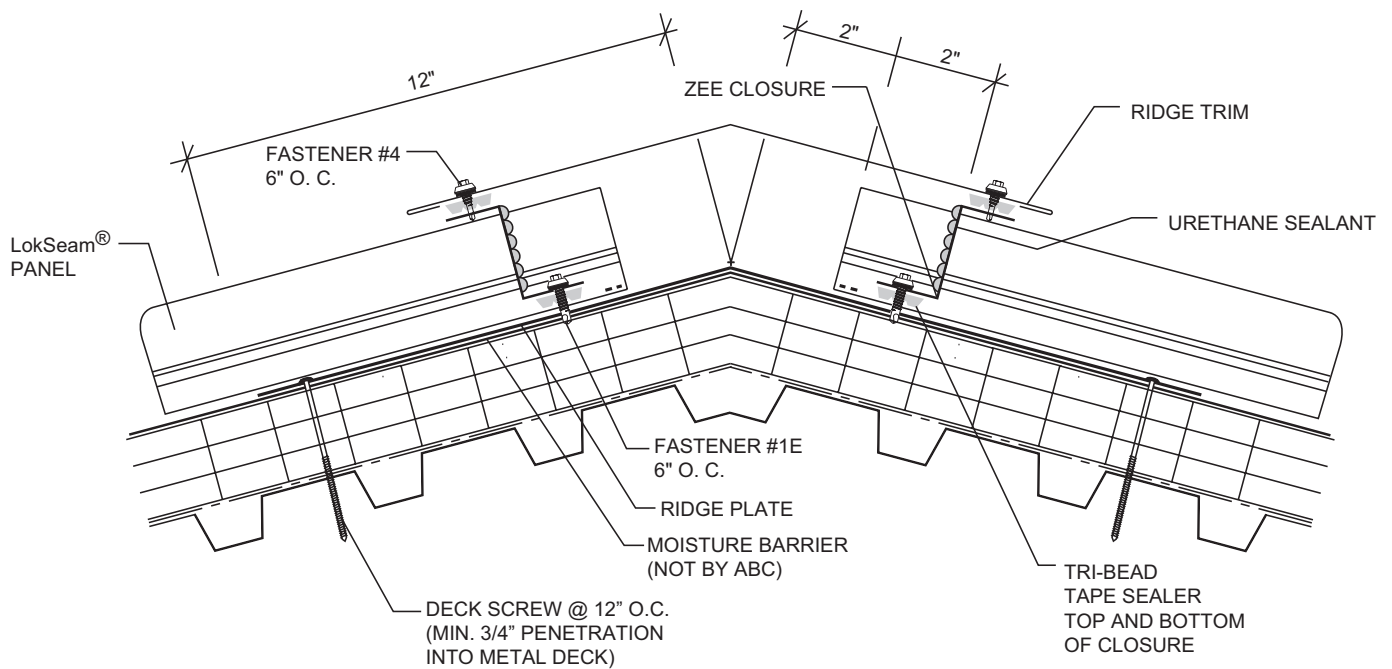


**NOTES:**

1. Install bottom panel so that the eave has the proper overhang (refer to eave details).
2. Slide a prepunched back-up plate onto the upper end of the panel; make sure the teeth of the back-up plate are on top of the panel. Visually check to see that the holes in the back-up plate align with the prepunched holes in the panel.
3. Place Tri-Bead tape sealer over the entire width of the panel. It must be centered directly over the prepunched holes.
4. Using an awl to align the holes, install top panel by lapping it over the swaged portion of the bottom panel. Install Fastener #1E in the prepunched holes in the proper sequence.
5. Endlaps require roof erection to proceed from left to right as viewed from the eave looking toward the ridge.

