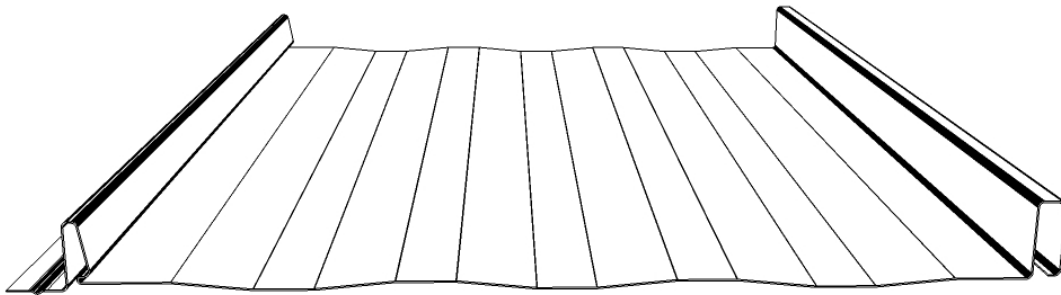
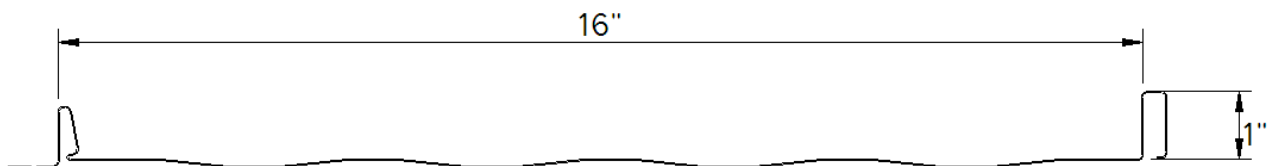




# HORIZON S



## Metal Roofing System Ordering & Installation Guide



Specifications contained herein subject to change without notice  
or obligation to make changes in products previously purchased.

**HORIZON S**  
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## HORIZON S INSTALLATION GUIDELINES

**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.

**HORIZON S roofing must be applied on a minimum roof pitch of 3:12 or greater and requires solid decking.**

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.

*In certain conditions, panels may show slight waviness commonly referred to as "oil canning." This can occur as a result of the roll-forming process. Oil-canning does not affect the structural performance of the roof system, and is not cause for rejection of material. In areas of high snow or ice accumulations, snow guards, or snow blocks, may need to be added to an HORIZON S 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

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

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

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

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

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

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

**Hem Bending Tool**—Used to hand bend the ends of the panels as indicated in the details of this manual. This tool is available from FABRAL.

**Locking Pliers or Hand Break**—Standard and “Duckbill” style for miscellaneous clamping and bending of parts.

**Marking Tools**—Indelible markers or scratching tools. No graphite pencils.

**Rivet Tool**—Used for miscellaneous flashing, trim applications and alternate eave detail.

**Rubber Mallet** – may be used to help snap panels together.

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

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

- 1/4” hex
- #2 Square bit
- 5/16” hex

**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.

**Tape Measure**—25 foot minimum.

**Utility Knife**—Used for miscellaneous cutting.

## 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. When working on a roof, fall protection is highly recommended. Follow all OSHA Safety Requirements.

**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 on the bill of lading 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.

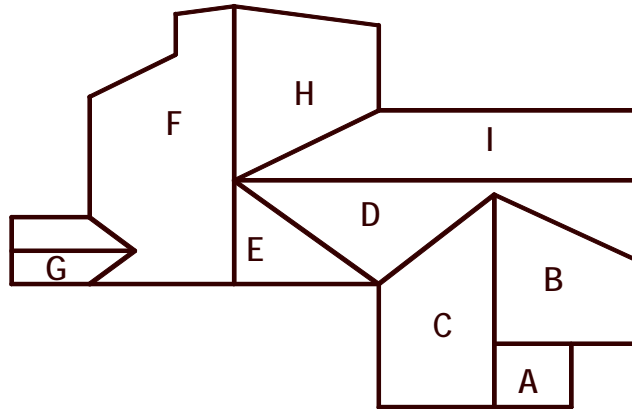
Store the panels and other materials in a dry, well ventilated area, away from traffic. Elevate one end of the bundle so that any moisture that may have accumulated during shipping can run off. If outdoor storage cannot be avoided, protect the metal with a breathable canvas or waterproof paper cover. Leave the bottom of the cover loose to allow air circulation. Do not use plastic which causes sweating or condensation. If left outside, be careful not to let water get trapped between the stacked panels. This can damage the panel finish. If possible, separate sheets to allow for airflow.

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. Do not step on the ribs.

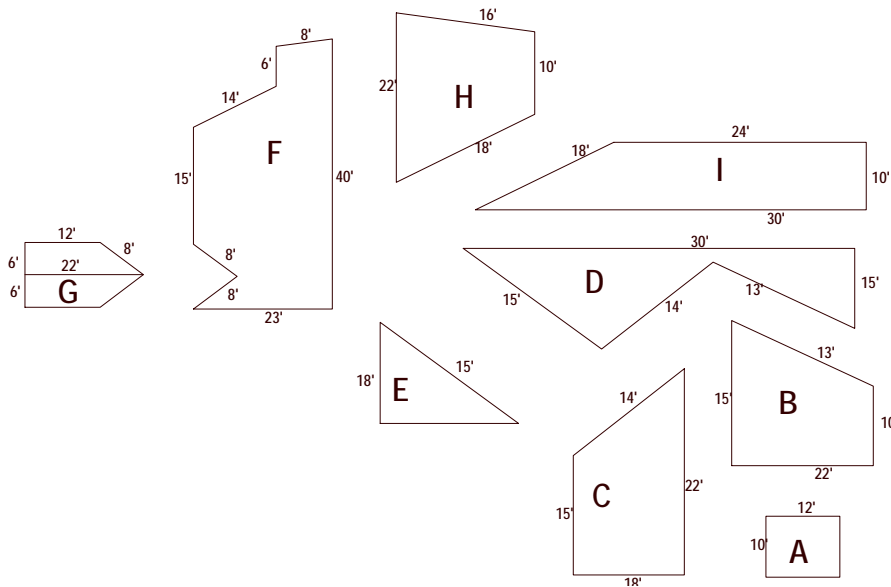
# ESTIMATING & ORDERING A ROOF

## Step 1

A. Sketch a birds-eye view of the roof and label each section (see example below.)



B. Sketch a diagram of each roof section. Show all measurements (see example below.) **It is important to measure the exact center of the ridge to the eave edge.** Do not allow anything for overhang.



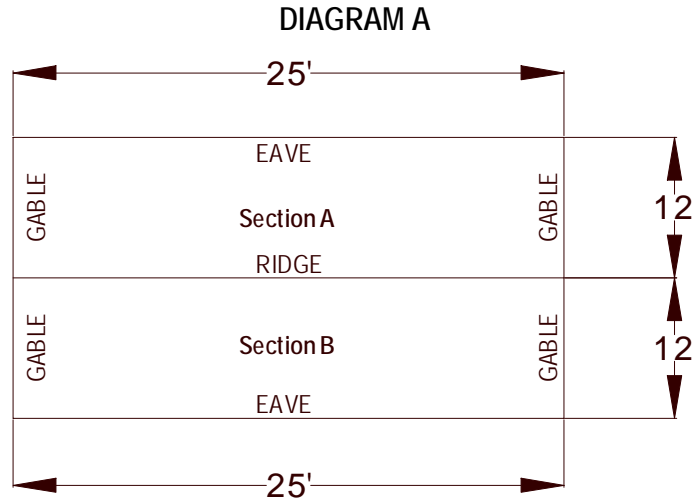
**Additional Information Required:** Roof Pitch, Skylights (Location & Size), Chimneys (Location & Size), and Size and Number of Pipe Penetrations.

**Additional Identification:** Ridge, Hips, Valleys, Gables, Etc.

## ESTIMATING & ORDERING A ROOF

### Step 2

With the information from the diagram you completed in Step 1, you are now ready to complete your roofing panel cut list. Each panel is 16" wide so the only measurement you need is the distance from the eave to the ridge. You can then determine the number of panels needed to cover the length from gable to gable. (See example Diagram A below.)



The length from the eave to the ridge is 12'. The length of the ridge is 25'; therefore, the number of panels to complete one side of the house is  $25' \div 1.33'(16'') = 19$  pcs. Your materials list should look like Sample B.

### SAMPLE B

Section A - 19 pcs. X 12'

Now look at your roof diagram and figure out your next section of roof. Refer back to Diagram A. Section B of this sample roof is the same as Section A. Your materials list should now look like Sample C below.

### SAMPLE C

Section A—19 pcs. X 12'

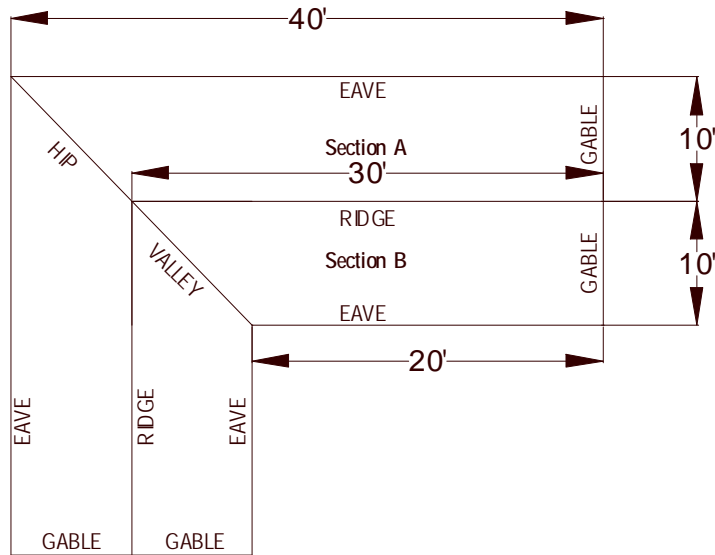
Section B—19 pcs. X 12'

If your home has hips or valleys, refer to Diagram 1A on page 8.

## ESTIMATING & ORDERING A ROOF

### Step 2 (cont.)

**DIAGRAM 1A**



Start with section A. The eave length is 40' and the ridge length is 30', with a difference of 10'. You will need 23 pcs. X 10' to reach the area where the hip starts. Remember that you have 10' remaining to cover the area, or 8 more panels. Determine the length of each panel going into the valley by calculating the roof's pitch. Pitch is how much rise your roof has in inches for every foot of horizontal run. Use the Hip and Valley Chart below to ensure you order the correct panel length for hips and valleys, keeping in mind, that panels are cut to the nearest full inch. For example, Diagram 1A is a 4/12 pitch (4/12p). According to the chart below, we know each panel will be 17" shorter. Since we are measuring from the longest point of the angle, your first piece will be the same length as the full eave to ridge measurement and each piece after will be 17" shorter. (Your list of Section A should look like Sample D on page 9.)

