



# **BattenLok<sup>®</sup>**

**Mechanically Seamed Roof System**

**Technical Installation**

**Information**

# TABLE OF CONTENTS

## ROOFING SYSTEM

Architect/Engineering Information .....	.BL-3
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## ENGINEERING

Read This First .....	.BL-4
UL 90 Requirements .....	.BL-5
ICBO Approval .....	.BL-5
12" Properties/Load Tables .....	.BL-6 – BL-7
16" Properties/Load Tables .....	.BL-8 – BL-9

## GENERAL INFORMATION

Product Checklist .....	.BL-10 – BL-15
Panel Orientation .....	.BL-16
Installation Guidelines .....	.BL-16
Preparatory Requirements .....	.BL-17
Unloading .....	.BL-18 – BL-19
Handling/Panel Storage .....	.BL-20

## INSTALLATION SEQUENCE

Step 1 — Rake Attachments .....	.BL-21
Step 2 — Low System Eave .....	.BL-22
Step 2A — High System Eave .....	.BL-23
Step 3 — Thermal Spacer (For High Systems Only) .....	.BL-24
Step 4 — First Panel .....	.BL-25
Step 5 — Clip Installation .....	.BL-26
Step 6 — Endlap .....	.BL-27
Step 7 — Ridge .....	.BL-28
Step 8 — Subsequent Runs Eave .....	.BL-29
Step 9 — Subsequent Runs Endlap .....	.BL-30
Step 10 — Subsequent Runs Ridge .....	.BL-31
Step 11 — Last Panel Run .....	.BL-32
Step 12 — Seaming Operation .....	.BL-33 – BL-34
Step 13 — Outside Closure Installation .....	.BL-35

## SPECIAL ERECTION TECHNIQUES

UL 90 Light Transmitting Panel Installation .....	.BL-36
Curb Installation .....	.BL-37 – BL-53
Pipe Penetration Installation .....	.BL-54 – BL-55

## DESIGN

### METAL BUILDING DETAILS

Fixed Eave With Gutter - Low System .....	BL-56
Fixed Eave With Gutter - High System .....	BL-57
Floating Eave With Gutter - Low System .....	BL-58
Floating Eave With Gutter - High System .....	BL-59
Fixed Eave With Trim - Low System .....	BL-60
Fixed Eave With Trim - High System .....	BL-61
Floating Eave With Trim - Low System .....	BL-62
Floating Eave With Trim - High System .....	BL-63
10" Deep Gutter Support Clip .....	BL-64
10" Deep Gutter Clip Attachment .....	BL-65

# TABLE OF CONTENTS

10" Deep Gutter - Fixed Eave . . . . .	BL-66
10" Deep Gutter - Expansion Eave . . . . .	BL-67
Ridge . . . . .	BL-68
Expansion End Cap Assembly . . . . .	BL-69
Expansion Ridge End Cap . . . . .	BL-70
Mid-Slope Fixed Condition . . . . .	BL-71
High Side Eave . . . . .	BL-72
High Eave Parapet . . . . .	BL-73
Rake Parapet . . . . .	BL-74
Transition . . . . .	BL-75
Floating Hip . . . . .	BL-76
Valley . . . . .	BL-77

## ARCHITECTURAL DETAILS (BOX TRIM)

### Open Framing

Fixed Eave With Gutter . . . . .	BL-78
Fixed Eave With Snow Gutter . . . . .	BL-79
Fixed Eave With Eave Trim . . . . .	BL-80
Floating Ridge . . . . .	BL-81
Floating Vented Ridge . . . . .	BL-82
Fixed Vented Eave . . . . .	BL-83
Rake . . . . .	BL-84
Floating High Side Eave . . . . .	BL-85
Fixed Valley . . . . .	BL-86
Floating Hip . . . . .	BL-87

### Wood Deck

Field Hemming Panel End . . . . .	BL-88
Endlap . . . . .	BL-89
Floating Eave with Gutter . . . . .	BL-90
Floating Eave with Eave Trim . . . . .	BL-91
Fixed Ridge . . . . .	BL-92
Fixed Vented Ridge . . . . .	BL-93
Rake . . . . .	BL-94
Fixed High Side Eave . . . . .	BL-95
Floating Valley . . . . .	BL-96
Fixed Hip . . . . .	BL-97

### Rigid Insulation Over Metal Deck

Endlap . . . . .	BL-98
Floating Eave With Gutter . . . . .	BL-99
Floating Eave With Eave Trim . . . . .	BL-100
Fixed Ridge . . . . .	BL-101
Fixed Vented Ridge . . . . .	BL-102
Rake . . . . .	BL-103
Fixed High Side Eave . . . . .	BL-104
Floating Valley . . . . .	BL-105
Fixed Hip . . . . .	BL-106

## GENERAL INFORMATION

Product Checklist . . . . .	BL-107
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## ARCHITECT/ENGINEER INFORMATION

1. **BattenLok®** is a mechanically seamed roof system. **BattenLok®** panels are available in 12" and 16" widths. Factory applied mastic inside of female leg of panel is standard.
2. **BattenLok®** is a structural roofing panel. This panel can be installed directly over purlins or bar joists. It does not require a solid substructure for support. The **BattenLok®** roof system has several different UL 90 construction numbers.
3. **BattenLok®** is recommended for roof slopes of ½:12 or greater.
4. Weathertight and aesthetically pleasing endlaps may be accomplished through the use of swaged and prepunched panels. **12" wide panels are not prepunched for endlaps.** The manufacturer provides a prepunched back-up plate at the endlap for weathertightness. Swaged endlaps require the roof erection to proceed from right to left as viewed from the eave looking toward the ridge. Roofs with no endlaps and less than 6:12 may be erected from either direction.
5. Heavier gauges, striations, embossing and installation over a solid deck minimize oil canning. Industry standard is a minimum 24 gauge material. Striations are standard to reduce oil canning. Oil canning is not a cause for rejection.
6. Substructure must be on an even plane from eave to ridge to avoid panel distortion (¼" in 20', ⅜" in 40' tolerance).
7. All panels require end sealant at eave and valley conditions; however, for illustration purposes, this sealant is not shown on all drawings.
8. For proper fastener application, see Product Checklist.
9. All perimeter trim dimensions in this manual are based on a wall panel thickness of 1¼" ("PBR" Panel). Any variation from this wall panel thickness may affect the perimeter trim dimensions.
10. The information in this manual is believed to be correct and accurate.
11. Drawings in this manual utilize the low fixed clip. Clips are available in low or high fixed, low or high floating and utility. Please use the reference guidelines on BL-4 to determine the clip required for your particular job.
12. **Avoid restricting the thermal expansion and contraction of the BattenLok® panels. (ie: Do not attach panel to the substructure at both the eave and ridge.) However, panels must be attached to the substructure at one end to prevent their sliding downslope.**
13. **BattenLok® panels are not designed to be work platforms.** Avoid any unnecessary foot traffic on **BattenLok®** panels. If foot traffic is required, protect the roof panels by using soft soled shoes and some type of roof pad, temporary deck, or walkway.
14. **WARNING:** Light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. **THE MANUFACTURER DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED,** that any person can safely walk, step, stand or rest on or near these light transmitting panels or that they comply with any OSHA regulation.
15. 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.
16. Typically, when wood decks are used, they are temporarily protected by the installation of a moisture barrier over the wood deck. If utility clips are to be used, the **BattenLok®** panel will lay tight to the wood deck. If tin tabs are used to attach the moisture barrier to the deck, they must be covered with duct tape or some other material to prevent them from rusting the back side of the panels. Also, plastic washers may "telegraph" through the panels.
17. Field cutting of the panels should be avoided where possible. If field cutting is required, the panels must be cut with nibblers, snips, or shears to prevent edge rusting. **Do not cut the panels with saws, abrasive blades, grinders, or torches.**

## IMPORTANT READ THIS FIRST

### CAUTION

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

### CAUTION

The use of any field seaming machine other than that provided by the manufacturer will damage the panels and void all warranties.

**Low Floating System** - With or without  $\frac{3}{8}$ " thermal spacer. See Insulation/Thermal Spacer Selection Chart below.

**High Floating System** - With  $\frac{3}{8}$ ",  $\frac{5}{8}$ " or 1" thermal spacer. See Insulation/Thermal Spacer Selection Chart below.

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

**Insulation/Thermal Spacer Selection Chart**

Insulation Thickness	Low System	High System
No Insulation	$\frac{3}{8}$ " Thermal Spacer	N/A
3" Insulation	N/A	1" Thermal Spacer
4" Insulation	N/A	$\frac{5}{8}$ " Thermal Spacer
6" Insulation	N/A	$\frac{3}{8}$ " Thermal Spacer

### NOTES:

- As with all standing seam roof systems, sound attenuation (example: blanket insulation) is required between the panel and the substructure to prevent "roof rumble" during windy conditions. **Some composite roof systems may require additional acoustical consideration to ensure that thermal vibration noises are isolated from the building interior. Contact your architect and/or engineer for proper acoustical design.**

### Thermal Spacer Disclaimer

The above thermal spacer chart is intended to be used as a general guideline only. Because of the various densities of insulation currently available, the manufacturer cannot guarantee that this chart will be accurate in all situations. Further, the manufacturer does not specifically require that the roofing contractor use thermal spacers with its **BattenLok®** roof system. However, please review the following information:

- Although the manufacturer does not require a thermal spacer, the architect or building owner may.
- In certain environments, the compression of the fiberglass insulation, without a thermal spacer, may create a thermal break which can cause condensation to form on the purlins/joists.
- On uninsulated buildings, eliminating the thermal spacer: (1) may cause "roof rumble" and (2) you may encounter problems holding panel module.
- When a high clip is used without a thermal spacer: (1) you may encounter problems holding panel module and (2) foot traffic on the panel ribs may result in bent clips.
- Using a low clip with too much insulation or too thick of a thermal spacer: (1) may cause "purlin read" (2) may cause difficulty in properly installing the panel side laps, and (3) you may encounter problems holding panel module.

## UNDERWRITERS LABORATORIES APPROVAL

### BattenLok®

Construction Number	Panel Width (In.)	Gauge	Clip Type	Clip Spacing	Substrate	UL-2218 Impact Resistance	UL-263 Fire Rating	UL-580 Rating
90	16"	24 min.	*	5'-0 1/16"	Open Framing	Class 4	Class A	Class 90
176	16"	24 min.	N/A	5'-0 1/4"	Open Framing	Class 4	Class A	Class 90
180	16"	24 min.	**	5'-0 1/4"	Open Framing	Class 4	Class A	Class 90
238B	16"	24 min.	**	2'-6"	Composite System	Class 4	Class A	Class 90
437	16"	24 min.	**	5'-0"	Plywood	Class 4	Class A	Class 90
449	16"	24 min.	*	5'-0"	Open Framing	Class 4	Class A	Class 90
451	16"	24 min.	*	2'-0"	Composite System	Class 4	Class A	Class 90
452	16"	24 min.	*	2'-0"	Composite System	Class 4	Class A	Class 90
487	16"	24 min.	**	4'-0"	Composite System	Class 4	Class A	Class 90

\* Fixed or Floating (high or low)

\*\* Fixed or Floating (high, low, or utility)

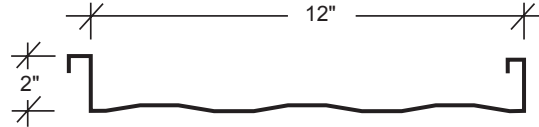
#### NOTES:

1. Tests 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 when installed over a non-combustible substrate. A Class C fire rating can be obtained over a combustible deck.
4. The panel system qualifies under the following Fire Resistance Design Numbers: P225, P227, P230, P237, P265, P268, P508, P510, P512, P701, P711, P717, P720, P722, P726, P731, P734, P736, P801, P803, P814, P815, and P819. Refer to the UL Fire Resistance Directory for specific construction methods and hourly ratings.
5. **BattenLok®** panels carry a Class 4 rating under UL-2218 "Test Standard For Impact Resistance".

## ICBO APPROVAL

**BattenLok®** roofing system details, engineering calculations, computer printouts and data have been examined by the ICBO Evaluation Service, Inc. and have been found to comply with the 1997 Uniform Building Code.

## BattenLok® Panel



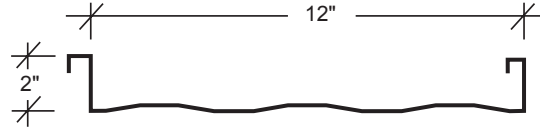
SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL GAUGE	F <sub>y</sub> (KSI)	WEIGHT (PSF)	I <sub>xe</sub> (IN.4/FT.)	S <sub>xe</sub> (IN.3/FT.)	Maxo (KIP-IN.)	I <sub>xe</sub> (IN.4/FT.)	S <sub>xe</sub> (IN.3/FT.)	Maxo (KIP-IN.)
24	50	1.41	0.0849	0.0758	2.2686	0.1875	0.1199	3.5892
22	50	1.81	0.1179	0.1090	3.2621	0.2464	0.1584	4.7417

### NOTES:

1. All calculations for the properties of **BattenLok®** panels are calculated in accordance with the 2001 edition of the *North American Specification For Design Of Cold-Formed Steel Structural Members*.
2. I<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 the 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 jobsite in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

## BattenLok® 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	216.0	180.0	154.3	135.0	118.2	95.7	79.1
2-SPAN	LIVE	216.0	168.0	123.5	94.5	74.7	60.5	50.0
3-SPAN	LIVE	216.0	180.0	154.3	118.2	93.4	75.6	62.5
4-SPAN	LIVE	216.0	180.0	144.4	110.3	87.2	70.6	58.4

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	311.2	259.5	222.3	194.5	156.1	126.4	104.5
2-SPAN	LIVE	311.2	241.6	177.5	135.9	107.4	87.0	71.9
3-SPAN	LIVE	311.2	259.5	221.9	169.9	134.2	108.7	89.9
4-SPAN	LIVE	311.2	259.5	207.2	158.6	125.3	101.5	83.9

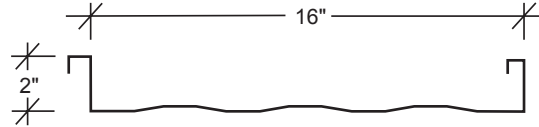
### NOTES:

1. Allowable loads are based on uniform span lengths and Fy = 50 ksi.
2. LIVE LOAD is limited by bending, shear, combined shear & bending.
3. Above loads consider a maximum deflection ratio of L/180.
4. The weight of the panel has not been deducted from the allowable loads.
5. **THE ABOVE LOADS ARE NOT FOR USE WHEN DESIGNING PANELS TO RESIST WIND UPLIFT.**
6. Please contact manufacturer or manufacturer's website for most current allowable wind uplift loads.
7. The use of any field seaming machine other than that provided by the manufacturer may damage the panels, void all warranties and will void all engineering 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.



## BattenLok® Panel



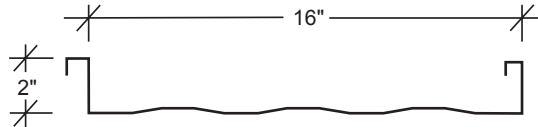
SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL GAUGE	Fy (KSI)	WEIGHT (PSF)	Ixe (IN.4/FT.)	Sxe (IN.3/FT.)	Maxo (KIP-IN.)	Ixe (IN.4/FT.)	Sxe (IN.3/FT.)	Maxo (KIP-IN.)
24	50	1.29	0.0644	0.0578	1.7294	0.1517	0.0926	2.7736
22	50	1.65	0.0902	0.0832	2.4923	0.2033	0.1248	3.7370

### NOTES:

1. All calculations for the properties of **BattenLok®** panels are calculated in accordance with the 2001 edition of the *North American Specification For Design Of Cold-Formed Steel Structural Members*.
2. Ixe is for deflection determination.
3. Sxe is for bending.
4. Maxo is allowable bending moment.
5. All values are for the 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 jobsite in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

## BattenLok® 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	162.0	135.0	115.7	101.3	90.0	74.0	61.1
2-SPAN	LIVE	162.0	128.1	94.1	72.1	56.9	46.1	38.1
3-SPAN	LIVE	162.0	135.0	115.7	90.1	71.2	57.6	47.6
4-SPAN	LIVE	162.0	135.0	109.8	84.1	66.5	53.8	44.5

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	233.4	194.5	166.7	145.9	123.0	99.7	82.4
2-SPAN	LIVE	233.4	184.6	135.6	103.8	82.1	66.5	54.9
3-SPAN	LIVE	233.4	194.5	166.7	129.8	102.6	83.1	68.7
4-SPAN	LIVE	233.4	194.5	158.3	121.2	95.8	77.6	64.1

### NOTES:

- 1 Allowable loads are based on uniform span lengths and Fy = 50 ksi.
- 2 LIVE LOAD is limited by bending, shear, combined shear & bending.
- 3 Above loads consider a maximum deflection ratio of L/180.
- 4 The weight of the panel has not been deducted from the allowable loads.
- 5 **THE ABOVE LOADS ARE NOT FOR USE WHEN DESIGNING PANELS TO RESIST WIND UPLIFT.**
- 6 Please contact manufacturer or manufacturer's website for most current allowable wind uplift loads.
- 7 The use of any field seaming machine other than that provided by the manufacturer may damage the panels, void all warranties and will void all engineering data.

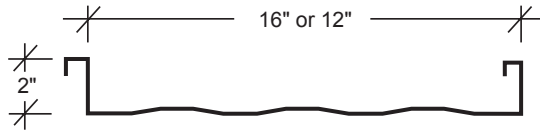
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# GENERAL INFORMATION

**BattenLok®**

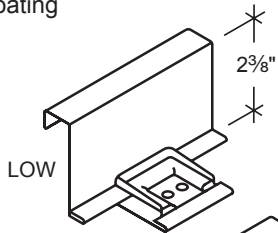
## PRODUCT CHECKLIST

### BattenLok® Panel



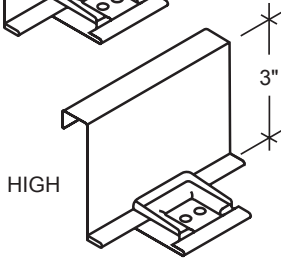
12"   
16"

### Clip, Floating



- Low – For use with or without  $\frac{3}{8}$ " thermal spacer.

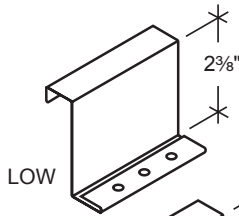
HW-220



- High – For use with  $\frac{3}{8}$ ",  $\frac{5}{8}$ " or 1" thermal spacer.

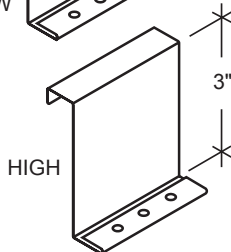
HW-222

### Clip, Fixed



- Low – For use with or without  $\frac{3}{8}$ " thermal spacer

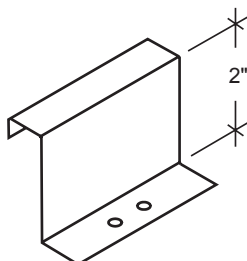
HW-226



- High – For use with  $\frac{3}{8}$ ",  $\frac{5}{8}$ " or 1" thermal spacer

HW-224

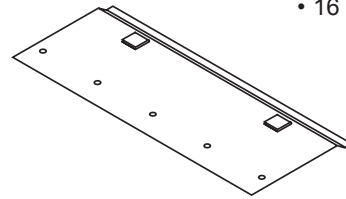
### Clip, Utility



- For applications that do not require the clearance provided by the low and high clips.

HW-218

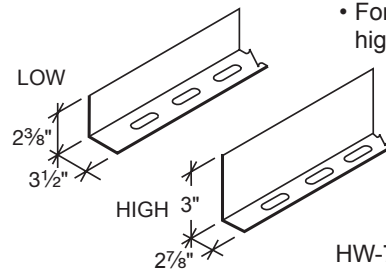
### Back-Up Plate



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

12" Wide HW-7764   
16" Wide HW-7766

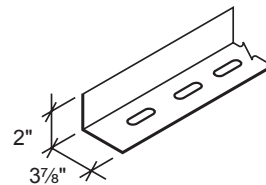
### Rake Support



- 20'-0" length
- 14 gauge red oxide
- Factory slots
- For use with low or high clip

HW-7712 - Low   
HW-7222 - High

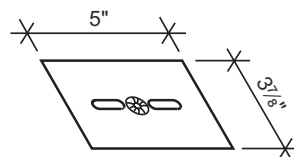
### Rake Support Utility



- 20'-0" length
- 14 gauge red oxide
- Factory slots
- For use with utility clip

HW-7732

### Bearing Plate Standard



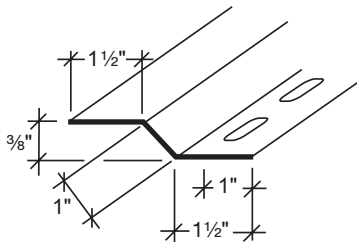
- 16 gauge red oxide
- For use with low or utility systems
- For use with rigid board insulation

HW-7500

## PRODUCT CHECKLIST

Eave Plate, Low

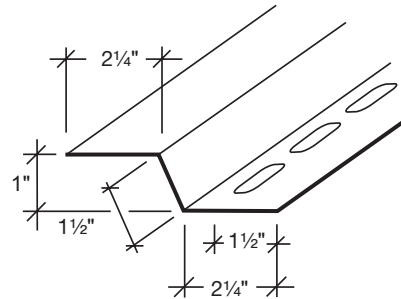
- 8'-0" length
- 14 gauge
- Red or Galvalume®



HW-7600

Eave Plate, High

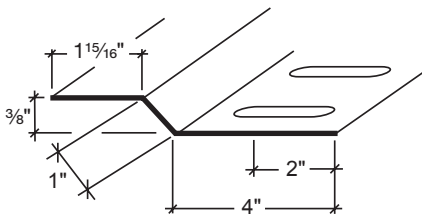
- 8'-0" length
- 14 gauge
- Red or Galvalume®



HW-7610

Floating Eave Plate, Low

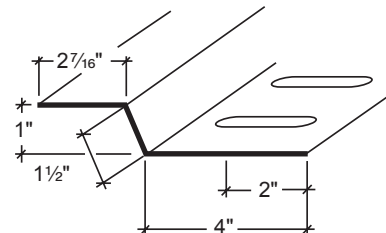
- 8'-0" length
- 14 gauge
- Red or Galvalume®



HW-7601

Floating Eave Plate, High

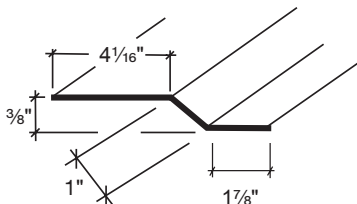
- 8'-0" length
- 14 gauge
- Red or Galvalume®



HW-7611

Mid-Slope Fixed Plate, Low

- 14 gauge
- Red or Galvalume®

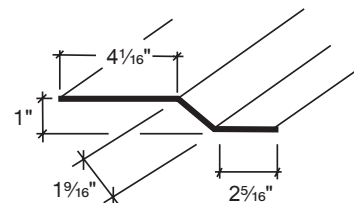


HW-7630 (10'-0" Long)

HW-7631 (20'-0" Long)

Mid-Slope Fixed Plate, High

- 14 gauge
- Red or Galvalume®



HW-7638 (10'-0" Long)

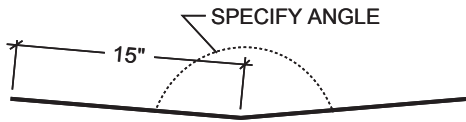
HW-7639 (20'-0" Long)

# GENERAL INFORMATION

**BattenLok®**

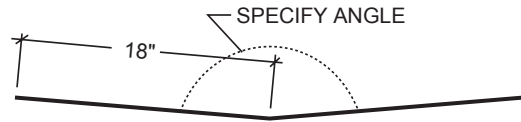
## PRODUCT CHECKLIST

Valley Support Plate – Low or Utility Systems



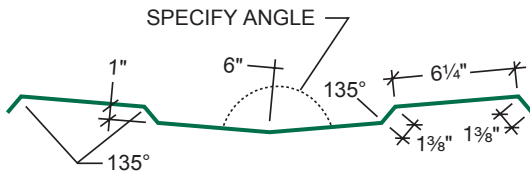
10'-0" P-105

Extended Valley Support Plate – Low/Utility Systems



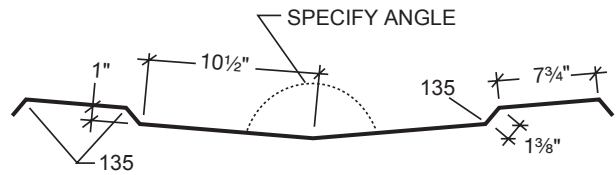
10'-0" P-115

Valley Support Plate – High Systems



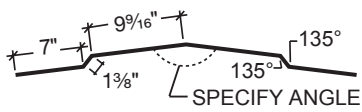
10'-0" P-125

Extended Valley Support Plate – High Systems



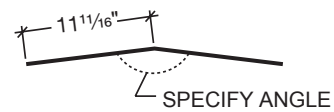
10'-0" P-135

Hip Support Plate – Low Fixed Systems



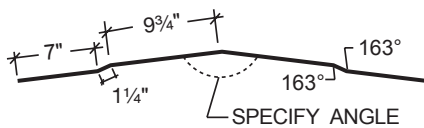
10'-0" P-155

Hip Support Plate – High Fixed Systems



10'-0" P-140

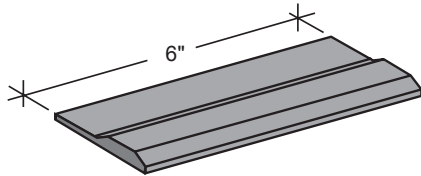
Hip Support Plate – High or Low Floating Systems



10'-0" P-145

## PRODUCT CHECKLIST

Tape Sealer-Swaged



HW-515

Tri-Bead Tape Sealer



- 3/16" x 7/8" x 25'
- For use at eave, ridge, endlaps and trim connections

HW-504

Triple Bead Tape Sealer

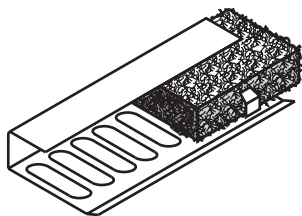


- 3/16" x 2 7/8" x 20'
- For use at valley when using exposed fasteners
- For use with roof curbs

HW-502

Metal Vent Material

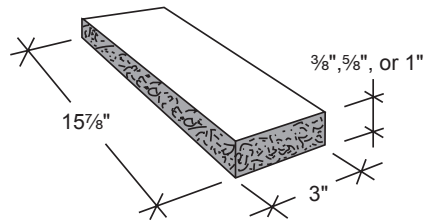
- 8'-0" length
- 24 Gauge Galvalume®



HW-525

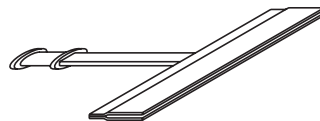
Thermal Spacer

- Polystyrene block used to increase the insulation capacity along the purlins



HW-583 3/8"   
 HW-582 5/8"   
 HW-581 1"

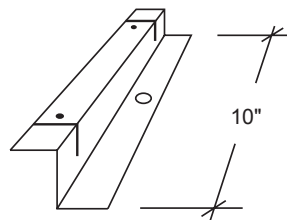
Panel Hemming Tool



HW-515

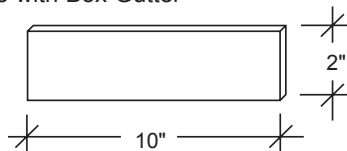
Gutter Strap

- For use with Sculptured Gutter



18 Gauge Material  
 BFL246   
 FL246

- For use with Box Gutter

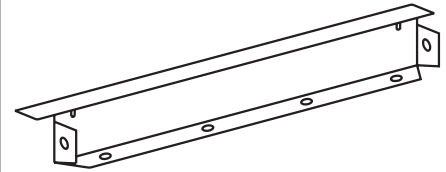


24 Gauge Material

FL310

Outside Closure

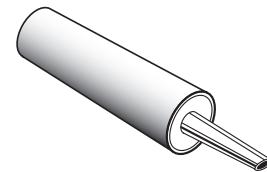
- 24 gauge
- Painted
- 16" wide



16" wide HW-440

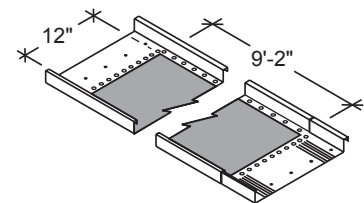
Tube Sealant

- Urethane



(White) - HW-540   
 (Gray) - HW-541   
 (Bronze) - HW-542

Light Transmitting Panel (Reinforced)



- Std. Insulated - HW- 1621B
- Std. Uninsulated - HW-1620B
- UL 90 Insulated - HW-1617B
- UL 90 Uninsulated - HW-1616B

# GENERAL INFORMATION

**BattenLok®**

## PRODUCT CHECKLIST

Fastener #1



- Clip to purlin with up to 4" insulation thickness
- Eave plate to eave strut
- Inside closure to eave plate or eave strut
- Mid-Slope Fixed Plate to Purlin
- Light Transmitting panel trim

1/4"-14 x 1" Driller

5/16" Hex Washer Head with 5/8" O. D. washer



Fastener #1A



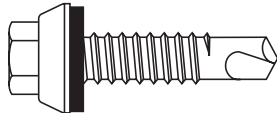
- Clip to purlin (Up to 4" insulation between panel and purlin)

12-14 x 1" Self Driller

5/16" Hex Washer Head, with no washer



Fastener #1E



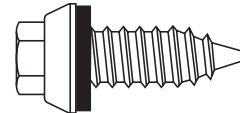
- Panel to eave plate or eave strut
- Rake trim to roof panel
- Standard endlaps
- Panel to valley plate

1/4"-14 x 1 1/4" Long Life Driller

5/16" Hex Washer Head, with sealing washer



Fastener #2A



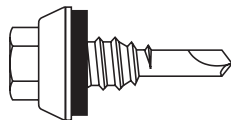
- Use in place of Fasteners #1E and #4 at all strip outs

17 x 1" Long Life AB

5/16" Hex Washer Head, with sealing washer



Fastener #4



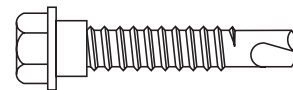
- Ridge and other flashing to outside closure
- Gutter to panel
- Gutter to strap
- Trim to trim connections
- Sculptured eave trim to panel

1/4"-14 x 7/8" Long Life Lap Tek® Driller

5/16" Hex Washer Head, with sealing washer



Fastener #5



- Rake support to purlin (Floating System Only)
- Floating eave plate to eave strut

1/4"-14 x 1 1/4" Shoulder Tek® 2

5/16" Hex Washer Head, with no washer



Fastener #6A

- Clip to joist

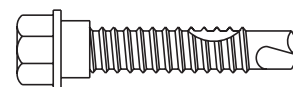


12-24 x 1 1/4" Tek® 4.5 Driller

5/16" Hex Washer Head, with no washer



Fastener #7



- Rake support to joist (Floating System Only)
- Floating eave plate to structural steel

1/4"-20 x 1 1/4" Shoulder Tek® 4

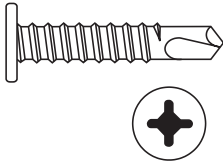
5/16" Hex Washer Head, with no washer



## PRODUCT CHECKLIST

Fastener #12A

- Rake angle to purlin



12 x 1" #2 Phillips/Square Drive Pancake Head Driller

Fastener #14A

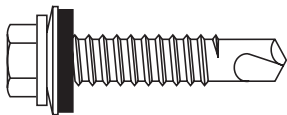
- Outside closure to angle on floating hip detail



Stainless Steel Pop Rivet 1/8" diameter x 3/8" grip range

Fastener #17B

- Clip to purlin (Over 4" insulation between panel and purlin)



12-14 x 1 1/2" Self Driller  
5/16" Hex Head, with 5/8" O.D. washer

Fastener #14

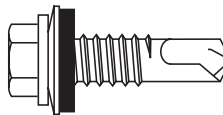
- Trim to trim connections



Stainless Steel Pop Rivet 1/8" diameter x 3/16" grip range

Fastener #17

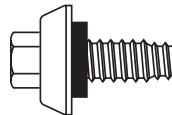
- Outside closure to panel at ridge
- Eave plate to eave strut
- Mid-slope fixed plate to purlin
- Rake support to angle (Fixed system only)



12-14 x 1" Self Driller  
5/16" Hex Head, with 5/8" O.D. washer

Fastener #46

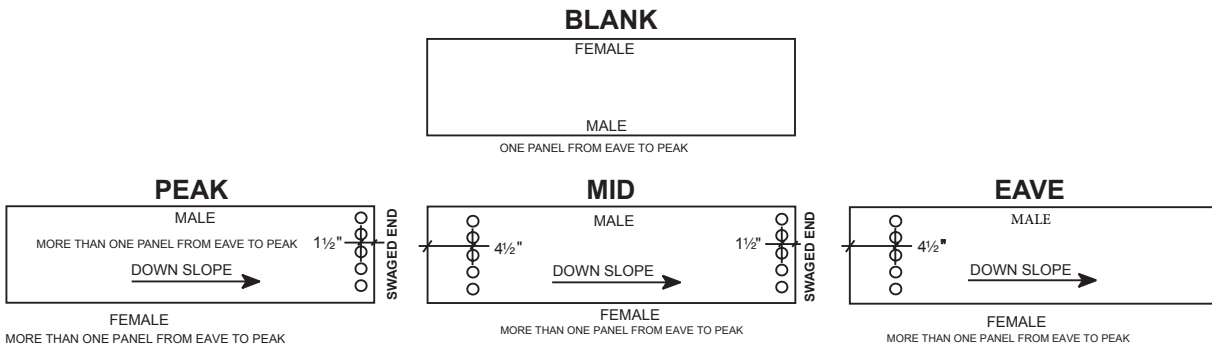
- Panel endlaps over solid substrate
- End laps over rigid board



1/4"-14 x 5/8" Long Life  
Type B with washer



## BattenLok® Panel Orientation



## INSTALLATION GUIDELINES

### I. Jobsite Storage and Handling

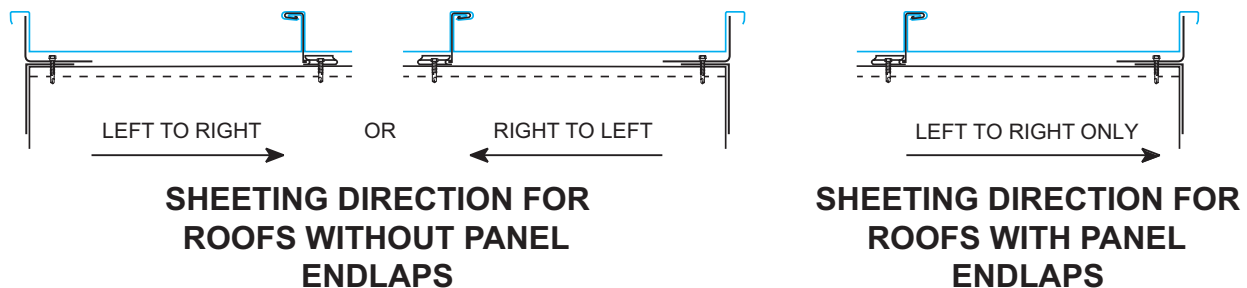
- A. Check the shipment against the shipping list.
- B. Damaged material must be noted on Bill of Lading.
- C. Panel crates should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
- D. Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.

### II. 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 project erection drawings, the erection drawings will take precedence.

### III. LTP Warning

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



**PREPARATORY REQUIREMENTS**

1. For the purpose of this manual, we have assumed that the **BattenLok®** roof will be installed over purlins and an eave gutter will be installed. Please refer to the Design Section of the manuals for details of **BattenLok®** over other substrates.
2. A rake angle or an alternate structural flat surface must be installed on top of the purlins to accept the rake support.
3. All primary and secondary framing must be erected, plumbed and squared with bolts tightened according to accepted building practices.
4. The substructure (eave to ridge) must be on plane ( $\frac{1}{4}$ " in 20' or  $\frac{3}{8}$ " in 40' tolerance).
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. The manufacturer recommends the use of a screw gun with a speed range of 0-2000 RPM to properly install all fasteners referenced in this manual. Tools rated to 4000 RPM should never be used for self drilling fasteners typically supplied with metal roof and wall systems.
7. Field cutting of the panels should be avoided where possible. If field cutting is required, the panels must be cut with nibblers, snips, or shears to prevent edge rusting. Do not cut the panels with saws, abrasive blades, grinders, or torches.

**CAUTION**

Avoid restricting the thermal expansion and contraction of the **BattenLok®** panels.  
(i.e., Do not attach panel to the substructure at either the eave and ridge.)

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

# GENERAL INFORMATION

**BattenLok<sup>®</sup>**

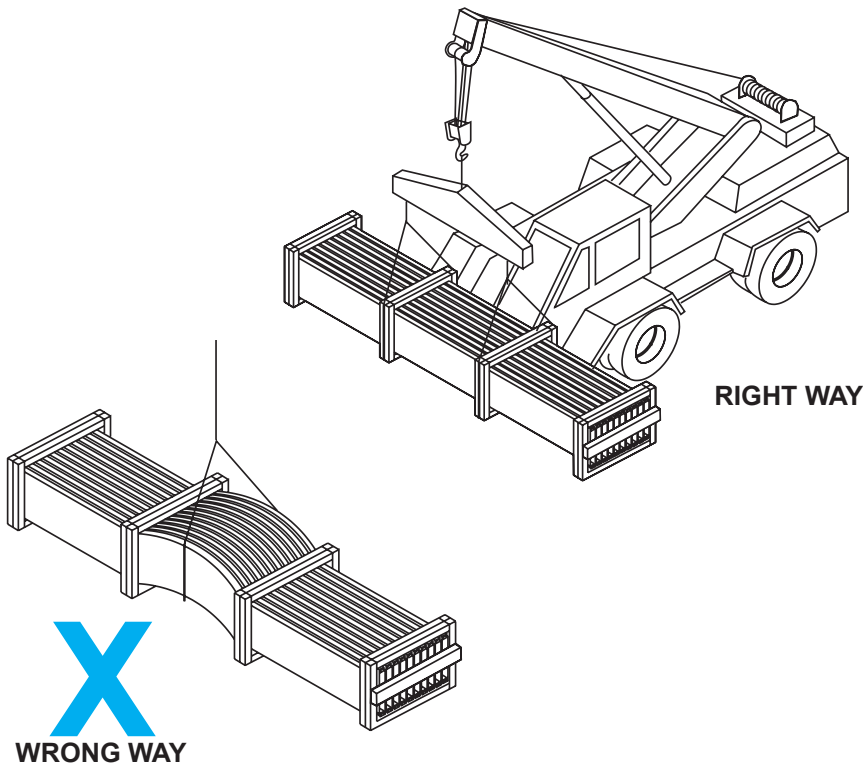
## UNLOADING

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

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

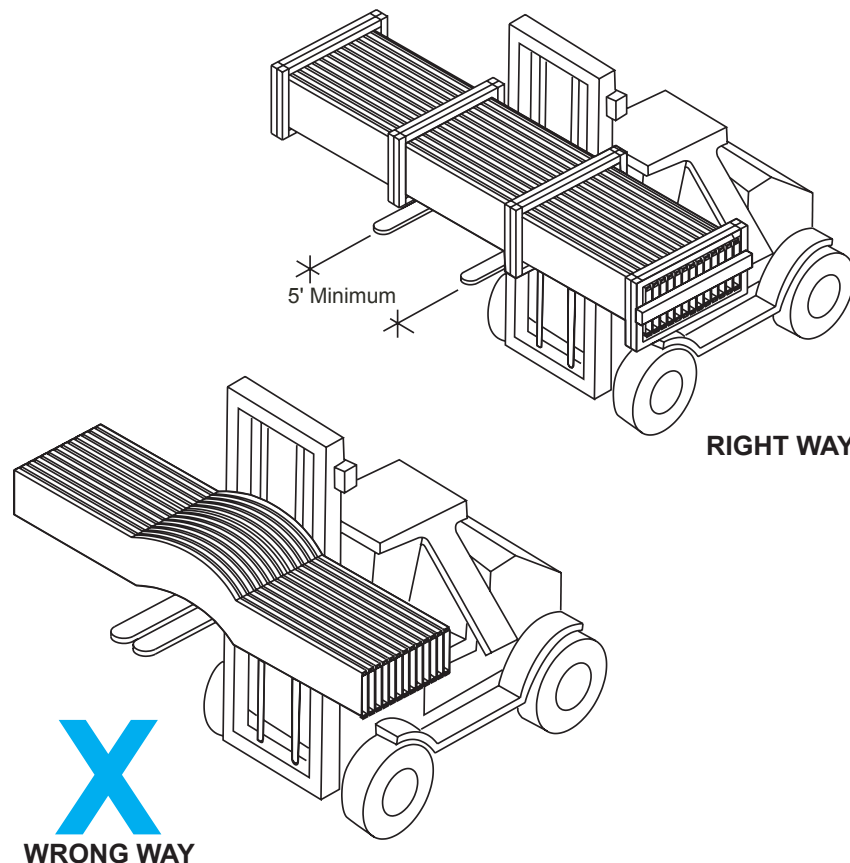
When lifting bundles with a crane, a spreader bar and nylon straps should be used. **NEVER USE WIRE ROPE SLINGS, THEY WILL DAMAGE THE PANELS.**

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.



RIGHT WAY

WRONG WAY

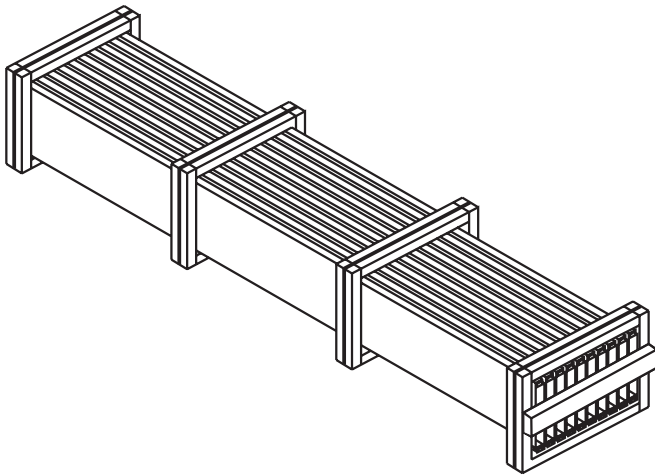


RIGHT WAY

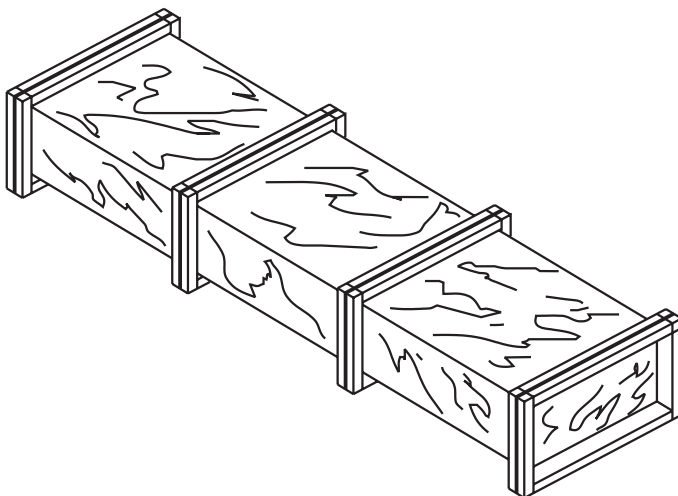
WRONG WAY

### 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.

**UNLOADING  
(Continued)****BLOCK AND BAND**

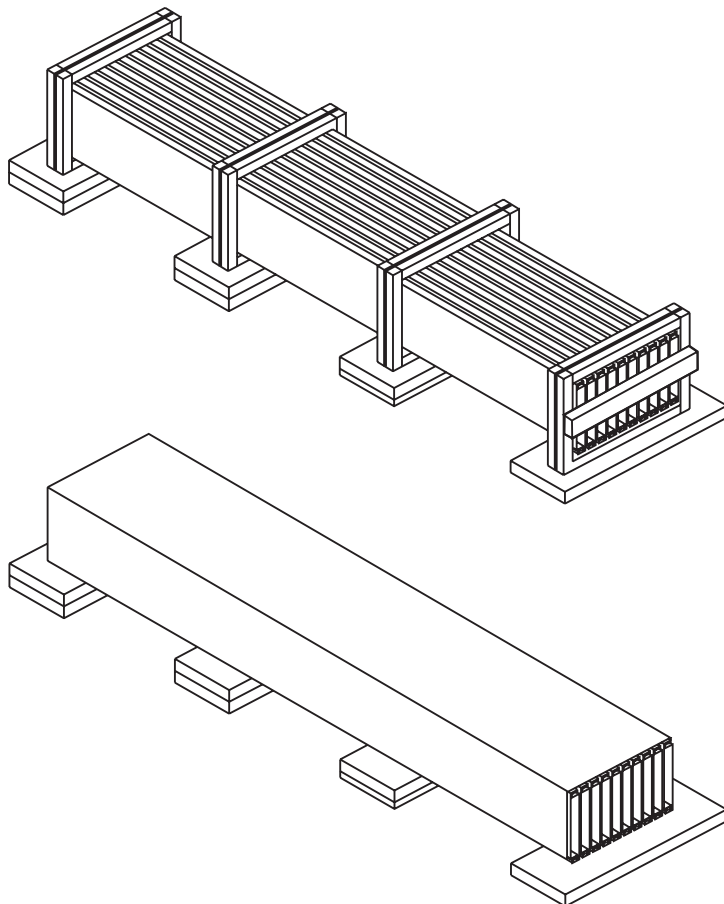
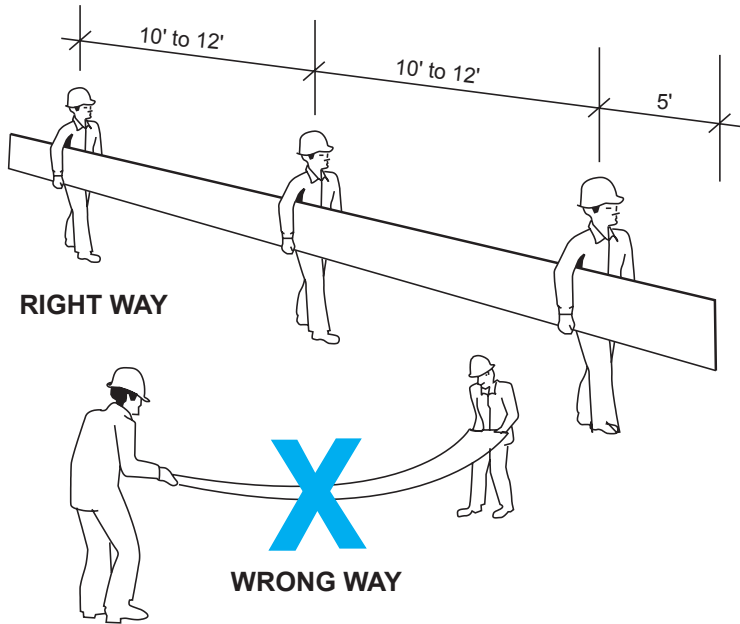
This method of bundling is used for orders that are to be picked up by the customer or shipped by common carrier. 2 x 4's are strapped under the bundles to allow access for straps or a forklift. Bundles less than 25' long may be handled by a forklift. The forklift should have at least 5' between forks.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

**BattenLok®**



## 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.

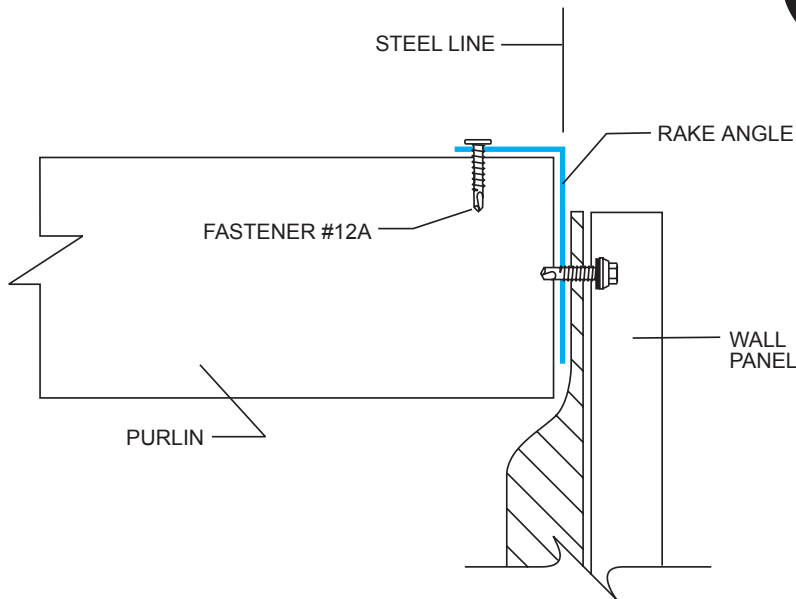
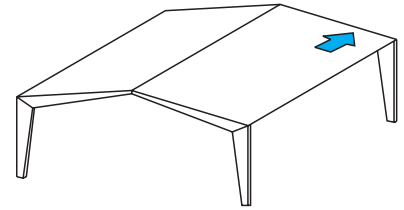
### NOTE:

Protective gloves and safety glasses 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.

**STEP 1**



**RAKE ANGLE ATTACHMENT**

**RAKE ATTACHMENT**

Attach the rake angle to the purlin with the Fastener #12A.

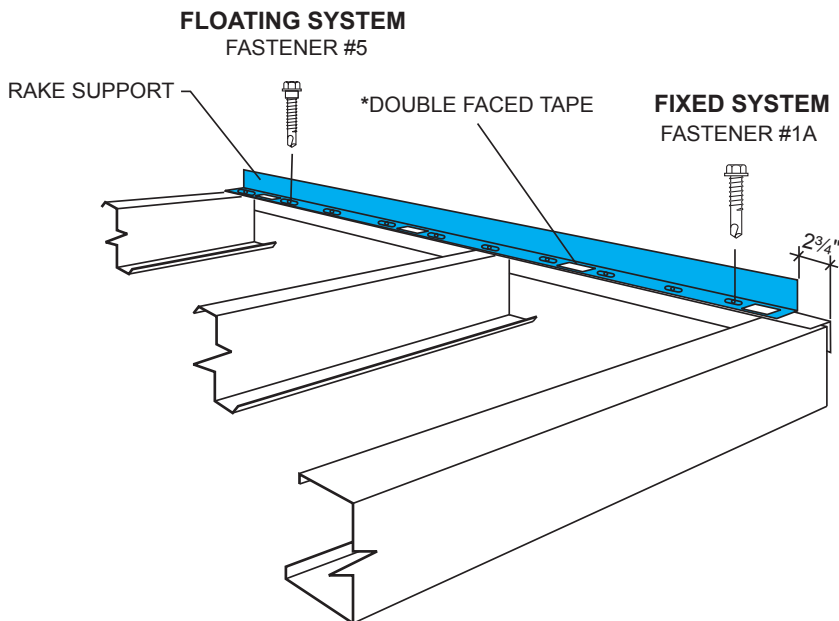
Attach the rake support on top of the rake angle with the proper self-drilling fasteners (See "Rake Support Fastener Requirements" Below) on 2'-0" centers with a fastener in the first and last prepunched slot. The vertical leg is to be installed flush with the steel line.

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

Install 6" long pieces of double faced tape (not by Building Manufacturer) on 3'-0" centers to the top of the horizontal leg of the rake support. This will help hold the insulation in place at the rake.

**RAKE SUPPORT FASTENER REQUIREMENTS**

- Fixed System - Fastener #17
- Floating System - Fastener #5



**RAKE SUPPORT ATTACHMENT**

**CAUTION (For Floating Systems Only)**

It is important that shoulder fasteners are installed through the CENTER of the slotted holes of the rake support to allow for expansion and contraction.

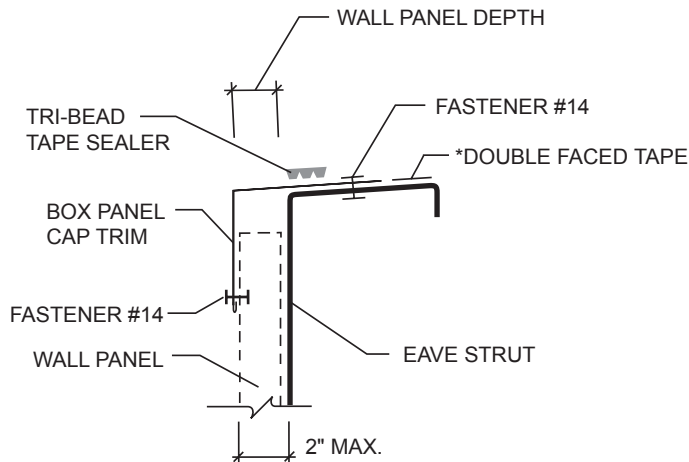
**IMPORTANT!**

ALL PRIMARY AND SECONDARY FRAMING MUST BE INSTALLED, PLUMBED, AND BOLTS TIGHTENED PRIOR TO SHEETING.

