



Curved BattenLok®

Technical/Installation Information

IMPORTANT NOTICE

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

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

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

Ice Dam Disclaimer

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

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

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

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

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Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, MBCI reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. **To ensure you have the latest information available, please inquire or visit our website at www.mbc.com.** Application details are for illustration purposes only and may not be appropriate for all environmental conditions, building designs or panel profiles. Projects should be designed to conform to applicable building codes, regulations and accepted industry practices. If there is a conflict between this manual and project erection drawings, the erection drawings will take precedence.

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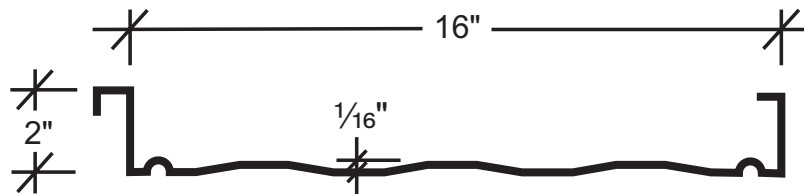
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PRODUCT INFORMATION

GENERAL DESCRIPTION



Coverage Widths - 16"

Minimum Radius - 20'-0"

Panel Attachment - Low, High (fixed or floating), or Utility (no insulation clearance)

Panel Substrate - Galvalume® (standard)

Gauge - 24 (Standard); 22 (Optional)

Finishes - Smooth Striated (standard)*

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

PRODUCT SELECTION CHART

PRODUCT	Signature® 300 Metallic		Signature® 300		Signature® 200		Galvalume Plus®	
	24-Ga.	22-Ga.	24-Ga.	22-Ga.	24-Ga.	22-Ga.	24-Ga.	22-Ga.
Curved BattenLok 16" Wide	■	■	■	■	■	■	●	■

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

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

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

PRODUCT INFORMATION

ARCHITECT/ENGINEER INFORMATION

1. **Curved BattenLok®** is a mechanically seamed roof system. Panels are available in 16" width and 24 gauge only. Panels may be installed on roofs with radii of 20' or greater.
2. Roofs with chord lengths too large for single panel applications may be sheeted with multiple panels. Please see ordering information on Page CB-3 for proper panel designations.
3. Panels do not have factory applied mastic. $\frac{1}{2}$ " x $\frac{3}{32}$ " tape mastic must be field applied to the male leg of the panels during roof installation.
4. **Curved BattenLok®** is a structural roofing panel and may be installed directly over purlins or joists. It may also be installed over wood decks and metal deck with rigid insulation.
5. The substructure must be true. Any deviations in the substructure will telegraph through to the panels which may cause oil canning and other distortions. Panels cannot be installed over segmented decks.
6. The information in this manual is believed to be correct and accurate. It should not be used for any specific application without being reviewed by a registered professional engineer.
7. **Curved BattenLok®** panels are not designed to be work platforms. Avoid any unnecessary foot traffic on Curved BattenLok® panels. If foot traffic is required, protect the roof panels by using soft soled shoes and roof pads or temporary deck.
8. 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 degrees Fahrenheit are anticipated and where average winter interior relative humidity of 45% or greater is expected. (B) Buildings with high humidity interiors, such as 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.
9. 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 **Curved BattenLok®** panel will lay tight to the wood deck. If tin tabs are used to attach the moisture barrier to the wood 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.

WARNING

As with all standing seam roof systems, sound attenuation (example: blanket insulation) should be installed between the panels and open framing, such as purlins or joists, to prevent "roof rumble" during windy conditions.

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

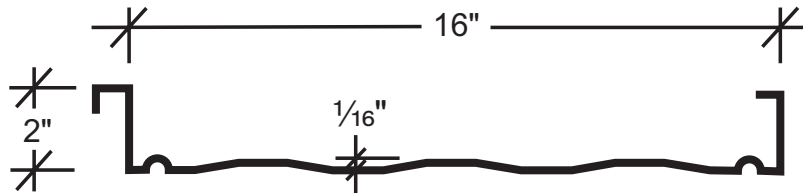
A vapor retarder may be necessary to protect roofing components when high humidity is a factor. The need for a vapor retarder, as well as the type, placement and location should be determined by an architect or engineer. The following are examples of conditions that may require a vapor retarder: (A)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

CAUTION

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

PRODUCT INFORMATION

UNDERWRITERS LABORATORIES APPROVAL Curved BattenLok®



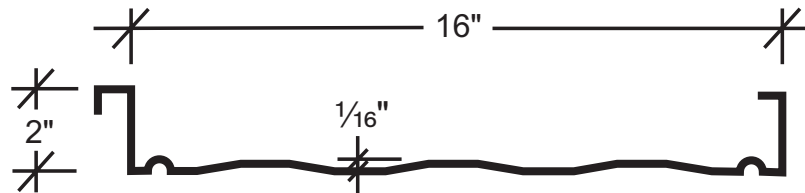
Construction Number	Panel Width (in.)	Gauge	Clip Type	Clip Spacing	Substrate	UL-2218 Impact Resistance	UL-263 Fire Rating	UL-580 Rating
576	16"	24 min.	Fixed or Floating High or Low	5'-0"	Plywood / OSB	Class 4	Class A	Class 90
577	16"	24 min.	Fixed or Floating High or Low	5'-0"	Metal Deck	Class 4	Class A	Class 90
583	16"	24 min.	Fixed or Floating High or Low	5'-0"	Open Framing	Class 4	Class A	Class 90

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.
4. The panel system qualifies under the following Fire Resistance Design Numbers: P225, P227, P230, P237, P265, P268, P508, P510, P512, P701, P711, P720, P722, P726, P731, P734, P801, P815 and P819.
5. Curved BattenLok® panels carry a Class 4 rating under UL-2218 "test Standard For Impact Resistance".

PRODUCT INFORMATION

Curved BattenLok® PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	F _y	WEIGHT	I _{xe}	S _{xe}	Maxo	I _{xe}	S _{xe}	Maxo
GAUGE	(KSI)	(PSF)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)	(IN. 4/FT)	(IN. 3/FT)	(KIP-IN)
24	50	1.29	0.0551	0.0545	1.633	0.1072	0.0618	1.8524
22	50	1.65	0.0766	0.0804	1.4066	0.1517	0.0892	2.6712

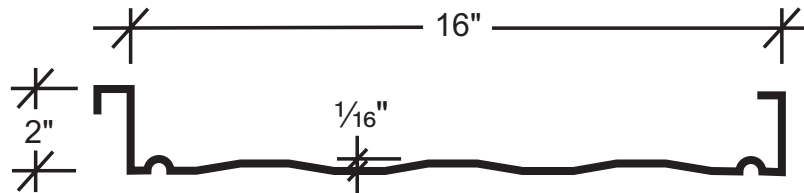
NOTES

1. All calculations for the properties of **Curved BattenLok®** panels are calculated in accordance with the 2012 edition of the North American Specification for Design of Cold-Formed Steel Structural Members.
2. I_{xe} is for deflection determination.
3. S_{xe} is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.

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

PRODUCT INFORMATION

Curved 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 LOAD	162.0	135.0	100.8	77.2	61.0	49.4	40.8
2-SPAN	LIVE LOAD	162.0	121.0	88.9	68.0	53.8	43.5	36.0
3-SPAN	LIVE LOAD	162.0	135.0	111.1	85.1	67.2	54.4	45.0
4-SPAN	LIVE LOAD	162.0	135.0	103.7	79.4	62.7	50.08	42.0

22- Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		2.5	3.0	3.5	4.0	4.5	5.0	5.5
SINGLE	LIVE LOAD	233.4	194.5	145.4	111.3	87.9	71.2	58.9
2-SPAN	LIVE LOAD	233.4	178.3	131.0	100.3	79.2	64.2	53.0
3-SPAN	LIVE LOAD	233.4	194.5	163.7	125.3	99.0	80.2	66.3
4-SPAN	LIVE LOAD	233.4	194.5	152.9	117.0	92.5	74.9	61.9

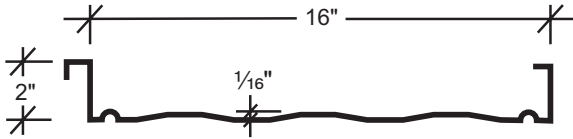
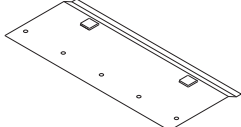
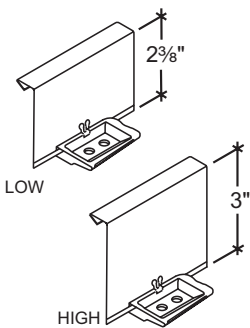
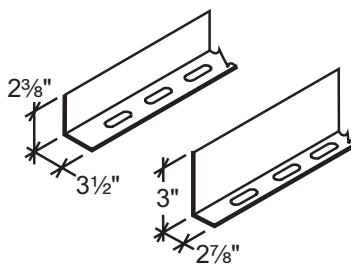
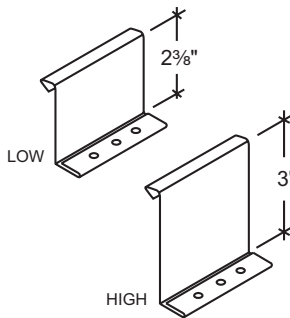
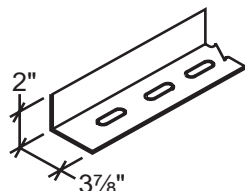
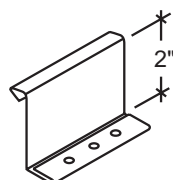
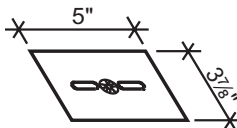
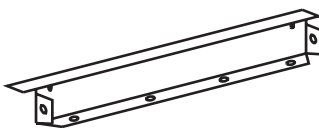
NOTES:

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

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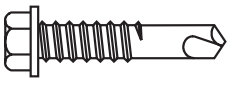
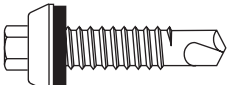

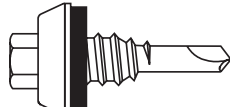
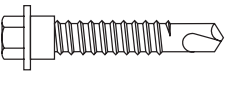
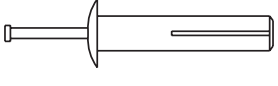
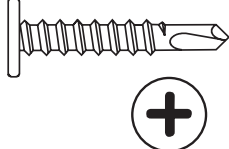
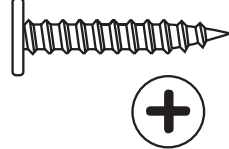
GENERAL INFORMATION

PRODUCT CHECKLIST

<p>Curved BattenLok® 16" wide</p>  <p>16" wide <input type="checkbox"/></p>	<p>Back-Up Plate, 16" wide</p>  <ul style="list-style-type: none"> • For use at high eave and endlaps • Prepunched • 16 gauge red oxide <p>HW-7766 <input type="checkbox"/></p>
<p>SuperLok® Clip, Floating</p>  <ul style="list-style-type: none"> • Low - For use with or without 3/8" thermal spacer • High - For use with or without 3/8", 5/8" or 1" thermal spacer <p>Low - HW-230 <input type="checkbox"/></p> <p>High - HW-232 <input type="checkbox"/></p>	<p>Rake Support</p>  <ul style="list-style-type: none"> • 20'-0" length • 14 gauge red oxide • Factory slots • Field curved or kerfed <p>Low - HW-7712 <input type="checkbox"/></p> <p>High - HW-7722 <input type="checkbox"/></p>
<p>SuperLok® Clip, Fixed</p>  <ul style="list-style-type: none"> • Low - For use with or without 3/8" thermal spacer • High - For use with or without 3/8", 5/8" or 1" thermal spacer <p>Low - HW-236 <input type="checkbox"/></p> <p>High - HW-234 <input type="checkbox"/></p>	<p>Rake Support - Utility</p>  <ul style="list-style-type: none"> • 20'-0" length • 14 gauge red oxide • Factory slots • Field curved or kerfed • For use with utility clip <p>Utility - HW-7732 <input type="checkbox"/></p>
<p>SuperLok® Clip, Utility</p>  <ul style="list-style-type: none"> • For applications that do not require the clearance provided by the low and high clips <p>HW-238 <input type="checkbox"/></p>	<p>Bearing Plate - Standard</p>  <ul style="list-style-type: none"> • 16 gauge red oxide • For use over rigid insulation <p>HW-7500 <input type="checkbox"/></p> <p>Outside Closure - Standard, 16" wide</p>  <p>HW-440 <input type="checkbox"/></p>






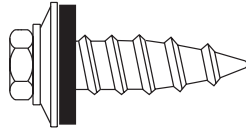

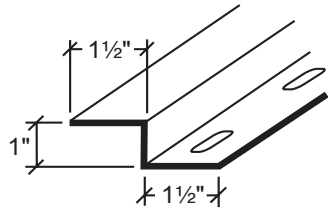
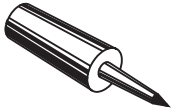

GENERAL INFORMATION

PRODUCT CHECKLIST

<p>Fastener #1A</p> <ul style="list-style-type: none"> • Clip to purlin  <p>12-14 x 1" Self Driller 5/16" Hex Washer Head, with no washer</p> <input type="checkbox"/>	<p>Fastener #1E</p> <ul style="list-style-type: none"> • Panel to eave plate or eave strut • Rake trim to roof panel • Standard endlaps (open framing) • Panel to valley plate  <p>1/4" - 14 x 1 1/4" Long Life Driller 5/16" Hex Washer Head, with sealing washer</p> <input type="checkbox"/>
<p>Fastener #2A</p> <ul style="list-style-type: none"> • Use in place of fasteners #1E and #4 at all stripouts  <p>17 x 1" Long Life AB 5/16" Hex Washer Head, with sealing washer</p> <input type="checkbox"/>	<p>Fastener #4</p> <ul style="list-style-type: none"> • High eave and other flashing to outside closure • Gutter to Panel • Gutter to strap • Trim to trim connections  <p>1/4" - 14 x 7/8" Long Life Lap TEK Driller 5/16" Hex Washer Head, with sealing washer</p> <input type="checkbox"/>
<p>Fastener #5</p> <ul style="list-style-type: none"> • Rake support to purlin • Floating eave plate to eave strut  <p>1/4" x 14 x 1 1/4" Shoulder Tek 3</p> <input type="checkbox"/>	<p>Fastener #11</p> <ul style="list-style-type: none"> • Special application fastener • For use on masonry  <p>1/4" x 1 1/4" Nail Drive Masonry Anchor</p> <input type="checkbox"/>
<p>Fastener #12</p> <ul style="list-style-type: none"> • Utility clip to purlin • Offset cleat to valley support plate or eave strut • Rake angle to purlin  <p>10 x 1" Phillips Pancake Head Self Driller</p> <input type="checkbox"/>	<p>Fastener #13</p> <ul style="list-style-type: none"> • Clip to wood deck  <p>10 x 1" Type A #2 Phillips Pancake Head</p> <input type="checkbox"/>

GENERAL INFORMATION

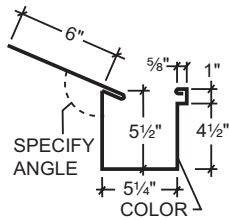
PRODUCT CHECKLIST

<p>Fastener #14</p> <ul style="list-style-type: none"> • Trim to trim connections • Stainless steel  <p>Pop Rivet 1/8" diameter x 3/16" grip range</p>	<p>Fastener #15B</p> <ul style="list-style-type: none"> • For clip attachment in a composite roof assembly • Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications • Length to be determined by insulation thickness and metal deck depth  <p>14 x 2 7/8" Deck Screw Driller #3 Phillips Truss Head</p>
<p>Fastener #15C</p> <ul style="list-style-type: none"> • For clip attachment in a composite roof assembly • Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications • Length to be determined by insulation thickness and metal deck depth  <p>14 x 4 1/2" Deck Screw Driller #3 Phillips Truss Head</p>	<p>Fastener #17</p> <ul style="list-style-type: none"> • Outside closure to panel at high eave (with back-up plate)  <p>12 - 14 x 1" Self Driller 5/16" Hex Washer Head, with 5/8" O.D. washer</p>
<p>Tri-Bead Tape Sealer</p> <ul style="list-style-type: none"> • For use at trim connections  <p>3/16" x 7/8" x 25'</p> <p>HW-504</p>	<p>Fastener #18</p> <ul style="list-style-type: none"> • Clip to plywood • Eave plate to plywood • Outside closure to Panel at high eave (with plywood)  <p>14 x 1" Type A 5/16" Hex Head, with 5/8" O.D. washer</p> <p>HW-7500</p>
<p>Triple-Bead Tape Sealer</p> <ul style="list-style-type: none"> • For use at endlaps  <p>3/16" x 2 1/2" x 20'</p> <p>HW-502</p>	<p>Eave Plate, High</p>  <p>HW-440</p>
<p>Caulk, Urethane</p> <ul style="list-style-type: none"> • Paintable 	
<p>Panel Hemming Tool</p>  <p>HW-602</p>	

GENERAL INFORMATION

PRODUCT CHECKLIST

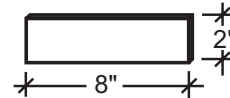
Box Gutter



24 Gauge Material
Specify Roof Pitch

T-5271 ☐

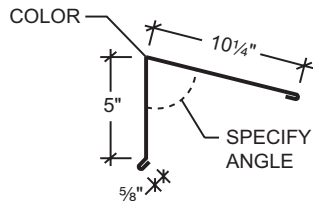
Gutter Strap



24 Gauge Material

FL-310 ☐

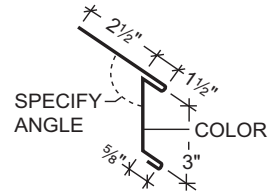
Box High Side Eave Trim



Specify roof pitch
24 Gauge material
Specify open hem when using with
continuous cleat

T-5085 ☐

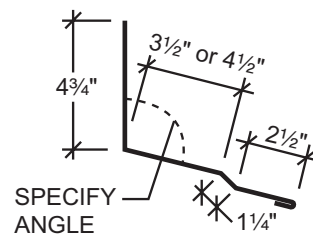
Eave W/Extended Drip Edge Flash



24 Gauge Material

T-5151 ☐

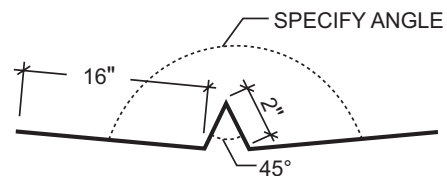
Parapet High Side Eave Flash



24 Gauge material

FL-275 ☐

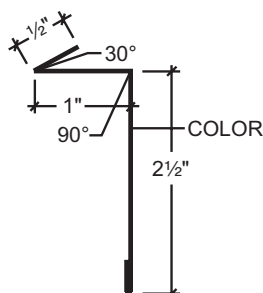
Low System Extended Valley Flash



24 Gauge Material

FI-711 ☐

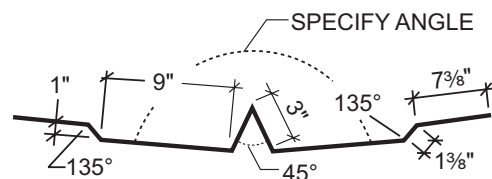
Counter Flash



24 Gauge material

FL-341 ☐

High System Extended Valley Flash


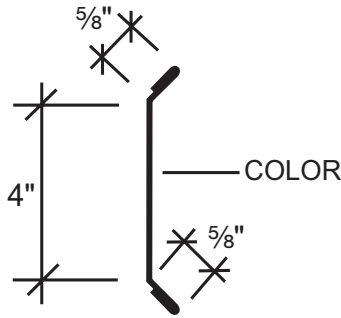
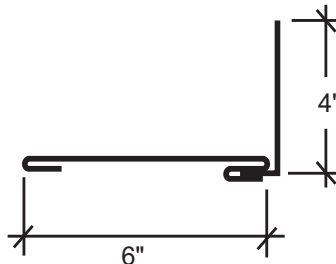
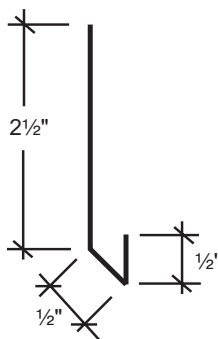
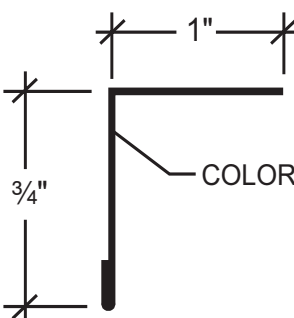
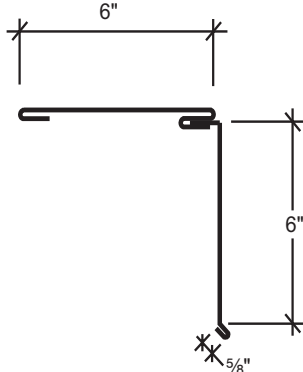


24 Gauge material

FL-715 ☐

GENERAL INFORMATION

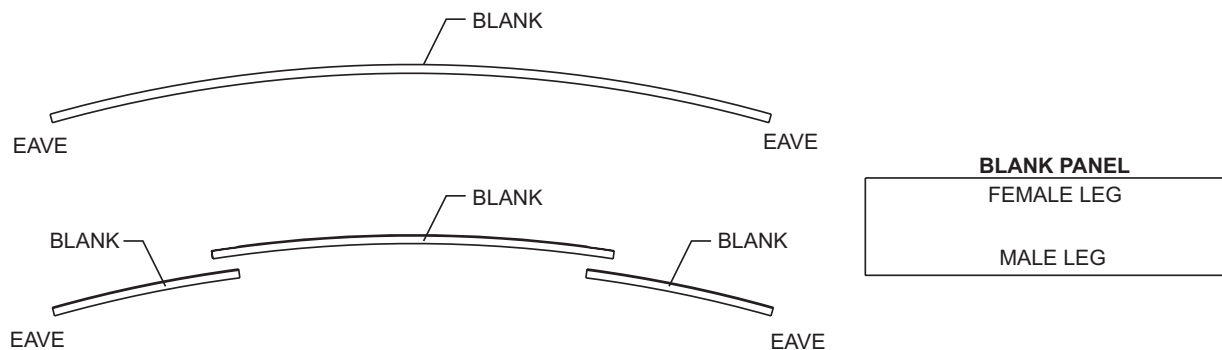
PRODUCT CHECKLIST

<p>Curved Variable Termination Trim</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>(Not Pre-Curved) 24 Gauge Material</p> <p>10'-2" FL-372 <input type="checkbox"/> 20'-2" FL-374 <input type="checkbox"/></p>	<p>Curved Counter Flash</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>24 Gauge Material</p> <p>Please Inquire <input type="checkbox"/></p>
<p>Curved Parapet Rake Flash</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>24 Gauge Material</p> <p>Please Inquire <input type="checkbox"/></p>	<p>Curved Rake Clip</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>(Not Pre-Curved) 24 Gauge Material</p> <p>FL-378 <input type="checkbox"/></p>
<p>Curved Rake Cleat</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>24 Gauge Material</p> <p>Please Inquire <input type="checkbox"/></p>	<p>Curved Rake Trim</p> <ul style="list-style-type: none"> • Curving of trim is to be outsourced by the customer  <p>24 Gauge Material</p> <p>Please Inquire <input type="checkbox"/></p>

GENERAL INFORMATION

ORDERING INFORMATION

- I. When ordering **Curved BattenLok®** panels without technical assistance from MBCI, the following must be provided:
 - A. Panel Length -The length of each panel should include the proper overhang at the eave, endlap, and high eave as required. Refer to specific details in this manual for the proper overhang at these locations. If the panels are to be hemmed at the eave, **add 1½" to the panel length for each hem.**
 - B. **Curved BattenLok®** panels require the use of **SuperLok® Clips**. Refer to product check list.



