



# **SNAP LOCK**

**STANDING SEAM METAL ROOFING**

**INSTALLATION GUIDE**

This manual contains suggestions and guidelines on how to install Snap Lock Standing Seam panels with 1 ½" rib with a hidden fastener system. 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 designer/installer must be aware of, and allow for, expansion/contraction of roof panels. The details may require changes or revisions due to each project's conditions.

Panels must be stored in a dry, well-ventilated area. To keep condensation to a minimum, make sure panels are elevated at one end for runoff of any condensation that may occur. Do not store panels in direct sunlight prior to installation or in direct contact with the ground.

Do not walk on panel seams, only in the flat areas of the panels. Do not handle panels on extremely windy days as panels can become lifting objects and lift individuals off the roof or become airborne. Metal panels can be slippery when wet or dusty. Do not work when these conditions persist. Soft soled shoes will help minimize slipping and reduce damage to panel finish. Be aware of surroundings.

Warrantied Products- Painted standing seam panels come with a 40-year manufacturer's warranty, and Galvalume comes with a 25-year warranty. All trim is manufactured from the best grade stock of the color ordered.

Tri State Metal Roofing Supply is not at fault for any improper installation, voided warranty due to incorrectly installing the panels and/or trim. Damage caused to the building or its people due to improper installation is not the fault of Tri State Metal Roofing Supply and you as the customer and/or installer understand these conditions by using this guide. While we have made every attempt at accuracy in this manual, we are not responsible for typographic, printing, or technical errors.

## INSTALLATION SUMMARY:

Before you can install the panels, you need to install Underlayment (i.e. Felt Paper), Flyscreen, Eave Flashing, Valley Flashing, Prow Gable Flashing, and other flashings as conditions apply.

Roof longevity may be compromised, and warranty voided by installing incorrectly.

First Panel Installation: You may install the panels working from left to right or right to left. It is a matter of choice and convenience. Determine which direction the panels are to be installed before preparing the panel.

Align the upper (female) leg of the panels along the alignment line you made along the gable edge. Allow the panel to overhang at the eave edge 1" to 1-1/4". Apply the 1/4" bead of caulking along the eave flashing, position the panel and fasten the panel into place using the pancake screws. Be certain screw heads are level and flush to the screw flange or they may dent or show through the next panel.

Second and Successive Panels: Apply the bead of caulking on the eave flashing and place panels flush along the eave edge maintaining the overhang established on the first panel. Position the female leg of the next panel over the male leg of the panel previously installed and lock the panels into place using light hand pressure, foot pressure or tap in place with a rubber mallet. Lock the panels from the bottom up. When the rib is locked into place and in the proper position, fasten the panel into place with the screws. Repeat for successive panels.

## KEEP MATERIALS DRY

Paint and finishes of the panels and trim are designed to withstand severe rain and wet weather conditions. However, they are not designed to be in continuous contact with water for long periods of time. **Damage will result if uninstalled panels or trim are allowed to remain wet in storage.** Be sure to store material that will not be installed immediately in a dry location. Wet material should be air-dried and restacked if installation is going to be later.

