



MAXSEAM

INSTALLATION MANUAL



IMPORTANT NOTICE

READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE MAXLOC ROOFING SYSTEM.

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

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

ICE DAM DISCLAIMER

MetalMax designs its standing seam roofs to meet the load requirements dictated by governing codes and project specifications, including applicable snow loads. However, MetalMax 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 MetalMax. MetalMax 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:

- 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.

IMPORTANT NOTICE

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

Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, MetalMax 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.metalmax.com.** Application details are for illustration purposes only and may not be appropriate for all environmental condition, building designs or panel profiles. Projects should be designed to conform to applicable building codes, regulations and accepted industry practices.

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GENERAL INFORMATION

DESIGN

PLANNING

Consult a qualified engineer or architect to be sure that your particular application of this product conforms to applicable building codes, regulations, environmental condition and accepted industry practices. All suggested applications for MaxLoc assume a qualified engineer or architect has been consulted prior to the application of the products. Please note that the details shown may not be appropriate for all environmental condition and building applications. Prior to ordering panels, all dimensions should be confirmed by field measurements by the customer or installer.

APPLICATIONS

MaxLoc is a non-structural, water shedding, concealed fastener panel system that can be applied on a variety of projects. MaxLoc contemporary design, with economical interlocking ribs and fastening flanges make it ideally suitable for new construction or retro-fit markets, on both light commercial and residential projects. Panels may not be end lapped.

ROOF SUBSTRATE

For roofing applications, apply MaxLoc over a properly aligned, smooth continuous structural substrate such as 5/8" or thicker plywood surface with a suitable moisture barrier.

WATER/VAPOR CONTROL (MOISTURE BARRIER UNDERLAYMENT)

When warm moist air contacts a cold surface such as the underside of a metal roof panel, the water vapor contained in it condenses. The continuous presence of moisture is detrimental to many things, including metal. The use of suitable moisture / vapor barrier and insulations protect the metal and your investment. Whatever barrier you decide to use must be applied in a smooth continuous manner, free from holes or rips. Fasteners used to attach the barrier must be recovered to protect the underside of the panels. Fasteners must be flush with the surface of the barrier or they will cause unwanted distortion of the panel surface. It is further recommended that peak and eave or gable vents be installed to provide adequate air flow in trapped air spaces such as attics. Consult a qualified design professional for venting requirements.

OIL CANNING

Flat surface areas in metal panels are subject to visible stress. This "oil canning" (wave) is evident to some degree in all flat metal surfaces. Every effort is taken to minimize this condition during the forming process. Oil canning does not affect the structural integrity of the panel, and is not a cause for rejection. For information on this subject, please refer to MCA's oil canning technical bulletin.

GENERAL INFORMATION

DESIGN

FASTENERS

MaxLoc panels are best secured to a solid wood substrate by using a 10 x 1" Type A pancake head fastener. Fastener spacing is dependent upon design considerations. A qualified engineer must be consulted to insure that all design codes and other pertinent criteria are met. **Do not overdrive fasteners. This can cause panel distortion.**

WARNING

Application 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 noise are isolated from the building interior. This is especially important if the bottom of the deck is left open to the interior or in cathedral ceiling applications.

PRODUCT SELECTION CHART

Gauge	Galvalume Plus	SNP
26-Gauge	•	•
29-Gauge	•	•

- available in any quantities (see 26/29 gauge color chart for available colors)



GENERAL INFORMATION

APPLICATION, STORAGE & HANDLING

SAFETY PRECAUTIONS

Improper unloading and handling of bundles and crates may cause bodily injury or material damage. Use extreme care in the operation of power lifting devices such as cranes and forklifts, and follow the safety instructions provided by their manufacturer. Crates, boxes, and bundles may be bulky, heavy, or both. The improper or unaided lifting of them may cause bodily injury. The manufacturer is not responsible for bodily injuries or material damage due to improper handling during unloading, storage, or job site placement.

Protective heavy duty gloves should be worn when handling metal panels and trim products. Safety goggles or face shield should be worn while cutting or drilling metal products with power tools. Follow the safety instructions provided by the manufacturer of the power tools.

Use extreme care when walking, sitting, standing, or kneeling on a metal roof to avoid a fall. Galvalume® panels have a light coating of oil to protect the panels from moisture prior to installation. They can be extremely slippery, as are painted panels, when they are wet. If necessary, remove the oil coating with a non-abrasive detergent and water mixture followed by a clear water rinse. Insure the panels are dry prior to installation.

STORAGE AND HANDLING

To preserve and protect the attractive appearance of MetalMax's roofing and siding from damage caused by moisture, corrosive chemicals, or improper handling, it is necessary that you take a few simple precautions. When material is received bundled, panels should be inspected for moisture. If there is moisture, the panels should be separated and dried. If shipping damage is found, the carrier should be advised and a notation made on the bill of lading.

On job sites, reasonable care should be taken when handling painted surfaces during installation in order to protect the finish. Although the paint coating is tough, and provides impact resistance, dragging panels across the surface of one another will almost certainly mar the finish.

Prolonged storage of sheets in bundles is not recommended. If conditions do not permit immediate installation, extra care must be taken to protect the material from damage caused by moisture.

Store bundled sheets **ONLY IN A DRY PLACE**. Sheets should be unbundled, stood on end against an interior wall to allow for air circulation. If unable to store sheets in an upright position, strapping bands should be broken and sheets should be blocked off the floor with one end slightly elevated. Stacked sheets should then be completely protected from the elements while maintaining good airflow to prevent condensation. A properly draped canvas tarpaulin, that allows air flow, is an example of a good protective cover. Do not use plastic as it causes sweating or condensation to occur.



GENERAL INFORMATION

APPLICATION, STORAGE & HANDLING

BUILDING DESIGN AND CONSTRUCTION

It is important to protect metal panels from potentially corrosive situations and materials. This will insure the good performance and long life of the metal. If installing metal panels over green lumber, damp lumber, or treated lumber (CCA or ACQ), a barrier must be installed to separate the wood from the metal. A barrier may be formed with plastic or other suitable material. Avoid contact with, or water runoff from, dissimilar metals such as copper, lead or graphite. Dissimilar metals under the roof panels may be separated with asphalt, builders felt, caulking compounds or gasket material.

Metal panels must further be protected from contact with strong chemicals such as fertilizers, lime acids, animal waste and soil. All of these have the potential to initiate corrosion in metal panels. Metal panels should not be in permanent contact with soil.

Temperature variations, (dew point) between the outside air and the interior building air mass can cause condensation to occur on the inside of the building on the panel's surfaces. Proper venting and air flow considering and the use of a vapor barrier such as vinyl backed insulation can eliminate this problem. If left unattended, condensation can cause the premature degradation of the metal and void any applicable warranties. For information on this subject, please refer to MCA's white paper on controlling condensation in steep slope metal roofing systems.

The substructure, on which the panels are to be installed, must be "on plane" (1/4" tolerance) from eave to ridge.

VENTILATION

Sufficient air movement should be provided by means of a ridge or rotary vent, power operated fans, or other openings to minimize condensation. Contact the equipment manufacturer for specific information or a qualified mechanical engineer.



GENERAL INFORMATION

APPLICATION, STORAGE & HANDLING

ROOFING INSTALLATION

Check substructure for proper alignment and uniformity to avoid panel distortion. MetalMax recommends the use of 5/8 plywood for the substructure. Minimum 5/8" plywood substructure is MANDATORY for UL 90 Uplift Rating.

THE MINIMUM roof slope recommended is 3 inches of rise per foot. This ensures that sufficient slope is present for adequate drainage. The panels must be installed over a completely water-proofed substructure.

It is important to remember that in the installation of roof sheets, the sideslips should face away from the direction of the prevailing wind. The first sheet should be installed square with the eave and at the down-wind end of the roof, farthest from the direction of the wind.

For proper fastener application, refer to our published guide.

Remember to sweep the roof clean of any metal filings created from fastener placement or cutting of panels to prevent rust marks on the surface the painted panels.

