LCS

Long Creek Steel

SUPERIOR LOCK

MANUAL

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Features & Benefits

Superior Lock is a fasten-through standing seam panel for the residential and light commercial industry

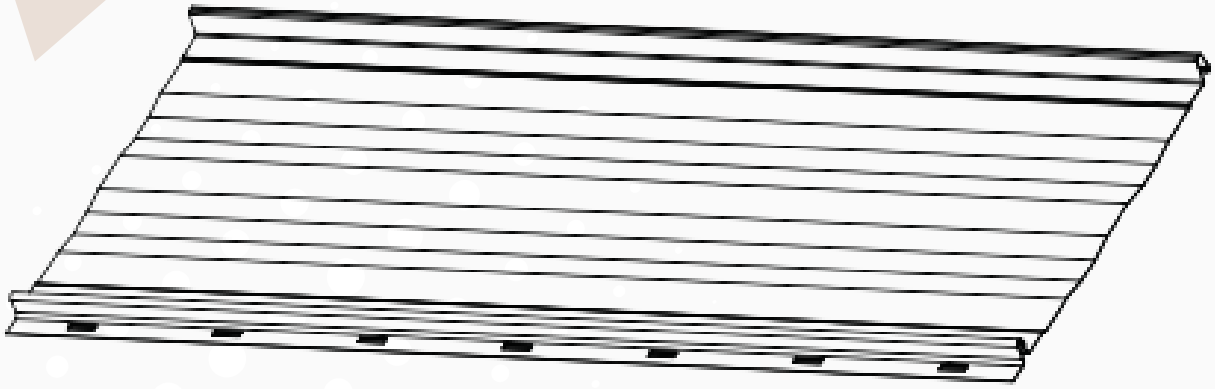
- Does not require a seaming tool or clips, just snaps together.
- The fasteners are attached to the substrate through slots in the attachment leg of the panel.
- This permits the panel system to address thermal movement.
- Matching trim flashing and accessories.
- Custom lengths from 3' to 35'.
- Architecturally pleasing roof panel that is installed to the solid substrate with concealed fasteners.
- Installs over 1/2" CDX Plywood* with 30# felt paper or Ice & Water Shield underlayment (UL listing requires 5/8" CDX Plywood substrate.
- End lapping Superior Lock is not recommended
- Superior Lock requires little to no maintenance and will last three times longer than conventional composite roof shingles.
- The Superior Lock roof system is environmentally friendly and is made from 32% recycled materials.
- Superior Lock is available with Energy Star listed colors which can reduce heating and cooling costs.
- Recommended minimum roof pitch is 3:12.
- Oil canning is not a cause for rejection.

ENERGY STAR PARTNER

Architect, Engineering, & Erector Information

1. Superior Lock is a snap-together, 12” or 16” wide integral batten roof panel with striations. The recommended slope is 3:12. It is a UL-90 listed roofing panel that requires a solid substrate for support. Superior Lock is also a UL Listed 2218 #4 Hail Impact rated roof system.
2. Superior Lock is a metal roof system that does not carry any live, dead or snow loads and therefore the substrate must be engineered for these loads on each project.
3. The recommended substrate for the Superior Lock roof system is ½” CDX Plywood (5/8” Plywood required for UL listed roofs). Proper substrate alignment is critical because any inconsistencies will be telegraphed through the Superior Lock roof system. The substructure must be on plane with a tolerance of ¼” in 20’ and 3/8” in 40’.
4. Superior Lock is a water shedding roof system and therefore must be installed over a completely waterproofed substrate. If the waterproof membrane is mechanically attached with metal fasteners. These fasteners should be covered to protect the back side of the Superior Lock panel. Any mechanical attachment device that does not lay flat on the substrate will telegraph through the panels.
5. Oil Canning is not a cause for rejection, Heavier gages and striations minimize oil canning.
6. Roof panels may be erected from either direction. For panel lengths over 35’, please inquire.
7. Avoid restricting the thermal expansion and contraction of the Superior Lock panels. Do not positively attach the Superior Lock panels to the substructure at both eave and ridge.
8. Superior Lock panels are not designed to be a work platform. Avoid any unnecessary foot traffic on panels. If foot traffic is required, protect the roof panels by using a roof pad, temporary deck or walkway.
9. The information in this manual is believed to be correct and accurate. It should not be used for any specific application without being reviewed by a registered professional engineer. All metal roofs should be designed by a registered, professional engineer for loads specified by the governing building code, including the higher pressures encountered at the edge zones of the roof.

General Information



Before beginning installation of the metal roof system, the installer should examine the substrate to insure that all supporting members are straight, level and plumb to avoid any Superior Lock panel distortion. All substrates should be designed to meet all the necessary building code requirements.

The installer should thoroughly familiarize himself with all installation instructions before starting work. This manual contains suggestions and guidelines on how to install Superior Lock roof systems. The installation details shown are proven methods of construction, but are not intended to cover all instances, building requirements, designs or codes. It is the responsibility of the designer/installer to ensure that the details meet particular building requirements.

The panels should be installed plumb, straight and accurately to the substrate. Some field cutting and fitting of panels and trim is to be expected by the installer and minor field corrections are a part of normal installation work.

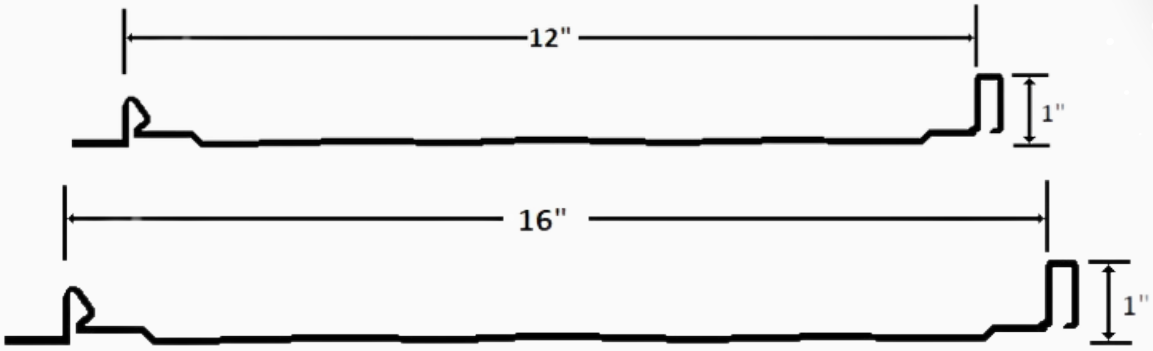
Trim shall be installed true and in proper alignment with exposed fasteners equally spaced for the best appearance.

Oil Canning in the flat area of the panels is common to the industry and shall not be cause for rejection.

NOTE: ALL UNDERLAYMENT USED MUST BE LAID COMPLETELY FLAT W/ NO WRINKLES. OTHERWISE OIL CANNING WILL OCCUR WITH THE PANELS

Product Data Sheet

Superior Lock is an economical, snap-together, concealed fastener roofing panel for residential and commercial applications. Panels are simply installed by placing pancake head fasteners in the panel's slotted flanges. Superior Lock should be installed over solid decking.



UL 90 REQUIREMENTS Construction #529 Over 5/8" Plywood Deck 1. Metal Panels 26 gauge or heavier - 12", 16" continuous over two or more spans. 2. Fasteners - #10 x 1" pancake head. Spaced at 10 3/8" on center.

PANEL OPTIONS

Panel Width:	12" or 16"
Panel Rib:	1" or 1-1/2" Leg
Panel Configuration:	12-16" Ribbed, Striated
Standard Panel Length:	Up to 35'
Minimum Slope:	3:12
Substrate:	Galvanized
Paint System:	High-Performance Silicone Polyester (SMP)
Gauge:	26 or 24

CAUTION For UL 90 Rated Roofs, the above requirements must be followed. See UL Roofing Materials and Systems Directory for additional requirements. If you have any questions call Long Creek Steel before processing.

Roof Preparation

Superior Lock is an excellent choice for residential and light commercial applications. Please read this manual thoroughly before starting any installation.

NEW CONSTRUCTION

- Superior Lock roof system is designed to be installed over a solid substrate. LCS recommends ½" minimum CDX Plywood.
- LCS recommends that the installer uses no less than 30 lb. felt underlayment and ice & water shield in all valley conditions. Cover the entire roof with 30 lb. felt paper or Hydra Shell underlayment (Hydra shell cannot be installed with plastic CPA nails).
- Make sure the roof substrate is clear of any debris that might interfere with the metal roof system installation.
- It is recommended that the installer utilizes a "Chalk" line or string line where the first panel is installed.
- LCS recommends that this line be ½" from the starting rake edge and be vertical and square with the eave. Other methods of confirming modularity and a square installation can be used.

EXISTING ROOFING

- Superior Lock roof system is designed to be installed over a solid substrate.
- Examine the existing substrate to ensure the surface is smooth, level and in good condition. Replace any decking not meeting these requirements.
- If the existing roof has asphalt shingles, check local building codes and association bylaws to determine whether existing shingles must be removed.
- If the installation is over asphalt shingles, LCS recommends the use of horizontal "Furring" strips, Felt paper over the shingles and foam board insulation placed between the furring strips.
- LCS recommends that the installer uses no less than 30 lb. felt underlayment and ice & water shield in all valley conditions*
- Make sure the roof substrate is clear of any debris that might interfere with the metal roof system installation.

FASTENER SPACING

The Snap Lock panels are attached along the trailing edge with #10 x 1" long low profile wood fasteners at 10 3/8" centers or every other slot. In the case of high wind areas the spacing shall be 5 3/16" centers or every slot.

If OSB Sheathing is used, additional fasteners will be required

***ALL UNDERLAYMENT USED MUST BE LAID COMPLETELY FLAT W/ NO WRINKLES. OTHERWISE OIL CANNING WILL OCCUR WITH THE PANELS**

Panel Installation

PANEL INSTALLATION

NOTE: Prior to panel installation, determine which items need to be installed prior to panels (such as vent screen, eave, valley, swept wing, etc.)

1. Install eave trim
2. Working off the eave edge, establish a straight line up the gable edge from which you are starting. This will insure that the first panel laid will be straight and square with the eave.
3. Before fastening the panel to the roof deck, hem 1” of the panel 180 degrees (or allow a 1” overhang to attach an angle piece to the eave when using Eave Trim w/ Drip Edge).
4. Once the first panel is in proper position, secure it to the roof deck with the proper fasteners along the screw flange (#10 x 1” Pancake woodscrew on 18” centers maximum).
5. Install the gable trim and face screw it to fascia board. This fully secures the first panel to the roof deck.
6. Position the second panel (overlap edge on top of the underlap edge of the first panel) assuring that the eave edge is in position (1” overhang). Secure the second panel to the first panel by applying slight pressure with your foot on the overlap seam (or use rubber mallet) working from the eave toward the ridge. Be sure that you achieve a positive engagement between panels. Fasten the panel to the roof deck as in step #3 above.
7. Each consecutive panel will be applied as in step #3 and #5 above.