## DETAIL

### METAL DECK FIXED RIDGE

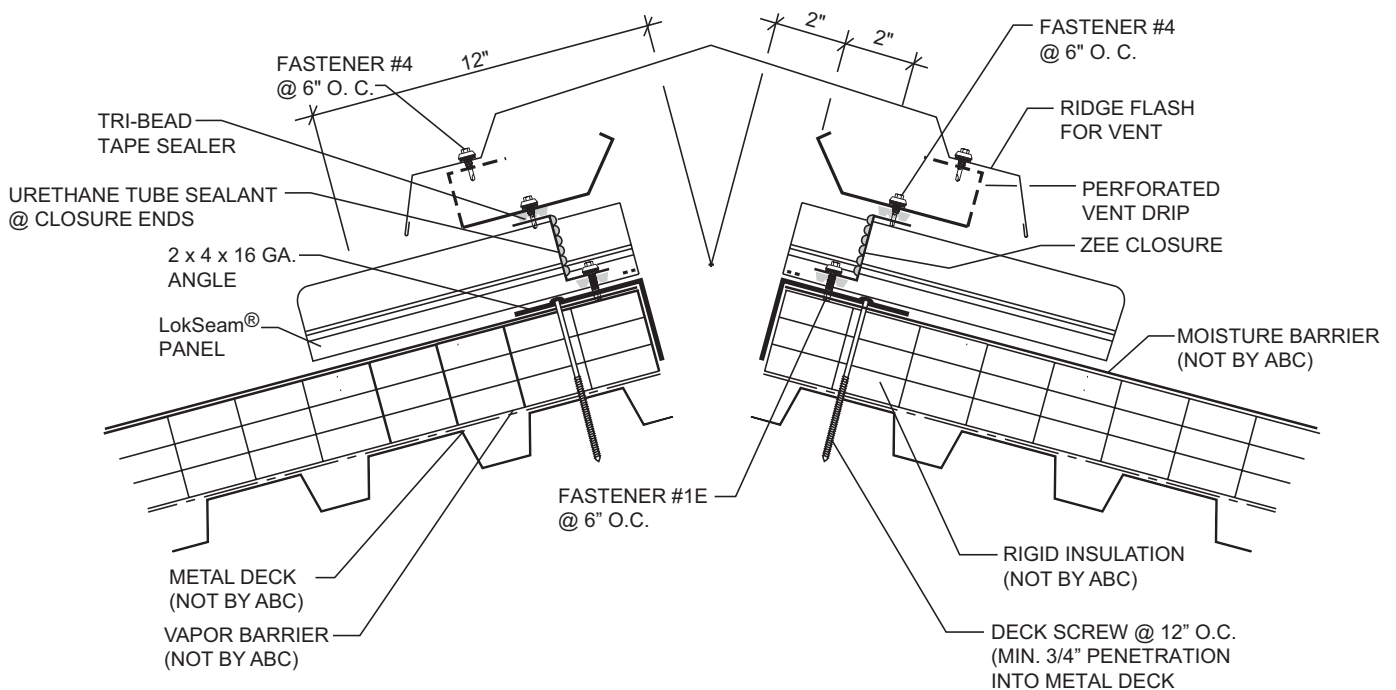


**NOTES:**

1. Use this detail with a floating eave or valley detail.
2. Field cut zee closures to fit panel width.
3. Install Tri-Bead tape sealer to panels. The center of the tape sealer should be 1-1/2" from end of panel.
4. Install zee closures to panels with Fastener #1E at 6" on center. Vertical leg of zee closure should be 2" from end of panel.
5. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closures.
6. Attach ridge flash to zee closure with Fastener #4 at 6" on center.

# DETAIL

## METAL DECK VENTED RIDGE



**NOTES:**

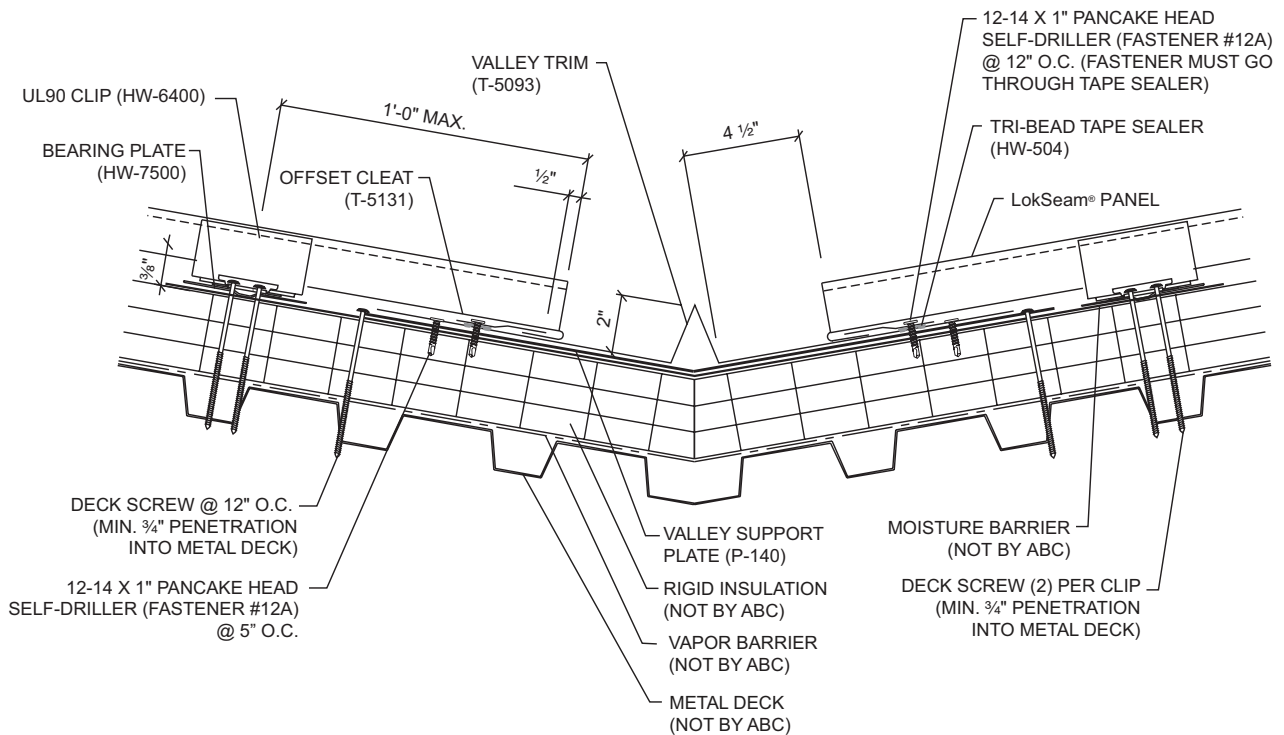
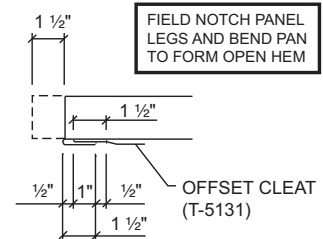
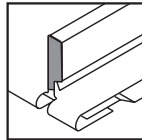
1. Do not use this detail with the offset cleat method of attachment at the eave or valley.
2. Vented ridge detail should be used in conjunction with soffit and/or eave vents to provide proper circulation and to prevent weather infiltration during high winds.
3. Install back-up plate and zee closure as in Notes 2-6 above.
4. Attach vent drip to zee closures with Fastener #4 at 6" o.c. Seal laps in vent drip with urethane sealant.
5. Attach ridge flash to vent drip with Fastener #4 at 6" o.c.