Installing MaxLoc panels over an uneven substrate will cause distortion of the panel. It is the responsibility of the installer to insure a suitable substrate prior to panel application. Distortion in the panel caused by an uneven substrate, ripples or laps in the vapor barrier, debris, etc., are not defects in the material, and are not the responsibility of MetalMax. MaxLoc panels cannot be endlapped.

CLOSURE AND SEALANTS

To thoroughly protect the contents of any structure from moisture, regardless of building size or roof slope, closure strips should be used at the roof ridge, hip and eave. For maximum protection, all caulking used should be urethane. **Silicone chalks are not recommended for panels or trims.**

CUTTING METAL PANELS

MetalMax recommends the use of power shears or nibblers that can follow the contour of the panel's profile. While not recommended, if a power saw is to be used, you must use a blade designed to cut the metal at a low temperature to prevent melting of the Galvalume® coating. You should protect the panel during the cutting process to prevent marring the panels surface. Panels should be thoroughly brushed after cutting to remove any particles of metal and caution should be taken so that filings from cutting don't settle on other panels. Follow the safety instructions provided by the manufacturer when using any tools.



GENERAL INFORMATION

APPLICATION, STORAGE & HANDLING

PANEL SELECTION

MetalMax's bare Galvalume® (Galvalume Plus®), and color coated products are produced from material that meets or exceeds the specification outlined in ASTM-792.

If you chose a bare Galvalume® (Galvalume Plus®), for your application you should be aware that this product is recommended for applications where aesthetic appearance is not your prime concern. Unpatined products may not weather uniformly and while they may be shiny and bright when new, they will fade or "patina" with age. Acid rain and other corrosive atmospheres, as well as the accumulation of airborne debris and dirt will affect this aging process and the product's appearance.

If aesthetic appearance is one of your concerns, MetalMax recommends you choose one of our many color coated panel selections. Copies of MetalMax's color coated panel warranty are available at your point of purchase, or from the MetalMax office located nearest to you.

Failure to comply with these precautions relieves the manufacturer of responsibility for any resultant damage to, or deterioration of the product and voids any applicable warranties. Contact your local MetalMax facility for copies of our Limited Color Coated and Galvalume® Warranties. Except as outlined in our published limited warranties, MetalMax makes no warranty, express or implied, limited or otherwise, as to the merchantability or fitness for any particular purpose, with respect to the product sold.

GENERAL INFORMATION

HOW TO ORDER SPECIAL TRIM

DEGREES BASED ON ROOF PITCH

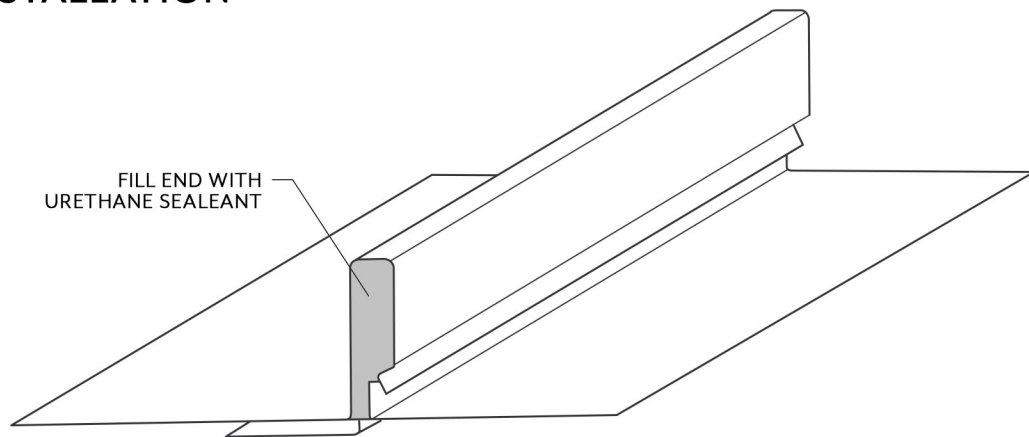
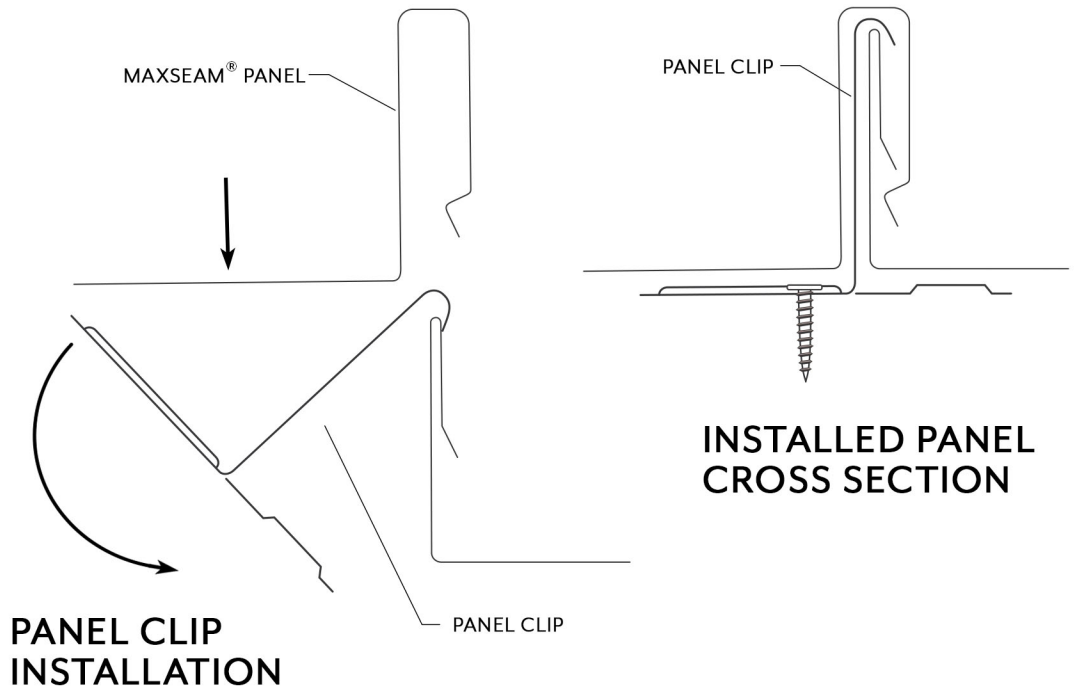
	ROOF SLOPE											
	1:12	2:12	3:12	4:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
HIP & VALLEY	173°	166°	160°	154°	148°	143°	138°	133°	129°	126°	123°	120°
EAVE & TRANSITION	94°	99°	104°	108°	112°	116°	120°	123°	126°	129°	132°	135°
RIDGE	170°	161°	152°	143°	135°	127°	120°	113°	106°	100°	95°	90°

NOTES:

- 1) Always indicate the dimension of each segment.
- 2) Always indicate each angle in degrees.
- 3) Indicate the number of hemmed edges.
- 4) Always indicate the exposed or colored side of each trim piece.
- 5) Calculate girth, which is the total width of trim piece.

GENERAL INFORMATION

PANEL



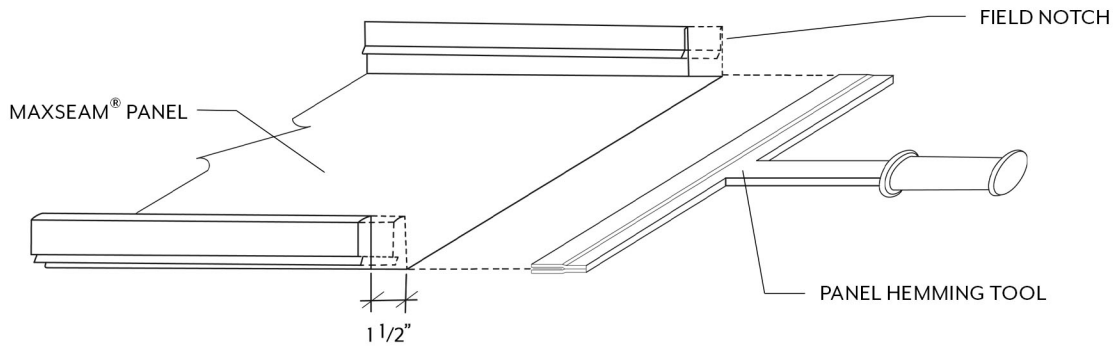
PANEL END SEALANT DETAIL

NOTES:

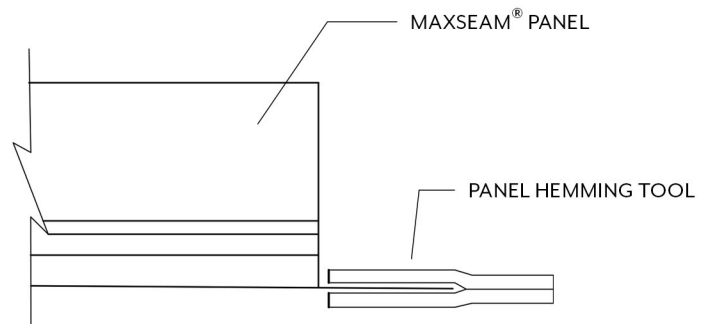
1. Fill end of panel seam at eave and valleys with urethane sealant.
2. For UL 90 rating, UL 90 clips with two fasteners must be used.