## Standing Seam Trim

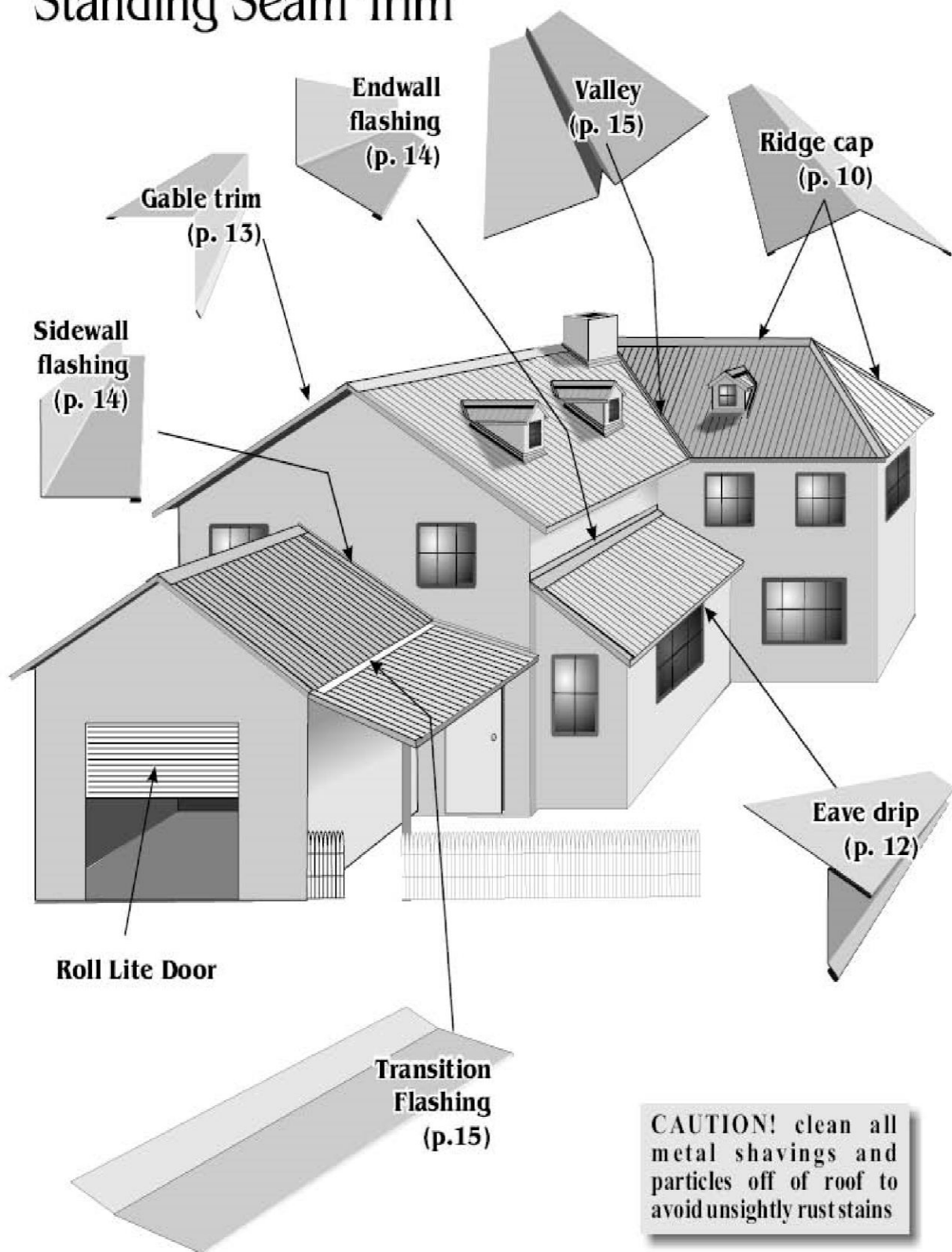
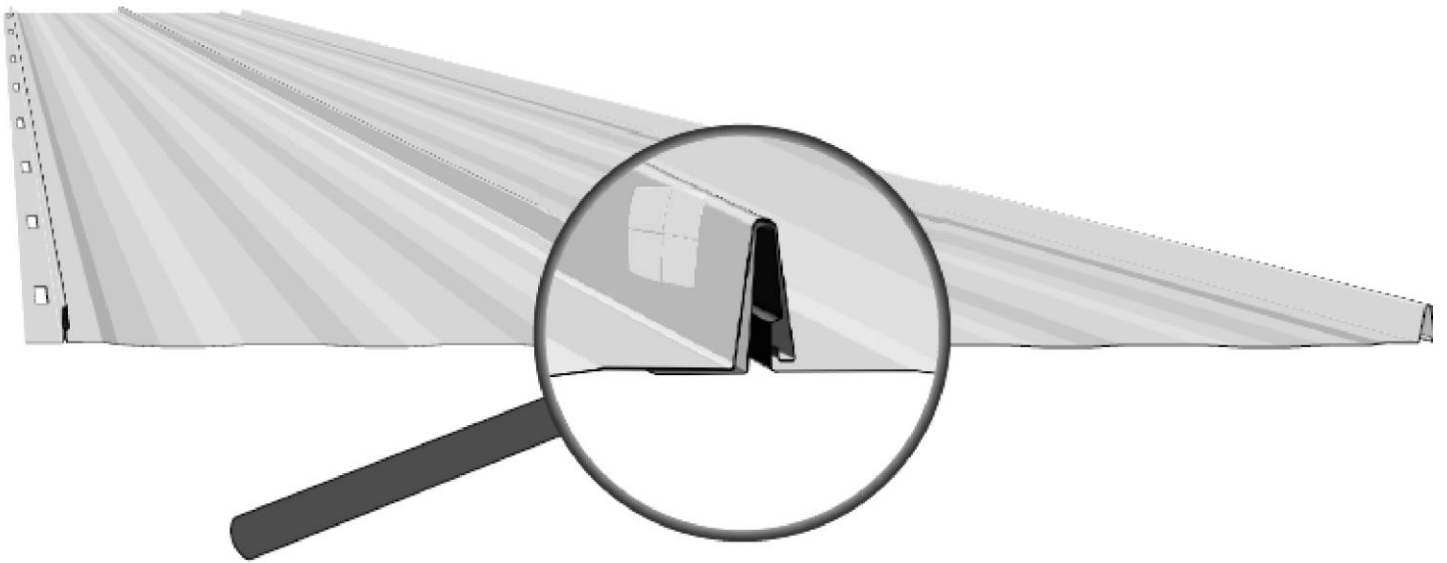


Fig. 5 Roofing trims and flashings are named by the location or function of that particular piece on the building.



