



Horizon 16 & Ultra-Loc 16

METAL ROOFING SYSTEM INSTALLATION SELF HELP GUIDE

Due to product improvements, changes and other factors, Fabral reserves the right to change or delete information herein without prior notice or obligation to make changes in products previously purchased.

For additional tech support or installation questions, please call Fabral Engineering:

phone 800-477-2741 fax 717-735-1257

Horizon and Ultra-Loc INSTALLATION GUIDELINES

Caution: Horizon and Ultra-Loc roofing must be applied on a minimum roof pitch of 3:12 or greater.

Important Notice: This guide must be read in its entirety before beginning installation. This guide is supplied by FABRAL, Inc. for use by its customers. This is intended to be a guide only, and does not replace or supercede local or state building codes.

FABRAL, Inc. assumes no responsibility for any problems which might arise as a result of improper installation or any personal injury or property damage that might occur with the products use.

Note: Panels may show slight waviness commonly referred to as "oil canning." This is a characteristic of roll forming. Such oil canning will not be accepted as cause for rejection. In areas of high snow or ice accumulations, snow guards, or snow blocks, may need to be added to an Horizon and Ultra-Loc roof system to reduce or eliminate snow or ice from cascading from a higher roof and damaging lower roofs, roof valleys, gutters, or objects on the ground. Check with your installer and local building codes concerning the use of snow blocks or guards in your area and design appropriately.

MINIMUM RECOMMENDED TOOLS & EQUIPMENT

Screw Gun- 2,000 to 2,500 rpm Clutch type screw gun with a depth sensing nose piece is recommended to insure proper installation of the screws. The following bits will be required:

- 1/4" hex or 5/16" hex
- #2 Phillips screwdriver bit

Snips- For miscellaneous panel and flashing cutting requirements. Three pairs will be required: one for left edge, one for right edge, and one for centerline cuts.

Electric Nibblers or Metal Shears- Used for general metal cutting, such as cutting the panels in hip and valley areas.

Note: Some installers prefer using a circular saw with a metal cutting abrasive blade. This method may be faster, but it has some drawbacks:

- 1. Saw cut edges are jagged and unsightly and tend to rust more quickly than sheared edges.*
- 2. Saw cutting produces hot metal filings that can embed in the paint and cause rust marks on the face of the panel.*
- 3. Saw cutting burns the paint & galvanizing at the cut edge leading to the onset of edge rust.*

Chalk Line- Used to assist in the alignment of panels, flashings, etc.

MINIMUM RECOMMENDED TOOLS & EQUIPMENT

Caulking Gun- Used for miscellaneous caulking and sealing to inhibit water infiltration.

Rivet Tool- Used for miscellaneous flashing and trim applications.

End Bender Tool- Used to hand bend the ends of the panels as indicated in the details of this manual. This tool is available from FABRAL.

Marking Tools- Indelible markers, pencils, or scratching tools.

Scratch Awl- Can be made from old screw drivers ground to a point. Used to mark the steel, open hems, and as a punch.

Utility Knife- Used for miscellaneous cutting.

Electric Drill- Used to drill holes such as those required for pop rivet installation.

String Line- Use for general alignment and measuring.

Tape Measure- 25 foot minimum (another at 50 foot is handy).

Locking Pliers- Standard and “Duckbill” style for miscellaneous clamping and bending of parts.

SAFETY CONSIDERATIONS

- **Never use unsecured or partially installed panels as a working platform.** Do not walk on panels until they are in place on the roof and all of the fasteners have been installed.
- **Metal roofing panels are slippery when wet, dusty, frosty, or oily.** Do not attempt to walk on a metal roof under these conditions. Wearing soft soled shoes will improve traction and minimize damage to the painted surface.
- **Always be aware of your position on the roof relative to your surroundings.** Take note of the locations of roof openings, roof edges, equipment, co-workers, etc.
- **Always wear proper clothing and safety attire.** Wear proper clothing when working with sheet metal in order to minimize the potential for cuts, abrasions and other injuries. Eye protection and gloves are a must when working with sheet metal products. Hearing protection should be used when power-cutting metal panels.
- **Use care when operating electrical and other power equipment.** Observe all manufacturer's safety recommendations.
- **Roof installation on windy days can be dangerous.** Avoid working with sheet metal products on windy days.

DELIVERY, HANDLING & STORAGE

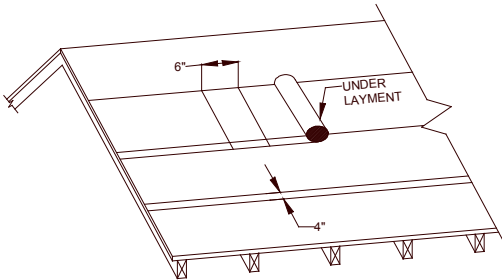
- Always inspect the shipment upon delivery. Check for damage and verify material quantities against the shipping list. Note any damaged material or shortages at the time of delivery.
- Handle panel bundles and individual panels with care to avoid damage. Longer bundles and panels may require two or more “pick points” properly spaced to avoid damage that can result from buckling and/or bending of the panels.
- Store the panels and other materials in a dry, well ventilated area, away from traffic. Elevate one end of the bundle so that any moisture that may have accumulated during shipping can run off. Be sure that air will be able to circulate freely around the bundles to avoid the build-up of moisture. Never store materials in direct contact with the ground.
- Wear clean, non-marking, soft soled shoes when walking on the panels to avoid shoe marks or damage to the finish. Step only in the flat area of the panels.