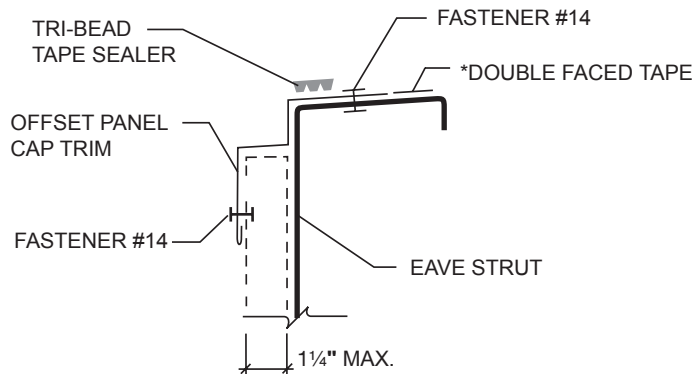
\*Not by Building Manufacturer

# INSTALLATION SEQUENCE

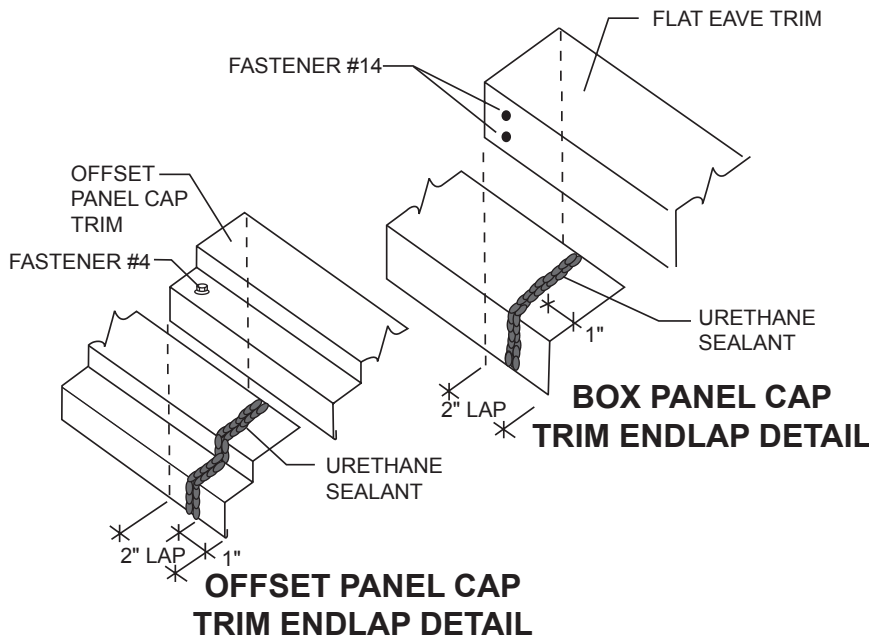
BattenLok®



**WALL PANEL INSTALLED BEFORE ROOF**

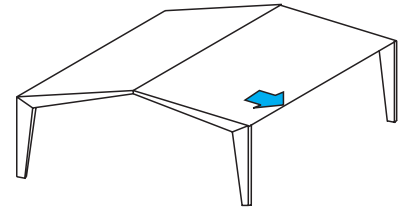


**WALL PANEL INSTALLED BEFORE OR AFTER ROOF**



**OFFSET PANEL CAP TRIM ENDLAP DETAIL**

**STEP 2**



## LOW SYSTEM EAVE

For applications in which the wall panels have already been erected, install box panel cap trim or offset panel cap trim to the eave strut with Fastener #14. Eave trim must be pulled tight to wall panels with Fastener #14 before fastening to eave strut. **For applications in which the wall panels have not been erected, use offset panel cap trim.** If using panel cap trim, it will space itself for the wall offset panels. Use three Fastener #14 per trim piece.

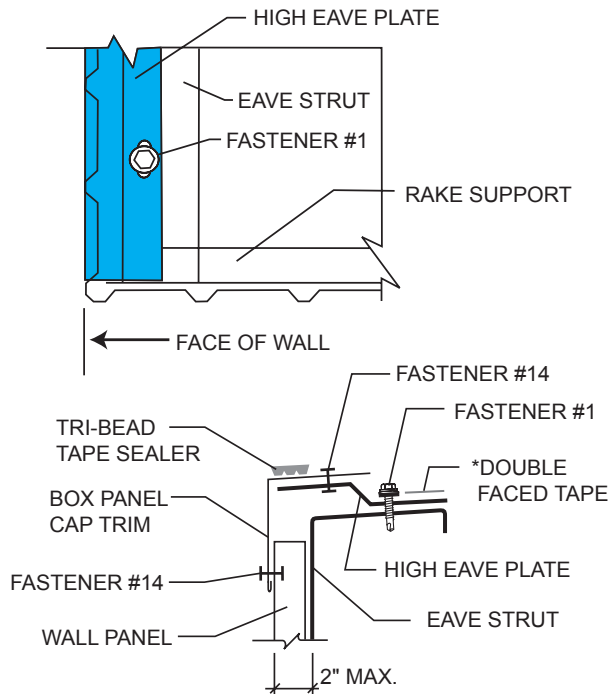
Install Tri-Bead tape sealer along top of the trim.

For vinyl insulation, install double faced tape (not by Building Manufacturer) along the length of the top leg of the trim. Double faced tape must be upslope from Tri-Bead tape sealer.

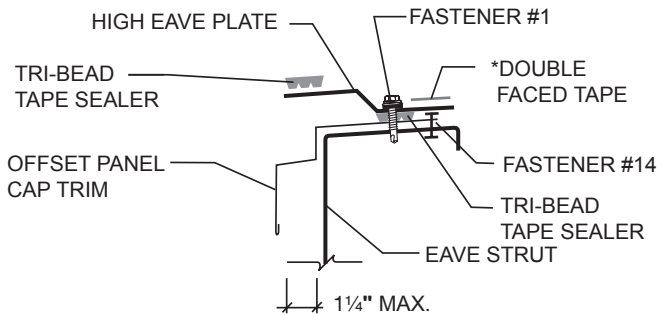
Lap trim 2". Apply two beads of urethane sealant between the trim pieces, approximately 1" from the end of the bottom piece. Attach trim laps in flat eave trim with Fastener #14. Attach trim laps on panel cap trim with Fastener #4.

\*Not by Building Manufacturer

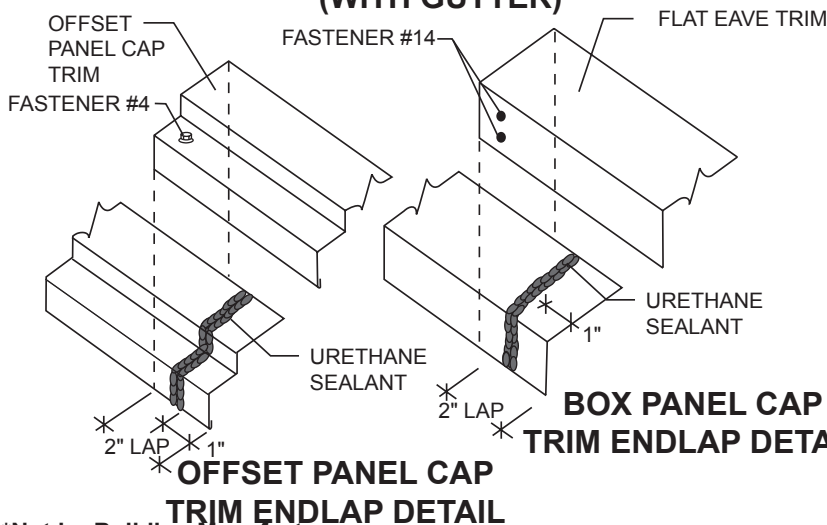




**FLAT EAVE TRIM DETAIL  
(WITHOUT GUTTER)**



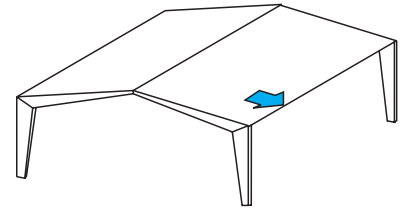
**OFFSET PANEL CAP TRIM DETAIL  
(WITH GUTTER)**



**BOX PANEL CAP TRIM ENDLAP DETAIL**  
**OFFSET PANEL CAP TRIM ENDLAP DETAIL**

\*Not by Building Manufacturer

**STEP  
2A**



**HIGH SYSTEM EAVE**

**Wall Panels Installed Before Roof**

Install high eave plates flush with the outside face of the high crowns of the wall panels. Install Fastener #1 in prepunched slots (1'-0" on center) of the eave plate. The first eave plate will butt against the rake support. All of the eave plates may be installed at this time.

Be sure to butt each eave plate end to end without leaving a gap between the plates. Place an 8" length of Triple Bead tape sealer at each butt joint.

Install box panel cap trim to the top of the eave plates. Check to make sure the trim is flat against the wall. Attach the trim to the eave plate and the wall panel with a Fastener #14 at 10'-0" centers.

Lay Tri-Bead tape sealer across the top of the eave trim, flush with the outside edge.

For vinyl back insulation, install double faced tape (not by Building Manufacturer) along the length of the bottom of the eave plate. Double faced tape must be upslope from the Tri-Bead tape sealer.

**Wall Panels Installed After Roof**

Install offset panel cap trim to the eave strut and wall panel with Fastener #14 at 10'-0" centers. Use three fasteners per trim piece.

Install high eave plates flush with the outside of the offset panel cap trim. Install Fastener # 1 in each prepunched slot (1'-0" on center) of the eave plate. The first eave plate will butt against the rake support. All of the eave plates may be installed at this time

Lay Tri-Bead tape sealer under the eave plate on top of the offset panel cap trim.

Be sure to butt each eave plate end to end without leaving a gap between the plates. Place an 8" length of Triple Bead tape sealer at each butt joint.

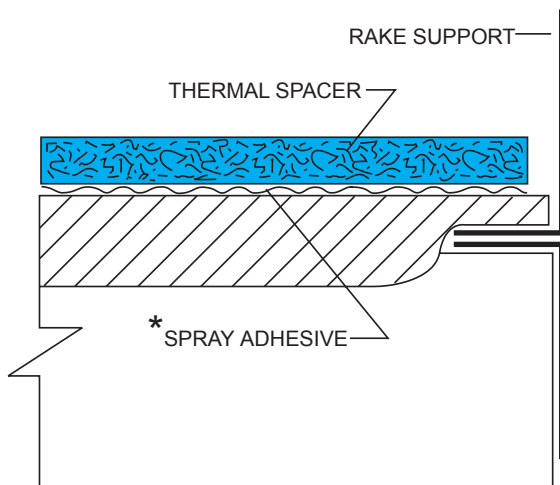
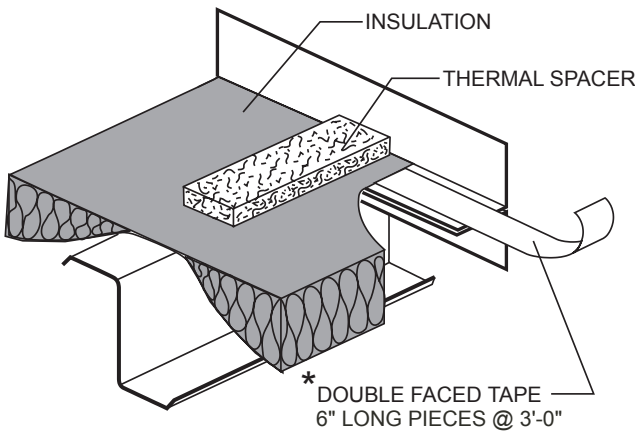
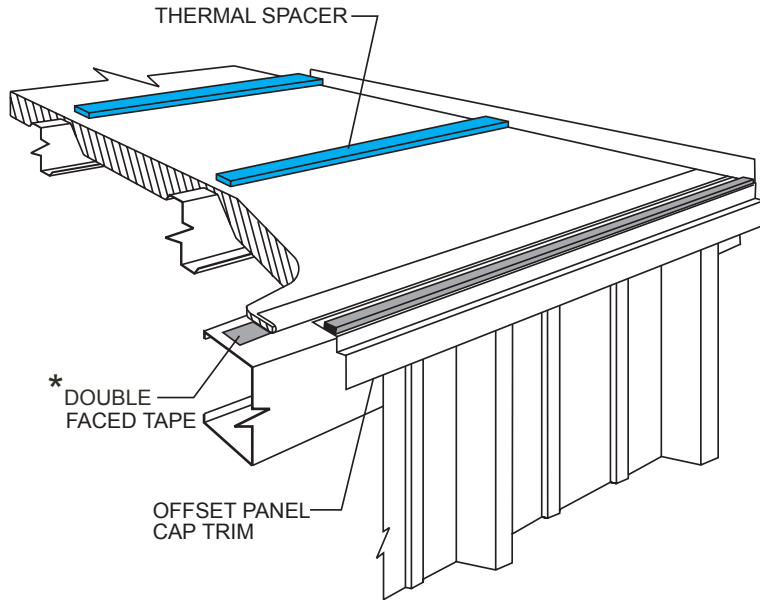
Lay Tri-Bead tape sealer across the top of the eave plates, flush with the outside edge. For vinyl back insulation, install double faced tape (not by Building Manufacturer) along the length of the bottom leg of the eave plate.

Lap trim 2". Apply two beads of urethane sealant between the trim pieces, approximately 1" from the end of the bottom piece. Attach trim laps in flat eave trim with Fastener #14. Attach trim laps on panel cap trim with Fastener #4.

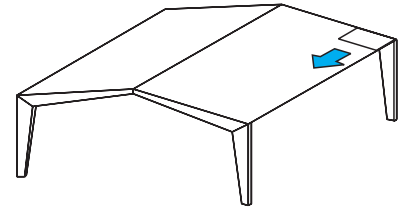


# INSTALLATION SEQUENCE

BattenLok®



STEP  
3



## THERMAL SPACER (FOR HIGH SYSTEM ONLY)

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

Using spray adhesive, (not by Building Manufacturer), adhere the thermal spacer to the insulation (First Panel Run Only). The thermal spacer increases the insulation capacity along the purlins.

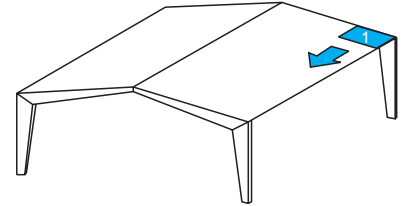
\*Not by Building Manufacturer

BL-24

SUBJECT TO CHANGE WITHOUT NOTICE

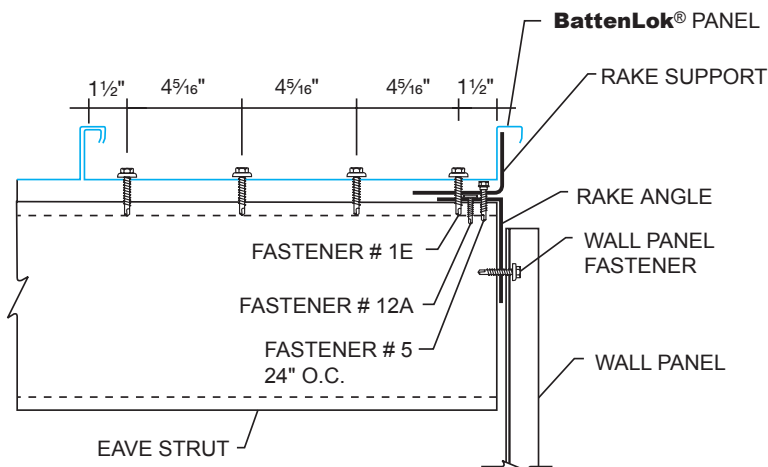
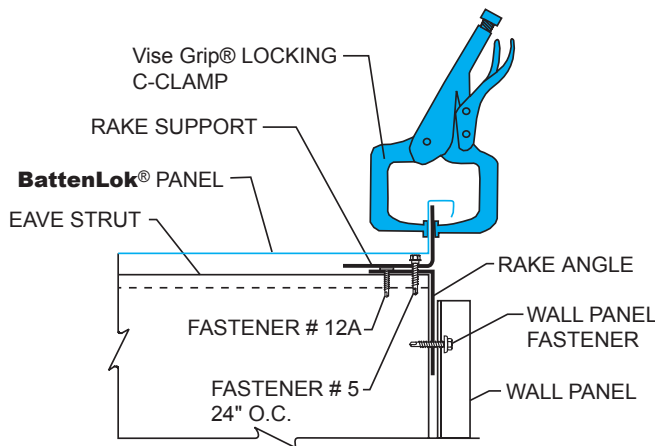
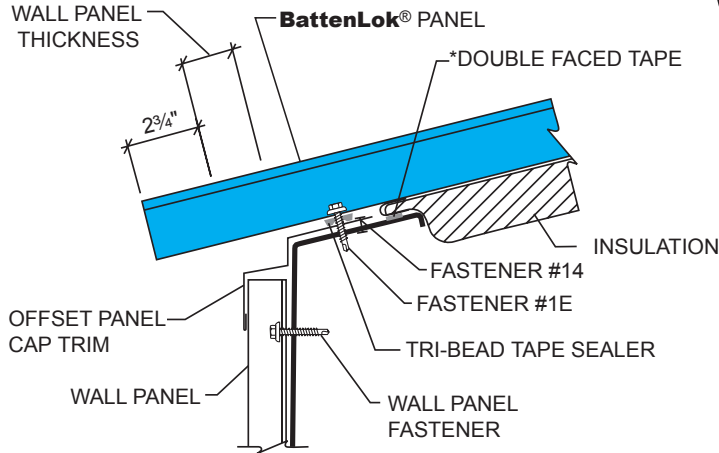
MAY 1, 2005

## STEP 4



### FIRST PANEL

Position the panel so that it overhangs the eave strut by the dimension shown on the building drawings. The upper end of the panel must extend 7" beyond the web of the purlin if the panel covers eave to ridge. If more than one panel is required to cover eave to ridge, one or more endlaps will be required. The upper end of the panel will extend 10" beyond the web of the purlin at endlaps.



### FASTENING PATTERN AT EAVE

#### NOTE:

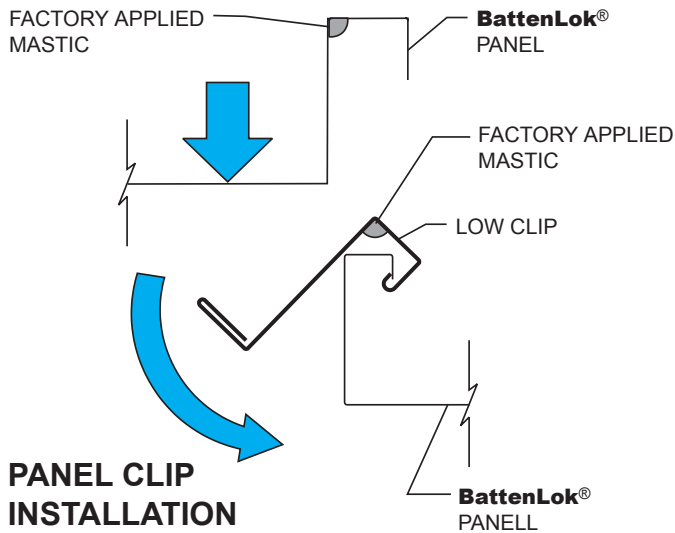
If an endlap is required then roof panel must be sheeted right to left as viewed from the eave looking toward the ridge.

Lay the female leg of the panel over the rake support. To prevent wind damage, secure the female leg of the panel to the rake support with Vise Grip® Locking C-Clamps or temporary fasteners. Fasteners must go through the rake support. The panel will not be fastened permanently to the rake support until the rake trim is installed.

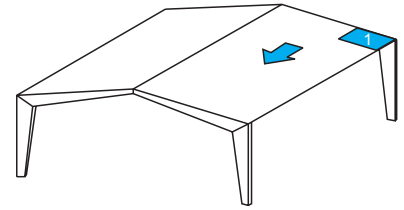
Attach the panel to the eave strut or eave plate with Fastener #1E. Four fasteners are required at this location.

# INSTALLATION SEQUENCE

**BattenLok®**

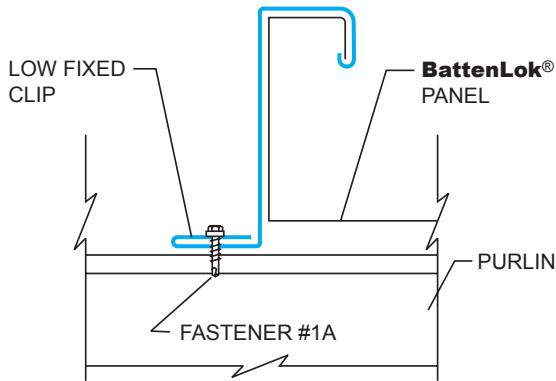


**STEP 5**

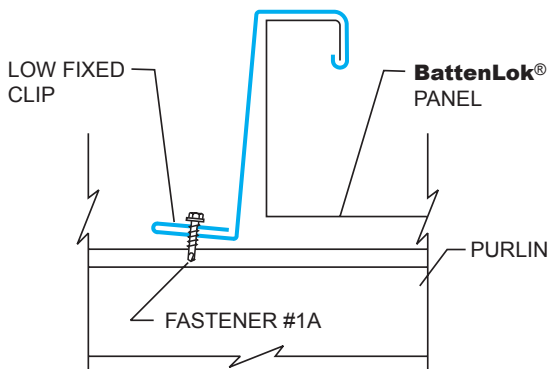


## CLIP INSTALLATION

Hook the panel clip onto male leg of panel. Hold end of clip up to keep it engaged onto male leg and rotate the clip base down to completely engage clip onto male leg. Install panel clips at each purlin.



**RIGHT WAY**



**WRONG WAY**

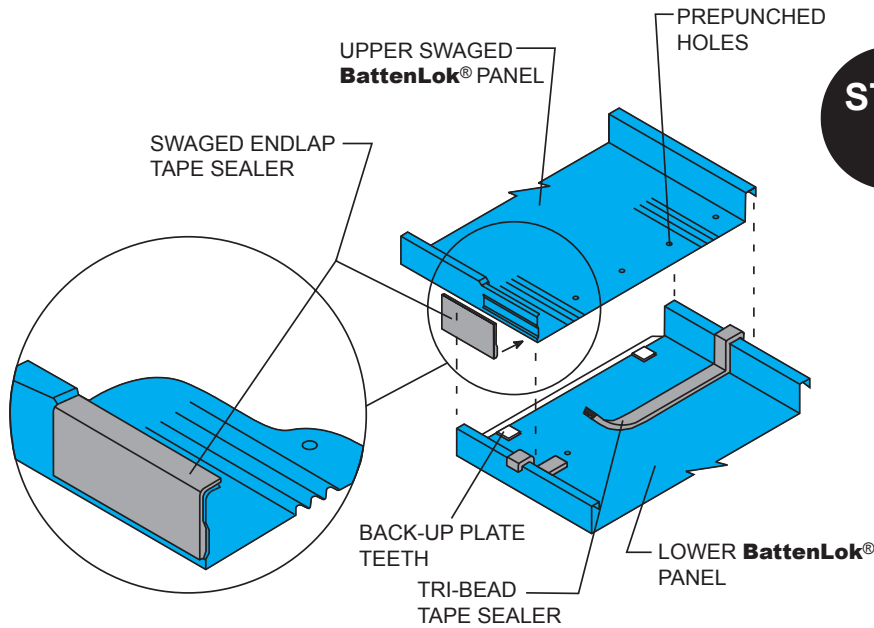
Before fastening clip to purlins, check to ensure that vertical leg of clip is tight to the vertical leg of the panel. Failure to keep this leg tight to the panel leg will affect panel module.

### CLIP FASTENER REQUIREMENTS

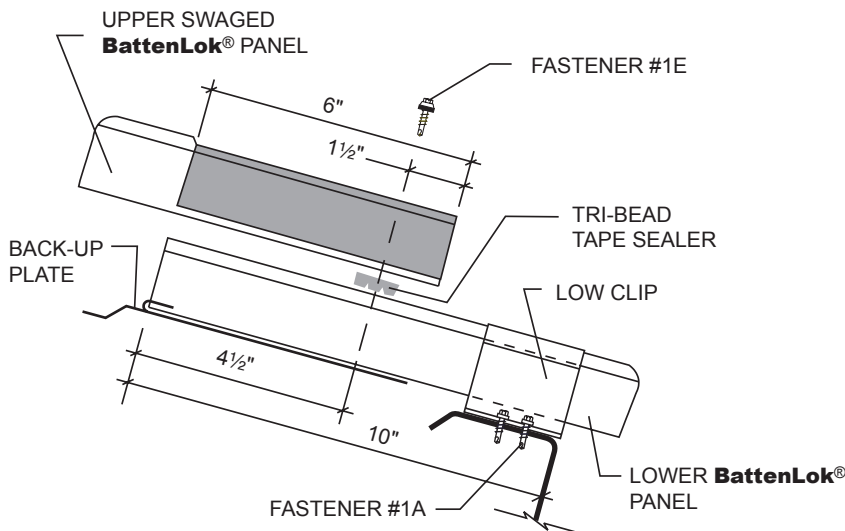
Purlins - Fastener #1A - Up to 4" Insulation  
 Fastener #17B - Over 4" Insulation  
 Bar Joists - Fastener #6A (Two fasteners per clip)

### CAUTION

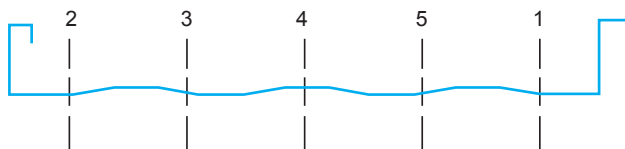
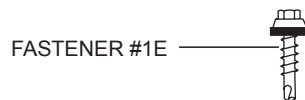
The panel clip has factory applied mastic in the upper lip. This mastic is compressed when the clip is rotated in place. If, for some reason, a clip must be removed, a new clip must be used.



## PANEL INSTALLATION SEQUENCE

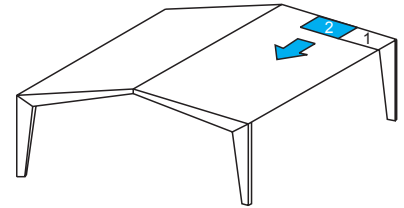


## CROSS SECTION OF ENDLAP



## FASTENER SEQUENCE

**STEP 6**



## ENDLAP-PANEL

**NOTE:**

Step 6 applies only where more than one panel is used in a single slope.

Slide a prepunched back-up plate onto the upslope end of the bottom panel. Make sure the teeth on top of the back-up plate are on top of the panel. Visually check to ensure that the prepunched holes in the back-up plate are aligned with the prepunched holes in the panel. At upslope end of bottom panel, install Tri-Bead tape sealer across entire width of panel. Tape sealer must be centered over prepunched holes in panel. Apply swaged endlap tape sealer to swaged vertical male leg of upper panel. Pigtail portion of tape sealer must lap over vertical leg of panel.

Using an awl to align the prepunched holes, install upper panel by nesting it over the lower panel for 6". Rotate the male leg of the upper panel under the male leg of the bottom panel, then force the female leg of the upper panel down onto the female leg of the bottom panel. Install Fastener #1E in the prepunched holes in the proper sequence. Install clips as outlined in Step 5.

Repeat this endlap procedure as required until ridge is reached.

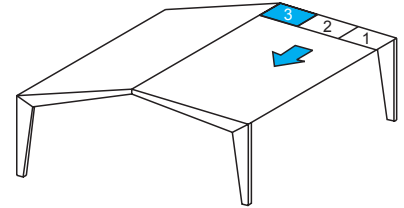
**NOTE:**

If you are using 12" BattenLok® panels, they are not prepunched for endlaps. Use Triple Bead Tape Sealant at endlaps with 12" wide panels.

# INSTALLATION SEQUENCE

**BattenLok®**

**STEP 7**



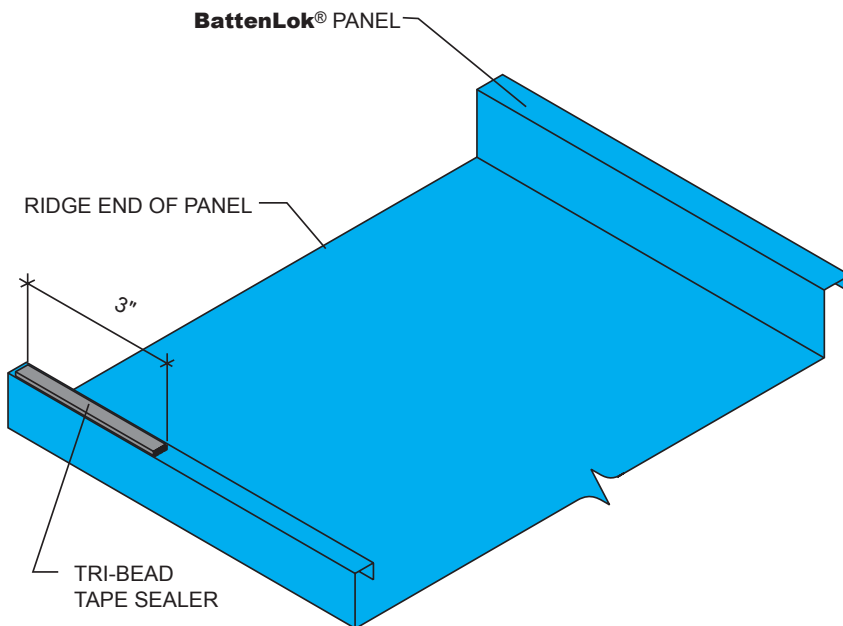
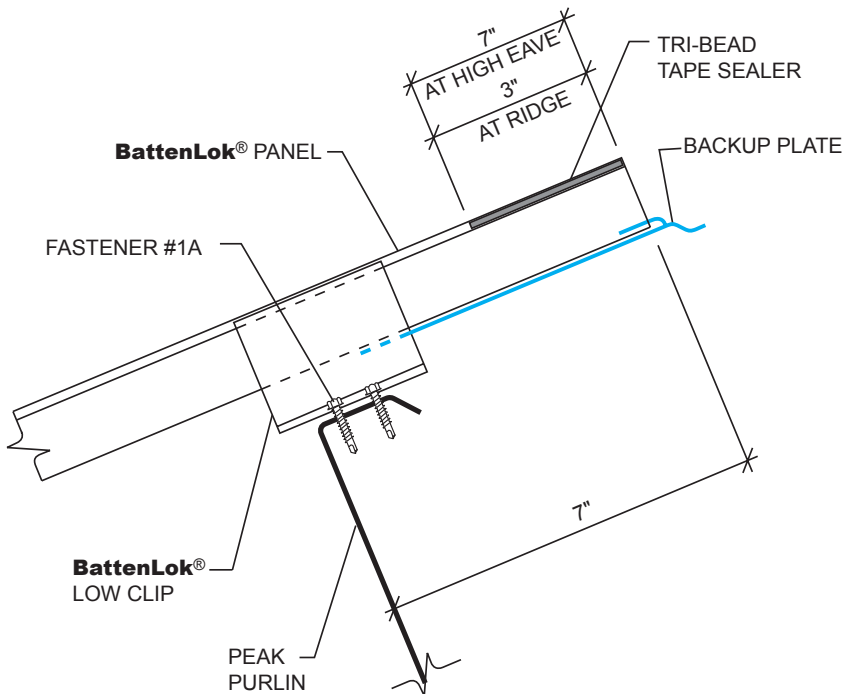
## RIDGE

At the ridge, the panel should extend 7" past the web of the peak purlin.

At the ridge install a back-up plate as outlined in Step 6.

Install clips as outlined in Step 5.

Install a 3" piece of Tri-Bead tape sealer at ridge conditions and 7" piece of Tri-Bead tape sealer at high eave conditions along the length of the male leg beginning at the upslope end of the panel and extending downslope. Install a second piece of Tri-Bead tape sealer along the underside of the male leg beginning at the upslope end and extending downslope.

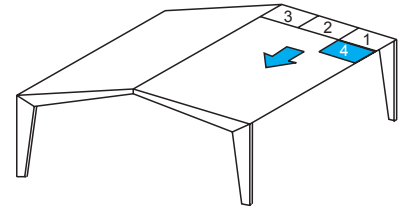


## PANEL END SEALANT DETAIL AT RIDGE

### CAUTION

INSTALLING THE TAPE SEALER TO THE MALE LEG AT THE RIDGE IS IMPORTANT. WITHOUT IT, WATER COULD BE DRIVEN BEHIND THE OUTSIDE CLOSURE BY A STRONG WIND.

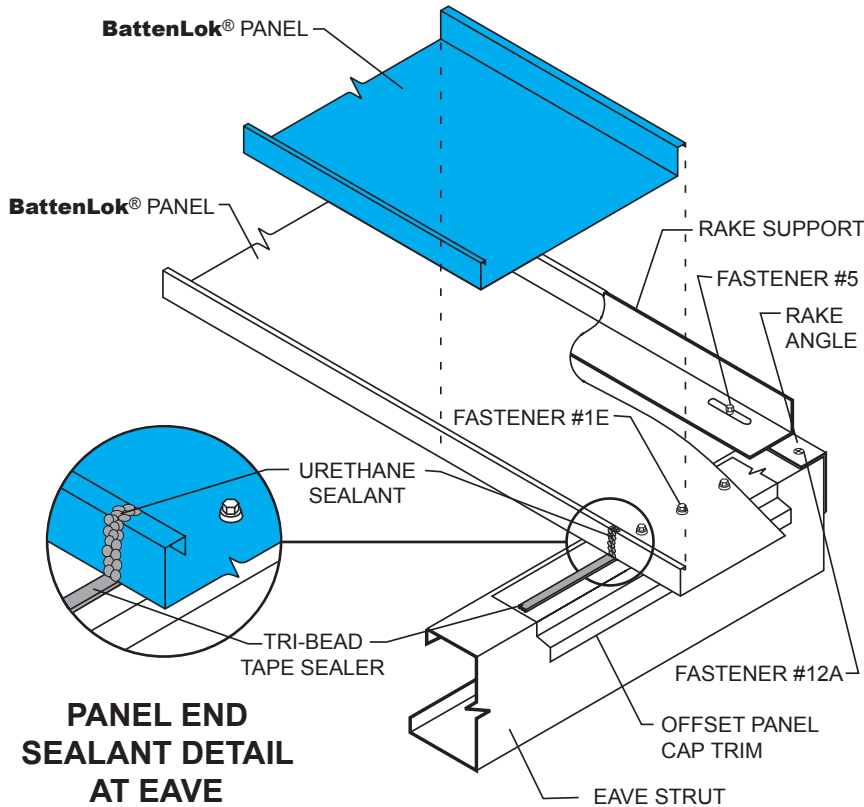
## STEP 8



### SUBSEQUENT RUNS EAVE

Apply urethane sealant to the male leg of the first panel directly over the Tri-Bead tape sealer at the eave. This will prevent water infiltration through the end of the panel seam.

Position the next panel with the female leg over the male leg of the previous panel with panel ends flush.

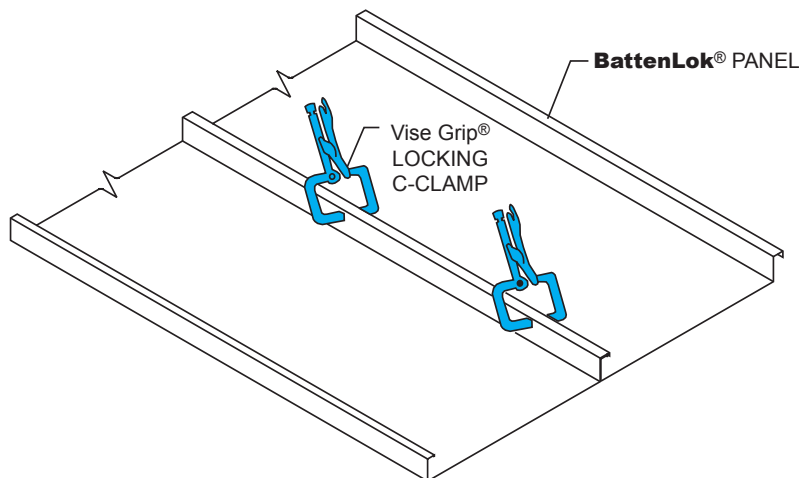


**Clamp the panel seam together at both ends. Long panels may require one or more clamps in the middle. This will help hold panel module.**

Install fasteners at eave as outlined in Step 4.

Install clips as outlined in Step 5.

Crimp panel seam at all clip locations with hand crimping tool. Panels should be fully seamed with electric seamer as quickly as possible after a section of the roof is completed.



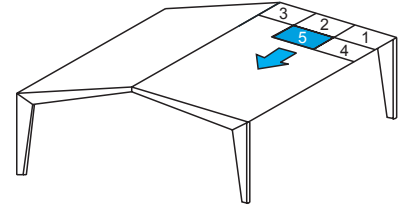
### CAUTION

Panel must be crimped at all clip locations as they are installed to provide temporary wind resistance.

# INSTALLATION SEQUENCE

**BattenLok®**

**STEP 9**

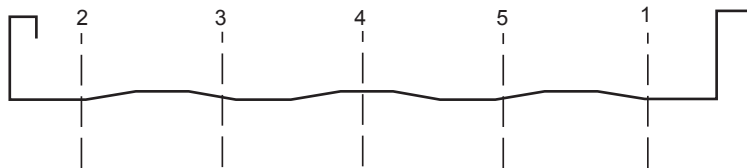
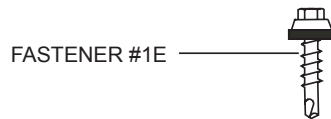
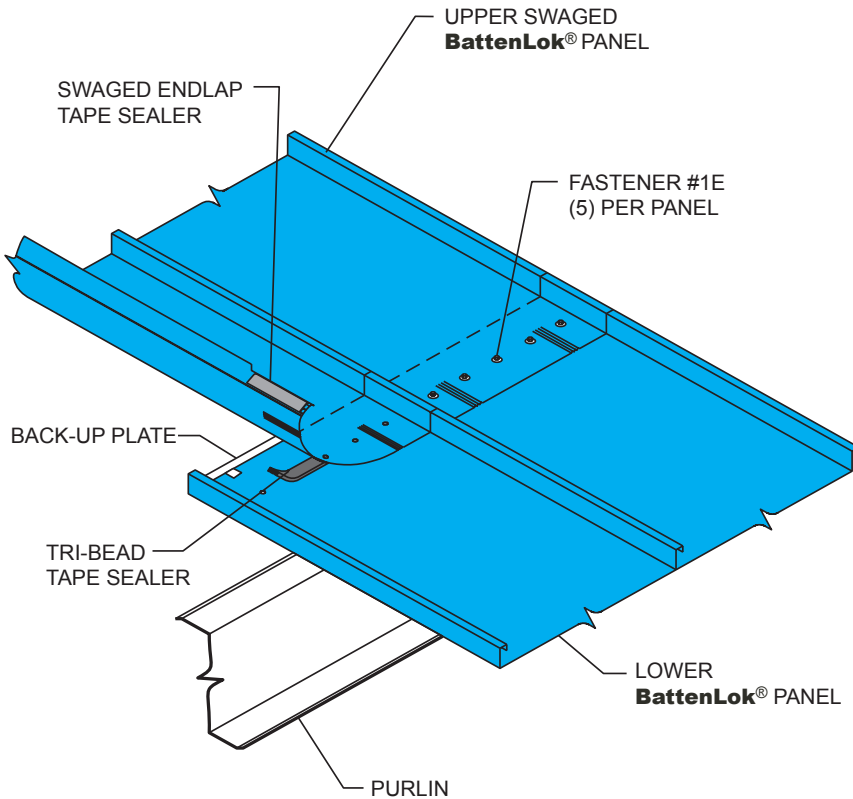


## SUBSEQUENT RUNS ENDLAP

Install endlap panels as outlined in Step 6.

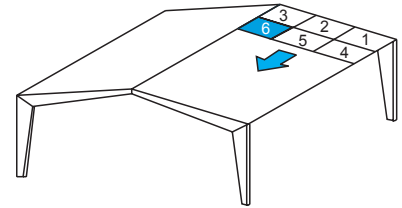
Install clips as described in Step 5.

Repeat endlap procedures as required until ridge is reached.



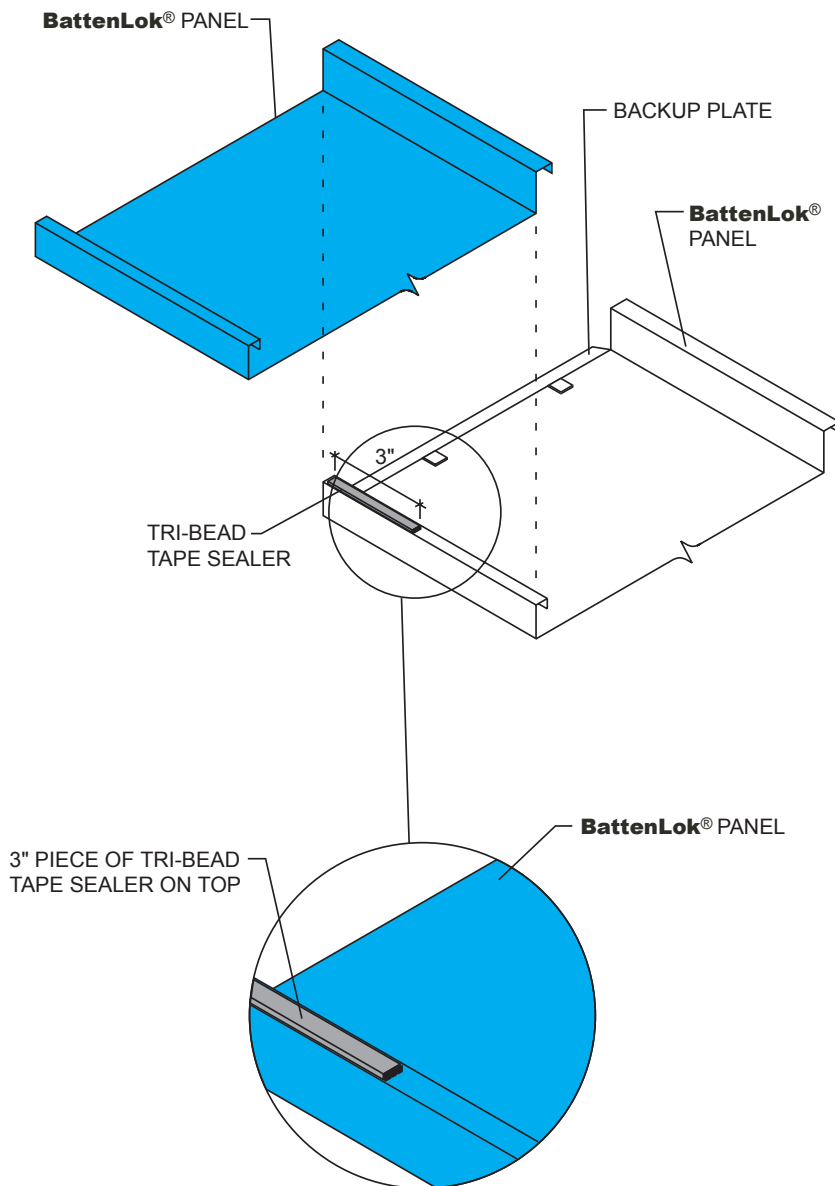
**FASTENER SEQUENCE**

## STEP 10



### SUBSEQUENT RUNS RIDGE

Install back-up plate and Tri-Bead tape sealer as outlined in Step 6 and Step 7.



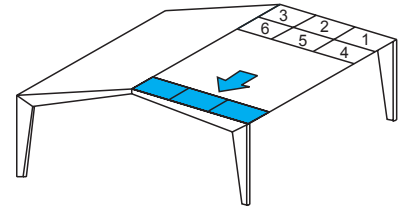
Install clips as described in Step 5.

**CAUTION**  
 INSTALLING THE TAPE SEALER TO THE MALE LEG AT THE RIDGE IS IMPORTANT. WITHOUT IT, WATER COULD BE DRIVEN BEHIND THE OUTSIDE CLOSURE BY A STRONG WIND.



# INSTALLATION SEQUENCE

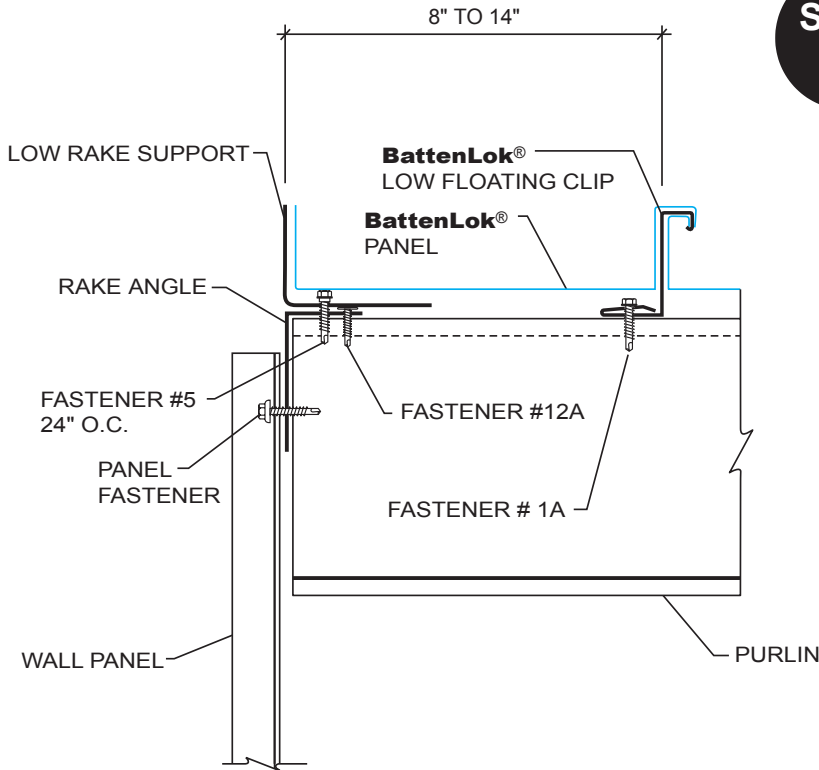
**BattenLok®**



## STEP 11

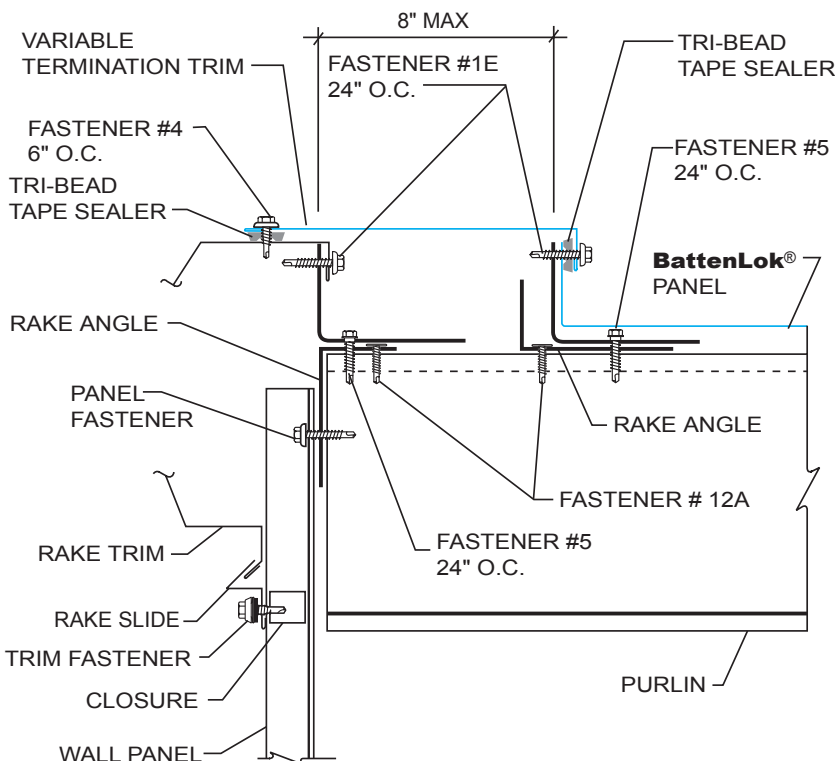
### LAST PANEL RUN

Install rake support at the finishing end of the roof as outlined in Step 1.



### FINISHING DIMENSION RUN OF 8" TO 14"

Field cut and bend a 2" tall vertical leg on the panels in the last run of roof. The vertical leg must be tight to the rake support angle. Secure the vertical leg to the rake support angle with clamps or temporary fasteners. At the endlap and ridge, a partial back-up plate must be cut.



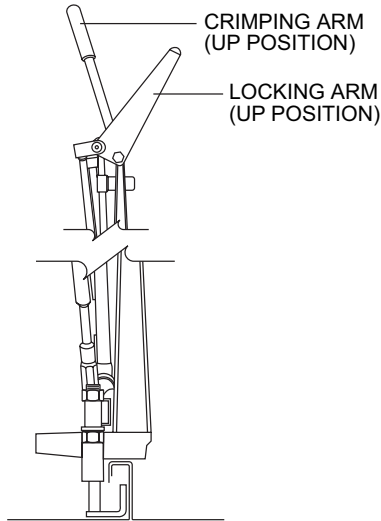
### FINISHING DIMENSION RUN OF LESS THAN 8"

If the width of the last panel run is 8" or less, a second run of rake support angle must be installed for attachment of the vertical leg of the panel. A variable termination trim will be required to seal the gap between the vertical leg of the panel and the rake trim.

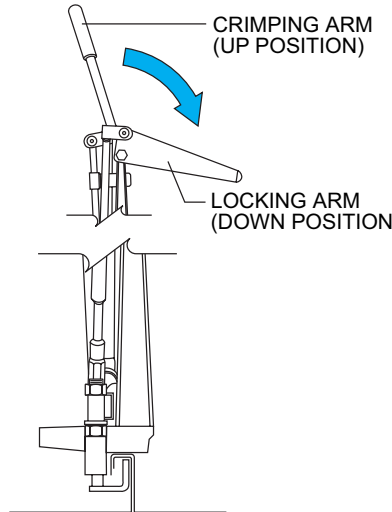
The male leg of the panel and the termination trim must be field cut to fit the condition.

## STEP 12

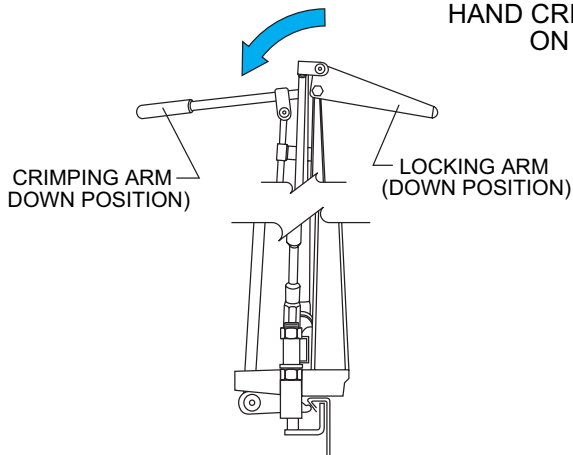
### SEAMING OPERATION



**STEP 1**  
HAND CRIMPER POSITIONED OVER SEAM



**STEP 2**  
HAND CRIMPER LOCKED ON TO SEAM



**STEP 3**  
HAND CRIMPER CRIMPS SEAM

As panels are installed, hand seam at each clip with hand crimper. Panels should be completely seamed with electric seamer as soon as possible.

Push locking arm down to lock hand crimper onto seam. If difficulty is encountered, check to make sure that hand crimper is properly aligned on seam. **Do not force locking arm.**

Push crimping arm down to crimp panel. Return both the crimping arm and locking arm to the up position and remove tool from seam.