Standing Seam panel has  
1" high "nail strip"

## ORDERING AND APPLYING TRIM

The most common flashing for standing seam roofing is the ridge cap. This is used at the peak of the roof where two opposing roof slopes join at a peak. Ridge cap is attached to the roof with z-flashing.

Other flashings include but are not limited to:

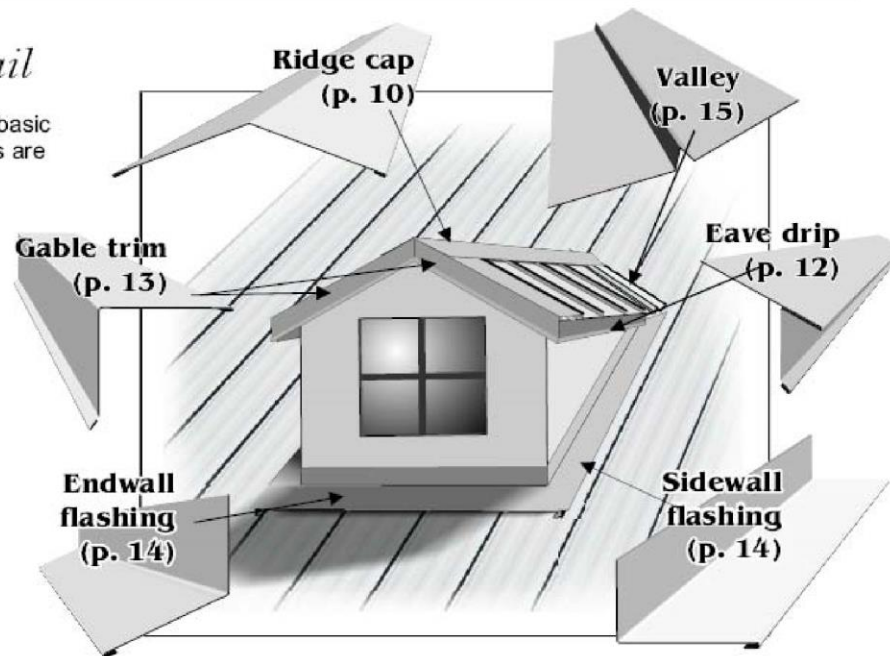
- Gable Rake: runs the sloped ends of the roof along the 'rake'.
- Eave Drip/Drip Edge: provides a surface for the attachment of the lower end of the panel, covers the wood, and allows for water runoff.
- Z-Flashing: runs along the ridge of the roof allowing for a hidden ridge fastener. Typically cut into sections to fit between ribs.
- Transition: Used when the roof slopes into another pitch.

For details about the application of each type of trim see the details on pgs. 10-15.

Roof pitch must be given when ordering ridge caps, endwalls, valleys, and eave drip. When a steeper roof slope meets a lesser slope, both slopes should be mentioned when ordering transition flashing.

### *Dormer detail*

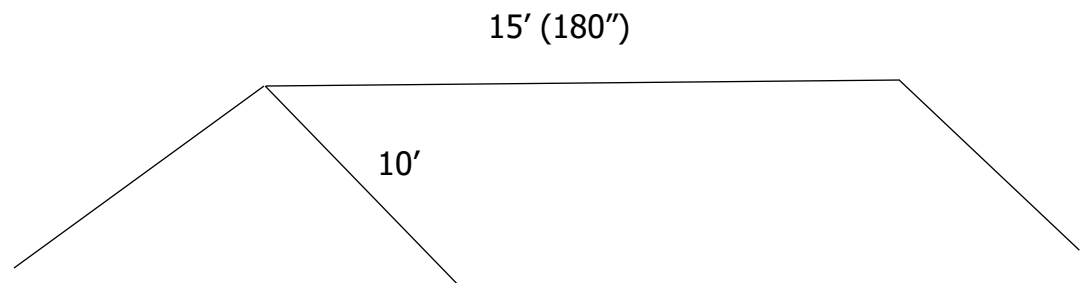
*Fig. 6* Most of the basic standing seam trims are used on dormers. The bottom corners of the dormer are similar to the placement of sidewall and endwall flashings on chimneys.