IMPORTANT NOTICE

READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE SUPERIOR LOCK PANEL IF THERE IS A CONFLICT BETWEEN PROJECT ERECTION DRAWINGS PROVIDED OR APPROVED BY LONG CREEK STEEL AND DETAILS IN THIS MANUAL, PROJECT ERECTION DRAWINGS WILL TAKE PRECEDENCE.

Existing Roof Application

Some jurisdictions will allow retrofit over certain types of roofing without tear-off of the old roofing. For best results, always use furring strips and 30lb felt paper over old shingles. Furring strips can be installed 12” o.c. to provide adequate panel support. Check with your local codes or building department for the specific requirements in your area.

If the roof is to be stripped down to the existing decking, follow the procedures for new roofs on page 7. Be sure to check the existing roof and repair any damaged areas prior to installation of the new roof system.
The following steps should be taken when installing Snap Lock roof panels over existing roofing.

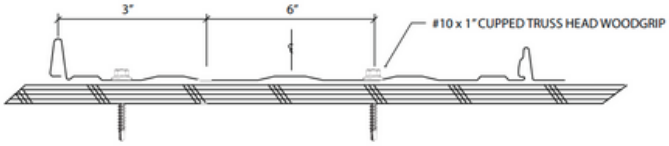
- Inspect the roof for damage and make the necessary repairs.
- Secure any warped or loose roofing material.
- Make sure there are no nails or other objects protruding from the roof that might puncture the ne underlayment or damage the new roof panels.
- Remove all moss and other debris from the roof.
- Cut off any overhanging roof flush with the roof deck, and remove all hip and ridge caps.
- Follow the directions on page 8, #2 through #4 on roof preparation.

NOTE: For best results, Superior Lock Roofing requires a relatively smooth and flat substrate. Application over rough and/or uneven surfaces is not recommended, as this will cause oil-canning.

Installing the Felt Underlayment

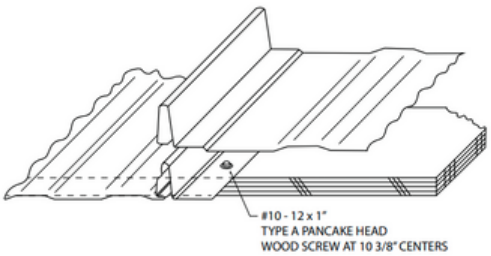
Cover the entire roof with 30 lb. felt paper or Hydra shell underlayment*. Hydra Shell cannot be installed with plastic cap nails. Begin at the eave at the gable end and roll out the underlayment horizontally and parallel with the eave. Allow each connective course to overlap the previous by only 4” to 6”.

***ALL UNDERLAYMENT USED MUST BE LAID COMPLETELY FLAT W/ NO WRINKLES. OTHERWISE OIL CANNING WILL OCCUR WITH THE PANELS.**



Panel Installation

Once the substrate has been checked for flatness and the underlayment has been installed, determine which items should be installed before the panels. Items such as vent screen, eave trim and valley trim should be installed before the roof panels.



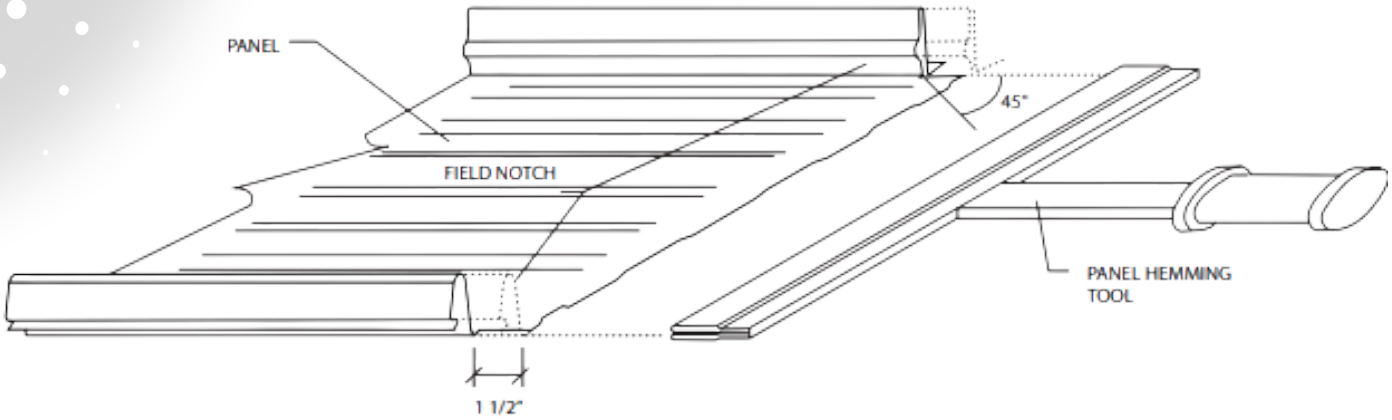
Note: Before installation, select the type of eave details that suites the design requirements. If you choose the smooth configuration or hemmed edge detail, the panels should be field cut prior to being installed on the roof.

1. Snap a chalk line 1/2” from the rake edge of the roof.
2. Align the female edge of the first panel with the chalk line.
3. Check panel alignment. If panel is properly aligned, attach rake edge of panel to roof with a #10 x 1” woodscrew at 48” centers.
4. Attach the extended nail strip leg of the first panel to the plywood substrate with #10 x 1” pancake head fasteners at 10 3/8” centers (alternate slots)
5. Align the second panel female edge with the starter panel male edge. Panels must be flush at eave edge then lightly compress and snap together at seam. Snap panels from eave to ridge.
6. After panel seam is locked, fasten the panel with a #10 x 1” Type A Pancake Head. Wood screws along the male leg at 10 3/8” on center or every other slot.
7. Continue to apply panels as show in the previous steps.
8. Panels at the eave can be terminated in two ways. Each will depend on aesthetic considerations determined by the building owner or architect.

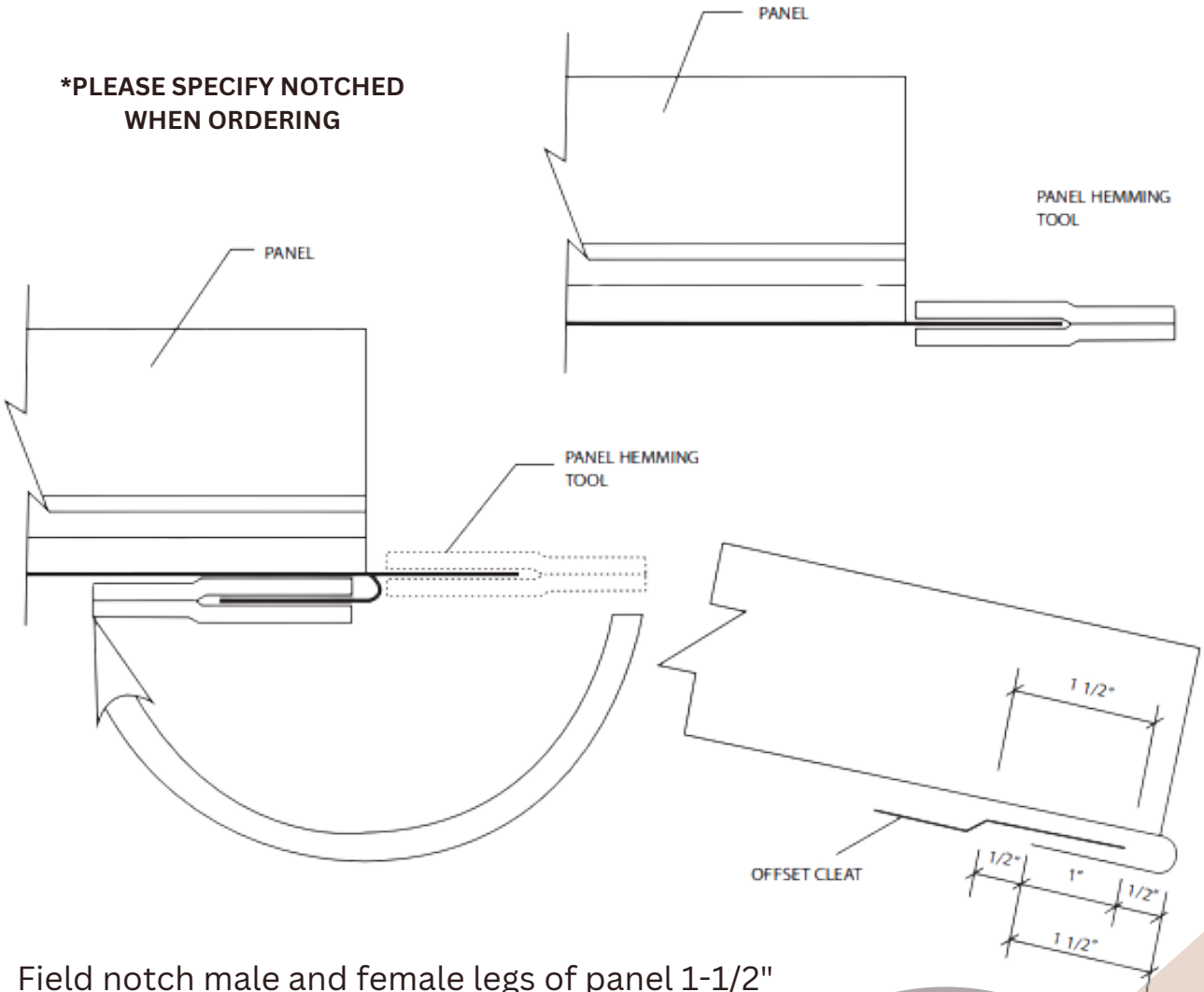
a . Panels can be fastened along the eave with a #10-11 HWH, wood grip with washer. Fasten along a line parallel to the eave edge 3” up from the eave edge. The fasteners are spaced at 6” centers.

b. Panels can be field hemmed at the eave by using the hemming tool. Typically hemming procedure is as follows: #10 - 12 x 1” TYPE A PANCAKE HEAD WOOD SCREW AT 10 3/8” CENTERS When starting a new roll overlap the end of the roll a minimum of 6”. Areas of underlayment that have been torn or cut should be replaced or repaired prior to installation of the metal roof. Ice and Water shield should be used at all hips and valleys. Ice and water shield should also be used in cold climates.