NEW ROOFS

1. Make sure there are no nails or other objects protruding from the substrate that might puncture the underlayment or damage the roof panels. Clean all debris from the deck.
2. Check all details for possible roof penetrations which must be added to the deck prior to roof panel installation (vented ridge for example).
3. Cover the entire roof deck with 30-pound felt paper, Typar or equivalent (hereinafter referred to as underlayment). Begin at the eave at the gable end and roll out the underlayment horizontally (parallel to the eave). Allow each consecutive course to overlap the previous one at least 4". Overlap the end a minimum of 6" when starting a new roll of underlayment. Areas of underlayment that have been torn or cut should be replaced or repaired prior to installation of the metal roof. (See Illustration #1 on page 9)

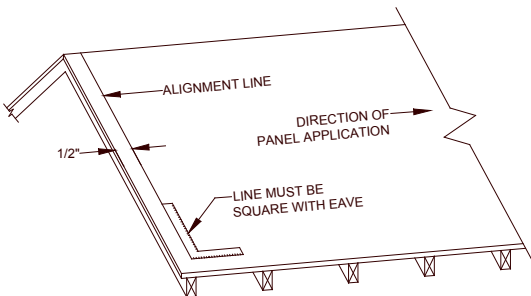
NEW ROOFS

ILLUSTRATION #1



4. Place an alignment line along the gable end where the first roof panel will be installed. THIS LINE MUST BE LOCATED 1/2" IN FROM THE GABLE EDGE OF THE ROOF DECK AND SQUARE WITH THE EAVE LINE. Various methods exist for insuring that the line is square. Call your nearest FABRAL representative if you need assistance. (See Illustration #2)

ILLUSTRATION #2



EXISTING ROOFS

In many cases, FABRAL's Horizon and Ultra-Loc Panels can be installed over existing roofing.

Some jurisdictions will allow retrofit over certain types of roofing without tear-off of the old roofing. 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 pages 8 and 9. 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 Horizon and Ultra-Loc roof panels over existing roofing.

1. Inspect the roof for damage and make the necessary repairs.
2. Secure any warped or loose roofing.
3. Make sure there are no nails or other objects protruding from the roof that might puncture the new underlayment or damage the new roof panels.
4. Remove all moss and other debris from the roof.
5. Cut off any overhanging roofing flush with the roof deck, and remove all hip and ridge caps.
6. Follow the directions on pages 8 and 9, #2 through #4, on roof preparation.

Note: For best results, Horizon and Ultra-Loc Roofing requires a relatively smooth and flat substrate. Application over rough and/or uneven surfaces is not recommended.

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PANEL INSTALLATION

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

1. 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. (See Illustration #2)
2. Before fastening the panel to the roof deck, check to make sure that the panel is overhanging the eave by 1".
3. Once the first panel is in proper position, secure it to the roof deck with the proper fasteners along the screw flange (#8 x 1" mod. truss head woodscrew 9 or 18" o.c. max)
4. Install the gable trim and face screw it to fascia board (see page 24). This fully secures the first panel to the roof deck.
5. Position the second panel (overlap edge on top of the underlap edge of 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. Fasten the panel to the roof deck as in step #3 above.
6. Each consecutive panel will be applied as in step #3 and #5 above.
7. In high wind areas, it is recommended that the panels be fastened at the eave by using a #10 x 1" woodscrew (see page 14). Two fasteners should be used spaced evenly between the seams, approx. 2" up from the eave end of the panel.

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Horizon and Ultra-Loc TRIM PARTS

See page 16-17 for
Illustration of Trim Conditions

Key Terms

RIDGE CAP

This piece is used at the peak of the roof. The ridge can be ventilated with Horizon/Ultra Loc LP2 weathertight ridge vent closure.

HIP CAP

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

GABLE 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.

EAVE TRIM

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

W-VALLEY

Used to flash the valley formed by intersecting roof planes.

SIDEWALL

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

ENDWALL

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

Horizon and Ultra-Loc TRIM PARTS

See page 16-17 for
Illustration of Trim Conditions

Key Terms

CLEAR STORY

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

SLOPE TRANSITION

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

GAMBREL CONDITION

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

CHIMNEY OR SKYLIGHT

See pages 34-35

FASTENERS

3/4" Stitch Screw

This fastener is used to attach two pieces of metal to each other.

1" Woodfast or #14 x 1" Woodtite






This fastener is used to attach gable trim and in flat areas of the panel when needed, such as the eave end of panels (metal to wood application).

1" or Longer Modified Truss Head

This fastener is used to attach roofing panels to the roof deck.

This list of flashing can be used in conjunction with the Home Legend drawing on pages 16 and 17 to help you understand placement and proper installation.

Horizon and Ultra-Loc FASTENERS

# Fasteners	Description	Use
100 pcs. Per square of roofing	 #8 Modified Truss Head Wood-Screw Available in: 1", 1 ⁵ / ₈ ", 2"	Panel to Deck Or Trim to Wood Or Clip to Deck Attachments (Unexposed)
	 #10 x 1" Pancake Head Woodgrip Screw	Panel to Deck Or Trim to Wood Or Clip to Deck Attachments (Unexposed)
Approx. 30 pcs. Per square of roofing	 #12 x 3/4" Stitch Screw	Panel to Panel Or Trim to Panel Attachments (may be used as an alter- native to blind rivets)
Approx. 30 pcs. Per square of roofing	 #9 Woodfast Woodscrew Available in: 1", 1-1/2"	Panel to Deck (valleys) Or Trim to Wood (Gable) Attachments
	 #14 x 1" Mill Point Screw	Panel to Deck Attachments

Listed above are the fasteners recommended for the proper installation of the Horizon and Ultra-Loc panels. Also note the diagram below for proper installation of gasketed fasteners.

PROPER INSTALLATION OF GASKETED FASTENERS



correctly
driven

under-
driven

over-
driven

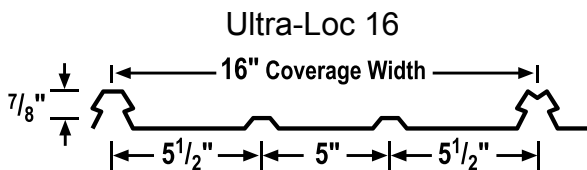
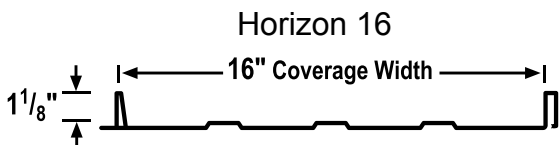
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Horizon and Ultra-Loc SELF HELP KIT