### Hip & Valley Chart

When determining the panel length needed for a hip or valley, the panel will either be shorter or longer as you go up or down the hip or valley. The chart below shows you the amount to add or subtract from each panel according to the pitch of your roof.

$3/12p = 16 \frac{1}{2}"$	$6/12p = 18"$	$9/12p = 20"$
$4/12p = 17"$	$7/12p = 18 \frac{1}{2}"$	$10/12p = 20 \frac{3}{4}"$
$5/12p = 17 \frac{1}{2}"$	$8/12p = 19"$	$11/12p = 21 \frac{3}{4}"$
		$12/12p = 22 \frac{3}{4}"$

**Note:** When determining panel length, always round up to the next full inch.



## ESTIMATING & ORDERING A ROOF

### SAMPLE D

Section A	24 pcs. X 10'
	1 pc. X 8'-7"
	1 pc. X 7'-2"
	1 pc. X 5'-9"
	1 pc. X 4'-4"
	1 pc. X 2'-11"
	1 pc. X 1'-6"
	1 pc. X 1'-0"

### Step 3

Refer to the Home Legend of page 16 for trim placement. From this diagram, you can determine the names and placement of the trim needed. All trim is produced in 10'6" sections only. Remember to allow 6" of overlap on all trims. Use the estimating section to determine trim quantities.

For applications of trims and flashings, see pages 17-26.

### HORIZON S Estimator/Order Guide

Calculate total lineal feet of panels = (pcs x ft-inches) total sum = \_\_\_\_\_ In ft.  
Use on next page for number of screws needed.

#### Accessories

Determine total lineal feet of conditions listed below and then fill that number in accordingly at each spot listed, Perform calculating to determine number of pieces for each item and circle flashing design required.

Eave \_\_\_\_\_

Ridge \_\_\_\_\_

Hip \_\_\_\_\_

Gable \_\_\_\_\_

Sidewall \_\_\_\_\_

Endwall \_\_\_\_\_

Valley \_\_\_\_\_

Transition \_\_\_\_\_

Gambrel \_\_\_\_\_

Swept Wing or Flying Gable \_\_\_\_\_

Clear Story \_\_\_\_\_

Roof Pitch \_\_\_\_\_ " in 12"

Chimney (Qty. and size) \_\_\_\_\_

Skylight (Qty. and size) \_\_\_\_\_

## HORIZON S Estimator/Order Guide

- A. Eave \_\_\_\_\_ft ÷ 10\*\* = \_\_\_\_\_pcs. (WEF1 or WEF2 & WEF3 or WEF4)
- B. (Ridge \_\_\_\_\_ft ÷ 10) \*\*\* + (Hip \_\_\_\_\_ft ÷ 10) = \_\_\_\_\_pcs (WRH3 or WRH5)
- C. Gable \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs (WGF4)
- D. Sidewall \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs (WSW4)
- E. Endwall \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs (WEW2)                      Pitch \_\_\_\_\_
- F. Valley \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs (RV2 & WVC1)                      Pitch \_\_\_\_\_
- G. Transition \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs (WTF1)                      Pitch from \_\_\_\_\_ to \_\_\_\_\_
- H. Gambrel \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs Mod. (WTF1)                      Pitch from \_\_\_\_\_ to \_\_\_\_\_
- I. Monoslope \_\_\_\_\_ft ÷ 10 = \_\_\_\_\_pcs. (WRH4)
- J. (Perimeter of Skylights/Chimney \_\_\_\_\_ft ÷ 5) = \_\_\_\_\_pcs WSCB1 & \_\_\_\_\_pcs WSCT3
- K. (Total lineal feet of panels \_\_\_\_\_ft) = \_\_\_\_\_pcs #10 x 1" Waferhead Screws (Panels)
- L. (Valley \_\_\_\_\_ft x 2) + (Transition \_\_\_\_\_ft) + (Gambrel \_\_\_\_\_ft) + (Swept Wing Gable \_\_\_\_\_ft) = \_\_\_\_\_pcs #10 Waferhead Screws (Accessories)
- M. (Eave \_\_\_\_\_ft) + (Ridge \_\_\_\_\_ft x 6) + (Gable \_\_\_\_\_ft ÷ 2) + (Sidewall \_\_\_\_\_ft) + (Endwall \_\_\_\_\_ft x 3) + (Hip \_\_\_\_\_ft x 6) + (Transition \_\_\_\_\_ft x 3) + (Gambrel \_\_\_\_\_ft x 3) + (Monoslope \_\_\_\_\_ft x 4) = \_\_\_\_\_pcs #14 x 1" Mill Point Painted
- N. (Ridge \_\_\_\_\_ft x 2) + (Sidewall \_\_\_\_\_ft) + (Endwall \_\_\_\_\_ft) + (Hip \_\_\_\_\_ft x 2) + (Transition \_\_\_\_\_ft) + (Gambrel \_\_\_\_\_ft) + (Monoslope \_\_\_\_\_ft) = \_\_\_\_\_pcs #12 x 3/4" Stitch Screw Painted
- O. (Eave \_\_\_\_\_ft x .0125) + (Valley \_\_\_\_\_ft x .0125) + (Swept Wing Gable \_\_\_\_\_ft x .0625) = \_\_\_\_\_Tubes of Sealant
- P. (Eave \_\_\_\_\_ft) + (Gable \_\_\_\_\_ft) + (Ridge \_\_\_\_\_ft x 4)\*\*\* + (Valley \_\_\_\_\_ft x 2) + (Transition \_\_\_\_\_ft x 3) + (Perimeter of skylight / chimney \_\_\_\_\_ft) + (Sidewall \_\_\_\_\_ft) = \_\_\_\_\_ Total lf ÷ 40 = \_\_\_\_\_ Rolls of Butyl Sealant
- Q. Hem Bending Tool = \_\_\_\_\_pcs Hem Bending Tool
- R. (Hip \_\_\_\_\_lf x 2) ÷ 19.68 = \_\_\_\_\_rolls.- Sealer Strip (1" x 1" x 19.68' roll)
- S. (Non-Vented Ridge \_\_\_\_\_ft ÷ 1.33) = \_\_\_\_\_pcs HORIZON S Outside Closure x 32", pre-notched (covers 2 panels)
- T. (Vented Ridge \_\_\_\_\_ft ÷ 1.33) = \_\_\_\_\_pcs. Marco LP2 Vent (Sold by pcs.)
- U. Pipe Boots: \_\_\_\_\_#3 ( 1/4" to 5" dia. pipe)    \_\_\_\_\_#5 ( 4 1/4" to 7 1/2" dia. pipe)    \_\_\_\_\_#8 ( 7" to 13" dia. pipe)  
(add screws and sealant for boots)

**\*\* Note: 10 results from 10'6" standard length flashings with 6" overlap.**

**HORIZON S**  
**Estimator/Order Guide**  
**Step 3 (cont.)**

When determining the number of fasteners needed, follow these GENERAL rules:

1. For every linear foot of roof panel ordered, you need 1 panel screw.
2. Remember, these are GENERAL rules; the actual amount may vary slightly for each different roof application.
3. At this point, your materials list for Diagram A on page 7 should look like Sample E below.

**SAMPLE E**

Section A	19 pcs. X 12'
Section B	19 pcs. X 12'
5 pcs.	Eave Trim 5/12p
3 pcs.	Ridge Cap 5/12p
5 pcs.	Gable Trim
600 pcs.	#10 x 1" Waferhead Panel Screws
300 pcs	#14 x 1" Mill Point screws
100	#12 x 3/4" Stitch Screws
1 tube	Sealant
3 Rolls	Butyl Sealant Tape
1 each	Hem Bending Tool (optional)

You are now ready to order your new metal roof. Simply fill out the following form and provide it to your local FABRAL dealer or distributor. If you have any questions, or need to have your material list checked, please contact your local FABRAL dealer or distributor.

## HORIZON S - Order Form

Panels: Color = \_\_\_\_\_

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

\_\_\_\_\_ pcs. @ \_\_\_\_\_ ft. \_\_\_\_\_ in.

### Accessories:

\_\_\_\_\_ pcs. of Eave Flash \_\_\_\_\_ (flashing code ex: WEF1)

\_\_\_\_\_ pcs. of Ridge Flash \_\_\_\_\_ (WRH3, WRH5)

\_\_\_\_\_ pcs. of Gable Flash WGF4

\_\_\_\_\_ pcs. of Sidewall Flash WSW4

\_\_\_\_\_ pcs. of Endwall Flash WEW2

\_\_\_\_\_ pcs. of Valley Flash RV2

\_\_\_\_\_ pcs. of Transition Flash WTF1

\_\_\_\_\_ pcs. of Gambrel Flash WTF1 mod.

\_\_\_\_\_ pcs. of Swept Wing Gable WEF1, etc

\_\_\_\_\_ pcs. of Monoslope Flash WRH4

\_\_\_\_\_ pcs. of #10x1" Waferhead Screw (Panel Screws)

\_\_\_\_\_ pcs. of #9x1" Woodfast Screw (Accessories Screws)

\_\_\_\_\_ pcs. of #14 x 1" MP Painted

\_\_\_\_\_ pcs. of #12 x 3/4" Stitch Screw Painted

\_\_\_\_\_ pcs. of Tube Caulk

\_\_\_\_\_ pcs. of WSCB1

\_\_\_\_\_ pcs. of WSCT3

\_\_\_\_\_ rolls. of Butyl Sealant Tape

\_\_\_\_\_ pcs. of Hem Bending Tool

\_\_\_\_\_ pcs. of Touch-up Paint

\_\_\_\_\_ pcs. of Marco LP2 Vent

\_\_\_\_\_ pcs. of HORIZON S Outside Closure

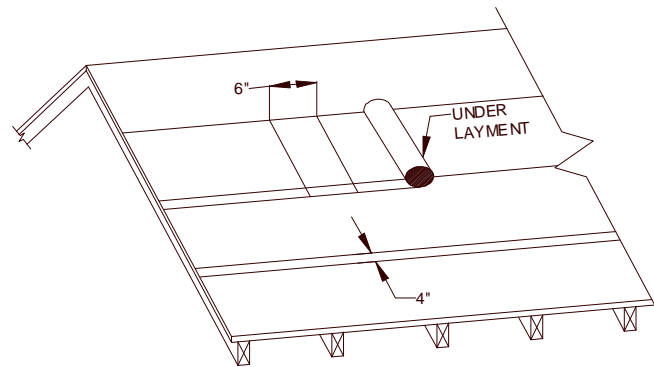
\_\_\_\_\_ pcs. of Pipe Flash

\_\_\_\_\_ Roof Underlayment

## NEW ROOF APPLICATION

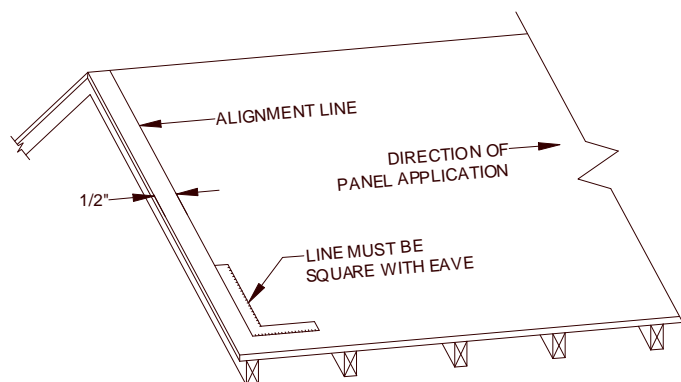
1. Make sure there are no nails or other objects protruding from the substrate that might puncture the underlayment or damage the roof panels. Clean all debris from the deck.
2. Check all details for possible roof penetrations which must be added to the deck prior to roof panel installation (vented ridge for example).
3. Cover the entire roof deck with 30-pound felt paper, or better (we consider any synthetic to be better) (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 by 4-6". 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 below) Ice & Water shield should be used in cold climates starting at the eave and extending at least 24" past exterior walls. If using 30 lb felt, use rosin paper as a slip sheet between roof panels and felt paper.