Field Hemming Panel End



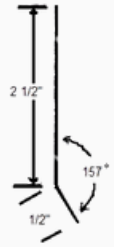
***PLEASE SPECIFY NOTCHED WHEN ORDERING**



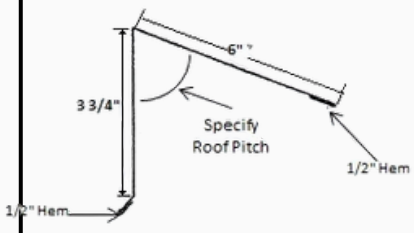
- Field notch male and female legs of panel 1-1/2"
- Engage panel hemming tool into protruding panel
- Bend panel down to form an open hem
- Hem can be tightened with a pair of vise grip “Duck Bills”
- Panel engagement shown above is for panel runs up to 35' long
- For panel runs over 35' please call LCS

Superior Lock Trims

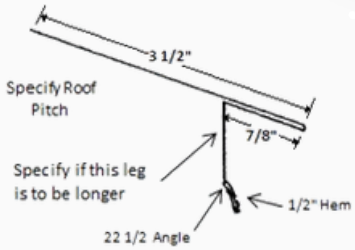
CONTINUOUS ANGLED CLEAT



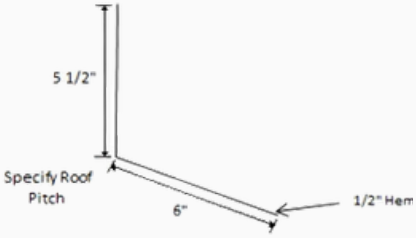
EAVE- HIGH



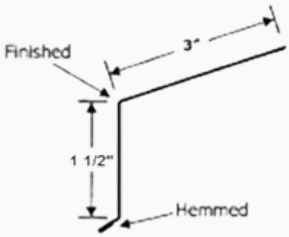
RES. EAVE W/ DRIP EDGE



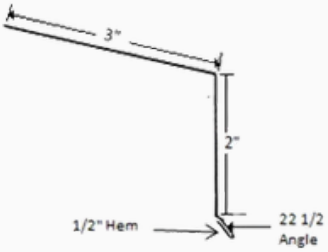
RES. ENDWALL



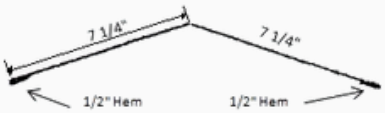
GUTTER APRON



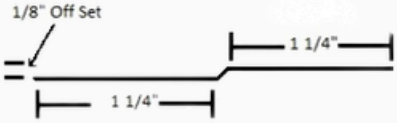
RES. GUTTER APRON



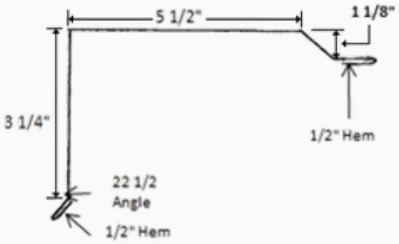
HIP/RIDGE CAP



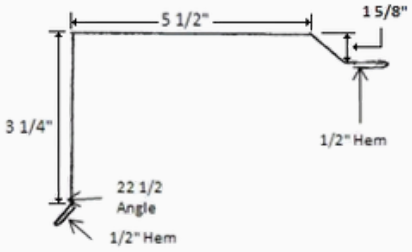
OFF SET CLEAT



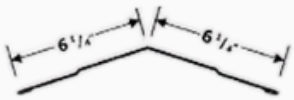
RES. RAKE- MINI 1"



RES. RAKE- 1 ⅝"

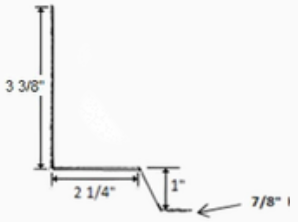


RIDGE CAP 12"

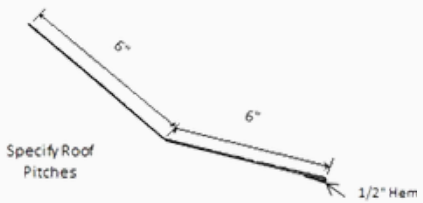


RIDGE CAP 14"

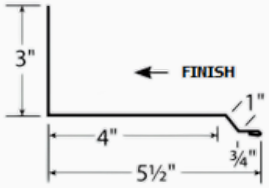
SIDEWALL- MINI 1"



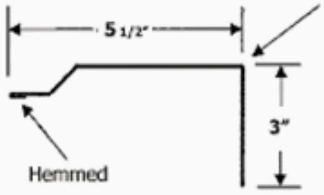
SLOPE TRANSITION TRIM



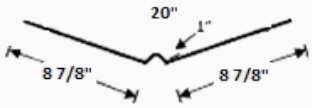
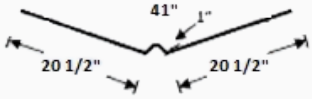
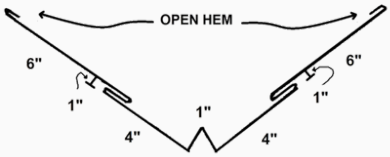
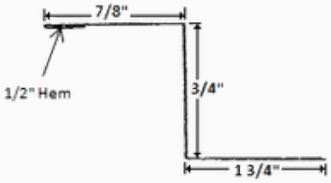
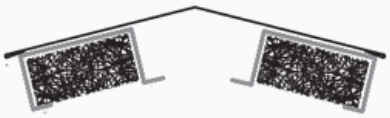
TRANSITION TRIM



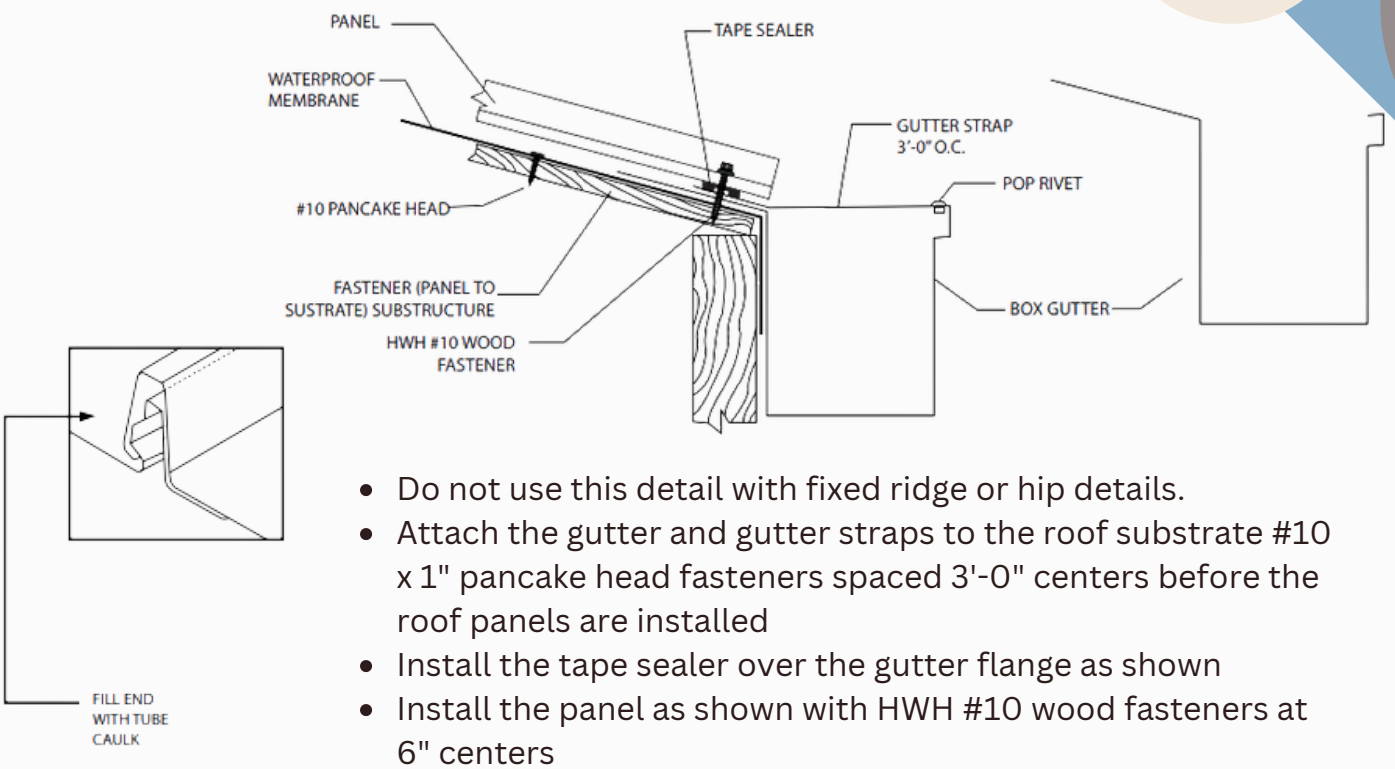
UNIVERSAL RAKE



Superior Lock Trims & Accessories

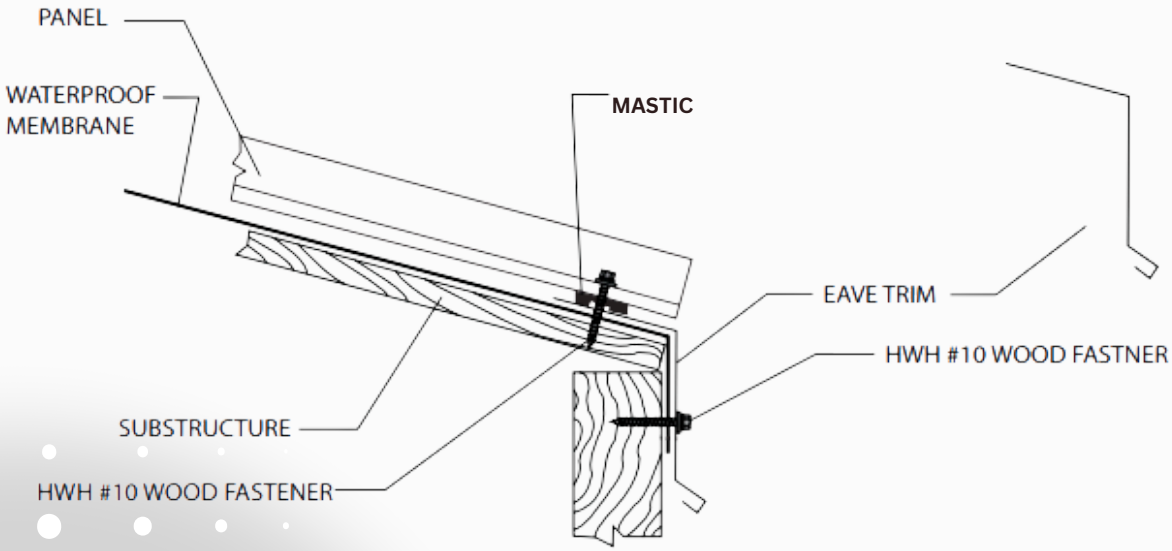
VALLEY TRIM 20"  **VALLEY TRIM 41"** 	**VALLEY W/ CLEATS 1"** 	**ZEE CLOSURE** 
MASTIC TAPE  3/32" x 3/4" x 45' 3/32" x 3/8" x 45'	**RIDGE VENT** 	**OUTSIDE CLOSURE** W/ ADHESIVE 
TOUCH UP PAINT PEN  COMES IN ALL LCS TRADITIONAL COLORS	**SEALANT** 	LCS