## DETAIL

### METAL DECK FLOATING VALLEY

#### PANEL END DETAIL

FILL END OF RIB WITH URETHANE SEALANT

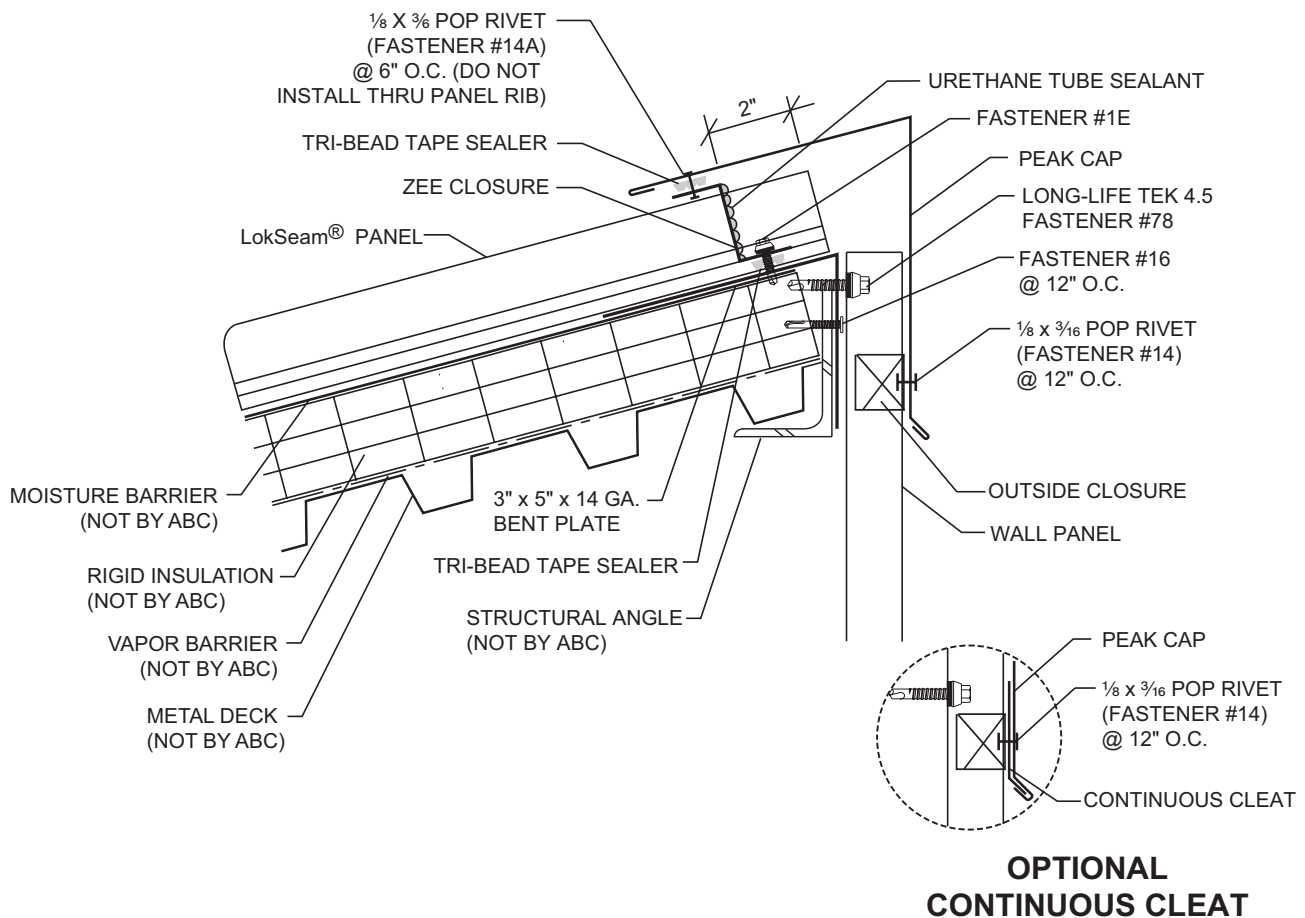


#### NOTES:

1. For valleys longer than 30', use extended valley trim (see page LS-22).
2. Panels must be attached to the substructure at the ridge, high eave or hip to prevent them from sliding downslope.
3. Offset cleat is installed continuously along slope of valley over Tri-Bead tape sealer with Fastener #12A at 1'-0" o.c. **FASTENERS MUST GO THROUGH TAPE SEALER.**
4. Add 1-1/2" to panel length for panel hem.