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 ensuring that the line is square. Call your nearest FABRAL representative if you need assistance. (See Illustration #2)

ILLUSTRATION #2



## EXISTING ROOF APPLICATION

In many cases, FABRAL's HORIZON S Panels can be installed over existing roofing.

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 30 lb. felt paper over old shingles. Furring strips can be installed 12" o.c. with HORIZON S to provide adequate panel support and wall capability. This panel should have a solid deck to lie on. This can be accomplished by adding rigid insulation between the furring strips. 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 13. 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 S 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 new underlayment or damage the new roof panels.
- ❑ Remove all moss and other debris from the roof.
- ❑ Cut off any overhanging roofing flush with the roof deck, and remove all hip and ridge caps.
- ❑ Follow the directions on page 13, #2 through #4, on roof preparation.




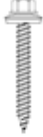
Note: For best results, HORIZON S Roofing requires a relatively smooth and flat substrate. Application over rough and/or uneven surfaces is not recommended, as this will cause oil-canning.

## 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.)

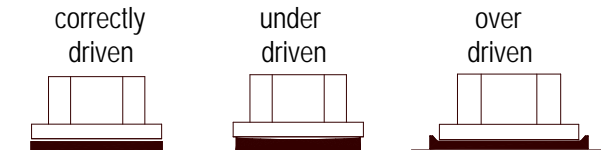
1. Install eave trim.
2. Working off the eave edge, establish a straight line up the gable edge from which you are starting. This will insure that the first panel laid will be straight and square with the eave. (See Illustration #2 – page 13)
3. Before fastening the panel to the roof deck, hem 1" of the panel 180deg. (or allow a 1" overhang to attach an angle piece to the eave when using WEF4 alternate eave detail).
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" Waferhead panel screw on 18" centers maximum.)
5. Install the gable trim and face screw it to fascia board (see page 21). This fully secures the first panel to the roof deck.
6. 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 on the overlap seam (or use rubber mallet) working from the eave toward the ridge. **The overlap edge of the panel contains factory-applied sealant to ensure weathertightness. 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.

## HORIZON S - FASTENERS

Description	Use
#10 x 1" Waferhead Screw 	Panel to Deck or Trim to Wood Attachments (Unexposed)
#14 x 1" Mill Point Screw 	Panel to Deck Attachments at ridge. Also used for flashing to fascia applications
#12 x 3/4" Stitch Screw 	Panel to Panel or Trim to Panel Attachments(may be used as an alternative to blind rivets)
#9x1" Woodfast Screw 	For miscellaneous trim attachment

Listed above are the fasteners recommended for the proper installation of the HORIZON S panels. Also note the diagram below for proper installation of gasketed fasteners.

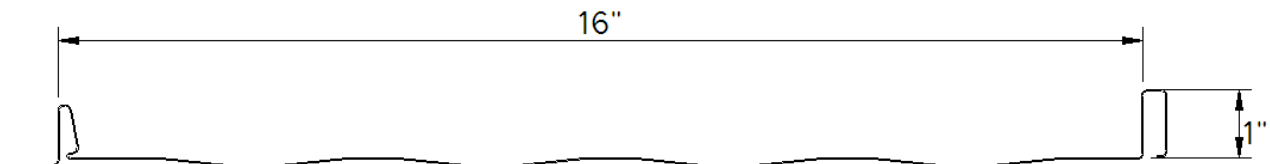
### *PROPER INSTALLATION OF GASKETED FASTENERS*



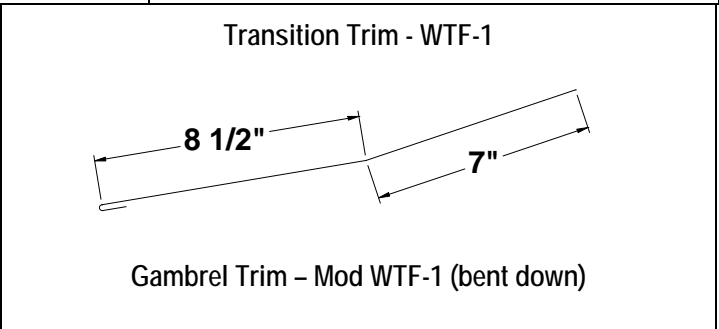
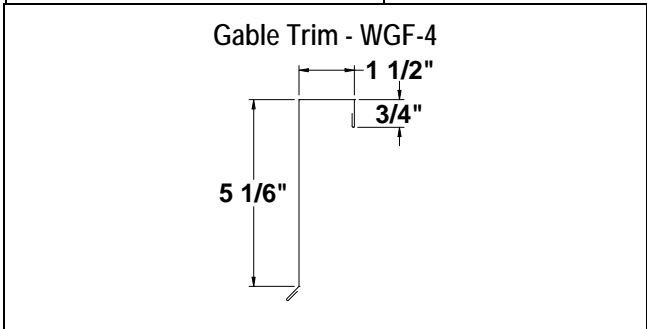
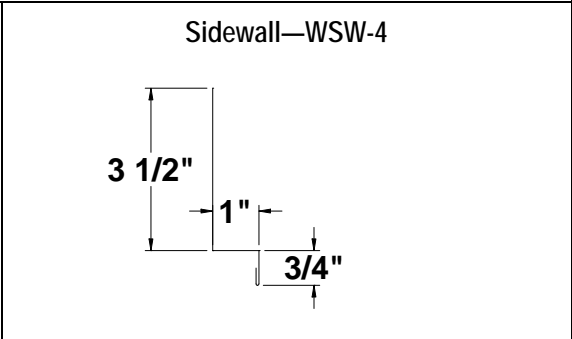
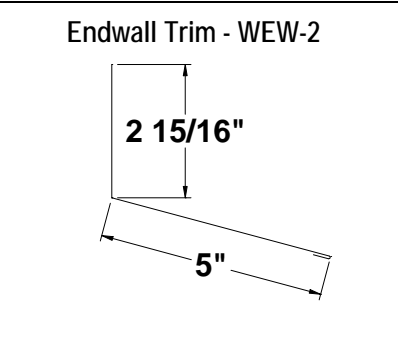
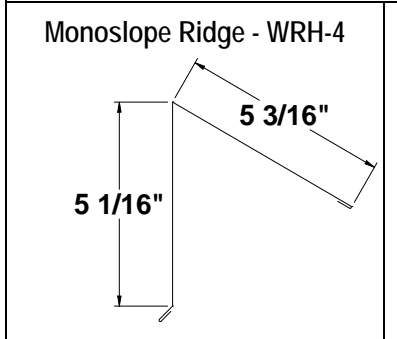
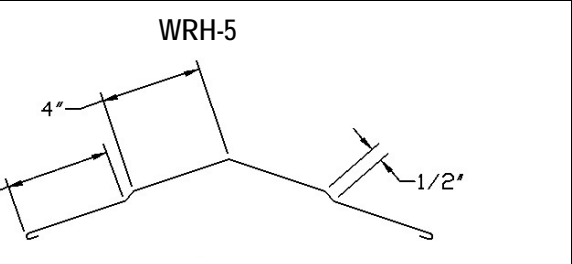
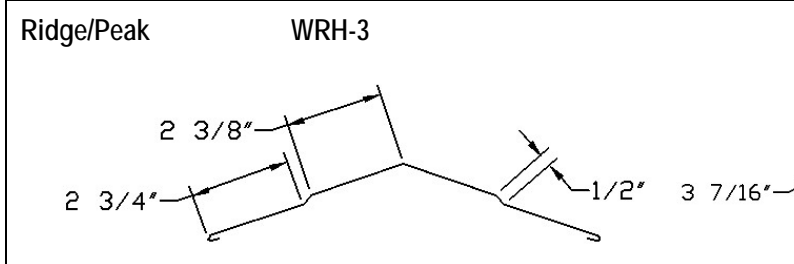
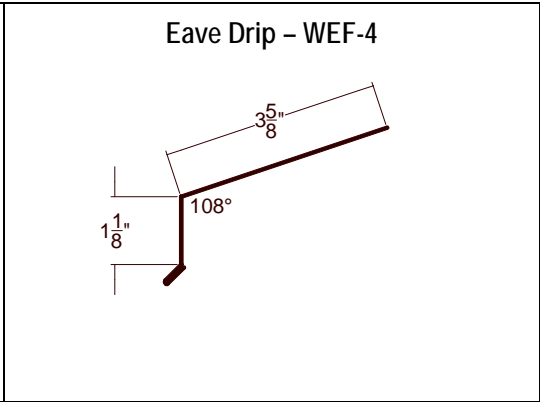
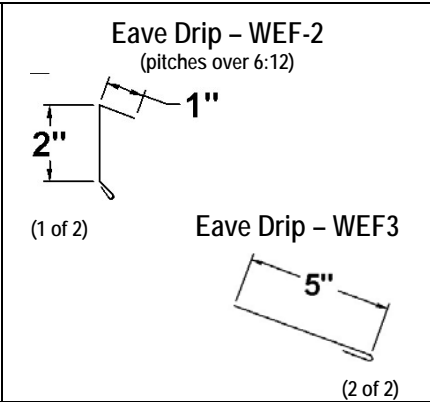
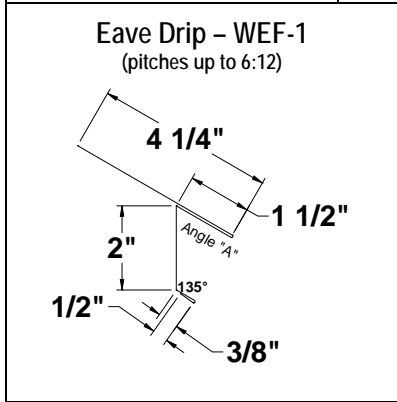
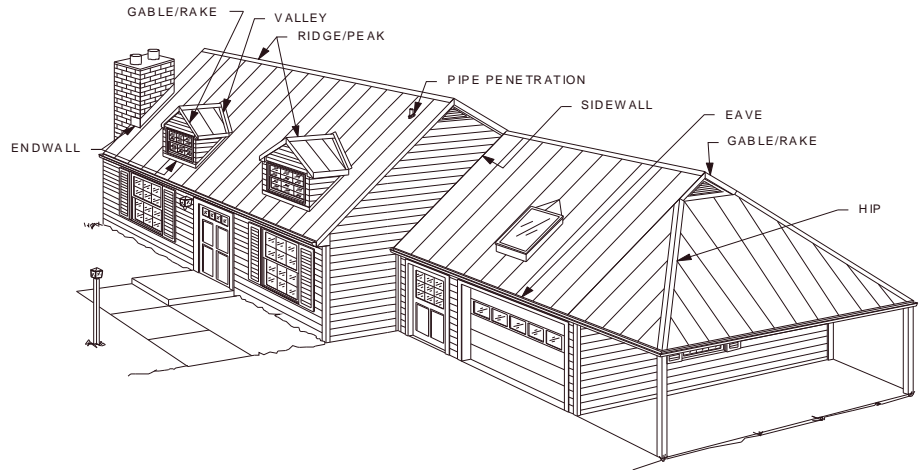
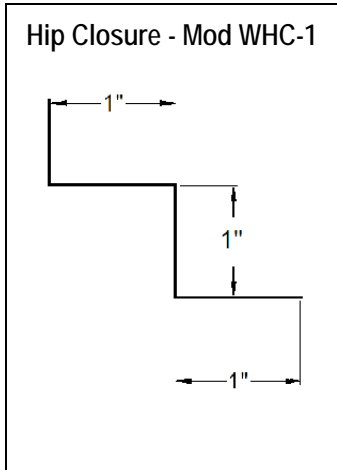
**Load Table – Steel Panels**  
 LOAD-SPAN TABLES FOR 26 ga. HORIZON S ROOFING  
 Allowable wind uplift loads (psf)