## STEP 12 CONT.

### SEAMING OPERATION (Continued)

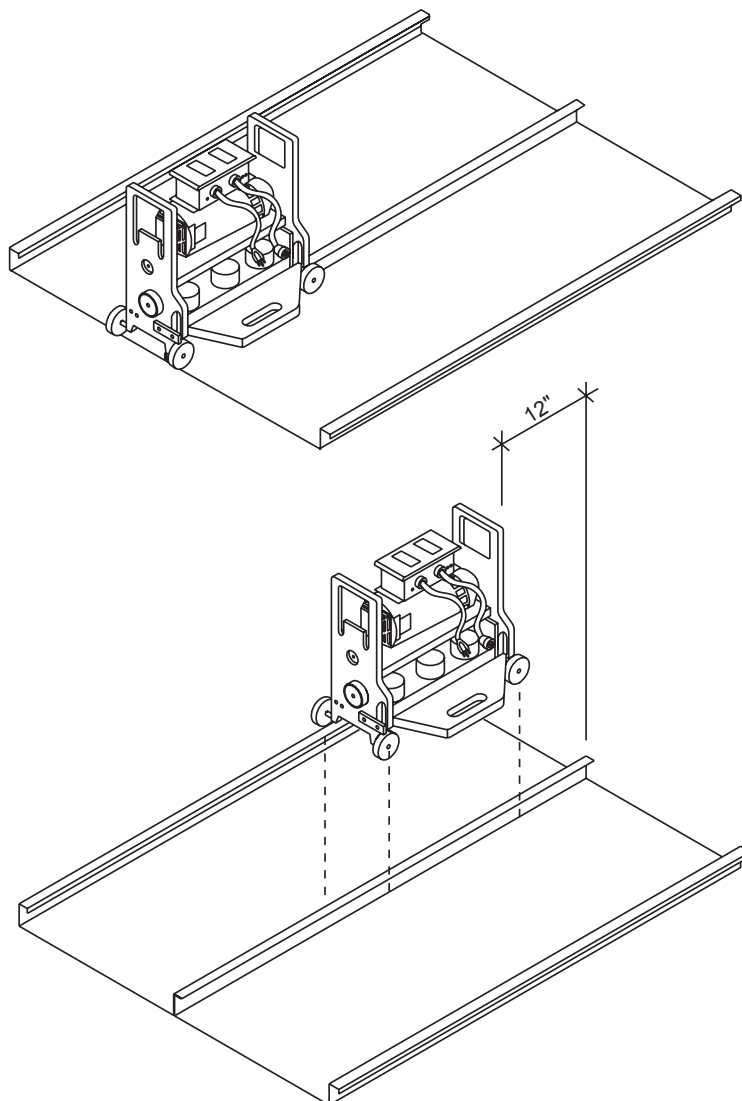
The electric seamer will run upslope and downslope and is controlled by a hand held forward and reverse remote switch. The seamer will form the seam in either direction. When the panels are installed from right to left forward is upslope and when the panels are installed left to right forward is downslope. An orientation plate on the seamer indicates forward and reverse. **When the roof has endlaps, the panels will always be installed right to left.**

The remote switch is designed to stop the seamer when the button is released.

On lower sloped roofs walking with the seamer is recommended.

On steep sloped roofs (6:12 and greater) a 12-gauge extension cord (not by Building Manufacturer) may be installed between the remote switch and the seamer. Seaming can then be accomplished by starting the seamer at the eave from a safety lift. When using this method the seam will be formed upslope and then the seamer will be reversed down the seam to the eave, removed, and placed on the next seam. During panel installation hand crimp the end of the panels 12" downslope from the ridge or high side of the roof. Stop the seamer at this point to prevent the seamer from running into the flashing or running off the roof. Finish remainder of seam with the hand crimper.

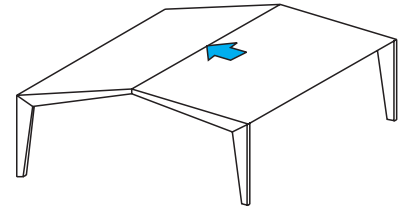
To begin seaming, set the seamer on the seam with the locking arm up and to the open side of the seam. The wheels should be even with the edge of the panel. Push the locking arm down to engage the panel. Push the locking arm down to engage the tool and turn the seamer on.



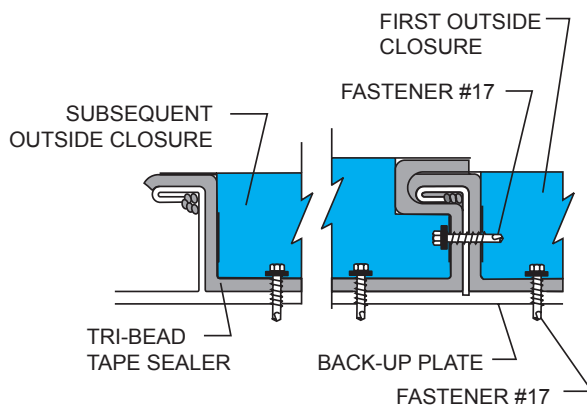
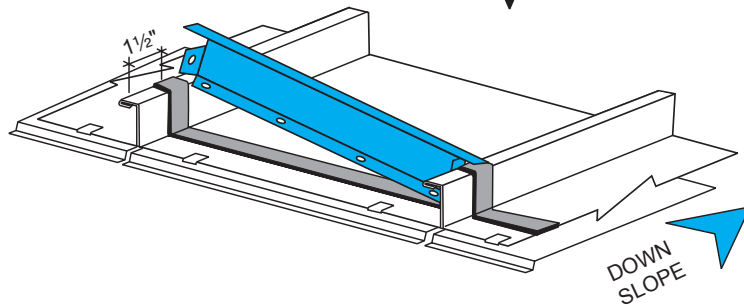
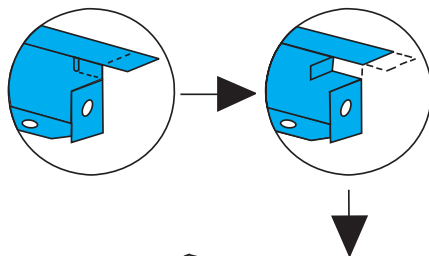
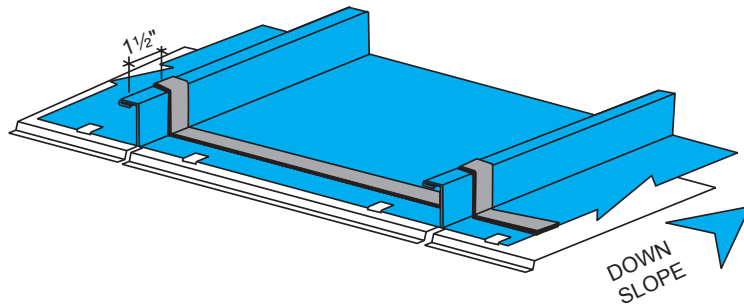
### CAUTION

- Seamer operation should be closely supervised at all times.
- A safety line should be attached to the seamer.
- Be aware of which direction the seamer will move before engaging the switch.
- Do not entangle the electrical cords in the seamer tooling while it is in operation. This could cause serious injury or death to the operator and severely damage the seamer.
- Electrical cords should be 10-gauge to provide power to the seamer and never be over 200 feet from the electrical source.
- The seamer will move approximately 6 to 8 inches after the hand switch is released.
- Bring seamer to a complete stop before changing direction.

**STEP 13**



## OUTSIDE CLOSURE INSTALLATION



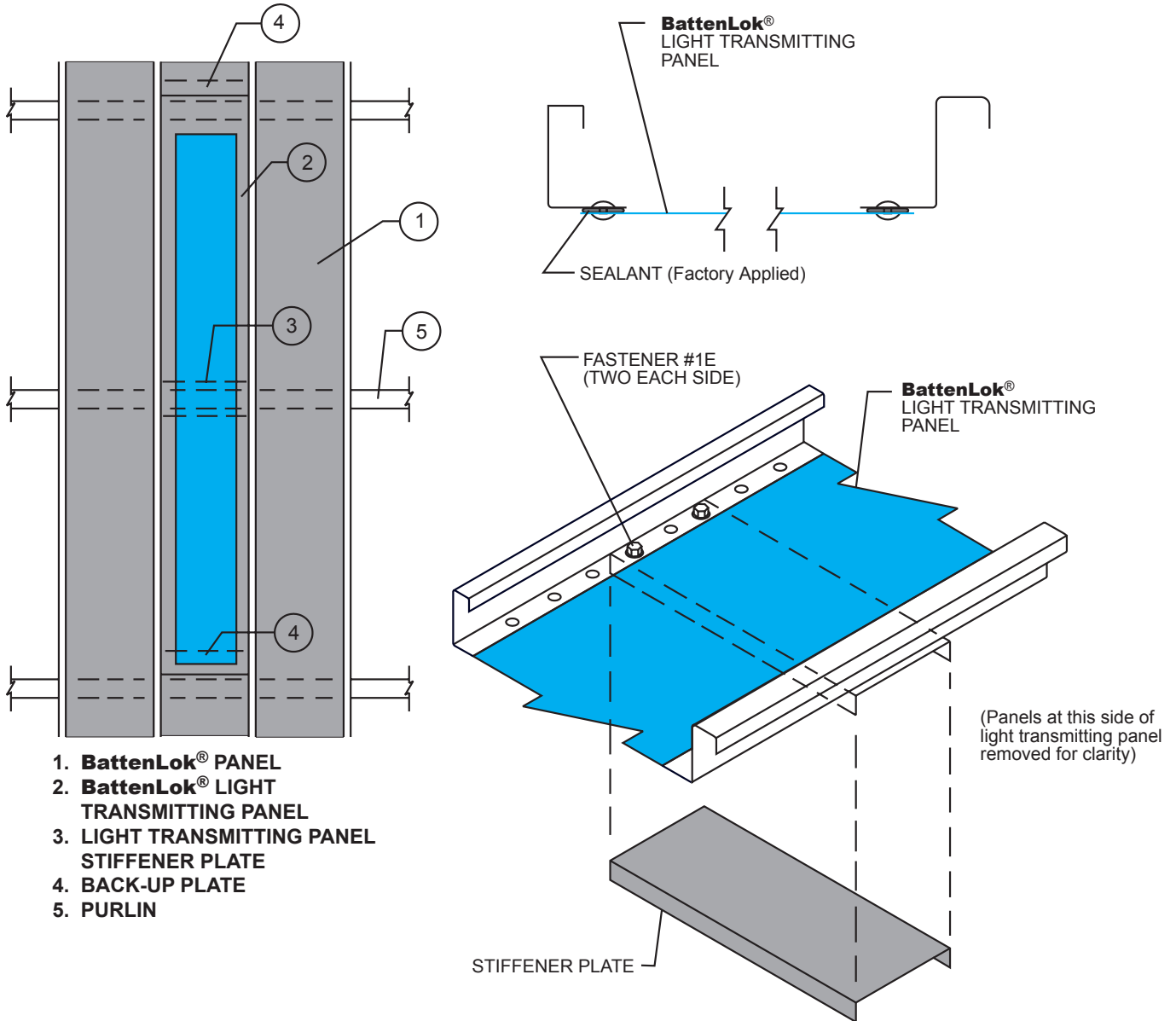
**Panels must be seamed before closures can be installed.** Install Tri-Bead tape sealer across full width of panels, including under panel seams at ridge. Center of tape sealer should be 1½" from end of panels.

Field cut the end of the outside closure that fits to the open side of the panel seam. Notch and bend the vertical leg of the closure above the end tab back to the dimple formed into the closure. It is important that the closures fit tight to the panel seams to prevent the need for excess urethane sealant at this location.

Install outside closures by rotating the end cut for the panel seam into place first. Then rotate the other end of the outside closure into place. The vertical leg of the outside closure should be 2" from the upslope end of the panel. Attach the outside closure to the panel with Fastener #17 at each prepunched hole in the closure. Before installing the next outside closure, install a piece of Tri-Bead tape sealer onto the top flange of the outside closure previously installed. This is to prevent water being blown between the outside closures where the top flanges overlap. After all closures are in place, install Tri-Bead tape sealer across the top flange.

Use urethane sealant to fill any voids around the panel seams on the upslope side of the outside closures.

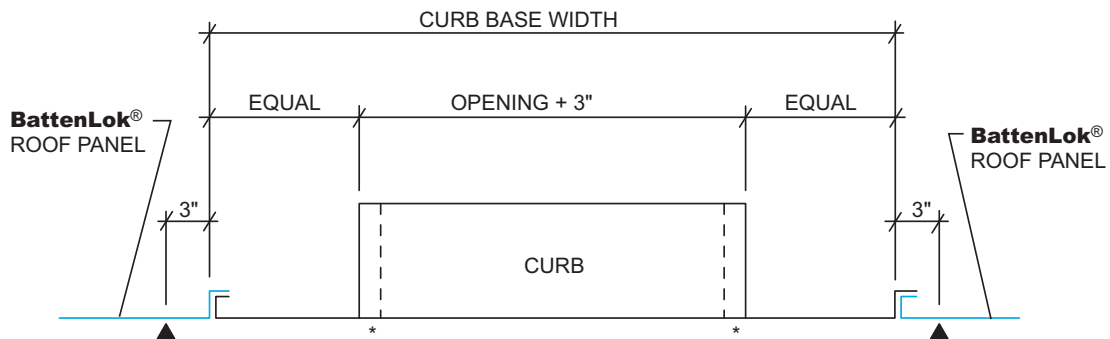
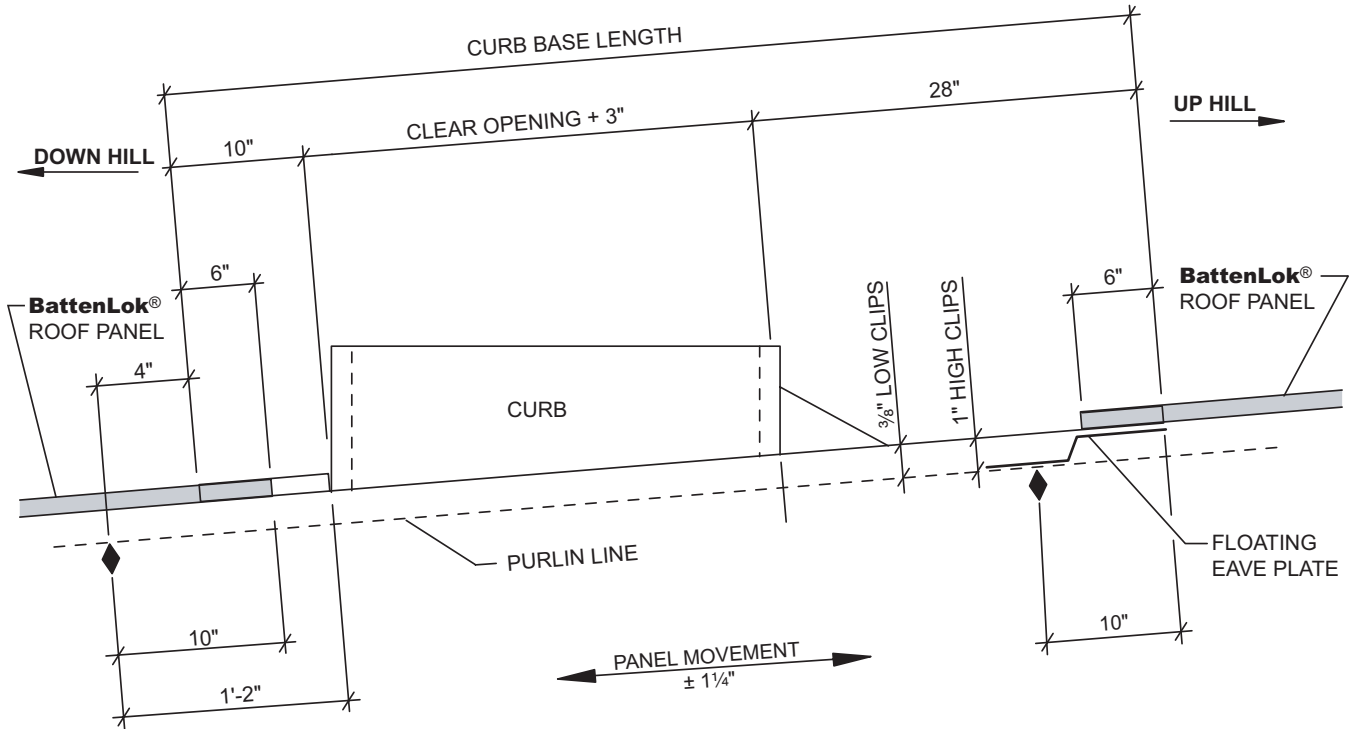
## UL 90 LIGHT TRANSMITTING PANEL INSTALLATION



### NOTES:

1. Maximum width of purlin flange to be 3½".
2. Stiffener plate is to be field installed on bottom side of light transmitting panel over mid-purlin.
3. Light transmitting panel rivets that obstruct stiffener plate must be drilled out and replaced with Fastener #1E. Minimum two fasteners per side.
4. Stiffener plate must be centered exactly over mid-purlin so that thermal movement of the system is not restrained by the purlin.
5. Endlaps created by the use of light transmitting panels require roof erection to proceed from right to left as viewed from the eave looking toward the ridge.
6. **WARNING: These light transmitting panels are not designed or intended to bear the weight of any person walking, stepping, standing or resting on them. THE MANUFACTURER DISCLAIMS ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, that any person can safely walk, step, stand or rest on or near these light transmitting panels or that they comply with any OSHA regulation.**

## CURB INSTALLATION FLOATING ROOF CURB SUPPORT GUIDE

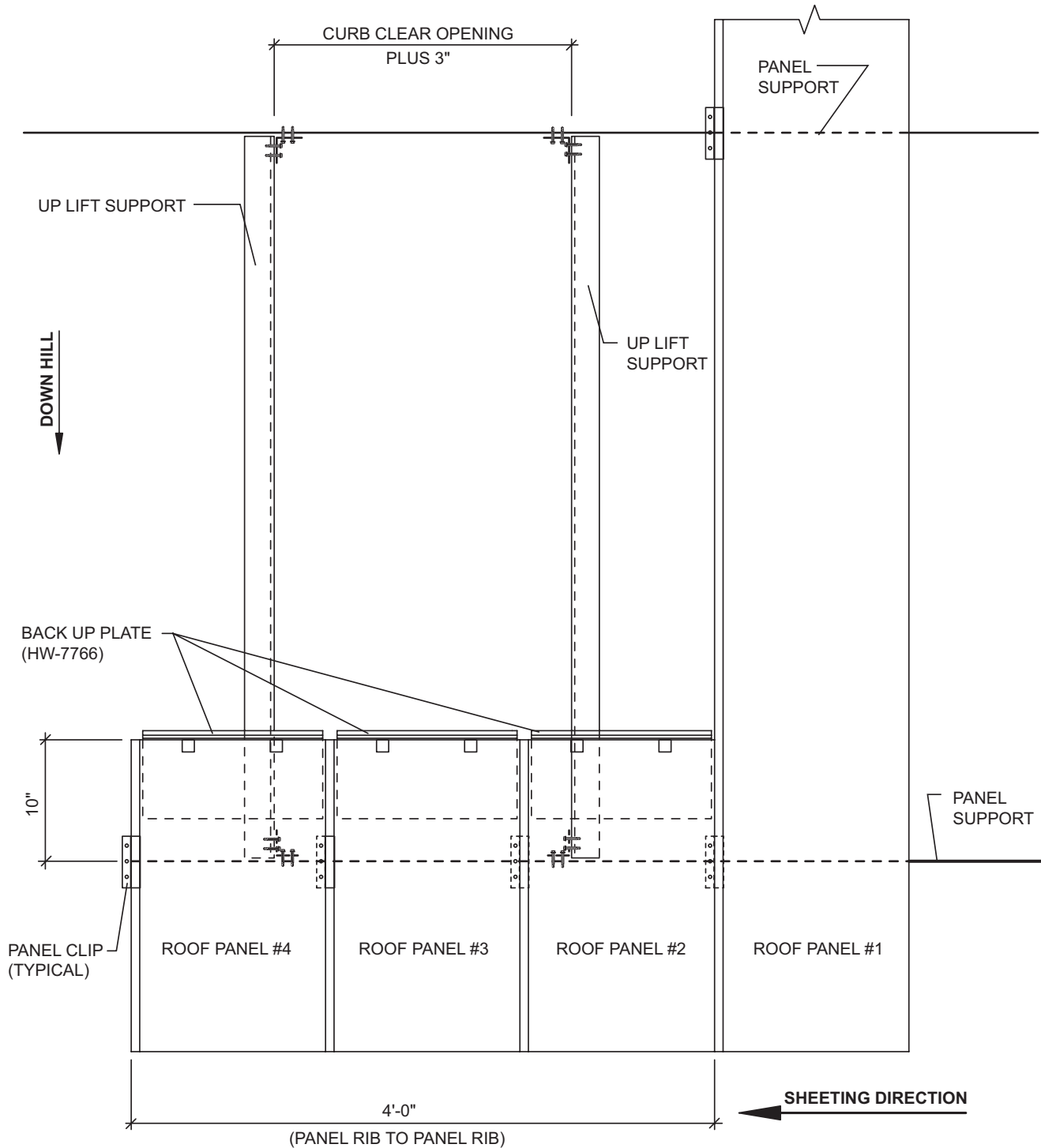


- ◆ INDICATES ROOF PANEL SUPPORTS
- ▲ INDICATES CURB BASE SUPPORTS
- \* ADDITIONAL UP LIFT SUPPORTS ARE REQUIRED FOR THE ATTACHMENT OF THE CURB UP LIFT PLATES ONLY.

# SPECIAL ERECTION TECHNIQUES

BattenLok®

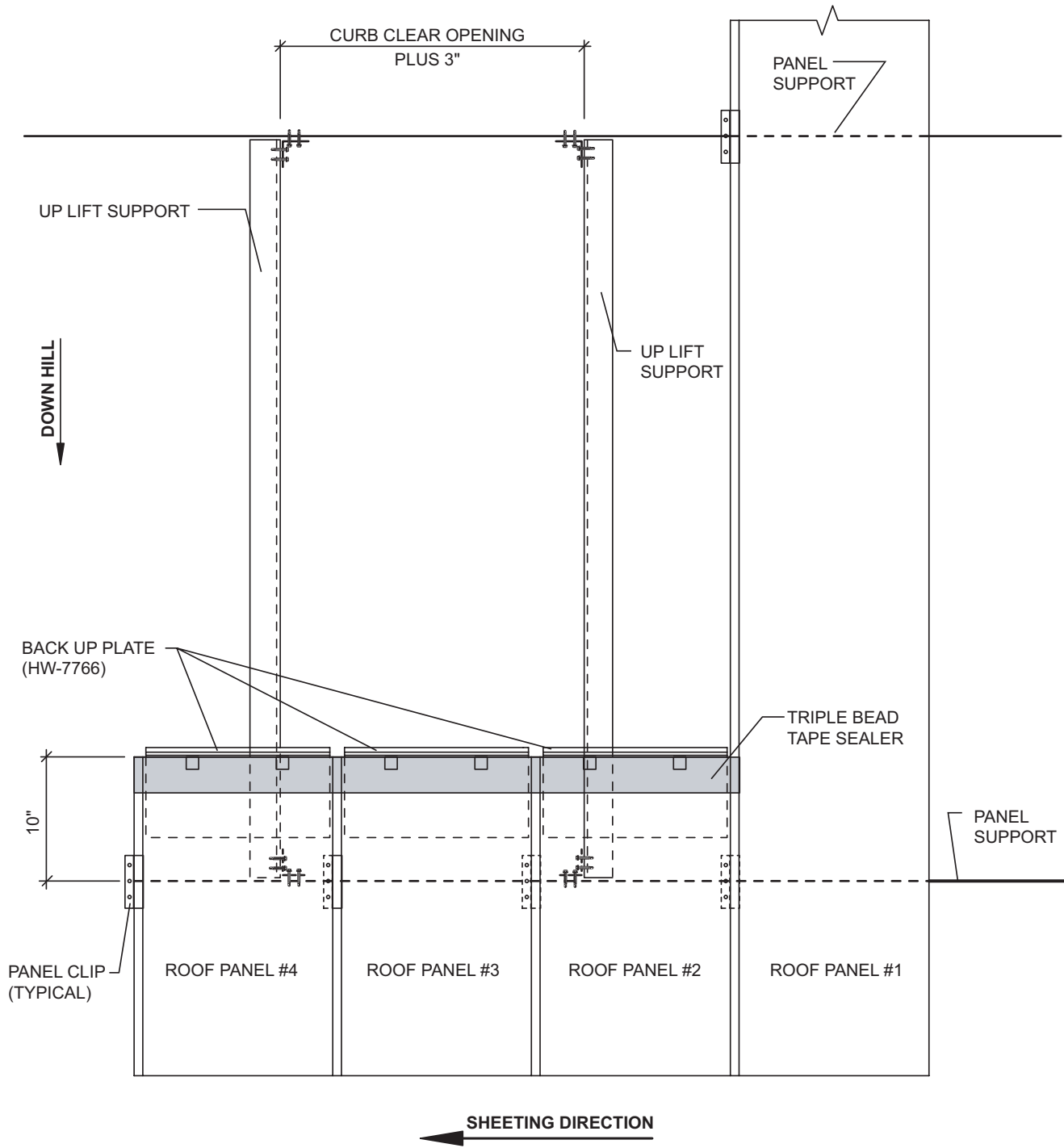
## CURB INSTALLATION CURB BASE INSTALLATION #1



### NOTES:

1. Install all lower roof panels to support the curb base.
2. Install back up plates.

## CURB INSTALLATION CURB BASE INSTALLATION #2



**NOTES:**

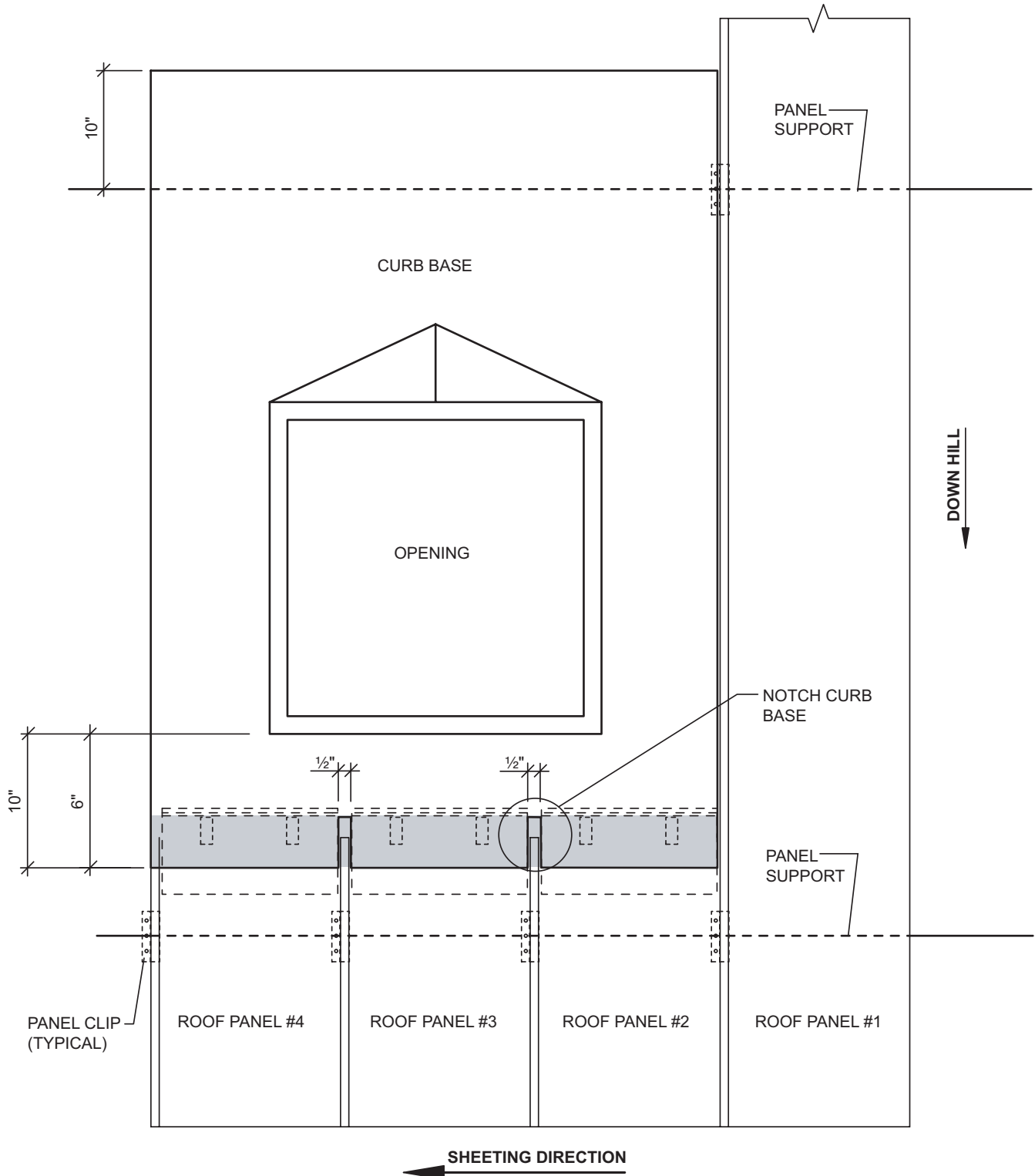
1. Apply Triple Bead tape sealer (HW-502) on roof panels as shown



# SPECIAL ERECTION TECHNIQUES

BattenLok®

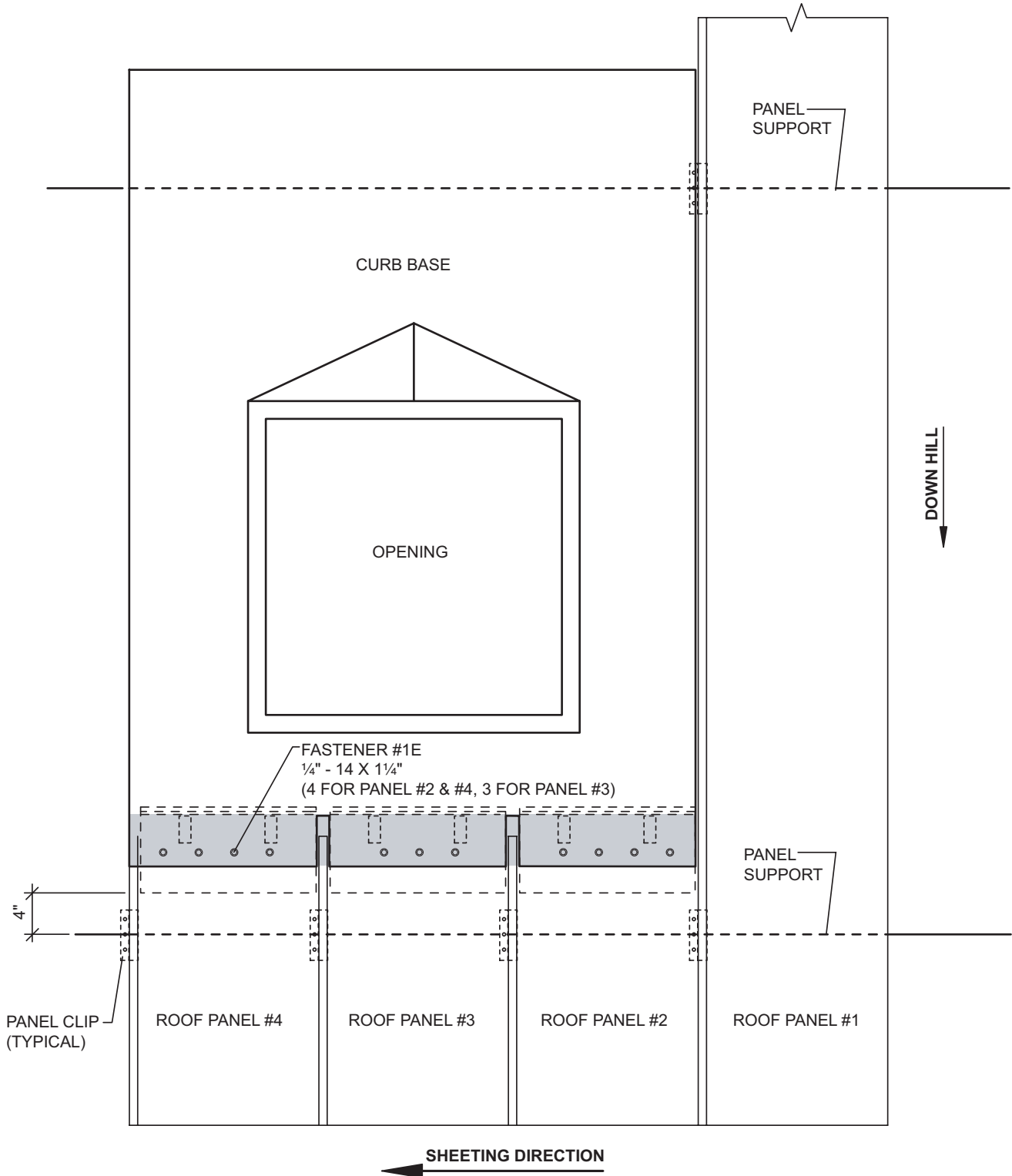
## CURB INSTALLATION CURB BASE INSTALLATION #3



### NOTES:

1. For field located Panel Fin Caps, notch Curb Base at all panel Fins.
2. Install Curb Base on lower roof panels with a 3" End Lap.

## CURB INSTALLATION CURB BASE INSTALLATION #4



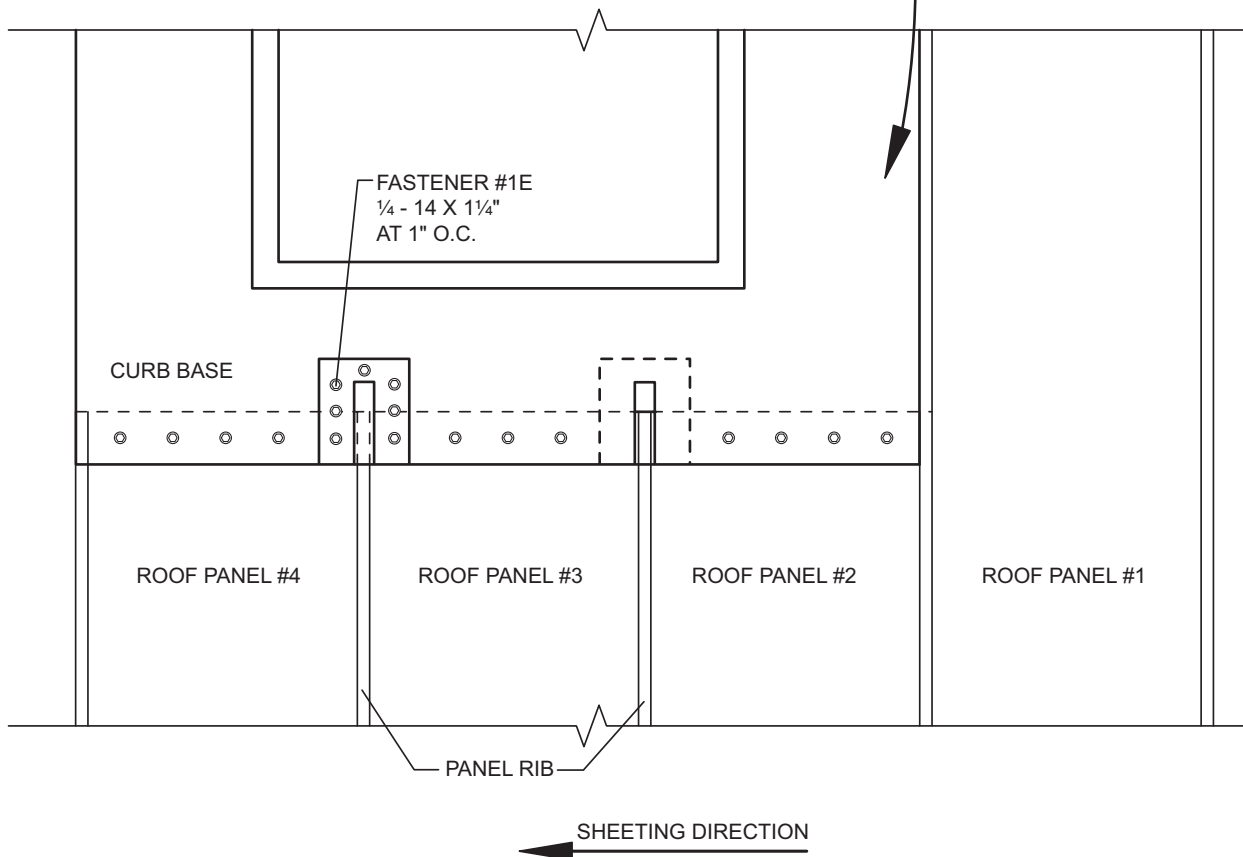
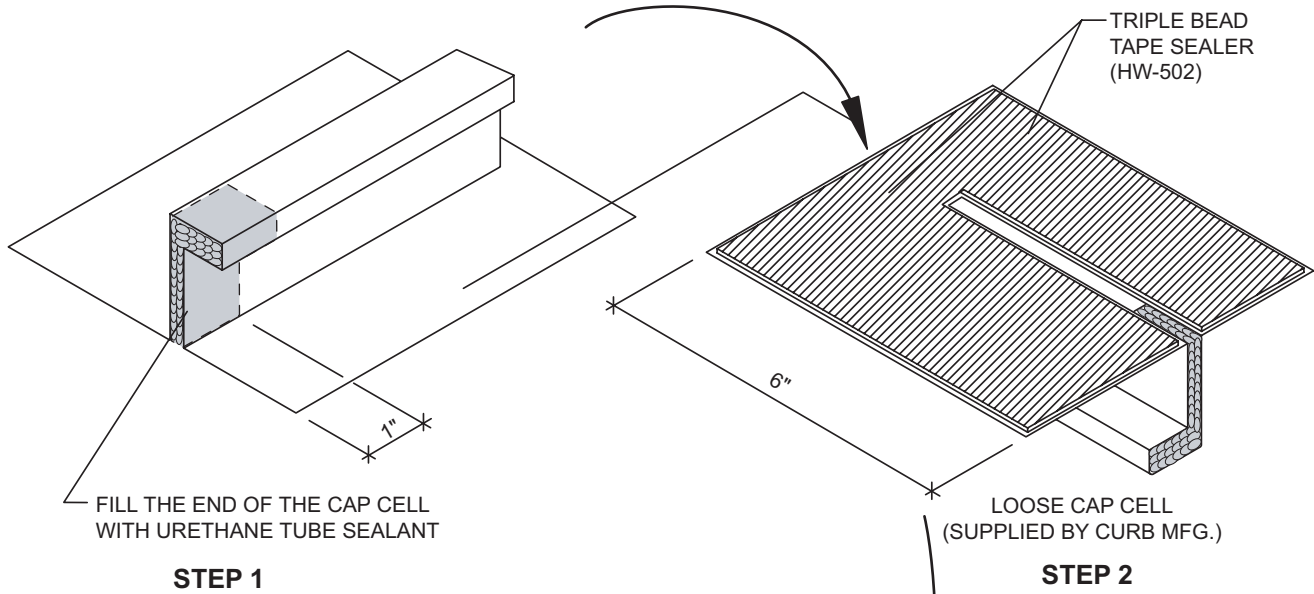
**NOTES:**

1. Attach the Curb Base to the roof panels.

# SPECIAL ERECTION TECHNIQUES

BattenLok®

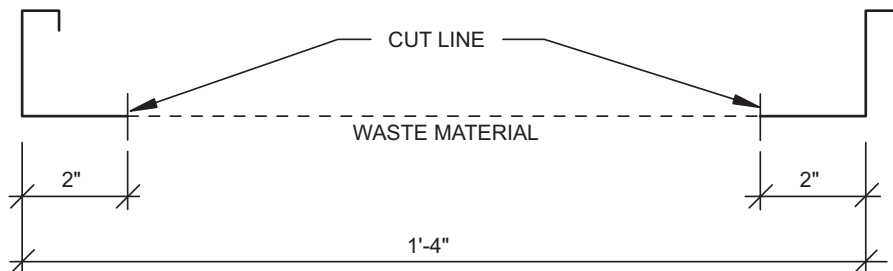
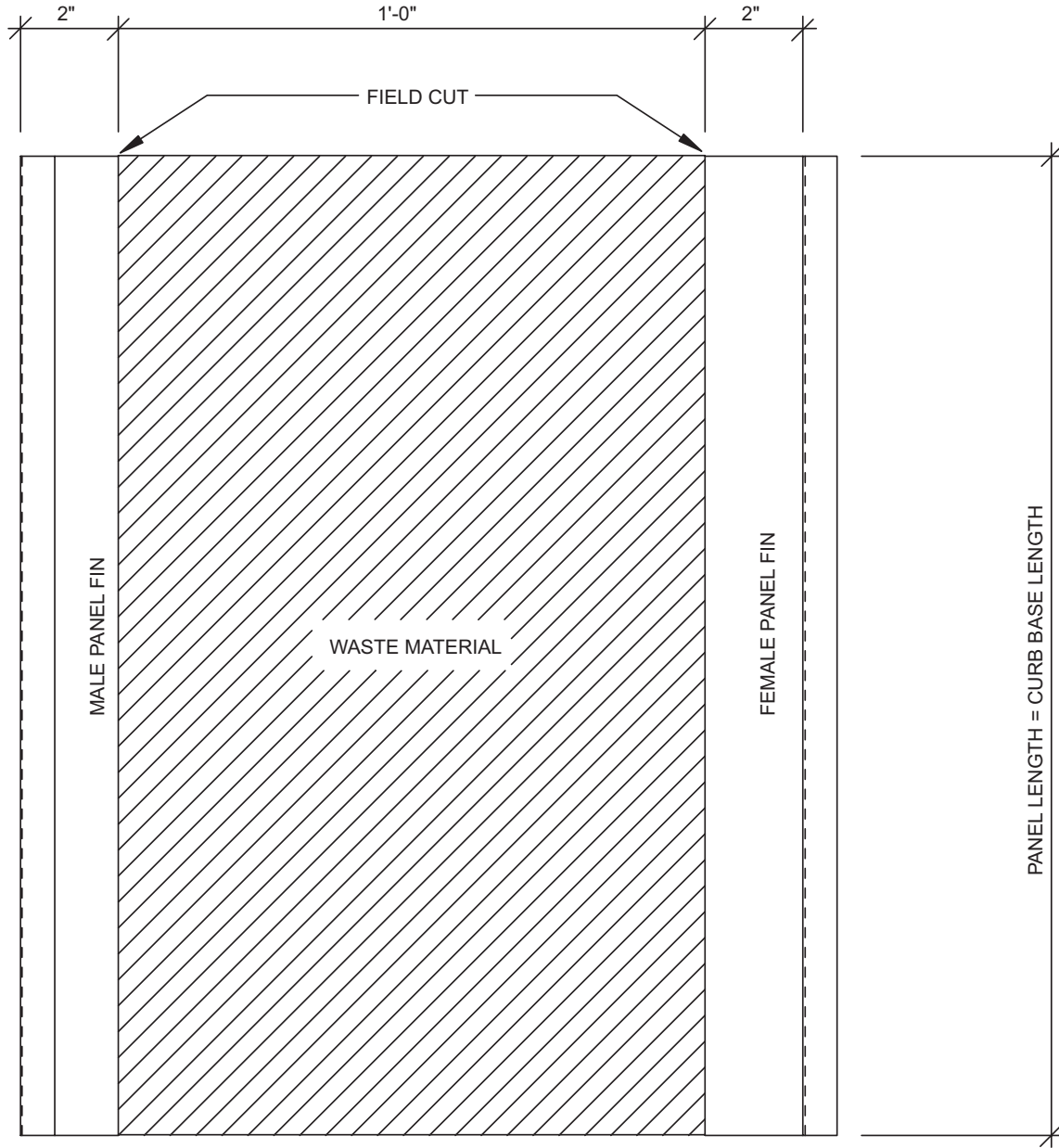
## CURB INSTALLATION CAP CELL INSTALLATION



### NOTES:

Fill Fin cavity of Cap Cell with Urethane Tube Sealant. Apply Triple Bead tape sealer (HW-502) on the bottom of (2) loose the Cap Cell, install over the panel Fins and attach with Fastener #1E at 1" O.C.

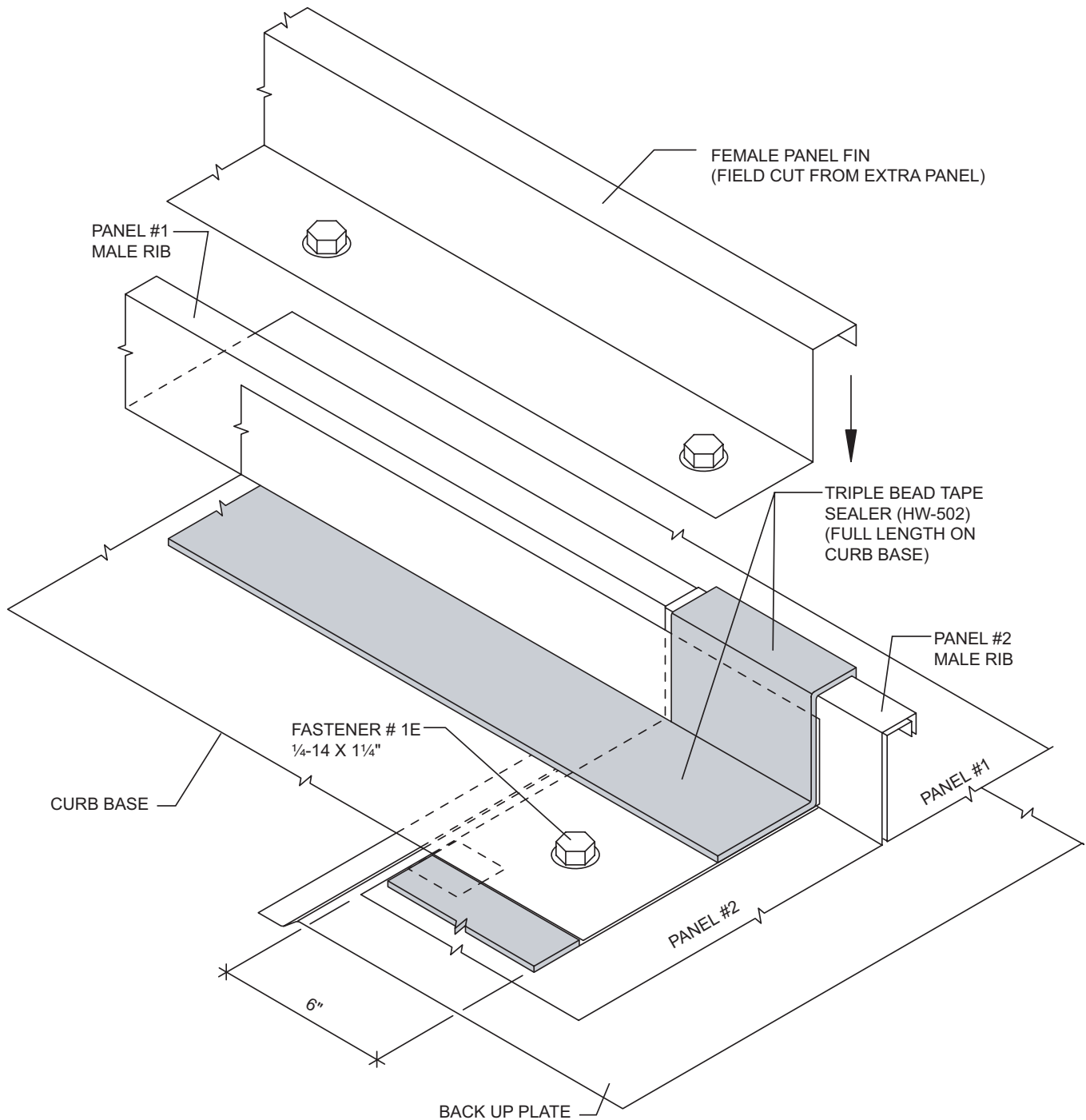
## CURB INSTALLATION CURB PANEL FIN PREPARATION



**NOTES:**

Field cut male and female panel ribs from an extra roof panel supplied by the building manufacturer.

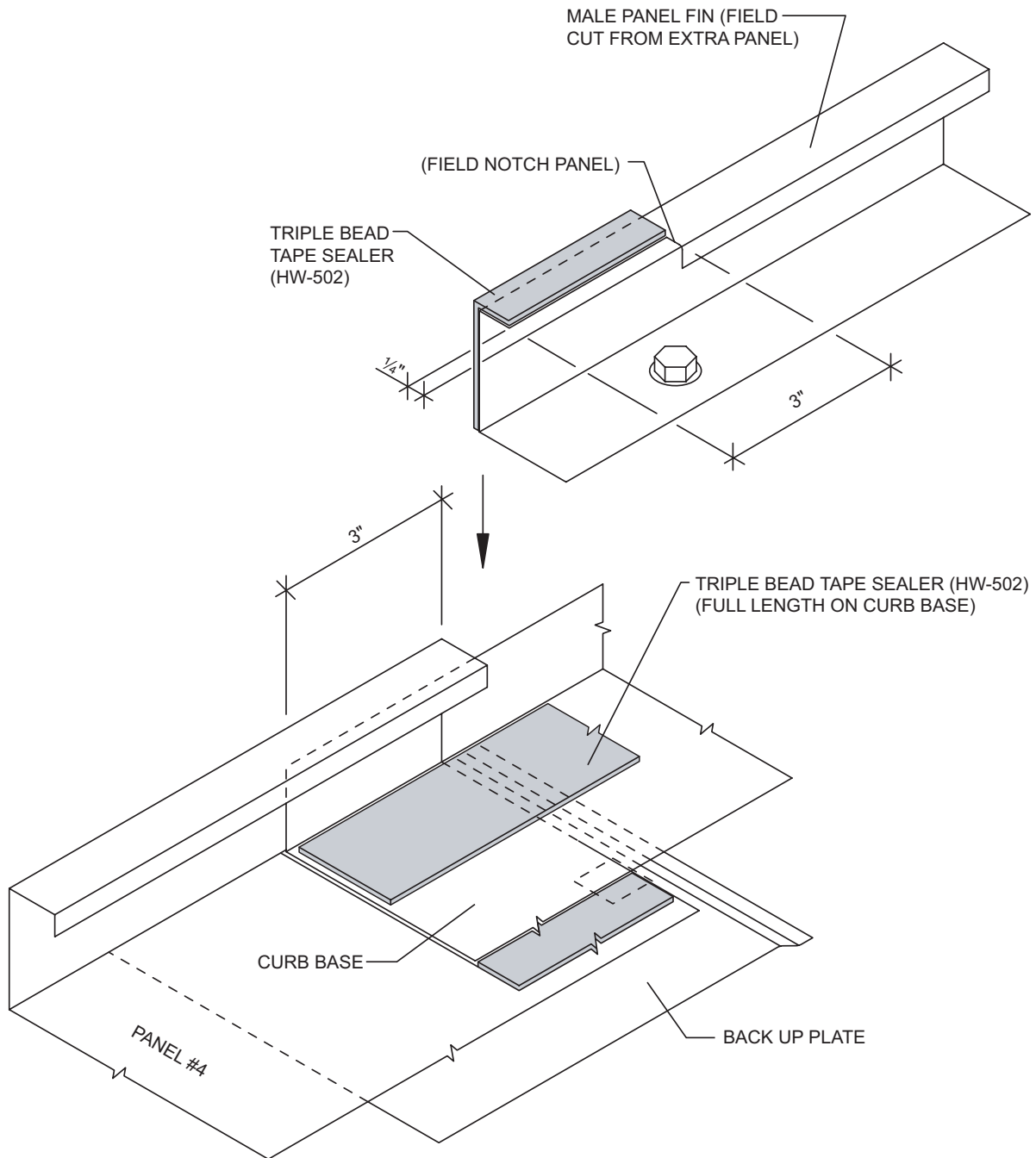
## CURB INSTALLATION FEMALE PANEL FIN INSTALLATION



### NOTES:

1. Install Triple Bead tape sealer (HW-502) to panel #2 Male Fin, and along the edge of the Curb Base.
2. Install the Female Panel Rib over the tape sealer and attach with Fastener # 1E at 12" O.C.