5. See "Panel End sealant Detail" on page LS-36 to seal panel ends at valley.

# DETAIL

## METAL DECK FIXED HIGH EAVE



**NOTES:**

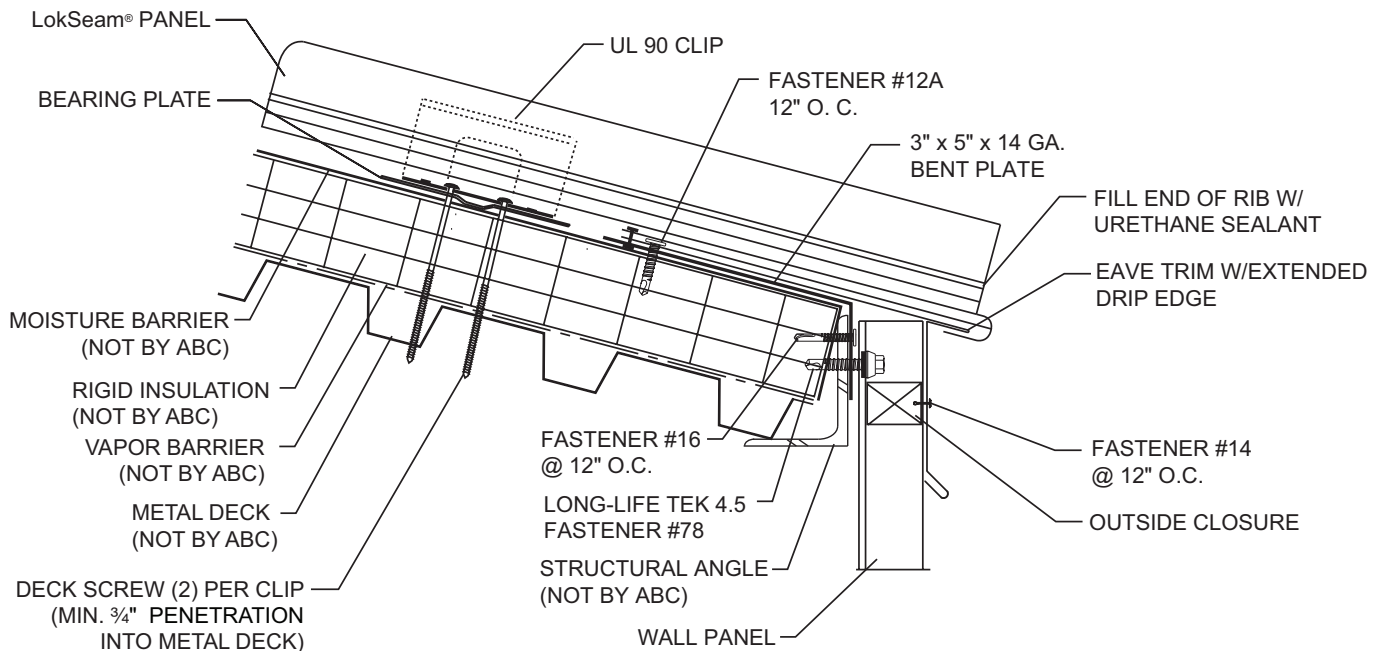
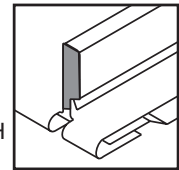
1. Use this detail with a floating eave or valley detail.
2. Install panels and clips.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of the tape sealer should be 1-1/2" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" on center.
6. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closures.
7. Attach peak cap to zee closure with Fastener #4 at 6" on center.