Substrate	Fastener	9"	12"	15"	18"	21"	24"
1/2" Plywood	#10 x 1" Wafer Head	80	60	48	40	NR	NR
5/8" Plywood	#10 x 1" Wafer Head	115.7	86.8	69.5	57.8	49.6	43.4
7/16" OSB	#10 x 1" Wafer Head	57.1	42.8	NR	NR	NR	NR

### HORIZON S Panel Profile

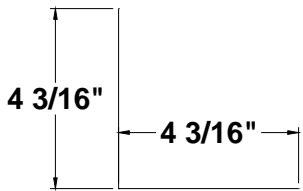
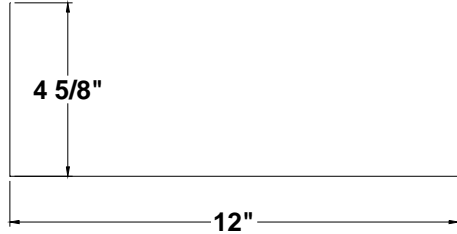
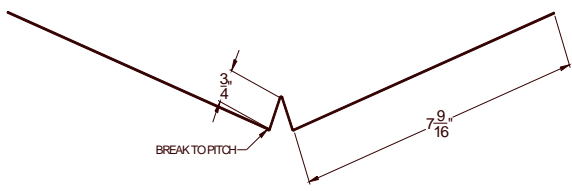
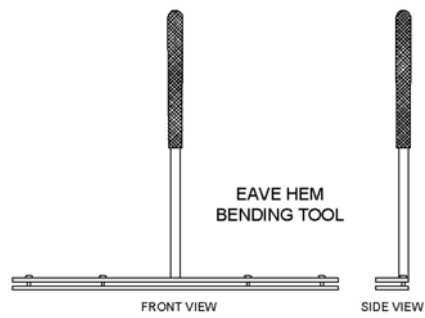
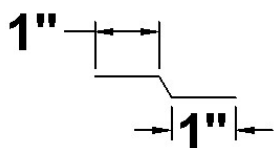


# HORIZON S Typical Flashings





## HORIZON S Typical Flashings (cont.)

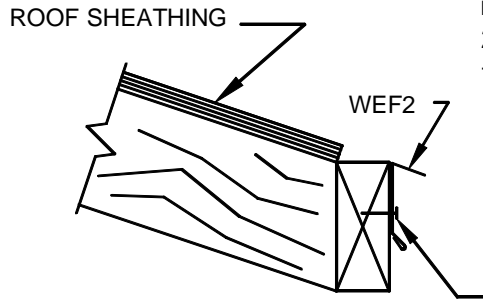
<p style="text-align: center;"><b>Bottom Flashing 2' - Skylight - WSCB-1 (34") &amp; 2 (58")</b></p> 	<p style="text-align: center;"><b>Top Flashing 2' - Skylight/Chimney - WSCT-3 (34") &amp; 4 (58")</b></p> 
<p style="text-align: center;"><b>W-Valley Flashing - RV-4</b></p> 	<p style="text-align: center;"><b>EAVE HEM BENDING TOOL</b></p> 
<p style="text-align: center;"><b>WVC-1 Valley Cleat</b></p> 	

# HEMMED EAVE DETAIL

## STEP 1

### TWO-PIECE EAVE TRIM

(Use when roof pitch is greater than 6:12)

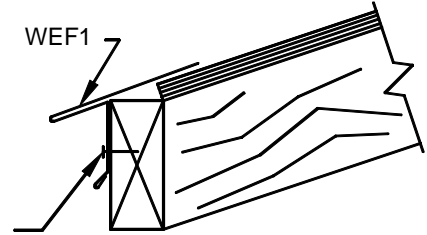


1. Line WEF2 or WEF1 top in line with plywood/purlin.
2. Screw at 16" o.c. across face of trim.

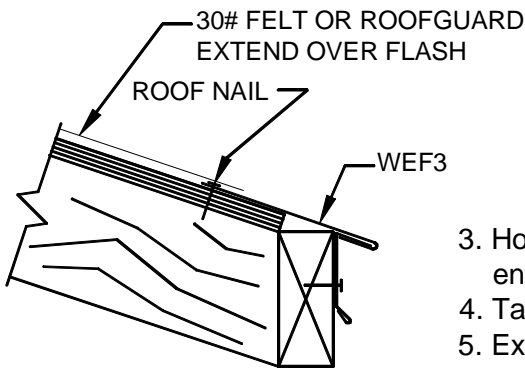
#14 x 1" PAINTED

### ONE-PIECE EAVE TRIM

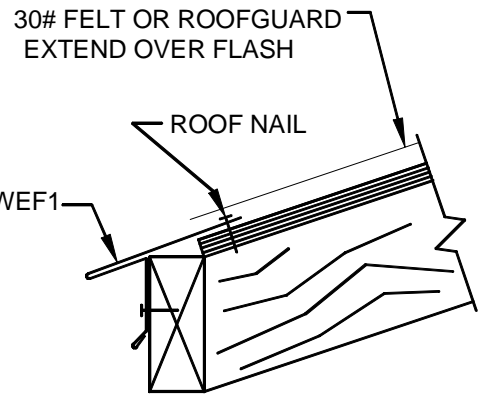
(Use with roof pitches up to 6:12)