## CURB INSTALLATION MALE PANEL FIN INSTALLATION



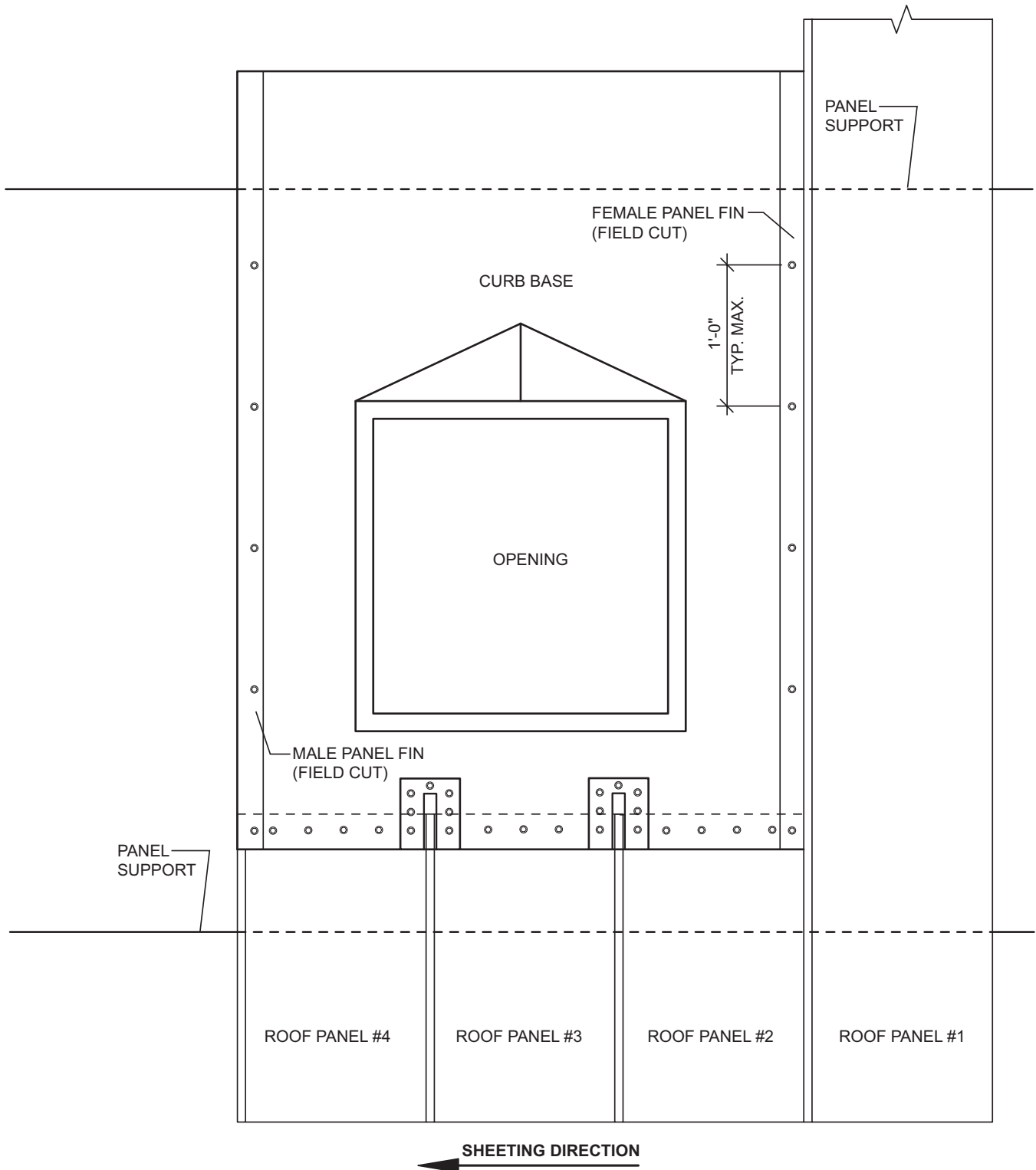
**NOTES:**

1. Notch the male Panel Fin. Apply Triple Bead tape sealer (HW-502) to the top and side of the Male Panel Fin.
2. Apply Triple Bead tape sealer on the Curb Base under the male Panel Fin.
3. Insert the field cut male Panel Fin on top of the Triple Bead tape sealer.

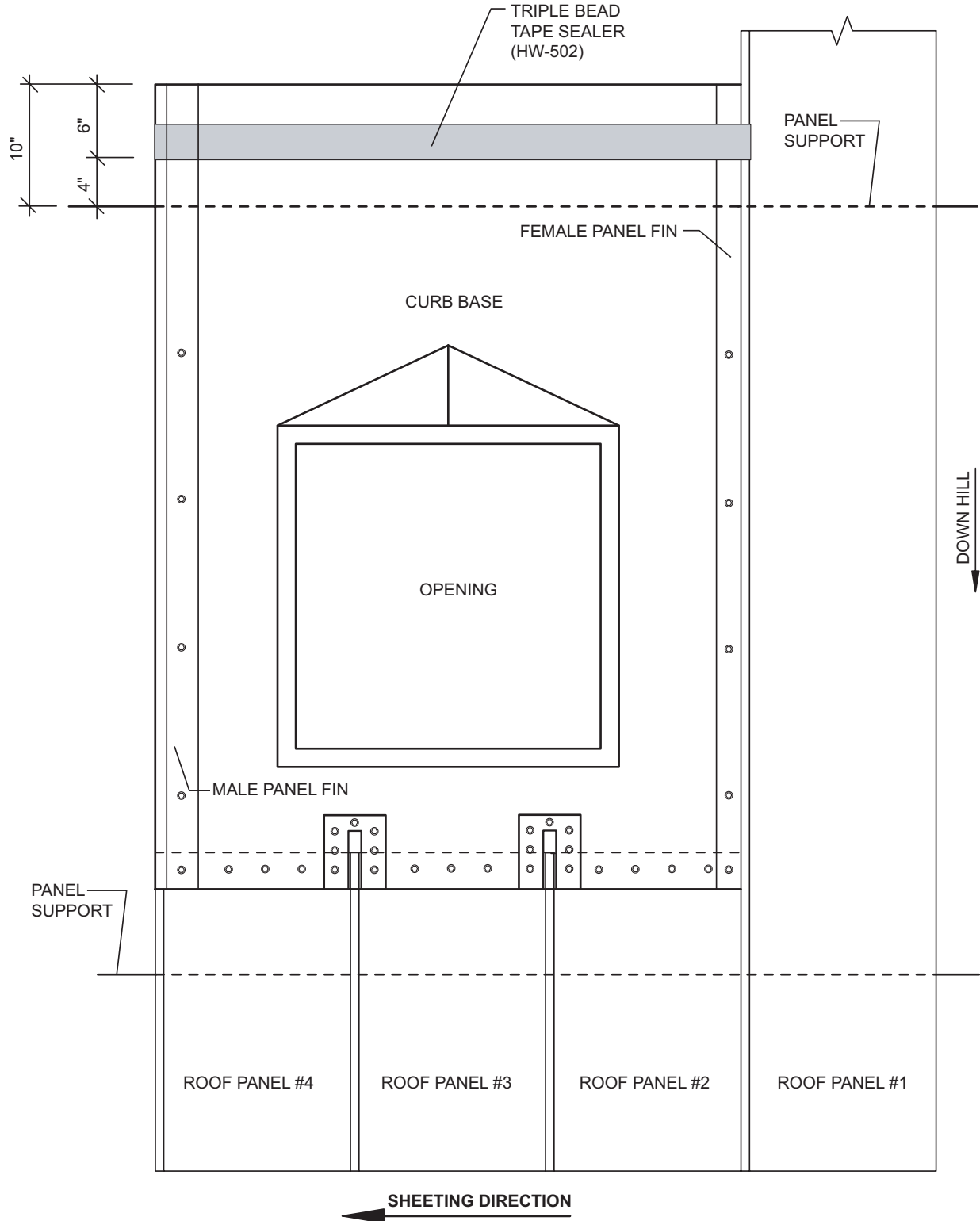
# SPECIAL ERECTION TECHNIQUES

BattenLok®

## CURB INSTALLATION CURB BASE INSTALLATION #5



## CURB INSTALLATION CURB BASE INSTALLATION #6



**NOTES:**

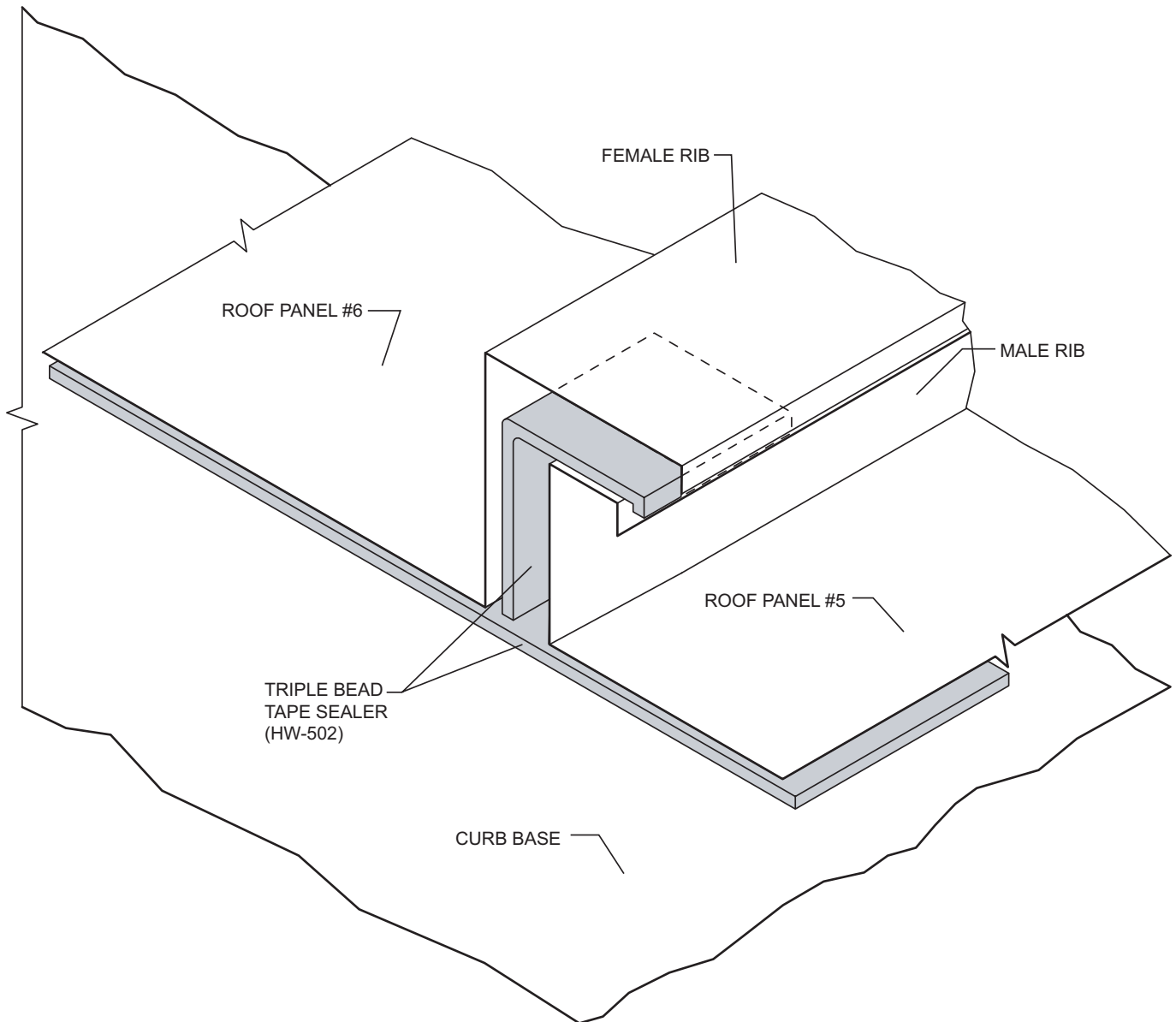
Apply Triple Bead tape sealer (HW-502) on Curb Base at the up hill end.



# SPECIAL ERECTION TECHNIQUES

BattenLok®

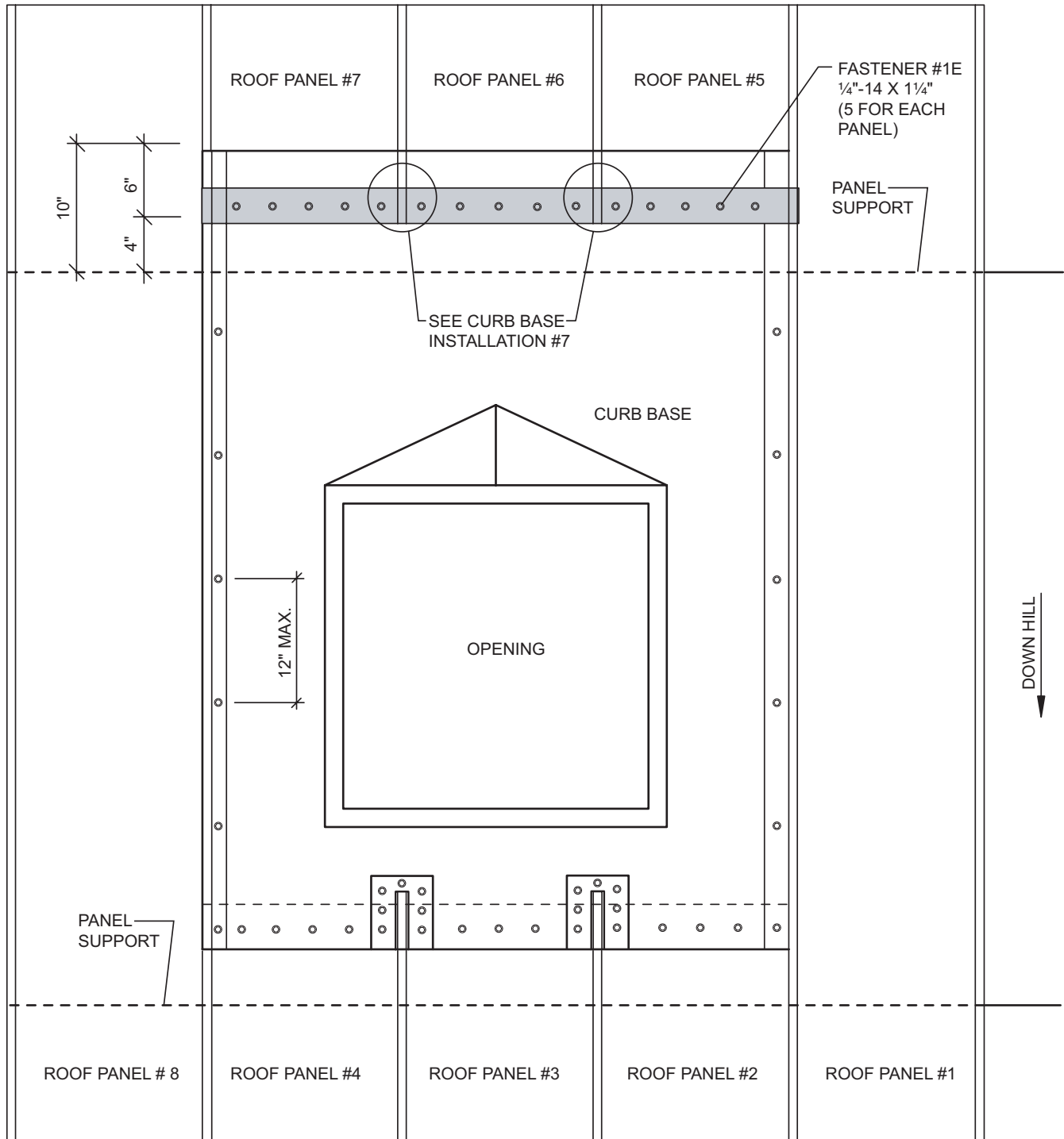
## CURB INSTALLATION CURB BASE INSTALLATION #7



### NOTES:

Apply Triple Bead tape sealer (HW-502) between the Panel Fins on Panels #5 and #6 for water seal.

## CURB INSTALLATION CURB BASE INSTALLATION #8



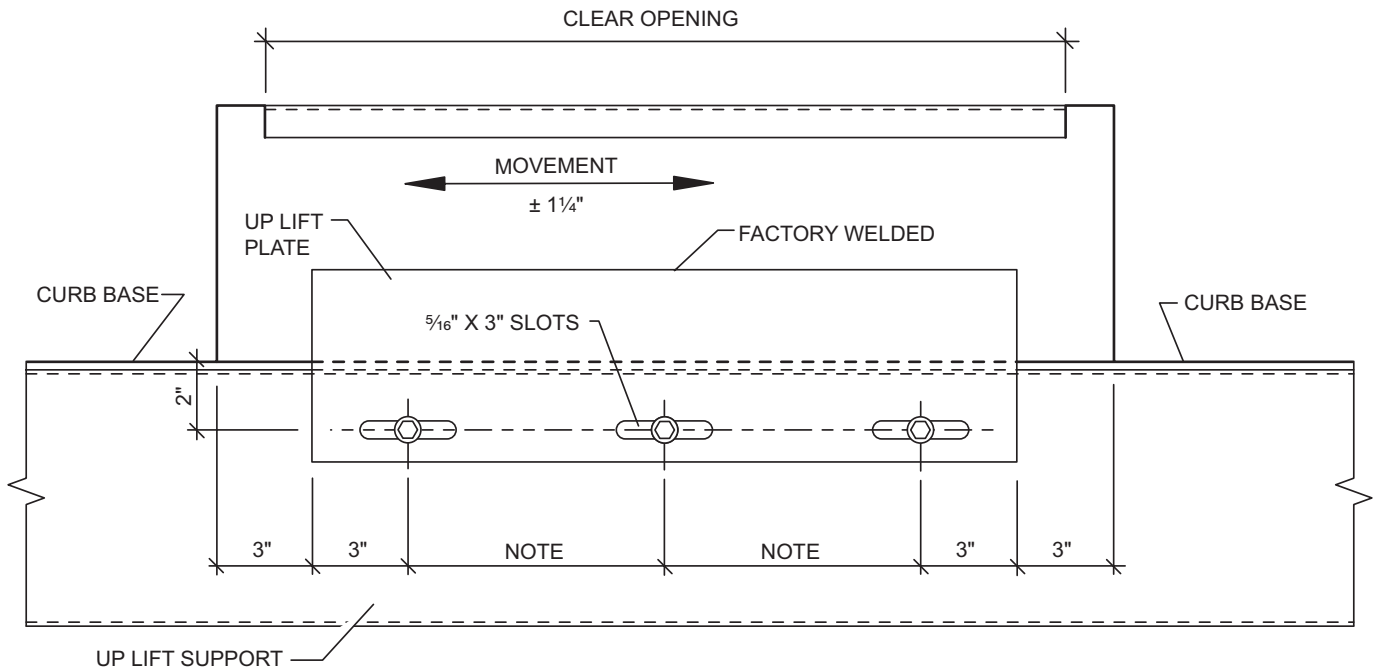
**NOTES:**

1. Install Roof Panels #5, #6, & #7 to the Curb Base on top of the tape sealer with Fastener #1E (5 per panel).
2. Install Roof Panel #8.

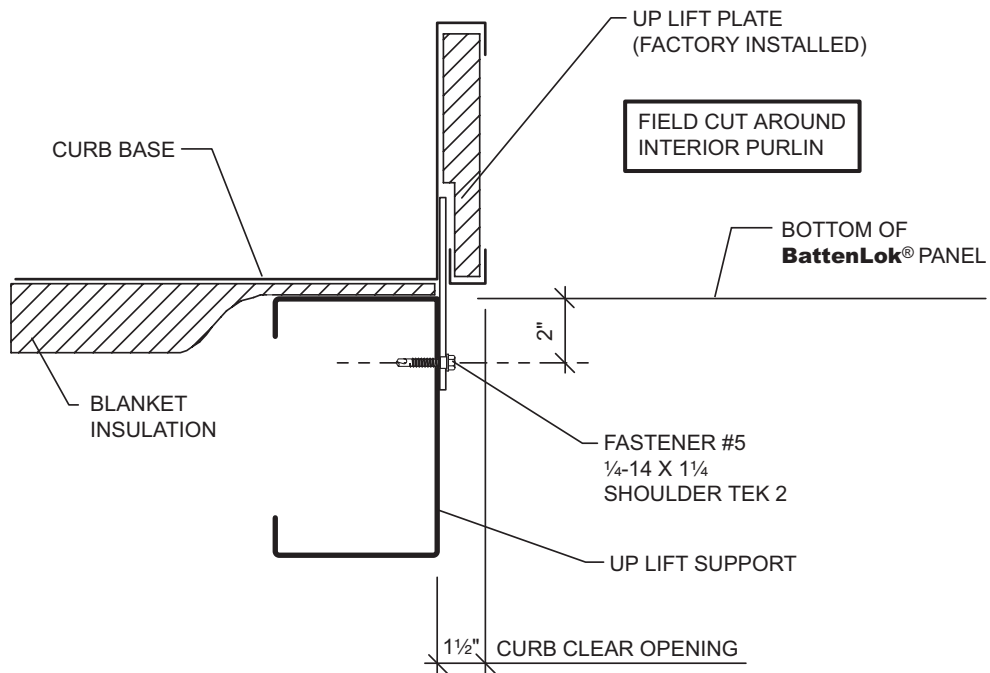
# SPECIAL ERECTION TECHNIQUES

BattenLok®

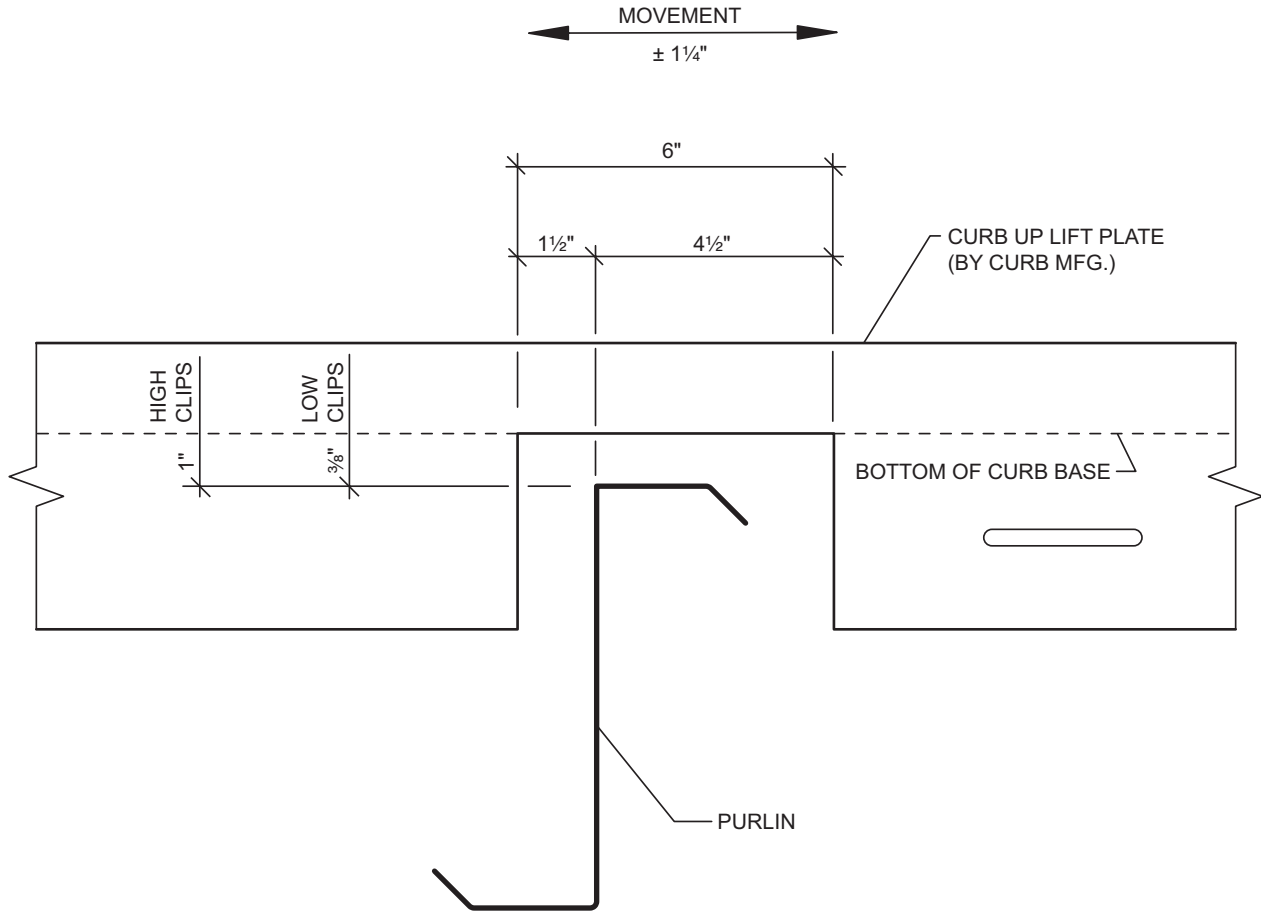
## CURB INSTALLATION UP LIFT PLATE DETAIL



**NOTE:** SLOT LOCATION IS DETERMINED BY THE CURB LENGTH, MAXIMUM SPACING IS 12" O.C.



## CURB INSTALLATION UP LIFT PLATE FIELD NOTCH

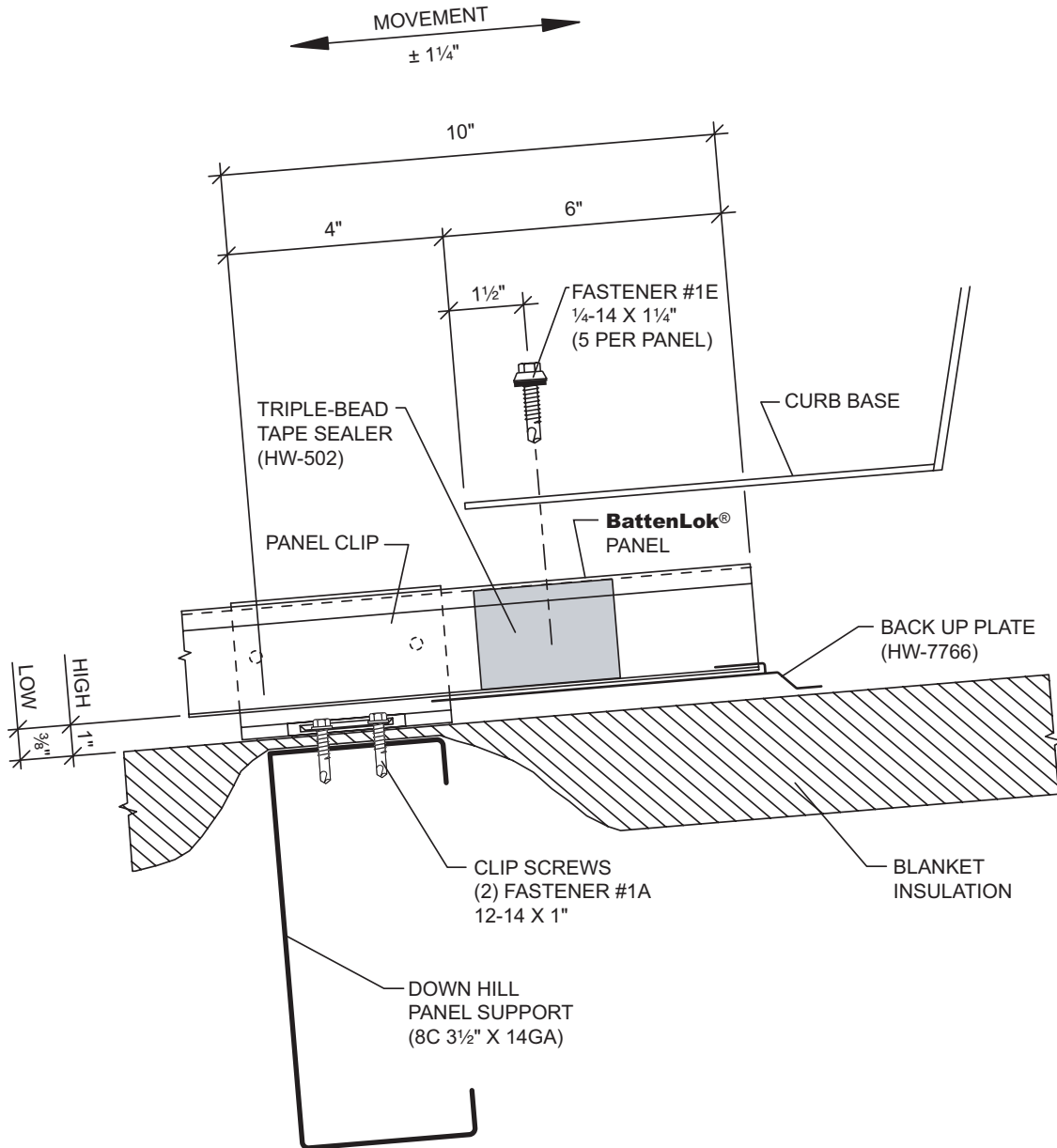


UP LIFT PLATE MUST BE FIELD NOTCHED AROUND THE BUILDING PURLIN TO ALLOW FOR PANEL MOVEMENT.

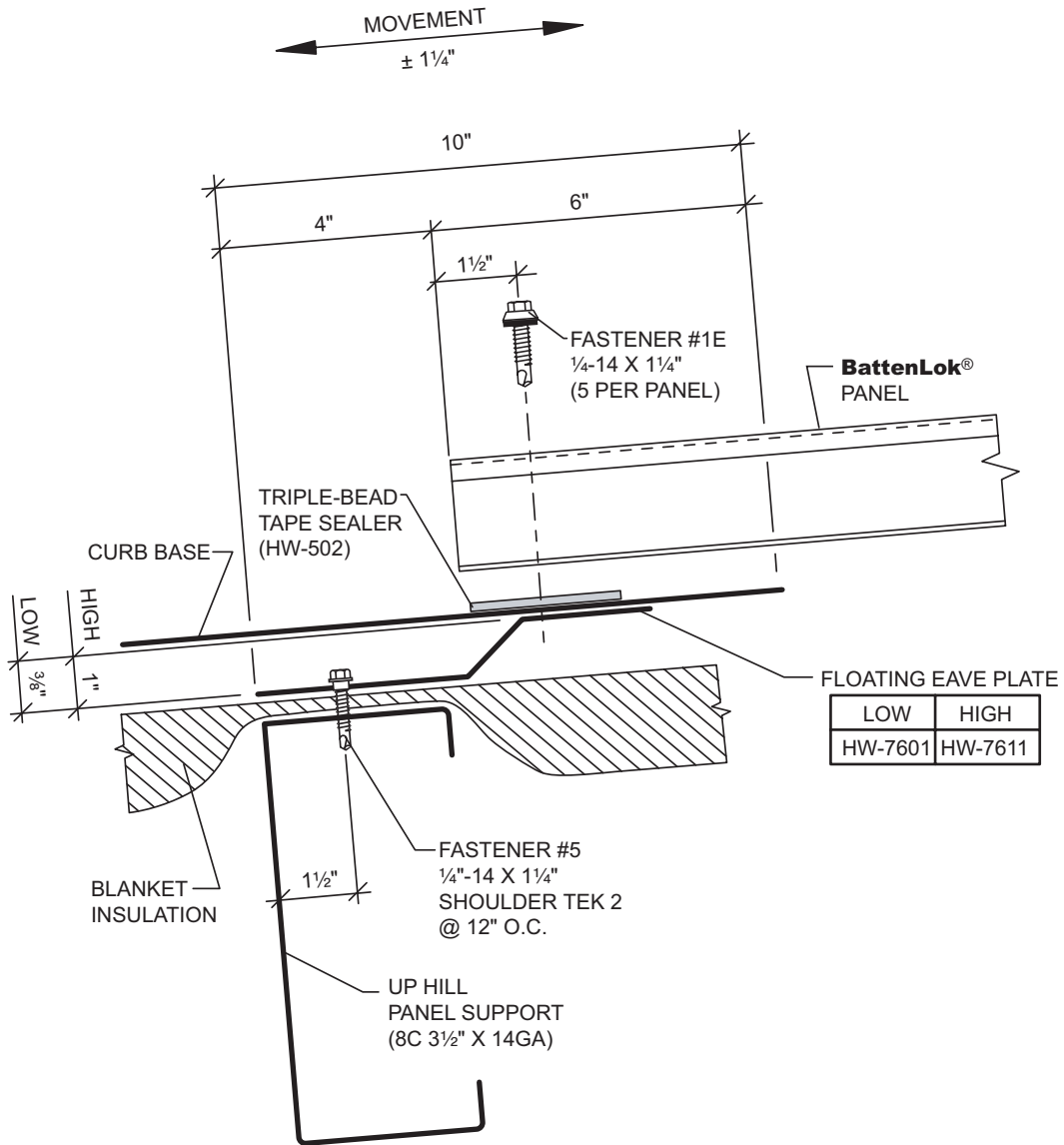
# SPECIAL ERECTION TECHNIQUES

BattenLok®

## CURB INSTALLATION DOWN HILL CURB BASE END LAP



## CURB INSTALLATION UP HILL CURB BASE END LAP

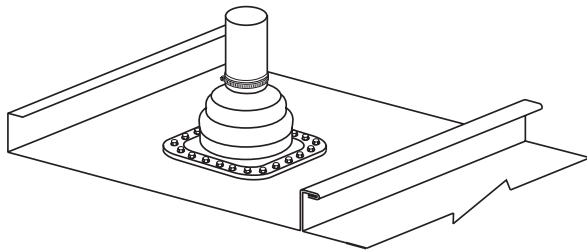


# SPECIAL ERECTION TECHNIQUES

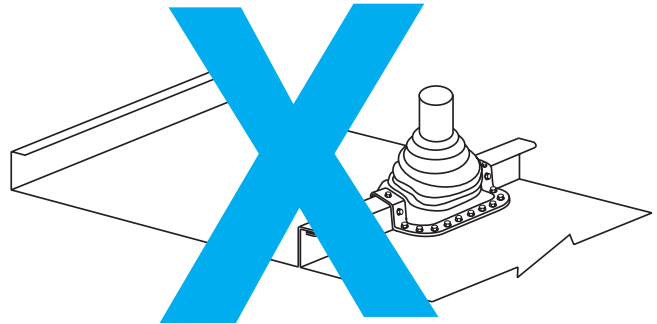
BattenLok®

## PIPE PENETRATION INSTALLATION

### RECOMMENDED SMALL AND LARGE PIPE PENETRATION INSTALLATION



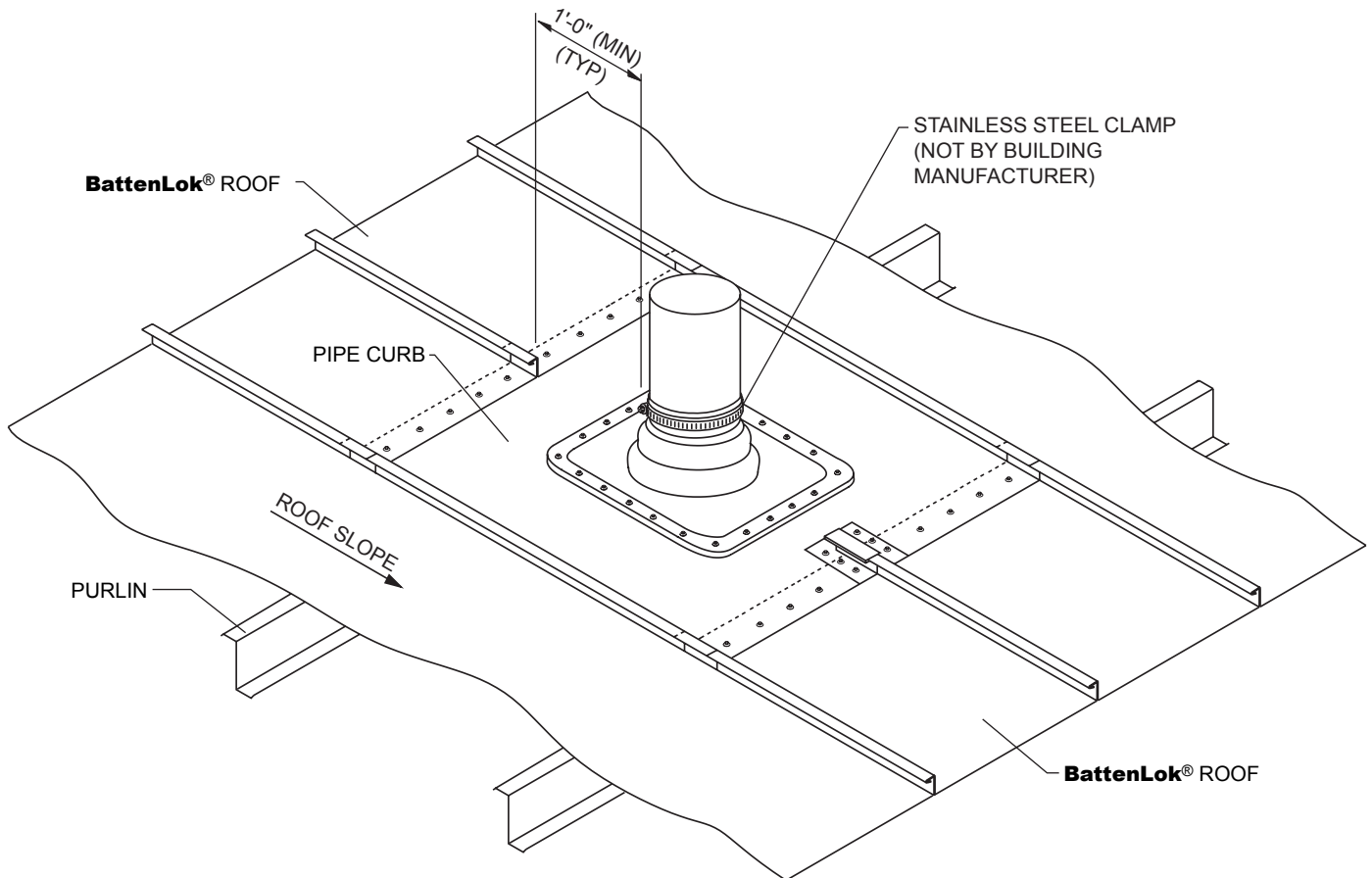
RIGHT WAY



WRONG WAY

### RECOMMENDED SMALL PIPE PENETRATION INSTALLATION

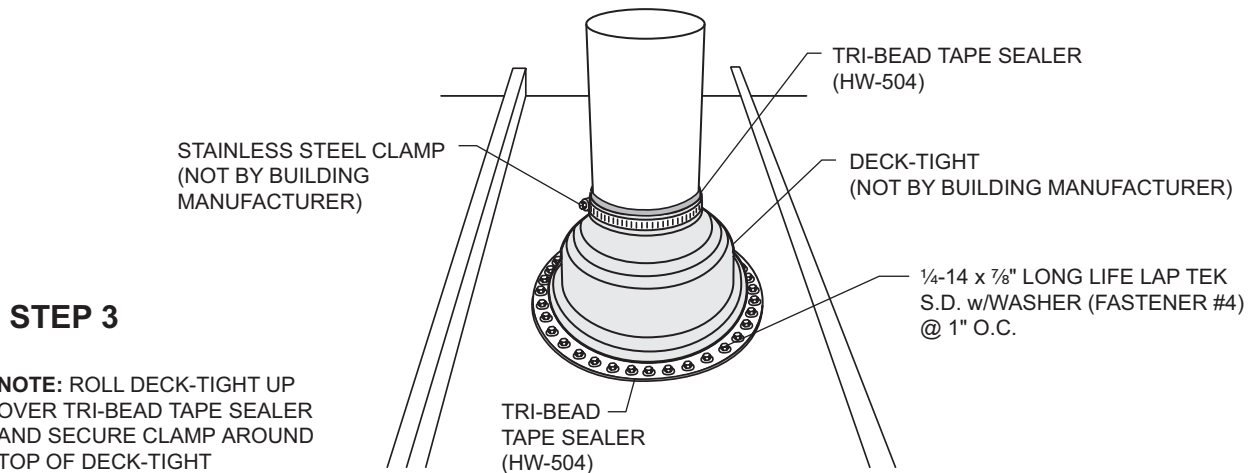
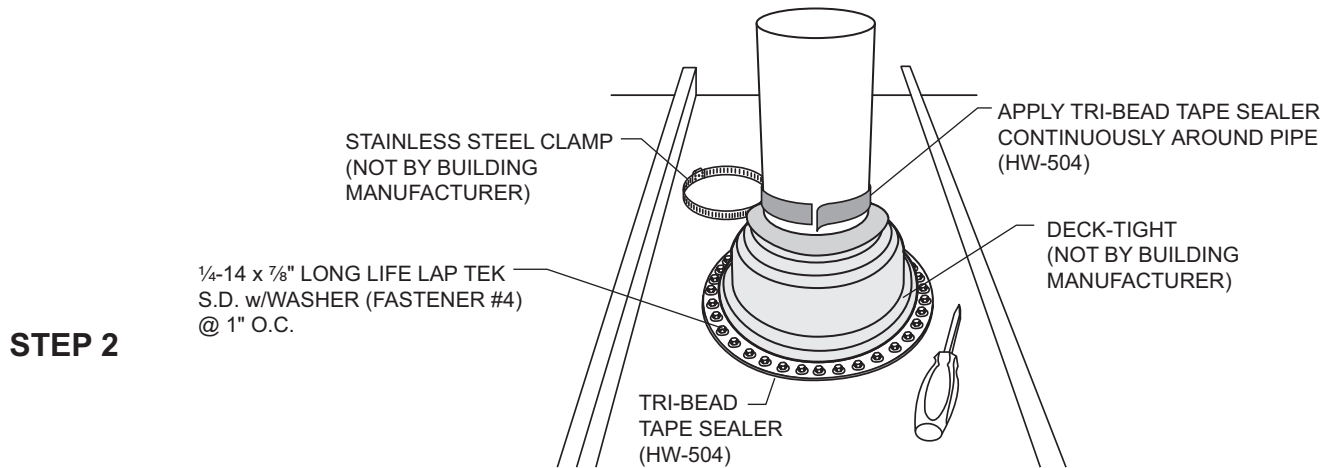
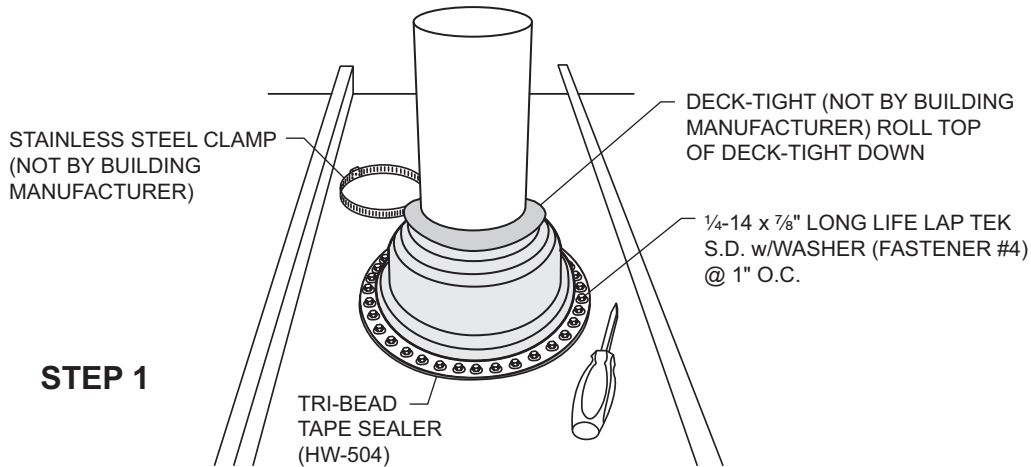
INSTALL PIPE IN CENTER OF PANEL TO ALLOW BASE OF RUBBER ROOF JACK TO LAY FLAT ON PANEL.



### RECOMMENDED LARGE PIPE PENETRATION INSTALLATION

THIS METHOD TO BE USED IN ALL CASES WHERE A PIPE PENETRATION INTERSECTS A PANEL RIB OR WHEN THE PIPE IS TOO LARGE AND WILL NOT ALLOW ADEQUATE WATER FLOW DOWN THE PANEL.

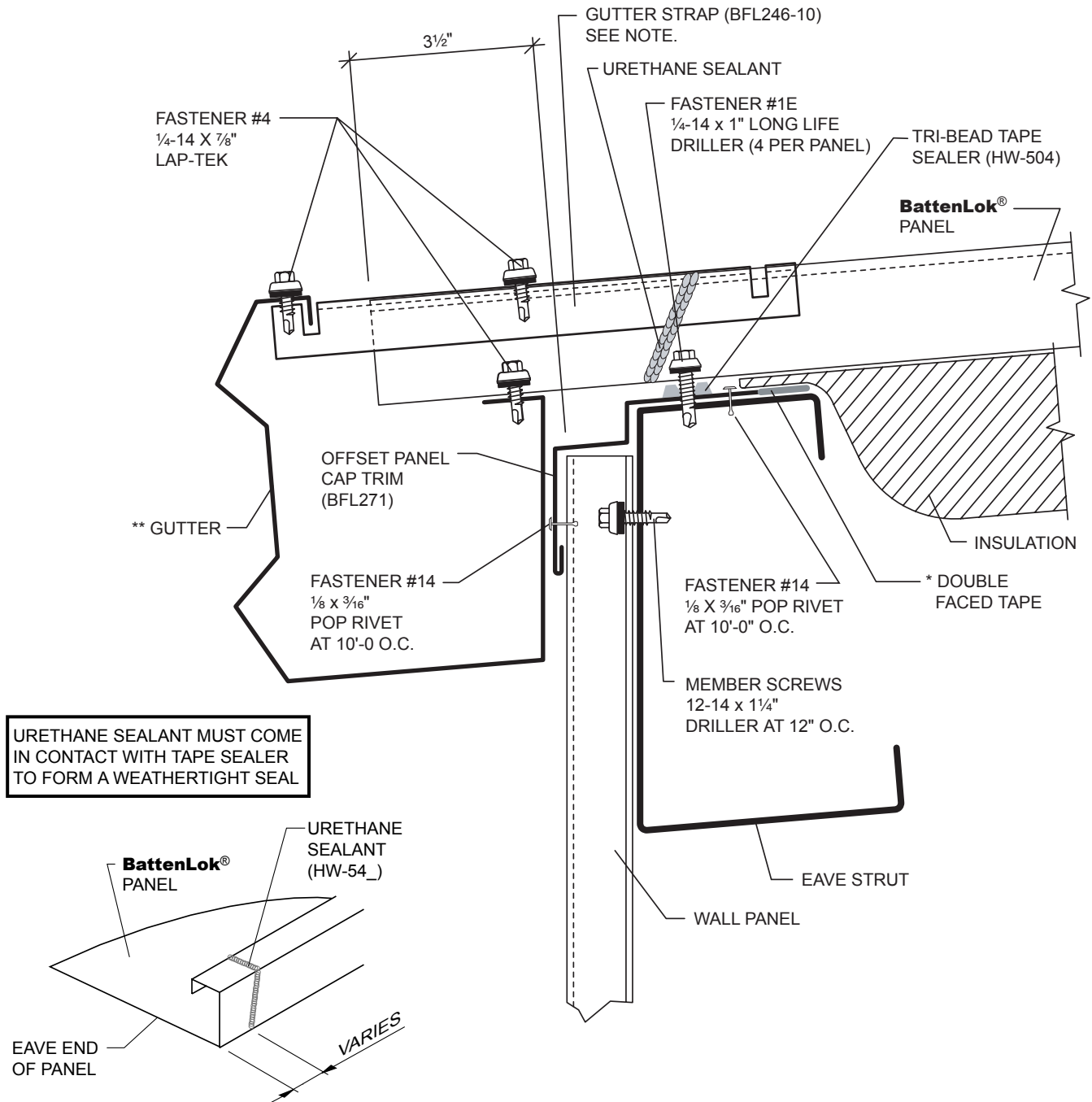
## PIPE PENETRATION INSTALLATION DECK-TIGHT INSTALLATION



**NOTE:** ROLL DECK-TIGHT UP OVER TRI-BEAD TAPE SEALER AND SECURE CLAMP AROUND TOP OF DECK-TIGHT



## FIXED EAVE WITH GUTTER - LOW SYSTEM

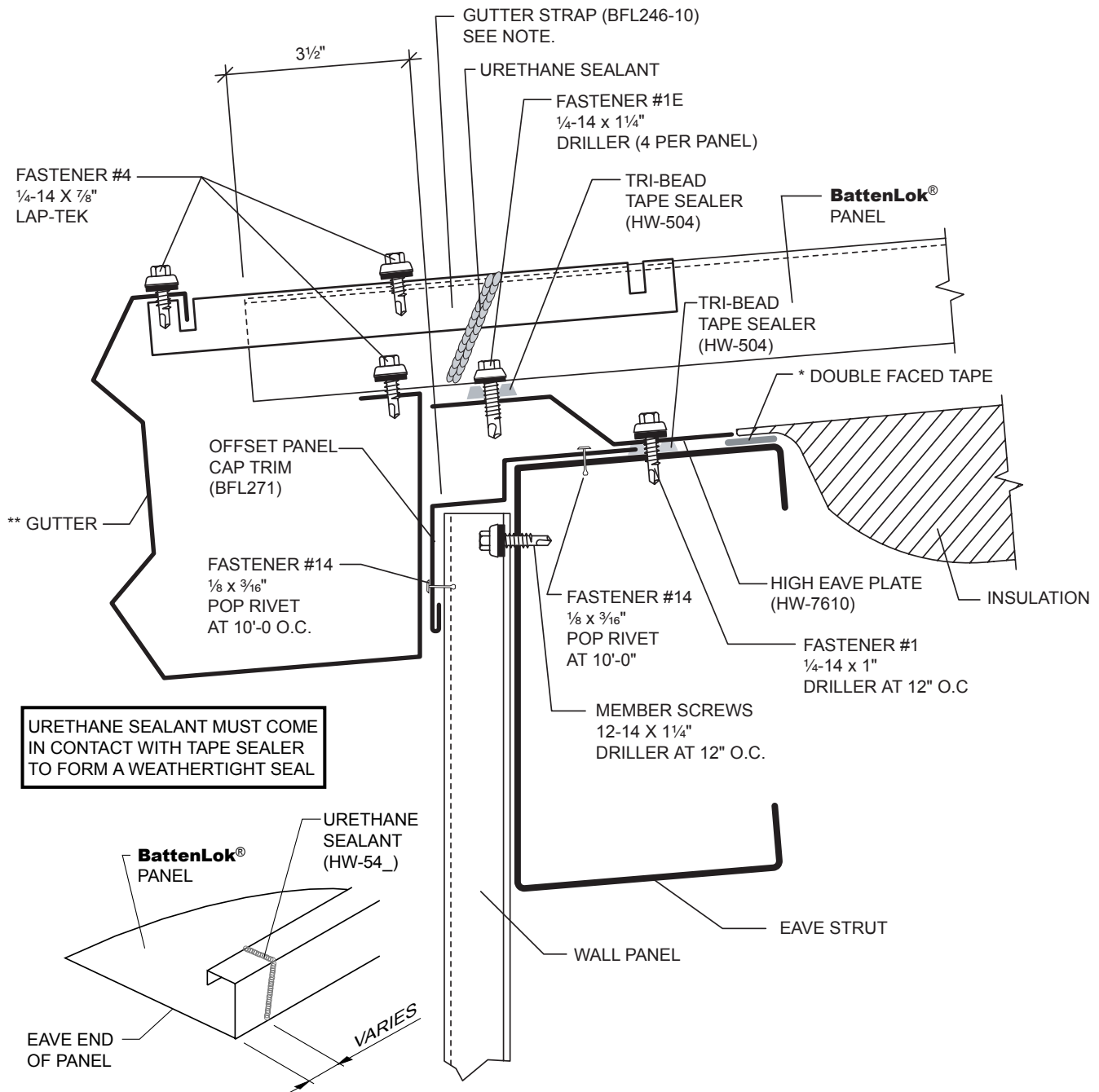


**NOTE:**

Gutter strap will be at 48" O.C. for snow loads of 20# or less and 32" O.C. for snow loads greater than 20#.

\*Not by Building Manufacturer, \*\*Profile May Vary

## FIXED EAVE WITH GUTTER - HIGH SYSTEM

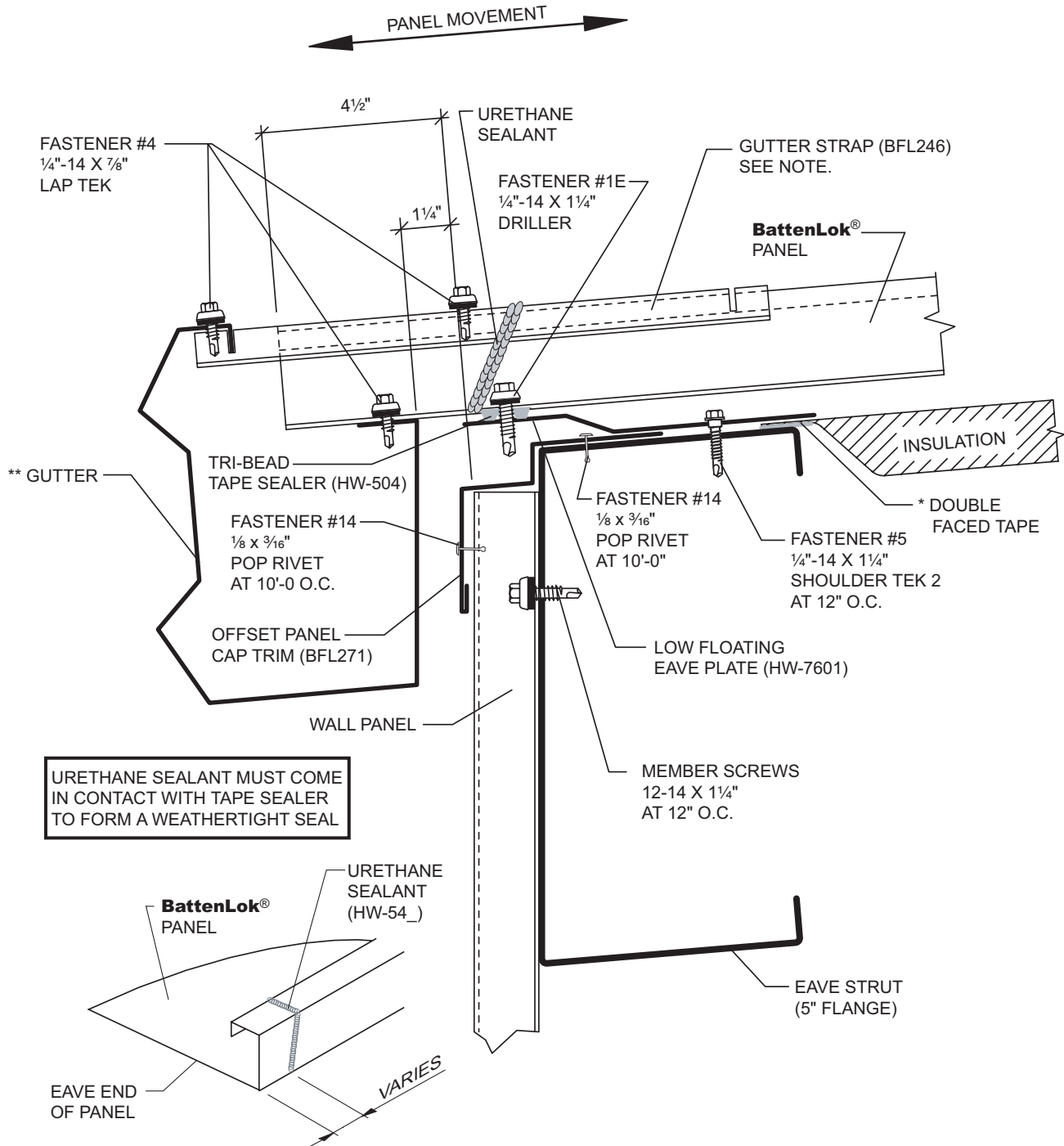


**NOTE:**

Gutter strap will be at 48" O.C. for snow loads of 20# or less and 32" O.C. for snow loads greater than 20#.