- II. If your specific detail is not in this manual or if you have questions concerning panel length, designation or product application, call your MBCI representative.

INSTALLATION GUIDELINES

- I. Pre-Order
 - A. **Prior to ordering panels, all dimensions should be confirmed by field measurement.**
- II. Job site Storage and Handling
 - A. Check the shipment against the shipping list.
 - B. Damaged material must be noted on Bill of Lading.
 - C. Panel crates should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
 - D. Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.
- III. Application Checklist
 - A. Check substructure for proper alignment and uniformity to avoid panel distortion.
 - B. Periodic check of panel alignment is crucial to proper panel alignment.
 - C. If there is a conflict between this manual and the erection drawings, the erection drawings will take precedence.

GENERAL INFORMATION

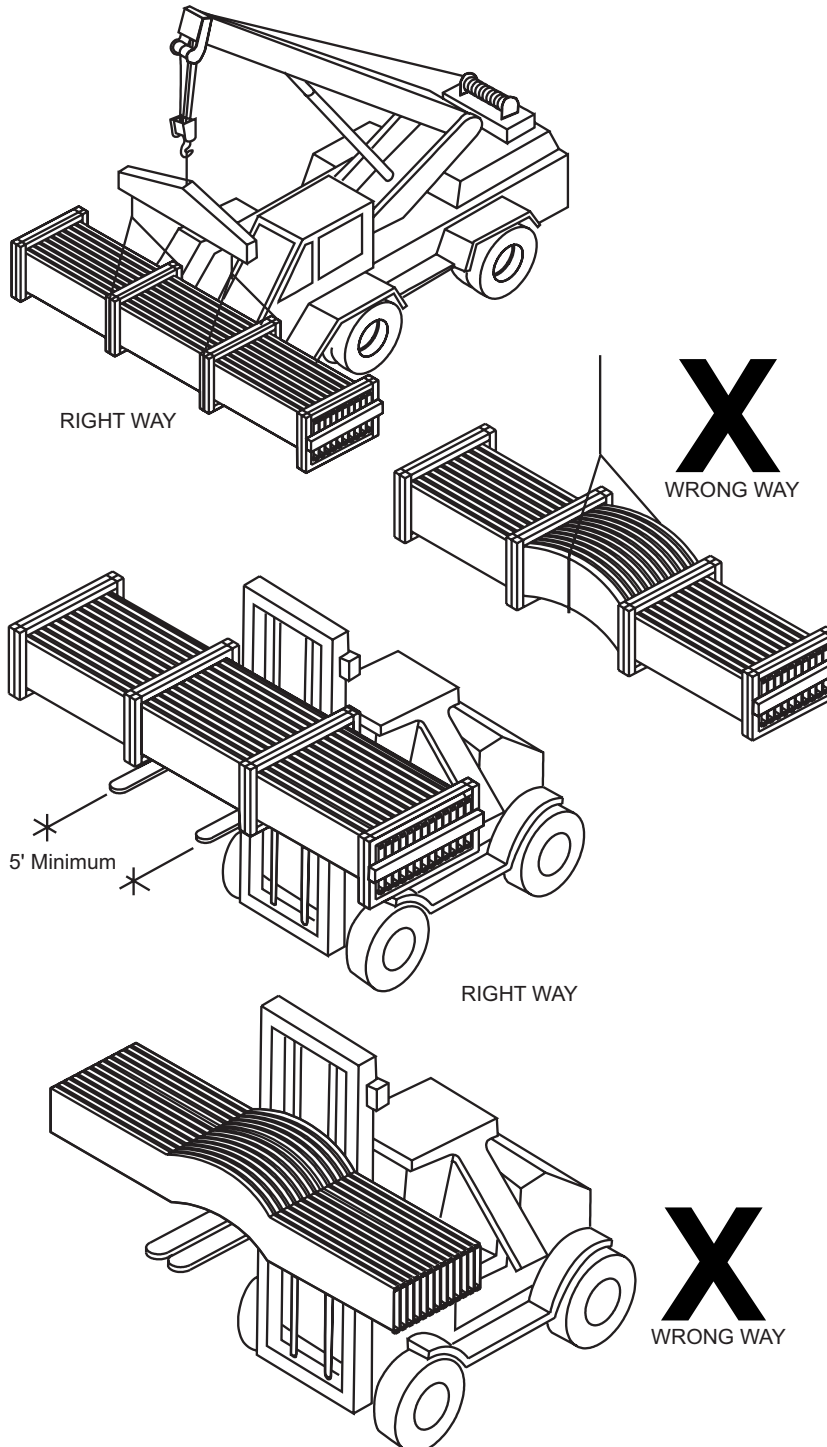
PREPARATORY REQUIREMENTS

1. MBCI has field seaming kits available for installation of the **Curved BattenLok®** roof system. To reserve a kit, please complete a **Curved BattenLok®** Seaming Tool Rental Agreement and return it to your MBCI representative. This form should be submitted as soon as possible to ensure kit availability. Other types of field seaming machines may seam the MBCI Curved BattenLok® panels. However, MBCI cannot be held responsible for any wind uplift resistance or for damage when another type of field seamer is used.
2. When installing **Curved BattenLok®** over open framing, a curved angle or other member must be installed at each rake to allow the beginning and finishing panels to be fastened at 2'-0" centers max. Extreme wind conditions may require fastening at closer centers.
3. Check the radius of the substructure in several places. Installing panels curved to a radius different from the substructure may cause oil canning. Any deviations in the substructure will telegraph through to the panels which may cause oil canning or other distortions.
4. It is critical that the purlins or bar joists at the ridge and endlaps be located exactly as detailed and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the ridge or endlaps to foul as the panels expand and contract.
5. Curved panels do not have factory mastic in the sidelap. The roof installer must field apply 1/2" x 3/32" tape sealer to the male leg of each panel as they are being installed.
6. When panels are to be curved on site, the following must be provided:
 - Manpower to handle panels at the in-feed and out-feed of curving. Number of personnel required will be determined by panel length. Panels can be curved at approximately 30' per minute if bundles are close to curving machine and adequate personnel are available.
 - 115 volt power supply within 50' of curving operation.
 - Equipment to unload the panels and curving equipment and to hoist curved panels onto the roof.
 - A level surface or platform on which to perform the curving operation.
7. Keep panels clean and dry. Any dirt or debris must be removed from panels before curving.
8. If the curved panels are not immediately used, it is the installer's responsibility to properly secure and store the panels to prevent damage.
9. On projects with both straight and curved panels, make sure the panels that are to be field curved are not used on a straight area of the roof. The panels to be field curved are different from panels used in straight applications. Panels that are to be field curved will have a label on the bundle identifying them as "For Curving Only".

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.

GENERAL INFORMATION



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 PAELS.**

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.

On projects with both straight and curved panels, store curved panels separately. Panel bundles that are to be field curved will be marked with a blue label stating: "These Panels are for Field Curving Only"

CAUTION

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

GENERAL INFORMATION

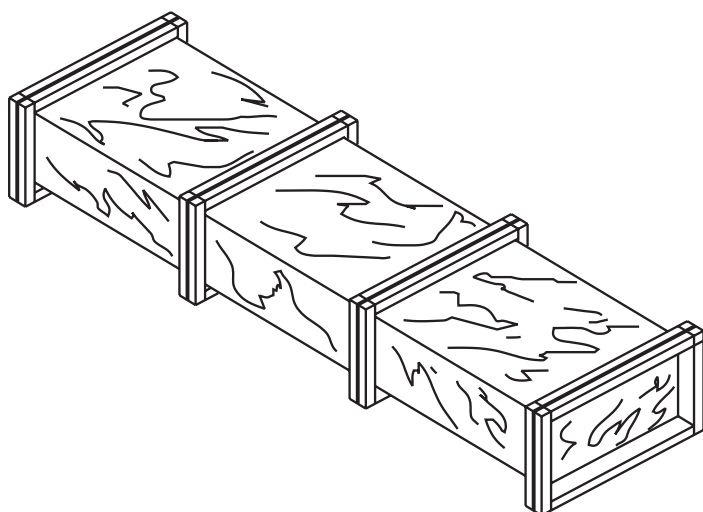
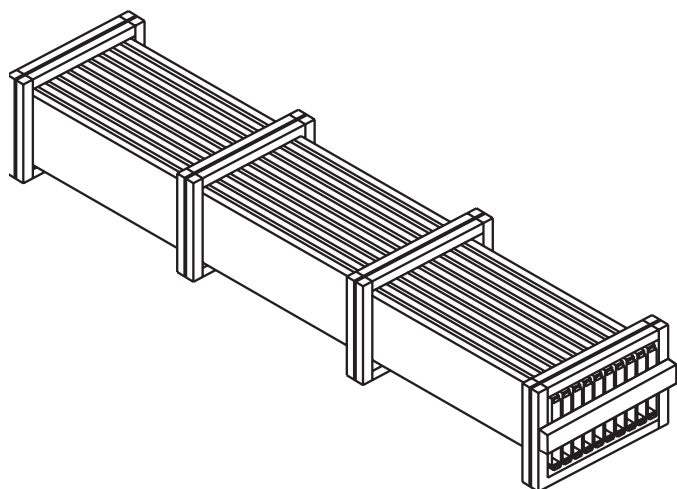
UNLOADING (Continued)

BLOCK AND BAND

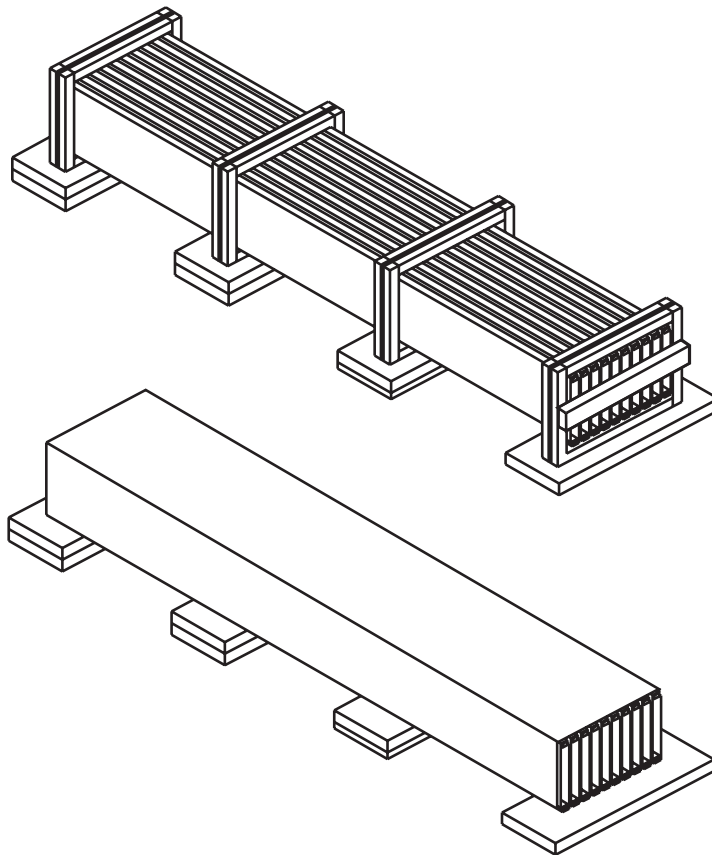
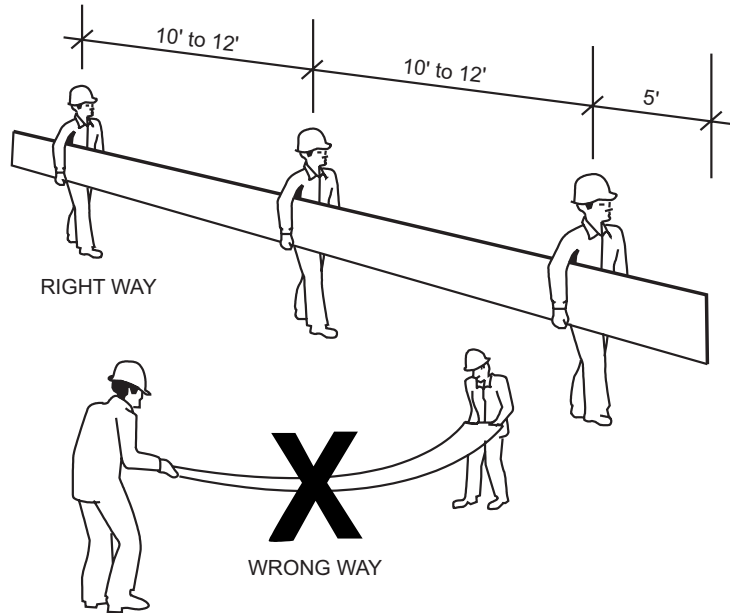
This method of bundling is used for orders that are to be picked up by the customer or shipped by common carrier. 2 x 4's are strapped under the bundles to allow access for straps or a forklift. Bundles less than 25' long may be handled by a forklift. The forklift should have at least 5' between forks.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



HANDLING/ PANEL STORAGE

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

Do not pick panels up by the ends.

NOTE

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

Store bundled sheets off the ground sufficiently high to allow air circulation beneath bundle and to prevent rising water from entering bundle. Slightly elevate one end of bundle. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground.

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

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

GENERAL INFORMATION

PROPER HANDLING, STORAGE AND MAINTENANCE OF PAINTED AND GALVALUME PLUS® PANELS PANEL HANDLING

- All panel bundles must be inspected during unloading and carrier advised immediately if damage is noted.
- Never unload or move panel bundles that have been opened without adequately clamping them. Without the banding to hold the bundle stable, panels may shift during unloading or movement, causing the bundle to fall.
- Never use wire slings to unload or move panel bundles.
- When unloading or moving panel bundles over 20' long, a spreader bar may be required. It is the erector's responsibility to determine the location and number of lift points required to safely unload or move panel bundles.
- When handling individual panels, always wear protective gloves. OSHA safety regulations must be followed at all times.
- When cutting panels, always wear all required safety equipment such as safety glasses and gloves. Cut panels with nibblers, shears or snips. Do not use abrasive blade saws as these will melt the Galvalume® coating causing the panel edge to rust which will void the Galvalume® and Paint warranties. Drilling fasteners into panels will create metal filings that will rust and create an unsightly stain. Metal filings must be removed by sweeping or wiping down panels immediately after installation to avoid this occurrence.

PANEL STORAGE

- If water is permitted to enter panel bundles, it is necessary to open bundles, separate the panels and dry all surfaces.
- Store bundled panels 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 panels in a bundle is not recommended. If conditions do not permit immediate erection, extra care should be taken to protect panels from white rust or water marks. If panels have not been erected within three weeks of receipt, the panels should be removed from the bundle for inspection. Condensation may cause damage to panels. The manufacturer's paint and Galvalume® warranties do not cover damage caused by improper panel storage.

PANEL MAINTENANCE

- Never allow Galvalume® panels to come into contact with or water runoff from dissimilar materials such as copper, lead, or graphite. These materials will cause galvanic corrosion of the panels and will void the Galvalume® warranty. This includes treated wood and AC condensate, both of which contain copper compounds. This also applies to painted panels.
- Always use long life fasteners in all exposed fastener applications. Non long life fasteners can rust through the panel at each exposed fastener location. Use of non long life fasteners in exposed applications will void the Galvalume® and Paint warranties.
- Panels should be protected against exposure to masonry products, strong acids or bases and solvents. Exposure to these agents may etch or stain Galvalume Plus® panels and cause painted panels to blister or peel.



GENERAL INFORMATION

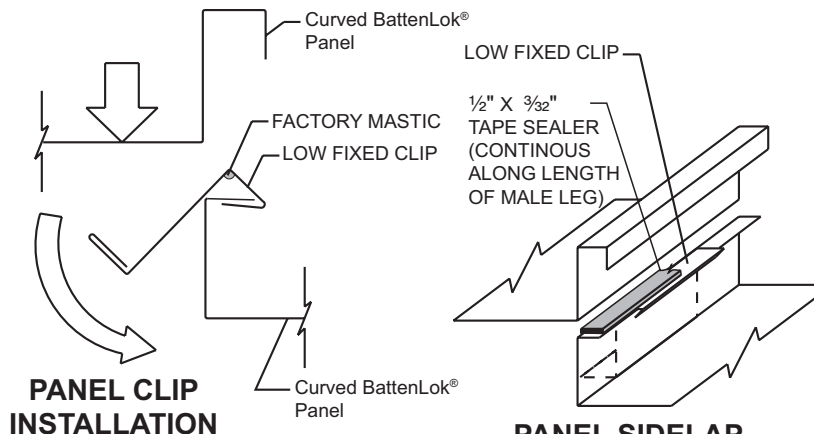
- Never allow anyone to apply any coating or patching material to the panel surface. These products may contain chemicals that will adversely affect the Galvalume Plus® or paint coating. Also, water may become trapped between the coating material and the panel, causing premature corrosion.

If you have any question as to proper methods to use in the handling, storage or maintenance of these panels, call your nearest manufacturer representative.

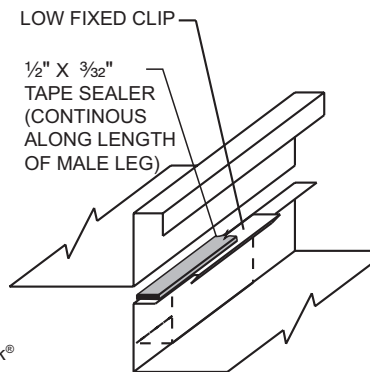
NOTICE

Uniform visual appearance of Galvalume Plus® coated panels cannot be guaranteed. The Galvalume Plus® coating is subject to variances in spangle from coil to coil which may result in a noticeable shade variation in installed panels. The Galvalume Plus® coating is also subject to differential weathering after panel installation. Panels may appear to be different shades due to this weathering characteristic. If uniform visual appearance is required, the manufacturer recommends that our prepainted Signature® 200 or Signature® 300 panels be used in lieu of Galvalume Plus®. Shade variations in panels manufactured from Galvalume Plus® coated material do not diminish the structural integrity of the product. These shade variations should be anticipated and are not a cause for rejection.

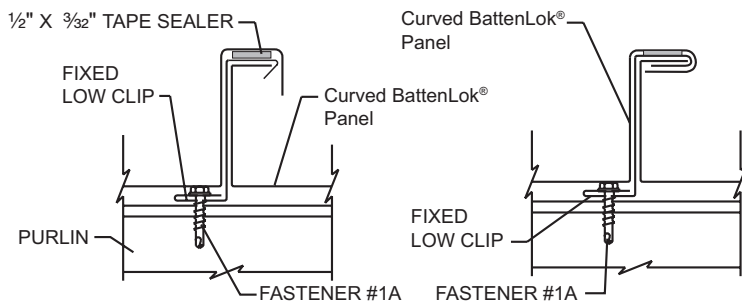
GENERAL INFORMATION



**PANEL CLIP
INSTALLATION**

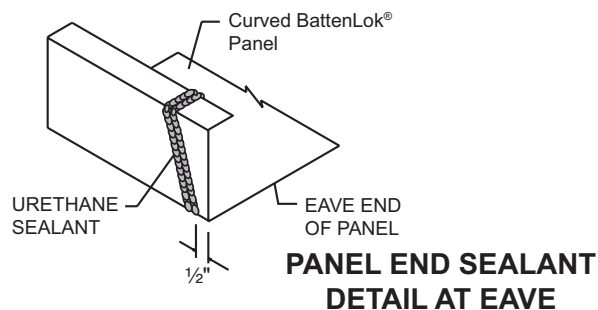


**PANEL SIDELAP
SEALANT**



**CROSS SECTION
BEFORE SEAMING**

**CROSS SECTION
AFTER SEAMING**



**PANEL END SEALANT
DETAIL AT EAVE**

RECOMMENDED INSTALLATION TECHNIQUES

Curved BattenLok® clips are supplied with factory applied mastic. If a clip must be removed from the panel, check factory mastic - if damaged, replace with a bead of urethane sealant.

Seal panel sidelaps by applying a piece of $\frac{1}{2}'' \times \frac{3}{32}''$ tape sealer along the top of the male leg for the length of the panel before the next panel is installed.

As panels are installed, hand seam at each clip with hand tool. Panels should be completely seamed with electric seamer as soon after installation as possible. Refer to pages CB-29 through CB-30 for seaming information.

Seal panel seams at eave and valleys with urethane sealant.