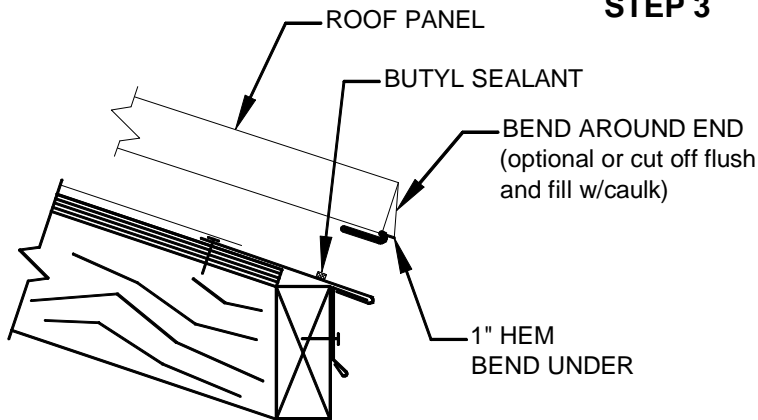
## STEP 2



3. Hook WEF3 over hem entire length.
4. Tack in place with roofing nail.
5. Extend felt over eave trim.



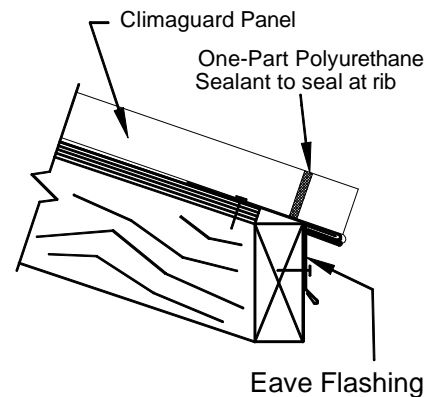
## STEP 3



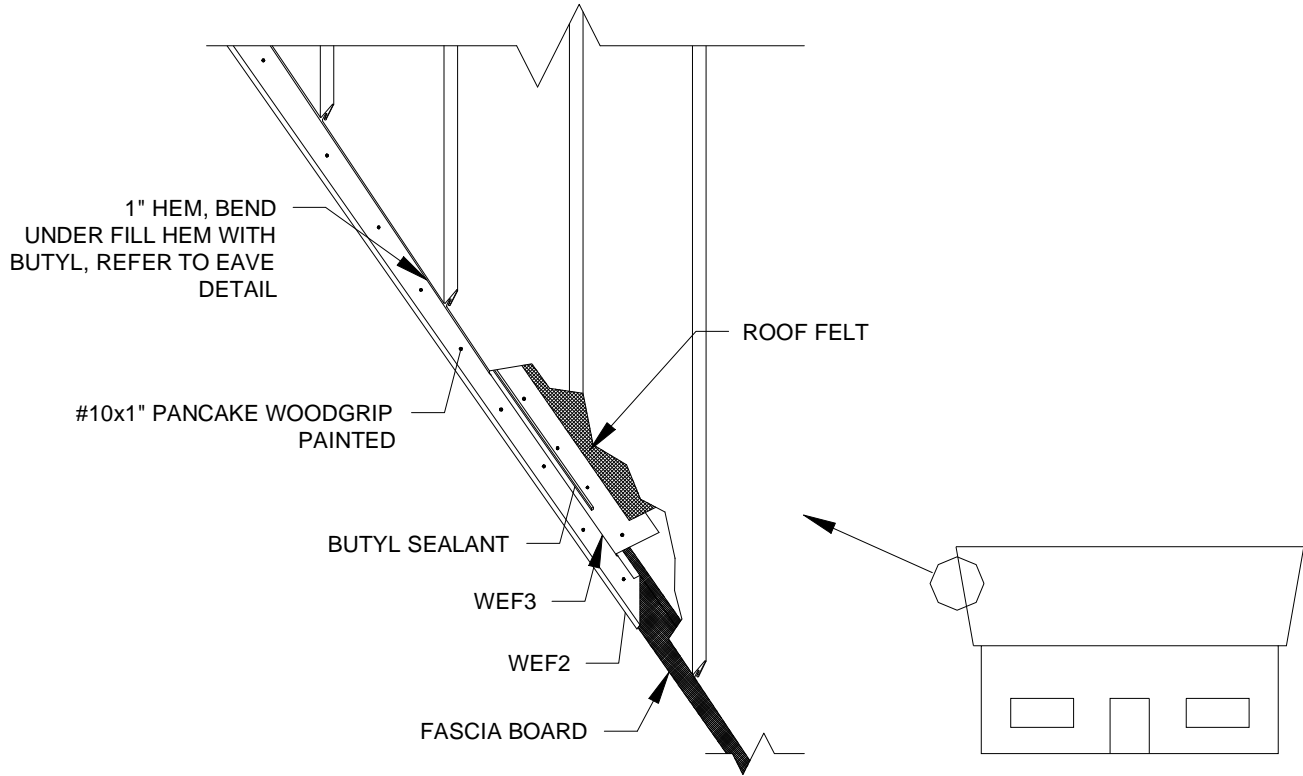
6. Mark 1" in pan of panel and cut beside each rib with a tin snips.
7. Use bending tool to bend hem under the panel.
8. Cut underlap leg off completely for 1".
9. Cut overlap leg as shown on angle. Cut to produce a triangular piece to fold, closing the open rib.

## STEP 4

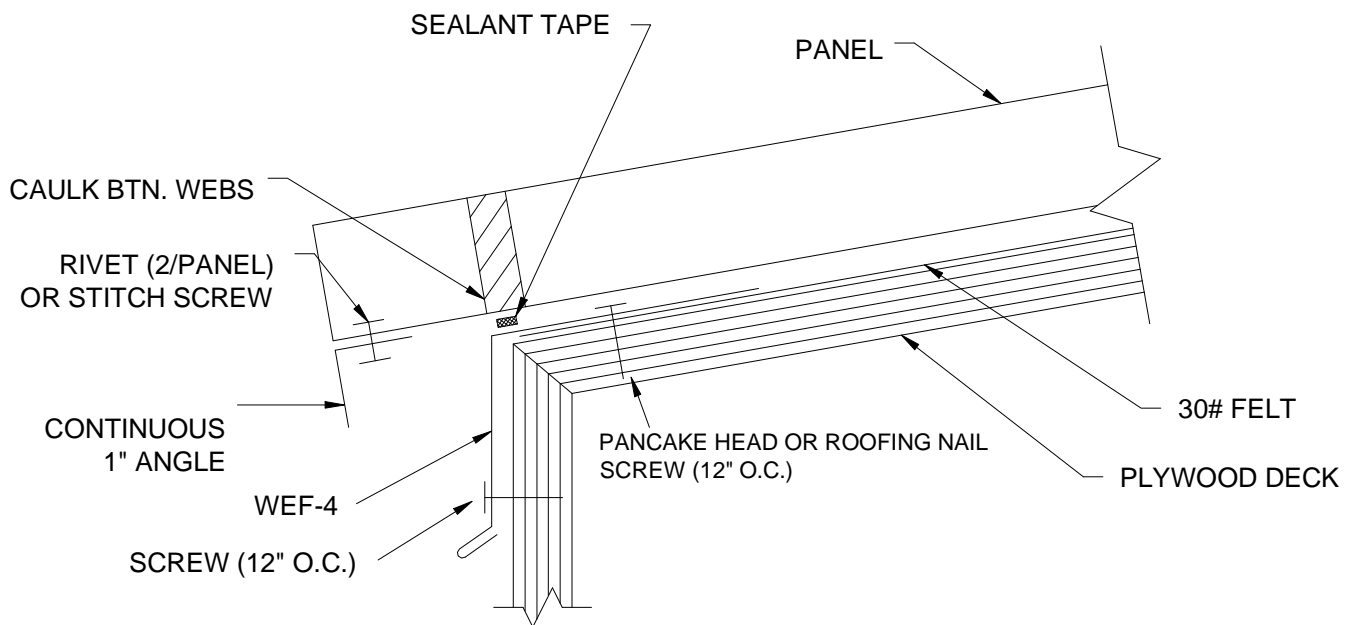
10. Caulk with One-Part Polyurethane up underlap leg.
11. Slide panel over eave hem, tight (in cold weather) or with gap (in warm weather). Snap panels together by applying pressure to the panel rib. Start at the eave and work toward the ridge.



## SWEPT WING GABLE (FLYING GABLE) DETAIL

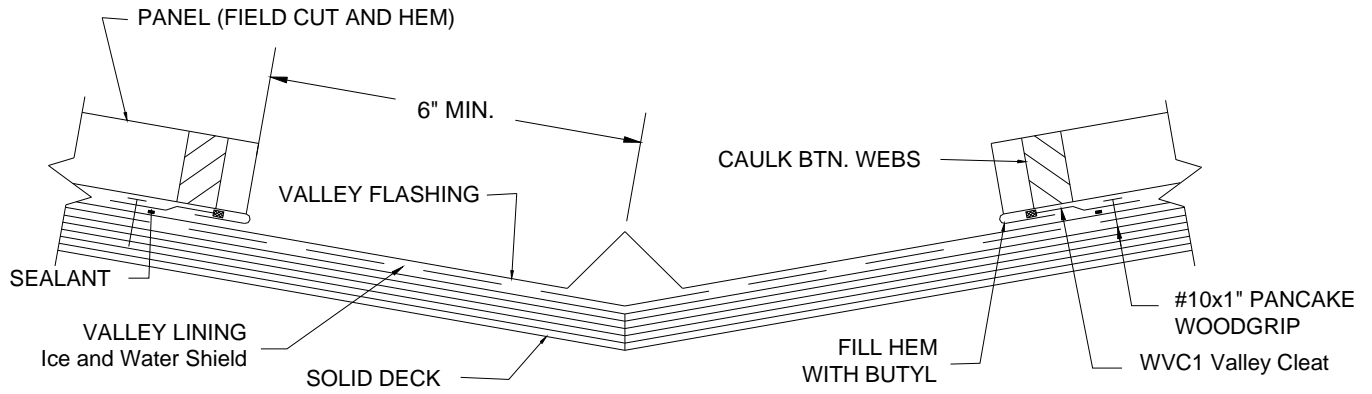


## ALTERNATE EAVE DETAIL



NOTE: POP-RIVETED ANGLE MUST NEVER CONTACT EAVE FLASHING.

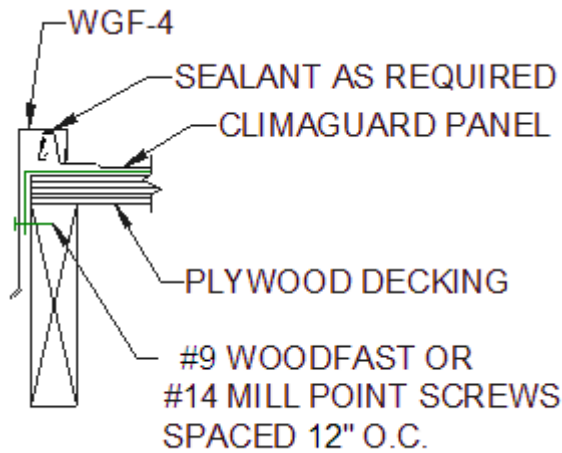
## VALLEY DETAIL



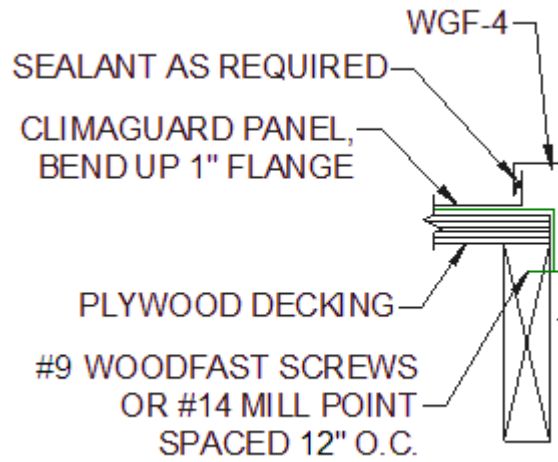
### Notes:

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. Additional underlayment may be required in cold climates due to ice damming.
4. When valley flashing is overlapped, 6" of lap is recommended with sealant applied under the lap.
5. Refer to above detail.

## START GABLE DETAIL



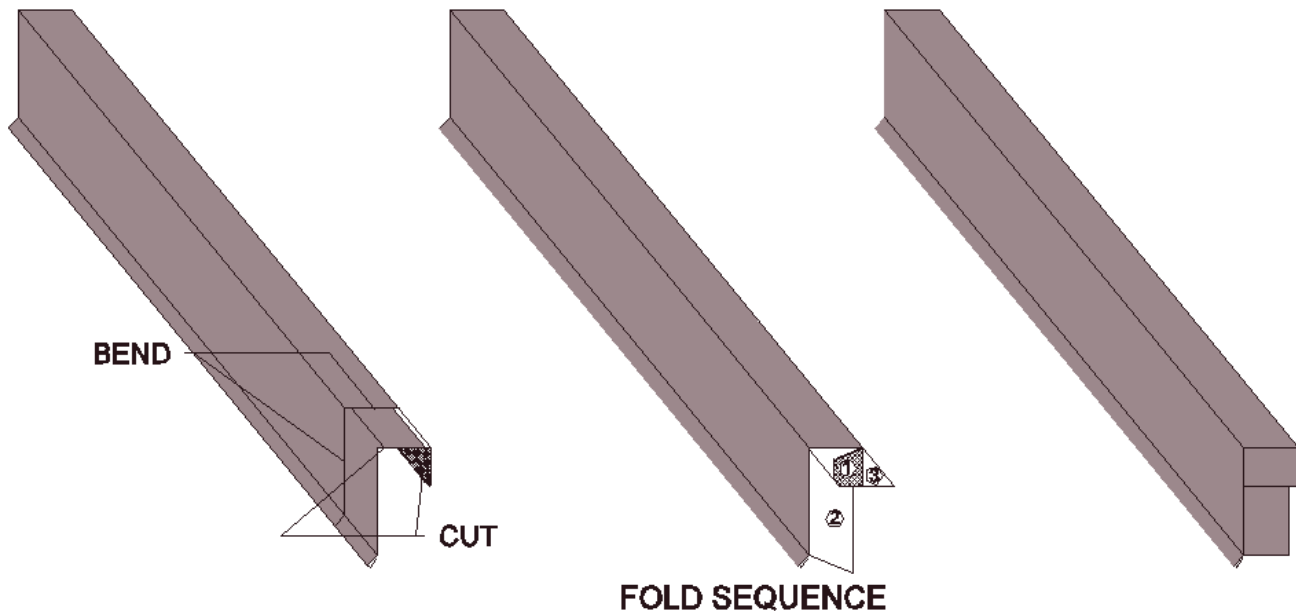
## FINISH GABLE DETAIL



### Notes:

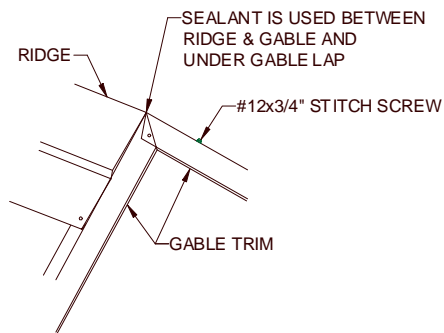
1. Roofing underlayment not shown.
2. Install the gable trim by placing it over the seam rib as shown and fasten it to the fascia board at 12" on center.
3. The eave end of the gable trim can be closed off by snipping and folding.
4. For gable detail at ridge, see page 22.
5. When the last roof panel overhangs the gable end cut off excess and finish as shown below.