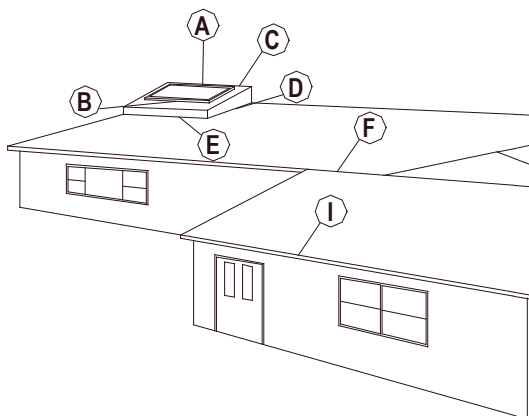
Load Tables- Steel Panels

LOAD-SPAN TABLES FOR .018" THICK Horizon and Ultra-Loc ROOFING
Allowable wind uplift loads (psf)

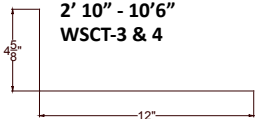
Substrate	Fastener	9"	12"	15"	18"	21"	24"
1/2" Plywood	#8 Mod. Truss Head	100.7	75.5	60.4	50.3	43.1	37.7
1/2" Plywood	#10 x 1" Pancake Head	106.6	80.0	64.0	53.3	45.7	40.0
5/8" Plywood	#8 Mod. Truss Head	118.5	88.8	71.1	59.2	50.7	44.4
5/8" Plywood	#10 x 1" Pancake Head	154.3	115.7	92.6	77.1	66.1	57.8
7/16" OSB	#8 Mod. Truss Head	46.8	35.1	NR	NR	NR	NR
7/16" OSB	#10 x 1" Pancake Head	76.1	57.1	45.6	38.0	NR	NR
	Screws per Covered Square	140	105	84	70	60	54



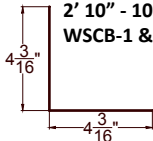
Horizon and Ultra-Loc INSTALLATION GUIDE



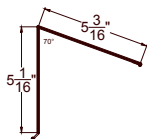
A. Top Flashing
2' 10" - 10'6"
WSCT-3 & 4



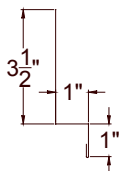
B. Bottom Flashing
2' 10" - 10'6"
WSCB-1 & 2



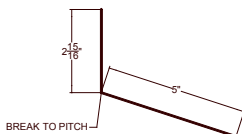
C. Clear Story WRH-4



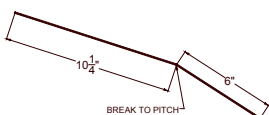
D. Sidewall Trim WSW-3



E. Endwall Trim- WEW-2



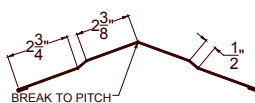
F. Gambrel- WTF-3



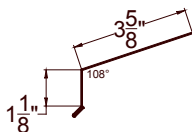
G. Ridge Cap- WRH-5



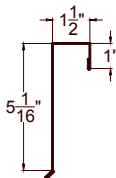
H. Hip Cap- WRH-3



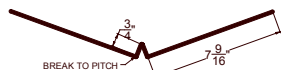
I. Eave Trim WEF-4



J. Gable Trim WGF-3

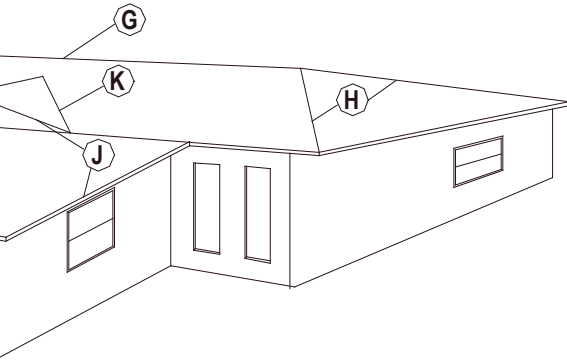


K. W-Valley 1- WRV-4

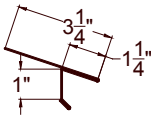


Horizon and Ultra-Loc INSTALLATION GUIDE

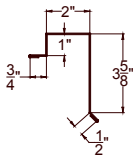
Enlarged View of Details on pages 18-21



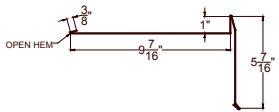
Eave Drip WEF-5



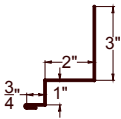
Gable WGF-2



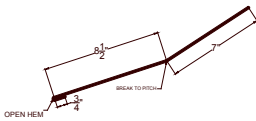
Swept Wing Gable WGF-5



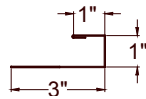
Sidewall WSW-2



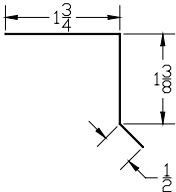
Transition- WTF-1



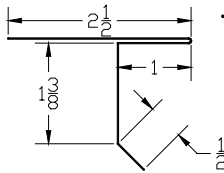
J-Channel - WJC-2



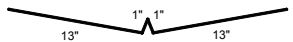
WEF-4 G Style



WEF-5 D Style

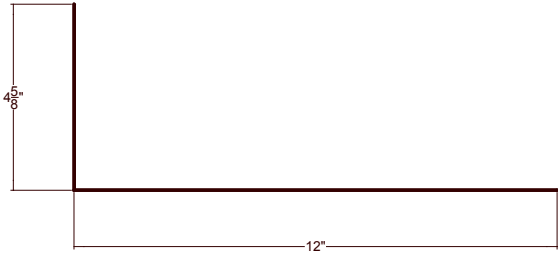


W-Valley WV-1

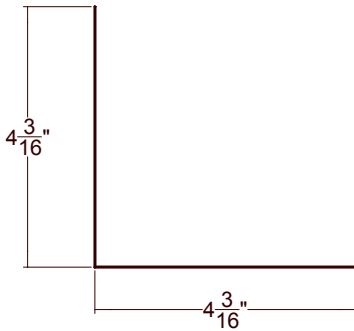


Horizon and Ultra-Loc Installation Guide

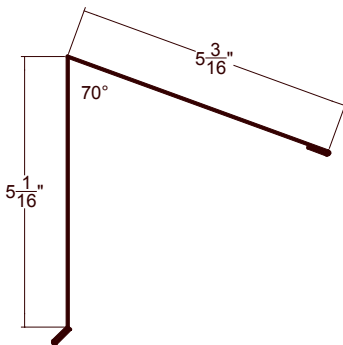
Top Flashing 2' - Skylight/Chimney - WSCT-3 & 4