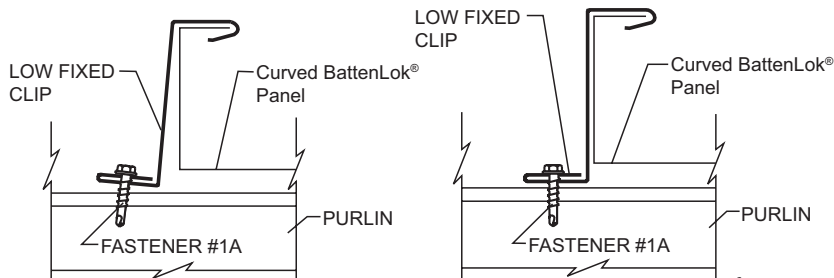
GENERAL INFORMATION

RECOMMENDED INSTALLATION TECHNIQUES (Continued)

When installing clips, be sure to push them tight to the panel before installing fasteners. If you leave a gap between the clip and the panel, it will affect panel module.

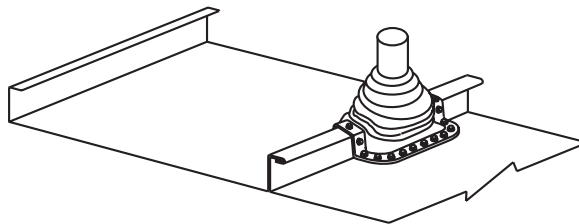
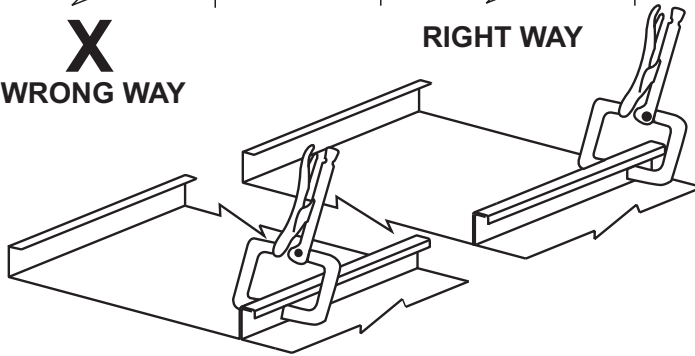
Before installing clips to second and all following panels, "C" clamp the panel seam at both ends. Long panels may require one or more "C" clamps in the middle. This will help hold panel module.

Never install plumbing vent pipes through the panel seam. Always install in the pan of panel.

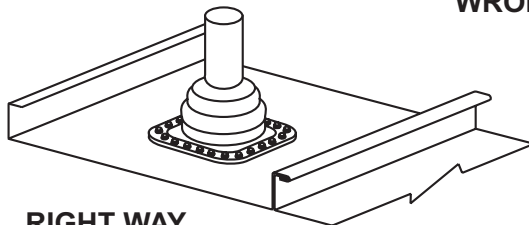


X
WRONG WAY

RIGHT WAY



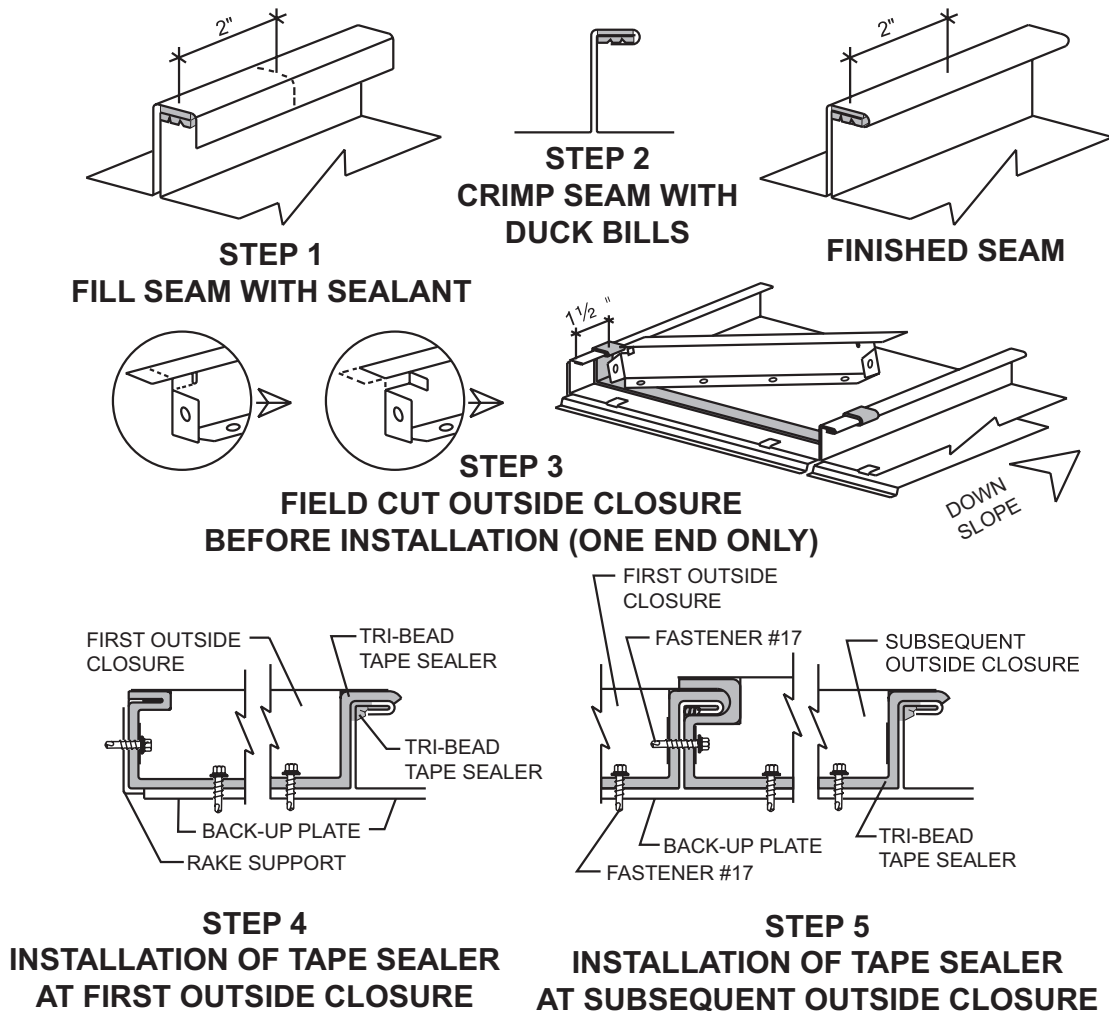
X
WRONG WAY



RIGHT WAY

DETAILS

OUTSIDE CLOSURE

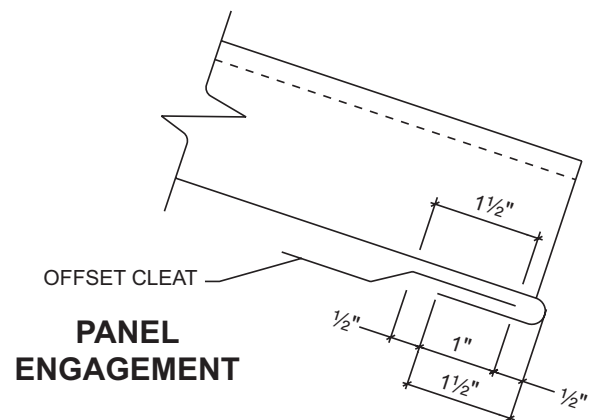
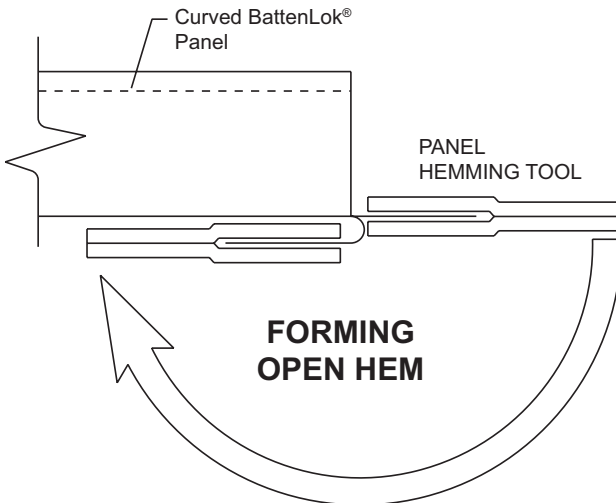
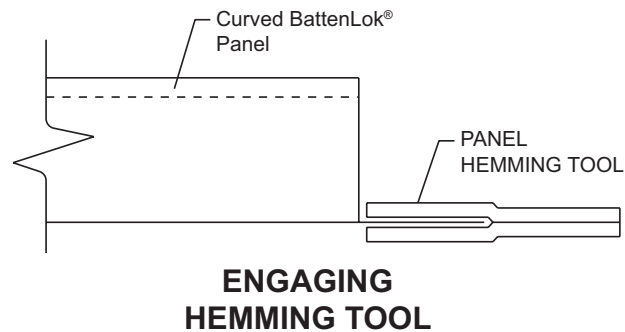
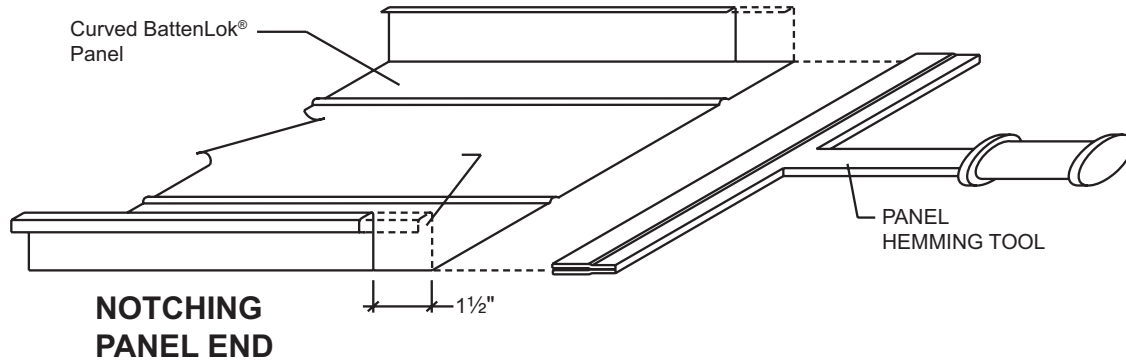


NOTES:

1. Panels must be seamed before the outside closures are installed. Do not seam the first 9" of panel at the ridge with the electric seamer. This will allow the panel seams to be properly sealed as outlined in the following steps.
2. At the ridge, fill the inside cavity of the panel seam with Tri-Bead tape sealer. This should be done for the first two inches of seam only.
3. Using the hand crimper, crimp the remaining 9" of seam. If needed, "duck bills" may be used to further flatten the seam in Step 2. This will force the Tri-Bead tape sealer into all voids. Excess sealant will be forced out the below the seam.
4. Install Tri-Bead tape sealer across width of panel. Center of tape sealer should be 1 1/2" from end of panel. Begin tape sealer at top of seam. Roll tape sealer under seam, sealing to the excess urethane sealant forced from seam in Step 3. Tape sealer will continue down seam, across width of panel, up to and across the top of the adjacent seam. Field cut the end of the outside closure that accepts the seam of the panel. Cut the top leg off even with the tab on the end of the closure. Notch and bend the vertical leg of the closure, above the tab, back to the dimple formed into the closure.
5. Install first outside closure. Attach to panel with Fastener #17 at all prepunched holes. Vertical leg of outside closure should be 2" from end of panel.
6. Install Tri-Bead tape sealer across top leg of first outside closure where it laps over seam and continue tape sealer across next panel as outlined in Step 4. Field cut and install next and all subsequent outside closures as outlined in Steps 4 and 5.

DETAILS

FIELD HEMMING PANEL END

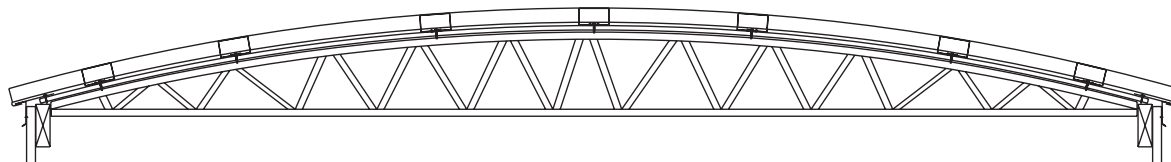


NOTES:

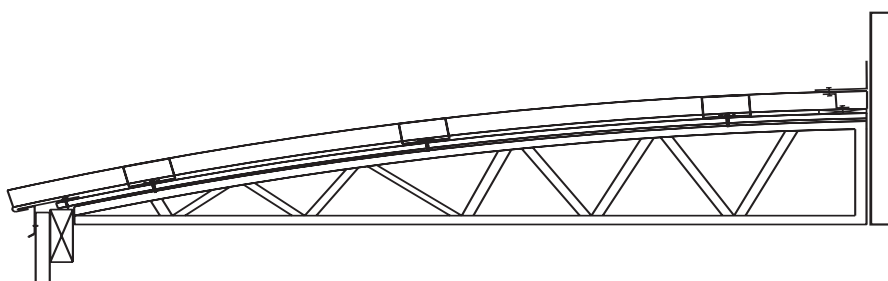
1. Field notch male and female legs of panel 1 1/2".
2. Flatten beads with "duck bills".
3. Engage panel hemming tool onto protruding pan of panel.
4. Bend pan of panel down to form an open hem.
5. Hem may be tightened with a pair of vise grip "duck bills."

DETAILS

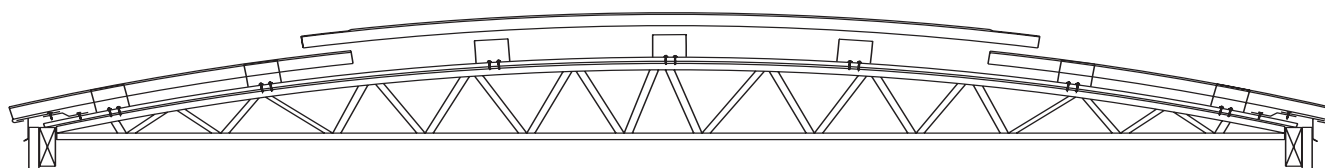
PANEL CONFIGURATION OVER PLYWOOD



SINGLE PANEL CONFIGURATION LOW SYSTEM ONLY



HIGH EAVE SINGLE OR MULTIPLE PANEL CONFIGURATION LOW OR HIGH SYSTEM

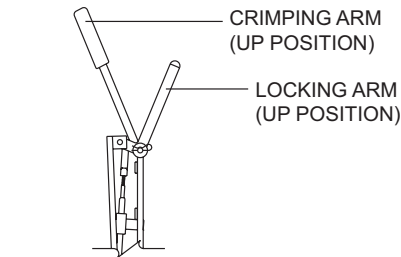


MULTIPLE PANEL CONFIGURATION HIGH SYSTEM ONLY

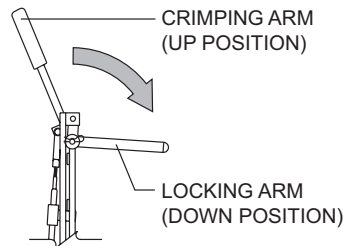
DETAILS

SEAMING OPERATION

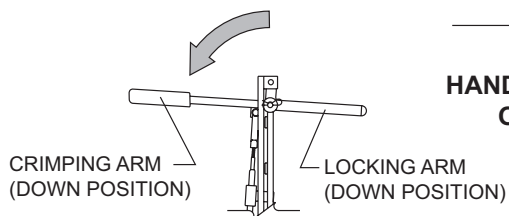
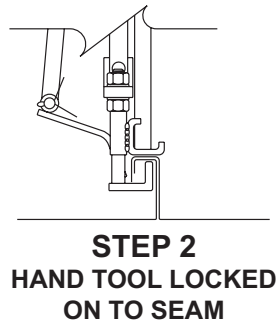
As panels are installed, hand seam at each clip with hand crimper. Panels should be completely seamed with electric seamer as soon as possible.



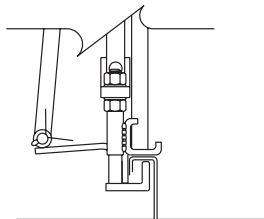
STEP 1
HAND CRIMPER POSITIONED
OVER SEAM



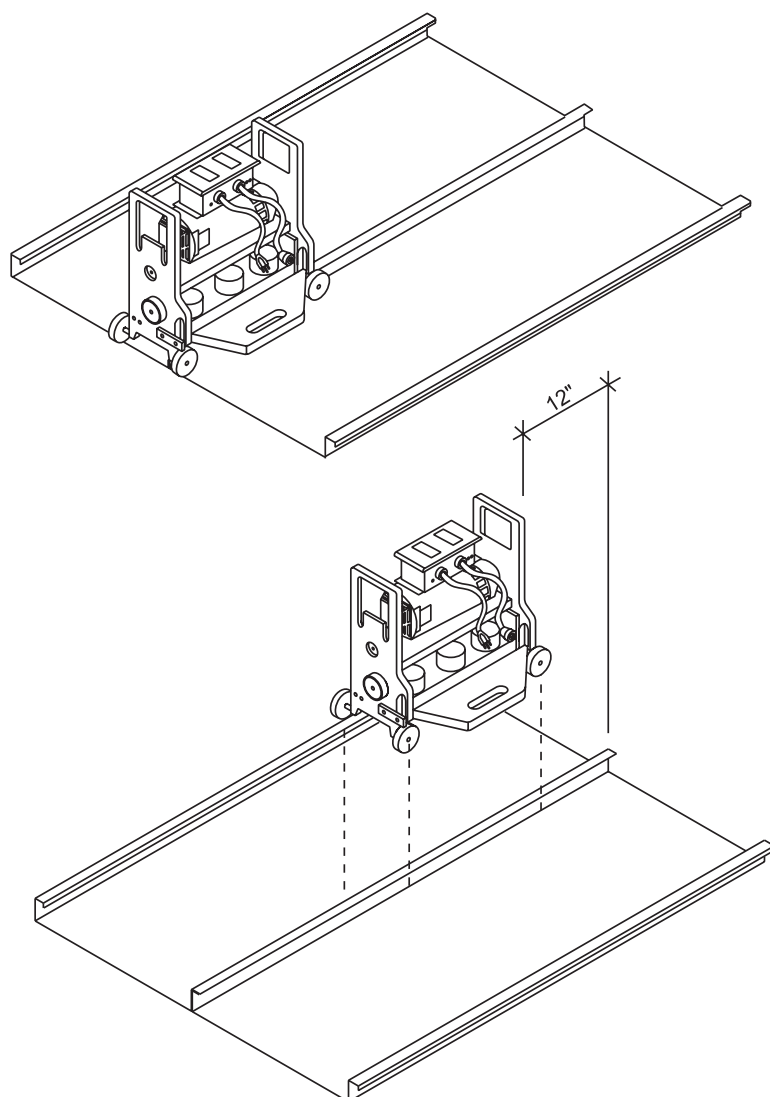
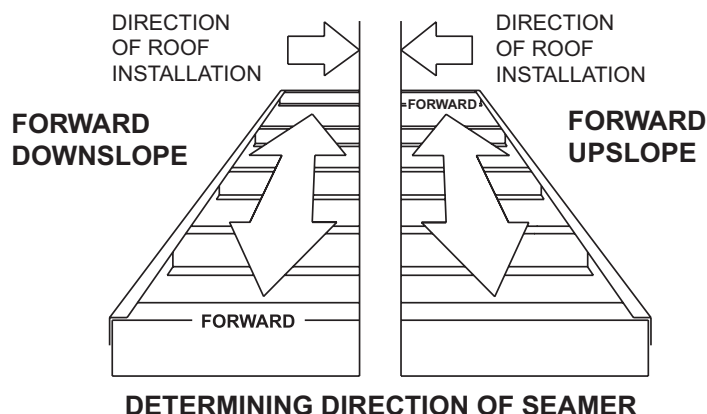
Push locking arm down to lock hand crimper onto seam. If difficulty is encountered, check to make sure that hand crimper is properly aligned on seam. Do not force locking arm.



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



DETAILS



SEAMING OPERATION

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 up slope, and when the panels are installed left to right, forward is down slope. 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.

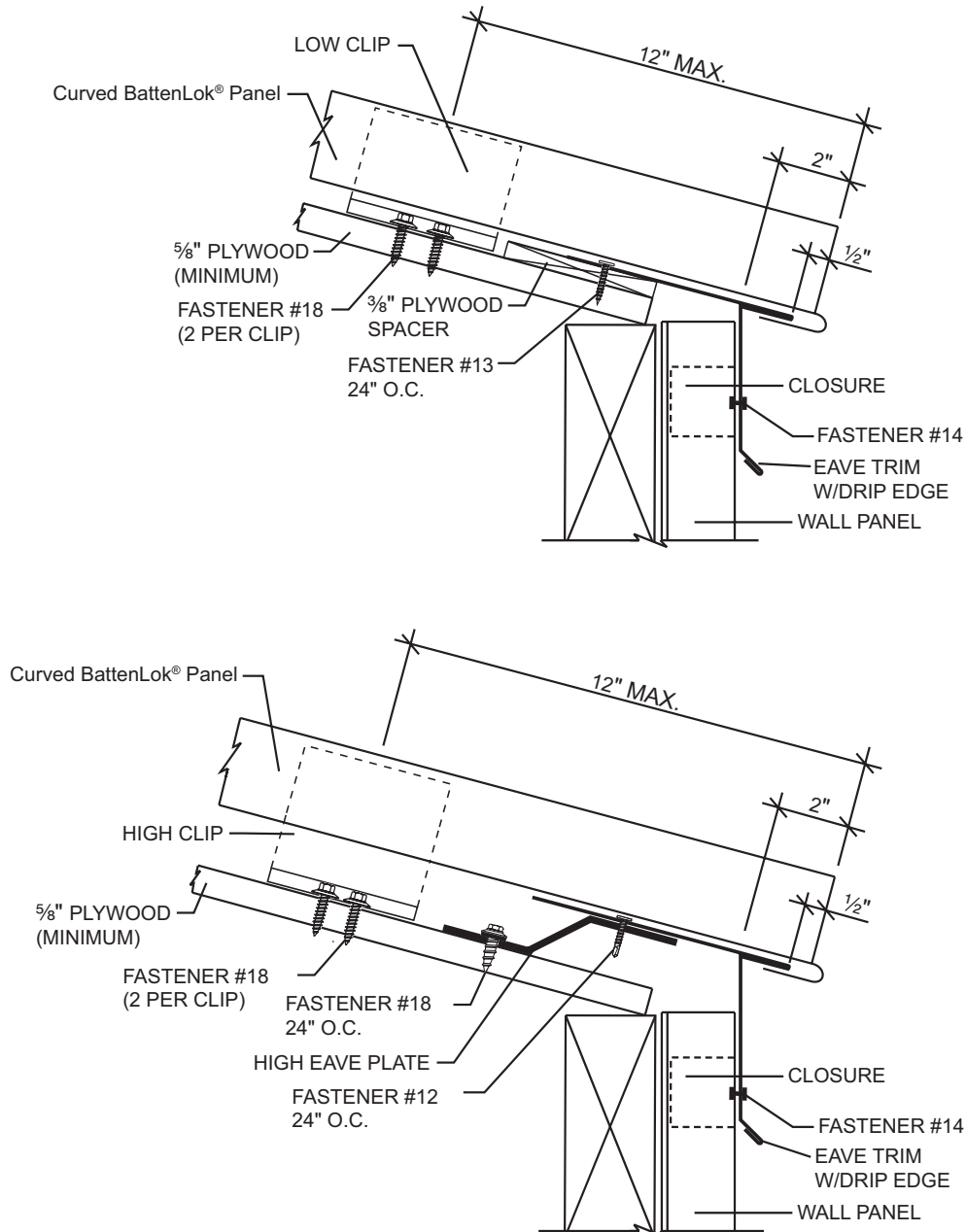
On steep sloped roofs (6:12 and greater) a 12-gauge extension cord (not by MBCI) may be installed between the remote switch and the seamer. Seaming can then be accomplished by starting the seamer at the eave from a safety lift. When using this method the seam will be formed upslope and then the seamer 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" down slope from the ridge or high side of the roof. Stop the seamer at this point to prevent the seamer from running into the flashings 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 tools 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.