## DETAIL

### METAL DECK FLOATING EAVE WITH EAVE TRIM

#### PANEL END DETAIL

FILL END OF RIB WITH  
URETHANE SEALANT



#### NOTES:

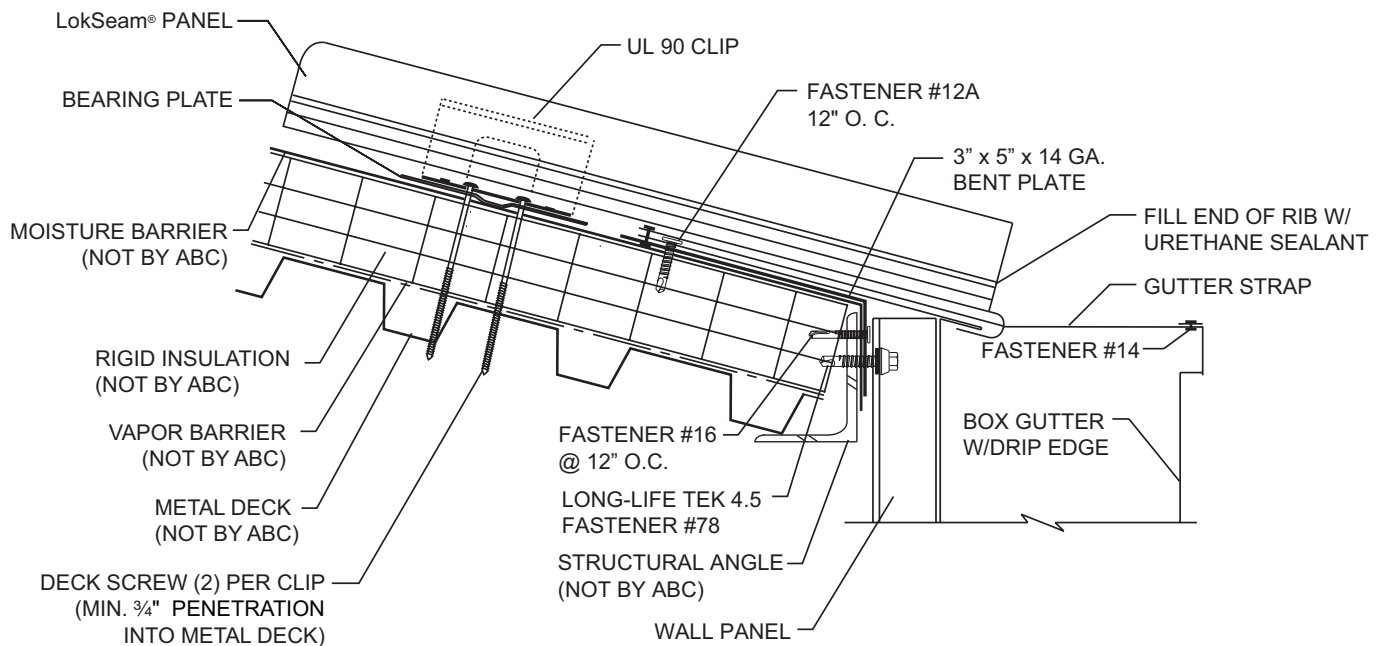
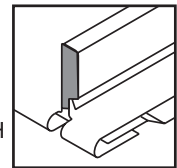
1. Panels must be attached to the substructure at the ridge, high eave, endlap or hip to prevent them from sliding downslope.
2. Attach eave trim to bent plate at eave with Fastener #12A at 12" o.c.
3. Attach gutter straps to gutter with Fastener #14A at 3'-0" o.c.
4. To field hem panel, see page LS-31.
5. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.