Bottom Flashing 2' - Skylight/Chimney - WSCB-1 & 2



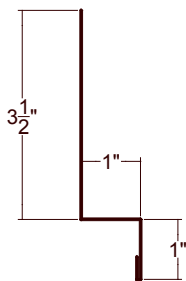
Clear Story - WRH-4



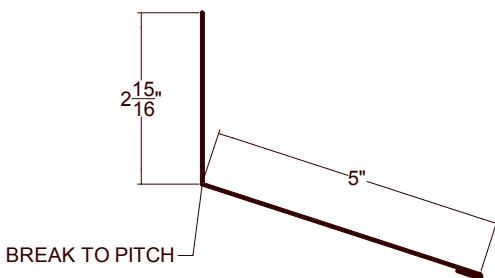
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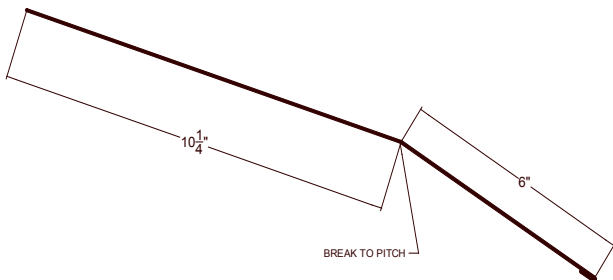
Sidewall Trim 1 - WSW-3