DETAILS

EAVE TRIM OVER WOOD DECK

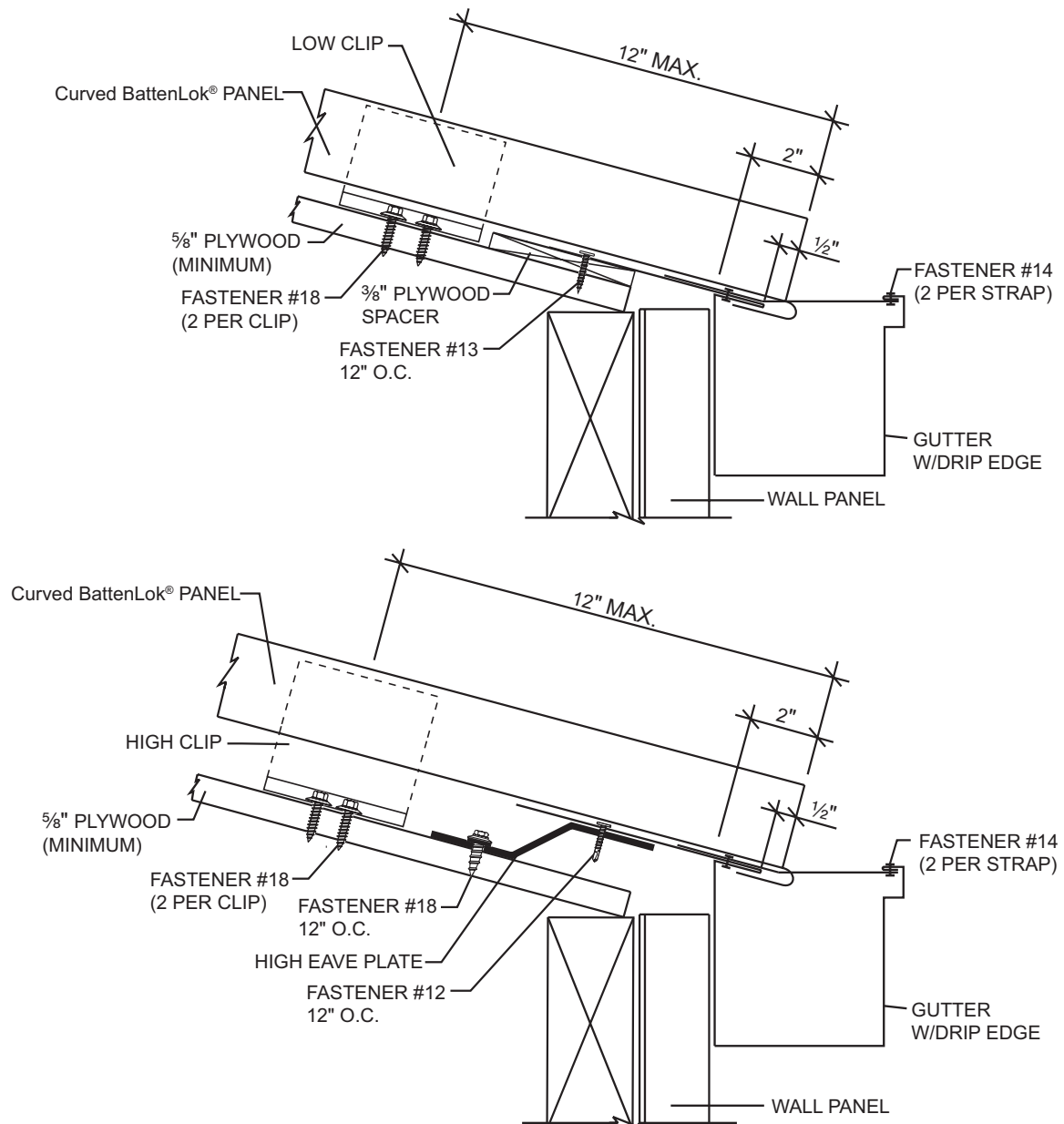


NOTES:

1. A clip must be installed within 12" of the panel ends.
2. Install the eave trim with drip edge to the wood deck with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

EAVE WITH GUTTER OVER WOOD DECK

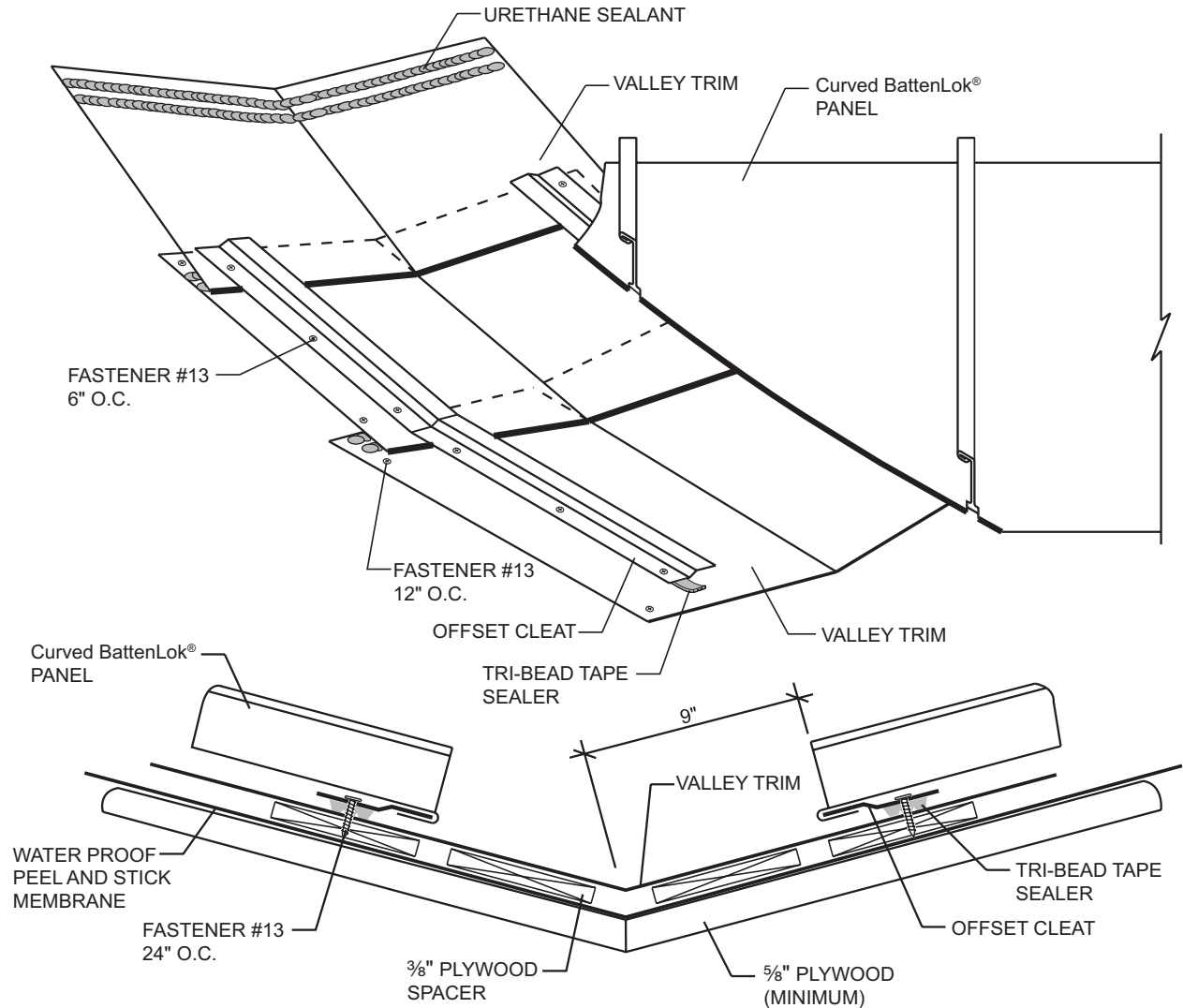


NOTES:

1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood deck with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

VALLEY OVER WOOD DECK

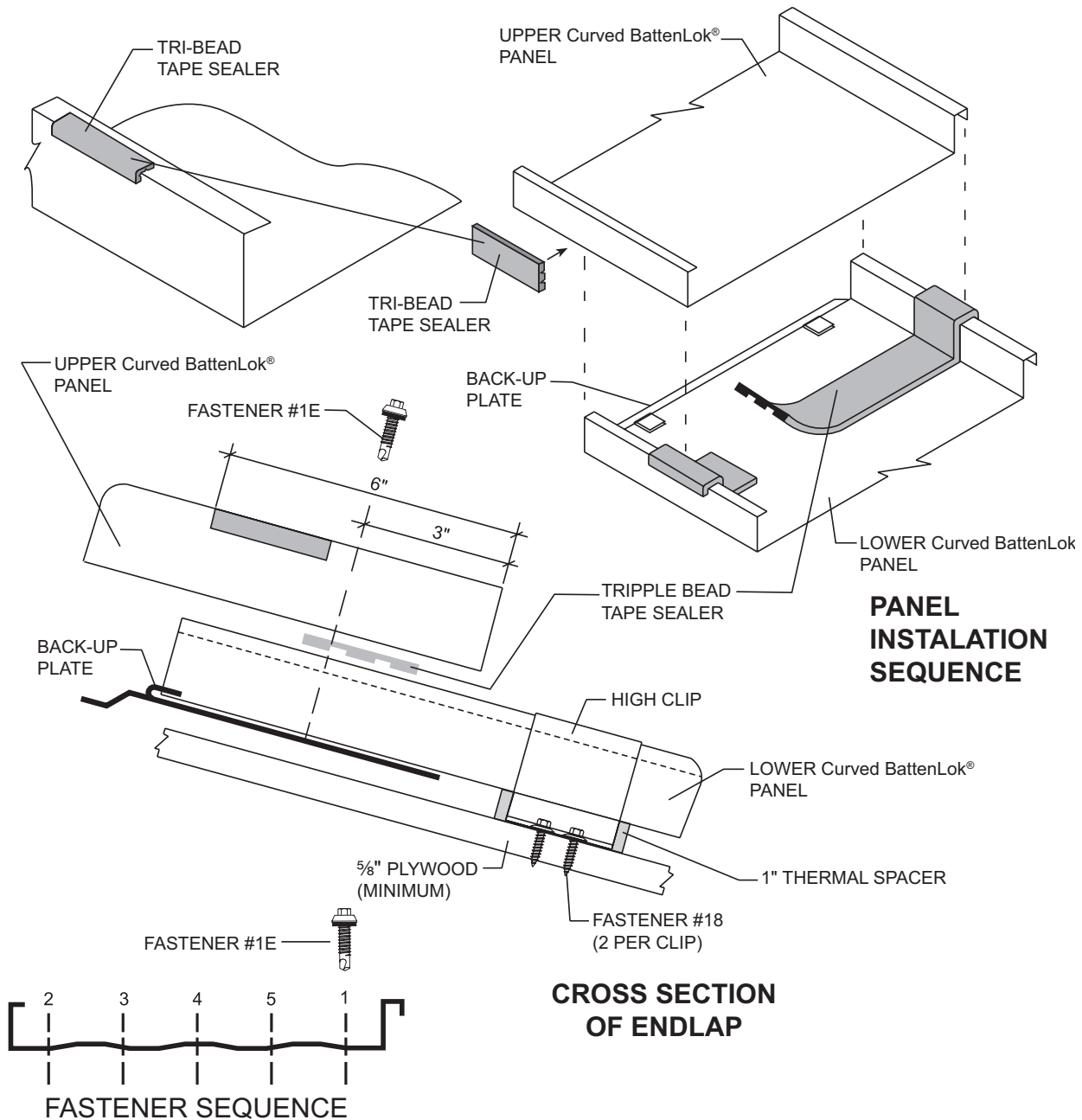


NOTES:

1. Install a 3'-0" wide waterproof peel and stick membrane to the deck at the valley.
2. Length of valley trim segments are dependant upon roof radius. Lap valley trim segments 4" - 6". Apply two 1/4" beads of urethane sealant between the valley trim pieces.
3. Mark panel line on valley trim. The curvature of this line is dependent upon roof radius. Install offset cleat segments in lengths dictated by curved line on valley trim. Tri-Bead Tape Sealer is to be installed under bottom leg of offset cleat. Attach offset cleat to deck with Fastener #13 at 6" o.c.
4. To field hem panels, see page CB-27.
5. See "panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

ENDLAP OVER WOOD DECK



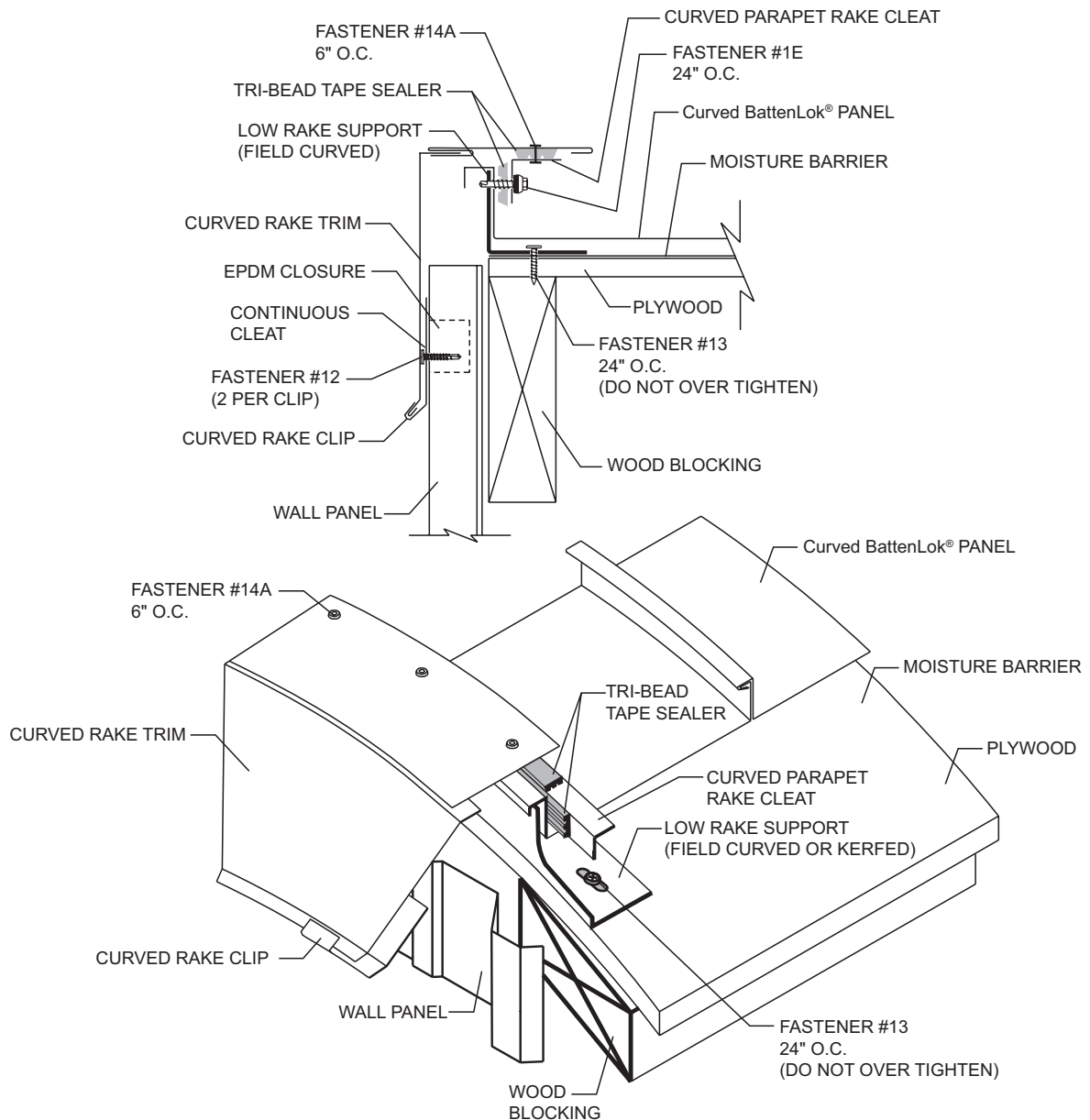
NOTES:

1. This panel endlap is 6".
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the lower panel. The upslope edge of the Triple Bead Tape Sealer will be 2½" from the lower panel end.
3. Apply a 2½" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. The down slope edge of the Tri-Bead Tape Sealer will be 3½" from the end of the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.

DETAILS

RAKE OVER WOOD DECK

BEGINNING/FINISHING ON MODULE



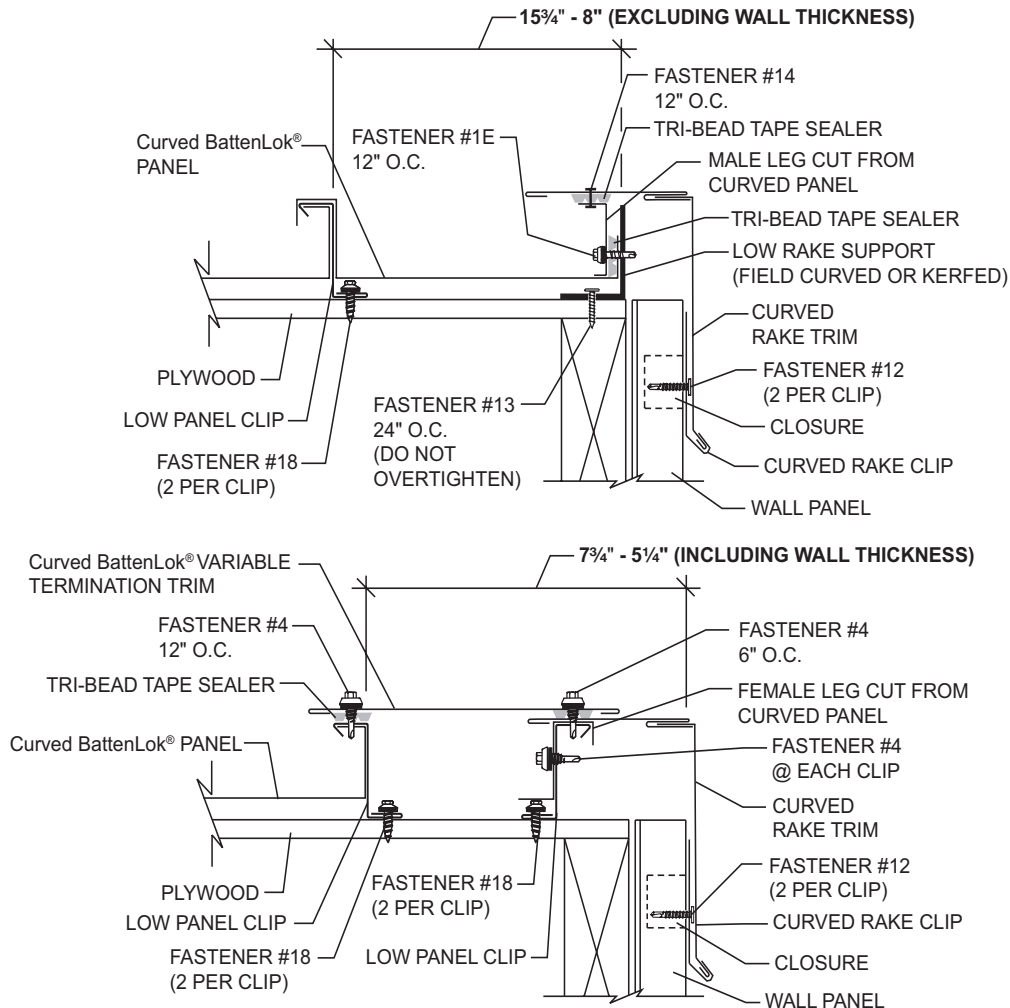
NOTES:

1. Install field curved or kerfed rake support to wood deck with Fastener #13 at 24" o.c.
2. Apply Tri-bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see "Finishing Rake" details on Page CB-36.