# DETAIL

## METAL DECK FLOATING EAVE WITH GUTTER

### PANEL END DETAIL

FILL END OF RIB WITH  
URETHANE SEALANT



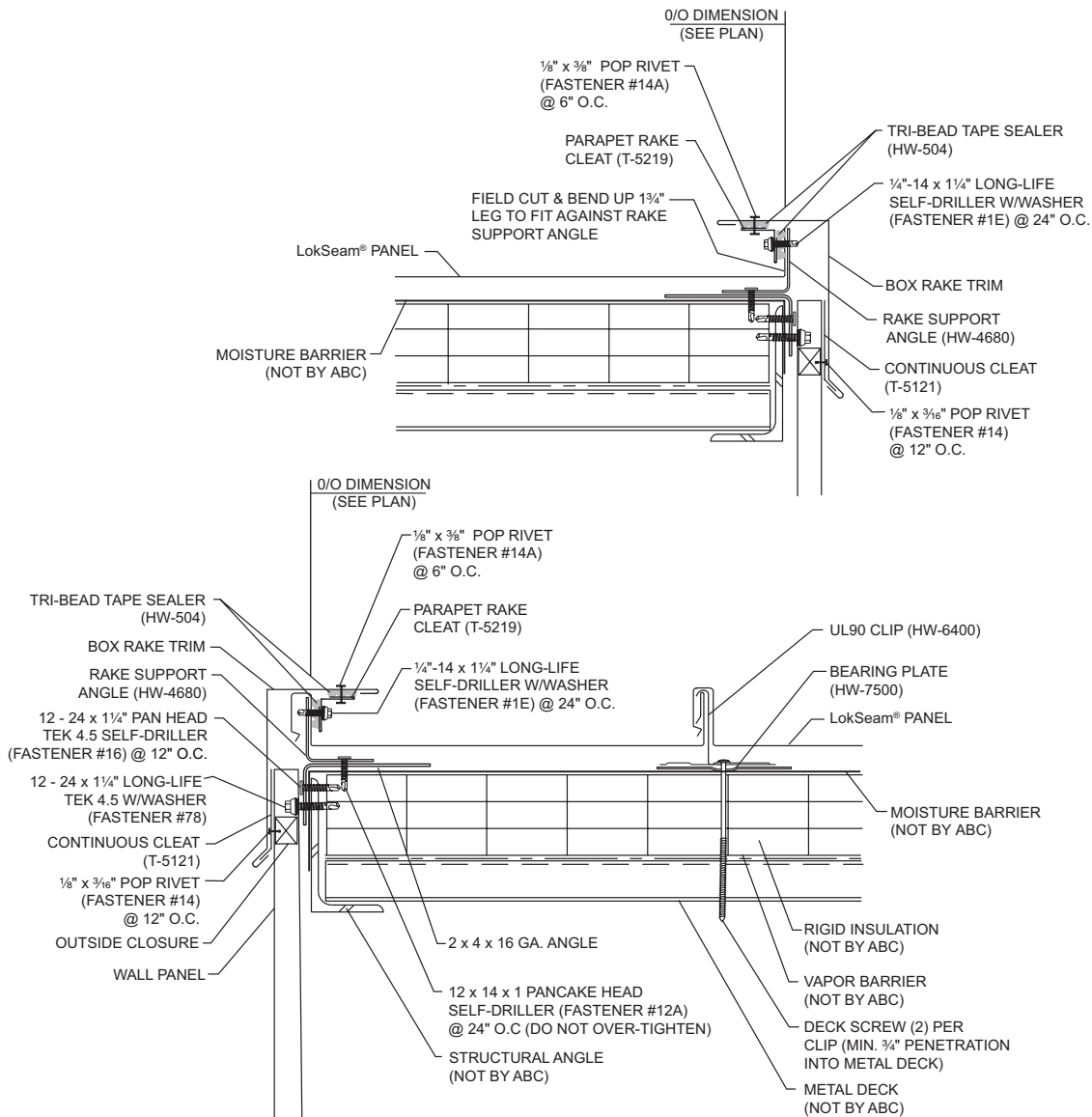
### NOTES:

1. The floating gutter detail should be used when ridge, high 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 bent plate at eave with Fastener #12A at 12" o.c.
3. Attach gutter straps to gutter with Fastener #14A at 3'-0" o.c.
4. To field hem panel, see page LS-31.
5. Notch panel hem for gutter strap.
6. See "Panel End Sealant Detail" on page LS-36 to seal panel ends.
7. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher. See page LS-48 for the gutter detail for these areas.