Endwall Trim - WEW-2

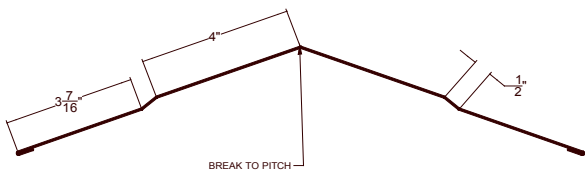


Gambrel/Slope Transition - WTF-3

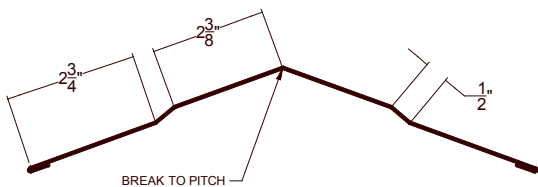


Horizon and Ultra-Loc Installation Guide

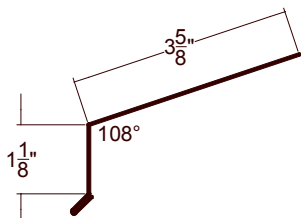
Ridge Cap - WRH-5



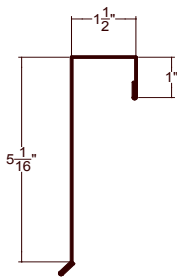
Hip Cap - WRH-3



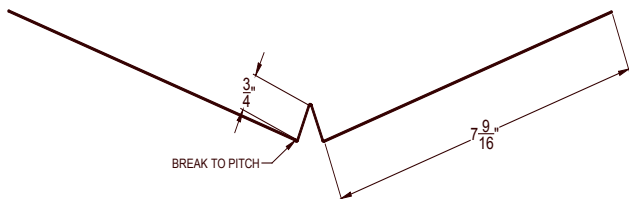
Eave Trim - WEF-4



Gable Trim - WGF-3

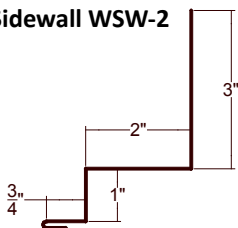


W-Valley 1 - WRV-4

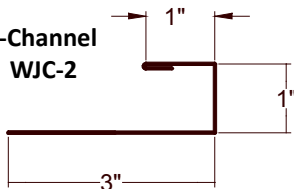


Horizon and Ultra-Loc Installation Guide

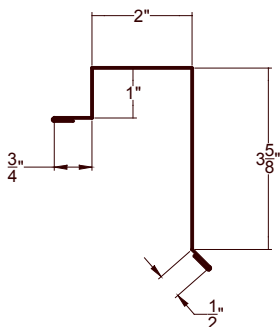
Sidewall WSW-2



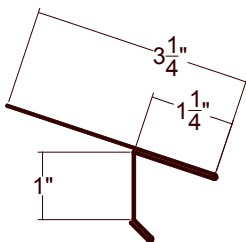
J-Channel WJC-2



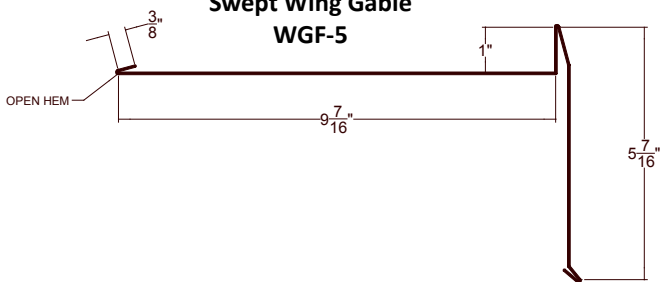
Gable - WGF-2



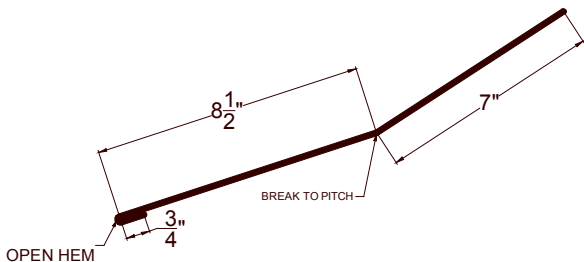
Eave Drip - WEF-5



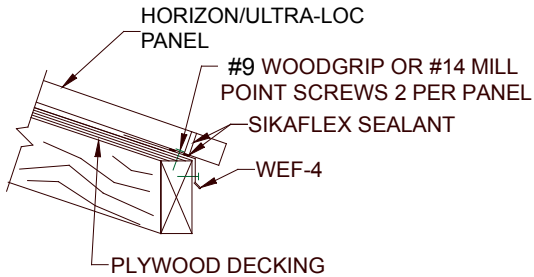
Swept Wing Gable WGF-5



Transition - WTF-1



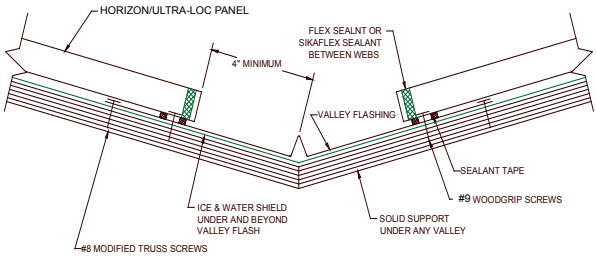
EAVE DETAIL



Notes:

1. Roofing underlayment not shown.
2. Attach the eave flashing under the underlayment using #8 x 1" modified truss head woodscrews on 24" centers.
3. Panels should overhang the eave 1".

VALLEY DETAIL

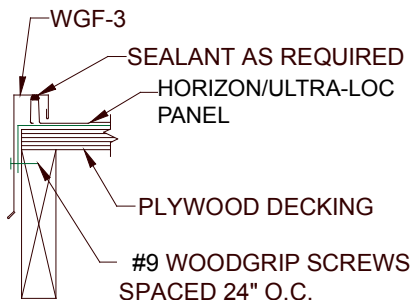


Notes:

1. Ice and water shield or similar membrane is recommended in all valleys*. Install this before installing roofing felt.
2. Roofing underlayment not shown.
3. Place a second layer of 36" roofing underlayment in the center line of the valley with 18" of underlayment on each side of the valley.
4. When valley flashing is overlapped, 6" of lap is recommended with sealant applied under the lap.
5. Place 2 rows of 3/16" bead mastic parallel to the valley flashing as shown above.
6. Field cut the roofing panels holding back 4" from valley as shown.
7. Fasten the panels through the valley flashing and into the roof deck as shown 8" on center using the proper fastener (page 14).

*varies by geographic location

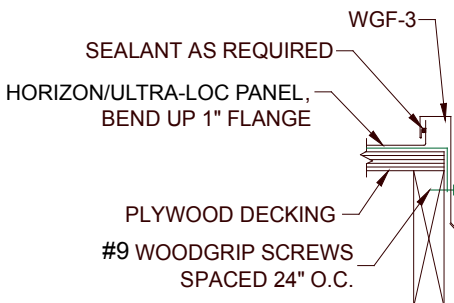
START GABLE DETAIL



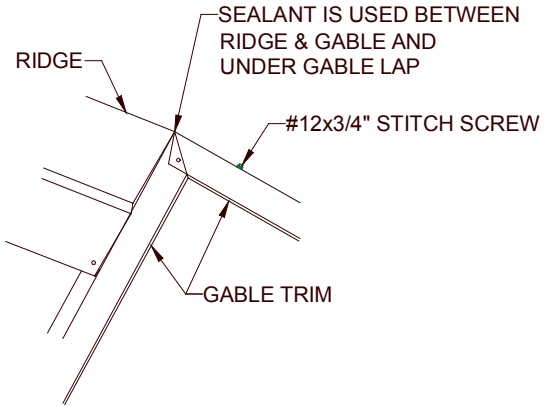
Notes:

1. Roofing underlayment not shown.
2. Install the gable trim by placing it over the seam rib as shown and fasten it to the fascia board at 24" on center.
3. The eave end of the gable trim can be closed off by snipping and folding.
4. For gable detail at ridge, see page 25.
5. When the last roof panel overhangs the gable end cut off excess and finish as shown below.

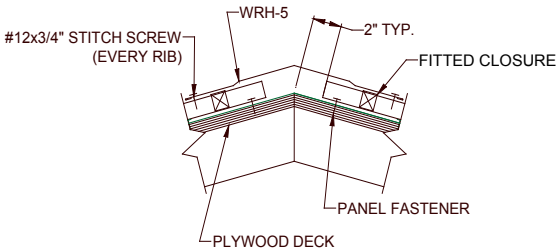
FINISH GABLE DETAIL



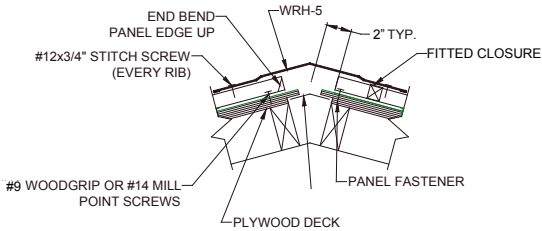
RIDGE & GABLE DETAILS



RIDGE DETAIL



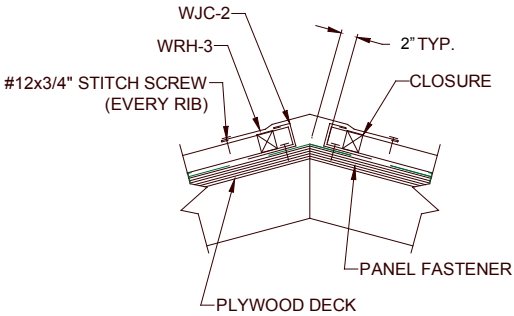
VENTED RIDGE



Notes:

1. Roofing underlayment not shown.
2. Plywood should be held back or cut back 1" from each side of the ridge.
3. **Attach the panels, maintaining the 1" minimum overhang at the eave.**
4. Apply sealant to the bottom of the neoprene closures. Set the closures as shown above and apply sealant to the top of the closure.
5. **The gable flashing must be installed prior to installing the ridge.**
6. Fasten the ridge cap using #12 x 3/4" stitch screws on each panel rib 1" back from the edge of the ridge cap.