\*Not by Building Manufacturer, \*\*Profile May Vary

## FLOATING EAVE WITH GUTTER - LOW SYSTEM

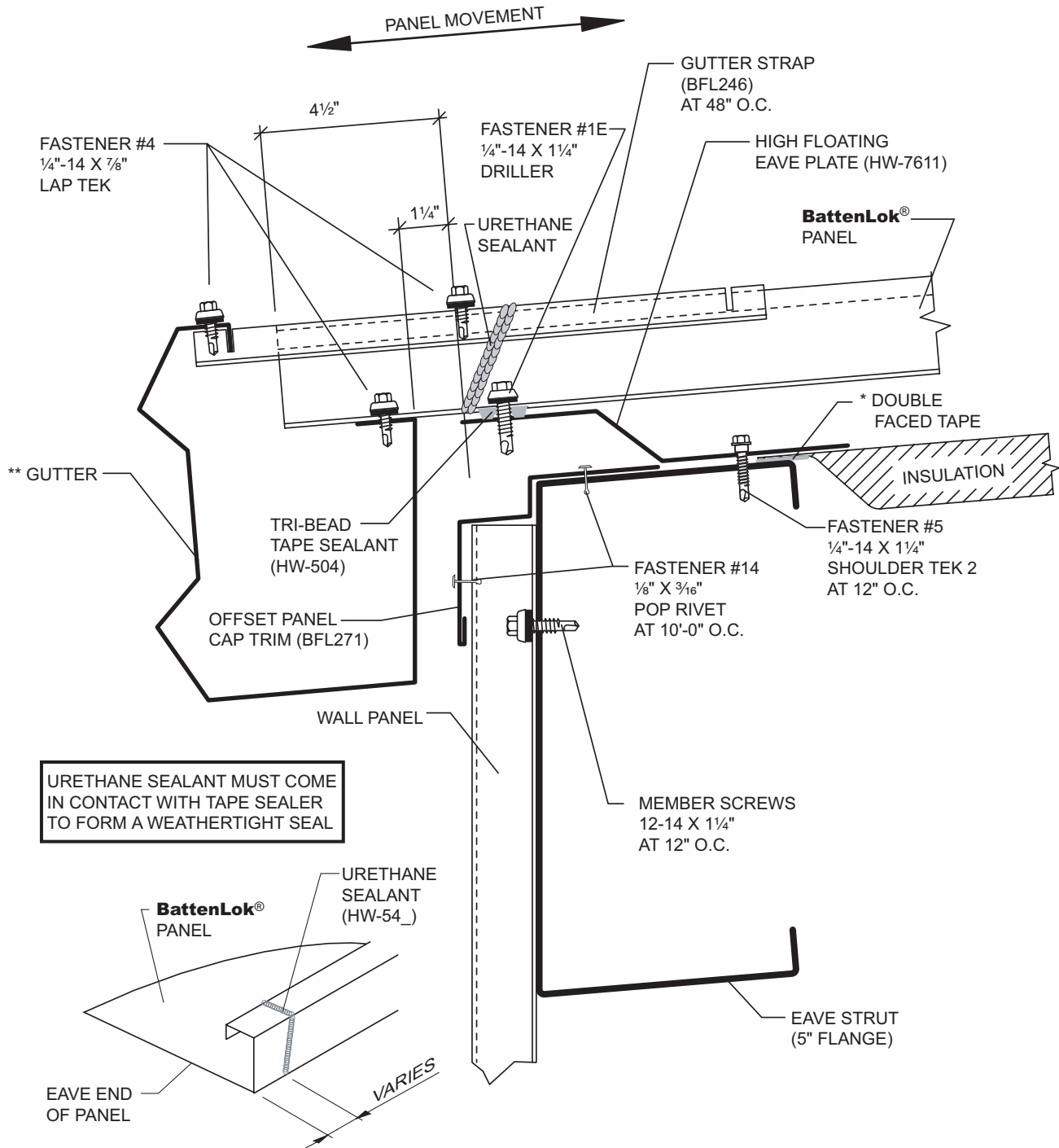


**NOTE:**

Gutter strap will be at 48" O.C. for snow loads of 20# or less and 32" O.C. for snow loads greater than 20#.

\*Not by Building Manufacturer, \*\*Profile May Vary

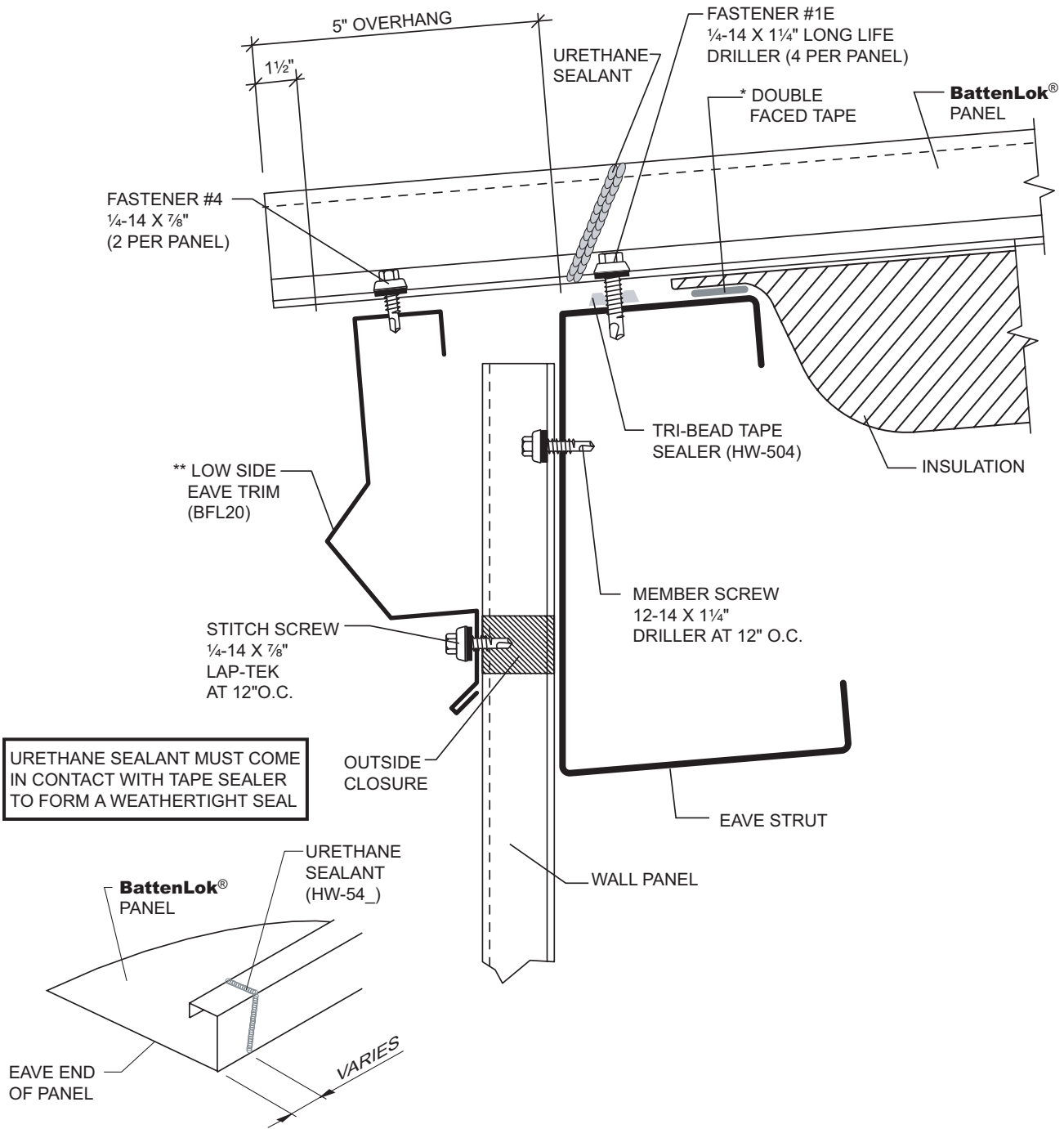
## FLOATING EAVE WITH GUTTER - HIGH SYSTEM



**NOTE:**

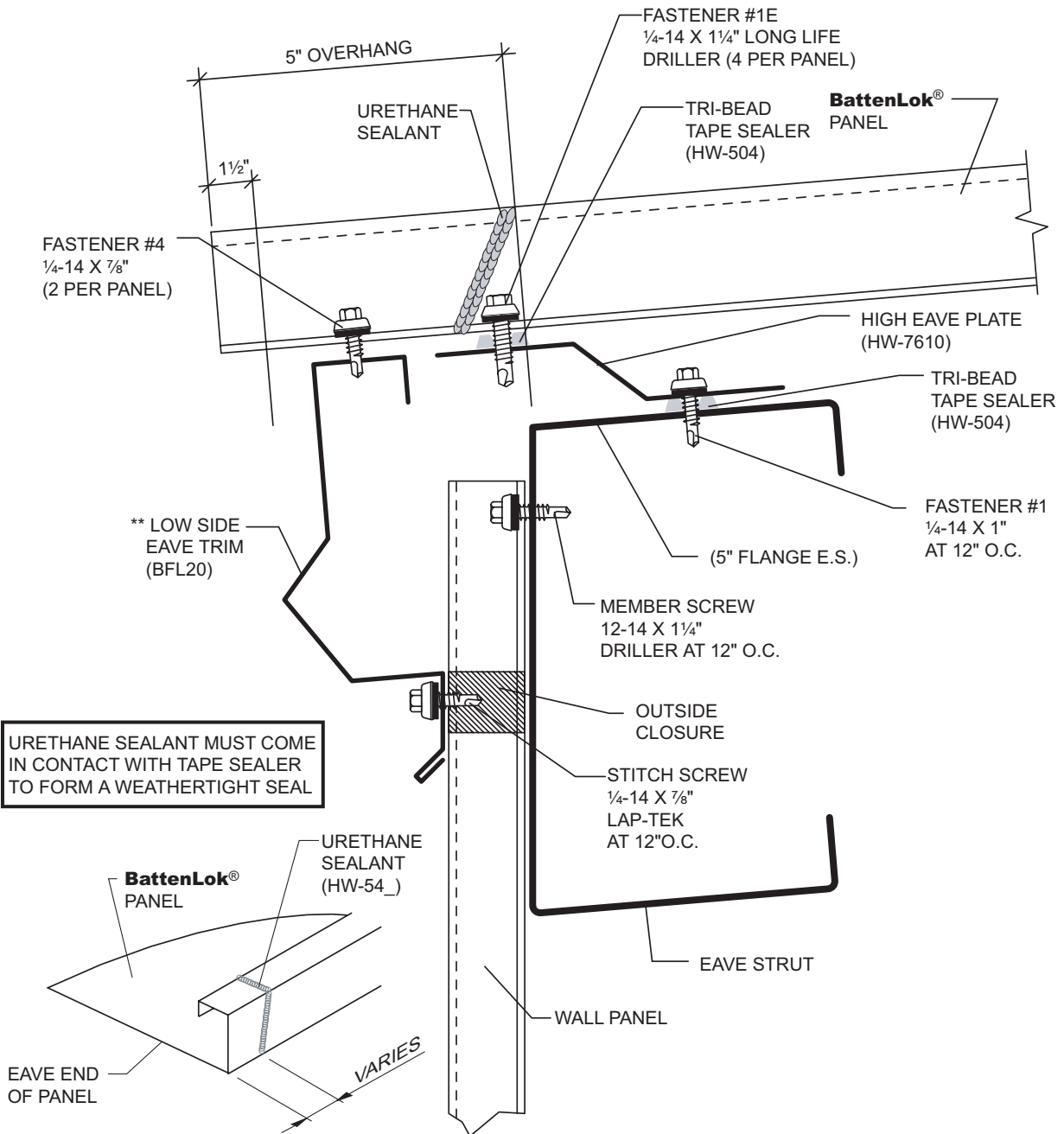
Gutter strap will be at 48" O.C. for snow loads of 20# or less and 32" O.C. for snow loads greater than 20#.

## FIXED EAVE WITH TRIM - LOW SYSTEM



\*Not by Building Manufacturer, \*\*Profile May Vary

## FIXED EAVE WITH TRIM - HIGH SYSTEM



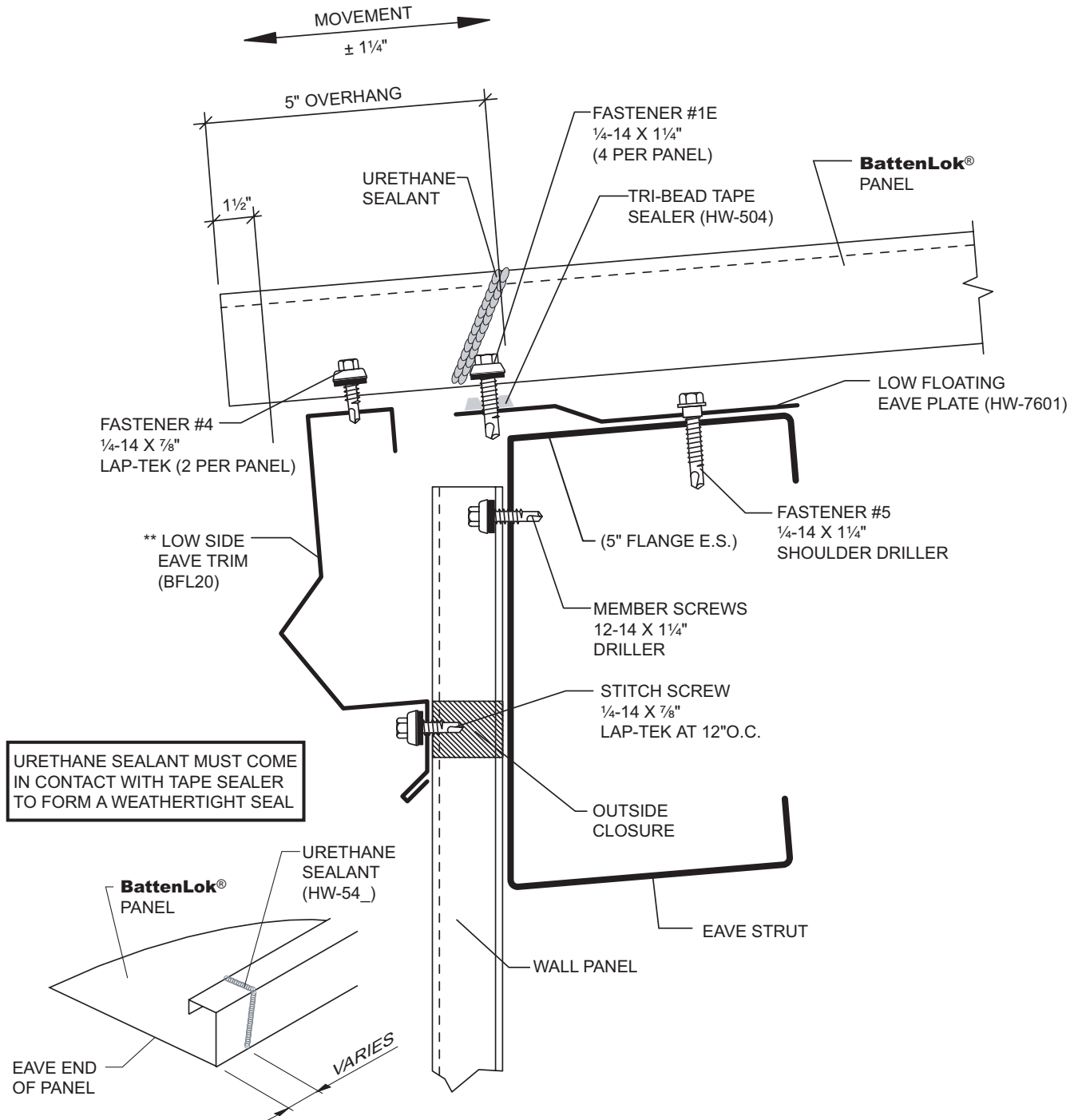
\*Not by Building Manufacturer, \*\*Profile May Vary

MAY 1, 2005

SUBJECT TO CHANGE WITHOUT NOTICE

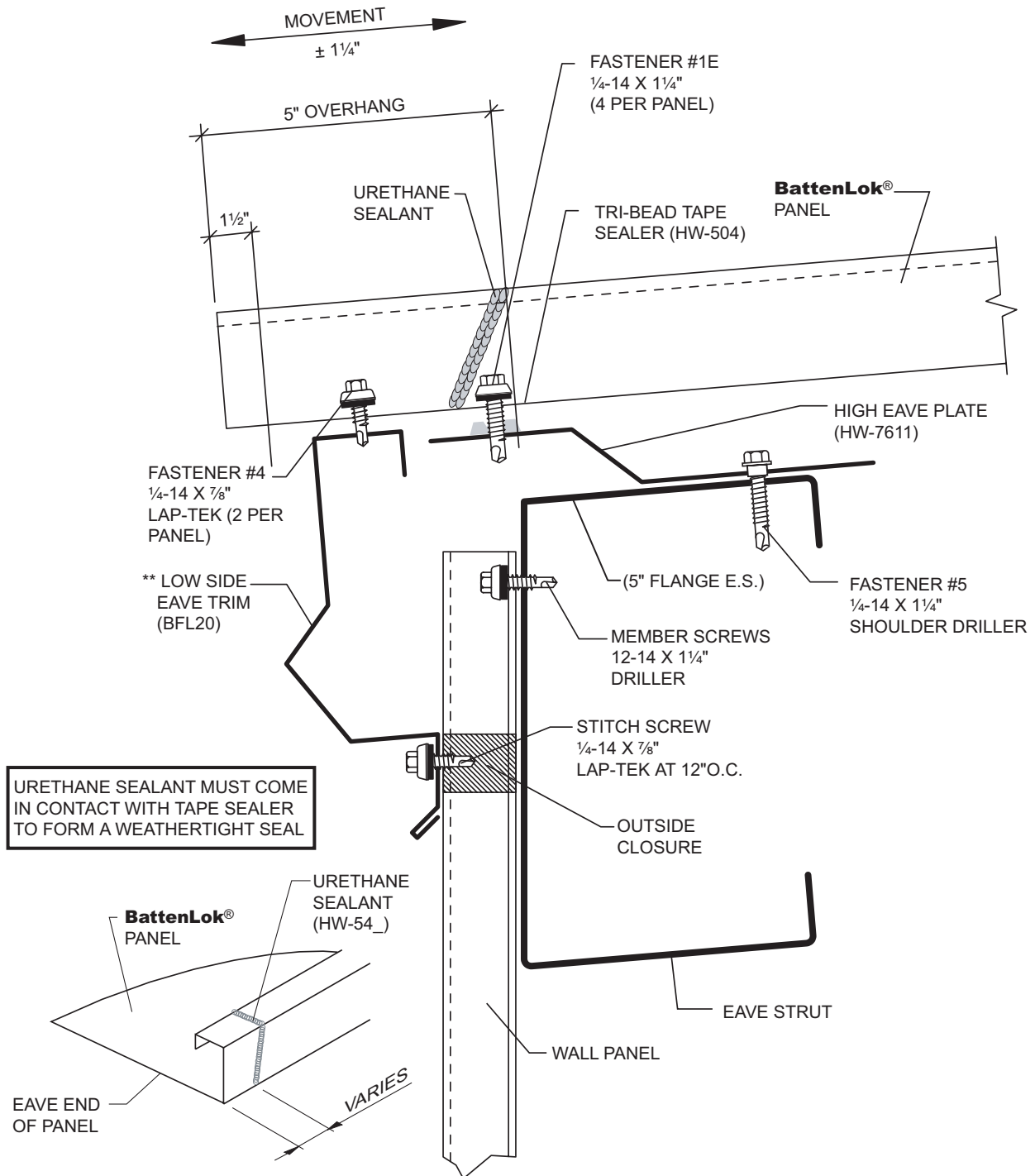
BL-61

## FLOATING EAVE WITH TRIM - LOW SYSTEM



\*Not by Building Manufacturer, \*\*Profile May Vary

## FLOATING EAVE WITH TRIM - HIGH SYSTEM



\*Not by Building Manufacturer, \*\*Profile May Vary

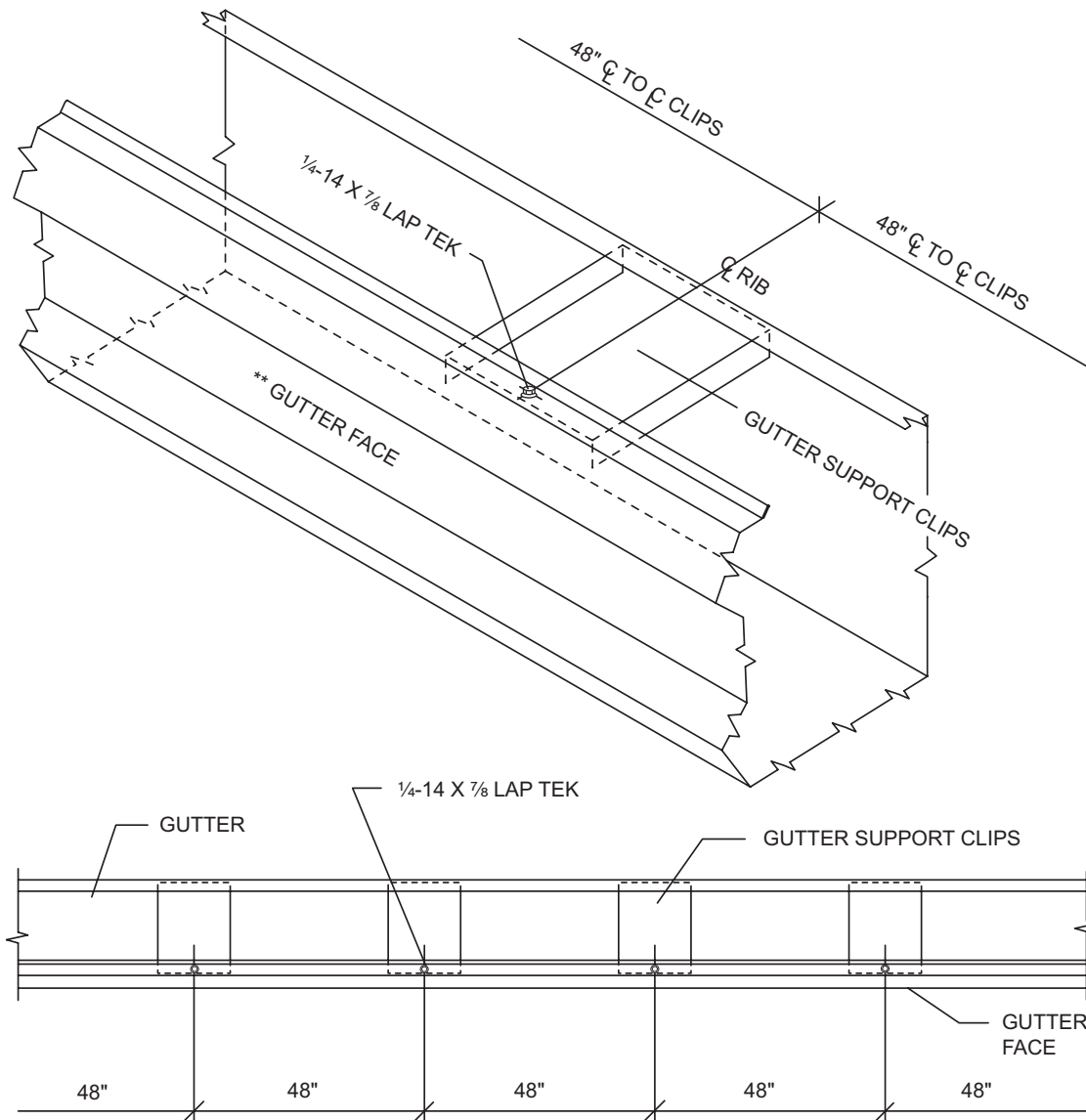
MAY 1, 2005

SUBJECT TO CHANGE WITHOUT NOTICE

BL-63



## 10" DEEP GUTTER SUPPORT CLIP

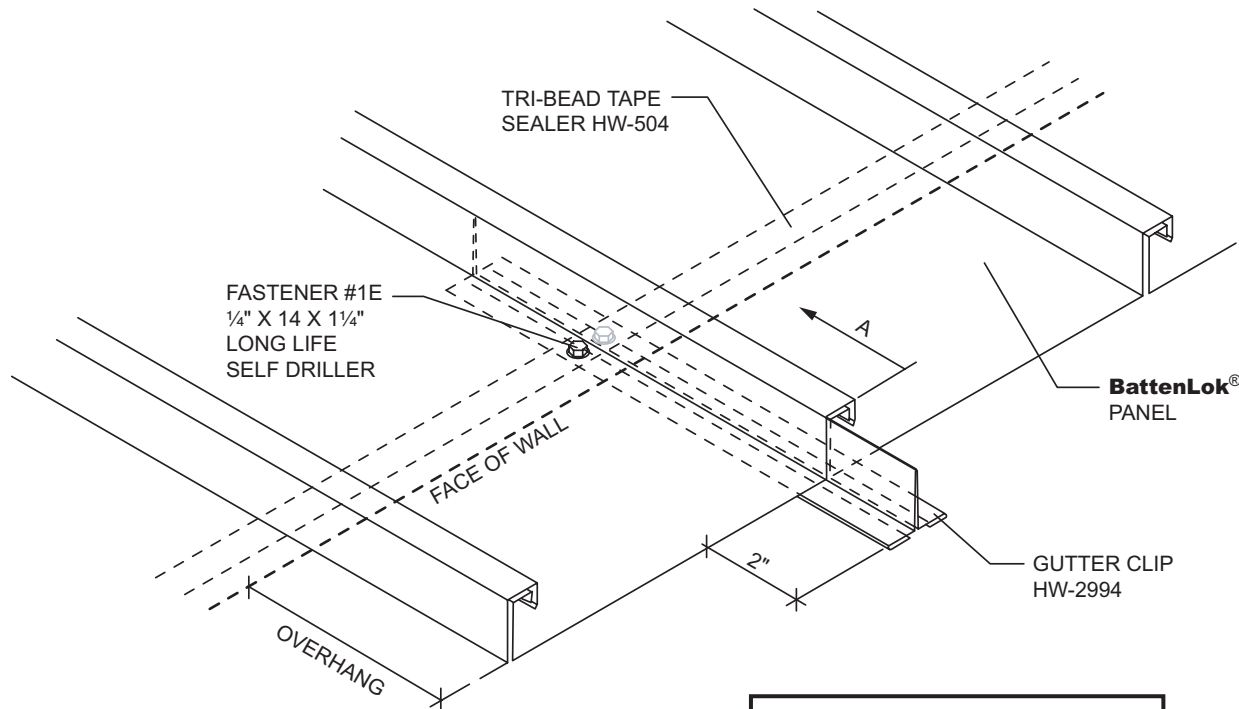


### NOTES:

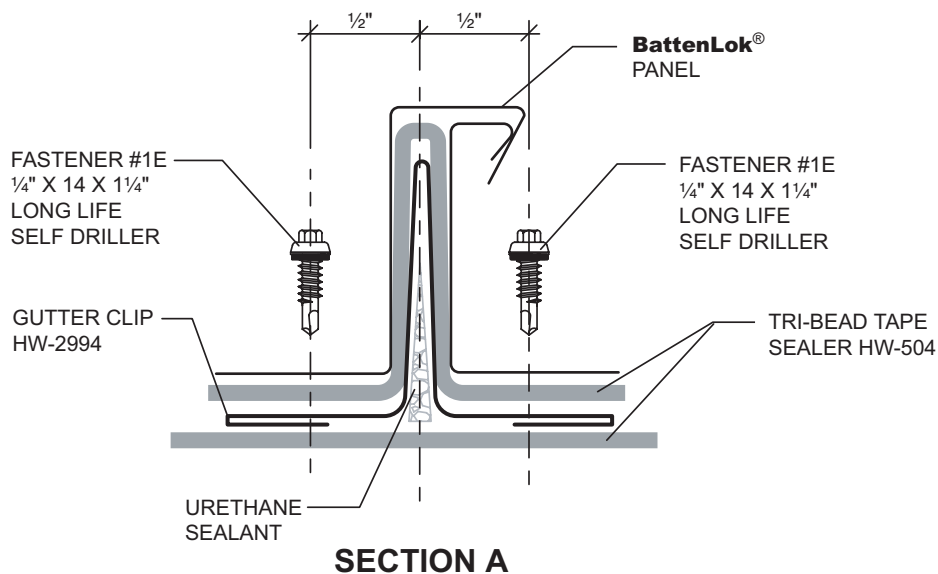
Gutter support clips are installed @ 4'-0" on centers inside gutter between front and rear leg flanges. Do not attach gutter support clips to the back leg of the gutter. Attach gutter rear leg flange to the roof panel as required. Align gutter support clips with the HW-2994 gutter clips under roof panel high rib.

**\*Not by Building Manufacturer, \*\*Profile May Vary**

## 10" DEEP GUTTER CLIP ATTACHMENT



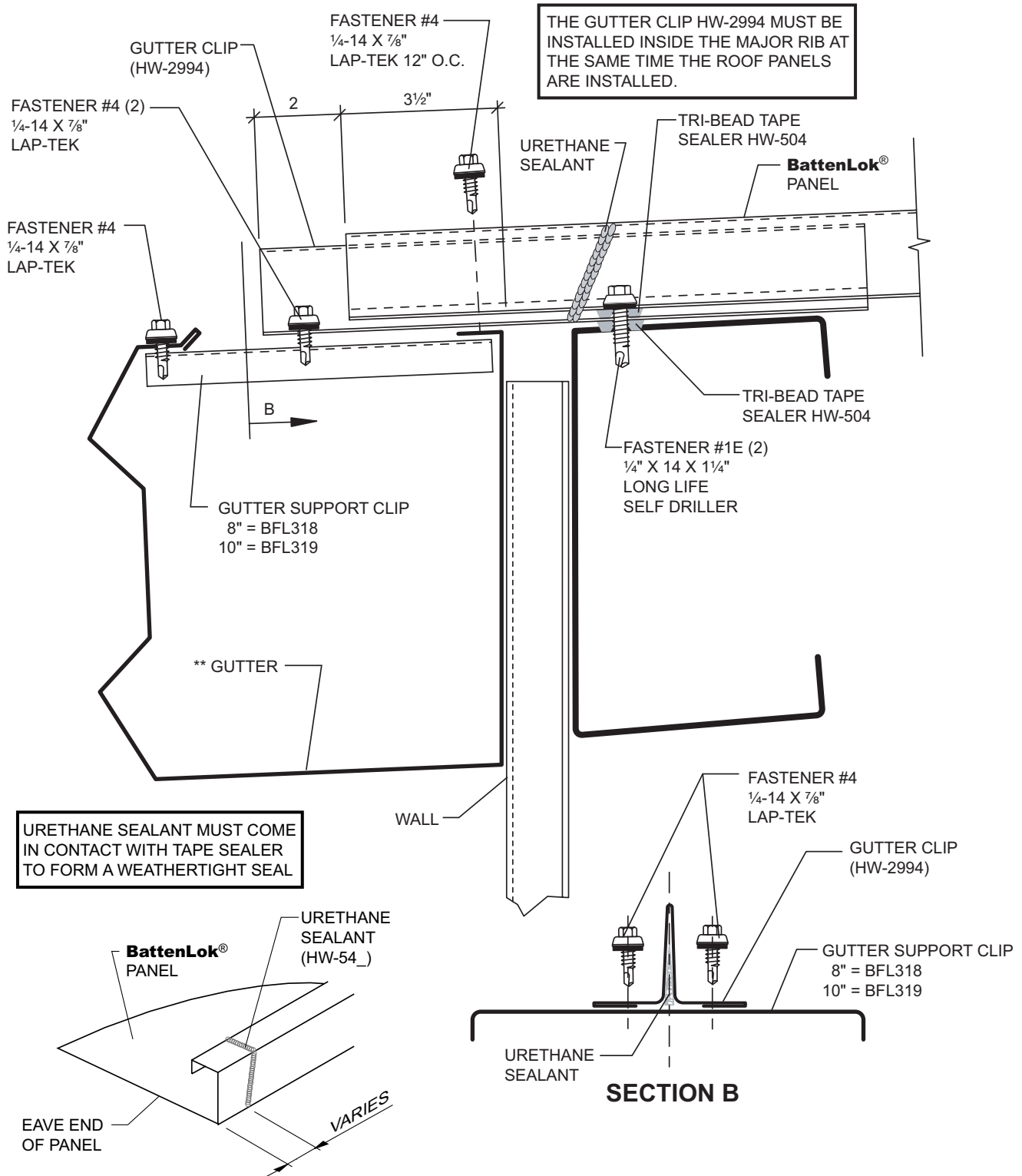
THE GUTTER CLIP HW-2994 MUST BE INSTALLED INSIDE THE MAJOR RIB AT THE SAME TIME THE ROOF PANELS ARE INSTALLED.



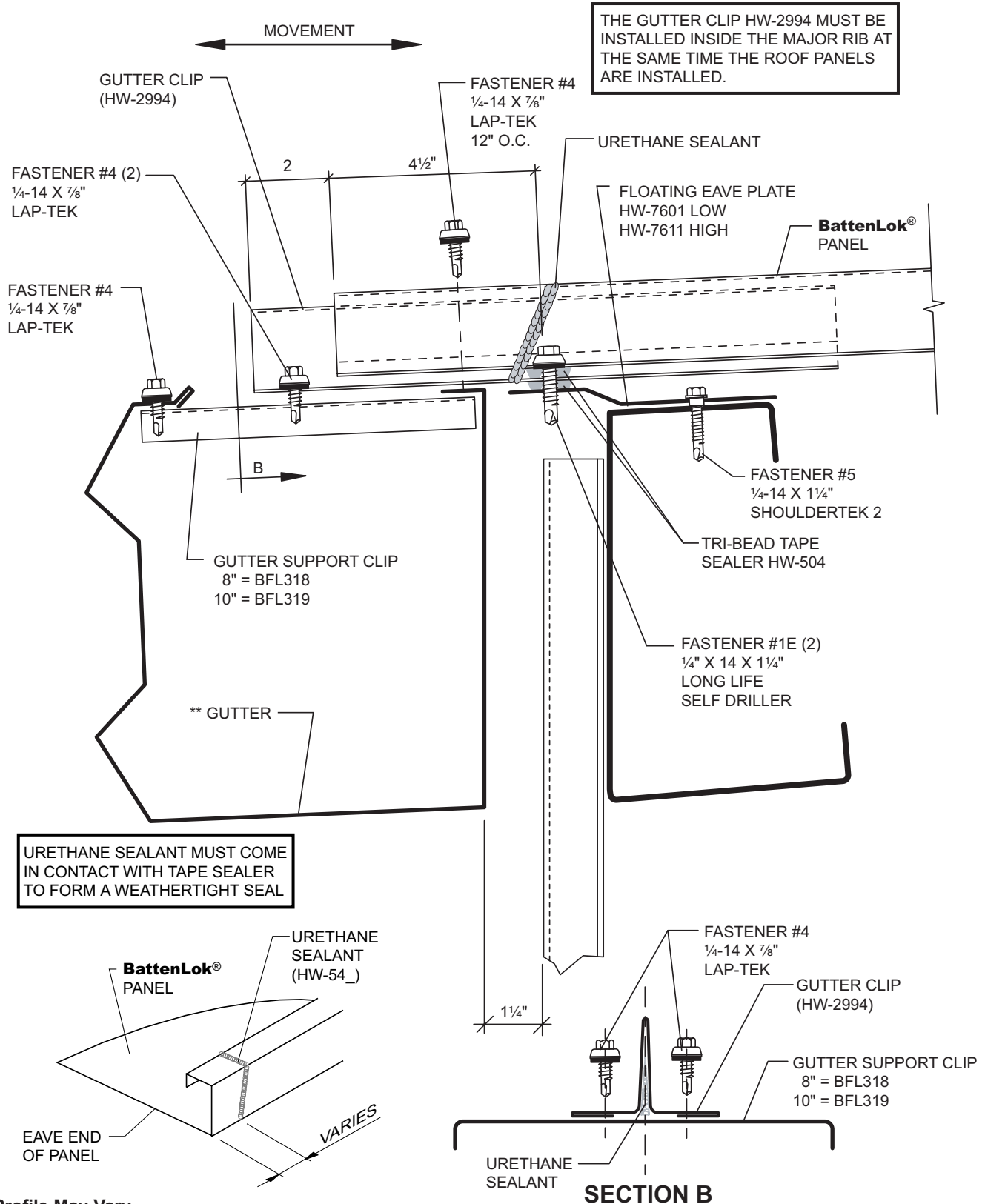
### NOTES:

Force urethane tube sealant into crevis at the end of gutter clip HW-2994. Install the Tri-Bead tape sealer. Insert HW-2994 over the Tri-Bead tape sealer and extend past the roof panel as shown. Apply Tri-Bead tape sealer over HW-2994. Continue the roofing process with the start of another panel. When installing the HW-2994 gutter clips, make sure all surfaces are sealed between roof and framing surfaces.

## 10" DEEP GUTTER - FIXED EAVE



## 10" DEEP GUTTER - EXPANSION EAVE



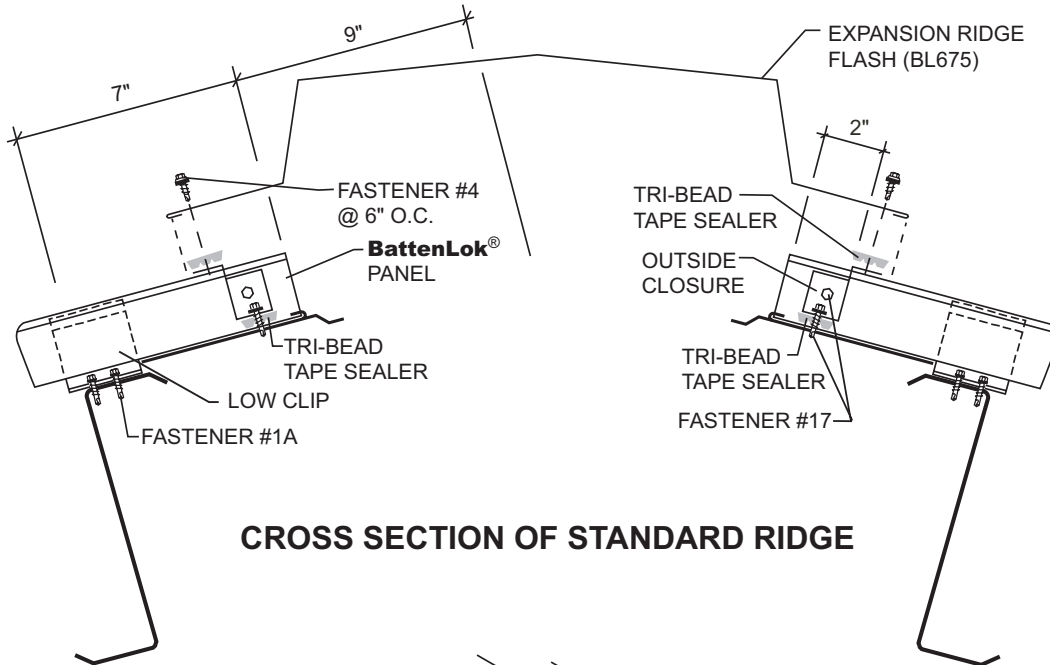
\*\*Profile May Vary

MAY 1, 2005

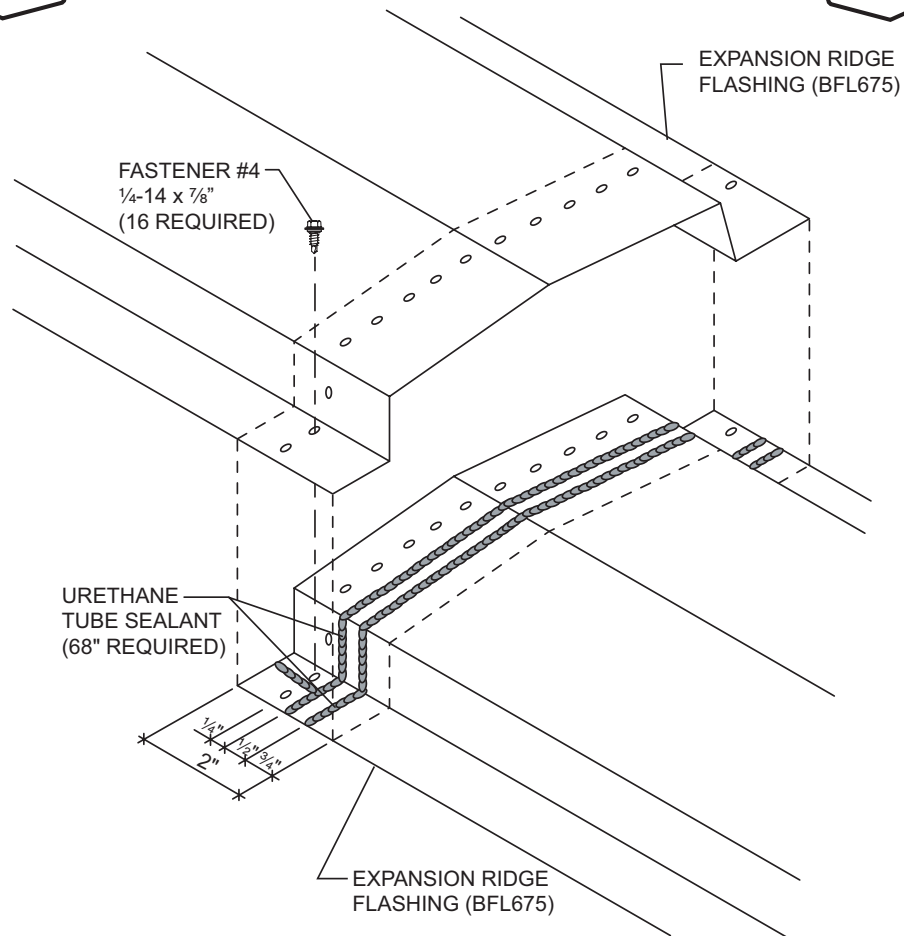
SUBJECT TO CHANGE WITHOUT NOTICE

BL-67

## RIDGE

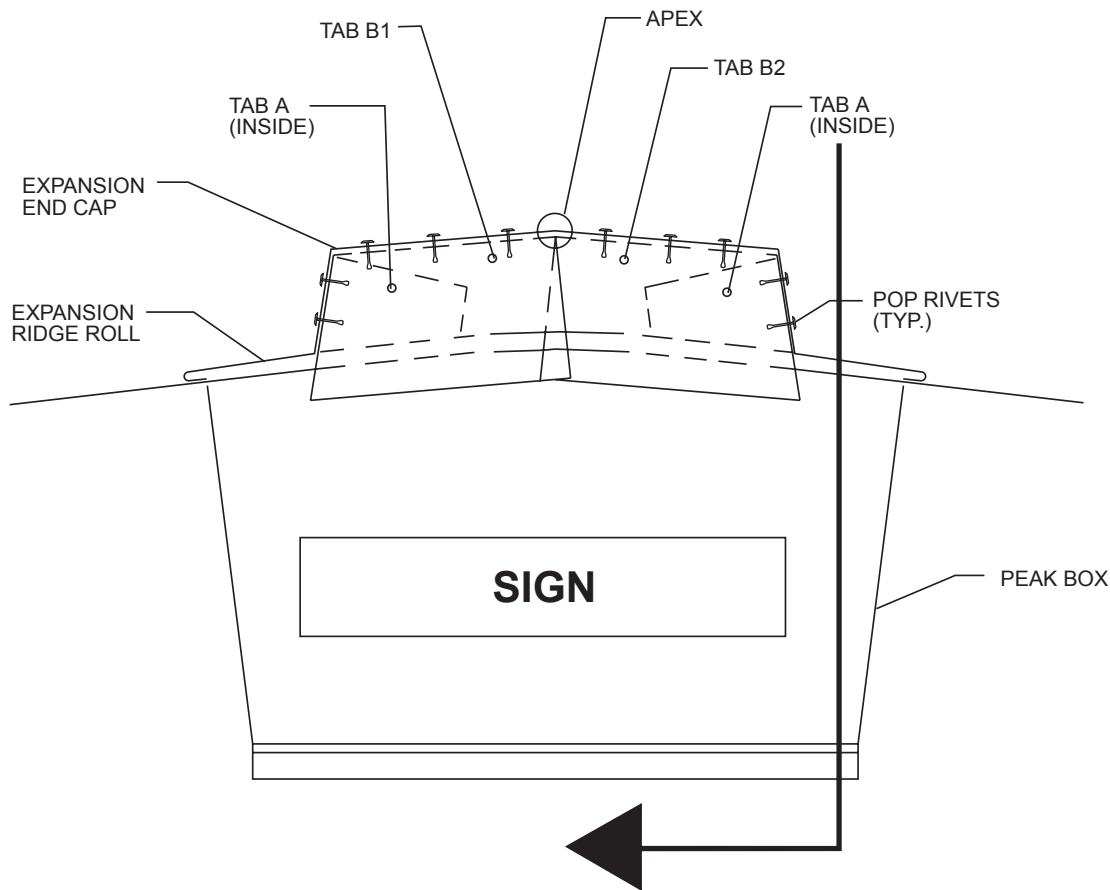


**CROSS SECTION OF STANDARD RIDGE**



**EXPANSION RIDGE FLASHING LAP**

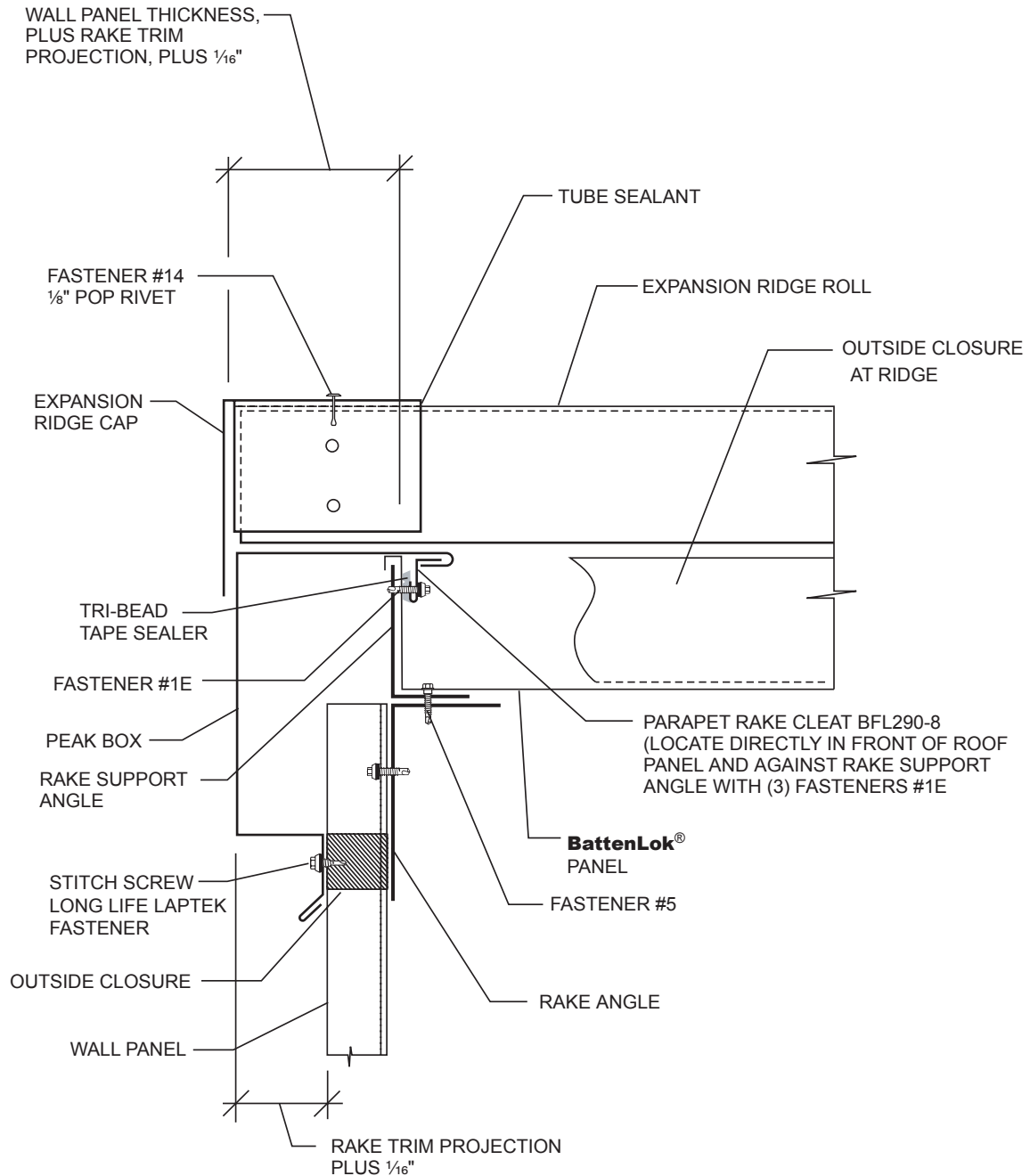
**EXPANSION END CAP ASSEMBLY**



**NOTES:**

1. Apply 2 runs of urethane tube sealant along vertical and horizontal surfaces of expansion ridge roll.
2. Place end cap over expansion ridge roll, allowing the end cap to conform to the ridge roll profile. Do not deform the top of the ridge roll by exerting too much pressure.
3. Make sure tab A is even with but not resting on top of the peak box. Tab A must be able to pivot in front of the peak box because of panel contraction.
4. Using a screwdriver, insert the blade in the apex of tab B1 and B2 and twist the blade enough to cause tab B1 to spread slightly away from tab B2.
5. Insert 10 pop rivets into the ridge roll as picture above.
6. Apply additional tube sealant along the edge of the end cap and smooth with finger.