DETAILS

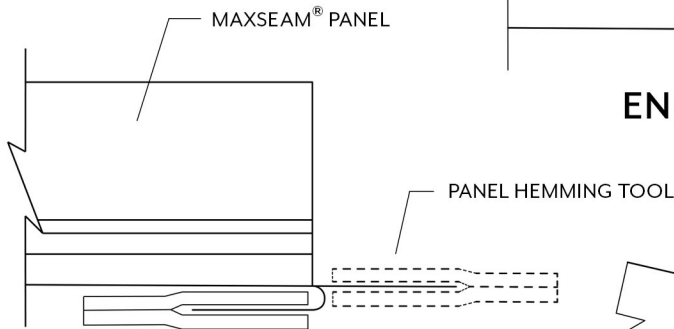
FIELD HEMMING PANEL END



NOTCHING PANEL END

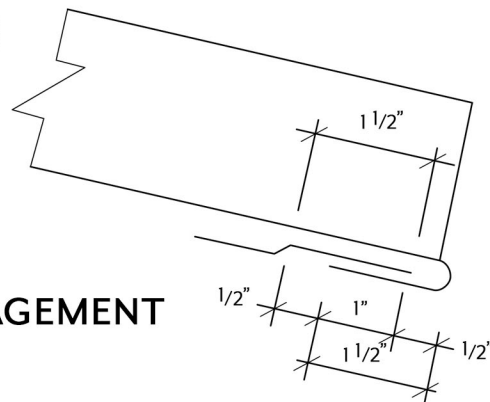


ENGAGING HEMMING TOOL



FORMING OPEN HEM

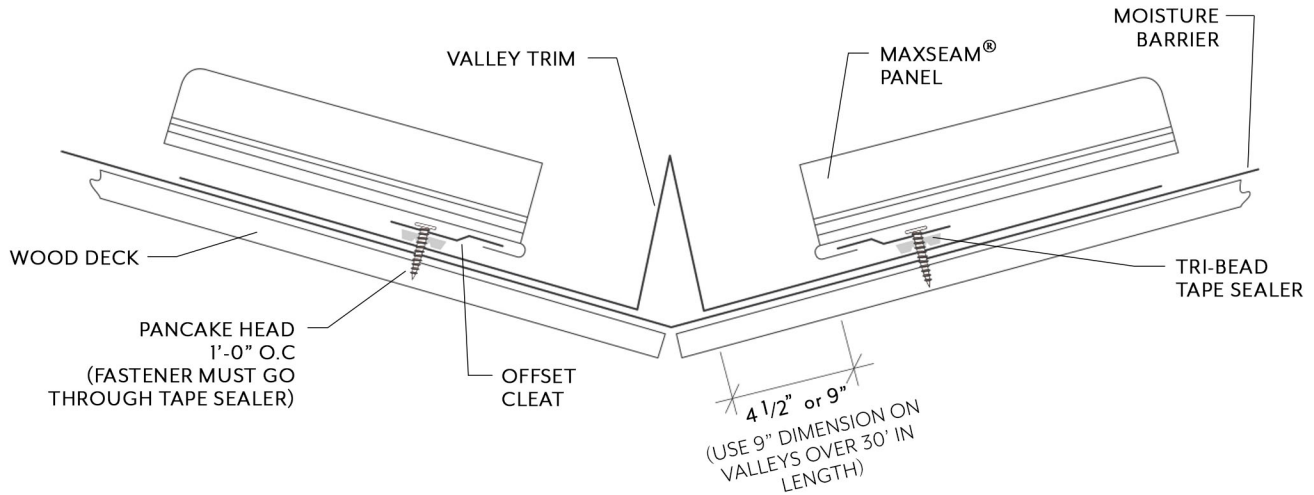
PANEL ENGAGEMENT



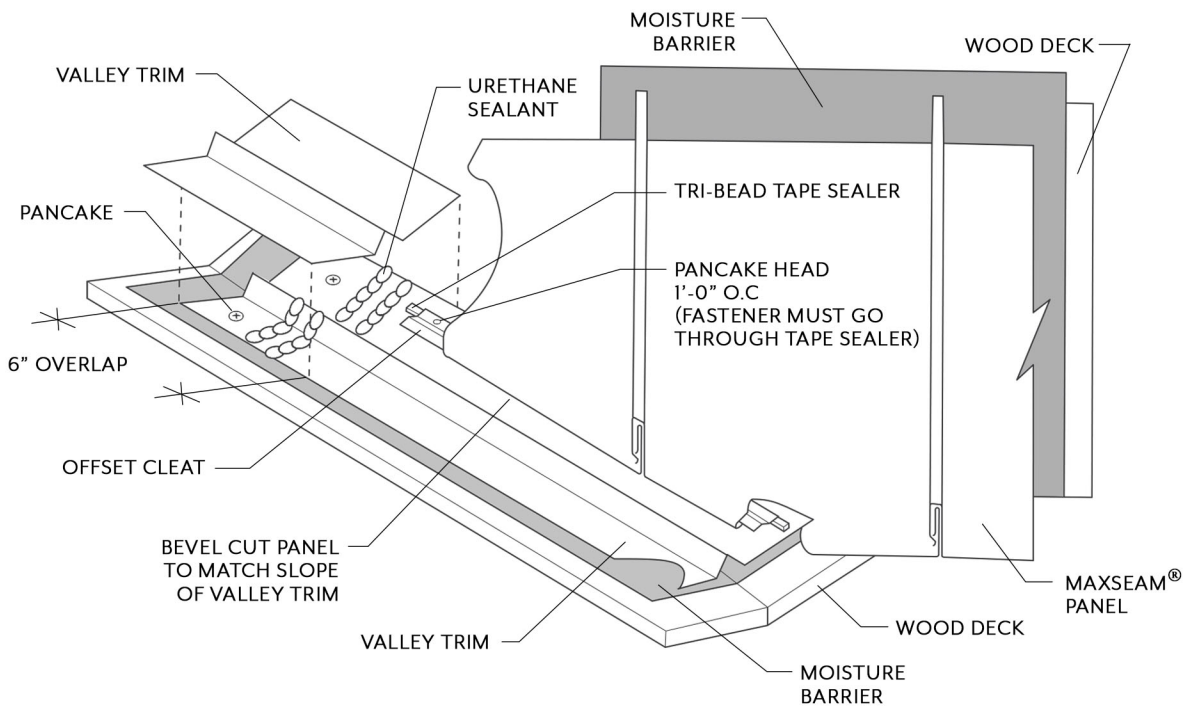
NOTES:

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

DETAILS



CROSS SECTION OF FLOATING VALLEY

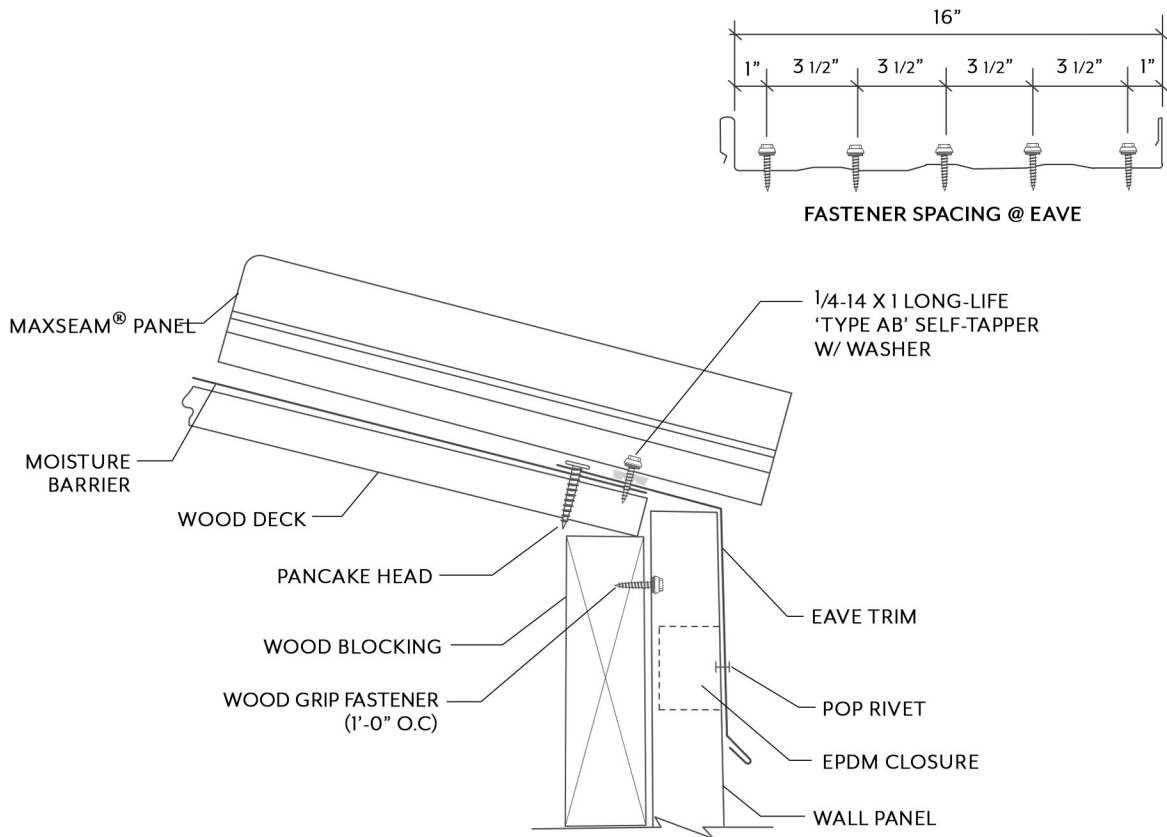


NOTES:

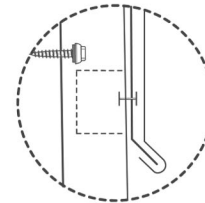
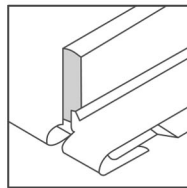
1. For valleys longer than 30' in length, use extended valley trim.
2. Panels must be attached to substructure at the ridge, high eave or hip to prevent them from sliding downslope.
3. Offset cleat is installed continuous along slope of valley over tape sealer with pancake head fastener at 1'-0" o.c. Fasteners must go through tape sealer.
4. Add 1-1/2" to panel length for the panel hem.
5. See "Panel End Sealant Detail" on page TBD to seal panel ends at valley.

DETAILS

FIXED EAVE WITH EAVE TRIM OVER WOOD DECK



**PANEL END
DETAIL**
FILL END OF RIB
WITH URETHANE



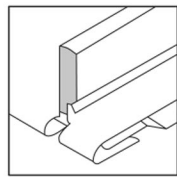
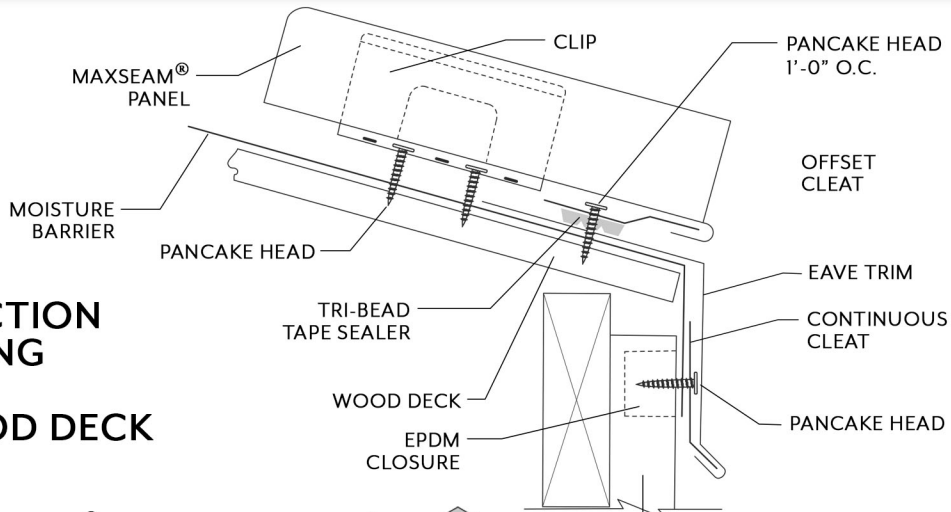
OPTIONAL CONTINUOUS CLEAT

NOTES:

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

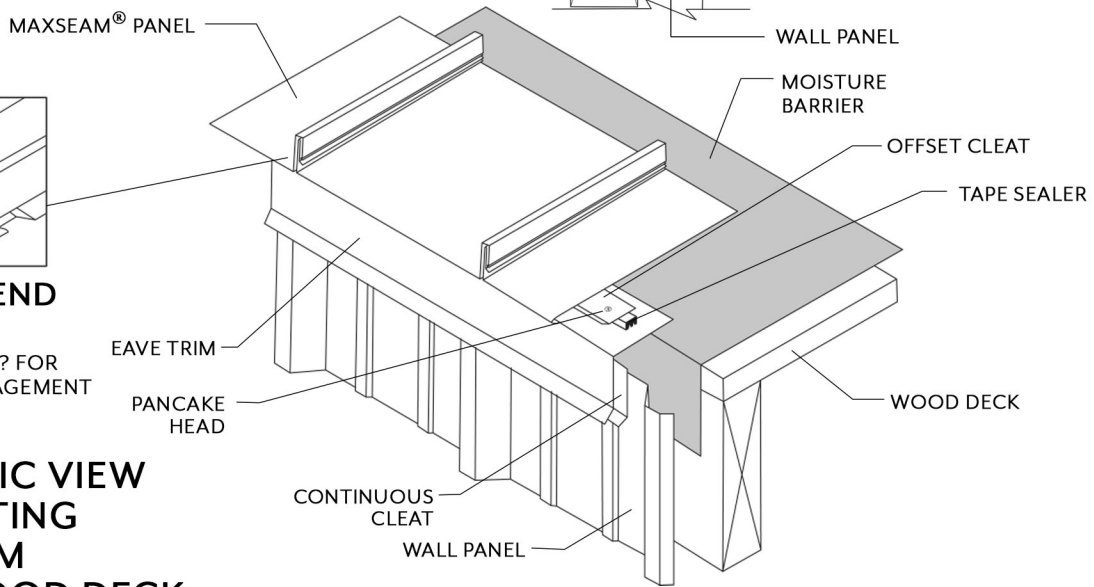
DETAILS

CROSS SECTION OF FLOATING EAVE TRIM OVER WOOD DECK



PANEL END DETAIL
SEE PAGE ??? FOR PANEL ENGAGEMENT

ISOMETRIC VIEW OF FLOATING EAVE TRIM OVER WOOD DECK



NOTES:

Eave with Offset Clear

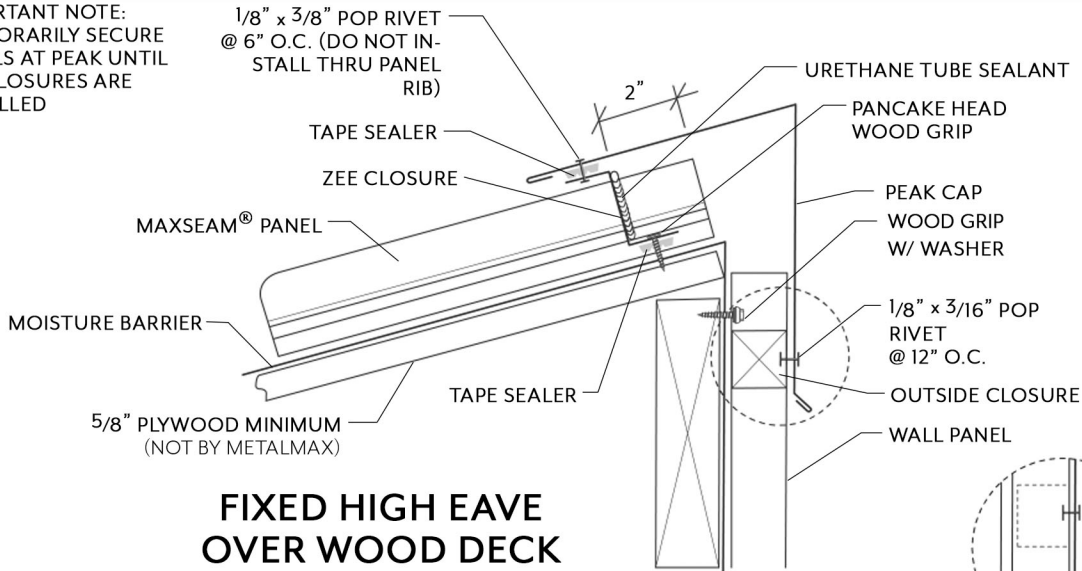
1. **Panels must be attached to substructure at the ridge, high eave, endlap or hip to prevent them from sliding downslope.**
2. Offset cleat is installed continuous along eave over Tri-Bead tape sealer with Pancake Head at 1'-0" o.c. **FASTENERS MUST GO THROUGH TAPE SEALER.**
3. Clip spacing should not exceed 4'-0" o.c. for 26-gauge and 24-gauge panels.
4. Add 1 1/2" to the panel length for the panel hem.
5. **See "Panel End Sealant Detail" on page TBD to seal panel ends at valley.**

Eave with Extended Drip Edge

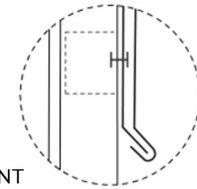
1. **Panels must be attached to substructure at the ridge, high eave, endlap or hip to prevent them from sliding downslope.**
2. Attach eave trim to the wood deck with Pancake Head 2'-0" o.c. **FASTENERS MUST GO THROUGH TAPE SEALER.**
3. To field hem panel, see page TBD.
4. **See "Panel End Sealant Detail"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

DETAILS

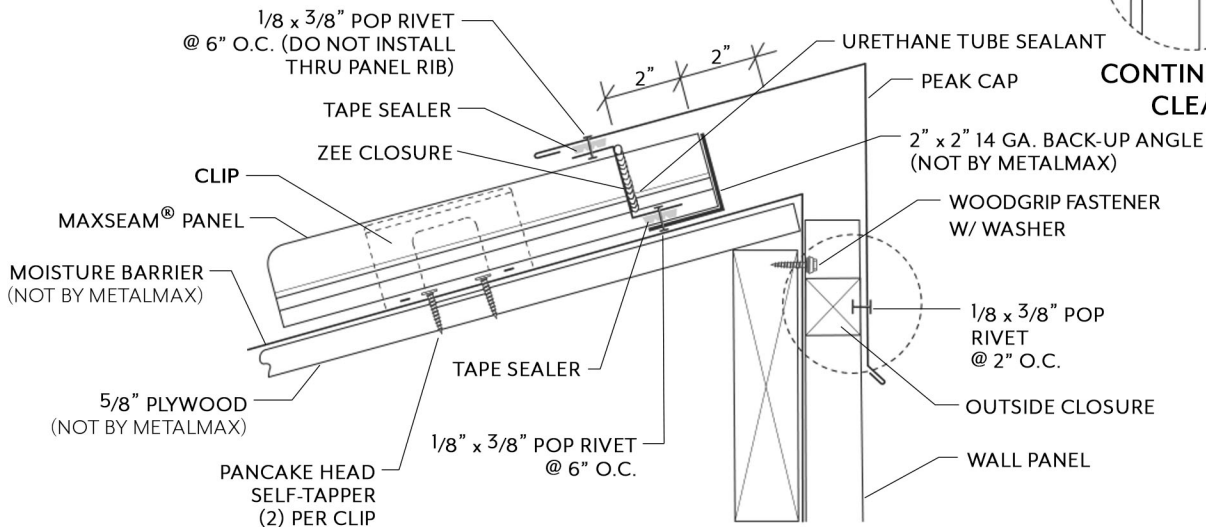
IMPORTANT NOTE:
TEMPORARILY SECURE
PANELS AT PEAK UNTIL
ZEE CLOSURES ARE
INSTALLED



FIXED HIGH EAVE OVER WOOD DECK



CONTINUOUS CLEAT



FLOATING HIGH EAVE OVER WOOD DECK

NOTES:

Fixed High Eave

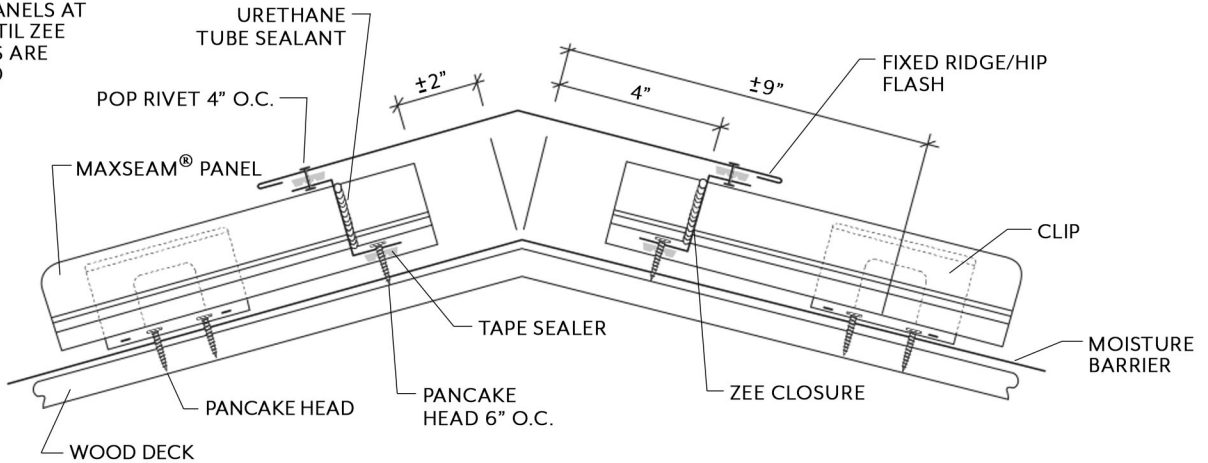
1. **Do not use this detail with fixed eave or valley details.**
2. Apply tape sealer to panels. The center of tape sealer should be 1 1/2" from the end of the panel.
3. Install zee closures to panels with Pancake Head at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
4. Seal ends of zee closures to panel seams with urethane sealant. Install tape sealer to top leg of zee closure.
5. Attach peak cap to zee closure with pop rivet 6" o.c.