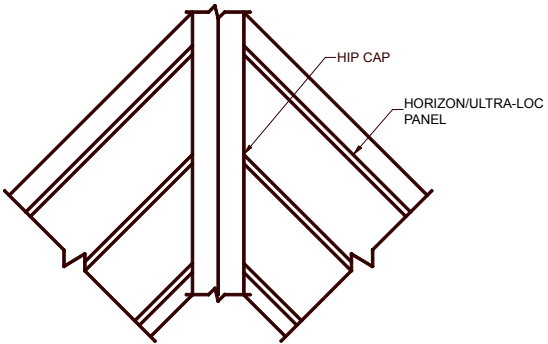
HIP DETAIL



Note:

1. Hip flashing attachment is the same as for the ridge.

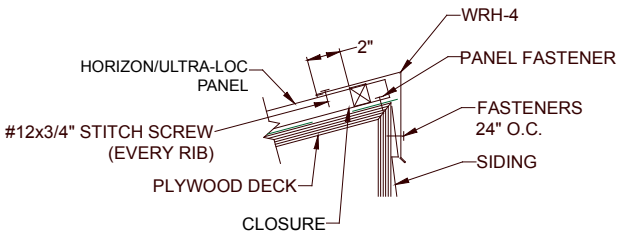
HIP ROOF- PLAN VIEW



Notes:

1. Roofing underlayment not shown.
2. Attach the eave flashing under the underlayment using #8 x 1" modified truss head woodscrews on 24" centers.
3. Panels should overhang the eave 1".

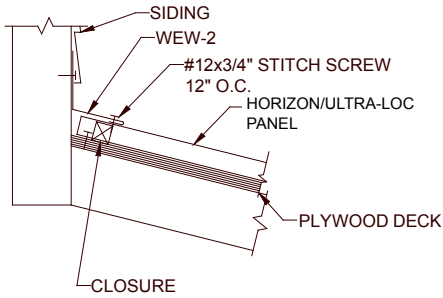
CLEAR STORY



Notes:

1. Roofing underlayment not shown.
2. Apply sealant to the bottom of the foam closure and position it on the roof panel approximately 2" back from the edge of the flashing as shown.
3. Apply sealant to the top of the foam closure.
4. Install flashing as shown.
5. When more than one length of flashing is used, a 6" minimum overlap is recommended. Apply sealant between the laps.

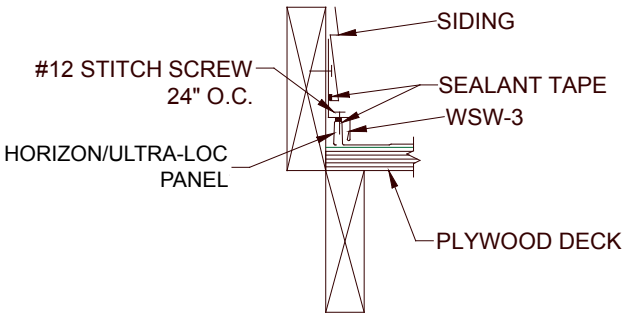
ENDWALL DETAIL



Notes:

1. Roofing underlayment not shown.
2. Install the foam closure as shown using sealant on the top and bottom.
3. Install endwall flashing as shown.
4. When more than one endwall is needed, a 6" minimum overlap is recommended with sealant between the lap.

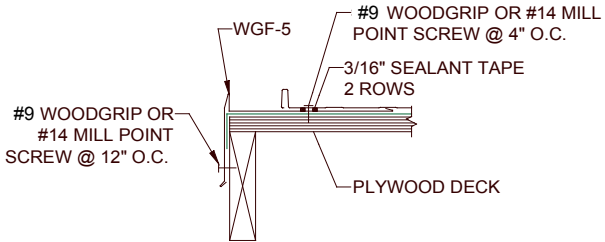
SIDEWALL DETAIL



Notes:

1. Roofing underlayment not shown.
2. The sidewall flashing is placed over the rib seam and extends behind the siding as shown.
3. When the rib seam does not end up next to the wall, cut the panel and bend a 1" return flange up against the wall.

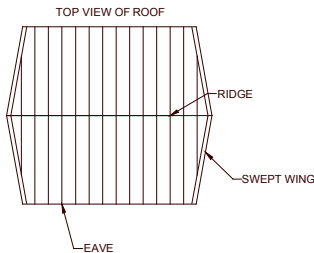
SWEPT WING GABLE



Note:

1. In high rain & snow areas, FABRAL recommends that a high grade underlayment, such as ice and water shield, be placed along the entire swept wing gable. Install this prior to installing 30# roofing felt.

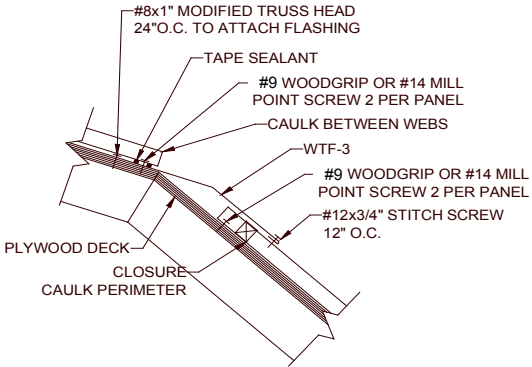
SWEPT WING GABLE DETAIL



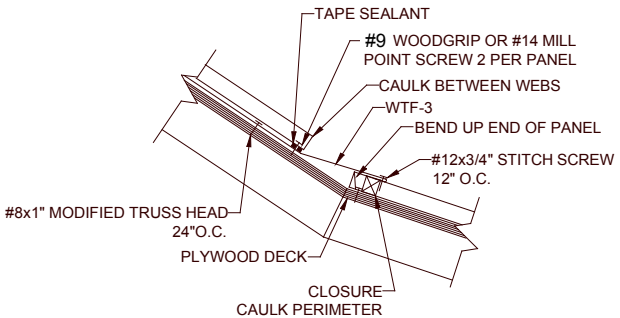
Notes:

1. Roofing underlayment not shown.
2. Parallel to the face of the flashing, place two beads of 3/16" bead mastic 3" apart, 4" and 7" back from the face of the flashing.
3. Panels must be field cut holding 3" minimum back from face of flashing.
4. Fasten the panels through the flashing and into the deck using two fasteners (#9 x 1" woodgrip or #14 x 1" MP) equally spaced at the end of the panels.