## FINISHING THE GABLE TRIM

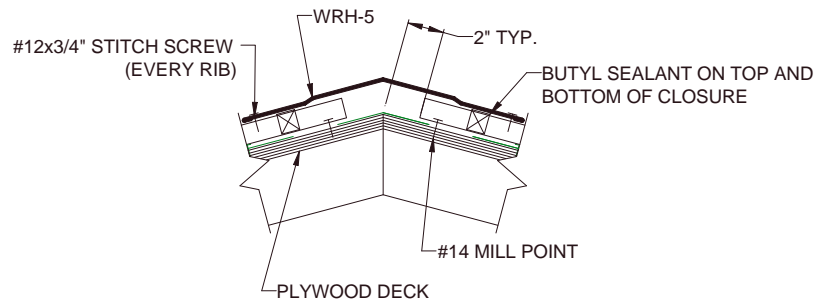


After snapping the gable flash over the cleat, pull the gable flash over the eave end fascia by 2" to 3" to finish fold. See diagram for cuts and bending locations. Always fold the sides in first and fold the top flap down last so water will run off and NOT run in.

## RIDGE & GABLE DETAILS



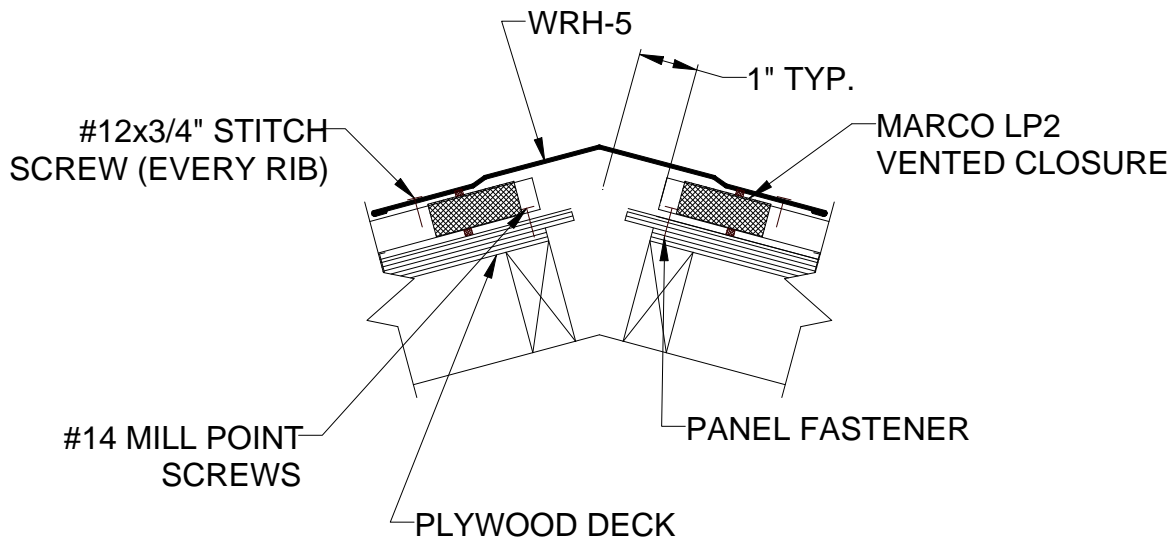
## RIDGE DETAIL (NON VENTED)



### Notes:

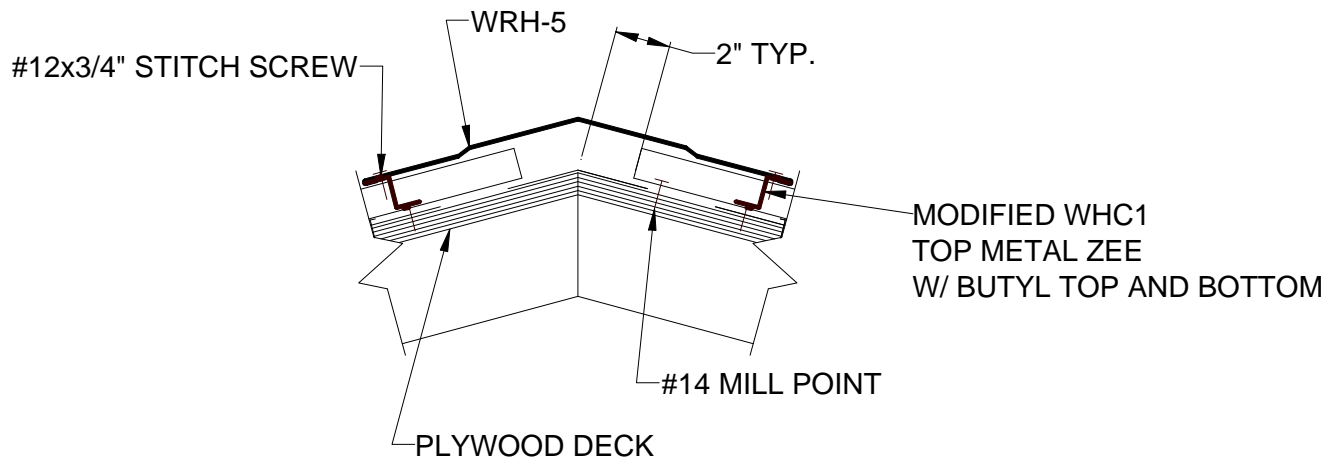
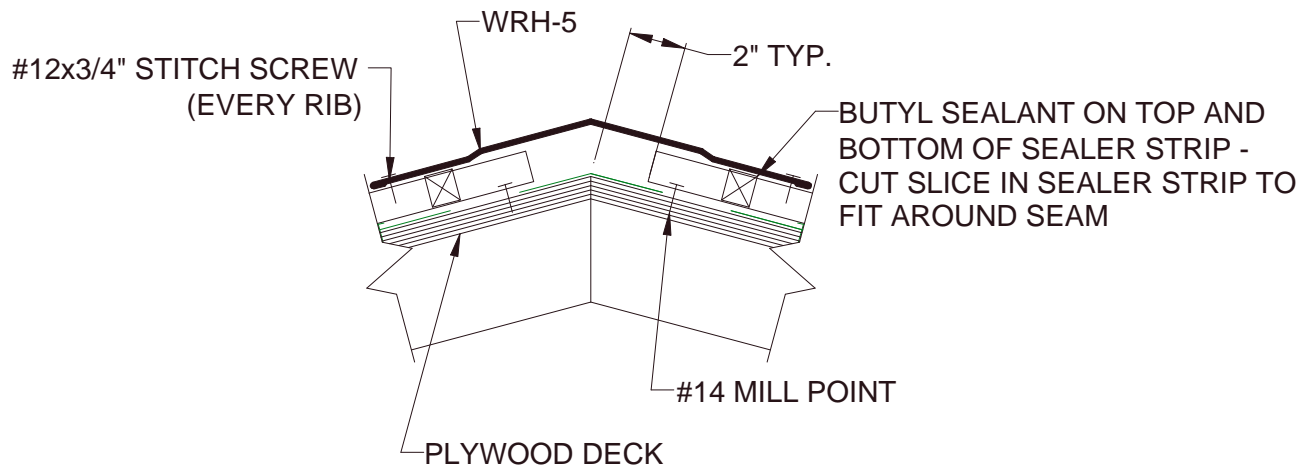
Refer to installation instructions below.

## VENTED RIDGE

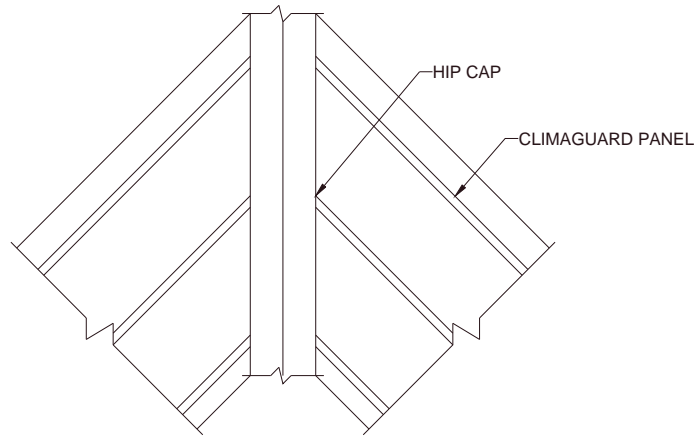


2. Roofing underlayment not shown.
3. Plywood should be held back or cut back 1" from each side of the ridge.
4. Use WRH-3 or WRH-5 for pitches up to 4:12.  
Use WRH-5 for pitches greater than 4:12.
5. Install Marco LP2 Vent on each side of the ridge. (WRH3 or WRH5)
6. Fasten the ridge cap using #12 x 3/4" stitch screws on each panel rib 1" back from the edge of the ridge cap.