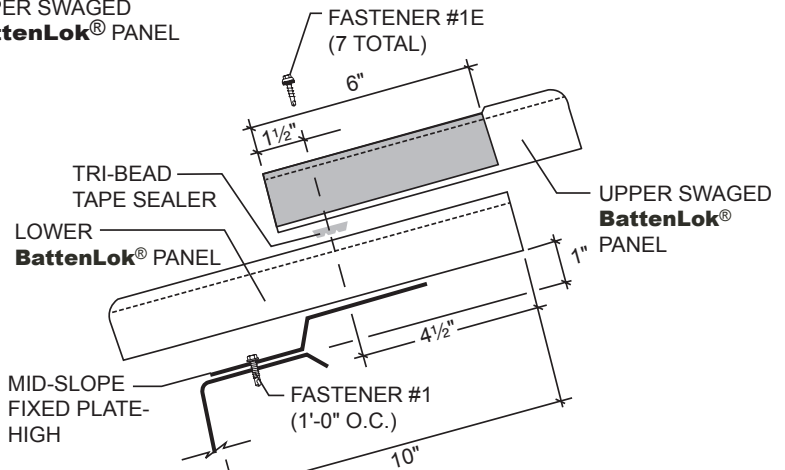
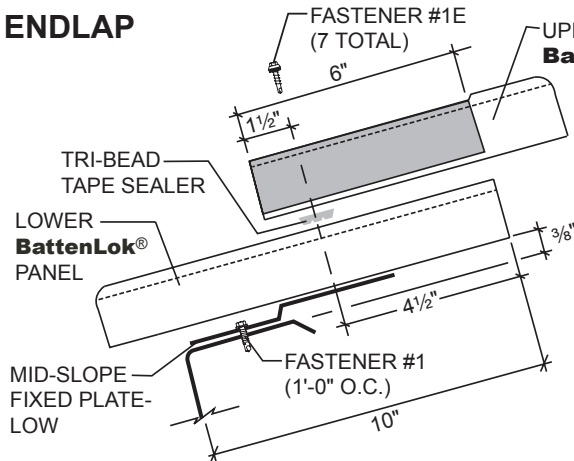
## EXPANSION RIDGE END CAP



### SECTION

## MID-SLOPE FIXED CONDITION

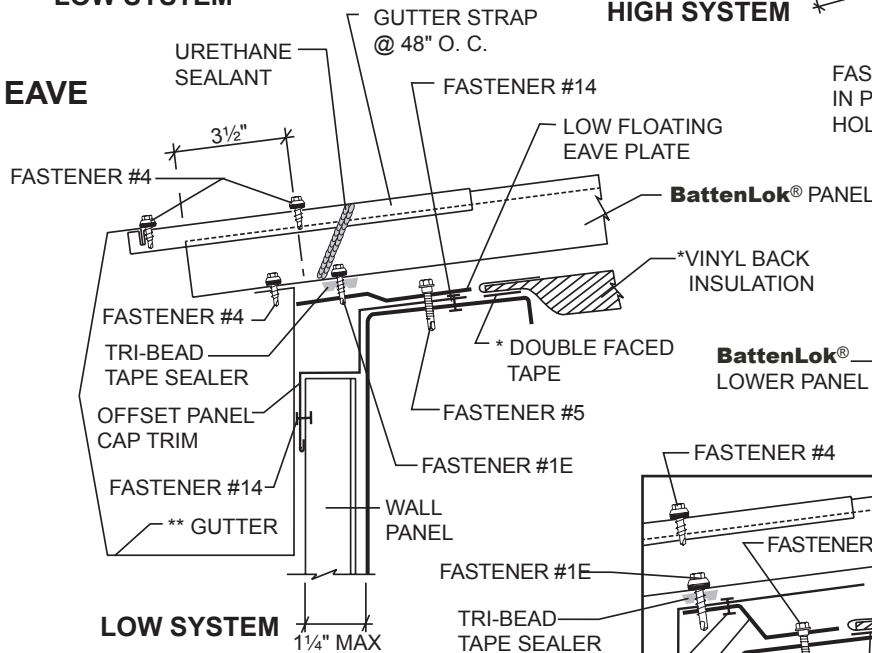
### ENDLAP



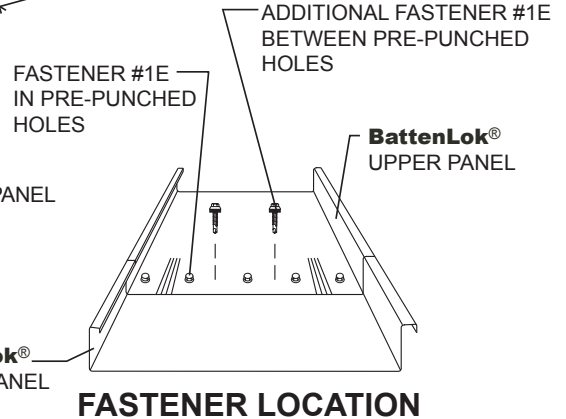
### LOW SYSTEM

### HIGH SYSTEM

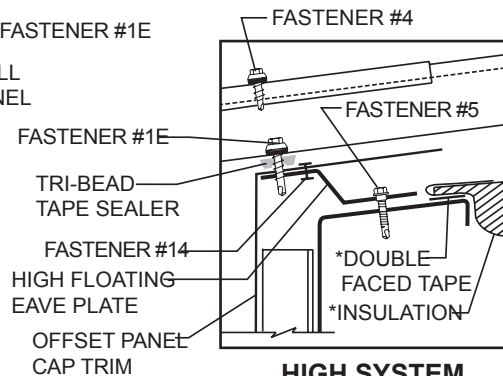
### EAVE



### LOW SYSTEM



### FASTENER LOCATION



### HIGH SYSTEM

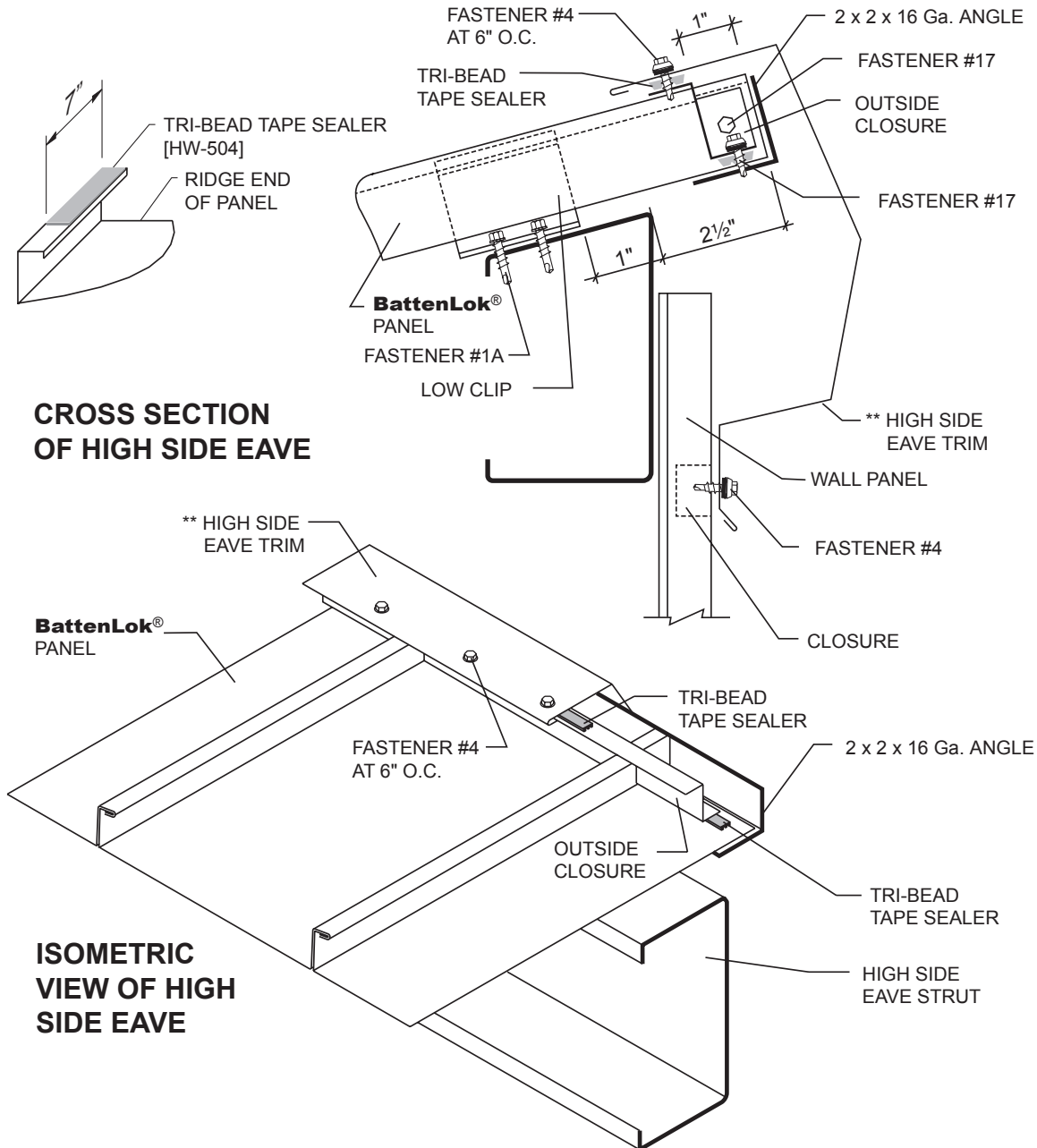
### NOTES:

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

\*Not by Building Manufacturer, \*\*Profile May Vary



## HIGH SIDE EAVE



**CROSS SECTION OF HIGH SIDE EAVE**

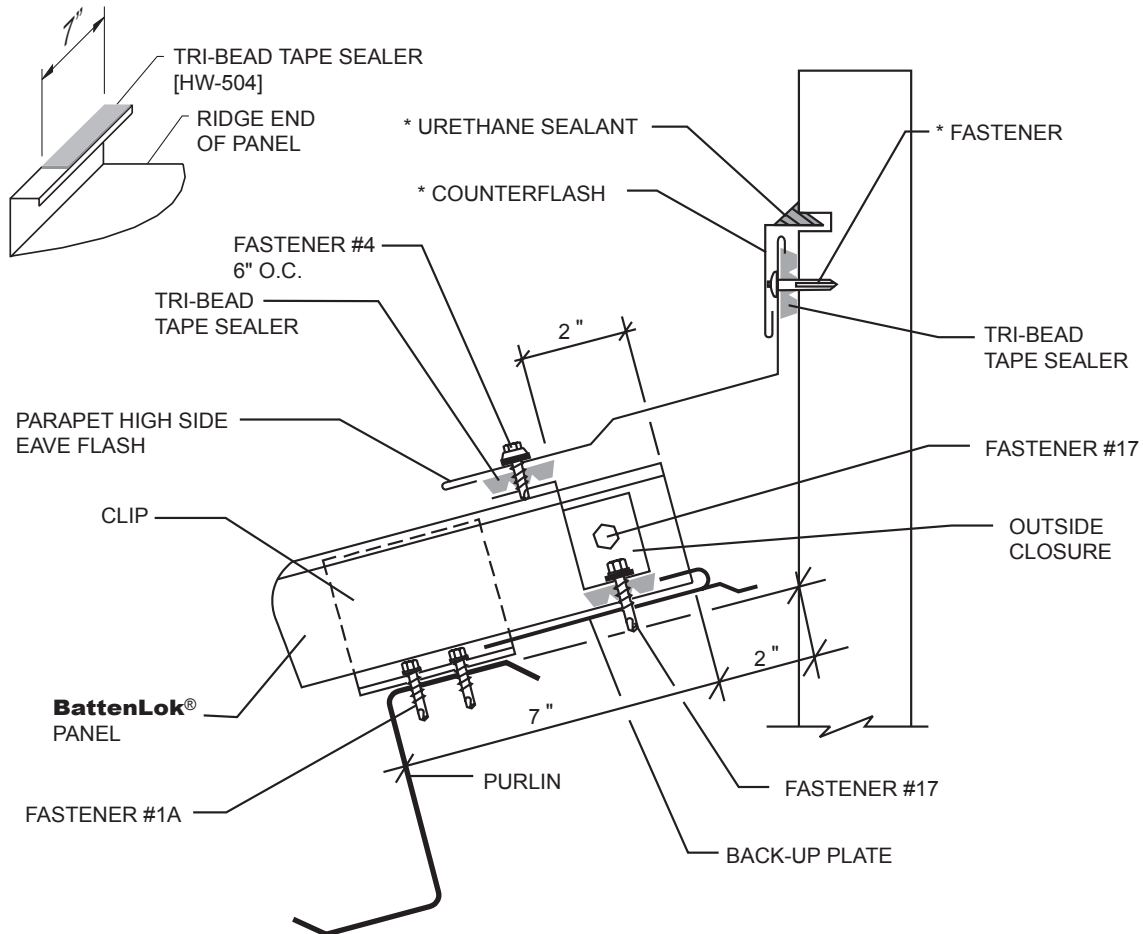
**ISOMETRIC VIEW OF HIGH SIDE EAVE**

**NOTES:**

1. Install outside closures as shown on page BL-35 with the following exceptions:
  - A. Align edge of tape sealer with end of panel.
  - B. Vertical leg of outside closure is 1" from end of panel.
  - C. Attach outside closure to 2" x 2" angle with Fastener #17.
2. Install Tri-Bead tape sealer to top leg of outside closure.
3. Attach high side eave trim to outside closure with Fastener #4 at 6" O.C.
4. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at high side.

\*Not by Building Manufacturer, \*\*Profile May Vary

## HIGH EAVE PARAPET



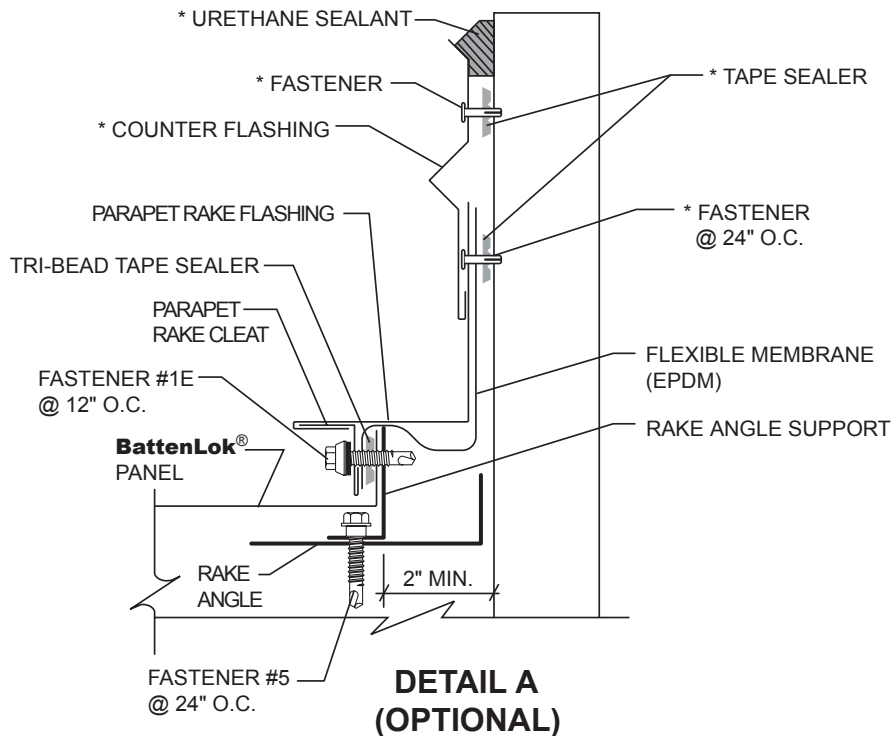
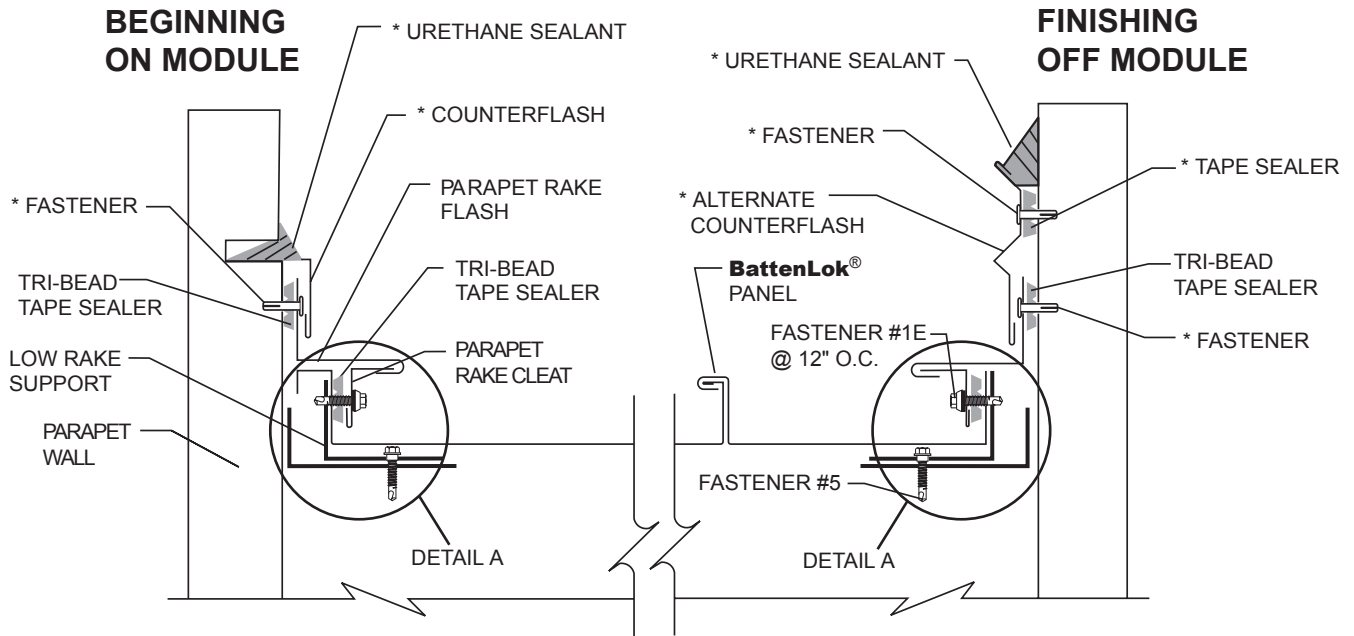
**CROSS SECTION OF PARAPET  
HIGH SIDE EAVE**

**NOTES:**

1. Counter flash not provided by manufacturer **must be** compatible with Galvalume® material and be expected to perform for a minimum of 20 years.
2. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at high side.

**\*Not by Building Manufacturer**

## RAKE PARAPET

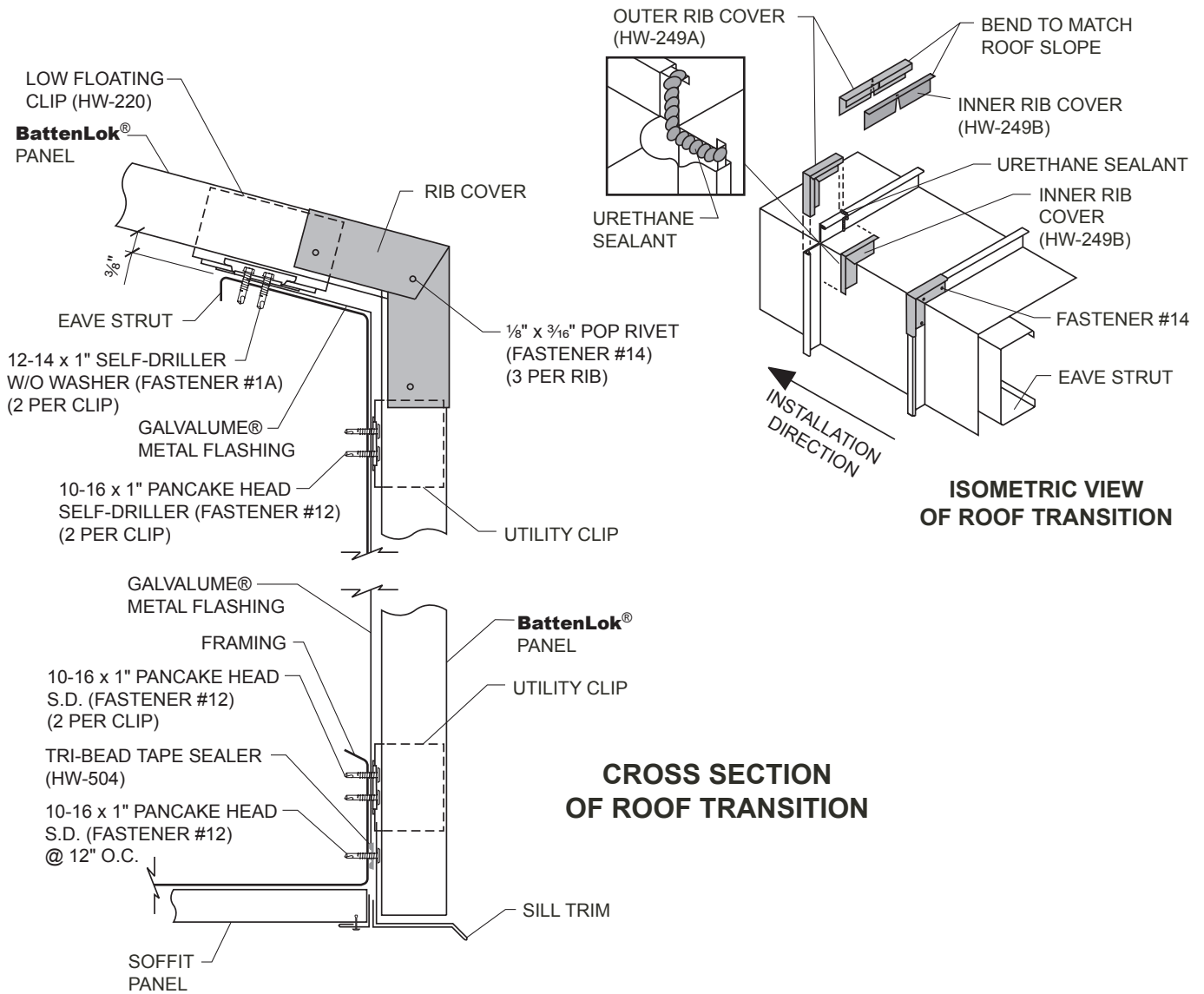


**NOTES:**

1. Counter flash not provided by manufacturer **must be** compatible with Galvalume® material and be expected to perform for a minimum of 20 years.

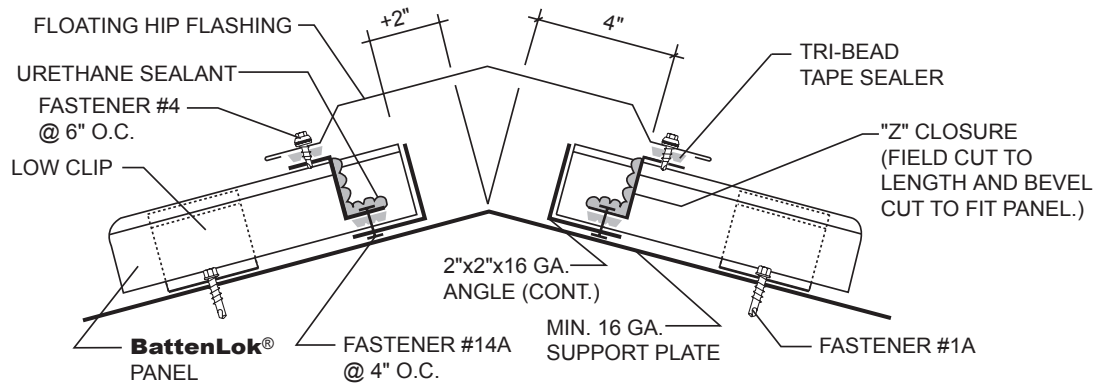
**\*Not by Building Manufacturer**

## TRANSITION

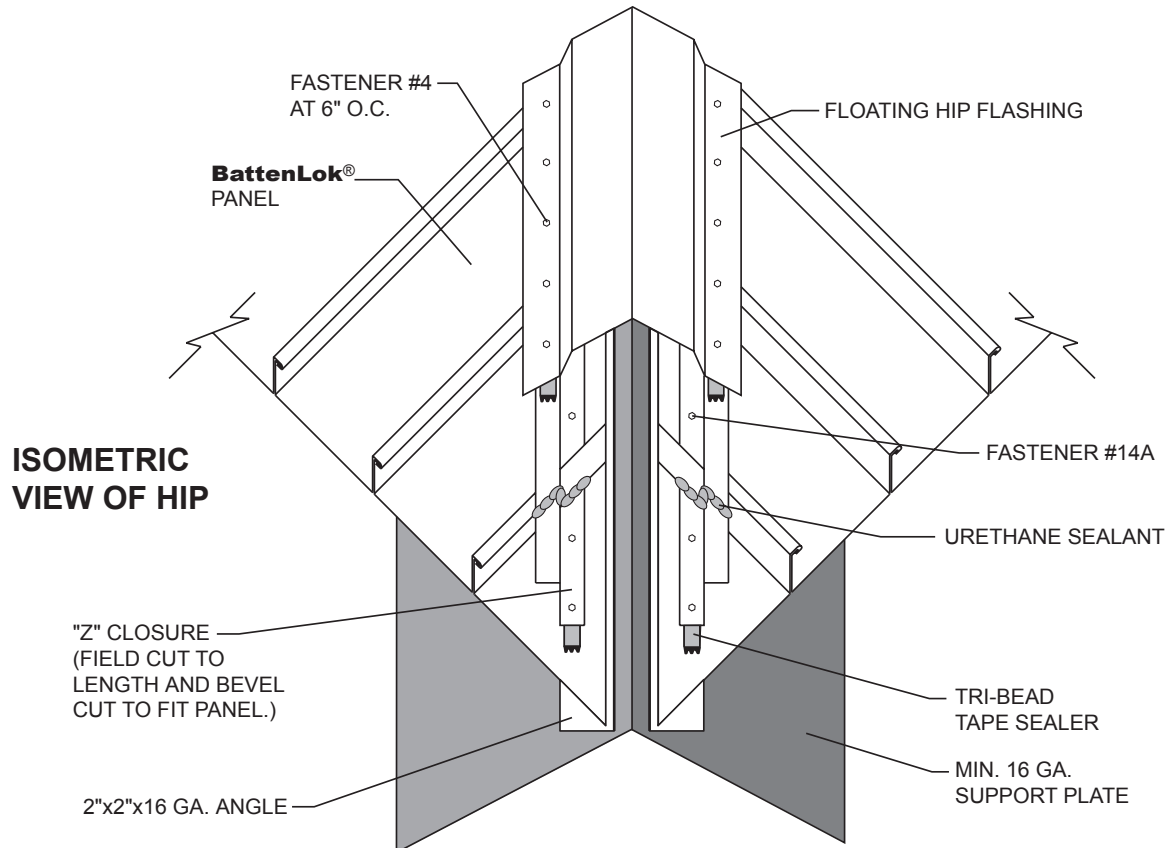


**NOTE: DO NOT USE THIS DETAIL INSIDE THE BUILDING ENVELOPE.**

## FLOATING HIP



## CROSS SECTION OF HIP

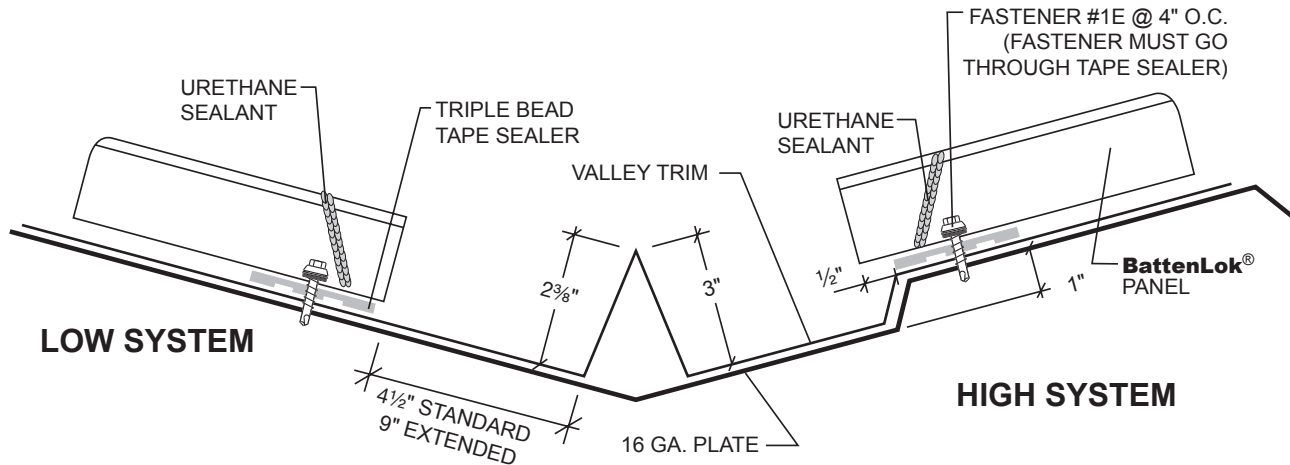


## ISOMETRIC VIEW OF HIP

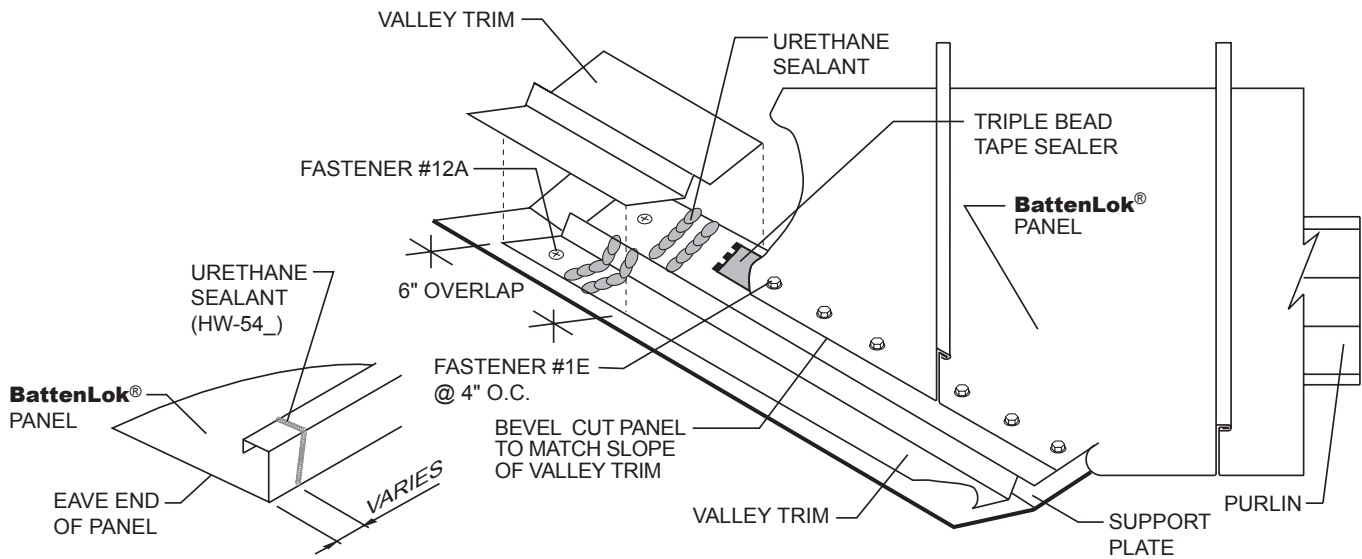
### NOTES:

1. Hip must have a support plate to reinforce panels between purlins.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be 3½" from center of hip.
4. Slide a length of 2" x 2" x 16 gauge angle under pan of panels. **Do not fasten 2" x 2" angle to hip support plate. This will restrain the panels from floating.**
5. Bevel cut and install "Z" closures to panels and 2" x 2" angle with Fastener #14A at 4" O.C. Vertical leg of "Z" closure should be 4" from center of hip. Seal sides and top of "Z" closures to panel seams with urethane caulk.
6. **See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at hip.**
7. Attach hip flashing to "Z" closures with Fastener #4 at 6" O.C.

## VALLEY



**CROSS SECTION OF VALLEY**



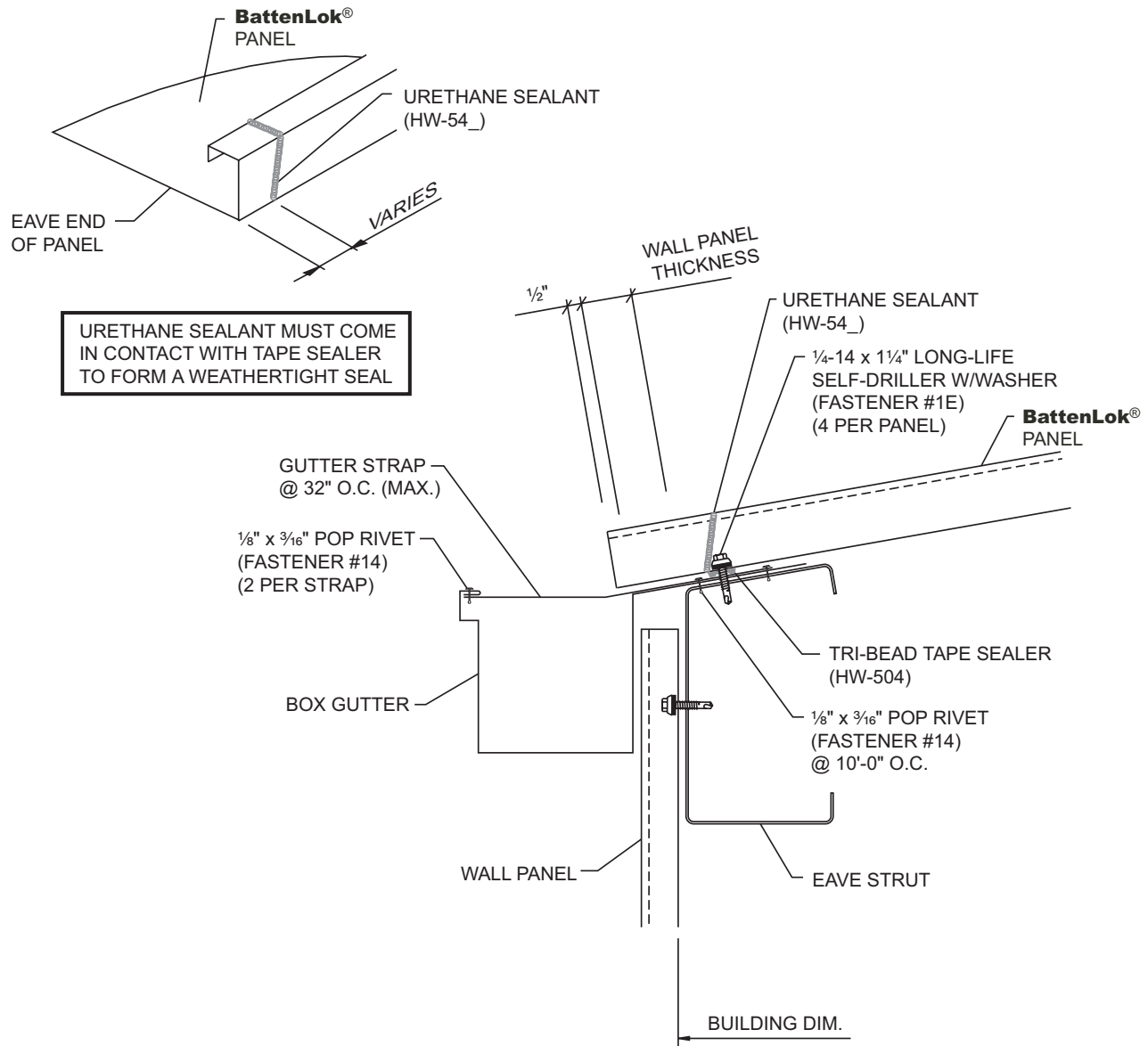
**ISOMETRIC VIEW OF LOW SYSTEM VALLEY**

URETHANE SEALANT MUST COME IN CONTACT WITH TAPE SEALER TO FORM A WEATHERTIGHT SEAL

**NOTES:**

1. For panel runs or valleys over 30', use extended valley trim (see page BL-107).
2. Install 16 gauge valley plate to top of purlins. Attach valley trim to valley plate with Fastener #14A to hold in place until panels are installed.
3. Bevel cut panels to match slope of valley.
4. Mark panel line location on valley trim and install Triple Bead tape sealer 1/2" back from this mark.
5. Use Fastener #1E at valley 4" O.C. Fastener must go through tape sealer.
6. To prevent condensation, valley plate should be insulated.
7. See "Panel End Sealant Detail at Eave" on page BL-29 to seal panel ends at valley.
8. The valley trim shown in the High System detail should not be used with "Dead Valleys".
9. On High Systems, overhang the panels 1/2" downslope from the 1" vertical leg of the valley trim to keep water off of upper leg of valley trim.

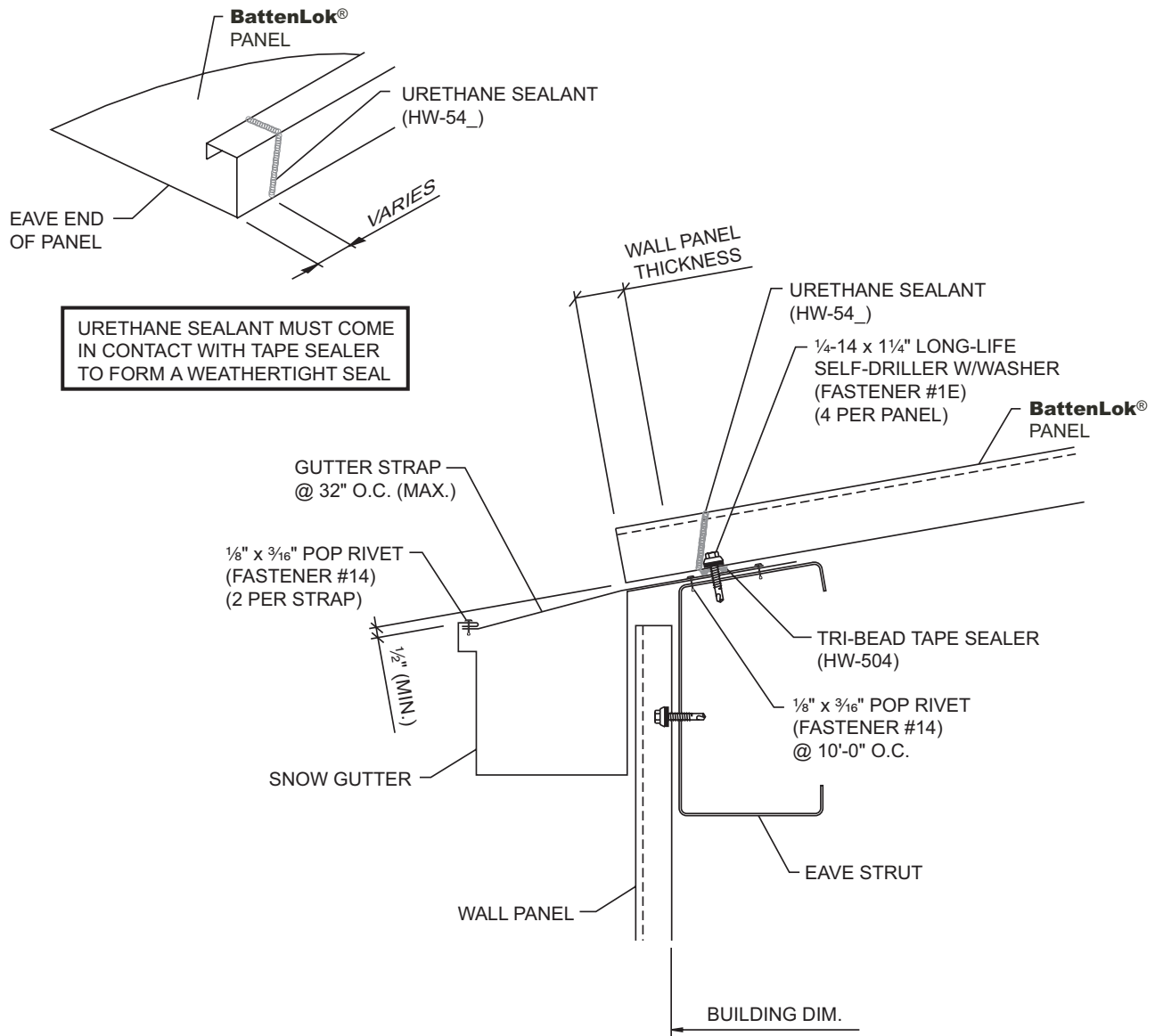
## OPEN FRAMING FIXED EAVE WITH GUTTER



### NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter to eave strut at 10'-0" O.C. using Fastener #14.
3. Attach gutter straps to gutter at 32" O.C. using Fastener #14.
4. Apply Tri-Bead tape sealer to slope leg of gutter.
5. Install panel and fasten to eave strut with Fastener #1E. Four fasteners should be used in this location.

## OPEN FRAMING FIXED EAVE WITH SNOW GUTTER

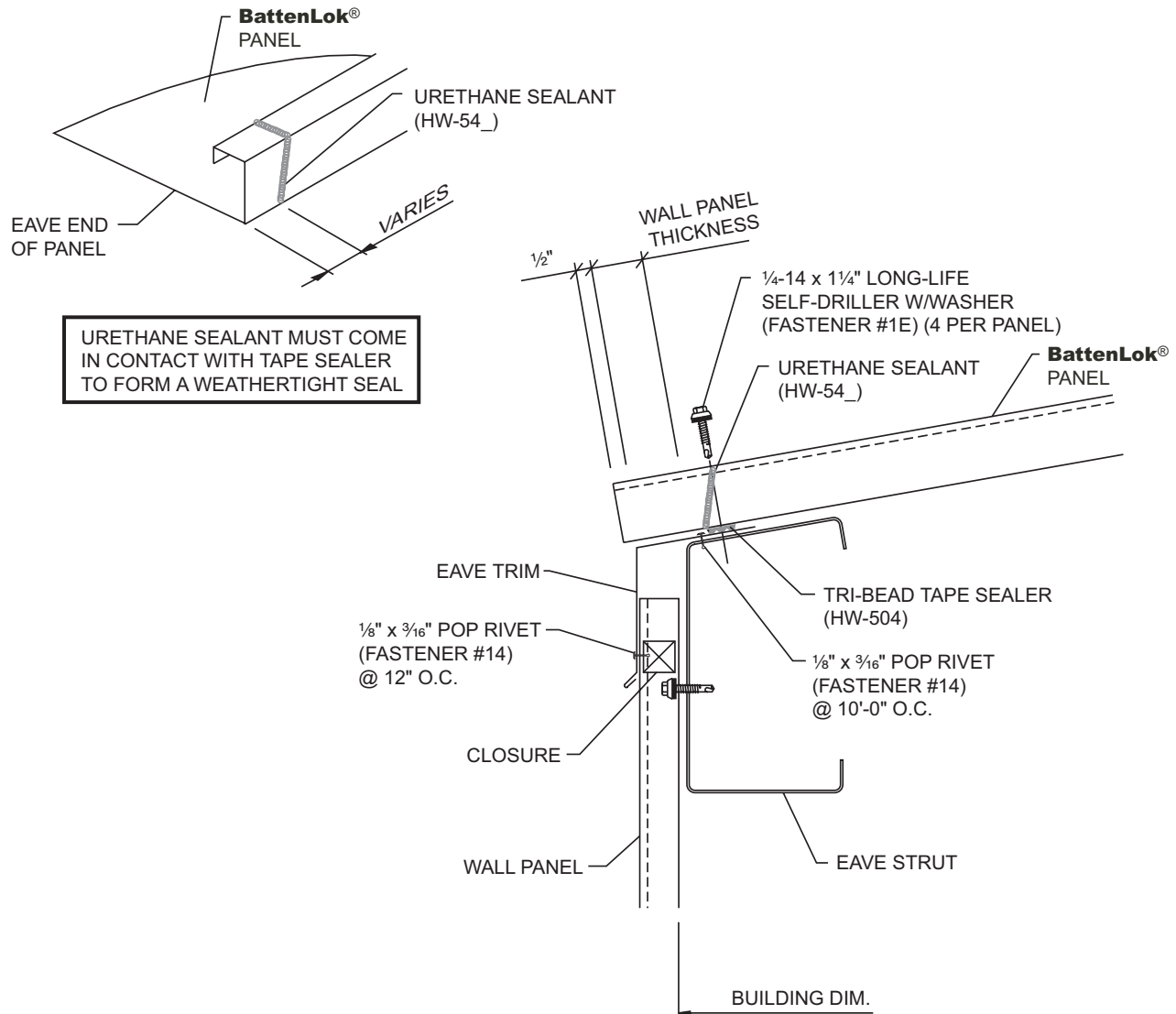


### NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach gutter to eave strut at 10'-0" O.C. using Fastener #14.
3. Attach gutter straps to gutter at 32" O.C. using Fastener #14.
4. Apply Tri-Bead tape sealer to slope leg of gutter.
5. Install panel and fasten to eave strut with Fastener #1E. Four fasteners should be used in this location.



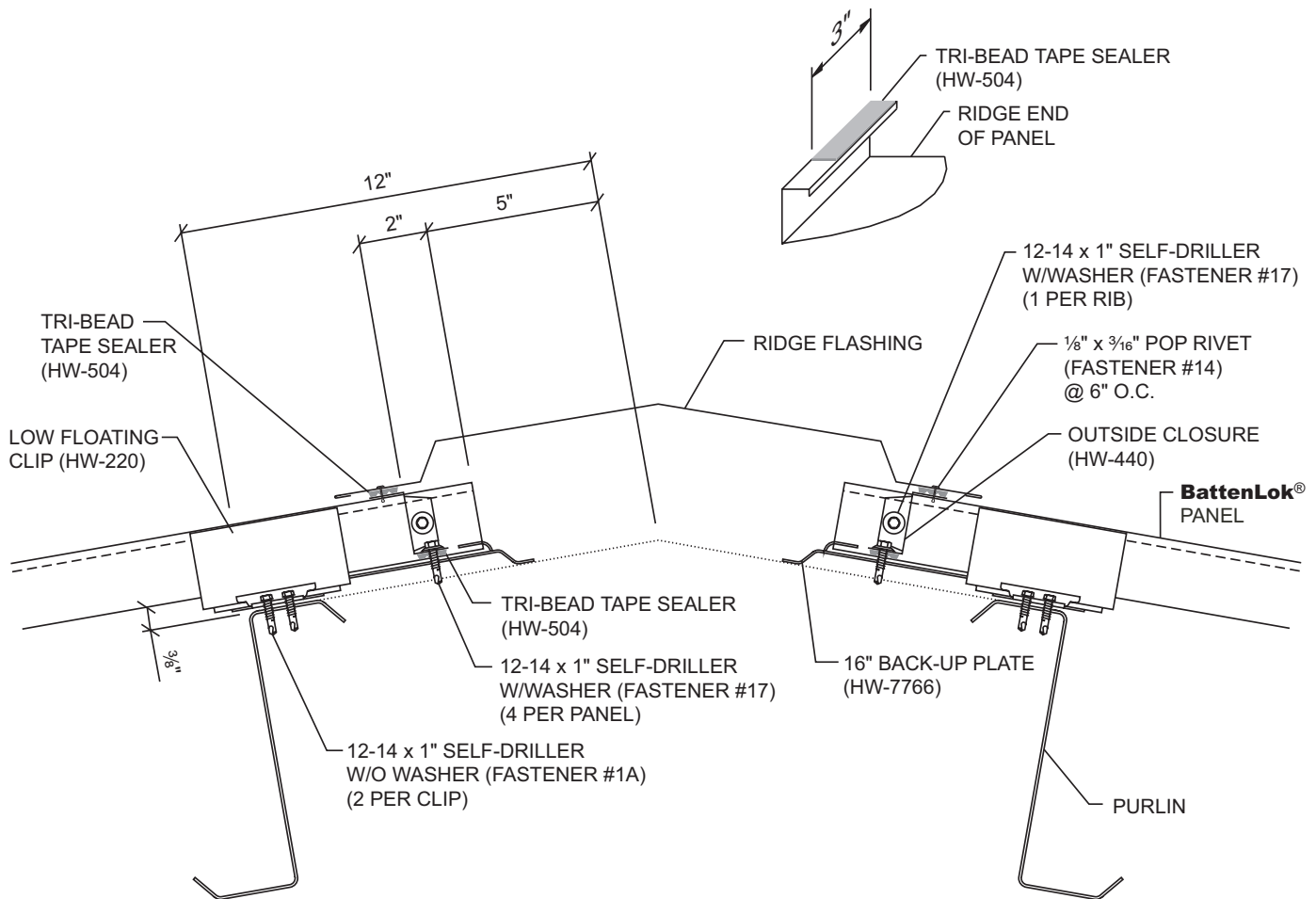
## OPEN FRAMING FIXED EAVE WITH EAVE TRIM



### NOTES:

1. Do not use this detail with the fixed ridge or hip details.
2. Attach eave trim to eave strut at 10'-0" O.C. using Fastener #14.
3. Apply Tri-Bead tape sealer to slope leg of eave trim.
4. Install panel and fasten to eave strut with Fastener #1E. Four fasteners should be used in this location.

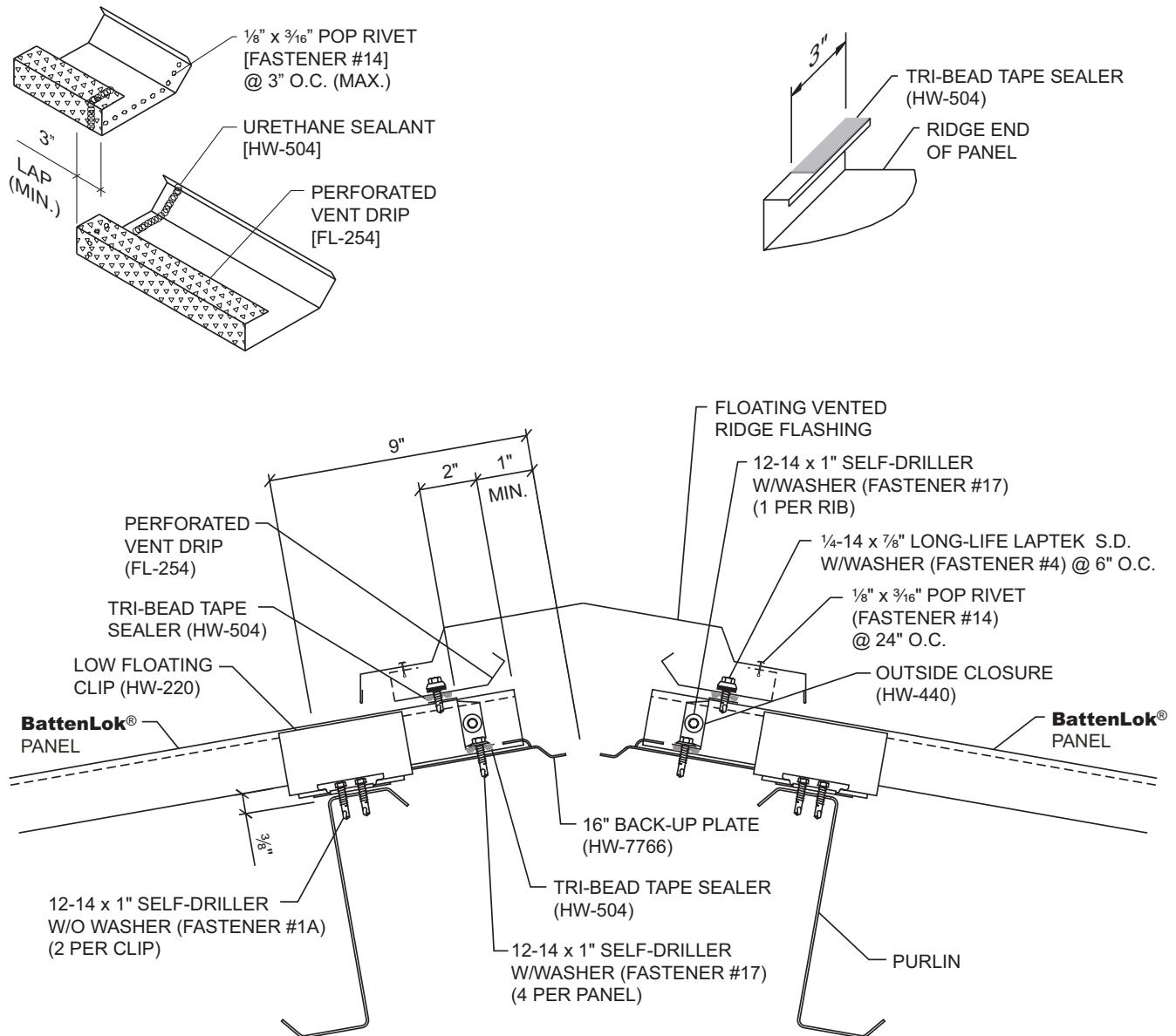
## OPEN FRAMING FLOATING RIDGE



### NOTES:

1. Do not use this detail with hemmed panel method of attachment at the eave or valley.
2. Install back-up plate onto end of panel.
3. Install outside closures as shown on page BL-35.
4. Install Tri-Bead tape sealer to top leg of outside closure.
5. Attach ridge flash to outside closure with Fastener #14 at 6" O.C.
6. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.