Floating High Eave

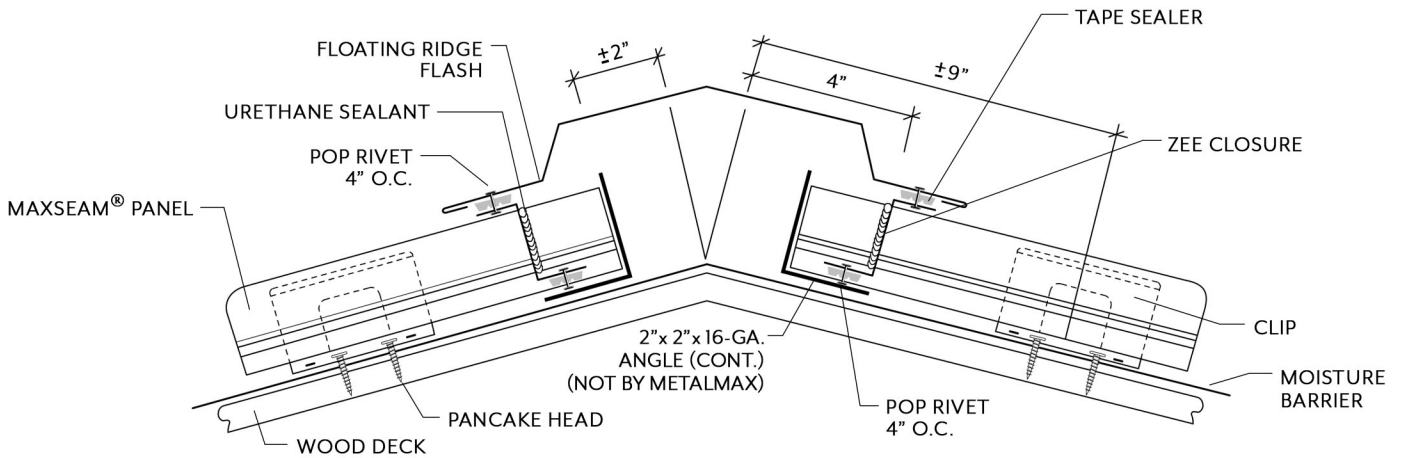
1. **Do not use this detail with floating eave or valley details.**
2. Apply Tri-Bead tape sealer to panels. The center of tape sealer should be 1 1/2" from the end of the panel.
3. Install zee closures to panels with pop rivet at 6" o.c. Vertical leg of zee closure should be 2" from end of panel.
4.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

DETAILS

IMPORTANT NOTE:
TEMPORARILY
SECURE PANELS AT
RIDGE UNTIL ZEE
CLOSURES ARE
INSTALLED



STANDARD FIXED HIP OVER WOOD DECK



STANDARD FLOATING RIDGE/HIP OVER WOOD DECK

NOTES:

Fixed Hip

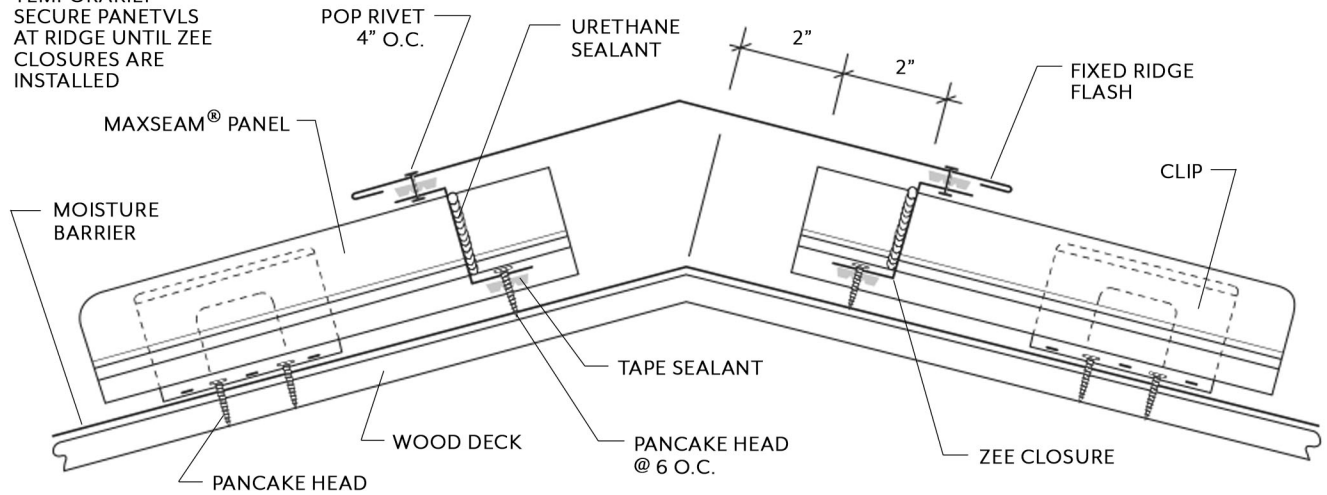
1. **Do not use this detail with the fixed eave or valley details.**
2. Bevel cut and install panels to follow slope of hip.
3. Install tape sealer to panels, running parallel to the hip. Center of tape sealer should be $3\frac{1}{2}$ " from the center of the hip.
4. Install zee closures to panels with Pancake Head at 6" o.c. Vertical leg of zee closure should be 4" from center of hip.

Floating Hip

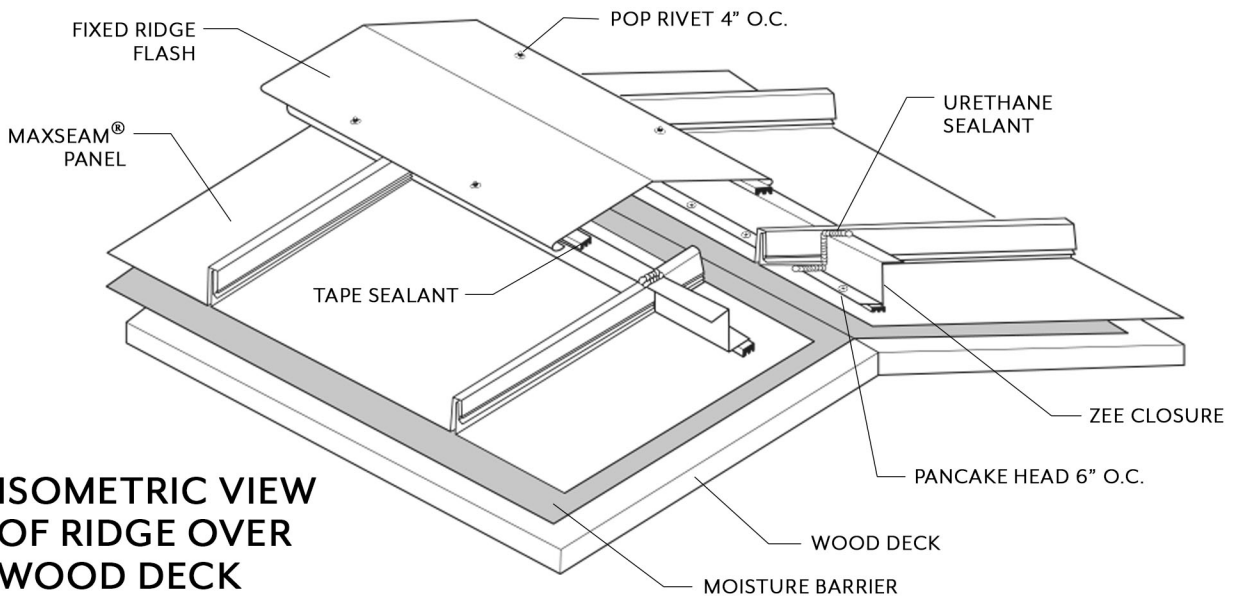
1. **Do not use this detail with the fixed eave or valley details.**
2. Install Tri-Bead tape sealer to panels. Center of tape sealer should be $1\frac{1}{2}$ " from end of panel.
3. Slide a length of 2" x 2" x 16-gauge angle under the panels.
4. Install zee closures to panels and 2" x 2" angle with Pancake Head at 4" o.c. Vertical leg of zee closure should be 4" from center of ridge. Seal sides of zee closures to panel seams with urethane sealant.