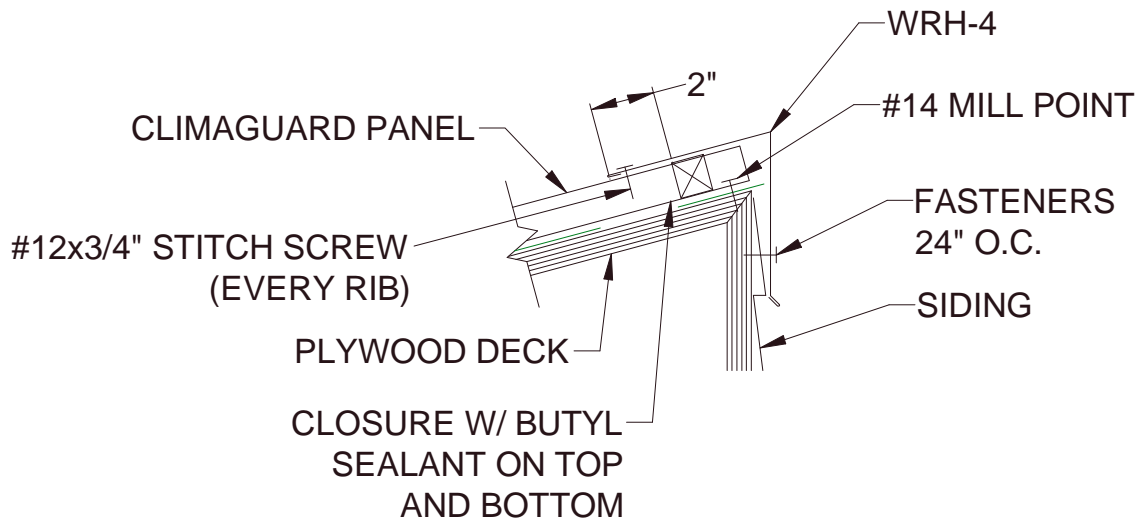
# HIP DETAIL



## HIP ROOF—PLAN VIEW



## MONOSLOPE RIDGE CAP

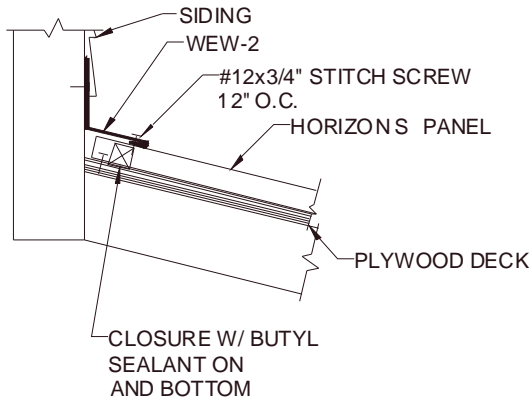


### Notes:

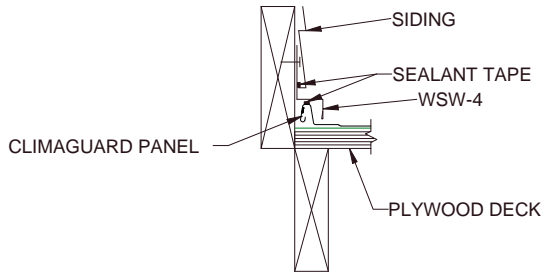
1. Roofing underlayment not shown.
2. Apply sealant to the bottom of the foam closure and position it on the roof panel approximately 2" back from the edge of the flashing as shown.
3. Apply sealant to the top of the foam closure.
4. Install flashing as shown.
5. When more than one length of flashing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



## ENDWALL DETAIL



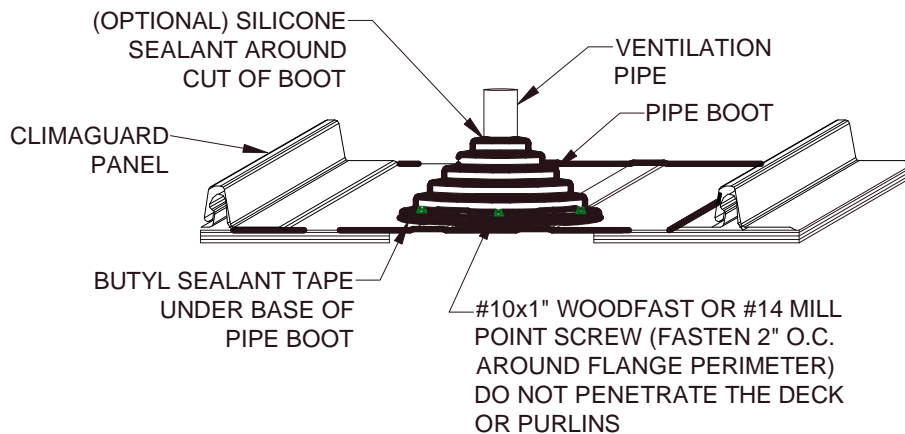
## SIDEWALL DETAIL



### 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 length of endwall trim is needed, a 6" minimum overlap is recommended with sealant between the lap.

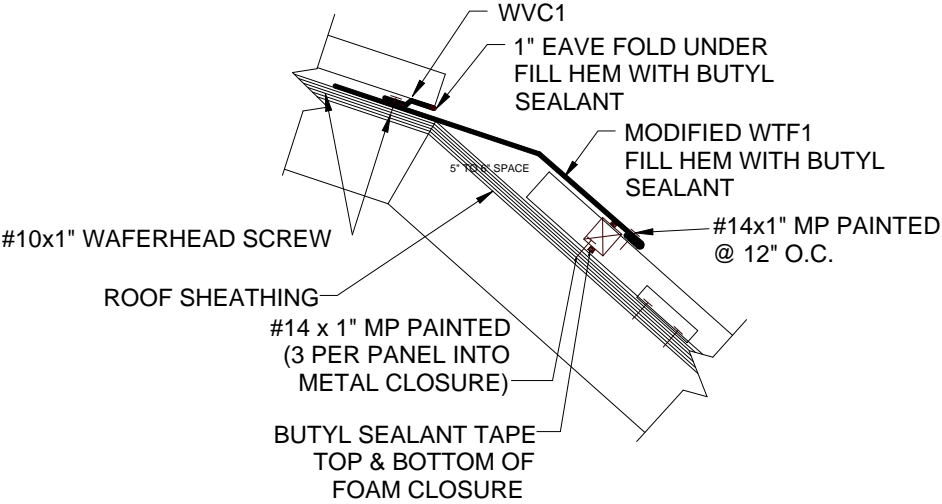
## PIPE FLASHING



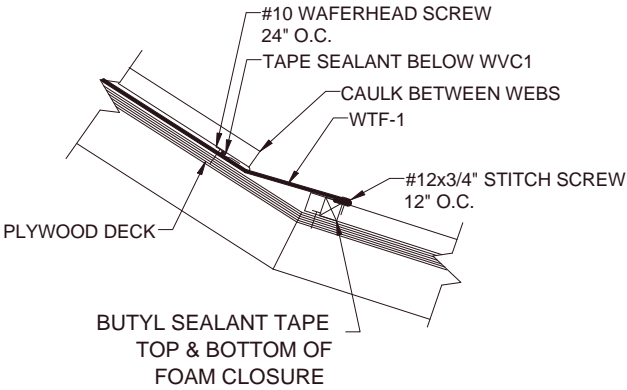
### Notes:

1. Cut the hole in the pipe flashing 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 #10 x 1 or #14 x 1 woodscrew fasteners 2" o.c. as shown.

# GAMBREL DETAIL



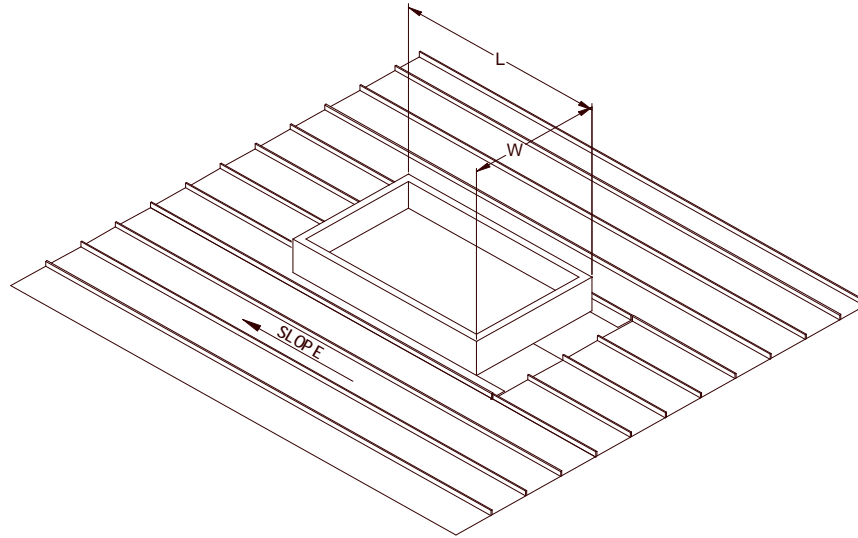
# SLOPE TRANSITION (WOOD FRAMING)



**Notes:**

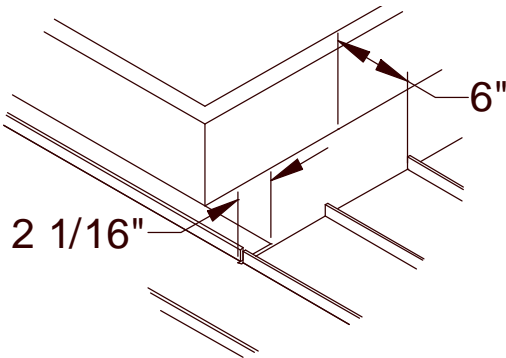
1. Roofing underlayment not shown.
2. **Bottom panels of the pitch change or transition must be installed first.**
3. Apply sealant to the bottom of the foam closure and set in place. Apply sealant to the top of the closure.
4. Install Pitch Change trim using stitch screws to each rib seam of the bottom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

## 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 S 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.

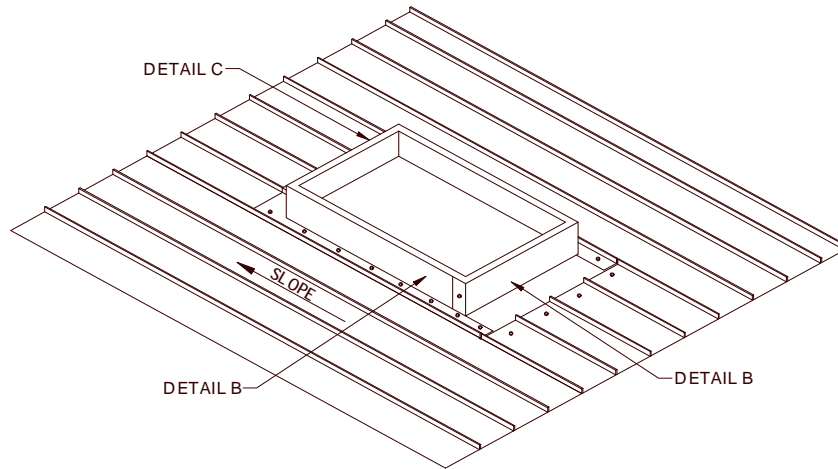


### Notes:

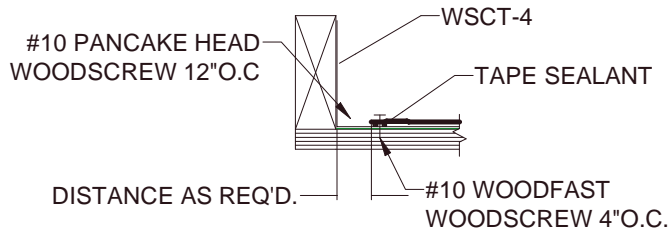
1. The skylight flashing will be 4" wider than the width of the curb (2" on each side).
2. Cut a 1/8" slot in the two uphill corners of the HORIZON S panels, slightly wider than 2" so the uphill flashing can slide through the two slots.