## DETAIL

### METAL DECK FLOATING RAKE

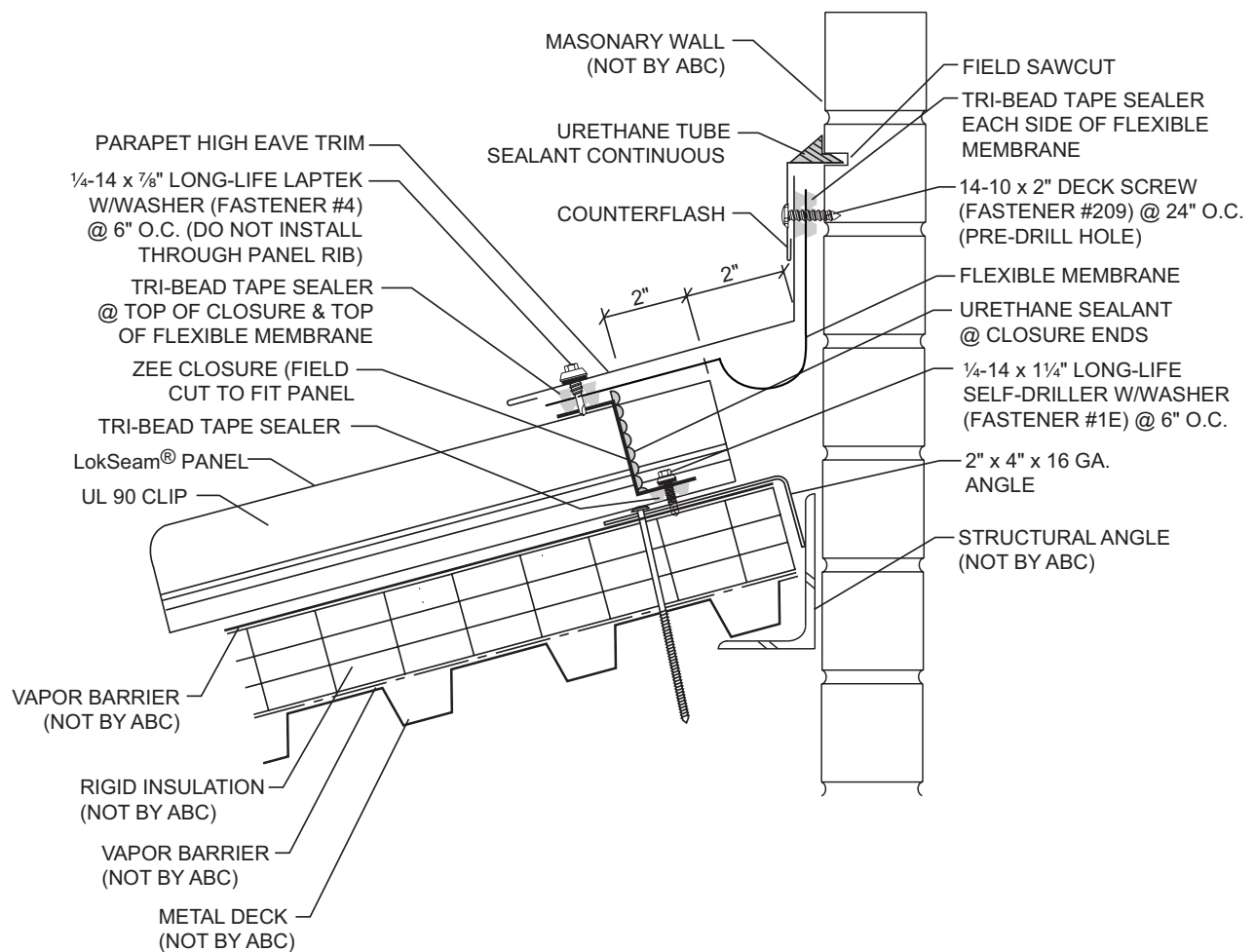


#### NOTES:

1. The top dimension of the rake trim will be affected by the wall panel thickness.
2. Install floating rake support with Fastener #12A, 2'0" o.c. Install fasteners in the center of the slots in the rake support (do not over tighten to allow the rake support to float).
3. Engage the female leg of the panel over the rake support.
4. Apply Tri-Bead tape sealer to vertical leg of panel. Install parapet rake cleat to panel leg with Fastener #1E at 2'-0" o.c. **FASTENERS MUST GO THROUGH THE RAKE SUPPORT.**
5. Apply Tri-Bead tape sealer to the top of the parapet rake cleat and attach rake trim to parapet rake cleat with Fastener #14A at 6" o.c.
6. Use a continuous cleat to hold bottom of rake trim in place. Fasten continuous cleat at 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 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.