DETAILS

IMPORTANT NOTE:
TEMPORARILY
SECURE PANELS
AT RIDGE UNTIL ZEE
CLOSURES ARE
INSTALLED



CROSS SECTION OF FIXED RIDGE OVER WOOD DECK

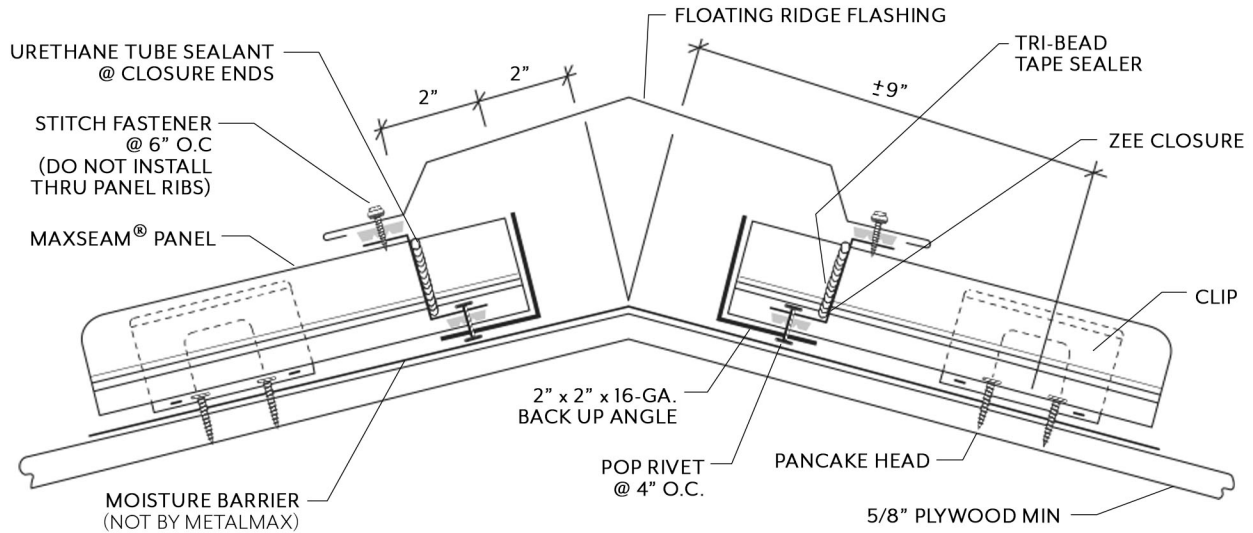


**ISOMETRIC VIEW
OF RIDGE OVER
WOOD DECK**

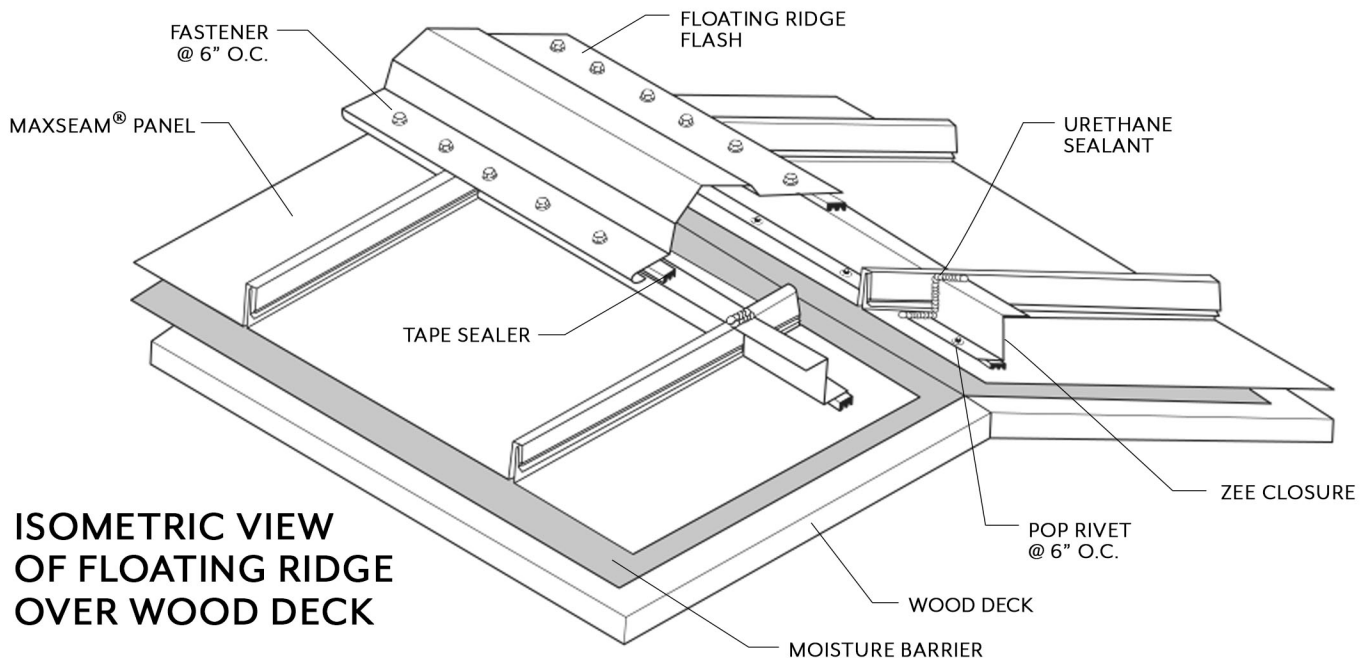
NOTES:

1. **Do not use this detail with the fixed eave or valley details.**
2. Install tape sealant to panels. Center of tape sealer should be 1 1/2" from end of panel.
3. Install zee closures to panels with pancake head at 6" o.c. Vertical leg of zee closure should be 2" from end of panel. Fasteners must go through tape sealer.
4. Seal end of zee closure to panel seams with urethane sealant.
5. Clip spacing should not exceed 4'-0" o.c. for 26-gauge and 24-gauge panels.