Eave with Gutter



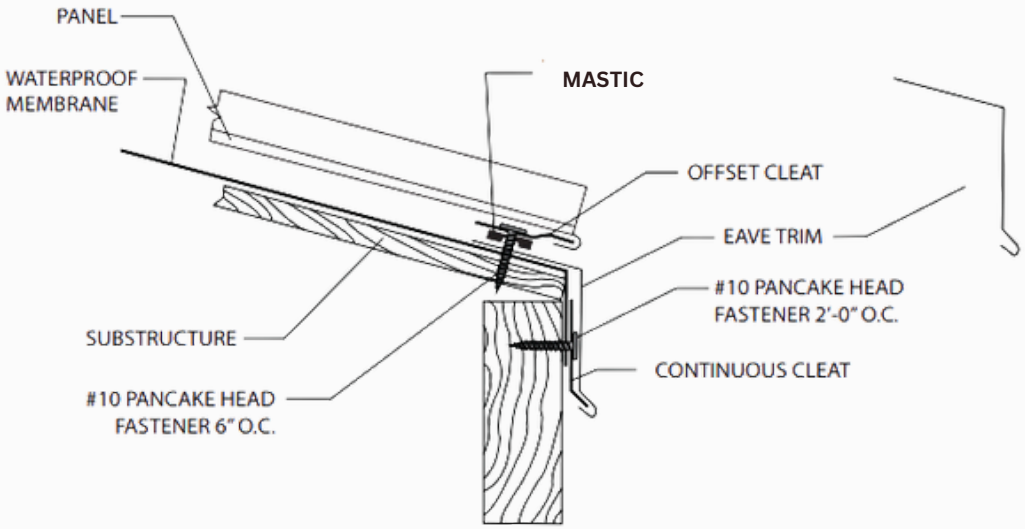
- Do not use this detail with fixed ridge or hip details.
- Attach the gutter and gutter straps to the roof substrate #10 x 1" pancake head fasteners spaced 3'-0" centers before the roof panels are installed
- Install the tape sealer over the gutter flange as shown
- Install the panel as shown with HWH #10 wood fasteners at 6" centers

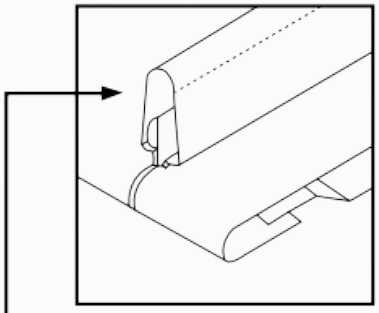
Simple Eave



- Do not use this detail with fixed ridge or hip details
- Install the eave trim as shown with HWH #10 wood fasteners at 2'-0" centers
- Install the tape sealer over the eave trim
- Install the panel as shown with HWH #10 wood fasteners at 6" centers

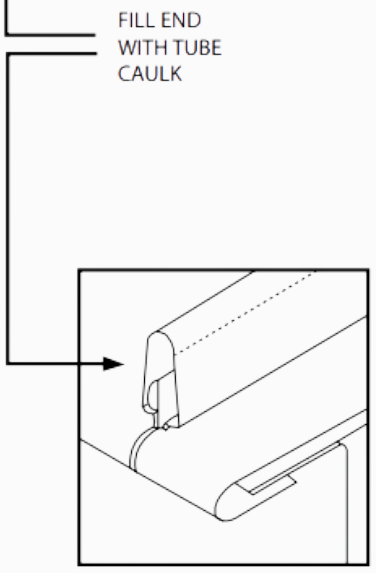
Hemmed Eave

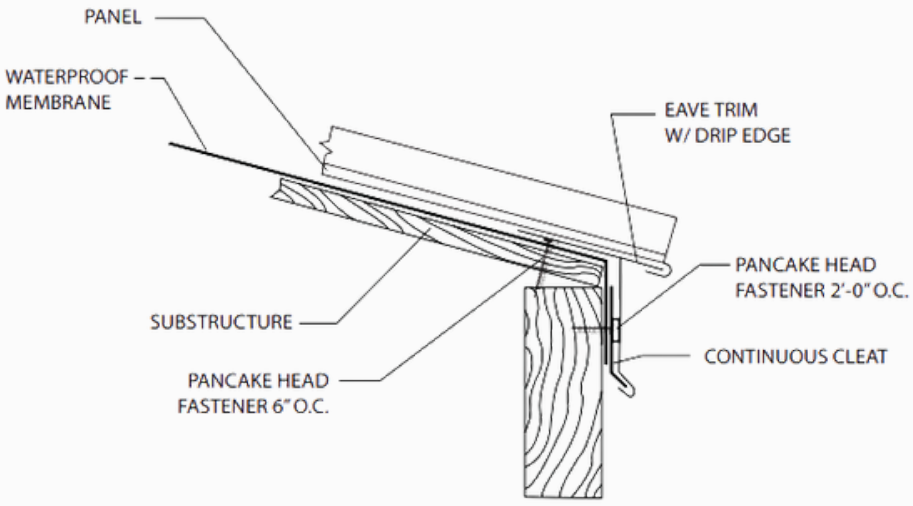




Eave w/ Offset Cleat

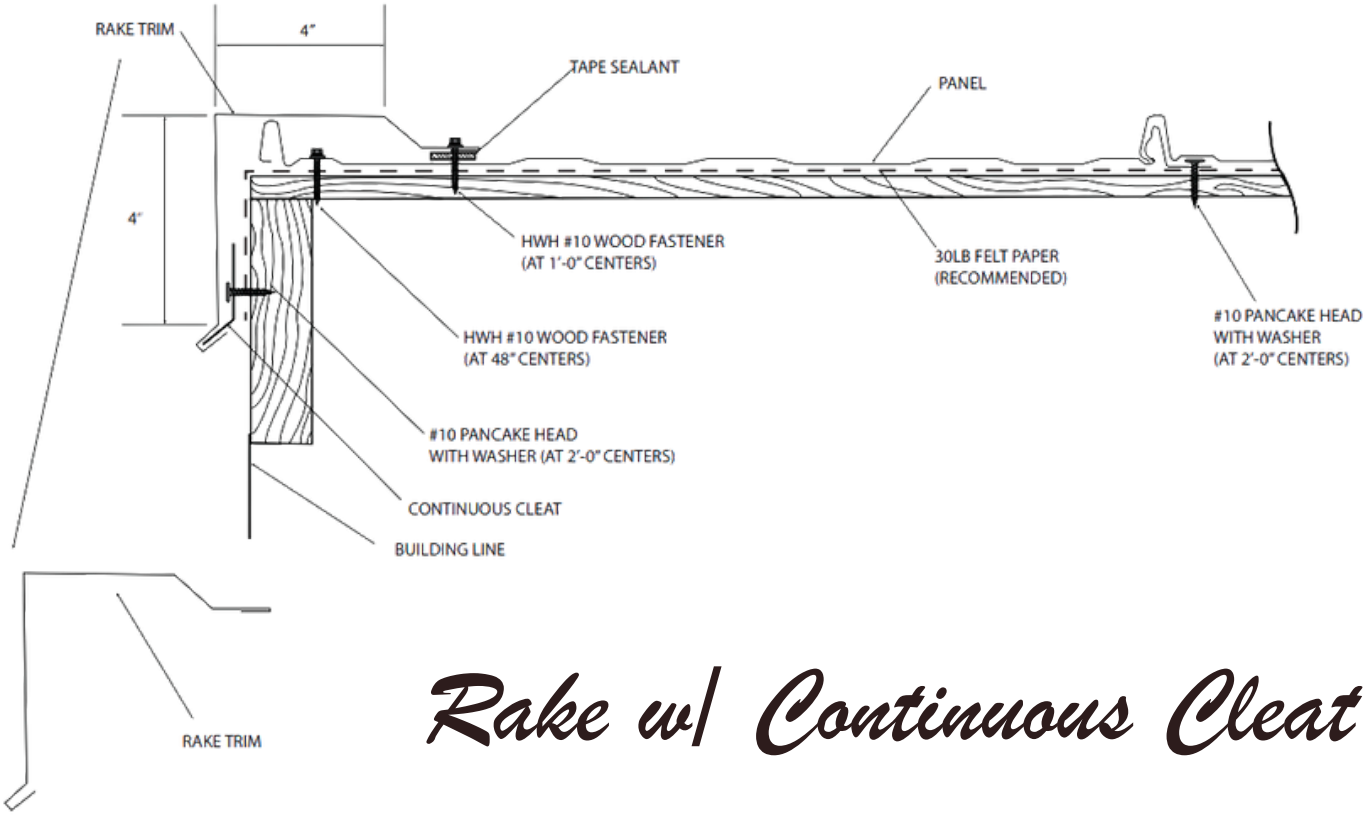
- These details should be used when the ridge, hip, or high side eave details are fixed to the substrate
- The offset cleat or eave trim with drip edge should be installed with #10 x 1 pancake head fasteners at 6" centers
- Install the panel per the hemming instructions found on page 11