GAMBREL DETAIL



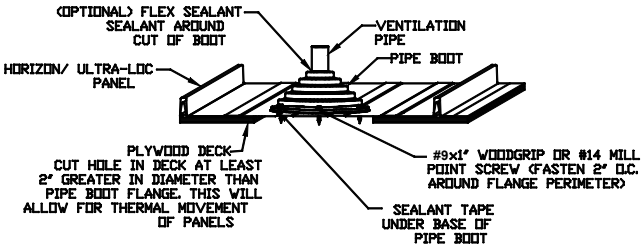
SLOPE TRANSITION (WOOD FRAMING)



Notes:

1. Roofing underlayment not shown.
2. **Bottom panels of the pitch change or transition must be installed first.**
3. Apply sealant to the bottom of the foam closure and set in place. Apply sealant to the top of the closure.
4. Install Pitch Change trim using stitch screws to each rib seam of the bottom transition panels.
5. Apply sealant as indicated above.

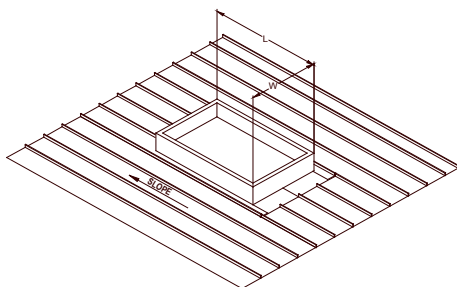
PIPE FLASHING



Notes:

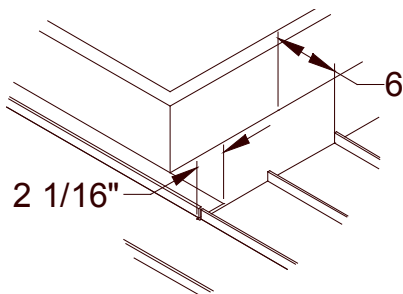
1. Cut the hole in the rubber portion of the pipe boot 20% smaller than the pipe diameter.
2. Slide the flashing down the pipe.
3. Form the flashing to the roof profile.
4. Apply sealant around the perimeter of the underside of the flashing base and fasten to roof using #9 x 1 or #14 x 1 woodscrew fasteners 2" o.c. as shown making sure to attach the flashing to the panel only. (Do Not fasten the panel to the underlying plywood)

PROCEDURE FOR THE INSTALLATION OF SKYLIGHT FLASHING



Notes:

1. Do not fasten down the panels a minimum of 24" uphill from the skylight.
2. Whenever possible, position the skylight curb so the ribs of the roof panels do not interfere with the flashing.
3. Cut the Horizon and Ultra-Loc panels as close to the left, right and downhill sides of the curb as possible. Cut the uphill side 6" up from the curb as indicated above.

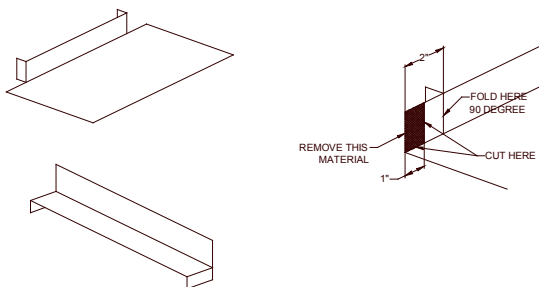


Notes:

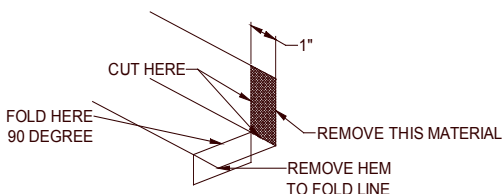
1. The skylight flashing will be 4" wider than the width of the curb (2" on each side).
2. Cut a 1/8" slot in the two uphill corners of the Horizon and Ultra-Loc panels, slightly wider than 2" so the uphill flashing can slide through the two slots.

SKYLIGHT FLASHING PREPARATION

Detail "A"



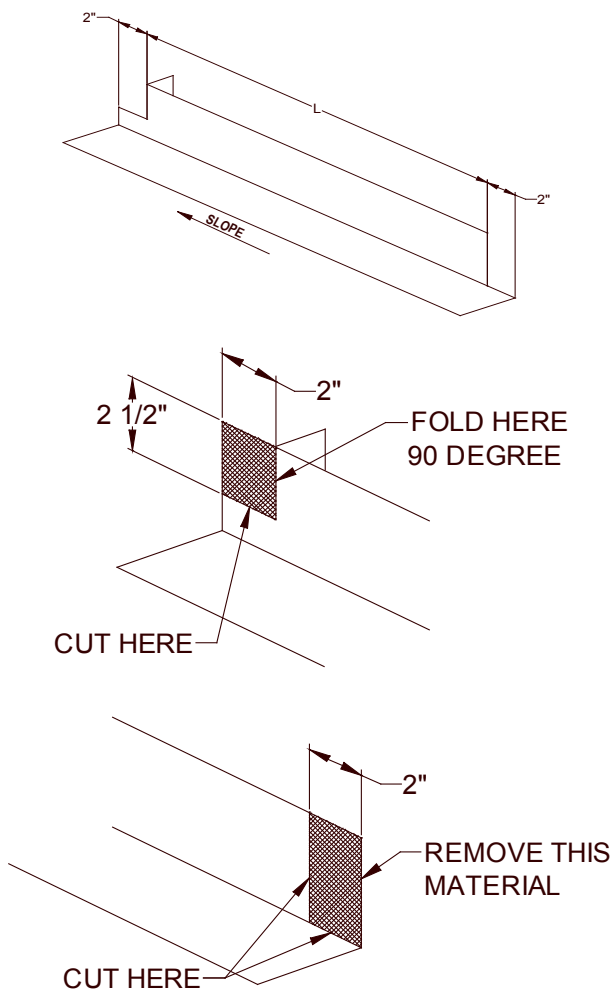
Detail "C"



Notes:

1. Trim both ends of the uphill and downhill sides of the skylight flashing as indicated.
2. Slide the uphill flashing into the slots of the Horizon and Ultra-Loc roofing and apply liberal amount of sealant.
3. Assemble the skylight as indicated on pages 34 & 35.
4. Trim and assemble chimney flashing similarly.