DETAILS

RAKE OVER WOOD DECK

FINISHING OFF MODULE



NOTES:

FINISHING DIMENSION 15 3/4" - 8"

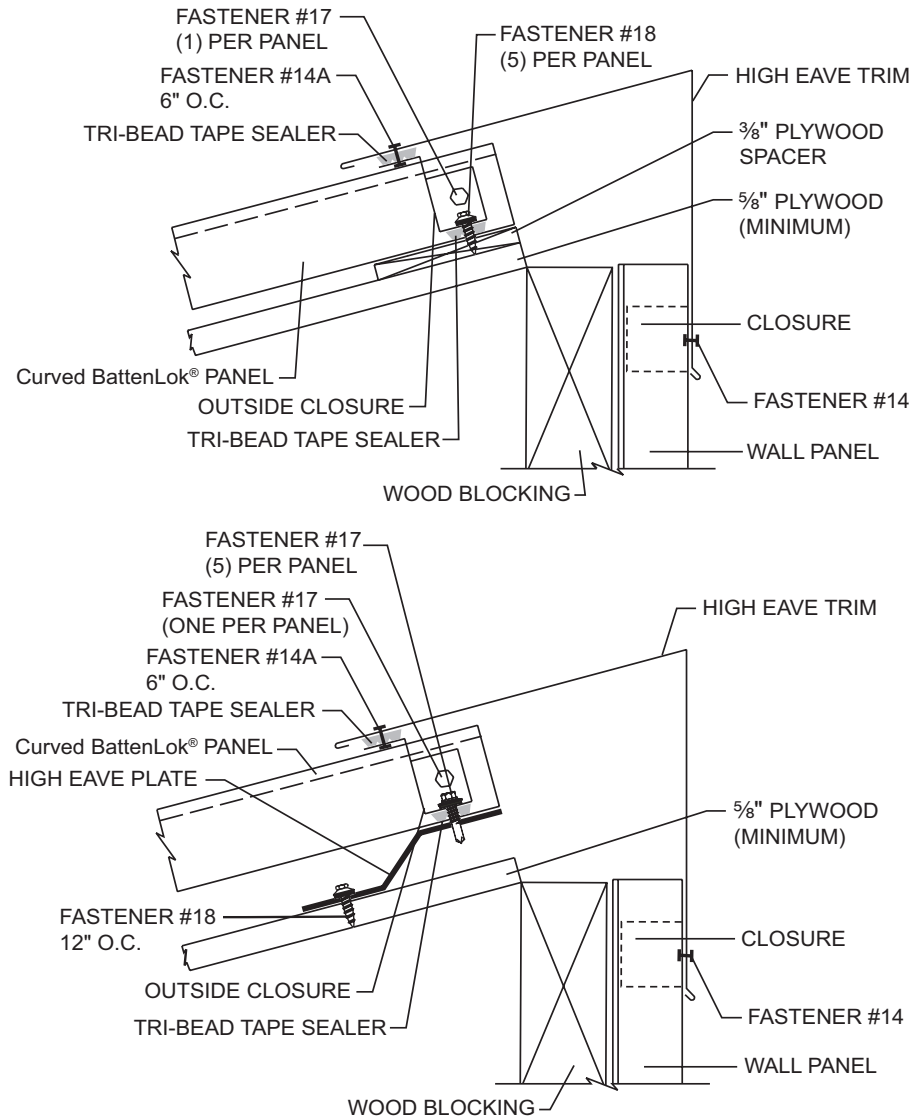
1. Install field curved or kerfed rake support to wood deck with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 7 3/4" - 5 1/4"

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install 3/8" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

DETAILS

HIGH EAVE OVER WOOD DECK



NOTES:

LOW SYSTEM

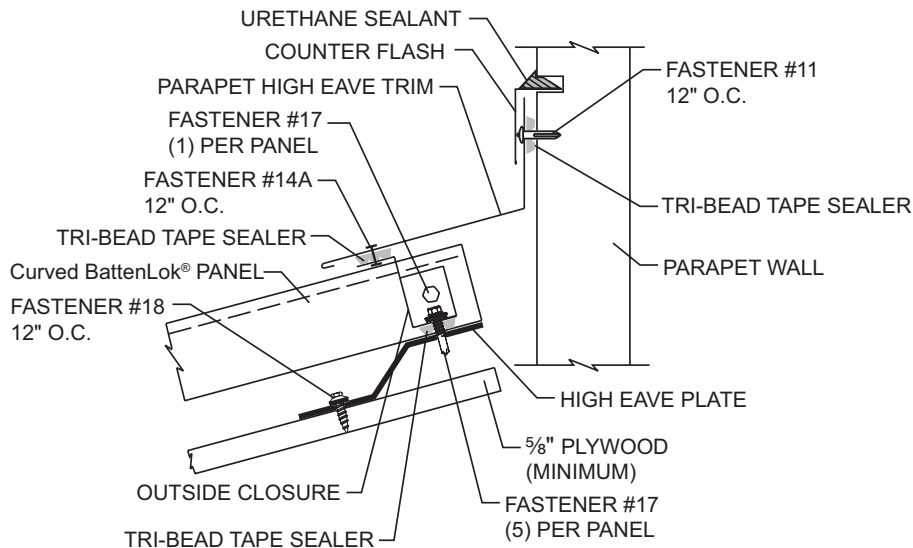
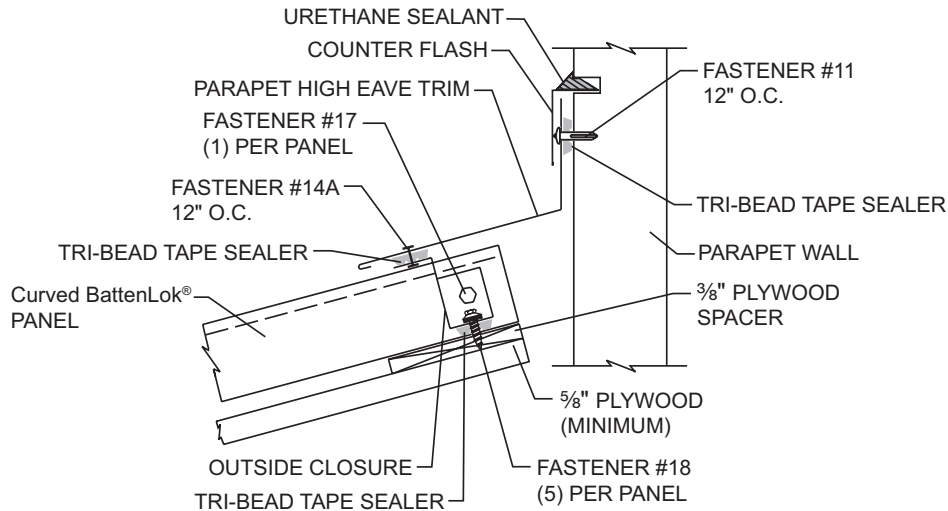
1. To support the panel at the high eave, install a 3/8" x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM

1. To support the panel at the high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET HIGH EAVE OVER WOOD DECK



NOTES:

LOW SYSTEM

1. To support the panel at the parapet high eave, install a 3/8" x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

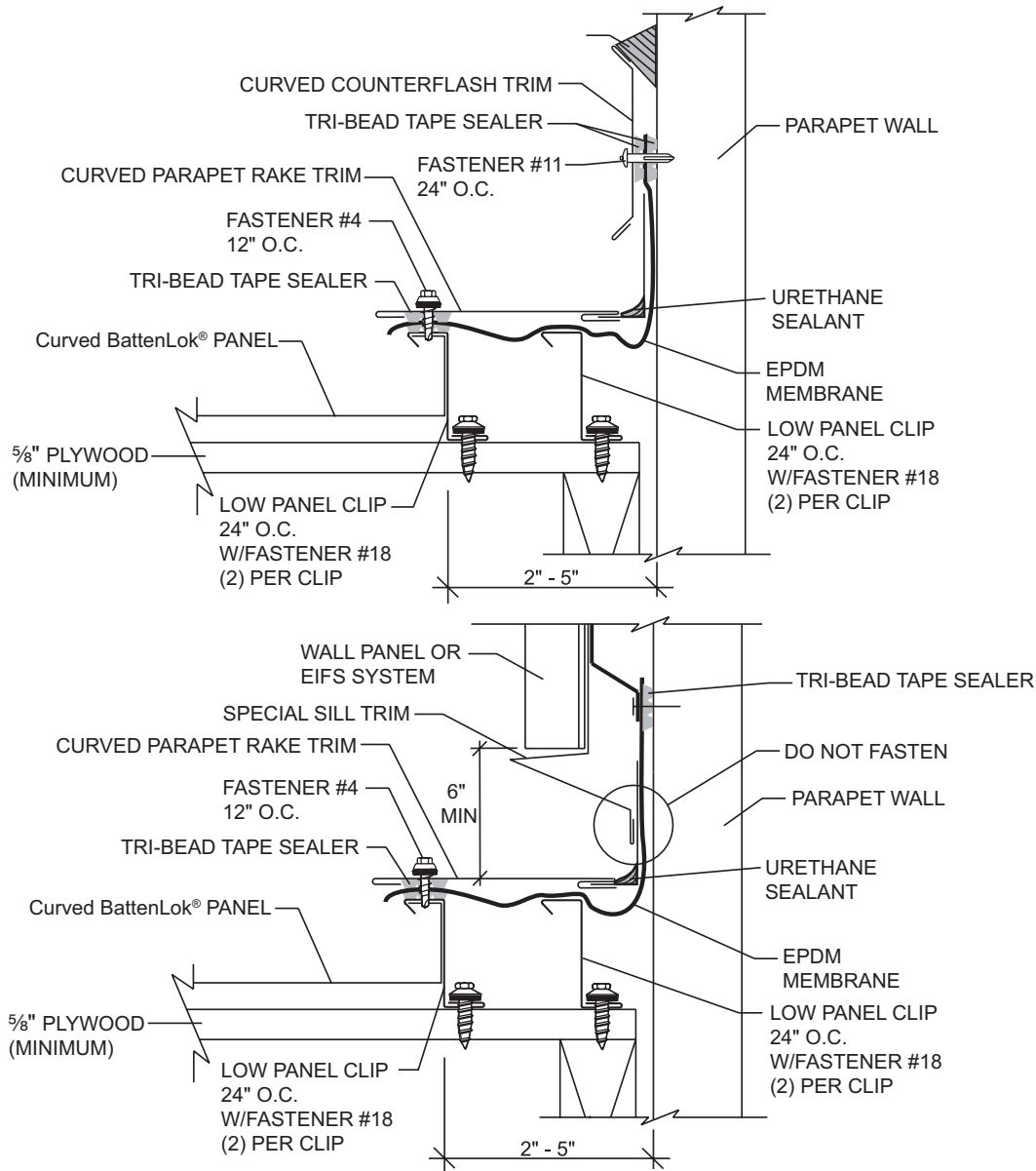
HIGH SYSTEM

1. To support the panel at the parapet high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c..
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET RAKE OVER WOOD DECK

BEGINNING/FINISHING ON MODULE



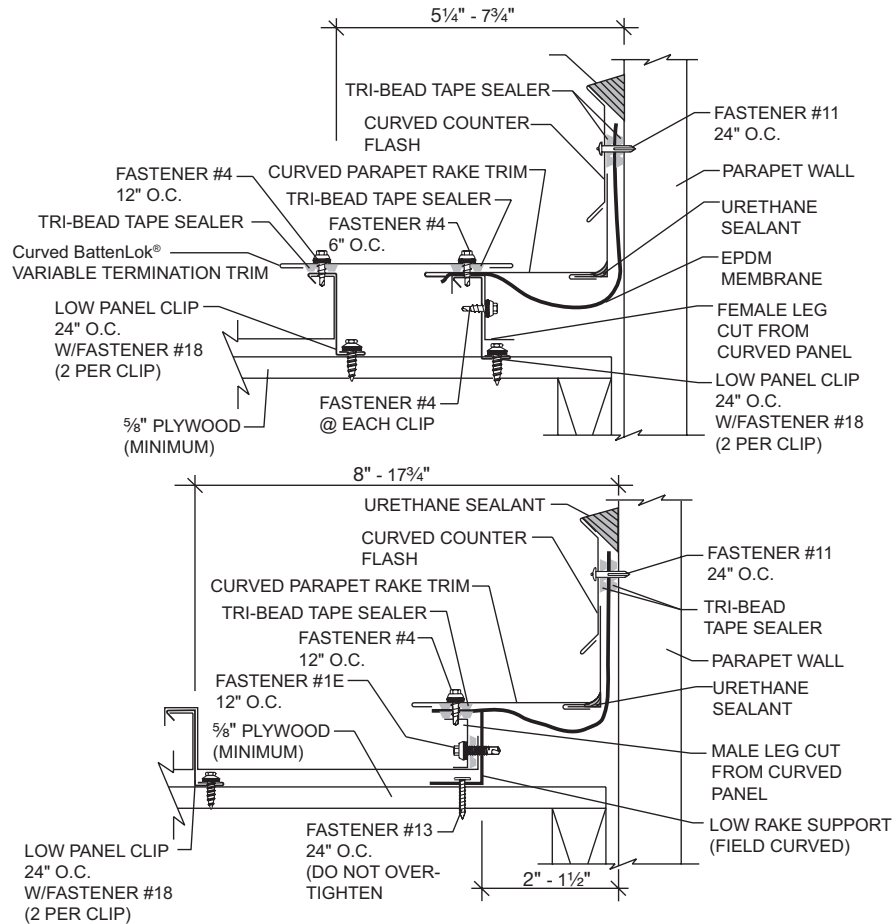
NOTES:

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, Continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EPDM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the las panel with Fastener #4 at 12" o.c.

DETAILS

PARAPET RAKE (continued) OVER WOOD DECK

BEGINNING/FINISHING ON MODULE



NOTES:

FINISHING DIMENSION 5 1/4" - 7 3/4"

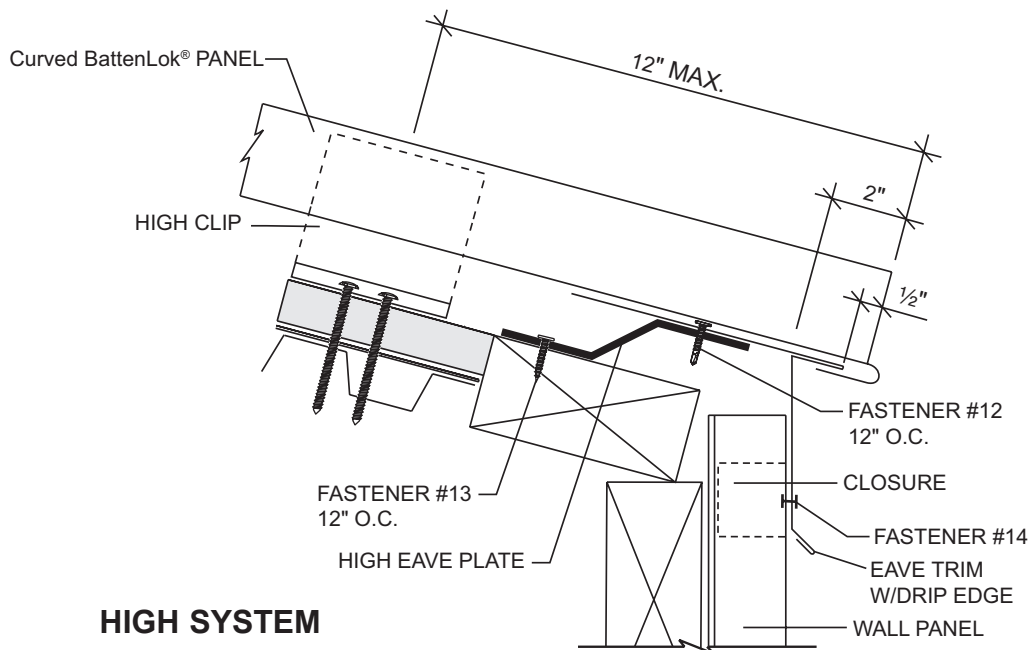
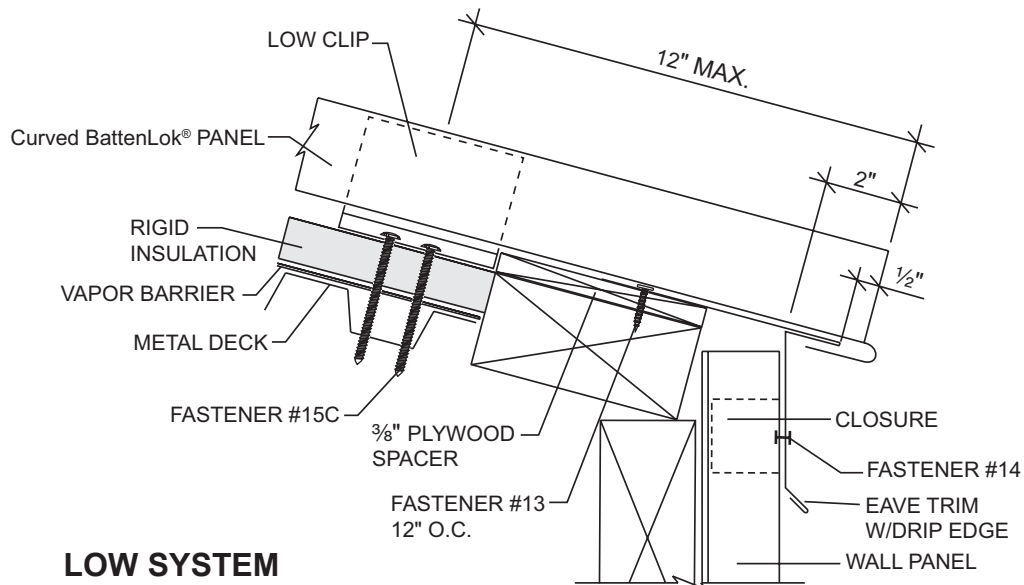
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install 3/8" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

FINISHING DIMENSION 8" - 17 3/4"

1. Install field curved rake support to wood deck with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #4 at 12" o.c.

DETAILS

EAVE TRIM OVER METAL DECK

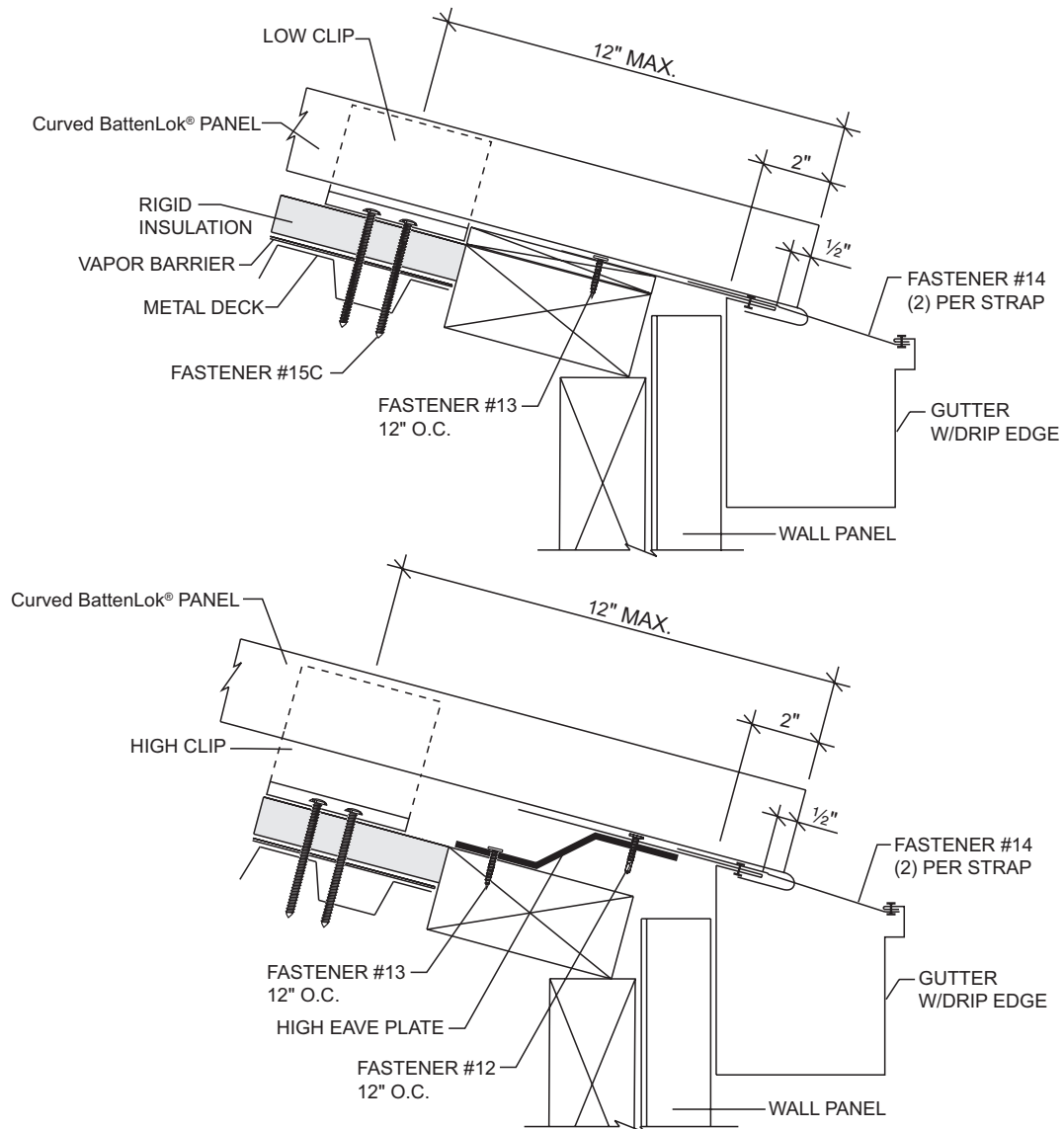


NOTES:

1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood blocking with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