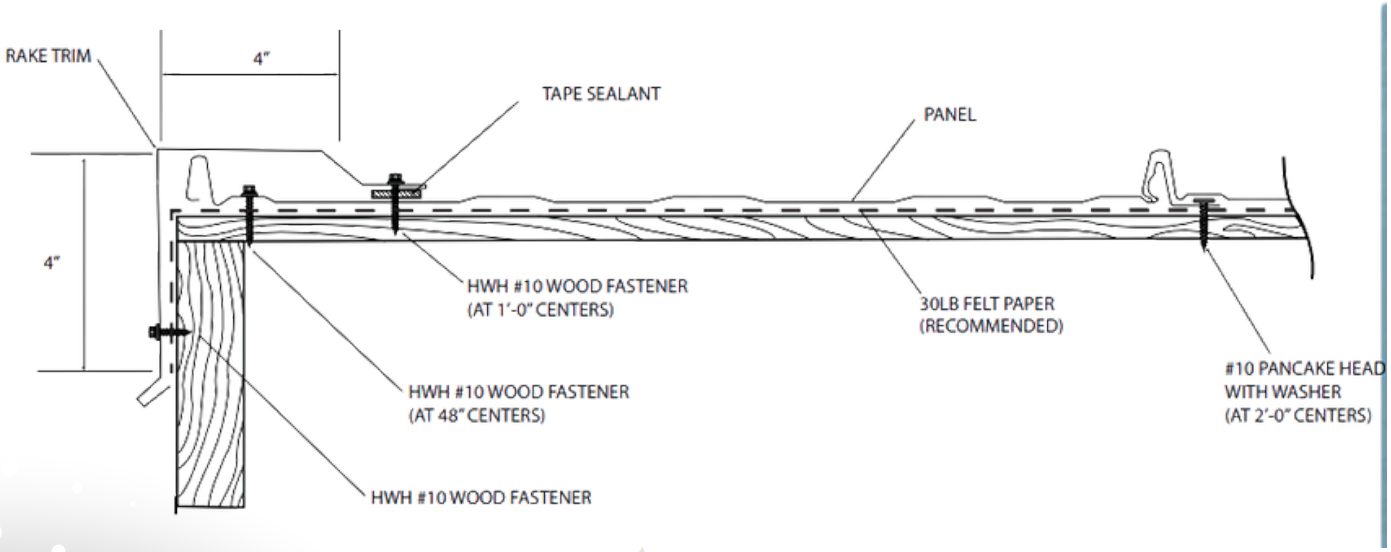
Eave w/ Drip Edge

Rake Trim

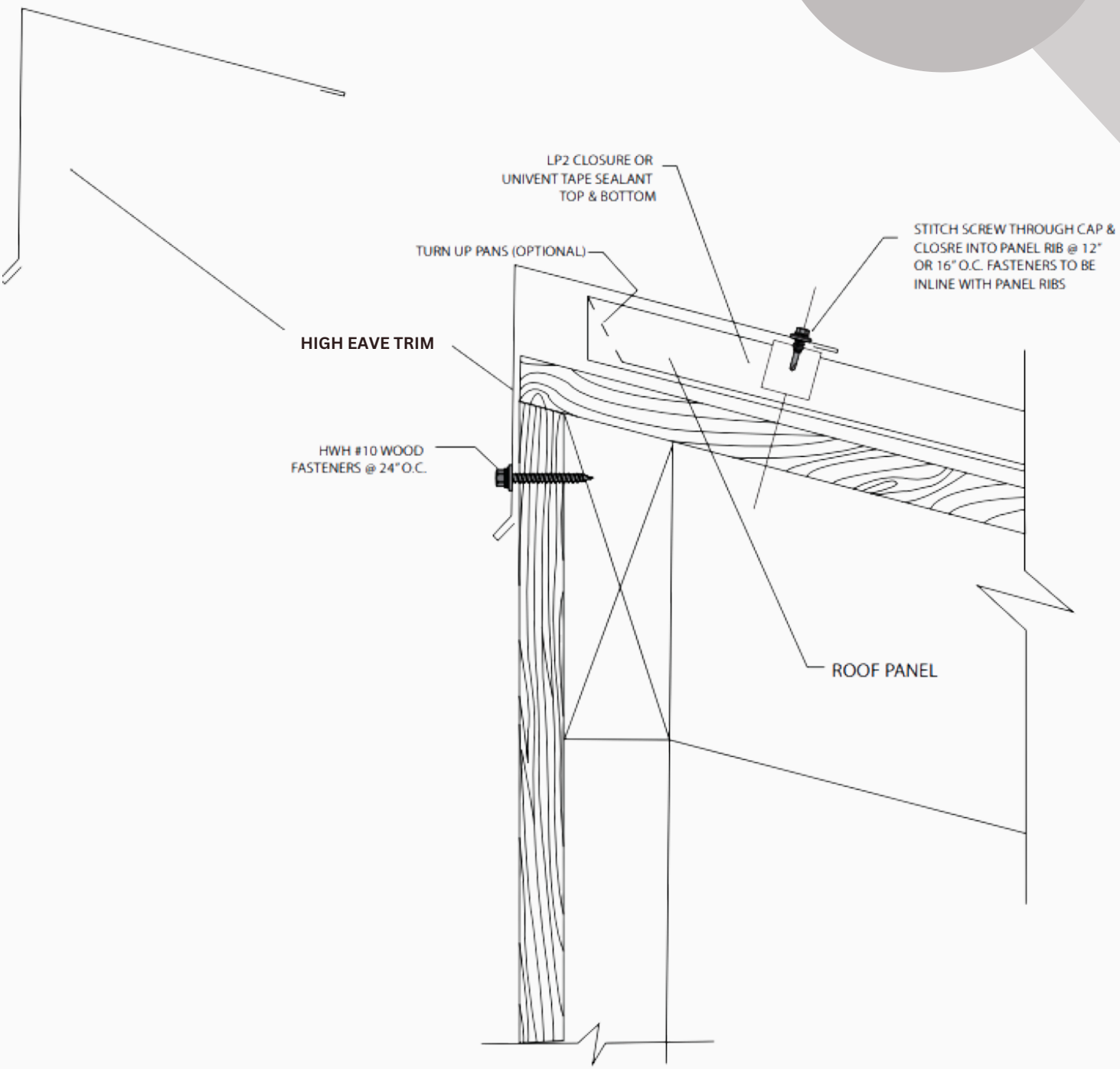


Rake w/ Continuous Cleat

- Install rake trim as shown in details
- When installing on a double pitched roof, miter cut the rake trim at the peak to join each side at the ridge
- When installing on a single slope, cut and fold the rake trim at the high and low eave details to seal the ends
- Apply sealant and use painted pop rivets to fasten

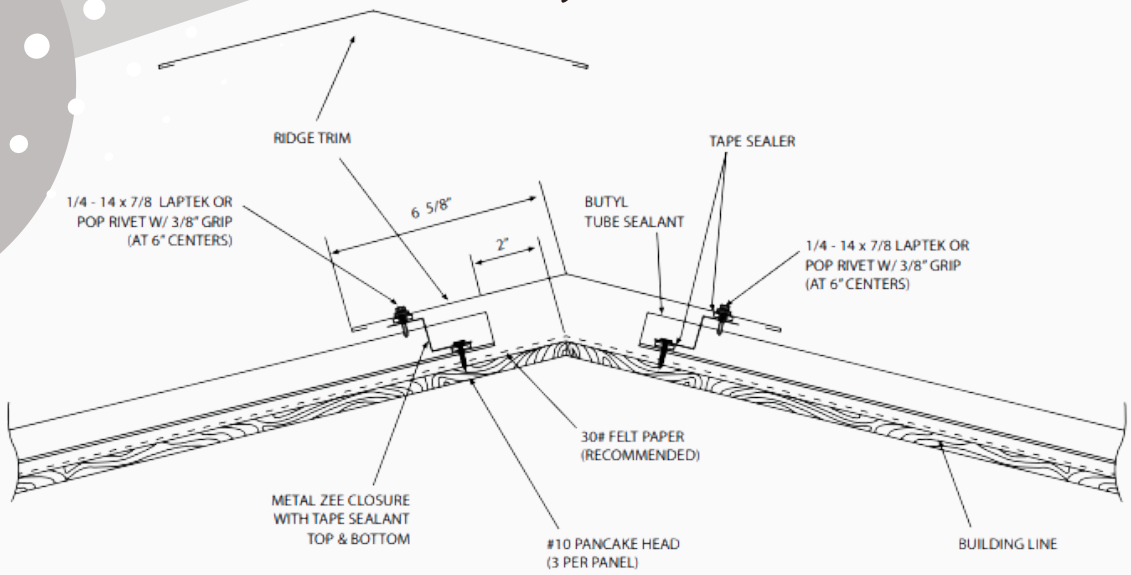


Peak Cap



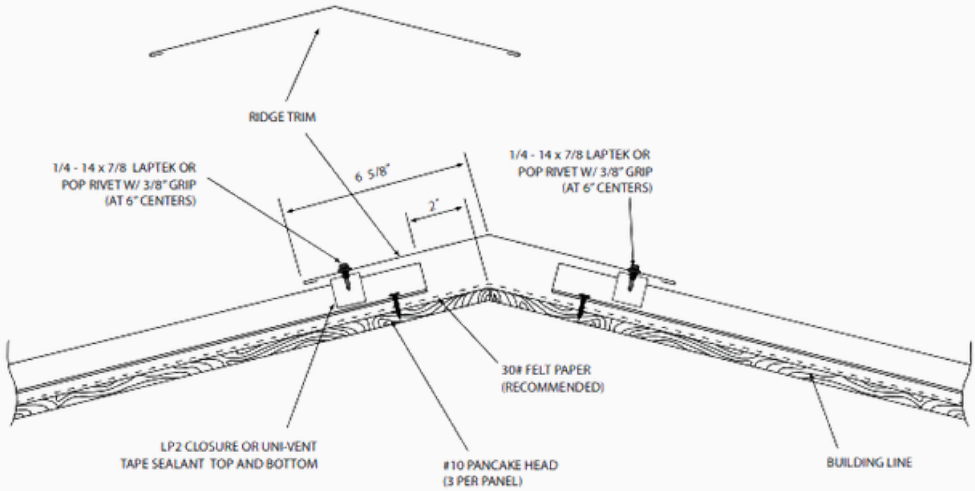
- Do not use this detail with fixed eave or valley details
- Install LP2 or Uni-vent set in sealant on top and bottom
- Attach peak cap and LP2 or Uni-vent to roof sheets at each panel rib

Hip & Ridge Detail



Hip/Ridge w/ Metal Zee Closure

- Do not use this detail with fixed eave or valley details
- Field cut “ZEE” closures to fit panel width
- Apply tape sealer to panels
- Install “ZEE” closures with #10 x 1 pancake head fasteners., three per panel
- Seal ends of “ZEE” closures to panel seams with sealant
- Install tape sealer to top leg of “ZEE” closure
- Attach ridge trim to roof sheet major ribs with 1/4-14 x 7/8" lap Teks