DETAILS



CROSS SECTION OF FLOATING RIDGE OVER WOOD DECK

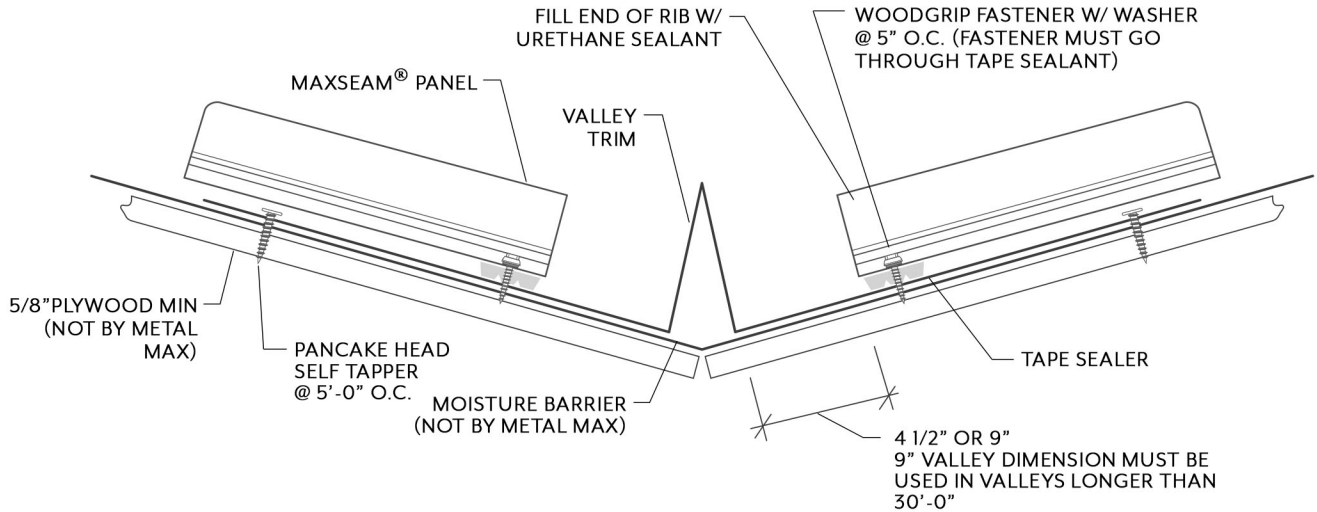


ISOMETRIC VIEW OF FLOATING RIDGE OVER WOOD DECK

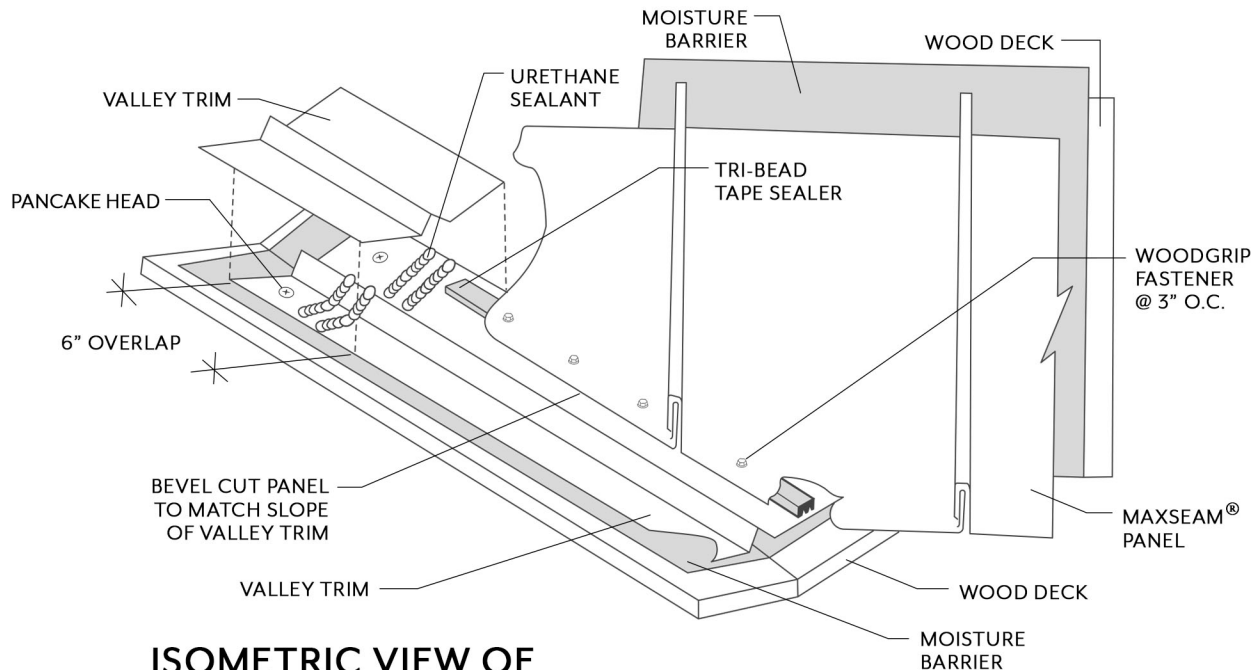
NOTES:

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

DETAILS



CROSS SECTION OF VALLEY OVER WOOD DECK

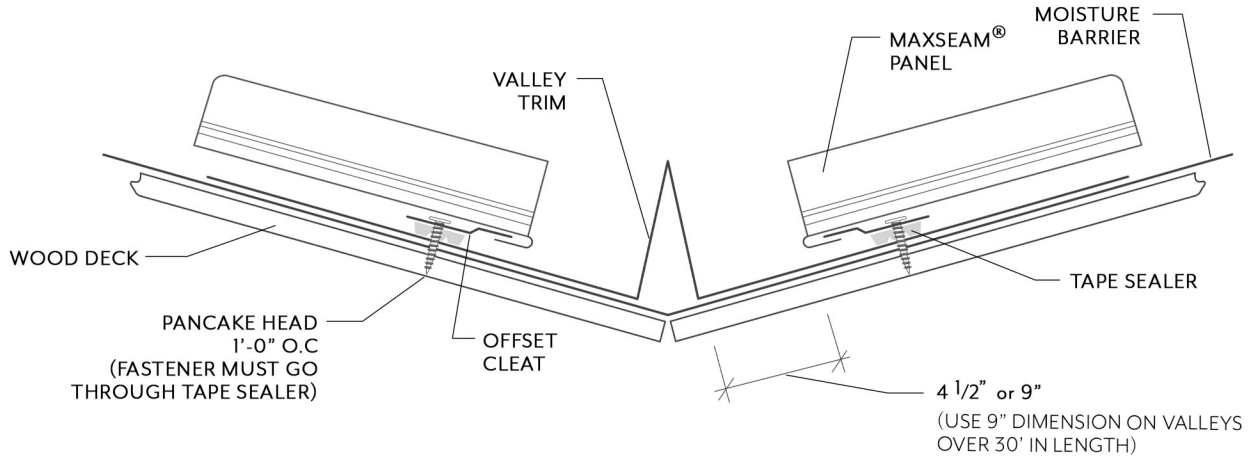


ISOMETRIC VIEW OF VALLEY OVER WOOD DECK

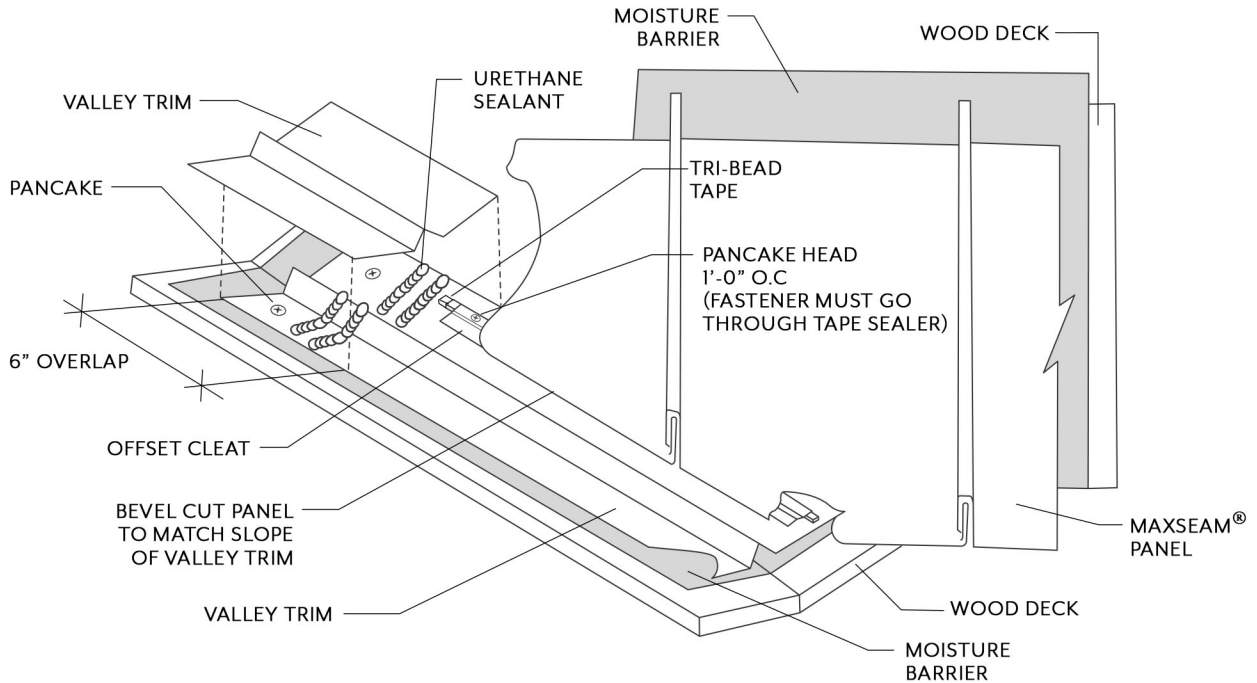
NOTES:

1. For valleys longer than 30', use extended valley trim (see page TBD)
2. **Do not use this detail with fixed ridge or hip details.**
3. Apply tape sealer continuously under MaxSeam® panel.
2. Attach panels to wood deck with woodgrip fastener with washer at 3" on center.
3. **See "Panel End Sealant Detail" on page TBD to seal panel ends at valley.**

DETAILS



CROSS SECTION OF FLOATING VALLEY WITH OFFSET CLEAT OVER WOOD DECK



ISOMETRIC VIEW OF FLOATING VALLEY OVER WOOD DECK

NOTES:

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