EAVE WITH GUTTER OVER METAL DECK

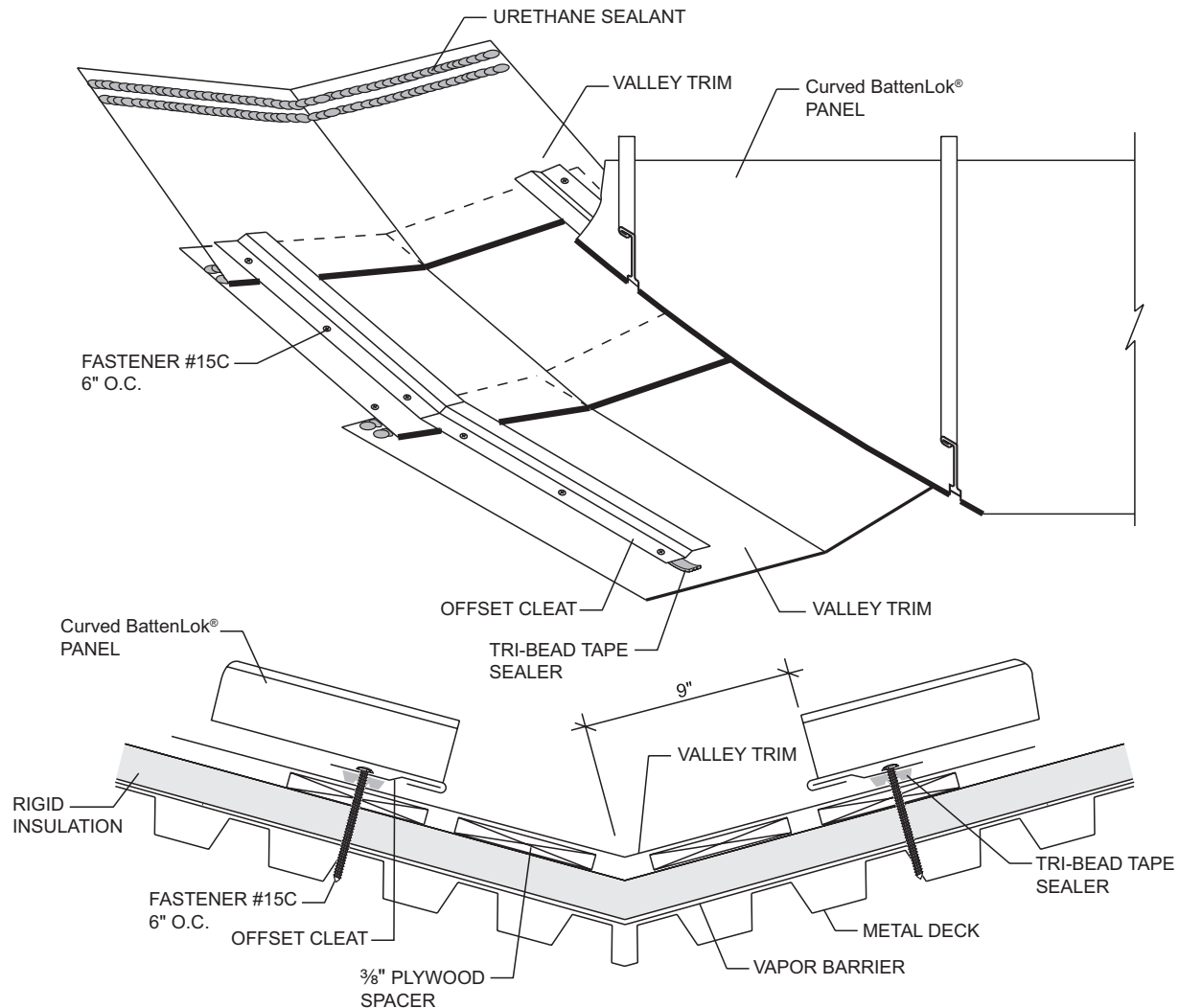


NOTES:

1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood blocking with Fastener #13 at 12" o.c. (Low systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail at Eave" on page CB-24 to seal panel ends.

DETAILS

VALLEY OVER METAL DECK

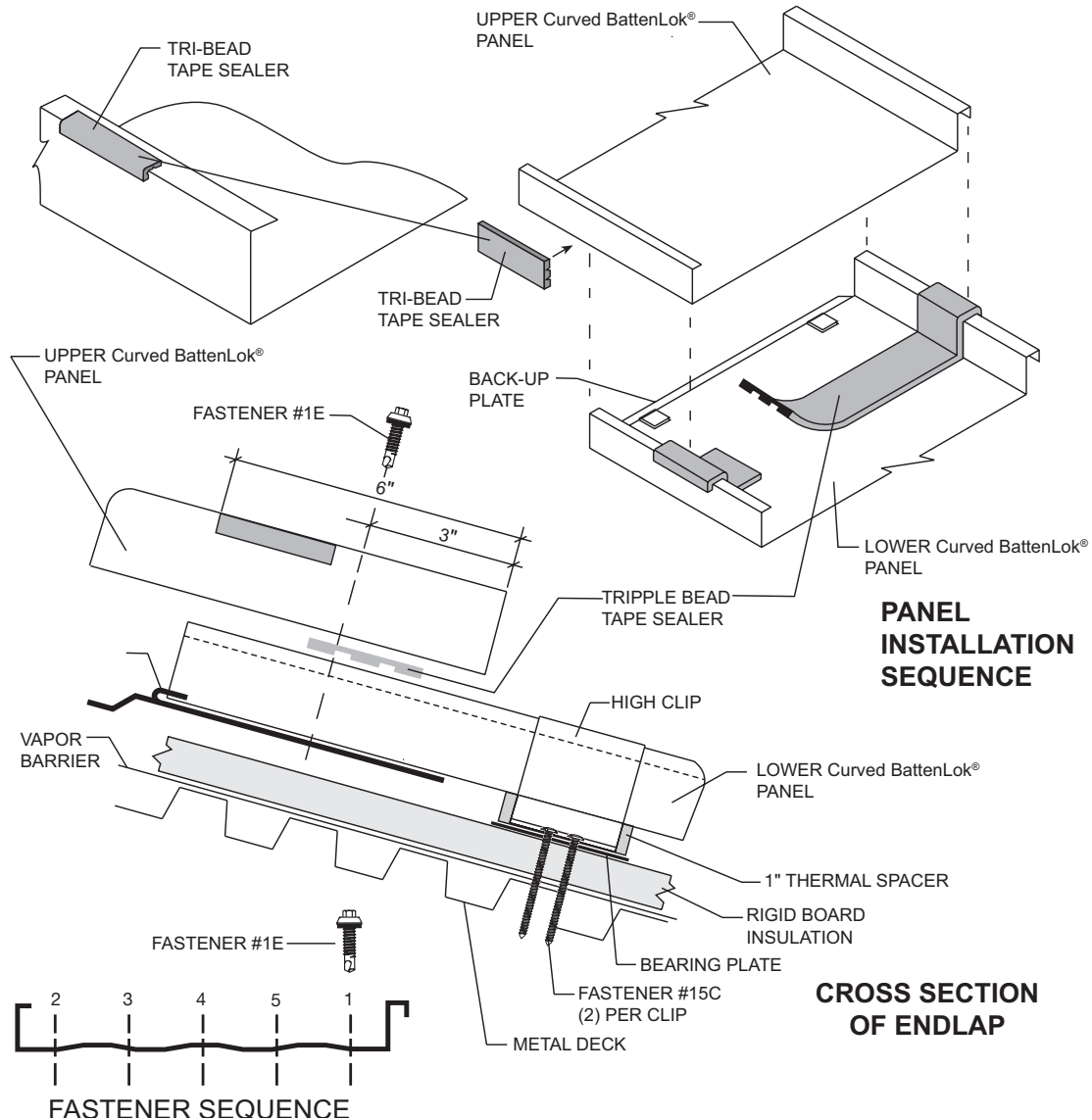


NOTES:

1. Install a 3'-0" wide waterproof peel and stick membrane to the Rigid Insulation at the valley.
2. Length of valley trim segments is dependant upon roof radius. Lap valley trim segments 4" - 6". Apply two 1/4" beads of urethane sealant between the valley trim pieces.
3. Mark panel line on valley trim. The curvature of this line is dependent upon roof radius. Install offset cleat segments in lengths dictated by curved line on valley trim. Tri-Bead Tape Sealer is to be installed under bottom leg of offset cleat. Attach offset cleat to deck with Fastener #13 at 6" o.c..
4. To field hem panels, see page CB-27.
5. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

ENDLAP OVER METAL DECK

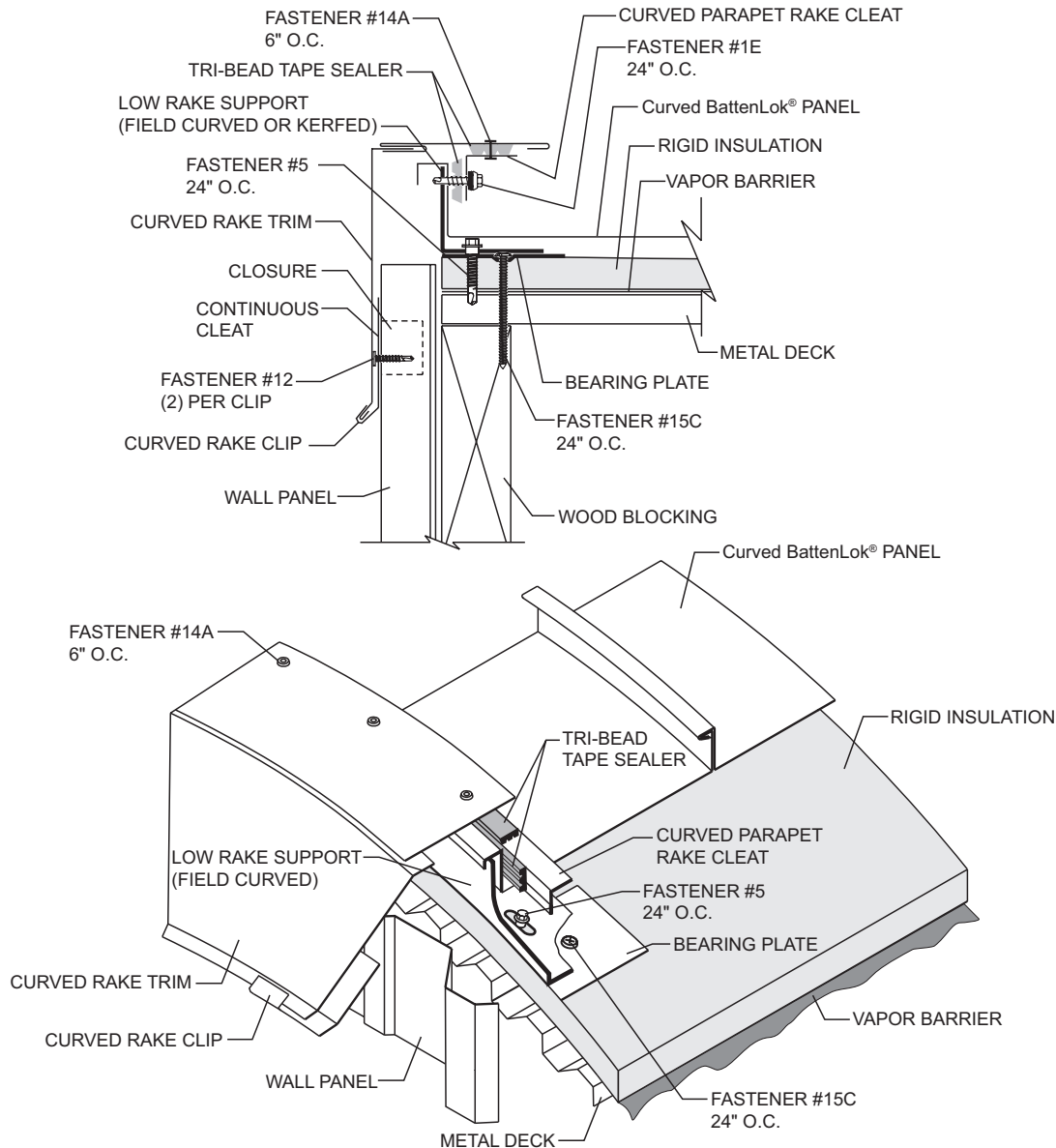


NOTES:

1. Panel endlap is 6" with prepunched holes in the top panel 3" from the end.
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the panel. The down slope edge of the Triple Bead Tape Sealer will be 5" from the panel end.
3. Apply a 6" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.

DETAILS

RAKE OVER METAL DECK BEGINNING/FINISHING ON MODULE

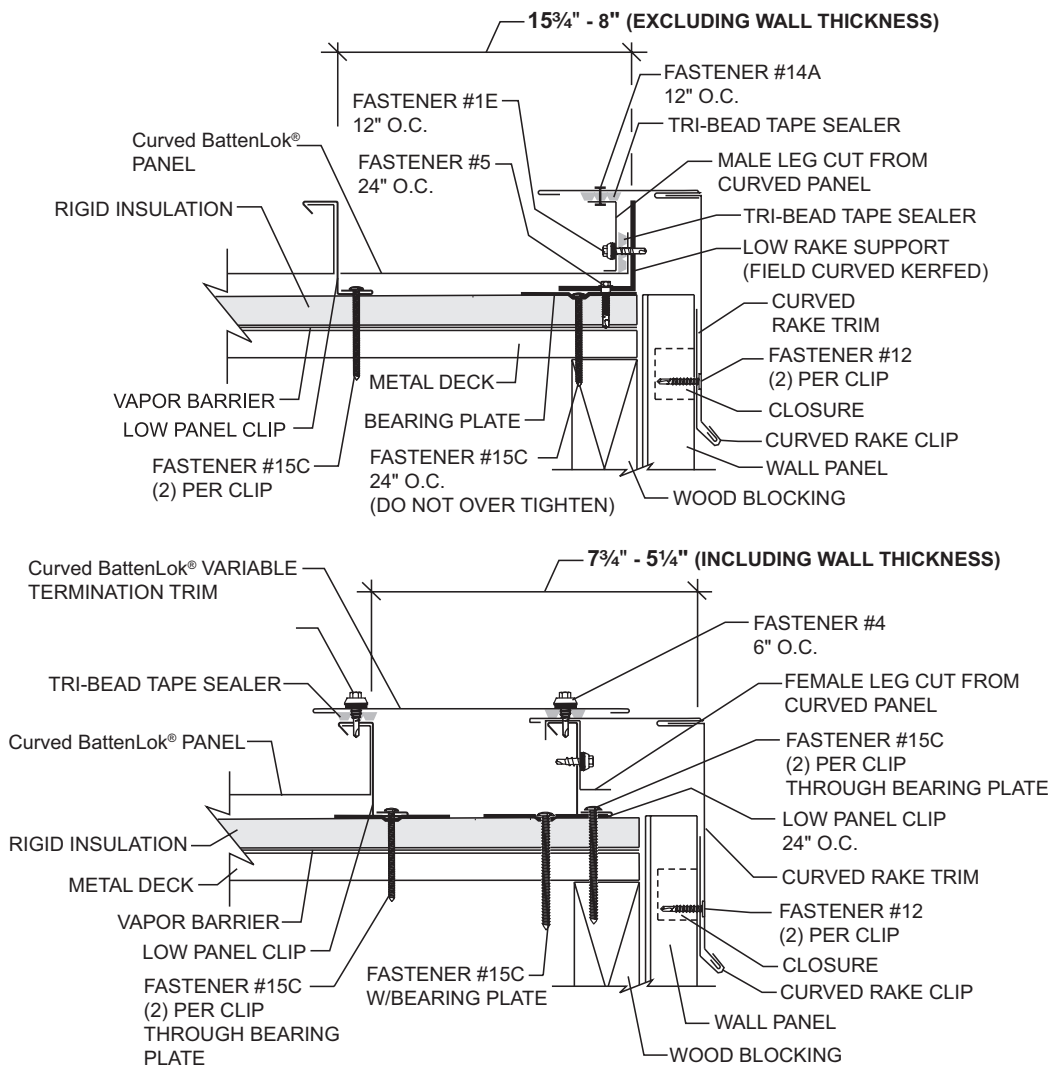


NOTES:

1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener #5 at 24" o.c.
2. Apply Tri-Bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see "Finishing Rake" details on Page CB-46.

DETAILS

RAKE OVER METAL DECK FINISHING OFF MODULE



NOTES:

FINISHING DIMENSION 15 3/4" - 8"

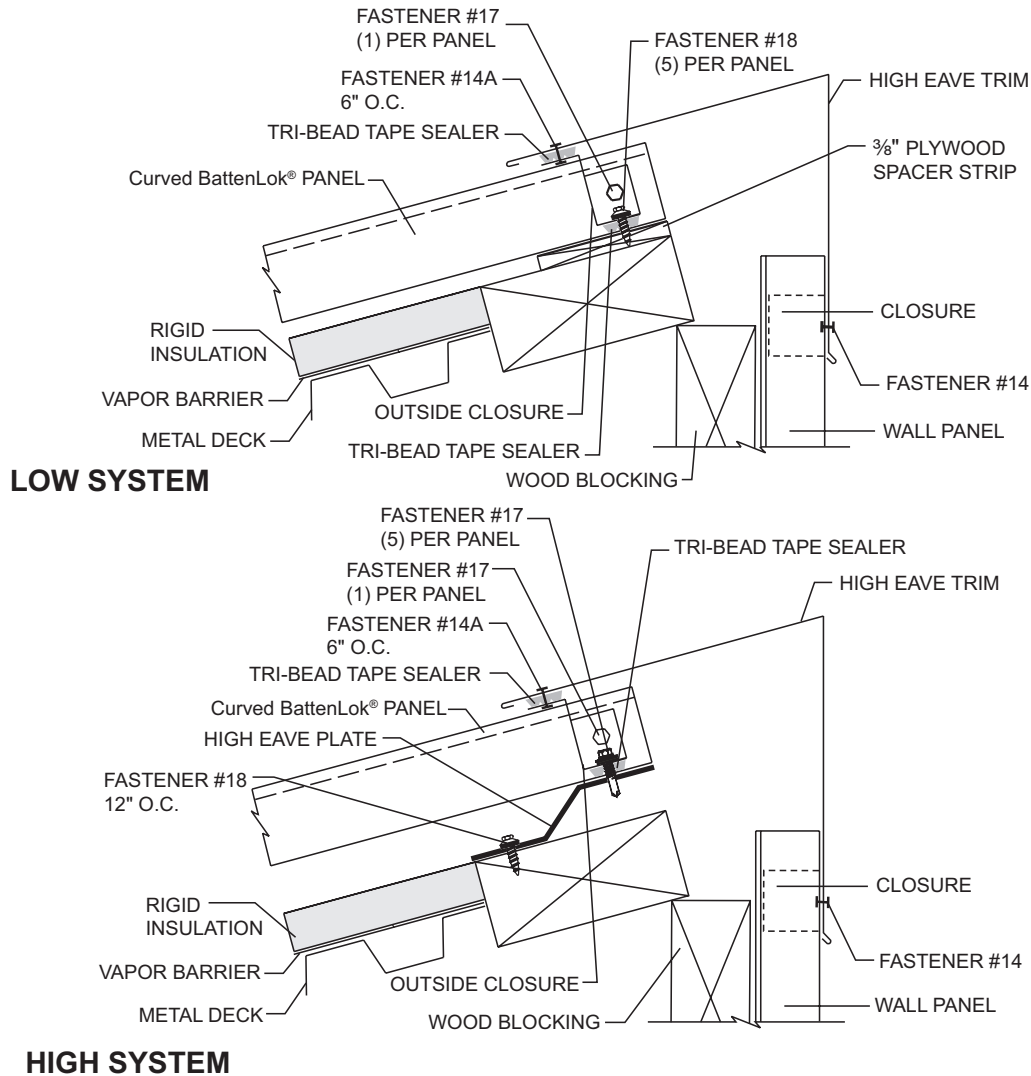
1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 7 3/4" - 5 1/4"

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install 3/8" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

DETAILS

HIGH EAVE OVER METAL DECK



NOTES:

LOW SYSTEM

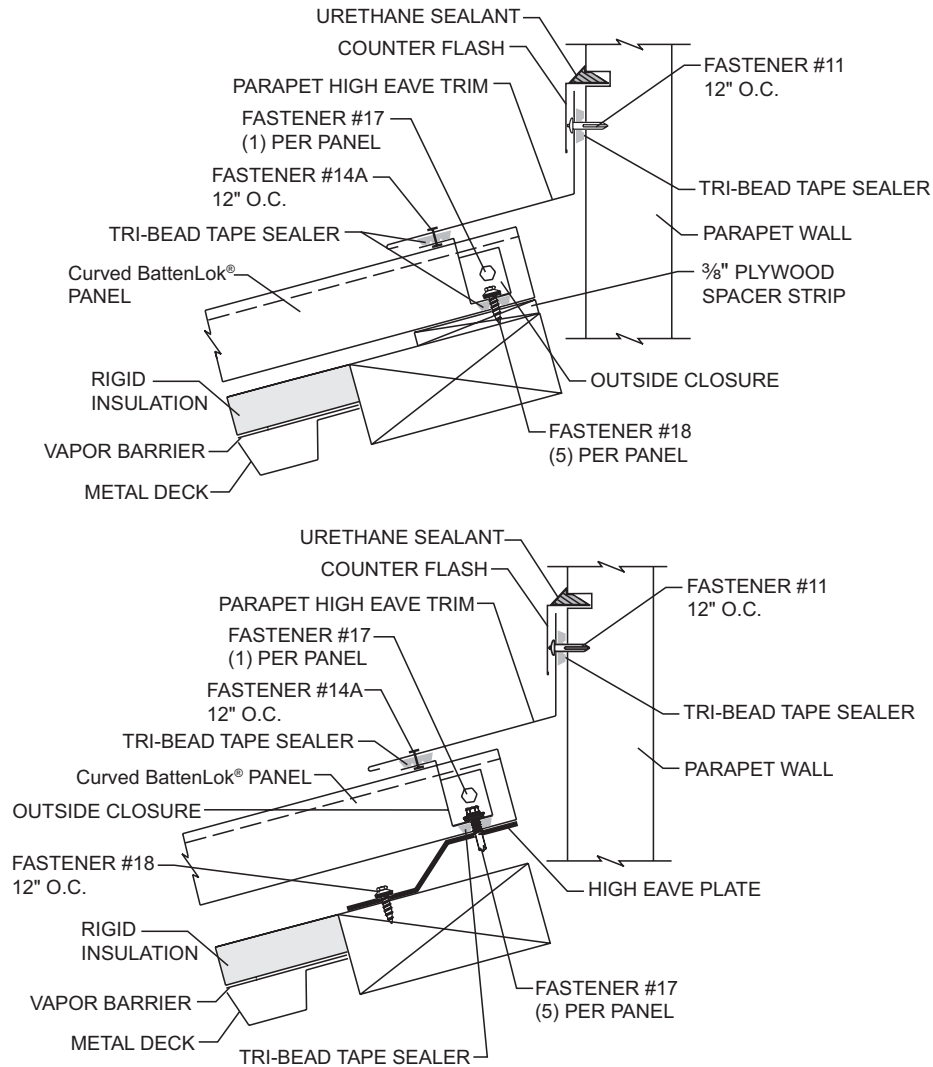
1. To support the panel at the high eave, install a 3/8" x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM

1. To support the panel at the high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c..
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET HIGH EAVE OVER METAL DECK



NOTES:

LOW SYSTEM

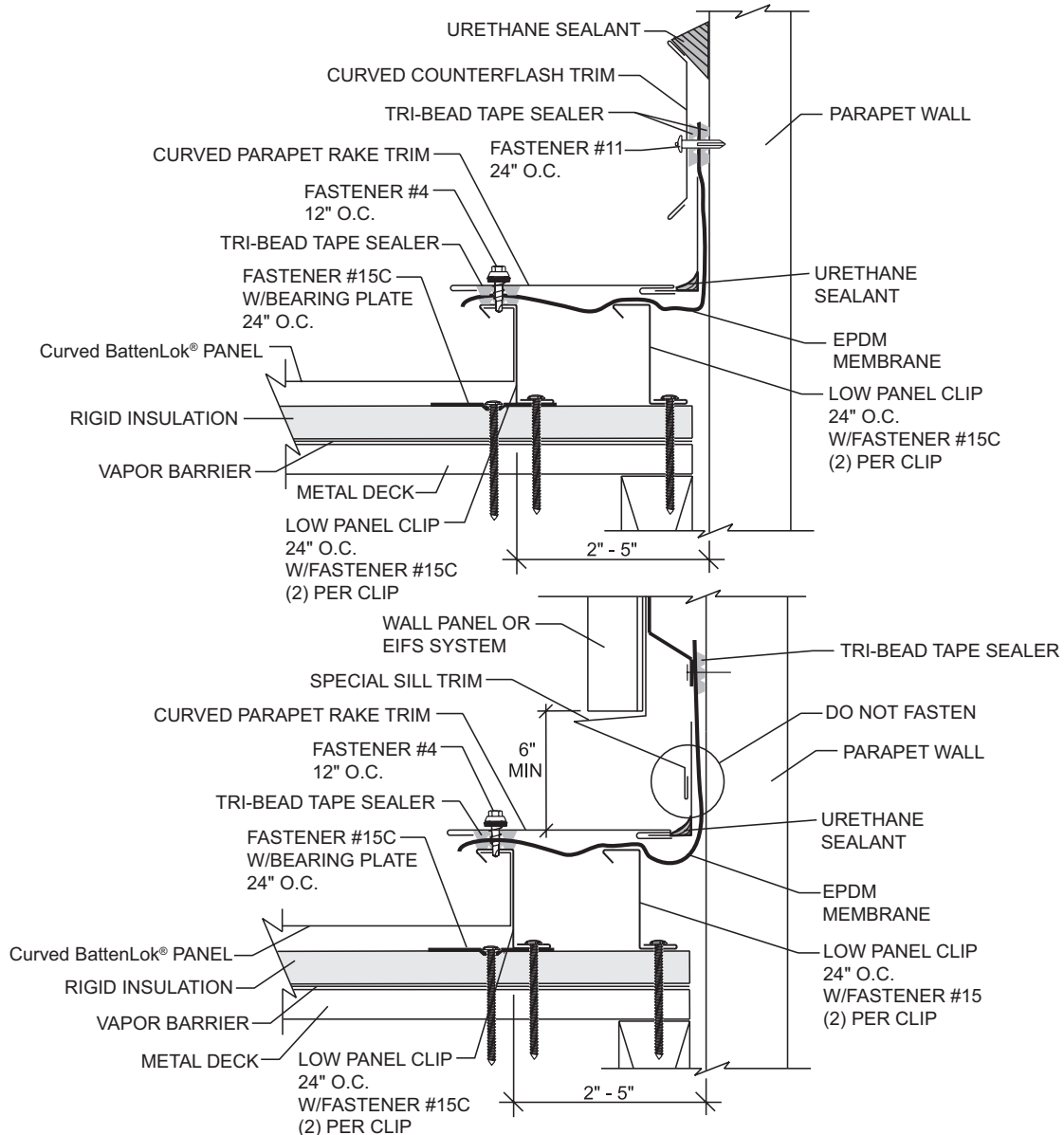
1. To support the panel at the parapet high eave, install a $\frac{3}{8}$ " x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM

1. To support the panel at the parapet high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c..
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET RAKE OVER METAL DECK BEGINNING/FINISHING ON MODULE

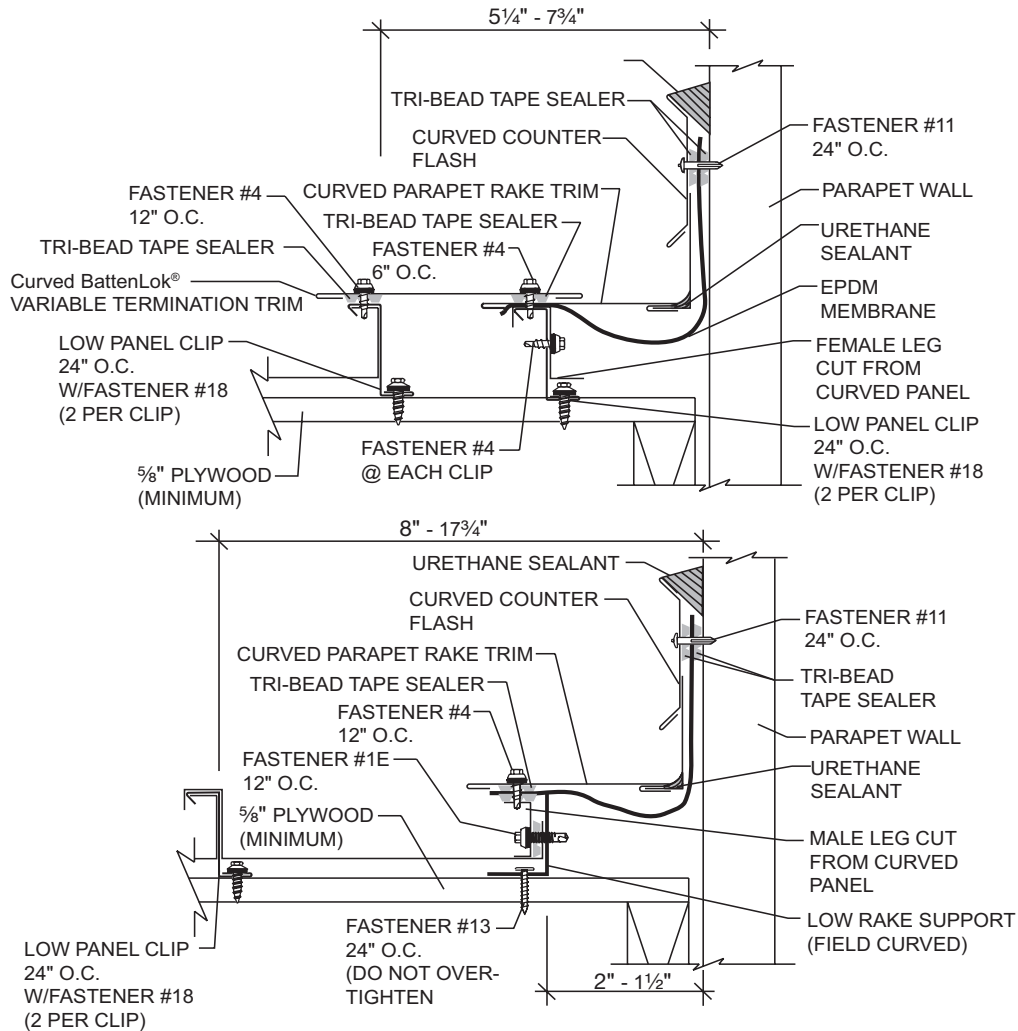


NOTES:

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EPDM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the last panel with Fastener #4 at 12" o.c. and to the parapet wall with Fastener #11 at 24" o.c..

DETAILS

PARAPET RAKE OVER METAL DECK FINISHING OFF MODULE



NOTES

FINISHING DIMENSION 5 1/4" - 7 3/4"

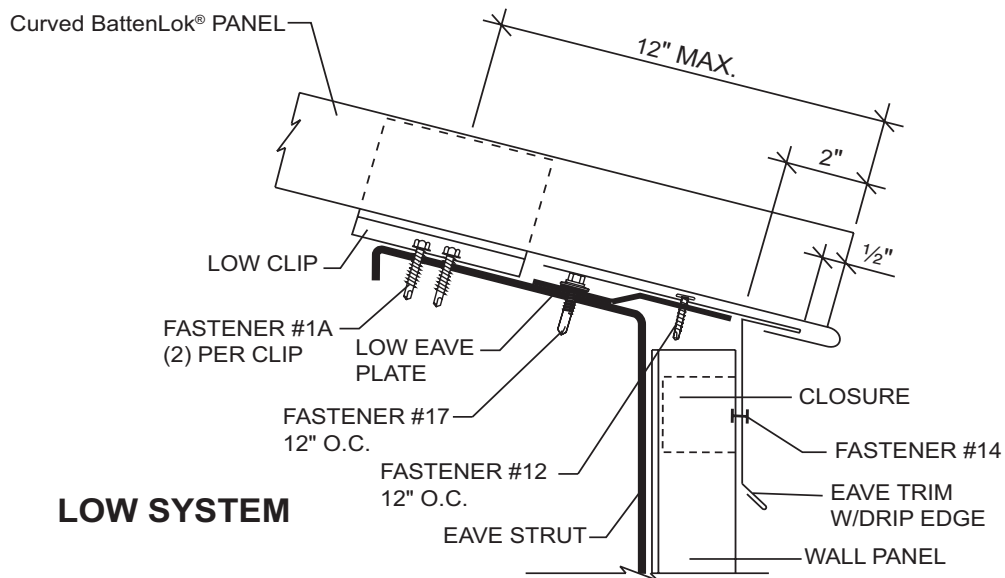
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install 3/8" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

FINISHING DIMENSION 8" - 17 3/4"

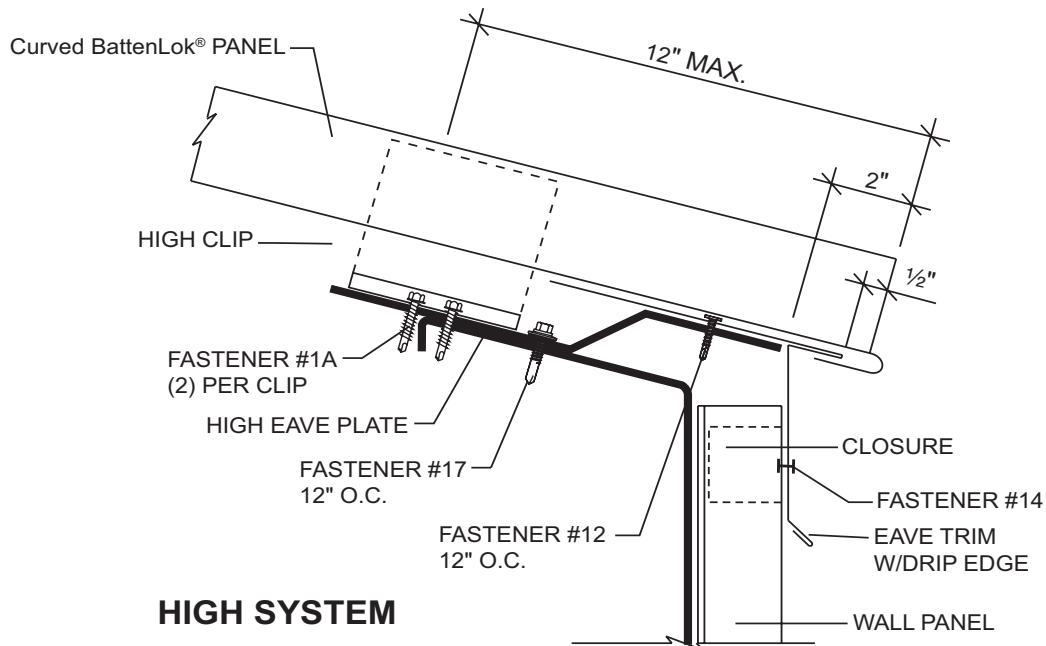
1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener # 15C at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #14 at 12" o.c.

DETAILS

EAVE TRIM OVER OPEN FRAMING



LOW SYSTEM



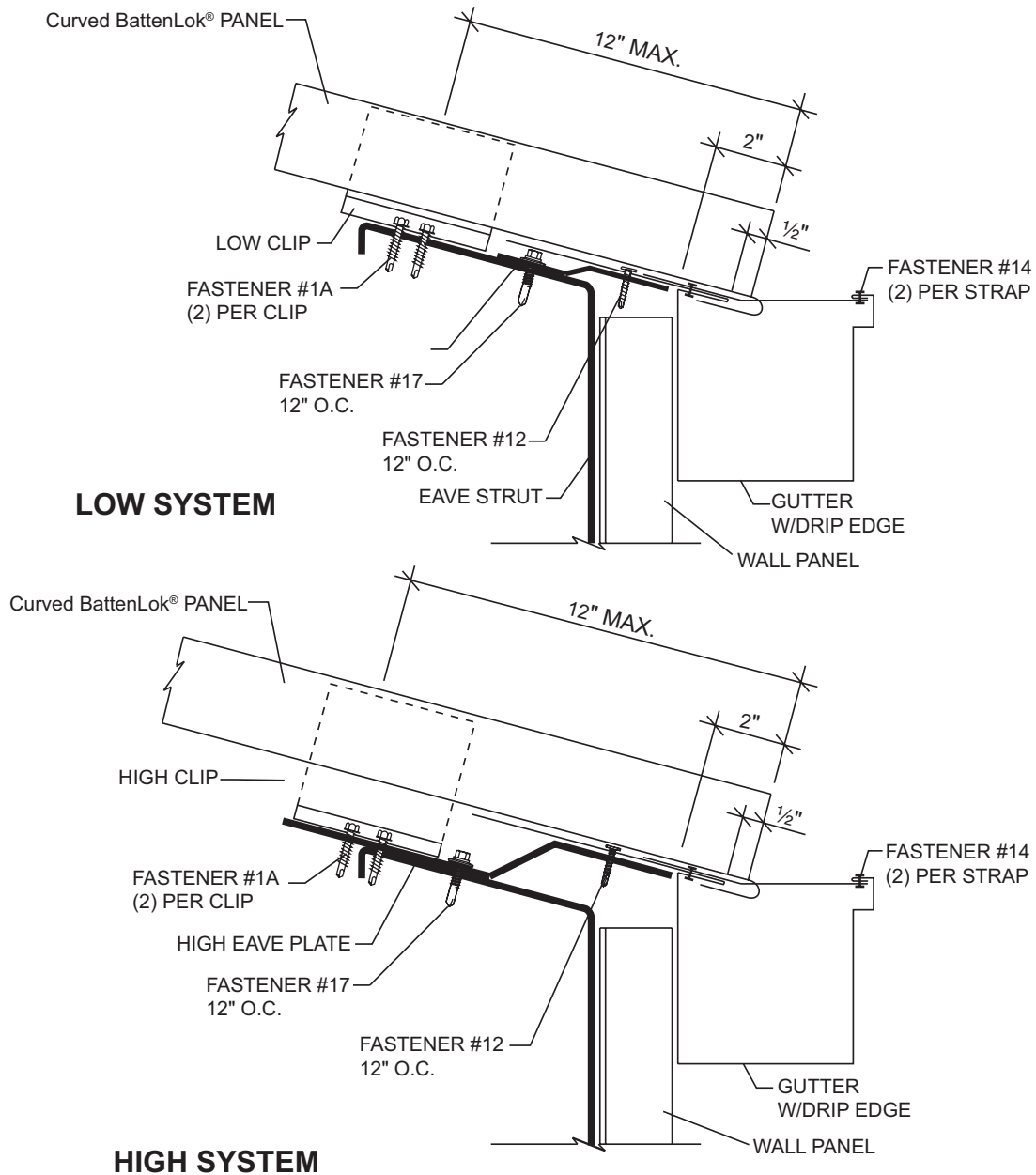
HIGH SYSTEM

NOTES:

1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install eave trim to eave plate with Fastener #12 at 12" on center.
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

EAVE WITH GUTTER OVER OPEN FRAMING

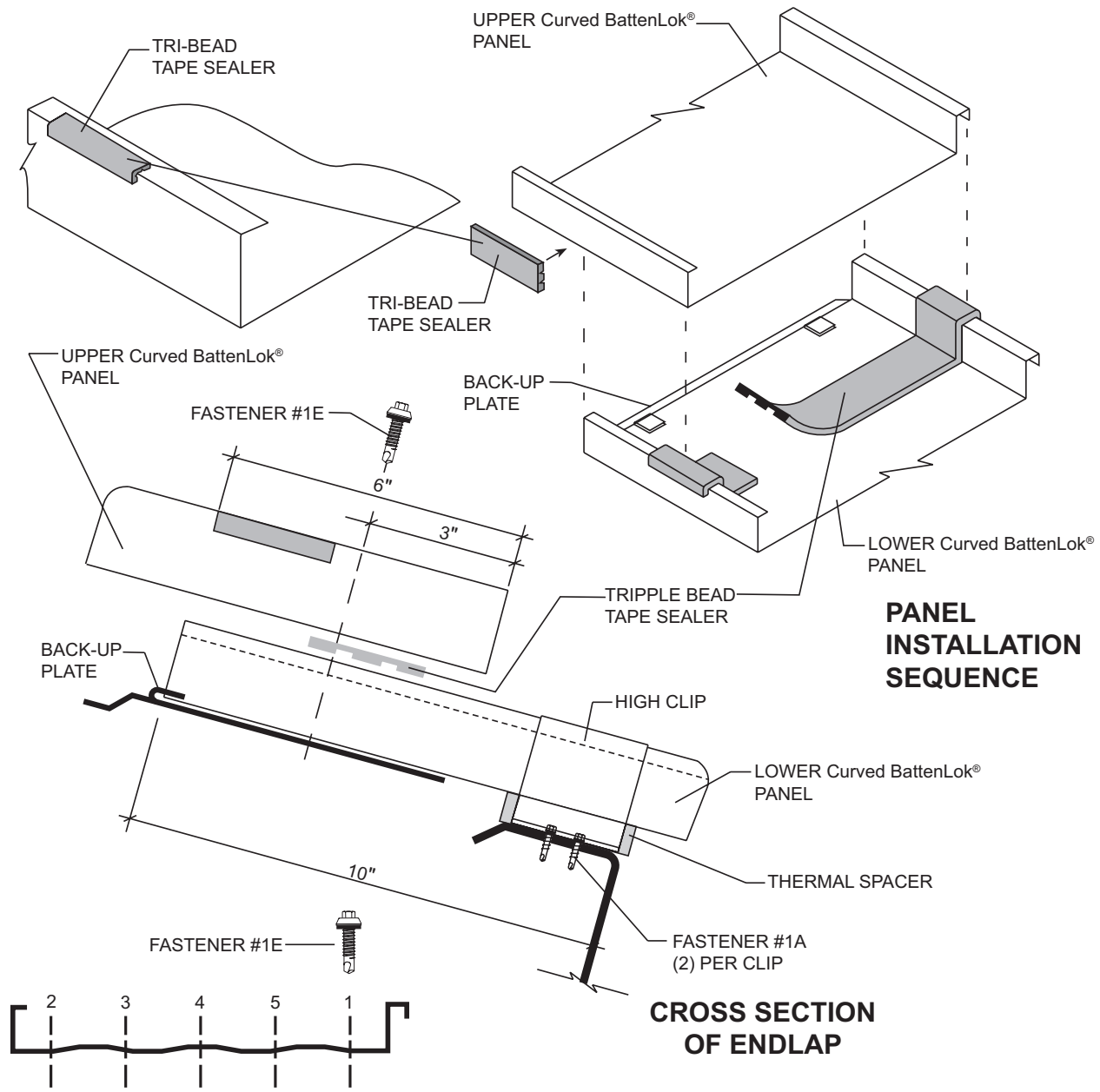


NOTES:

1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install eave trim to eave plate with Fastener #12 at 12" on center.
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.