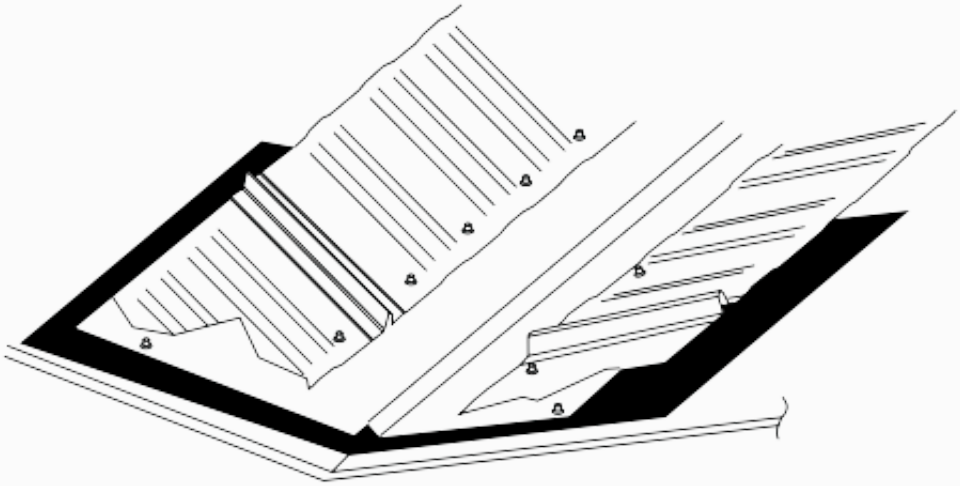


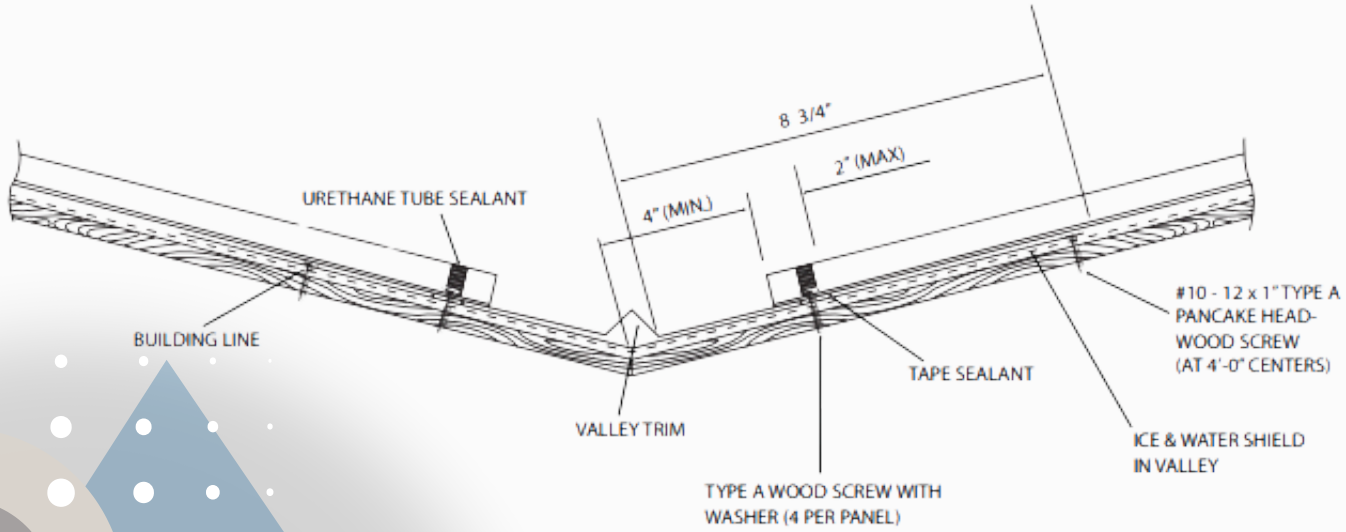
Hip/Ridge w/ LP2 Closure or Uni-vent

- Do not use this detail with fixed eave or valley details
- Install LP2 or Uni-vent set in sealant on top and bottom
- Attach peak cap and LP2 or Uni-vent to roof sheets at each major rib with 1/4-14 x 7/8" lap Teks

Valley Trim

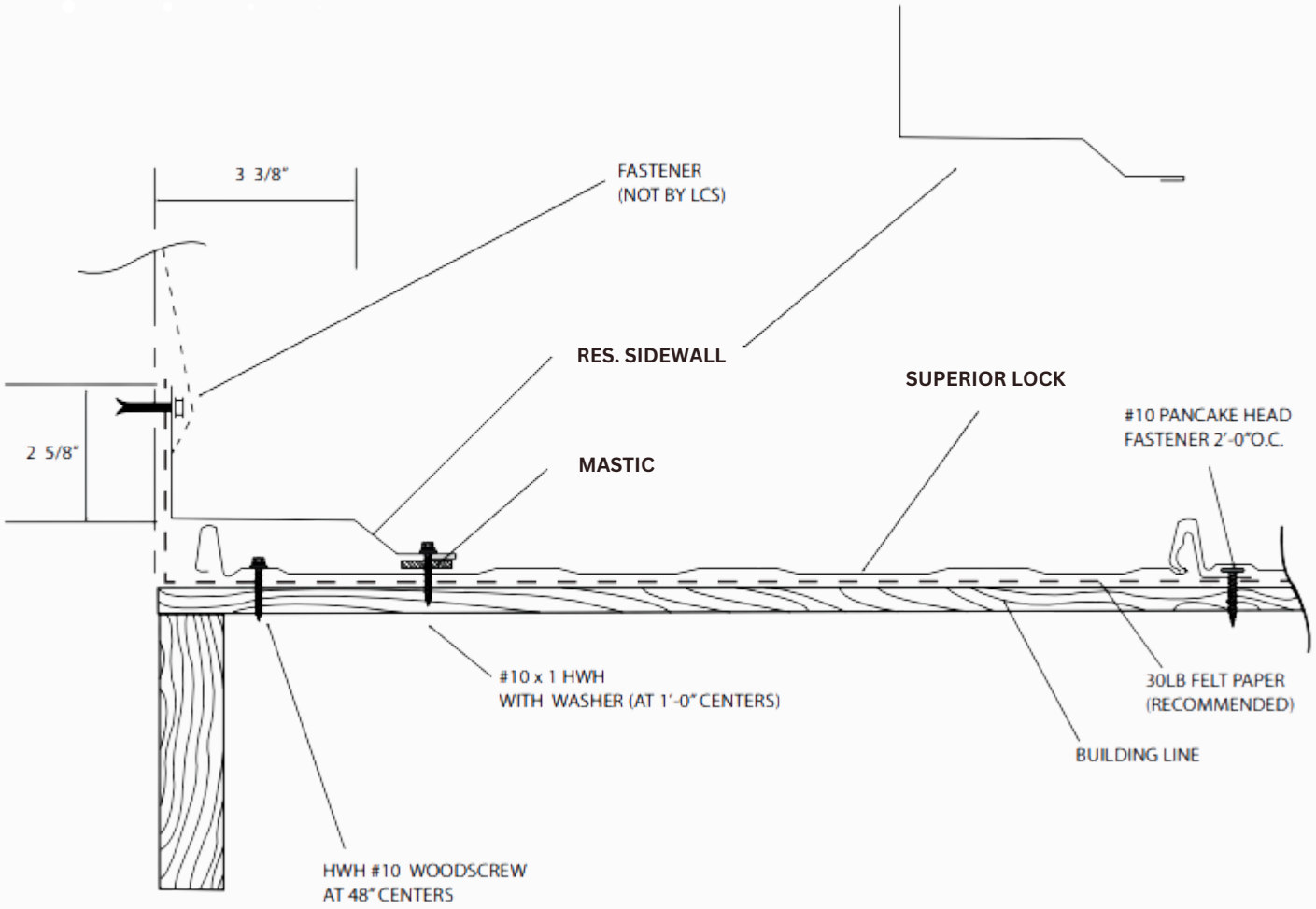
- Panels must be field cut at valley
- Place a layer of 36" wide “Ice and Water Shield” on valley centerline with 18" of material on each side of center
- Valley trim must be installed prior to panel installation
- Caulk and lap the sequential valley trims a minimum of 6"
- Field cut the panels allowing for overlap with the valley trim
- Set the panel on tape sealer and tube caulk the edges of panel ribs





Counter Flash

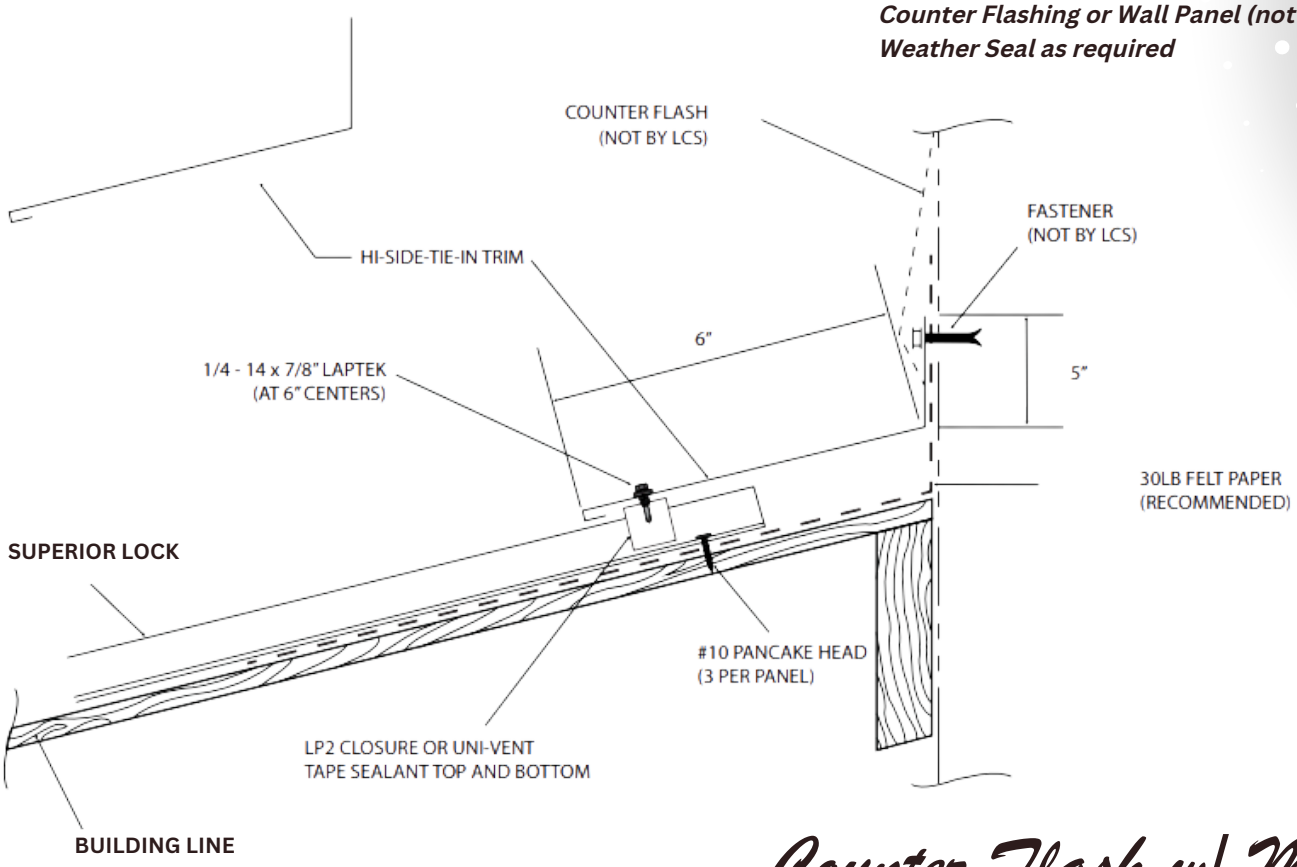
Counter Flashing or Wall Panel (not by LCS)
Weather Seal as required