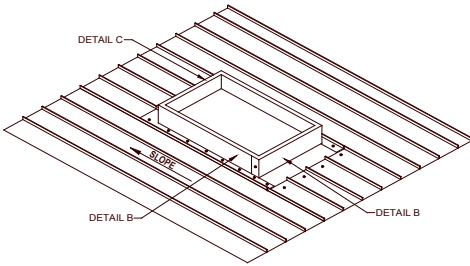
SKYLIGHT FLASHING PREPARATION Detail "B"



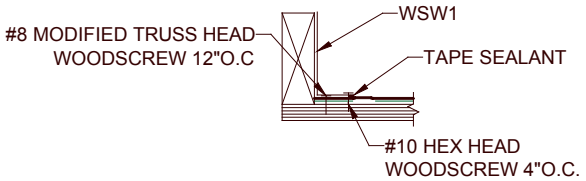
Notes:

1. Trim and bend the right side skylight flashing as indicated.
2. Trim the left side in a similar fashion. (Keep in mind the up from the downhill ends.)

SKYLIGHT



SKYLIGHT FLASHING (SIDE)



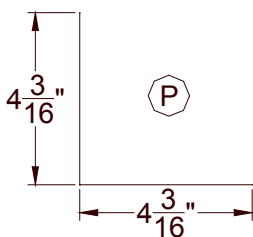
Notes:

1. In reference to details A, B, and C, refer to page 35-36.

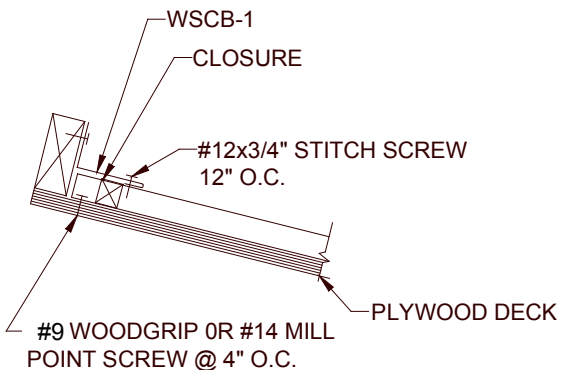
SKYLIGHT TOP FLASH



SKYLIGHT BOTTOM FLASH

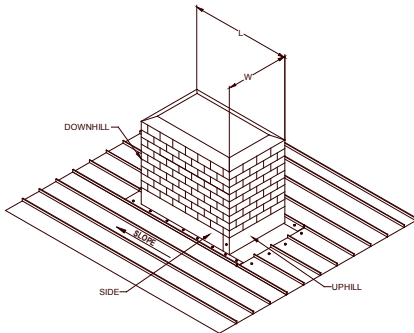


SKYLIGHT DOWNHILL



Fabral, Inc

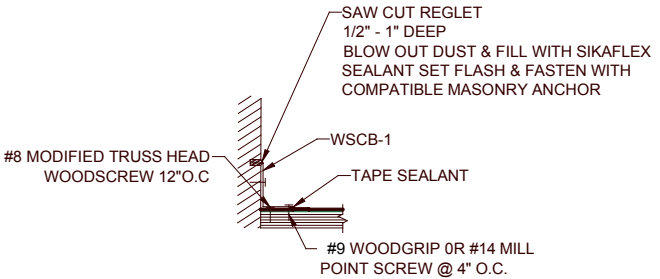
CHIMNEY FLASHING



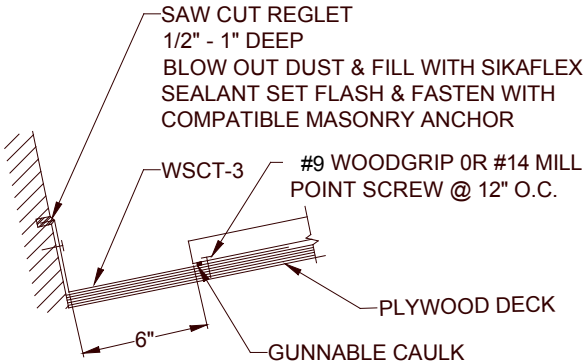
Notes:

1. Procedures for the installation of Chimney Flashings are similar to the Skylight's
2. The reglet shown may be deleted if the chimney is clad with siding. Lap the siding over the flashing and caulk.
3. Be sure to specify the slope and the orientation when ordering this assembly.

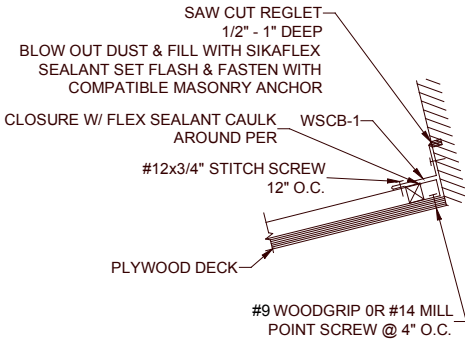
CHIMNEY FLASHING (SIDE)



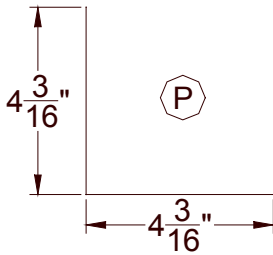
CHIMNEY FLASHING (UPHILL SIDE)



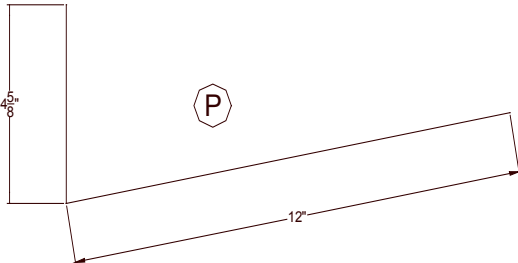
CHIMNEY FLASHING (DOWNHILL SIDE)



CHIMNEY (DOWNHILL)



CHIMNEY (UPHILL)





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