DETAILS

ENDLAP OVER OPEN FRAMING

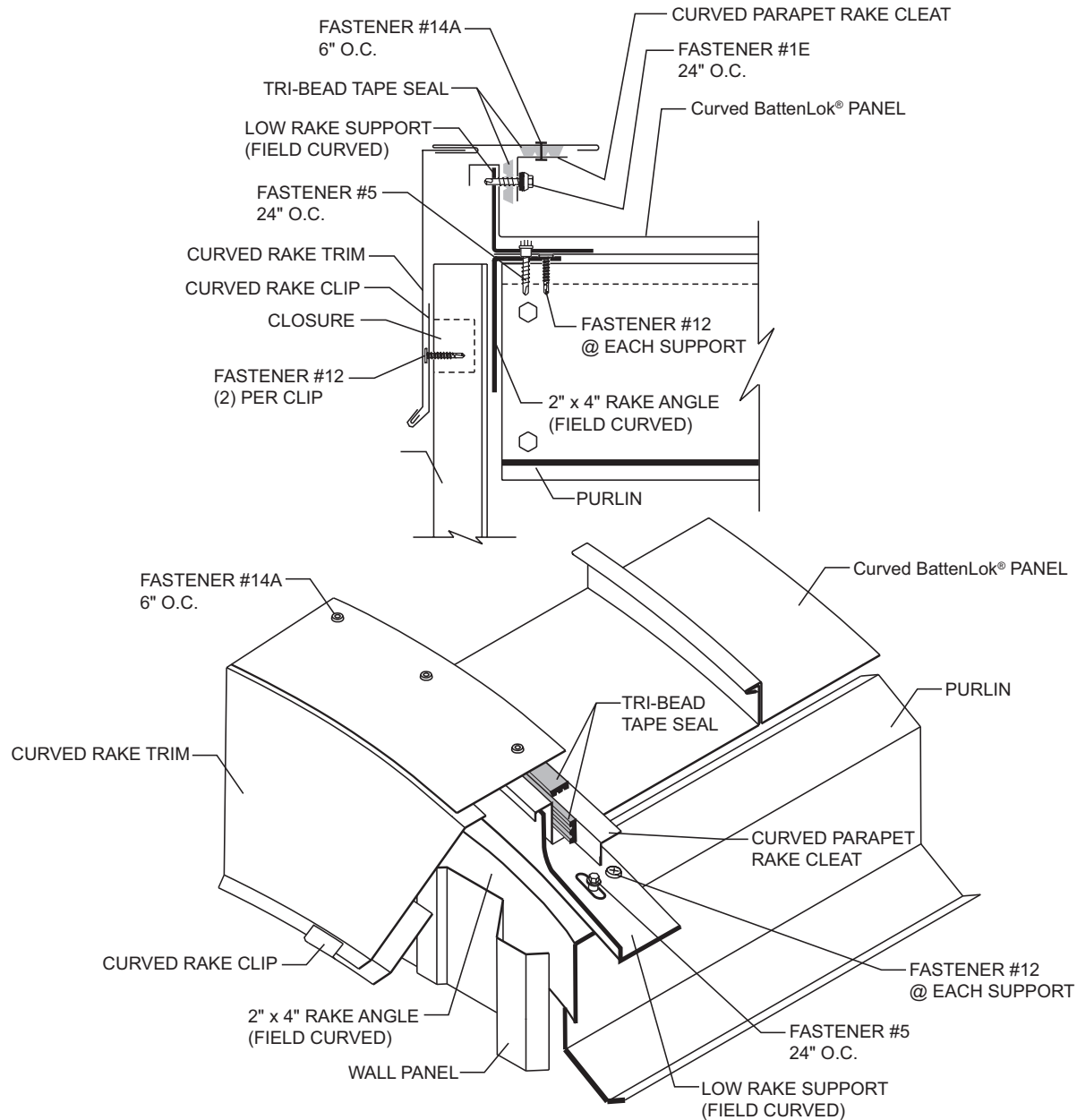


NOTES:

1. Panel endlap is 6" with prepunched holes in the top panel 3" from the end.
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the panel. The down slope edge of the Triple Bead Tape Sealer will be 5" from the panel end.
3. Apply a 6" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.

DETAILS

RAKE OVER OPEN FRAMING BEGINNING/FINISHING ON MODULE

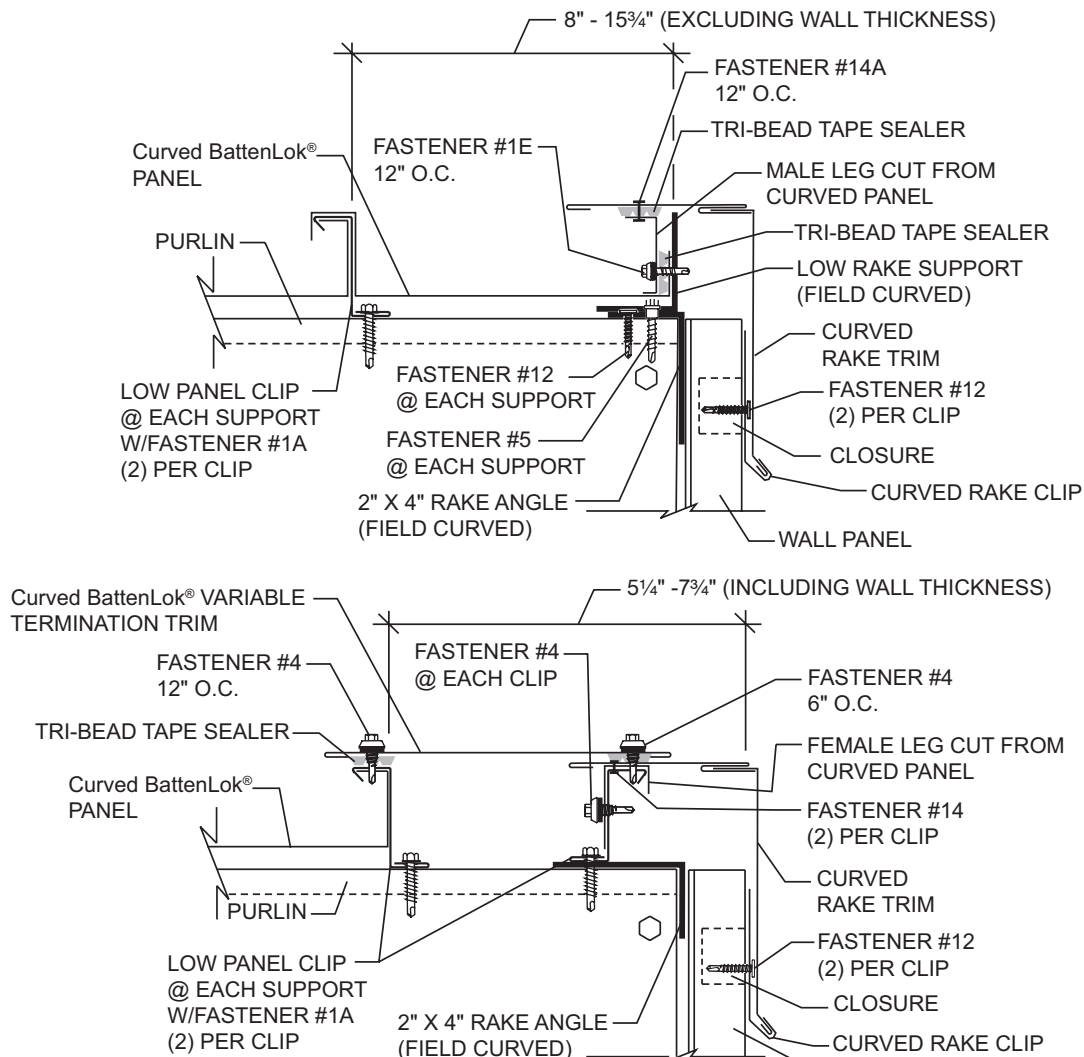


NOTES:

1. Install field curved rake support to field curved rake angle with Fastener #5 at 24" on center.
2. Apply Tri-Bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see "Finishing Rake" details on Page CB-55.

DETAILS

RAKE OVER OPEN FRAMING FINISHING OFF MODULE



NOTES:

FINISHING DIMENSION 15 3/4" - 8"

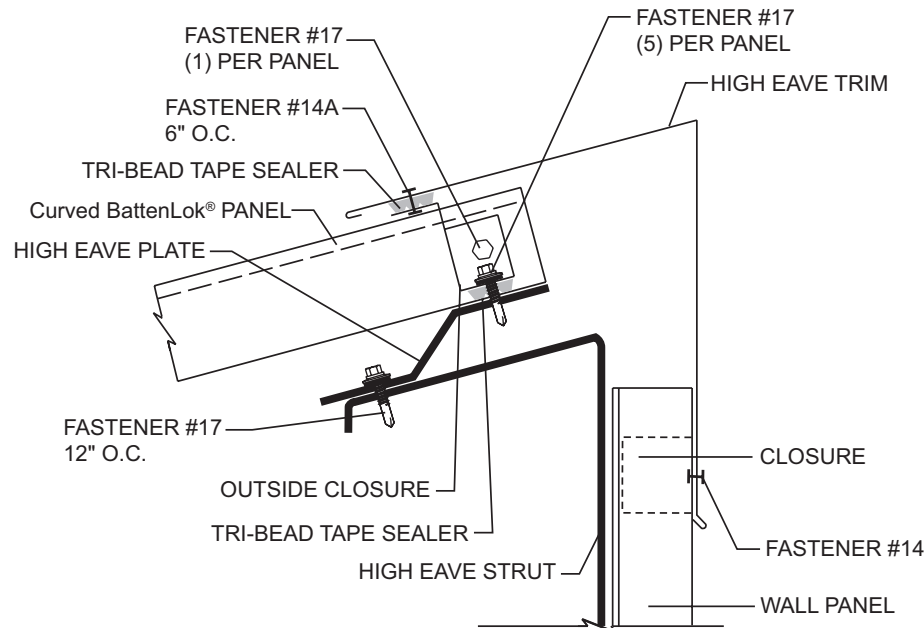
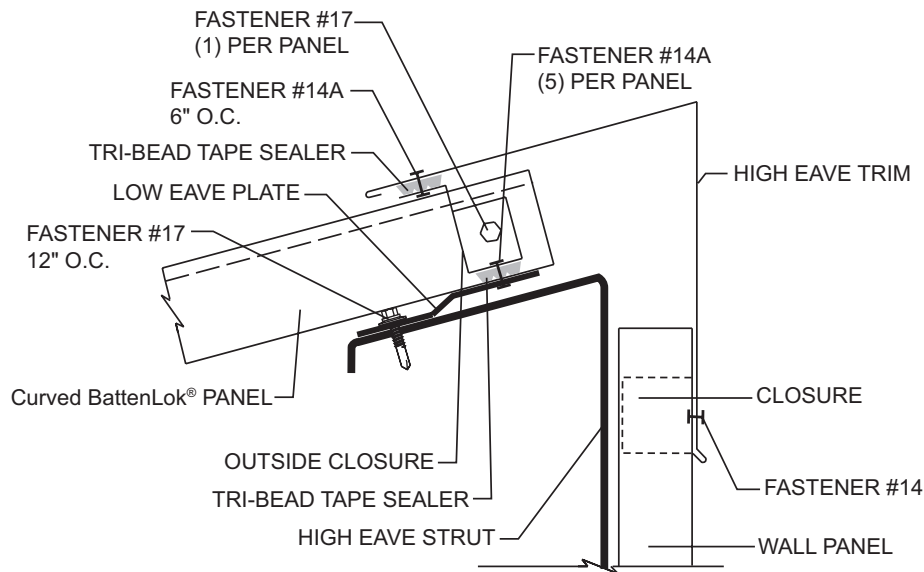
1. Install Field Curved Rake Support to wood Field Curved Rake Angle with Fastener #5 at 24" on center.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 7 3/4" - 5 1/4"

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install a Low, Fixed Clip at each purlin at the location in which the Curved Rake Trim and Curved BattenLok® Variable Trim will intersect.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

DETAILS

HIGH EAVE OVER OPEN FRAMING



NOTES:

LOW SYSTEM

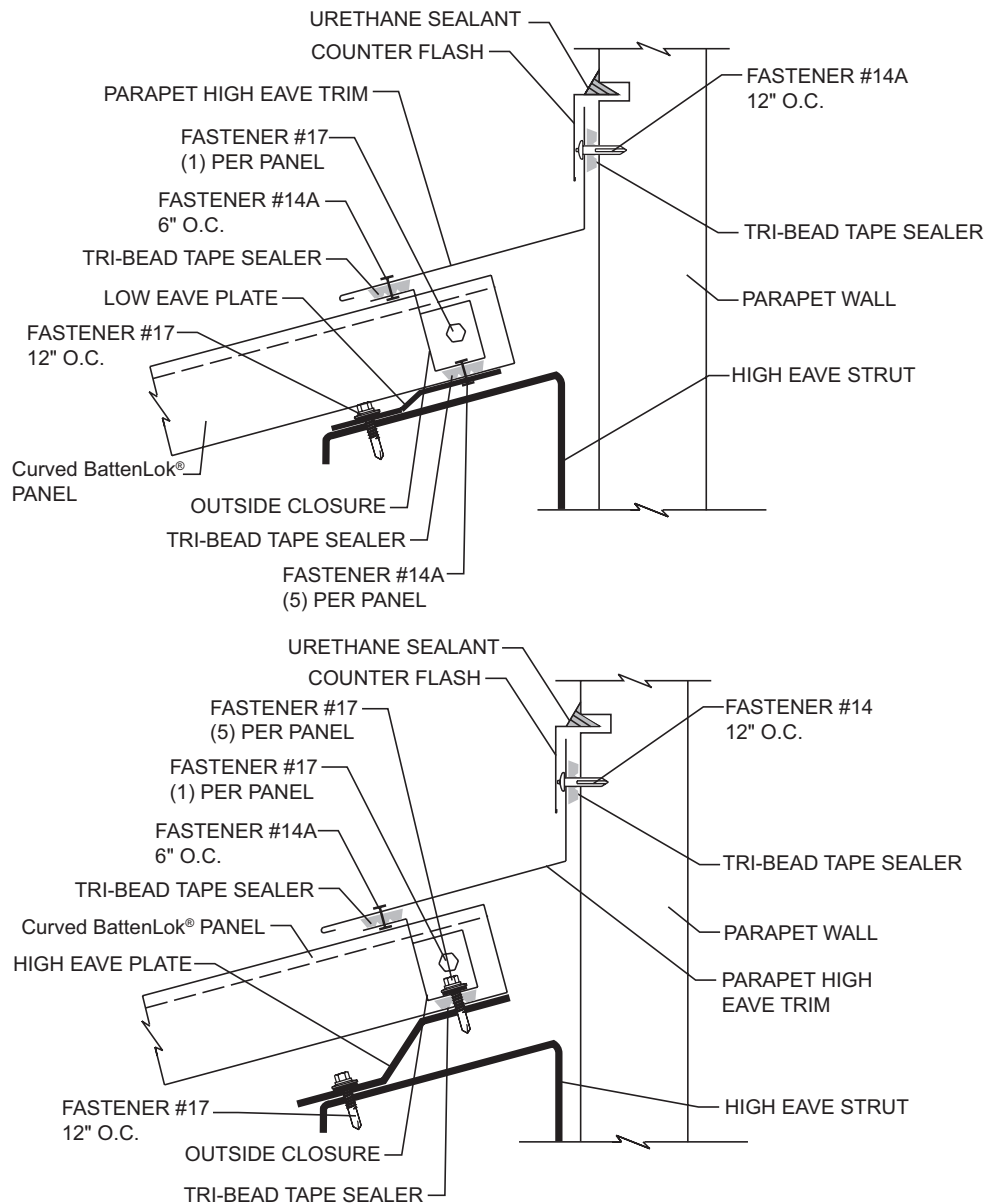
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-23 with Fastener #14A.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM

1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-23 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET HIGH EAVE OVER OPEN FRAMING



NOTES:

LOW SYSTEM

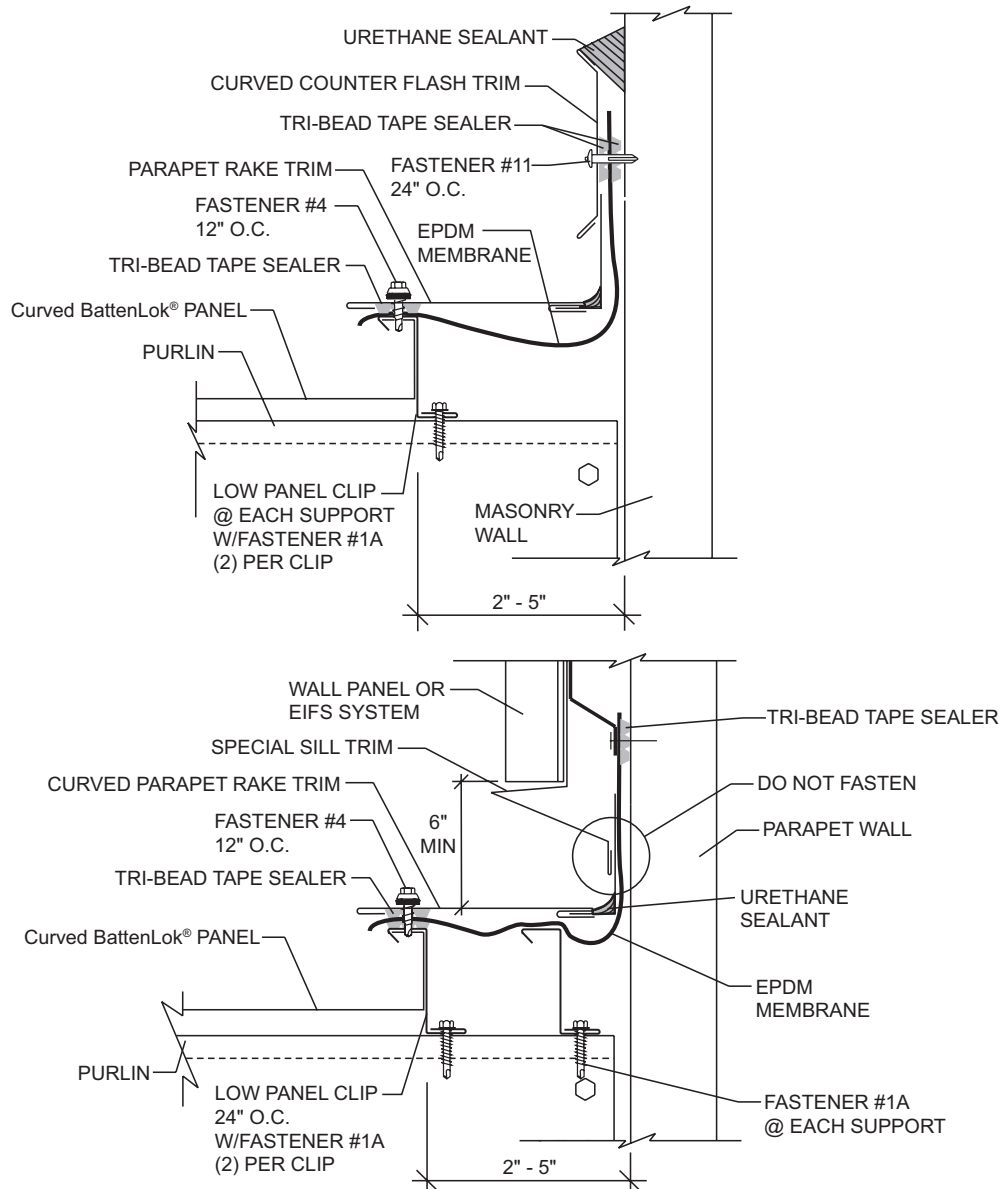
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM

1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

DETAILS

PARAPET RAKE OVER OPEN FRAMING BEGINNING/FINISHING ON MODULE

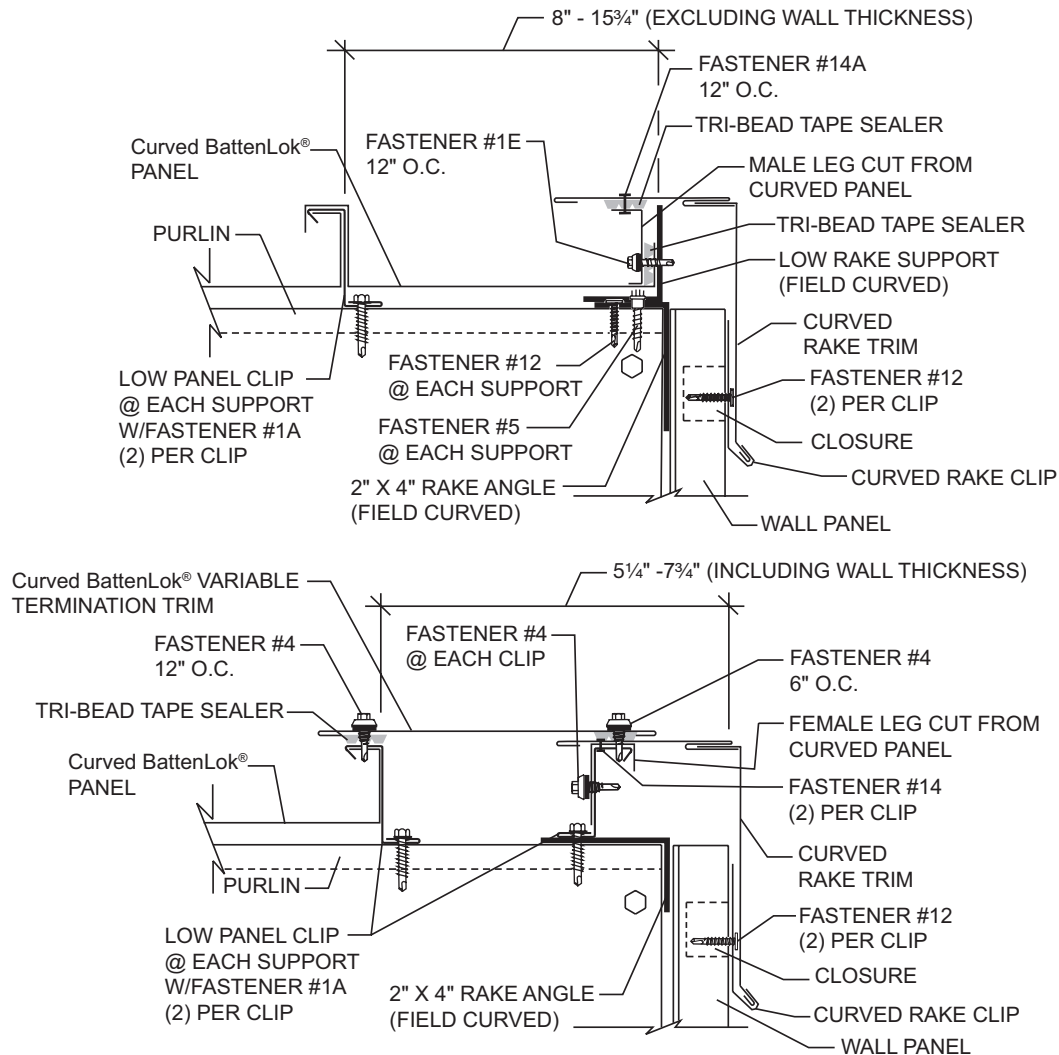


NOTES:

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EPDM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the last panel with Fastener #4 at 12" o.c. and to the parapet wall with Fastener #11 at 24" o.c..

DETAILS

PARAPET RAKE OVER OPEN FRAMING FINISHING OFF MODULE



NOTES:

FINISHING DIMENSION 5 1/4" - 7 3/4"

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install 3/8" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

FINISHING DIMENSION 8" - 17 3/4"

1. Install field curved rake support over Rigid Insulation and Bearing Plate with Fastener #15C at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #4 at 12" o.c. .



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