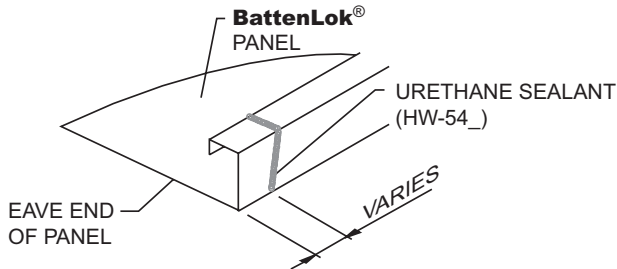
## OPEN FRAMING FLOATING VENTED RIDGE



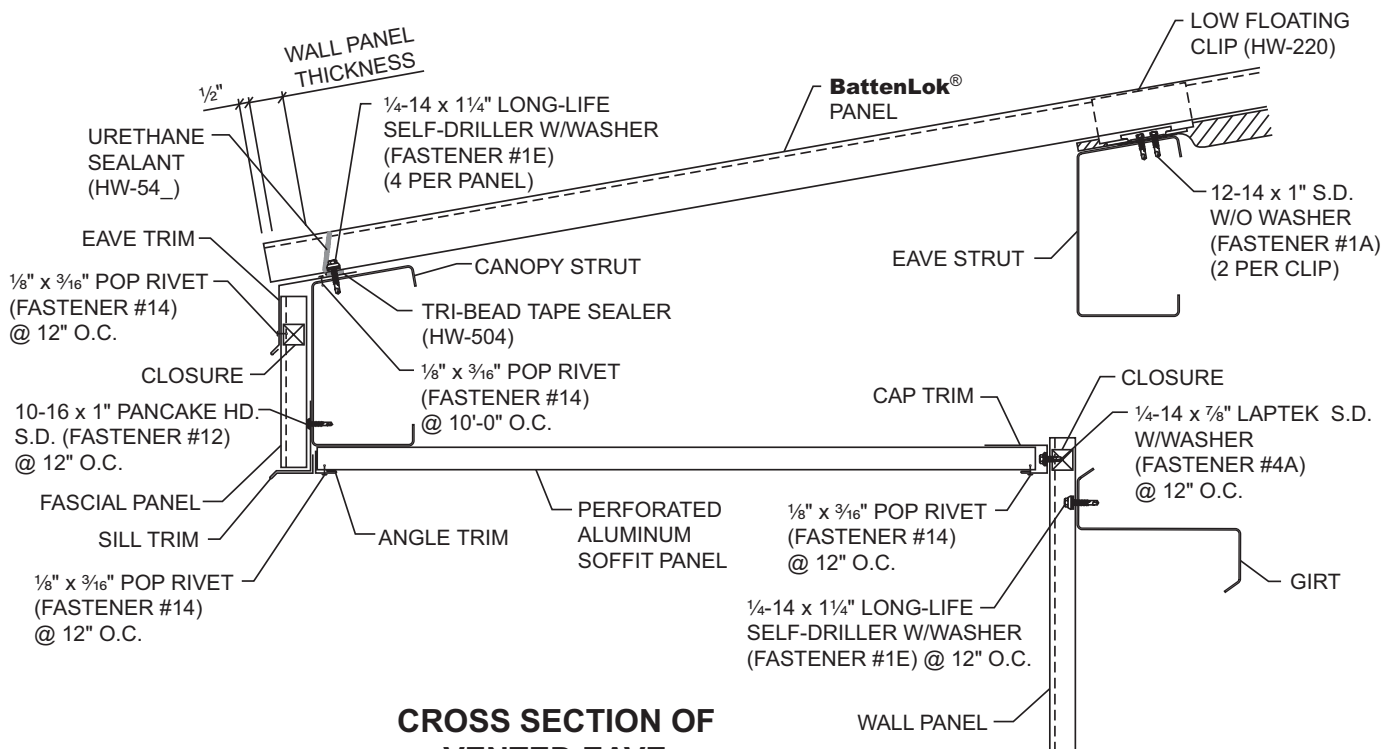
### NOTES:

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 outside closure.
4. Attach perforated vent drip to outside closure with Fastener #4. Seal laps in vent drip with urethane sealant.
5. Attach ridge flash to vent drip with Fastener #14 at 24" O.C.

## OPEN FRAMING FIXED VENTED EAVE



URETHANE SEALANT MUST COME IN CONTACT WITH TAPE SEALER TO FORM A WEATHERTIGHT SEAL

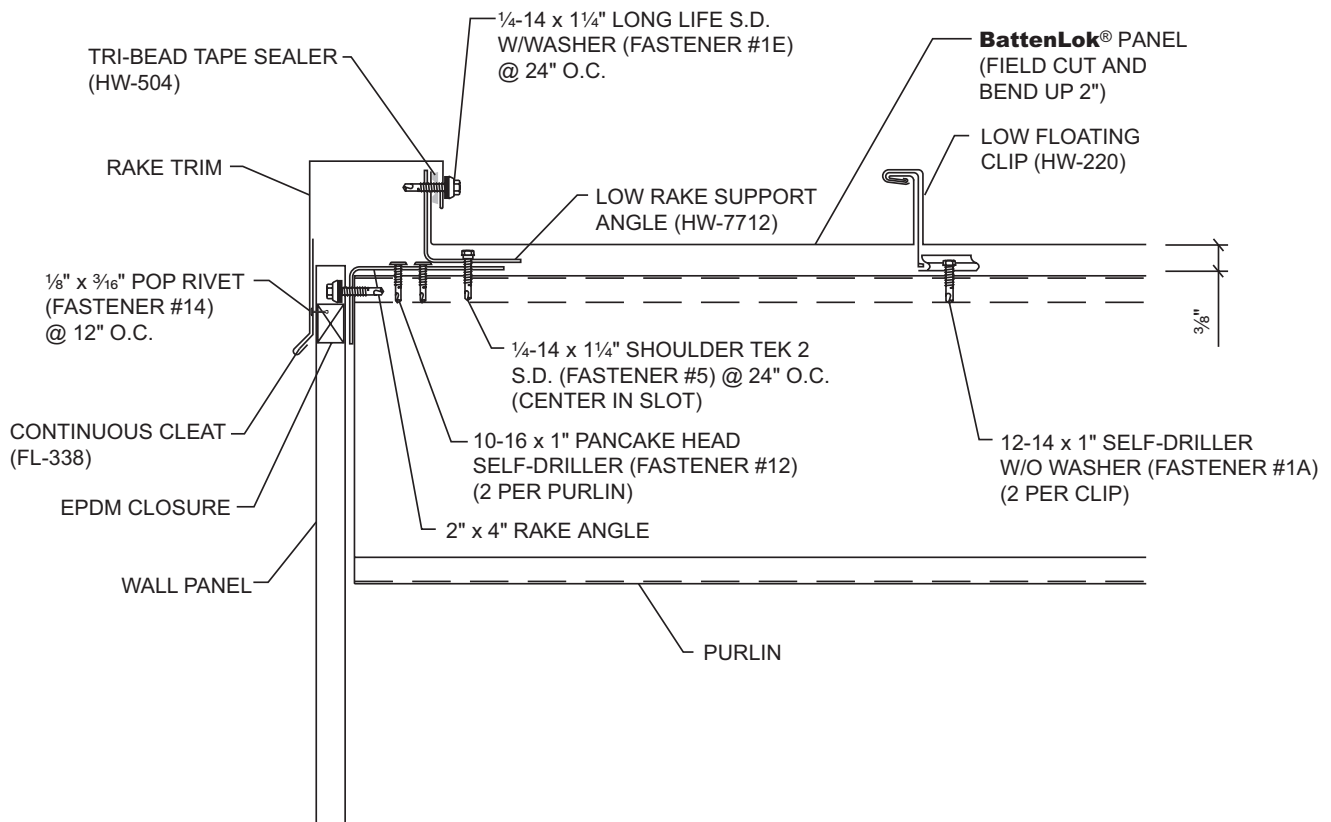


**CROSS SECTION OF  
VENTED EAVE  
(OVERHANG MINIMUM 2'-0")**

### NOTES:

1. This detail does to provide the diaphragm action normally obtained with through fastened roof panels. Consult a professional engineer for other bracing options.
2. A minimum of 4" between top of wall panel and bottom of eave strut is required to allow proper ventilation at eave.
3. Ventilation requirements vary by project. Consult a mechanical engineer for you specific project requirements.

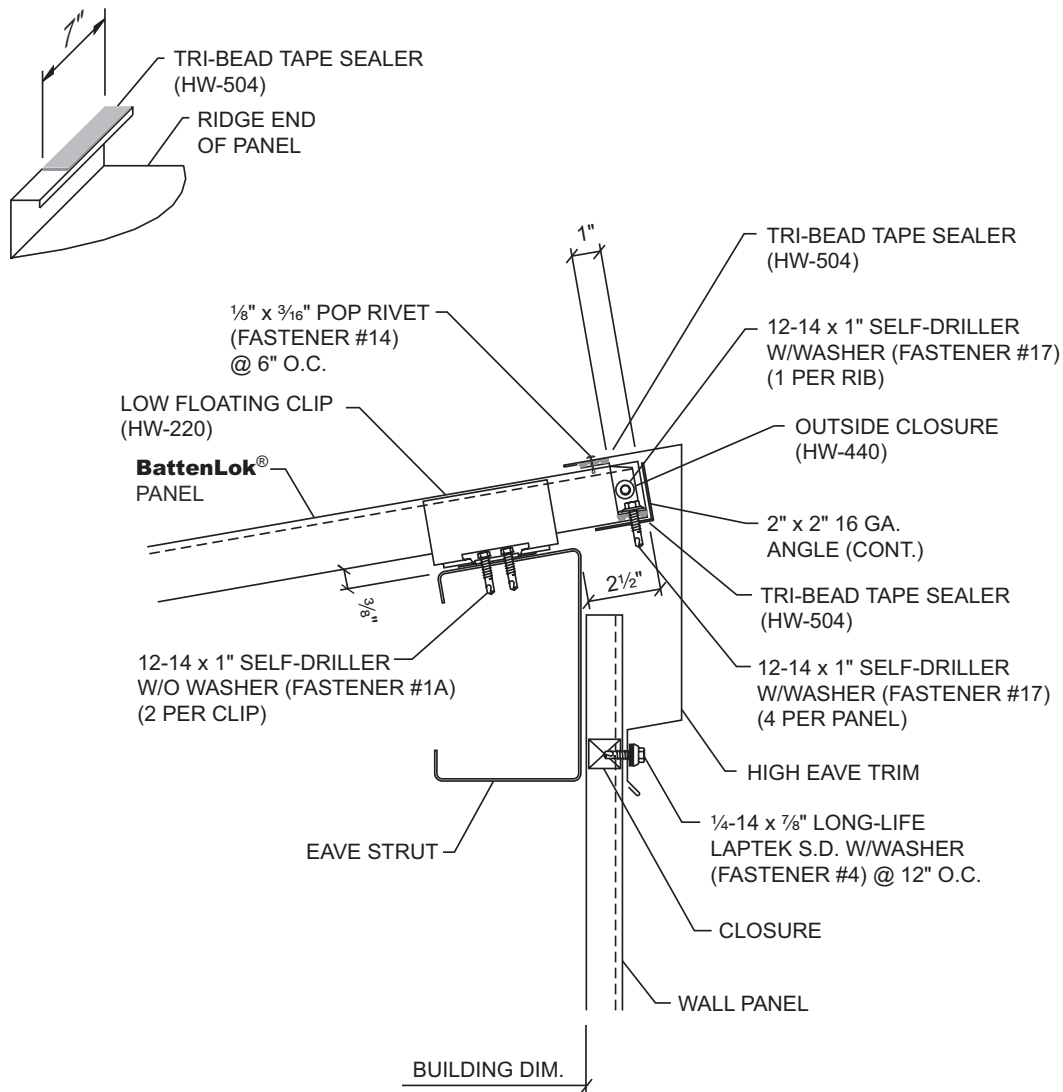
## OPEN FRAMING RAKE



### NOTES:

1. Install rake support with Fastener #5 at 2'-0" O.C.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel.
4. Attach continuous cleat to wall panels with Fastener #14 at each high rib.
5. Install rake trim with Fastener #1E at 2'-0" O.C. **Fastener must go through rake support.**
6. If roof finishes on module, finishing detail will be similar to starting detail except, field cut top of panel rib so only the vertical leg of the panel remains. If roof finishes off module, field cut and bend last panel to fit against rake support.

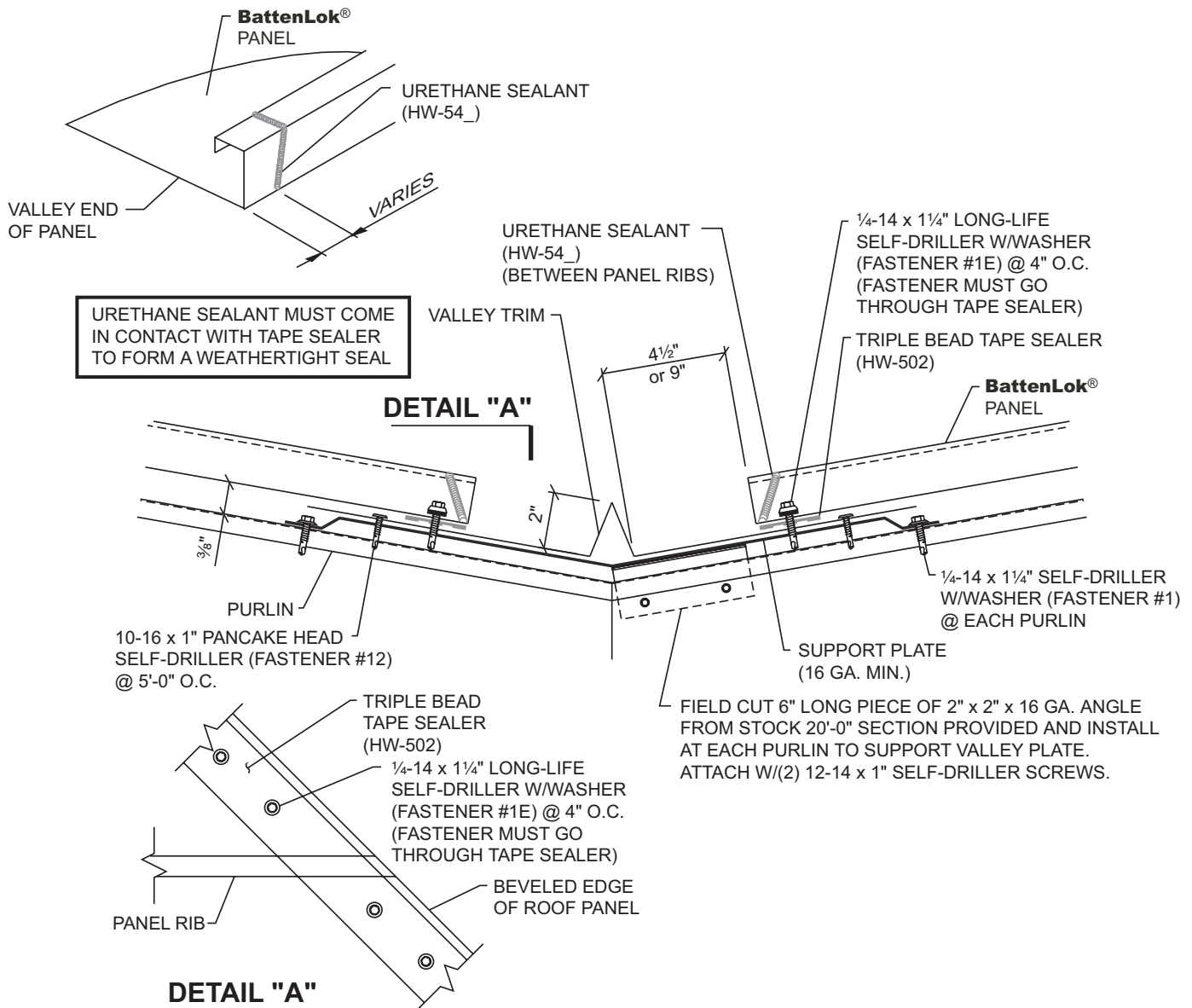
## OPEN FRAMING FLOATING HIGH SIDE EAVE



### NOTES:

1. Do not use this detail with the hemmed panel method of attachment at the eave or valley.
2. Install outside closures as shown on page BL-35 with following exceptions:
  - A. Align edge of tape sealer with end panel.
  - B. Vertical Leg of outside closure is 1" from end of panel.
  - C. Attach outside closure to 2" x 2" angle with Fastener #17.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach high side eave trim to outside closure with Fastener #14 at 6" O.C.
5. Attach high side eave trim to wall panels with Fastener #4 at each high rib.
6. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at high side eave.

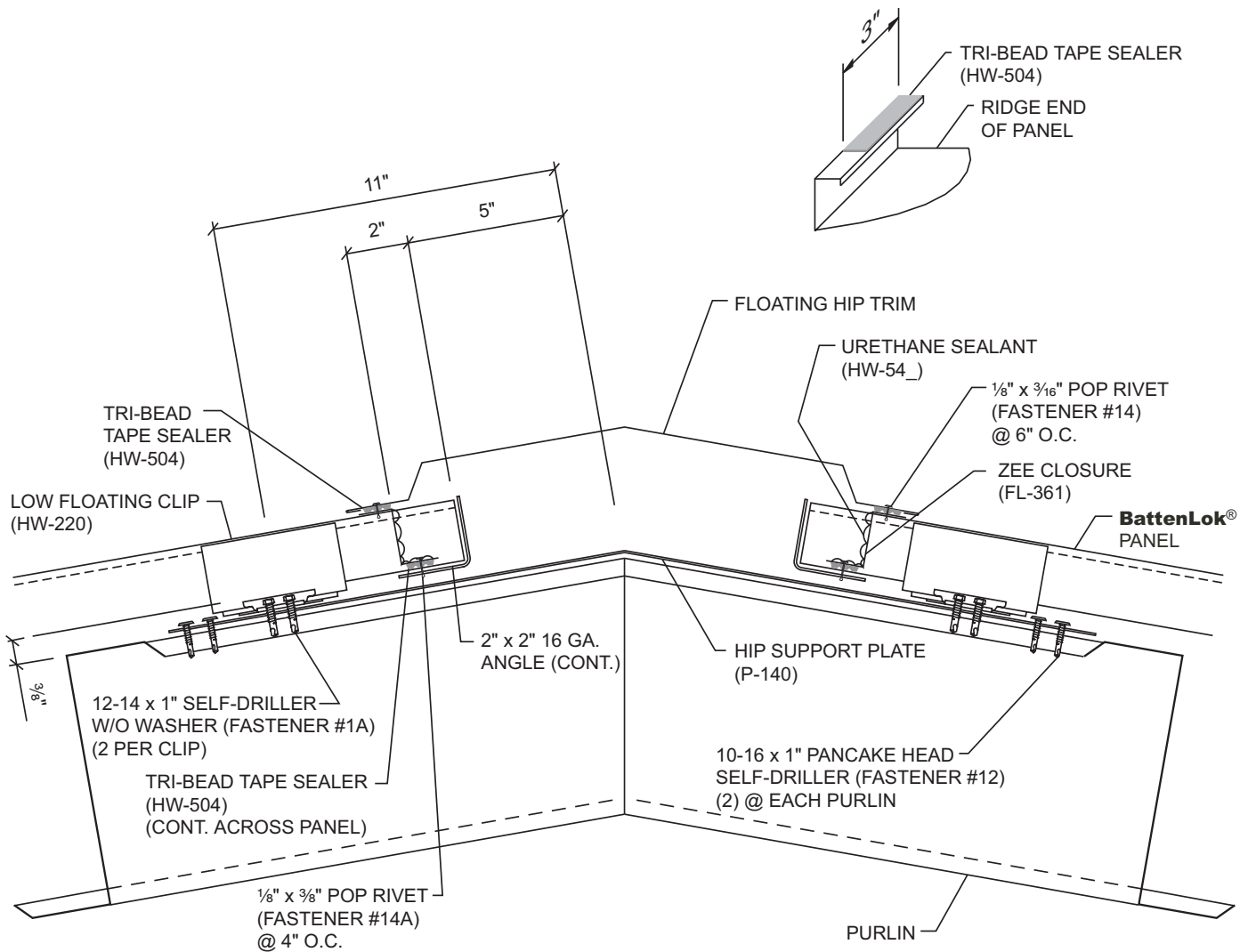
## OPEN FRAMING FIXED VALLEY



### NOTES:

1. For valleys over 30', use extended valley trim (see page BL-107).
2. Install 16 gauge valley plate to top of purlins. Attach valley trim to valley plate with Fastener #12 to hold in place until panels are installed.
3. Bevel cut panels to match slope of valley.
4. Mark panel line location on valley trim and install Triple Bead tape sealer 1/2" back from this mark.
5. Use Fastener #1E at valley 4" O.C. Faster must go through tape sealer.
6. To prevent condensation, valley plate should be insulated.
7. On High Systems, overhang the panels 1/2" downslope from the 1" vertical leg of the valley trim to keep water off of upper leg of valley trim.

## OPEN FRAMING FLOATING HIP

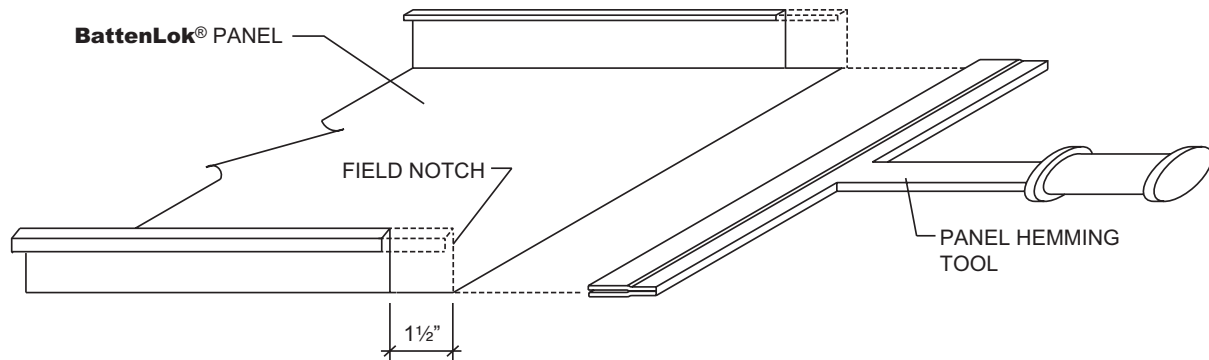


### NOTES:

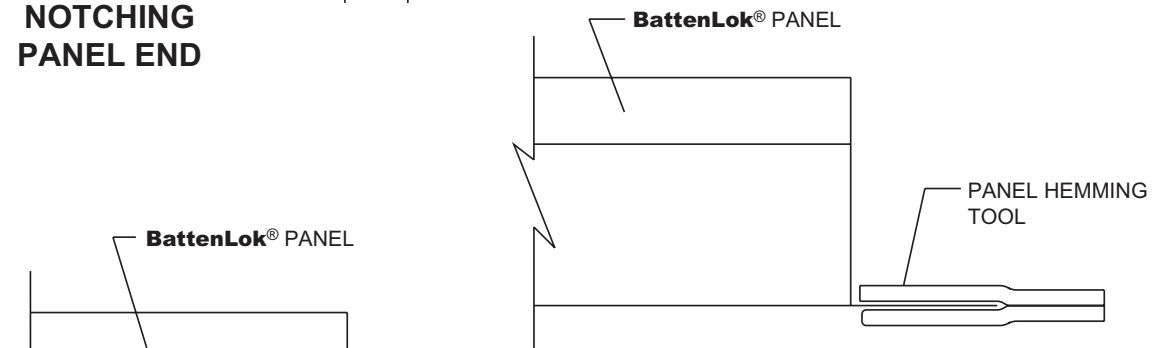
1. Hip must have a support plate to reinforce panels between purlins.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip.
4. Slide a length of 2" x 2" x 16 gauge angle under pan of panels. **Do not fasten 2" x 2" angle to hip support plate. This will restrain the panels from floating.**
5. Bevel cut and install "Z" closures to panels and 2" x 2" angle with Fastener #14A at 4" O.C. Seal sides and top of "Z" closures to panel seams with urethane sealant.
6. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.



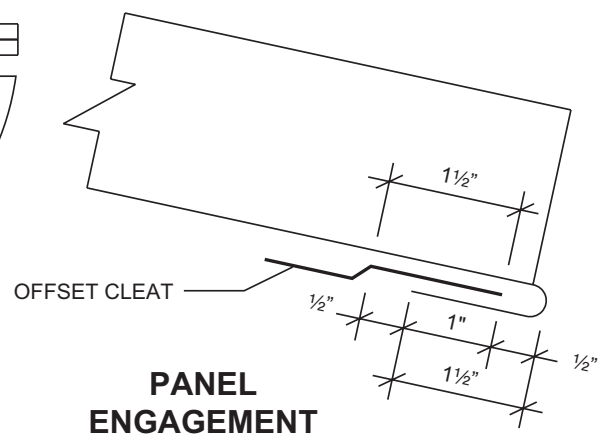
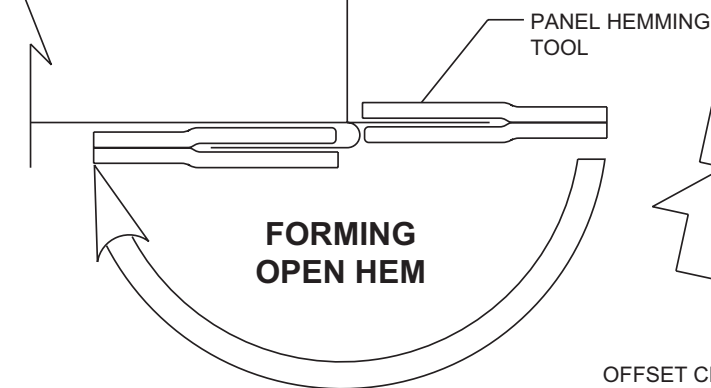
## WOOD DECK FIELD HEMMING PANEL END



### NOTCHING PANEL END



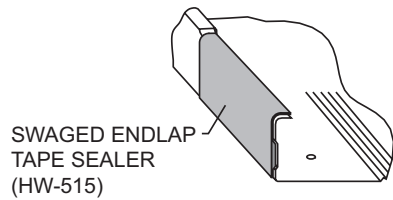
### ENGAGING HEMMING TOOL



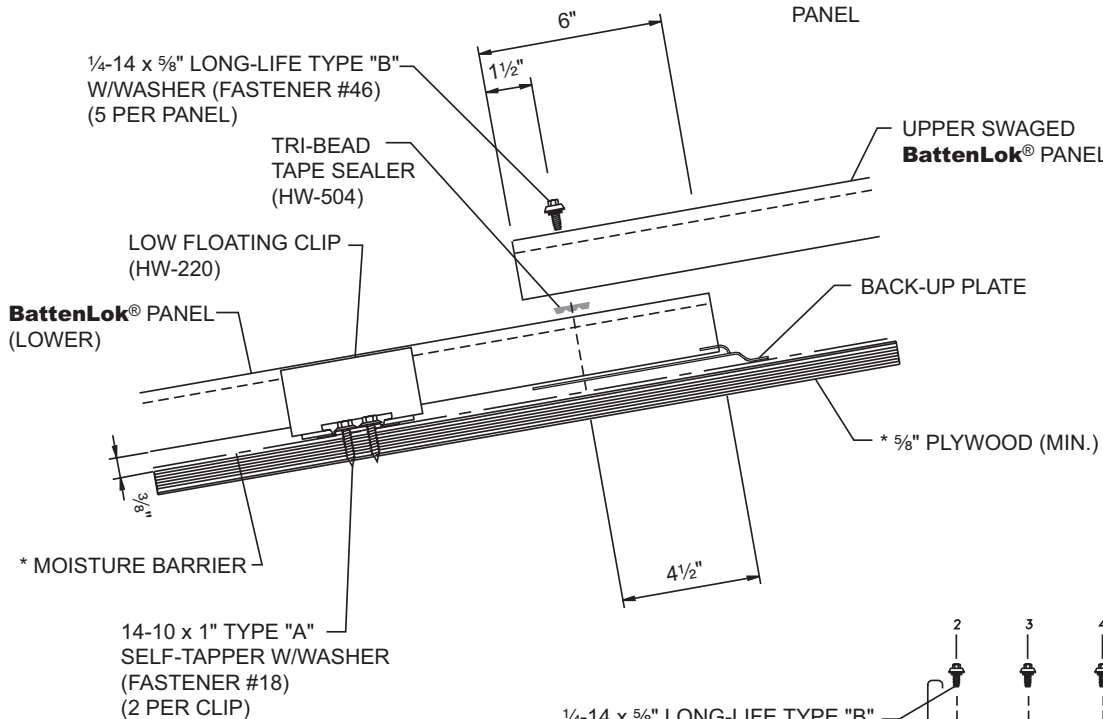
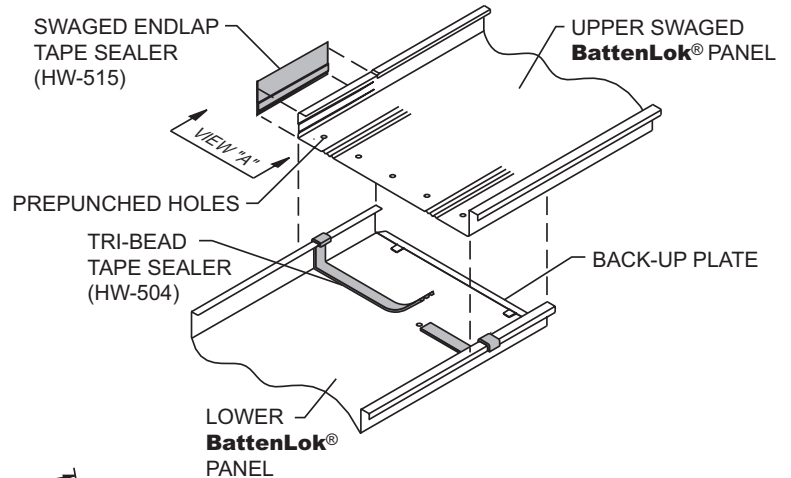
#### NOTES:

1. Field notch male and female legs of panel 1 1/2".
2. Engage panel hemming tool onto protruding pan of panel.
3. Bend pan of 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 the manufacturer.**

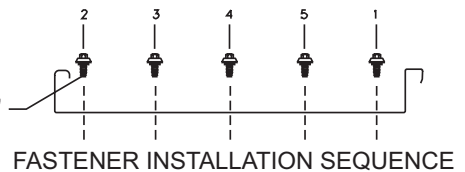
## WOOD DECK ENDLAP



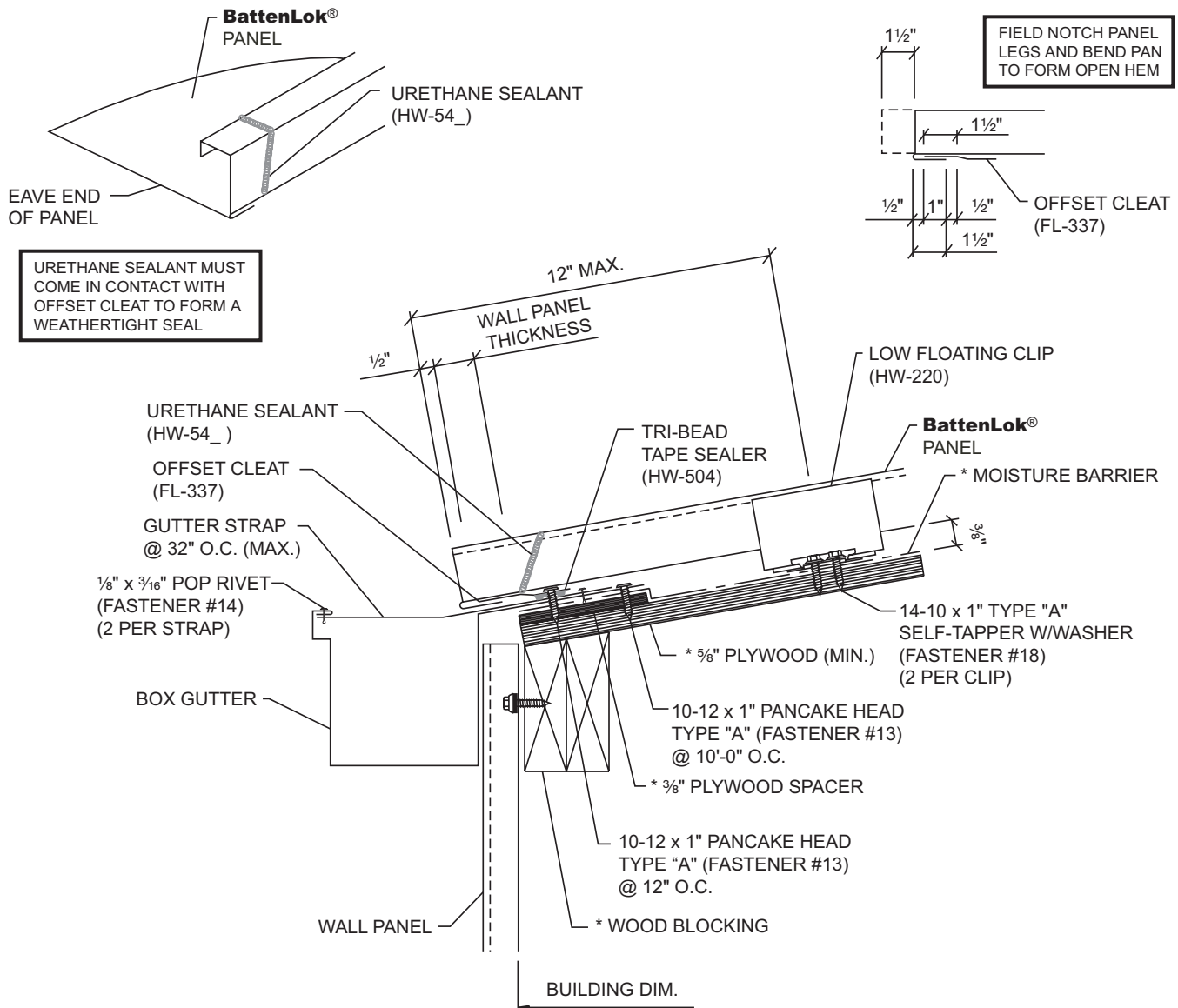
VIEW "A"



1/4-14 x 5/8" LONG-LIFE TYPE "B"  
W/WASHER (FASTENER #46)  
(5 PER PANEL)



## WOOD DECK FLOATING EAVE WITH GUTTER



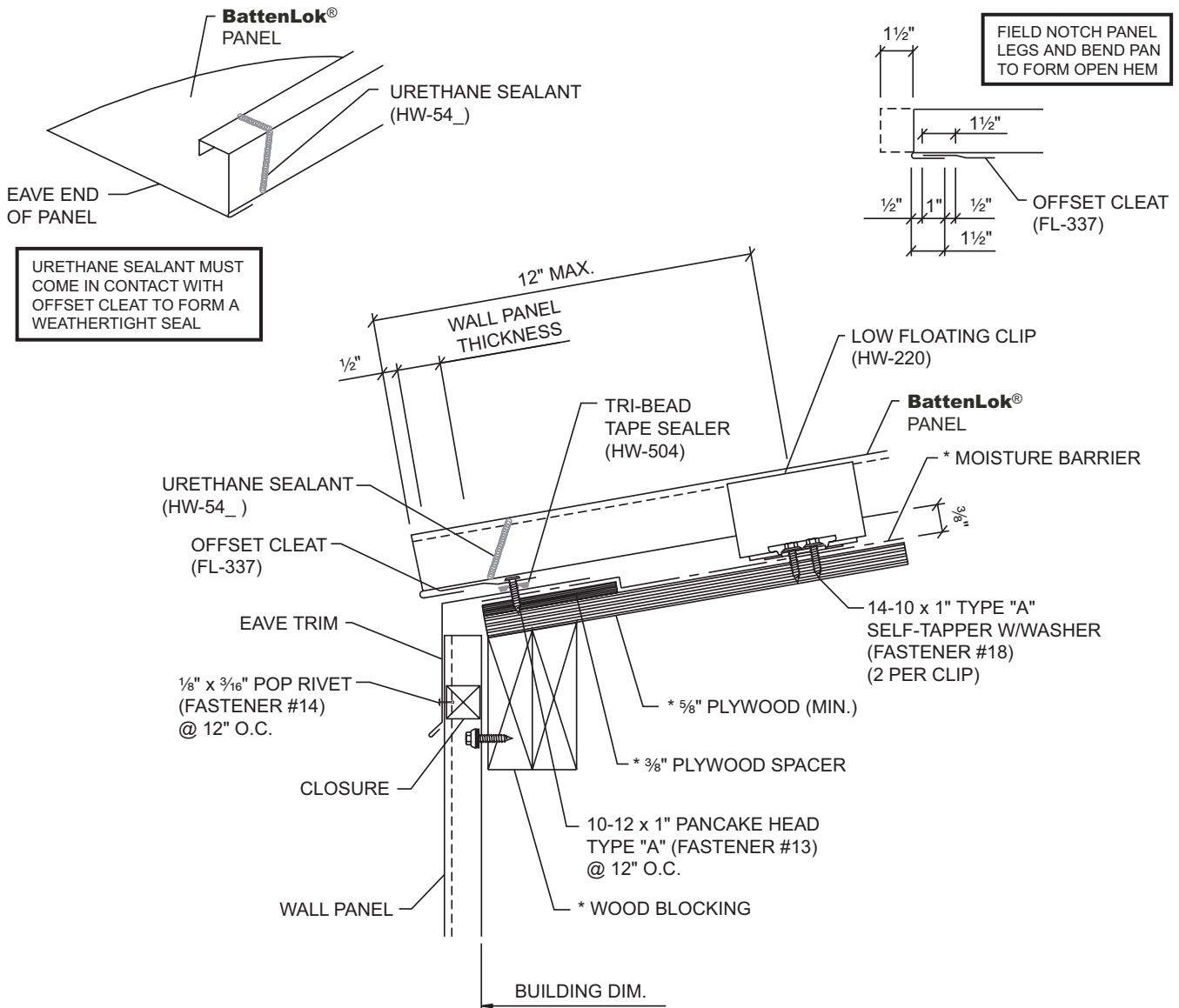
**NOTE: DO NOT USE THIS DETAIL ON ROOF SLOPES LESS THAN 3:12**

### NOTES:

1. The hemmed panel 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 #13 at 1'-0" O.C.
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher.
6. **Do not use this detail on roof slopes less than 3:12.**

**\*Not by Roofing Manufacturer**

## WOOD DECK FLOATING EAVE WITH EAVE TRIM



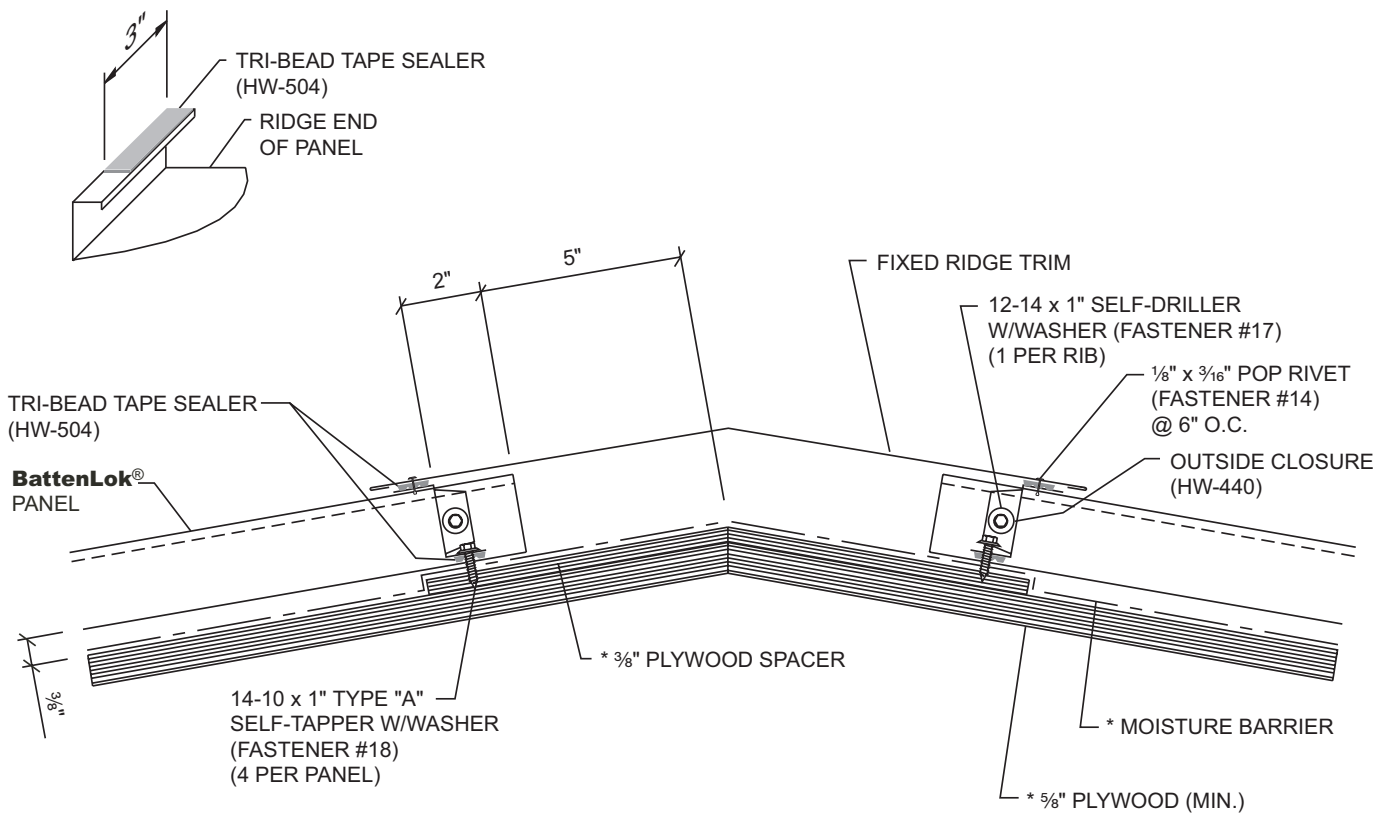
**NOTE: DO NOT USE THIS DETAIL ON ROOF SLOPES LESS THAN 3:12**

### NOTES:

1. The hemmed panel 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 with Fastener #13 at 1'-0" O.C.
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. Do not use this detail on roof slopes less than 3:12.

**\*Not by Roofing Manufacturer**

## WOOD DECK FIXED RIDGE

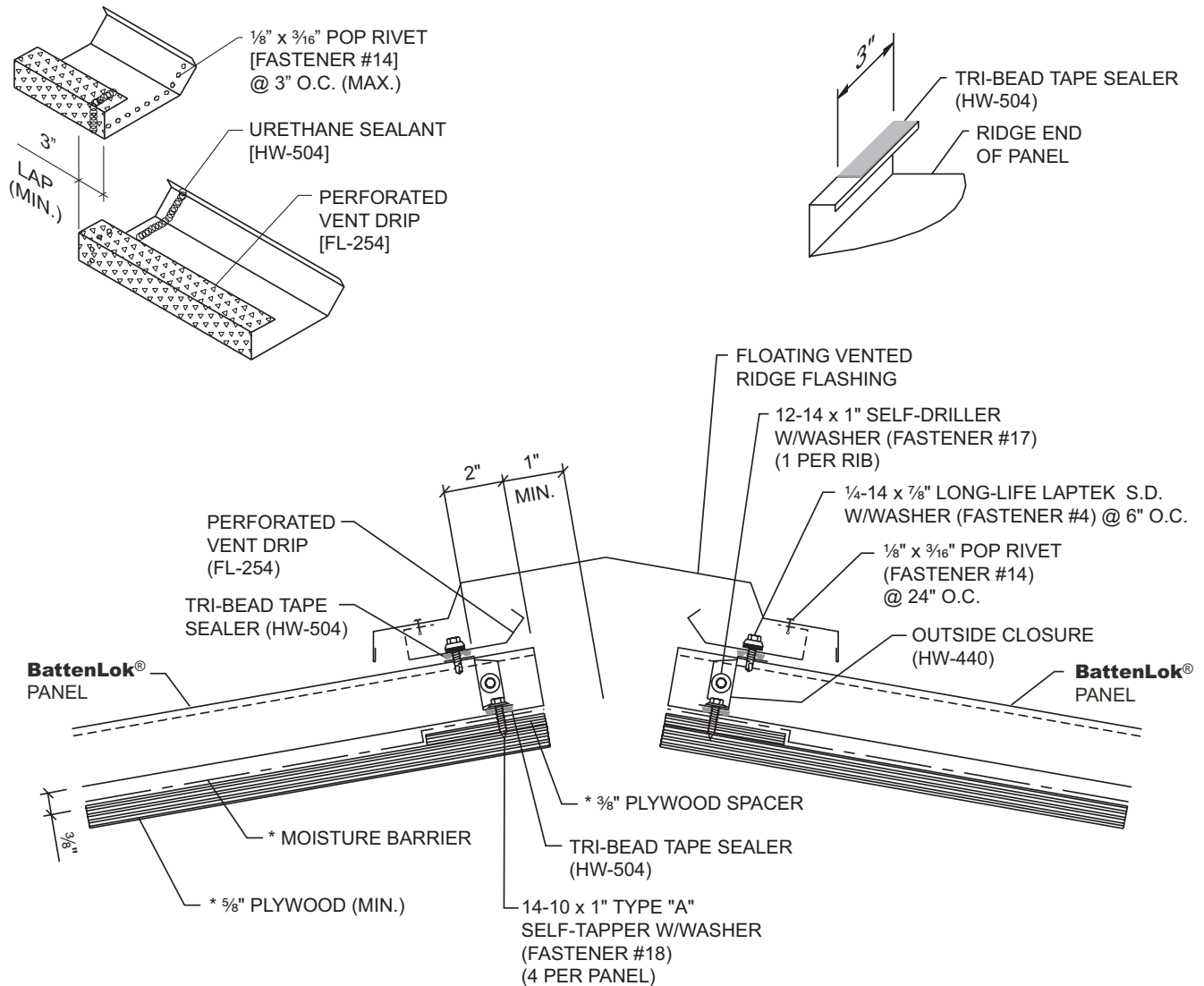


### NOTES:

1. Ridge must have an offset support spacer.
2. Install outside closure as shown on page BL-35
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach ridge/hip flash to outside closures with Fastener #14 at 6" O.C.
5. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.

**\*Not by Roofing Manufacturer**

## WOOD DECK FIXED VENTED RIDGE

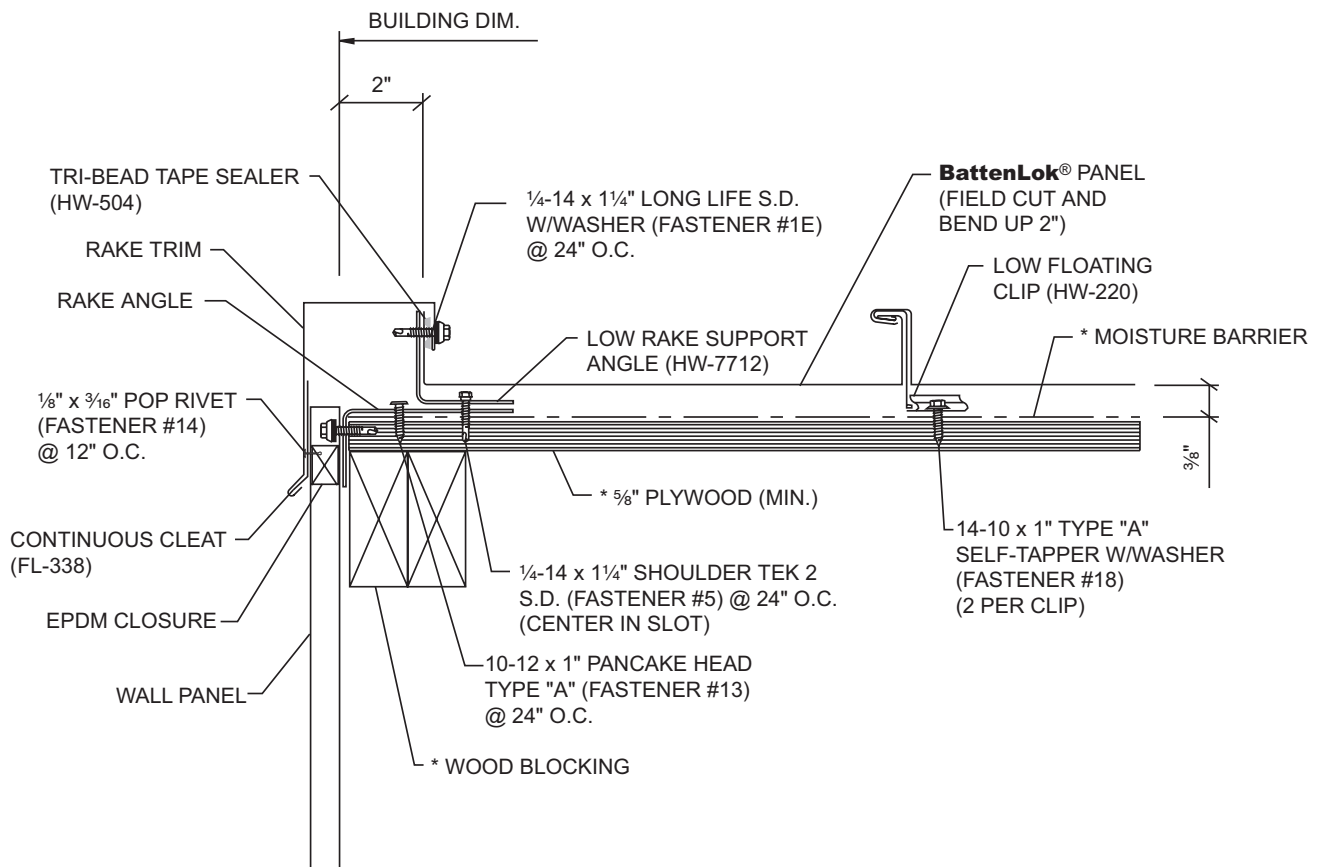


### NOTES:

1. Ridge must have an offset support spacer (leave opening at ridge to allow ventilation)
2. Install outside closures as shown on page BL-35.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach perforated vent drip to outside closure with Fastener #4. Seal laps in vent drip with urethane sealant.
5. Attach ridge flash to vent drip with Fastener #14 at 24" O.C.

**\*Not by Roofing Manufacturer**

## WOOD DECK RAKE

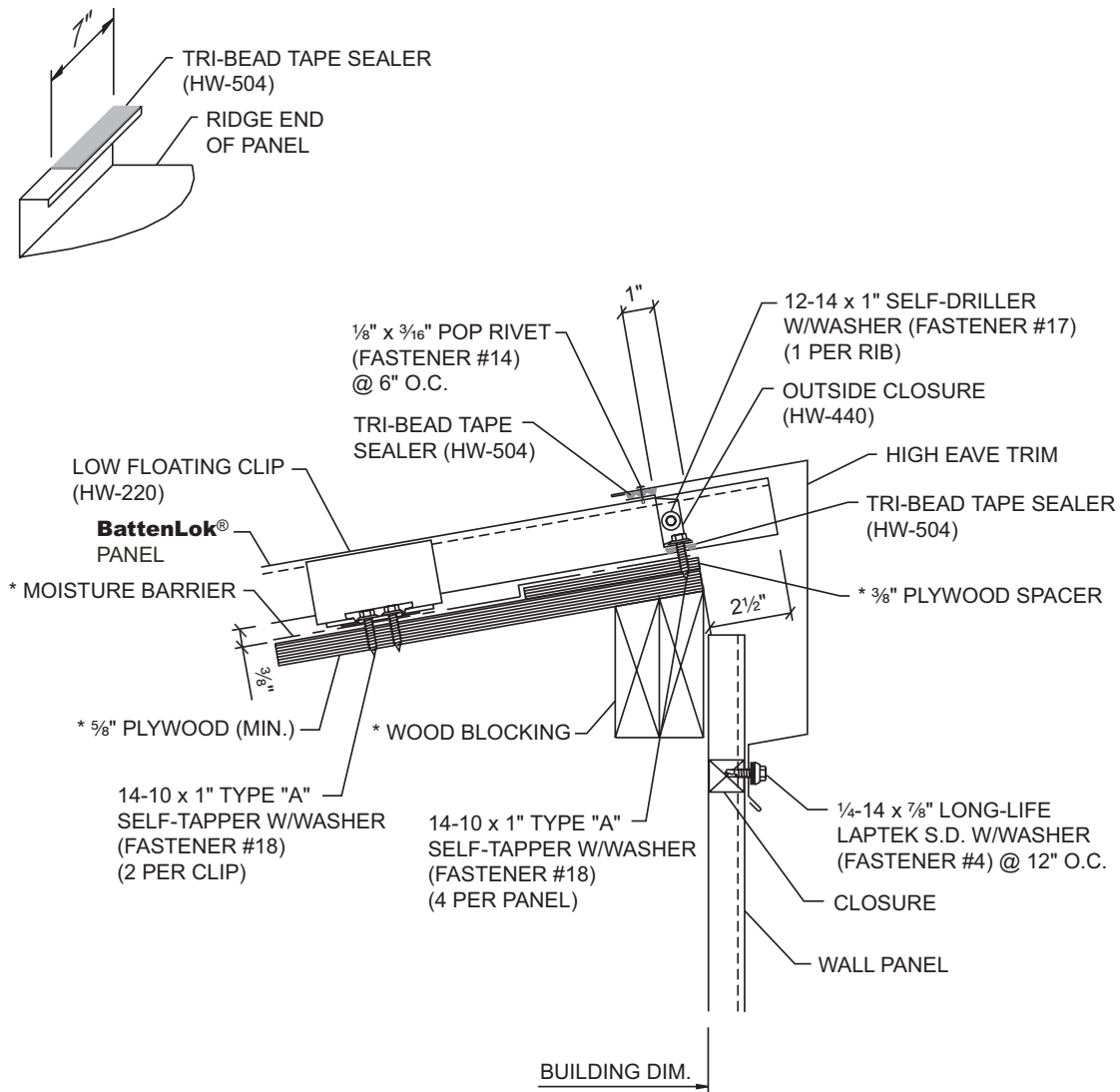


### NOTES:

1. Install rake support with Fastener #5 at 2'-0" O.C.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel.
4. Attach continuous cleat to wall panels with Fastener #14 at each high rib.
5. Install rake trim with Fastener #1E at 2'-0" O.C. **Fastener must go through rake support.**
6. If roof finishes on module, finishing detail will be similar to starting detail except, field cut top of panel rib so only the vertical leg of the panel remains. If roof finishes off module, field cut and bend last panel to fit against rake support.