# DETAIL

## METAL DECK FIXED PARAPET HIGH EAVE

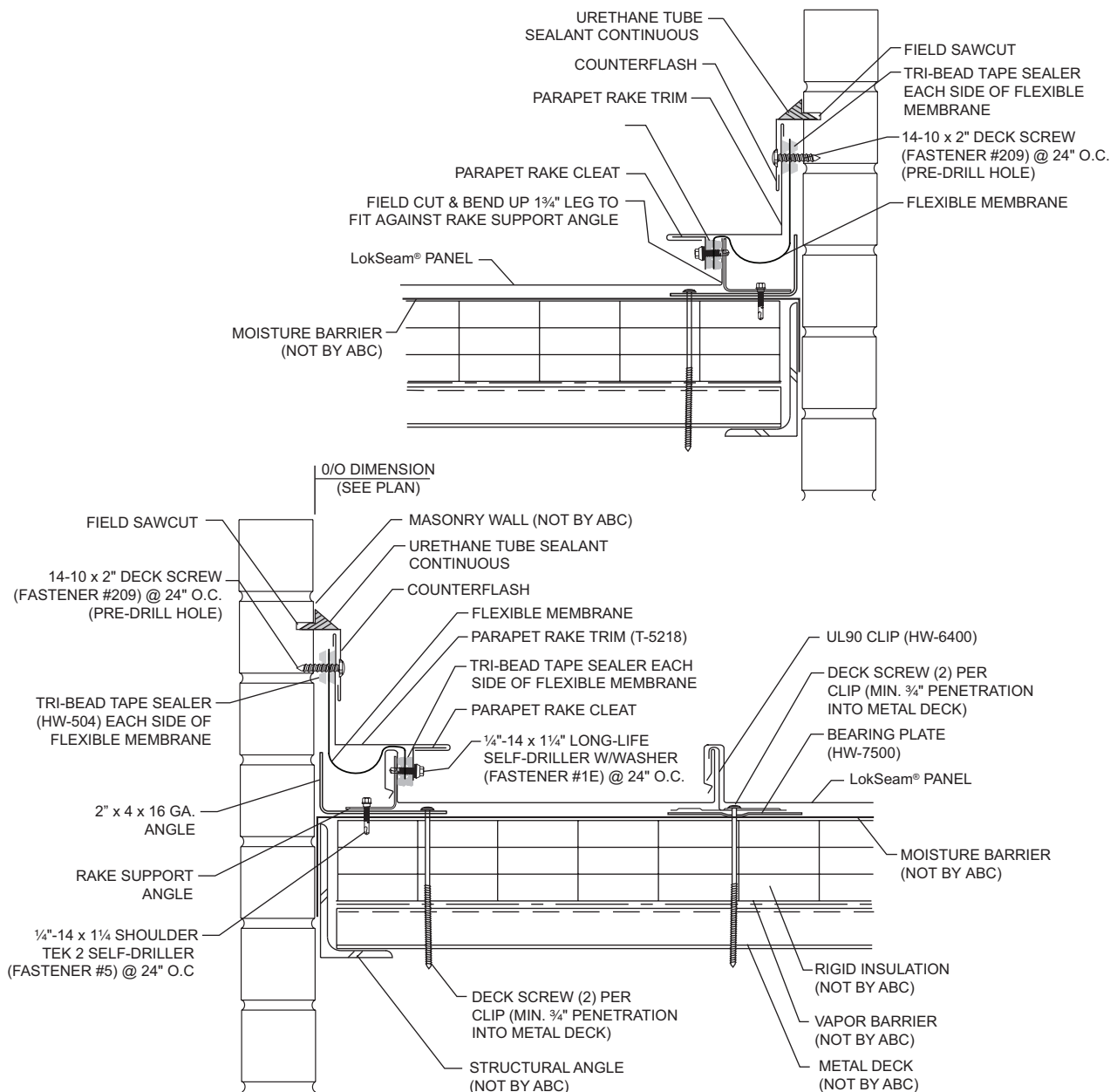


**NOTES:**

1. Use this detail with a floating eave or valley detail.
2. Install panels and clips.
3. Field cut zee closures to fit panel width.
4. Install Tri-Bead tape sealer to panels. The center of the tape sealer should be 1-1/2" from end of panel.
5. Install zee closures to panels with Fastener #1E at 6" on center. Vertical leg of zee closure should be 2" from end of panel.
6. Seal end of zee closure to panel seam with urethane sealant. Install Tri-Bead tape sealer to top of zee closures.
7. Install Flexible membrane over Tri-Bead tape sealer. Apply a second layer of Tri-Bead tape sealer on top of the flexible membrane.
8. Attach parapet high eave trim to zee closure with Fastener #4 at 6" on center.

## DETAIL

### METAL DECK FLOATING PARAPET HIGH EAVE



#### NOTES:

1. Install floating rake support with Fastener #5, 2'-0" o.c. Install fasteners in the center of the slots in the rake support.
2. Engage the female leg of the panel over the rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel. Install flexible membrane over the Tri-Bead tape sealer and apply a second layer of Tri-Bead tape sealer over the flexible membrane. Install parapet rake cleat to panel leg with Fastener #1E at 2'-0" o.c. **FASTENERS MUST GO THROUGH THE RAKE SUPPORT.**
4. Engage open hem of parapet rake trim onto parapet rake cleat. Attach flexible membrane and top leg of parapet rake trim to parapet wall with an appropriate fastener, depending upon wall substrate.
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 flexible membrane, parapet rake cleat and parapet rake trim as previously described.



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