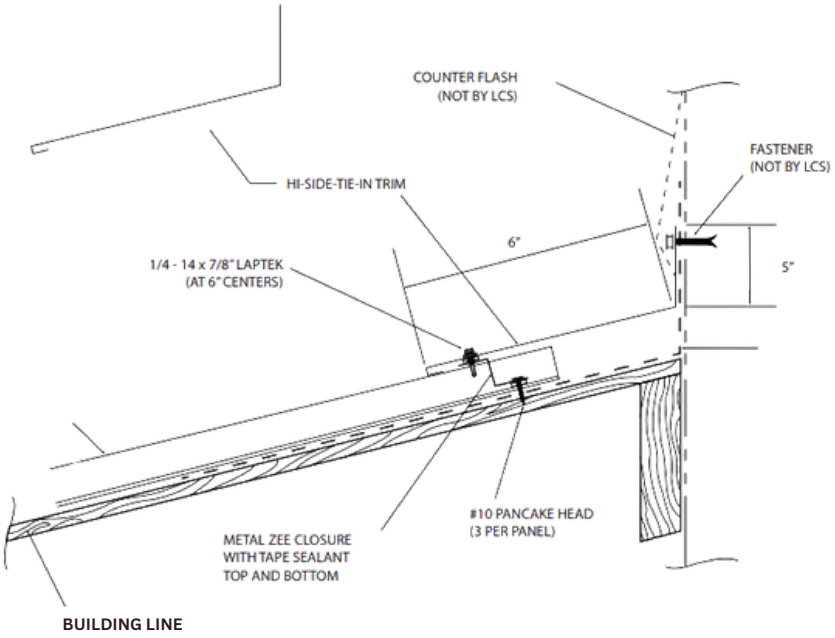
- Caulk and lap the end wall trim a minimum of 2" hooking the hemmed edge
- Cut and fold the end wall trim at the eave to seal the end
- Use pop rivets and sealant as necessary

Counter Flash w/ LP2 Closure or Uni-vent

Counter Flashing or Wall Panel (not by LCS)
Weather Seal as required



- Do not use this detail with fixed eave or valley details
- Install LP2 or Uni-vent set in sealant on top and bottom
- Attach counter flash and LP2 or Uni-vent to roof sheets at each major rib with ¼-14 x 7/8" lap Tek



Counter Flash w/ Metal Zee Closure

- Do not use this detail with fixed eave or valley details
- Field cut "ZEE" closures to fit panel width.
- Apply tape sealer to panels
- Install "ZEE" closures with #10 x 1 pancake head fasteners, three per panel
- Seal ends of "ZEE" closures to panel seams with sealant,

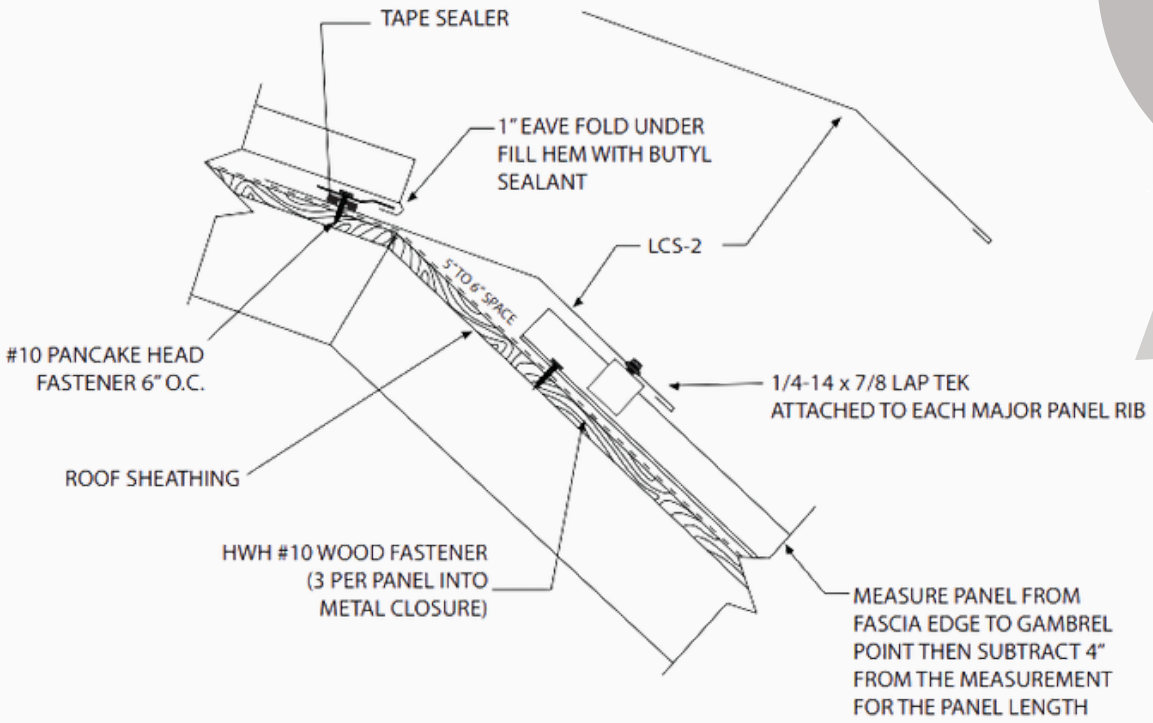
Install tape sealer to top leg of "ZEE" closure

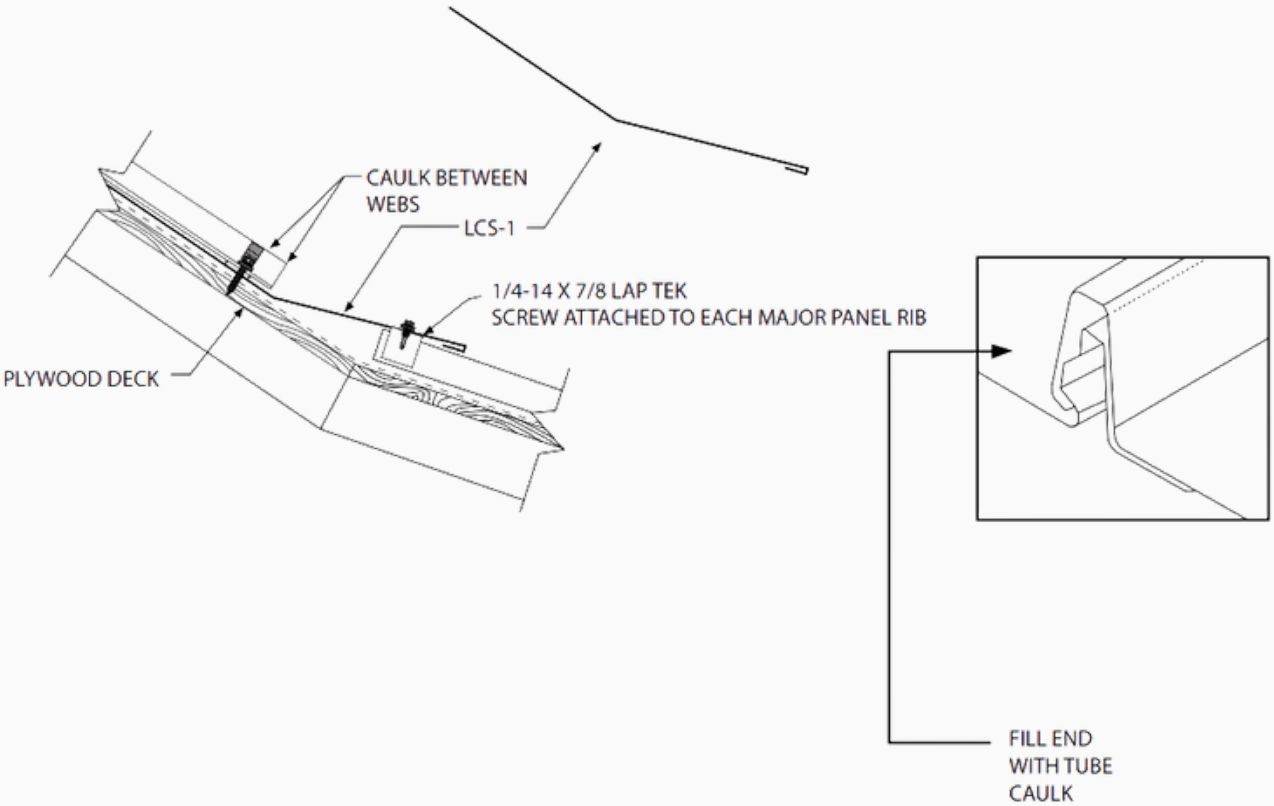
- Attach Counter Flash with ¼-14 x 7/8" lap Teks attached to roof sheet major ribs