**\*Not by Roofing Manufacturer**

## WOOD DECK FIXED HIGH SIDE EAVE



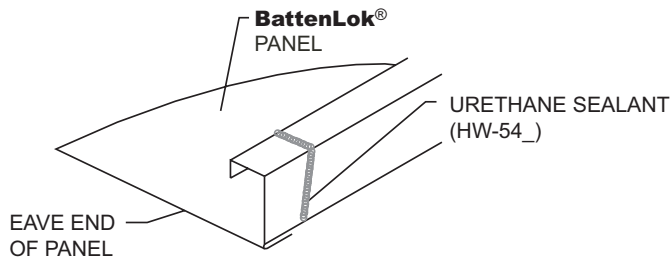
### NOTES:

1. High side eave must have an offset support spacer.
2. Install outside closure as shown on page BL-35.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach high eave trim to outside closure with Fastener #14 at 6" O.C.
5. See "Panel End Sealant Detail" on page BL-28 to seal panel seams at high side eave.

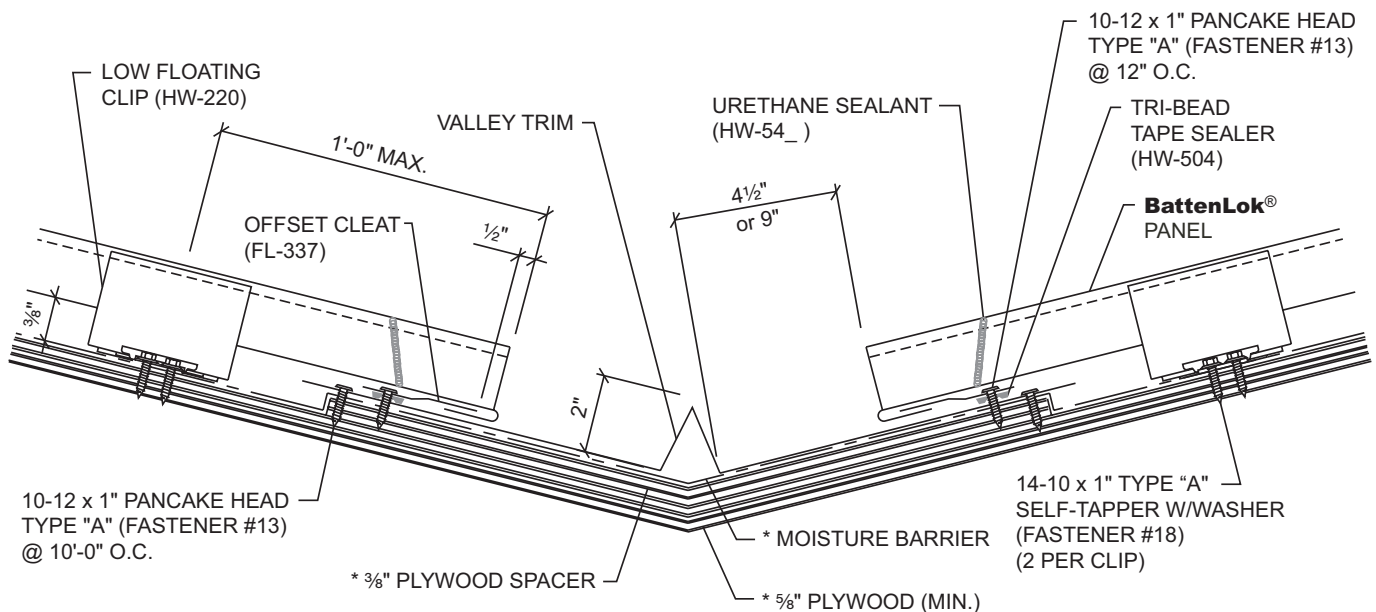
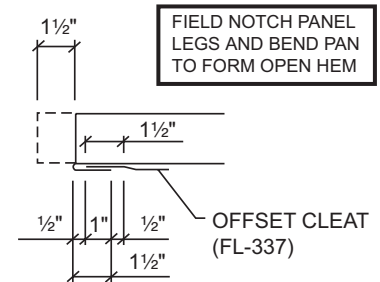
**\*Not by Roofing Manufacturer**



## WOOD DECK FLOATING VALLEY



URETHANE SEALANT MUST COME IN CONTACT WITH OFFSET CLEAT TO FORM A WEATHERTIGHT SEAL



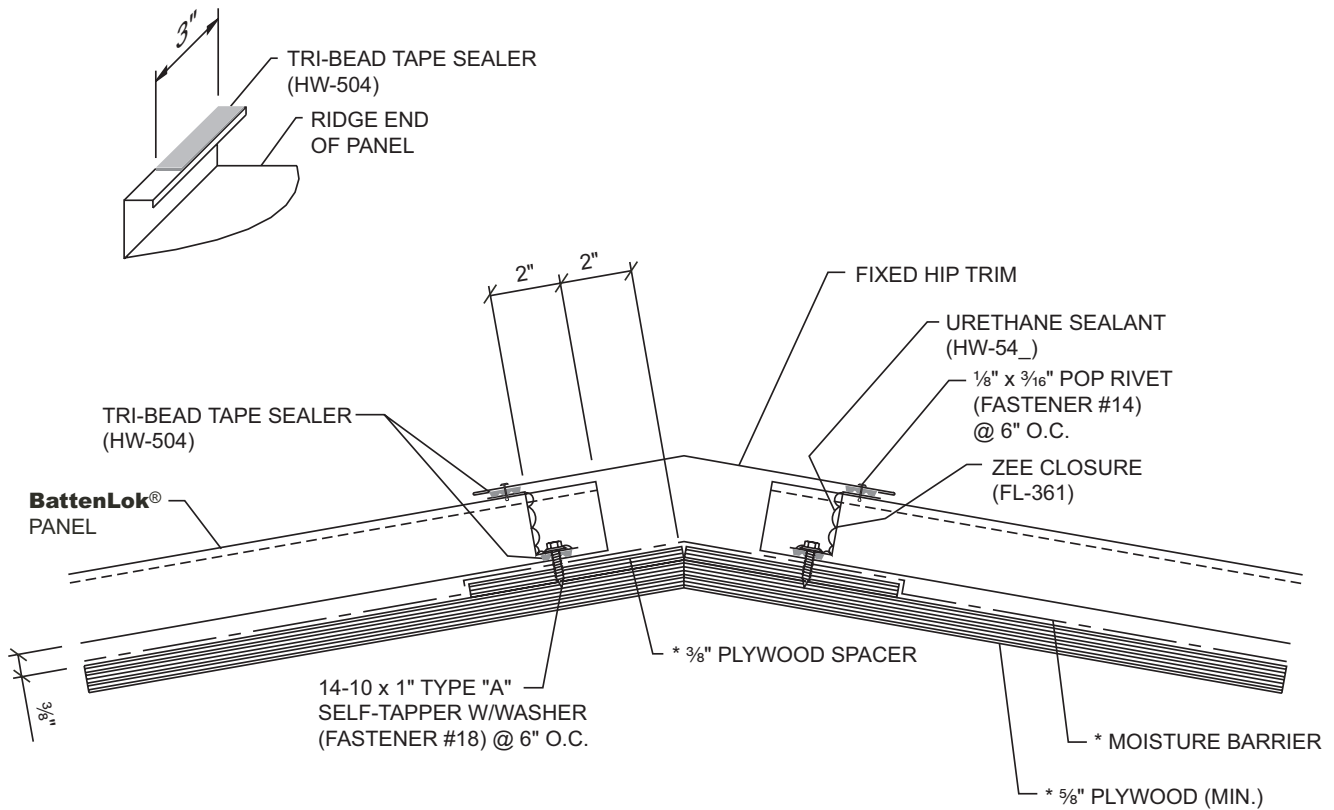
**NOTE: DO NOT USE THIS DETAIL ON ROOF SLOPES LESS THAN 3:12**

### NOTES:

1. For valleys longer than 30', use extended valley trim (see page BL-107).
2. **The hemmed panel 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 downslope.**
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. **Do not use this detail on roof slopes less than 3:12.**
6. On High Systems, overhang the panels 1/2" downslope from the 1" vertical leg of the valley trim to keep water off of upper leg of valley trim.

**\*Not by Roofing Manufacturer**

## WOOD DECK FIXED HIP



### NOTES:

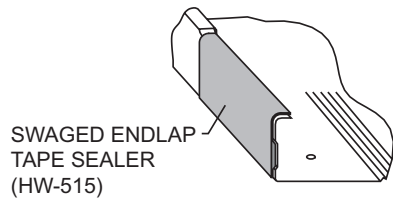
1. Hip must have an offset support spacer.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be 3½" from center of hip.
4. Bevel cut and install "Z" closures to panels and hip plate with Fastener #18 at 6" O.C. Vertical leg of "Z" closure should be 4" from center of hip. Seal sides and top of "Z" closures to panel seams with urethane sealant.
5. Attach ridge/hip flash to outside closures with Fastener #14 at 6" O.C.
6. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.

**\*Not by Roofing Manufacturer**

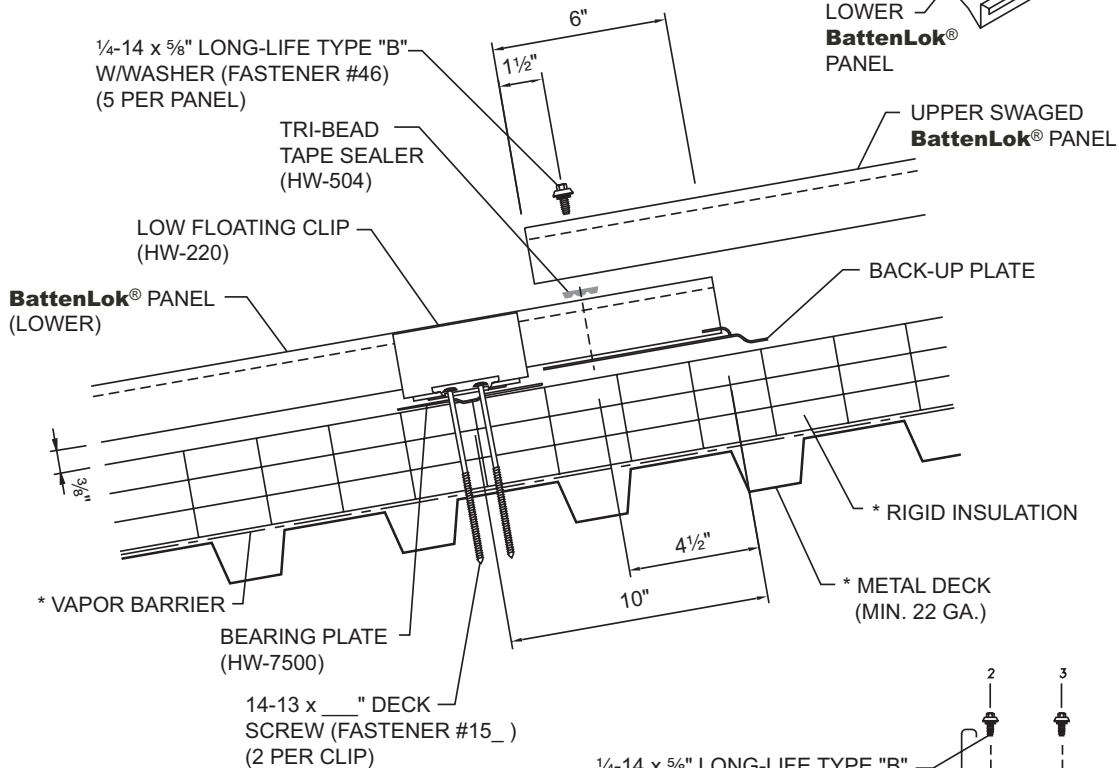
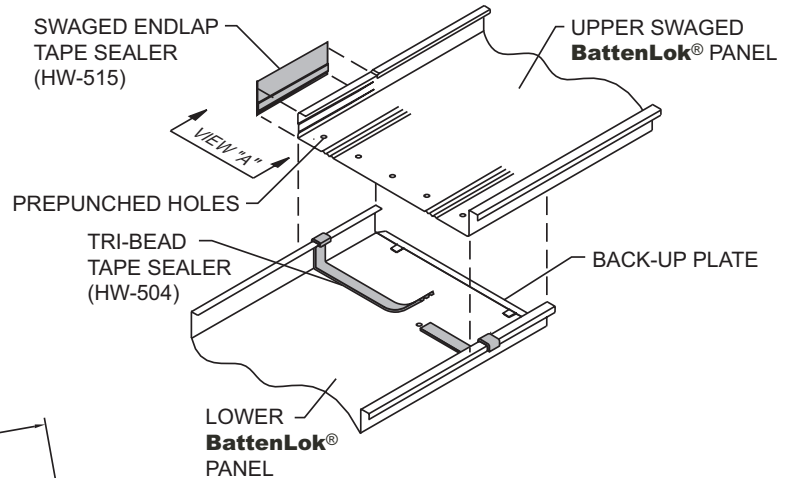
# ARCHITECTURAL DETAILS

**BattenLok®**

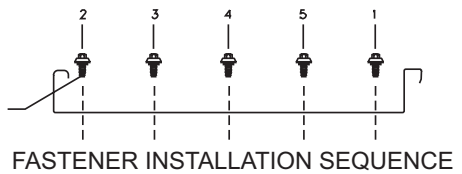
## RIGID INSULATION OVER METAL DECK ENDLAP



VIEW "A"



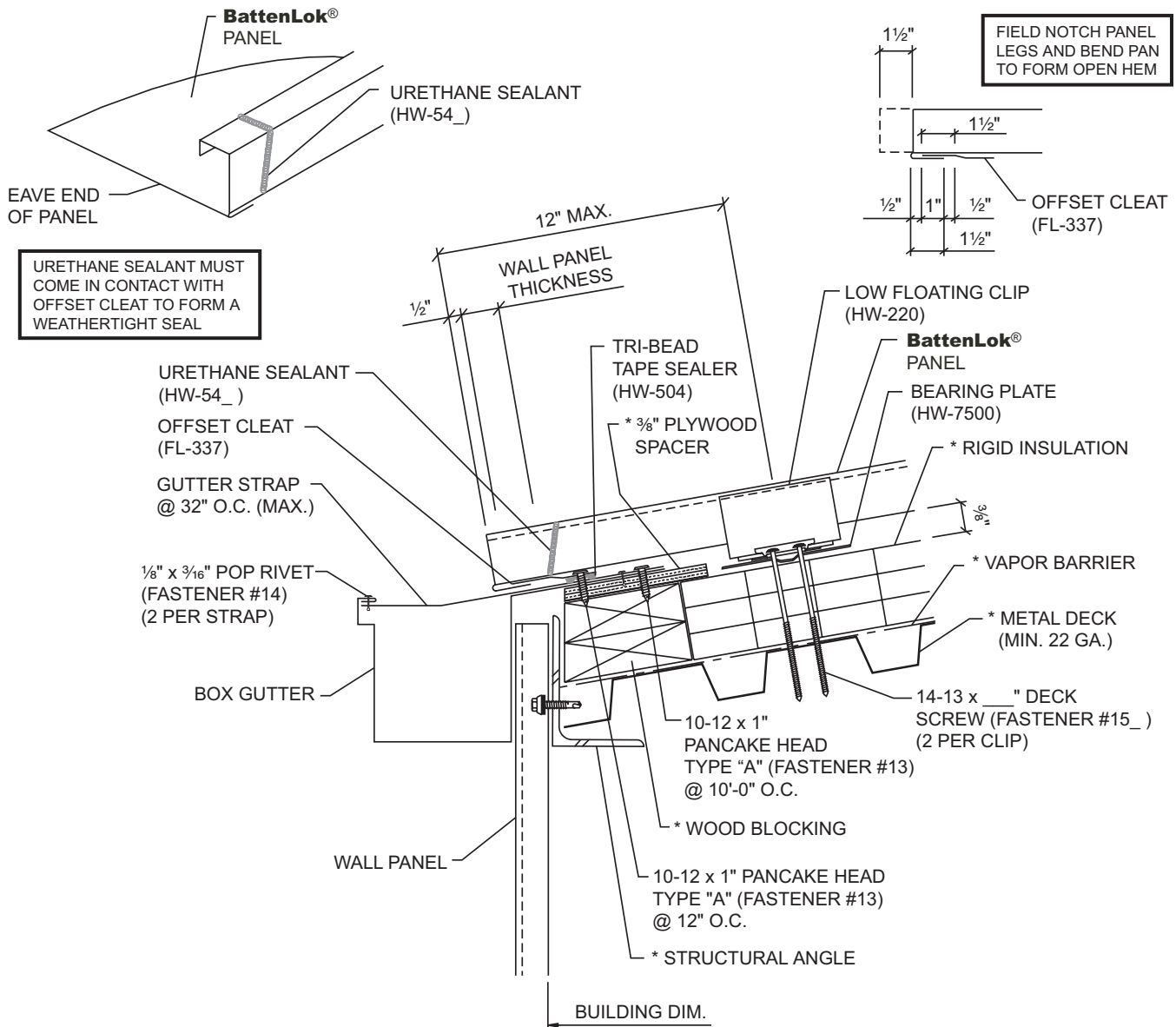
1/4-14 x 5/8" LONG-LIFE TYPE "B"  
W/WASHER (FASTENER #46)  
(5 PER PANEL)



FASTENER INSTALLATION SEQUENCE

\*Not by Roofing Manufacturer

## RIGID INSULATION OVER METAL DECK FLOATING EAVE WITH GUTTER



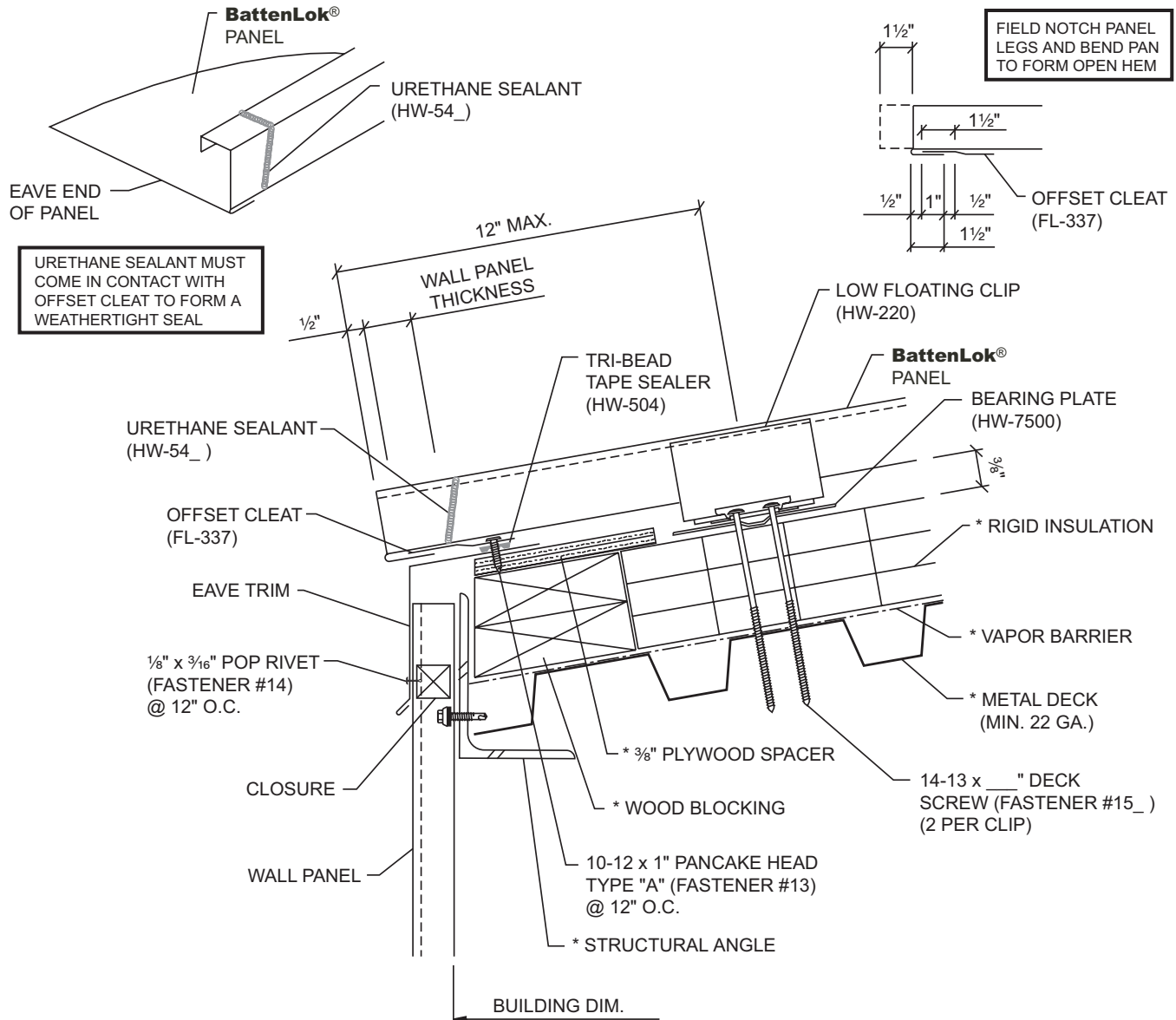
**NOTE: DO NOT USE THIS DETAIL ON ROOF SLOPES LESS THAN 3:12**

### NOTES:

1. The hemmed panel 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 with Fastener #13 at 1'-0" O.C.
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. The above gutter should not be used in areas that experience snow loads of 10 PSF or higher.
6. Do not use this detail on roof slopes less than 3:12.

**\*Not by Roofing Manufacturer**

## RIGID INSULATION OVER METAL DECK FLOATING EAVE WITH EAVE TRIM

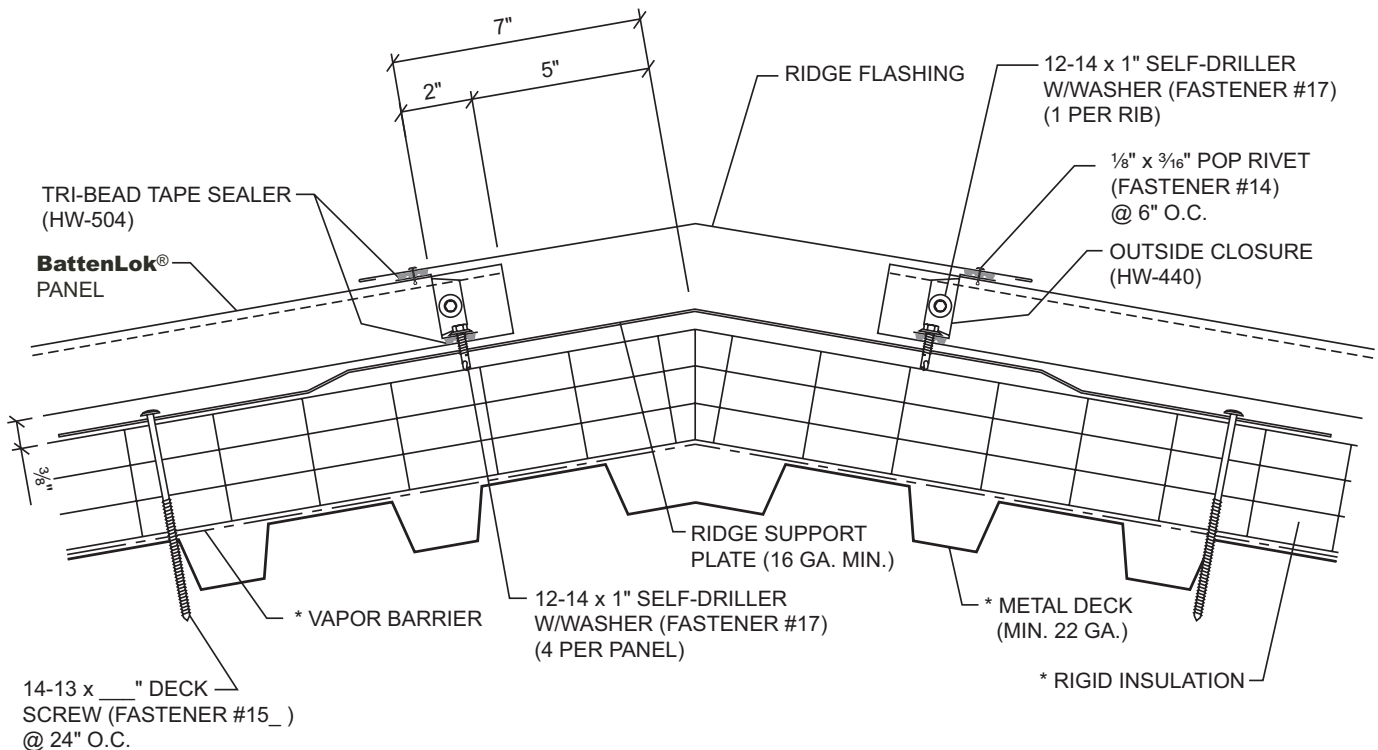
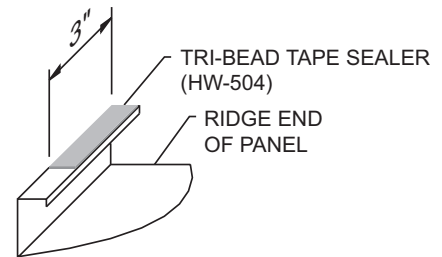


### NOTES:

1. The hemmed panel 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 with Fastener #13 at 1'-0" O.C.
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. Do not use this detail on roof slopes less than 3:12.

\*Not by Roofing Manufacturer

## RIGID INSULATION OVER METAL DECK FIXED RIDGE

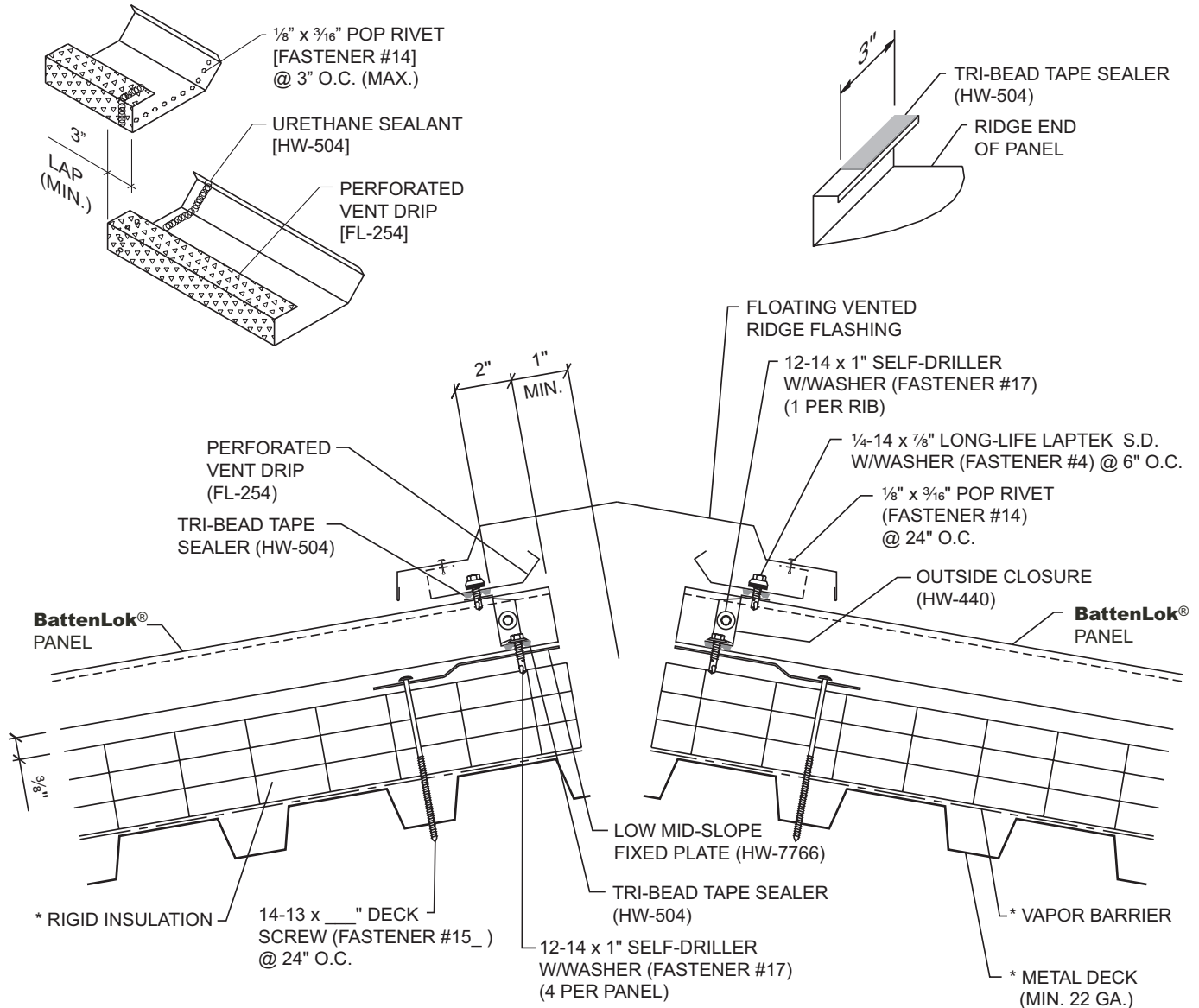


### NOTES:

1. Ridge must have an offset support plate.
2. Install outside closures as shown on page BL-35.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach ridge/hip flash to outside closures with Fastener #14 at 6" O.C.
5. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.

**\*Not by Roofing Manufacturer**

## RIGID INSULATION OVER METAL DECK FIXED VENTED RIDGE

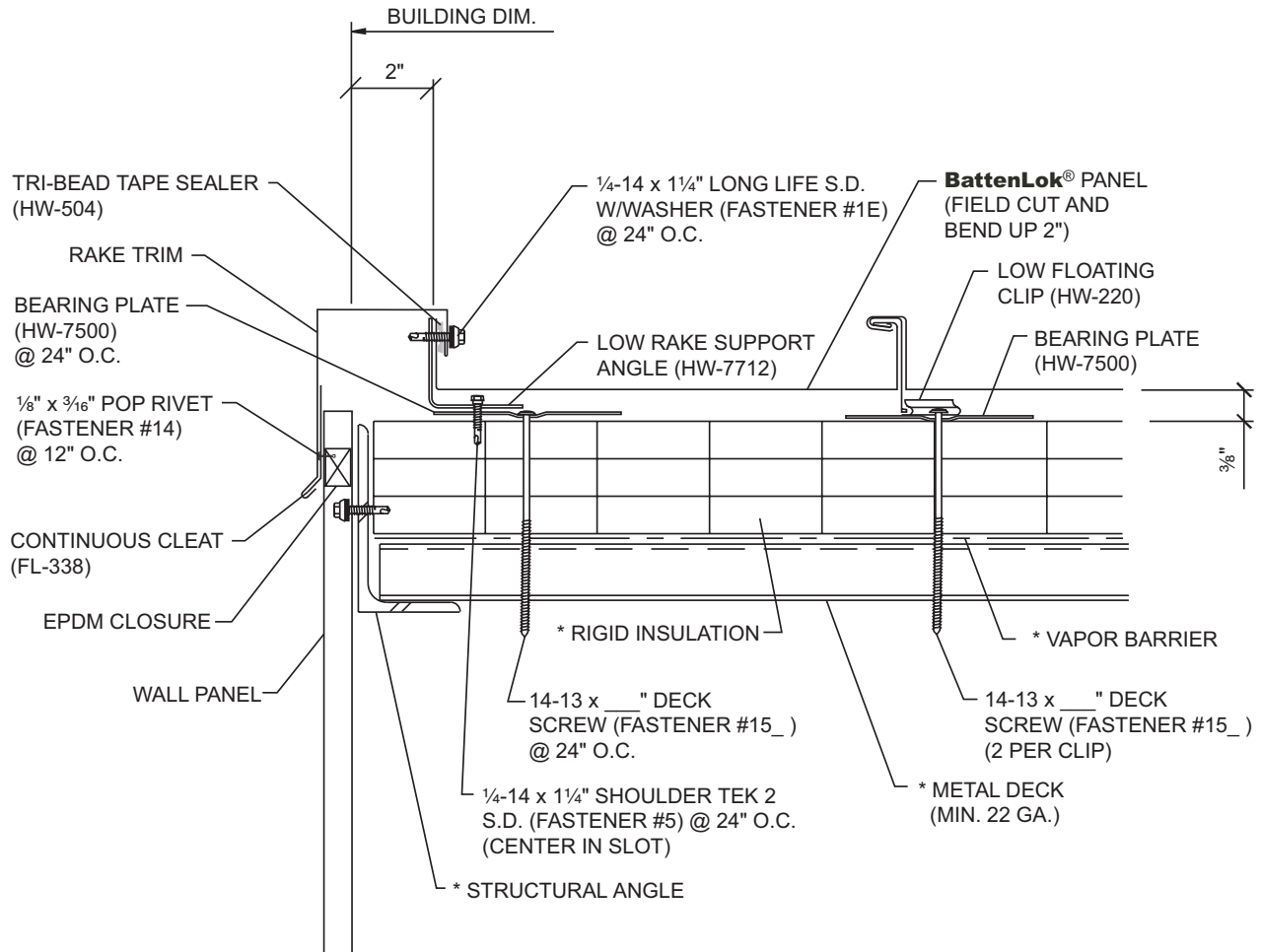


### NOTES:

1. Ridge must have an offset support plate (leave opening at ridge to allow ventilation).
2. Install outside closures as shown on page BL-35.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach perforated vent drip to outside closure with Fastener #4. Seal laps in vent drip with urethane sealant.
5. Attach ridge flash to vent drip with Fastener #14 at 24" O.C.

**\*Not by Roofing Manufacturer**

## RIGID INSULATION OVER METAL DECK RAKE



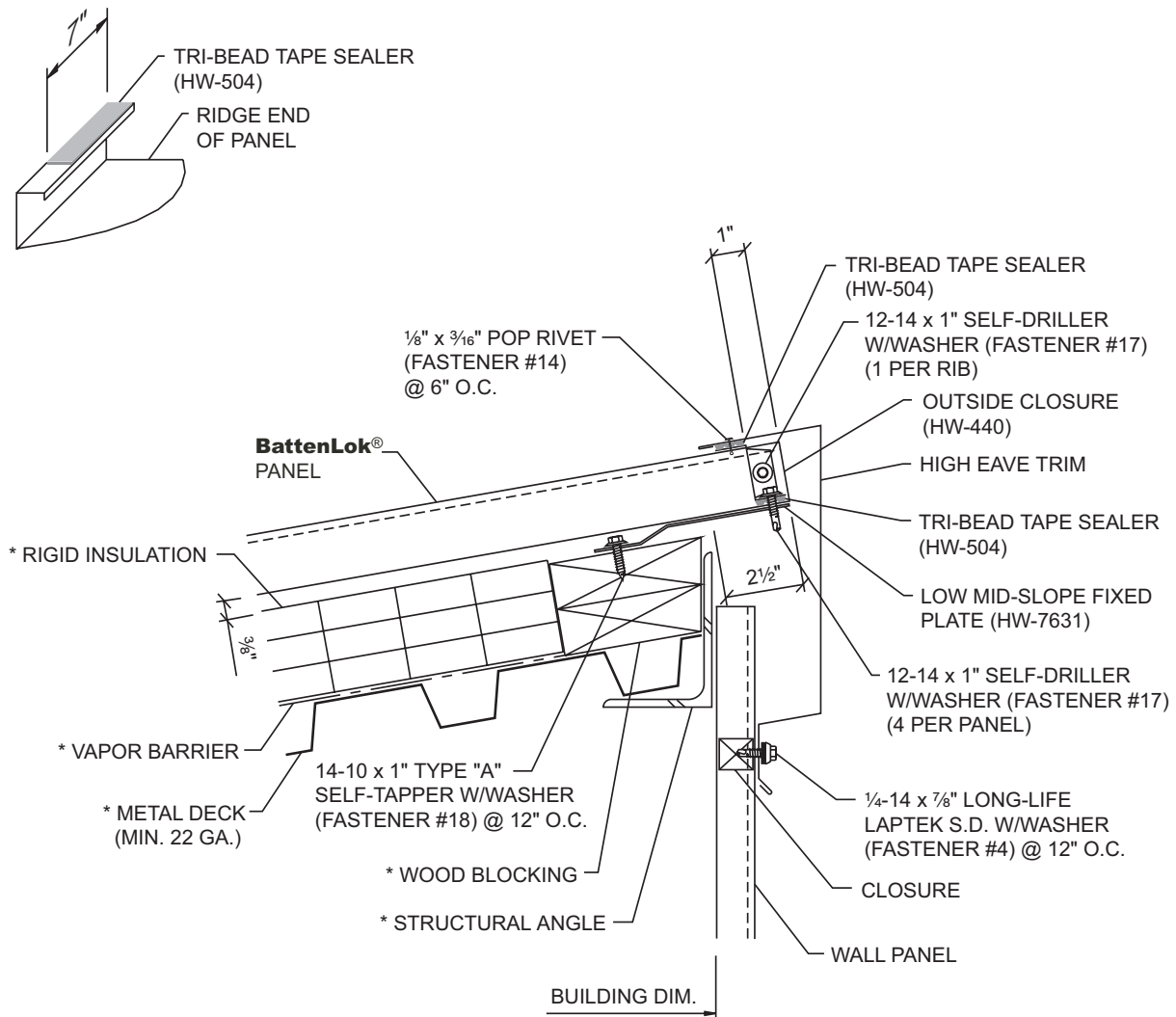
### NOTES:

1. Install rake support with Fastener #5 at 2'-0" O.C.
2. Engage female leg of panel over rake support.
3. Apply Tri-Bead tape sealer to vertical leg of panel.
4. Attach continuous cleat to wall panels with Fastener #14 at each high rib.
5. Install rake trim with Fastener #1E at 2'-0" O.C. **Fastener must go through rake support.**
6. If roof finishes on module, finishing detail will be similar to starting detail except, field cut top of panel rib so only the vertical leg of panel remains. If roof finishes off module, field cut and bend last panel to fit against rake support.

**\*Not by Roofing Manufacturer**



## RIGID INSULATION OVER METAL DECK FIXED HIGH SIDE EAVE

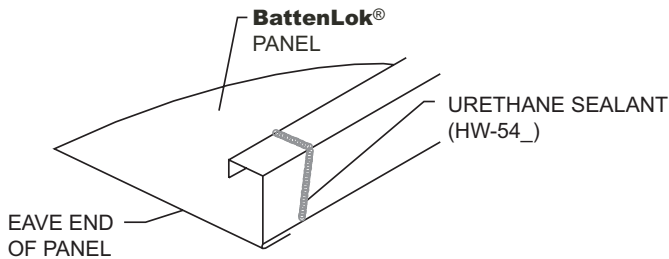


### NOTES:

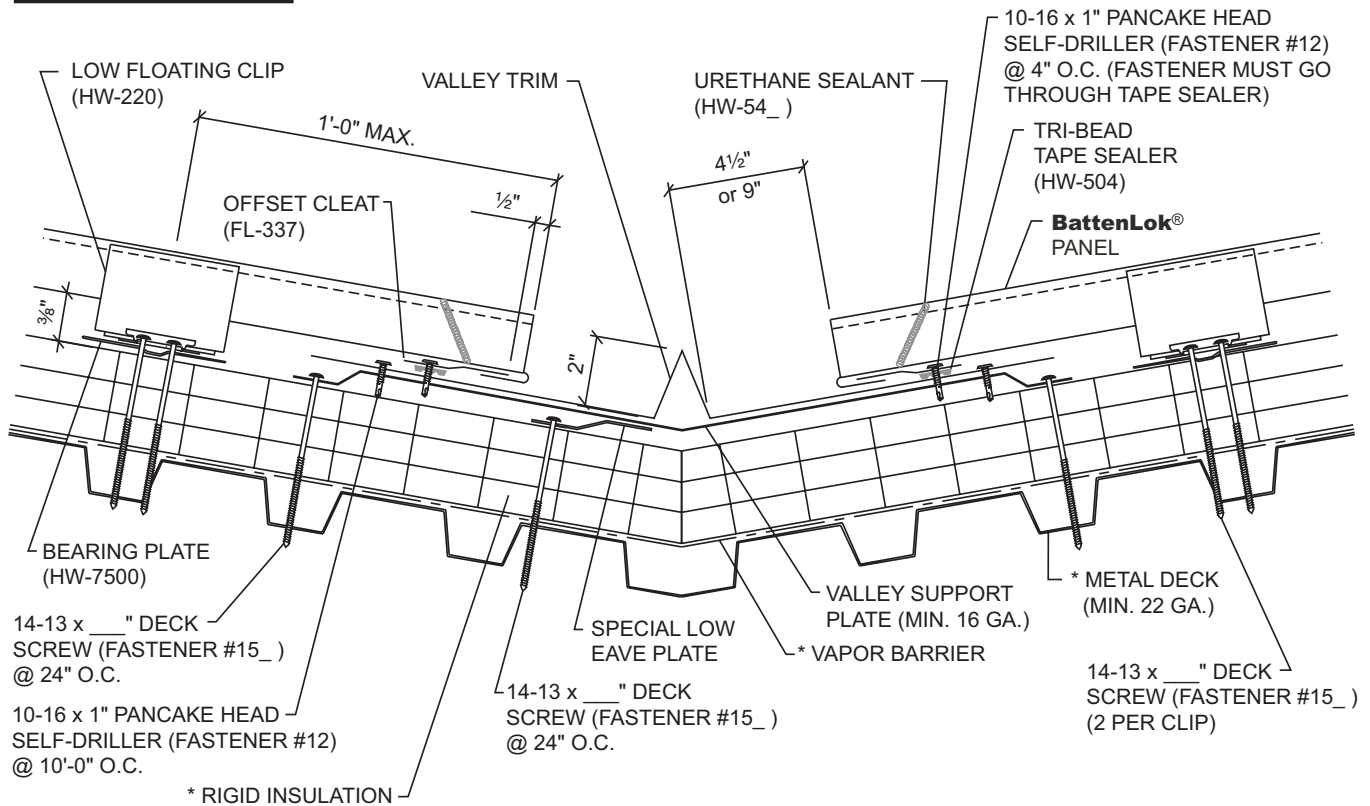
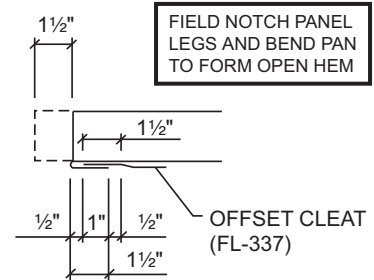
1. High side eave must have an offset support plate.
2. Install outside closure as shown on page BL-35.
3. Install Tri-Bead tape sealer to top leg of outside closure.
4. Attach high eave trim to outside closure with Fastener #14 at 6" O.C.
5. See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at high side eave.

\*Not by Roofing Manufacturer

## RIGID INSULATION OVER METAL DECK FLOATING VALLEY



URETHANE SEALANT MUST  
COME IN CONTACT WITH  
OFFSET CLEAT TO FORM A  
WEATHERTIGHT SEAL

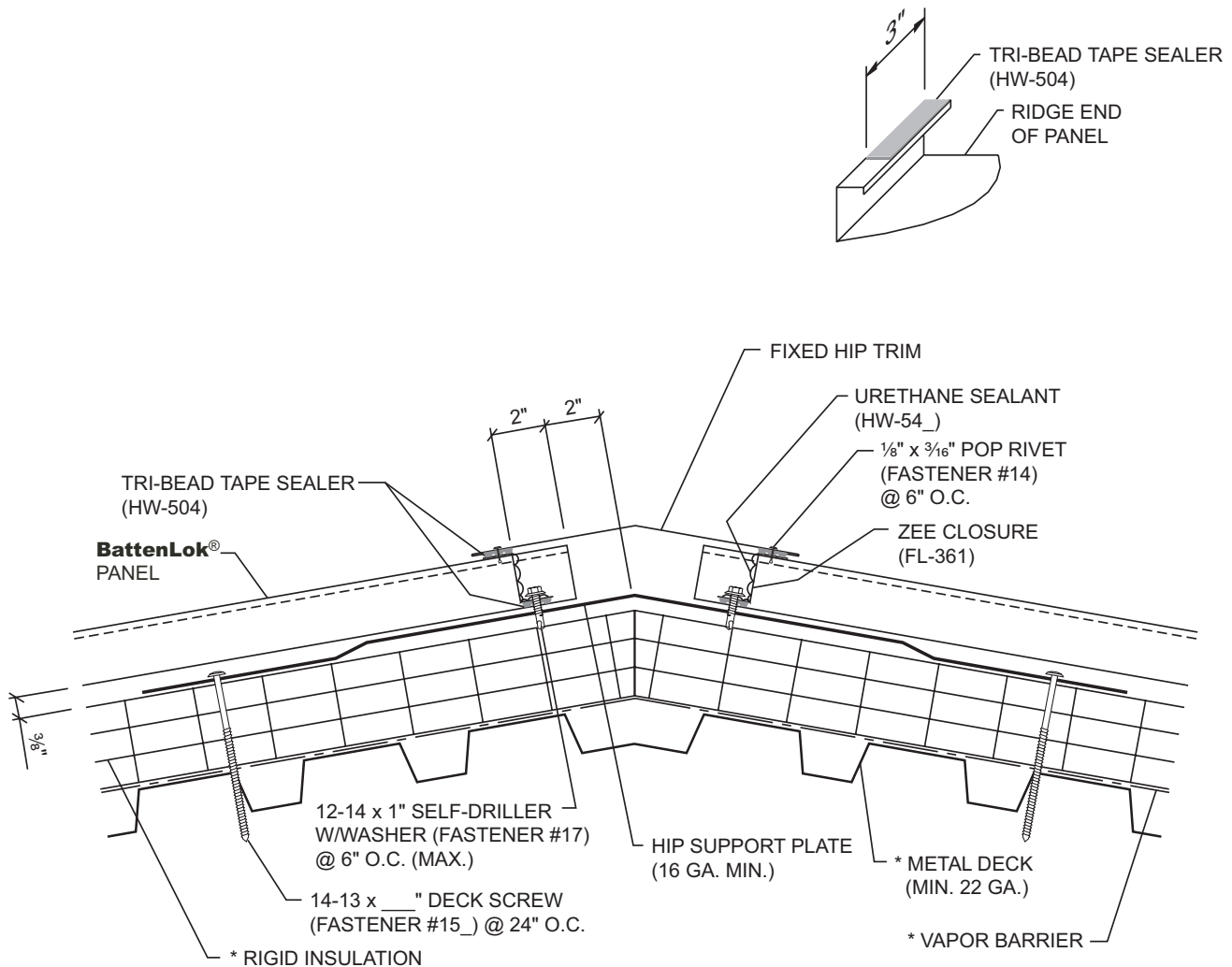


### NOTES:

1. For valleys longer than 30', use extended valley trim (see page BL-107).
2. **The hemmed panel 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.**
3. To field hem panel, see page BL-88.
4. Add 1 1/2" to panel length for the panel hem.
5. **Do not use this detail on roof slopes less than 3:12.**
6. **On high systems, overhang the panels 1/2" downslope from the 1" vertical leg of the valley trim to keep water off of upper leg of valley trim.**

\*Not by Roofing Manufacturer

## RIGID INSULATION OVER METAL DECK FIXED HIP

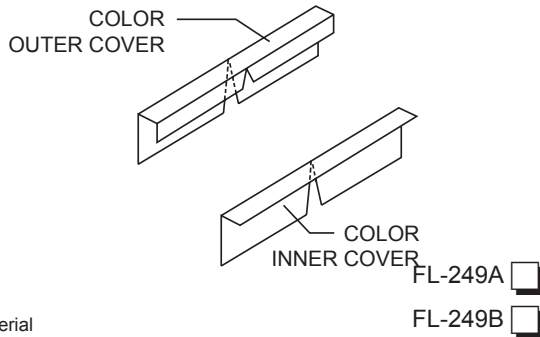


### NOTES:

1. Hip must have an offset support plate to reinforce panels between purlins.
2. Bevel cut and install panels to follow slope of hip.
3. Install Tri-Bead tape sealer to pans of panels, running parallel to the hip. Center of tape sealer should be 3½" from center of hip.
4. Bevel cut and install "Z" closures to panels and hip plate with Fastener #17 at 6" O.C. Vertical leg of "Z" closure should be 4" from center of hip. Seal sides and top of "Z" closures to panel seams with urethane sealant.
5. Attach ridge/hip flash to outside closures with Fastener #14 at 6" O.C.
6. **See "Panel End Sealant Detail at Ridge" on page BL-28 to seal panel seams at ridge.**

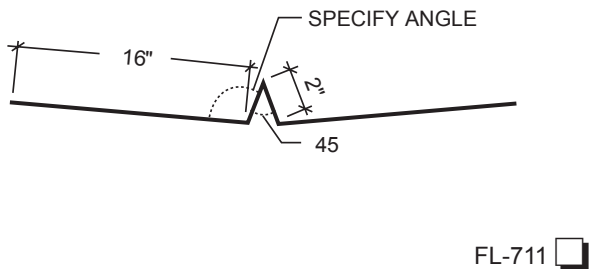
## PRODUCT CHECKLIST

### Two Piece Rib Cover

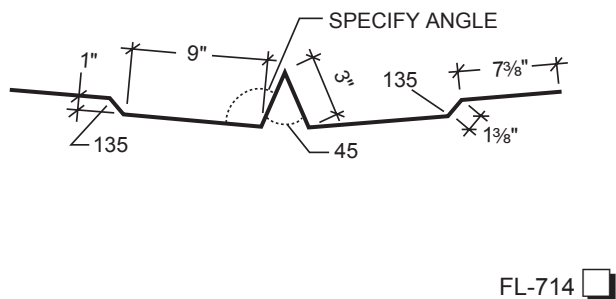


24 Gauge Material

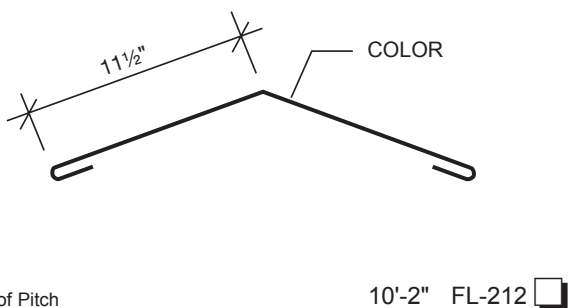
### Extended Valley Flashing – Low/Utility Systems



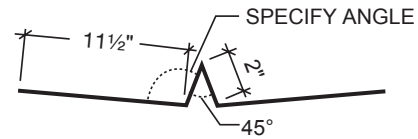
### Extended Valley Flashing – High Systems



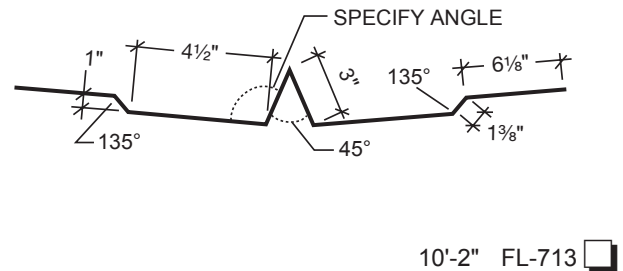
### Hip Flashing – Fixed Systems



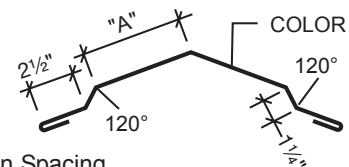
### Valley Flashing – Low or Utility Systems



### Valley Flashing – High Systems



### Hip Flashing – Floating Systems



### 12" Peak Purlin Spacing

ROOF PITCH	DIM. A	PART No.
1/4-2 1/2:12	6 1/2"	FL-213 <input type="checkbox"/>
2 9/16-4:12	7 1/2"	FL-214 <input type="checkbox"/>

### Perforated Vent Drip

- 10' Length
- 24 Gauge Galvalume®