*Note: Contact Fabral regarding skylight details when skylight is downslope more than 10 ft. down from ridge. Applications where this is present may cause panel distortion due to thermal movement.*

# SKYLIGHT FLASHING PREPARATION (cont.)



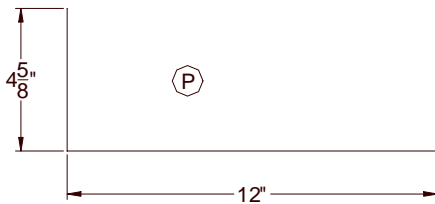
## SKYLIGHT FLASHING (SIDE)



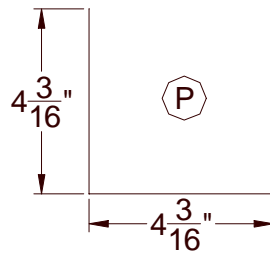
### Notes:

1. In reference to details A, B, and C, refer to page 25.

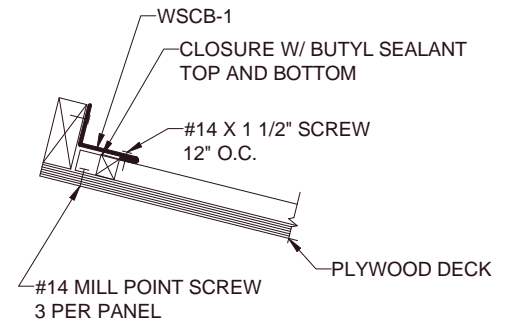
### SKYLIGHT TOP FLASH



### SKYLIGHT BOTTOM FLASH

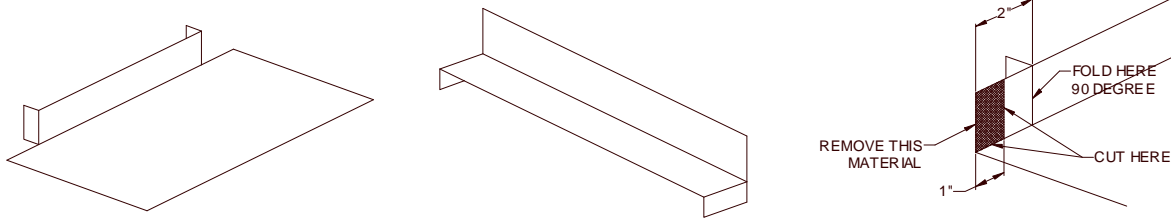


### SKYLIGHT DOWNHILL

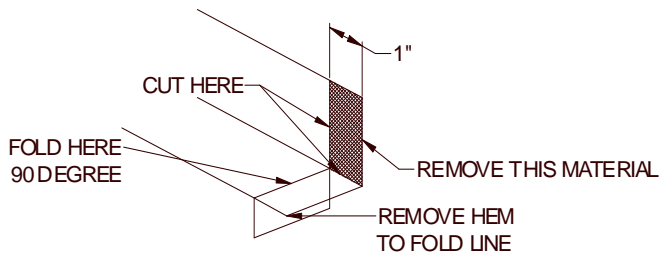


# SKYLIGHT FLASHING PREPARATION

## Detail A



## Detail C

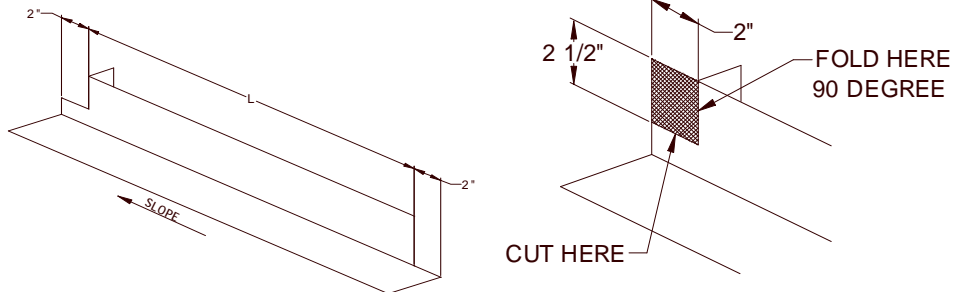


### Notes:

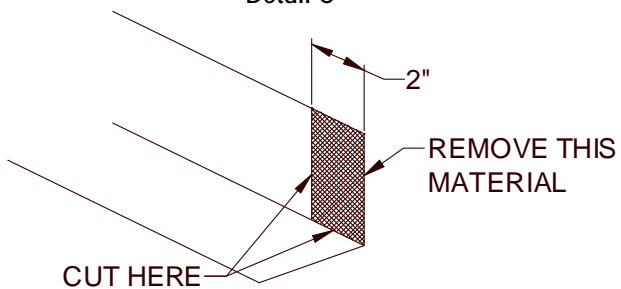
1. Trim both ends of the uphill and downhill sides of the skylight flashing as indicated.
2. Slide the uphill flashing into the slots of the HORIZON S roofing and apply liberal amount of sealant.
3. Assemble the skylight as indicated below and on page 24.
4. Trim and assemble chimney flashing similarly.

# SKYLIGHT FLASHING PREPARATION

## Detail B



## Detail C



### Notes:

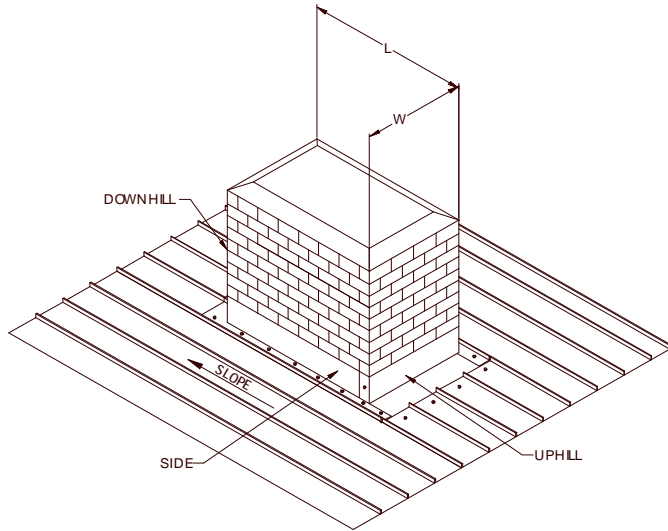
1. Trim and bend the right side skylight flashing as indicated.
2. Trim the left side in a similar fashion. (Keep in mind the up from the downhill ends.)

# CHIMNEY FLASHING

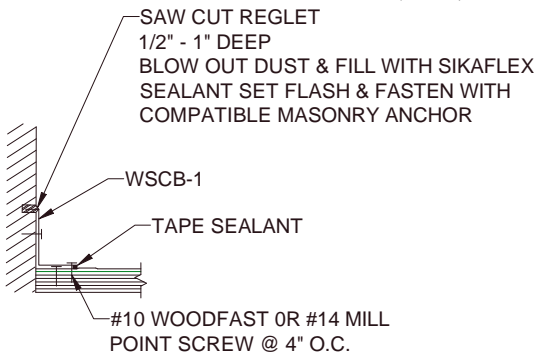
## Notes:

1. Procedures for the installation of Chimney Flashings are similar to the Skylight's (refer to pages 23-25).
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.

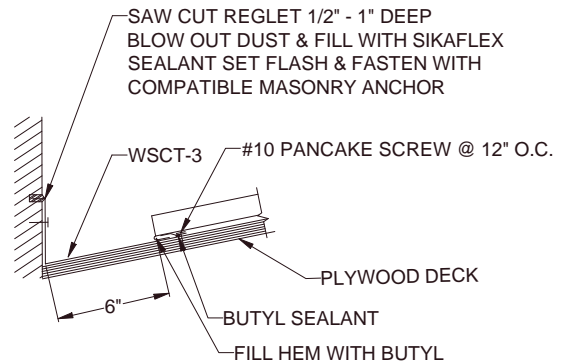
*Note: Contact Fabral regarding chimney details when chimney is located downslope more than 10 ft. from ridge. Applications where this is present may cause panel distortion due to thermal movement.*



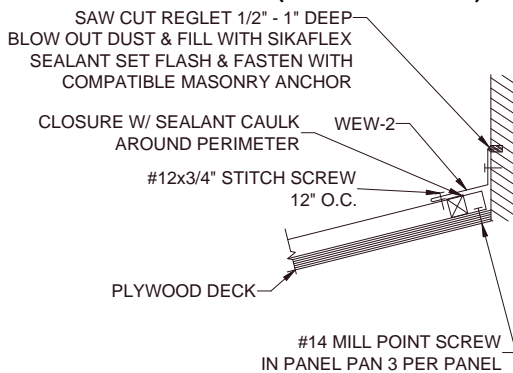
### CHIMNEY FLASHING (SIDE)



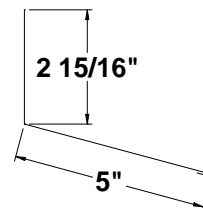
### CHIMNEY FLASHING (UPHILL SIDE)



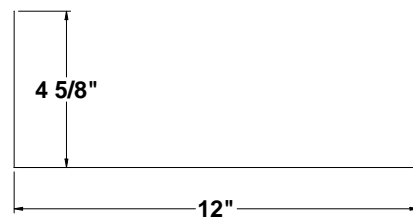
### CHIMNEY FLASHING (DOWNHILL SIDE)



### CHIMNEY (DOWNHILL)



### CHIMNEY (UPHILL)



## **HORIZON S TRIM PARTS**

See page 16 for Illustration of Trim Conditions

### **Key Terms**

#### **CHIMNEY OR SKYLIGHT**

See pages 23-26.

#### **EAVE TRIM**

This piece is used at the eave or gutter edge of the building, 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.

#### **FASTENERS**

##### **3/4" Stitch Screw**

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

##### **#14 x 1" Mill Point**

This fastener is used to fasten into panel near ridge, and can also be used for secure flashings and pipe boots.

##### **#10 x 1" Wafer Head Screw**

This fastener is used to attach roofing panels to the roof deck. (Used to fasten into HORIZON S fastener strip.)

##### **#9 x 1" WoodFast**

This fastener is used to fasten flashing to fascia boards at eave or gable.

#### **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.

#### **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 of different pitch meet; the top section being steeper than the lower section.

#### **W-VALLEY**

Used to flash the valley formed by intersecting roof planes.



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**Mixed Sources**  
Product group from well-managed  
forests and recycled wood or fibre

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