## ORDERING PANELS AND SCREWS

Panel lengths should fall 2" short of the ridge and should not extend 2" past the eave when being attached to the extended eave. Care should be taken when ordering panels to avoid having to take corrective measures after purchase.

Snap Lock Standing Seam Panels are 15 ½" of coverage, or 1.29'. To find out how many panels you need, follow the example below.



Panels= 15.5" of coverage (1.29')

(Ridge)/ (Width of Panel) = # of panels

OR

180"/15.5" =11.6 panels (round to the nearest whole panel times 2 for the pitched roof).

Panels: 12 panels/side (24 total) @ 10' (2" down from ridge with 2" of overhang)

**\*\*\*IF YOU ARE NOT LEAVING SPACE BETWEEN THE RIDGE AND THE PANEL, PANELS NEED TO BE 2" LONGER TO ACCOMMODATE FOR THE EXTENDED DRIP EDGE\*\*\***

Special, flatheaded screws called pancake screws (woodgrip or self-drill) are used to attach the panels into the wood decking or metal framing. The same screws fasten the Z-Flashing and Eave trim.

Color matching screws are recommended for attaching the ridge cap, endwall, sidewall, gable, transition, and other flashings that attach over the panels.

## **Installation of Panels**

We recommended at least a 3/12 pitch for standing seam panels to ensure proper water drainage. This means the minimum slop of the roof requires 3" of rise per foot.

Before you can install the panels, you need to install Underlayment (Felt/Ice and Water), Flyscreen, Eave Flashing, Valley Flashing, Prow Gable Flashing, and other flashings as conditions apply.

The lower end of each panel is trimmed, and the hem is pre-bent prior to panel installation (pg. 9). The starter panel is laid out with the overlap side against an eave or wall. The hem is then pulled up tight and compressed around the extended eave drip. Pancake screws are applied to the "nail strip" of the standing seam panels before the next panel is installed.

Care should be taken that the started panel is square with the roof since all panels will follow the layout. The bent eave end of the next panel is then pulled tight against the drip edge, pressed down over the first end, securing the nail strip, and so on. Each panel is always screwed down before the next is laid over. The unfastened length against the gable or wall is secured (then or later) with flashing. Either gable trim or sidewall, depending on the layout of the roof.

### **General Principles of a Typical Installation—Hidden Fastener System**

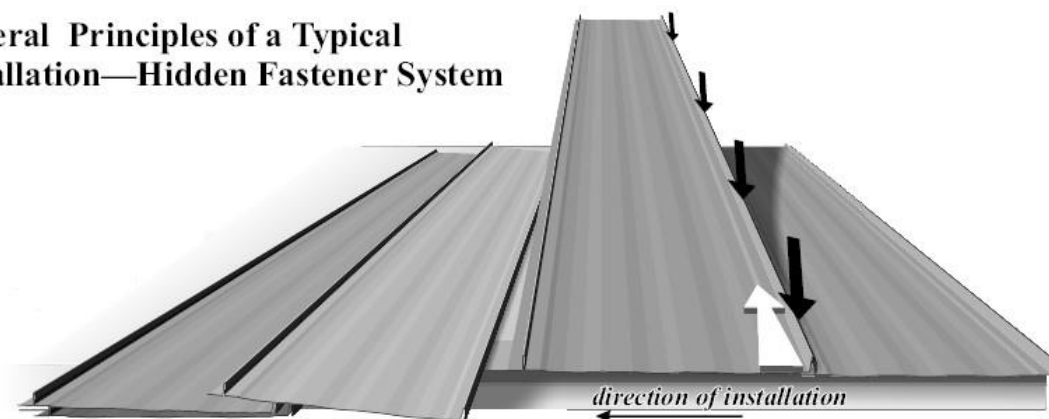
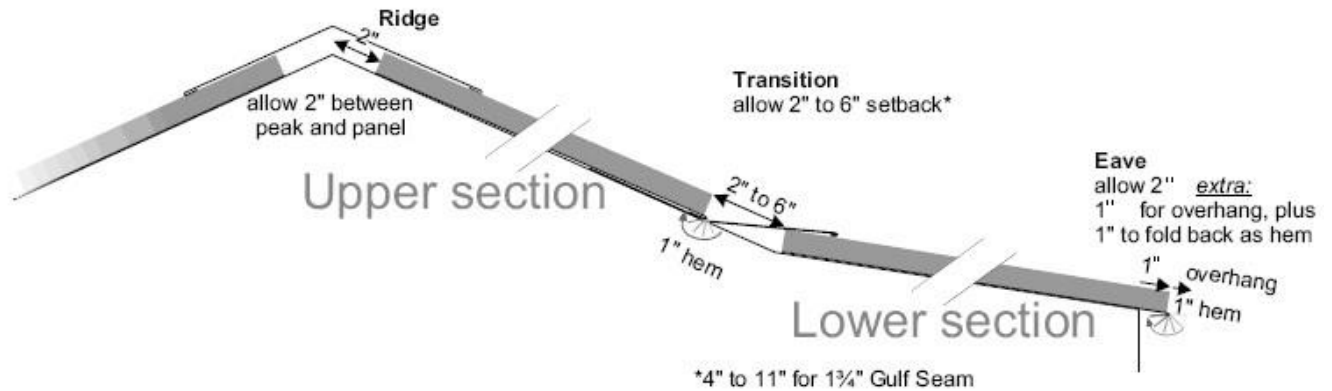