30LB FELT PAPER IS RECOMMENDED

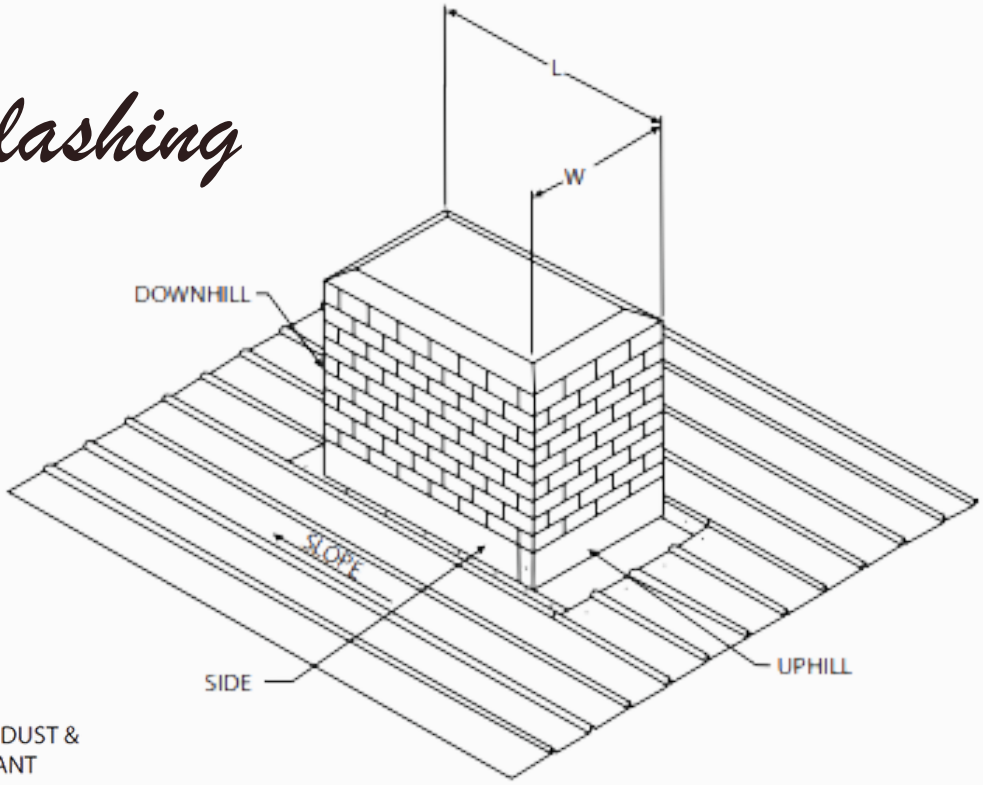
Gambrel Detail

- Install LCS-1 or LCS-2 trims after lower panels and before upper panels
- Install LP2 or Uni-vent to roof sheets at each panel rib with ¼-14 x 7/8” lap Teks attached to roof panel major ribs

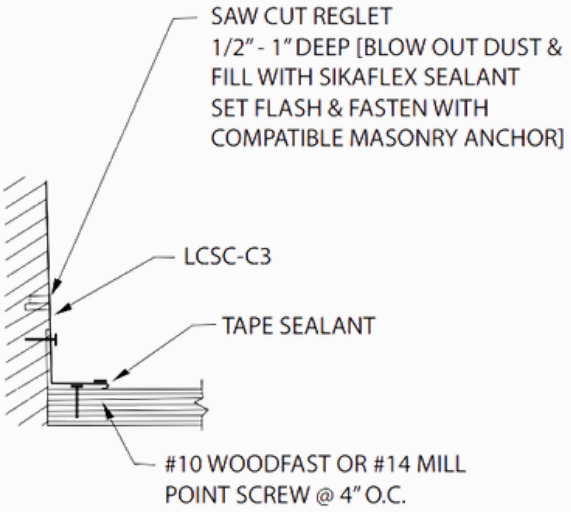




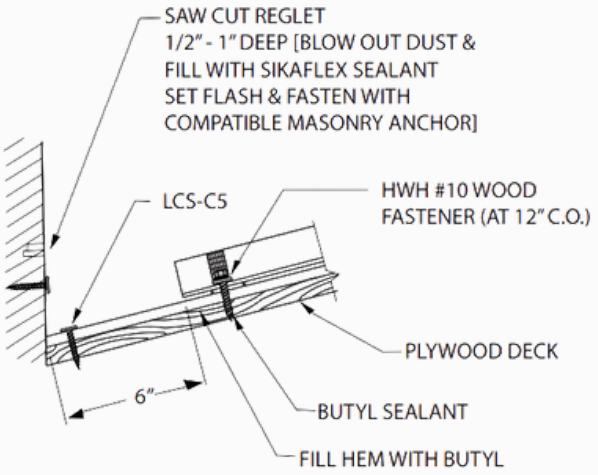
Chimney Flashing



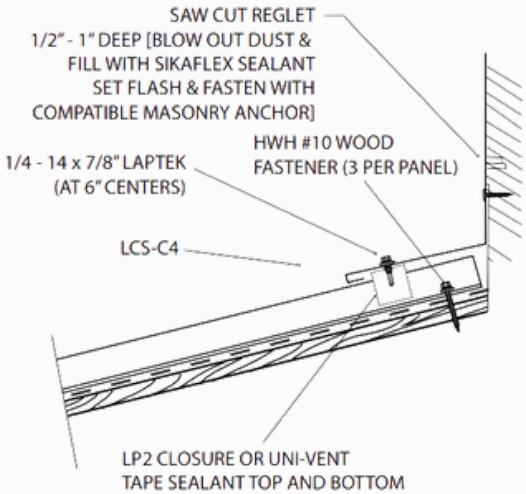
Side



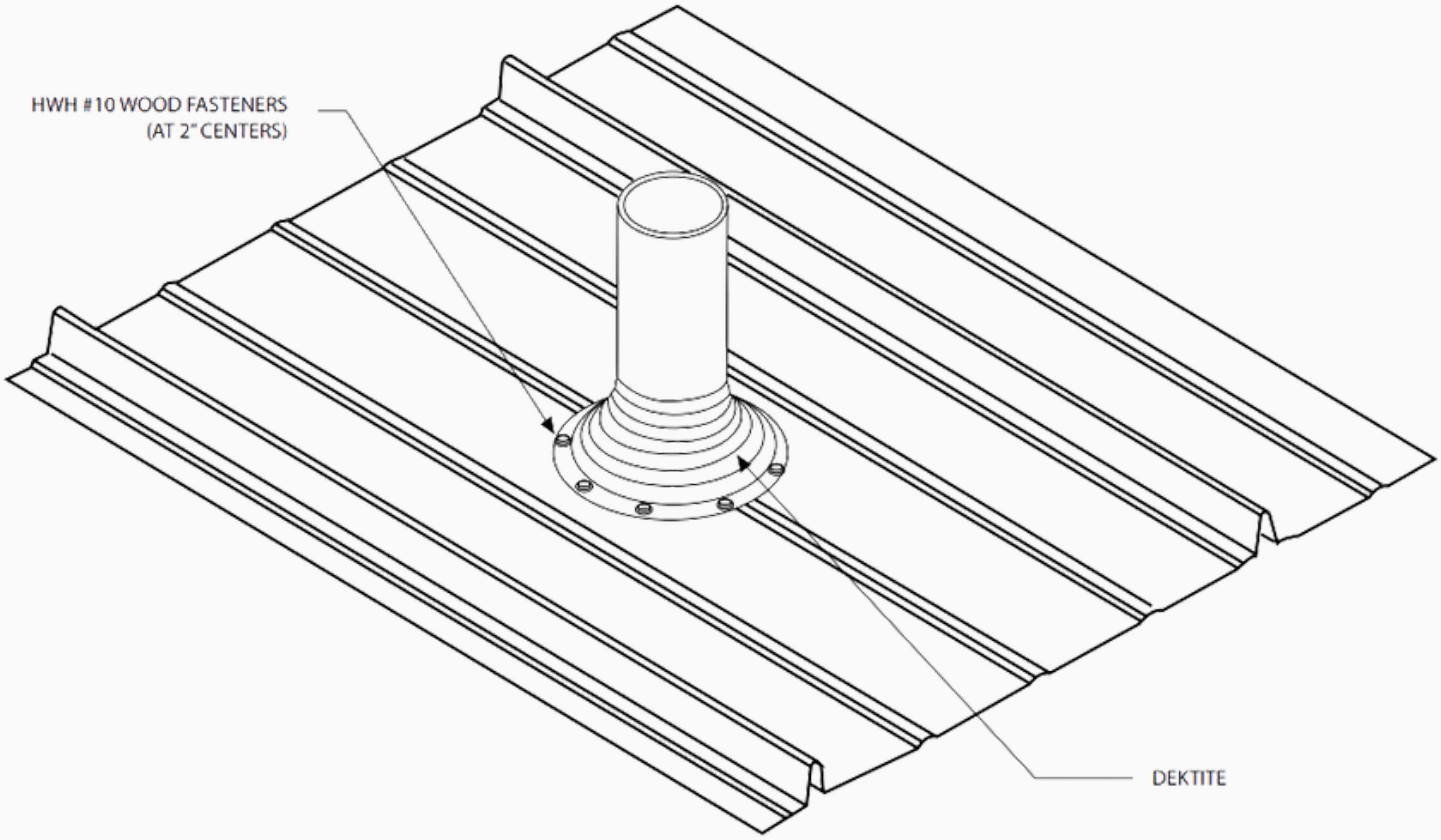
Uphill



Downhill



Pipe Penetration



- Cut pipe flash at the appropriate diameter marked on the sleeve
- Slide the pipe boot over the pipe
- Seal between pipe flash base and roof panel with tube sealant
- Adjust the pipe flash base to fit the roof panel
- Fasten the pipe flash to substrate with HWH #10 wood fasteners

Superior Lock

Key Terms

EAVE TRIM
This piece is used at the eave or gutter edge of the buildings, and must be installed before any panels.

ENDWALL
This piece is used when the upper end of panel butts into a vertical wall.

HIP CAP
This piece covers projecting angles formed at the intersection of the two sloping roof planes.

RAKE TRIM
This piece is installed on the house between the ridge and the eave, holding down the first panel edge and the last panel edge.

GAMBREL CONDITION
This trim is used to transition from a low slope on the upper roof to a steep slope on the lower roof.

MONOSLOPE RIDGE
This piece is used at the top of a single sloped roof.

RIDGE CAP
This piece is used at the peak of the roof. The ridge can be ventilated by leaving the foam closure out.

SIDEWALL
This piece is used when the roofing panel is installed parallel to a vertical wall.

SLOPE TRANSITION
This piece is used where two roofs or different pitch meet; the top section being steeper than the lower section.

W-VALLEY
Used to flash the valley formed by intersecting roof planes.

FASTNERS
#14-14 X 7/8" LAP TEK
This fastener is used to attach two pieces of metal to each other.

#14 X 1" MILL POINT
This fastener is used to fasten panels to substrate and can also be used for secure flashings and pipe boots.

#10 X 1" PANCAKE WOODFAST
This fastener is used to attach roofing panels to the roof deck.

Long Creek Steel

28778 SUPERIOR PL
BERESFORD, SD 57004

605-372-3279

LongCreekSteel.com