Fig. 7 Each panel should be installed over the extended eave drip, pressed down and attached with the appropriate fasteners, and eave hems finished before installing the next panel.

**Screws should be centered in slot and should not be tightened completely to allow for panel expansion.**





*Fig. 8* Allowances must be made when ordering panels to allow for hemming of panels, overhang, ridge venting, and errors.

Where the deck makes the transition from higher to lower pitch, panels should be ordered from the transition point downward allowing for drip edge (as pictured) and upper panels must allow for a setback away from the transition point depending upon the roof pitch. The less the difference in pitch, the greater the setback and the more the need for a longer length on the lower side of the transition flashing (see pg. 14 for details).

The general principles of attaching the upper and lower edges of the standing seam roofing are most thoroughly covered in the sections on "drip edge" and "ridge cap" (pg. 9 & pg. 11).

## TRIMMING AND CURRING STEEL PANELS

**Cutting Horizontally:** The best devices for cutting steel panels across the profile are circular saws, nibblers, and various shear attachments for drills. Hand operated snips also work. Be advised: Nibblers and metal blades on electric saws do tend to leave hot metal particles that can burn the paint surface or leave rust marks on the panels and trim. It is best to cut from the bottom side of the panels to minimize this from occurring. Take care to remove all such particles from the surface immediately.

**Cutting Vertically:** The same methods can be used; however, some people prefer the following. Note carefully where the panel is to be cut and using a straightedge, score deeply down the length of the panel with a sharp pointed utility knife. Fold the panel back and forth along the score mark until there is a break. If done properly, the break will be clean.

## KEEP MATERIALS DRY

Paint and finishes of the panels and trim are designed to withstand severe rain and wet weather conditions. However, they are not designed to be in continuous contact with water for long periods or time. **Damage will result if uninstalled panels or trim are allowed to remain wet in storage.** Be sure to store material that will not be installed immediately in a dry location. Wet material should be air-dried and restacked if installation is going to be later.

## HOW TO FIGURE AND APPLY SCREWS

Standing seam roofing is particularly noted for its use of hidden fasteners. Pancake screws are used because they are strong yet have a low profile that does not interfere with panel and trim installation. For panels, one pancake screw is required every 12" to 24", depending on wind requirements.

12" spacing # screws = linear ft of panels

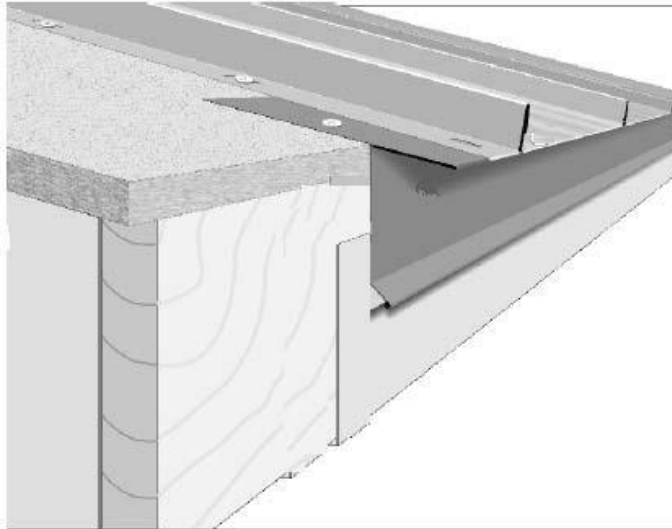
24" spacing # screws = linear ft of panels / 2

For solid decking, at least 1/2" structural plywood or 5/8" OSB supported on rafters at a maximum of 24" on center is required.

## **INSTALLING TRIM**

### **DRIP EDGE & FASCIA**

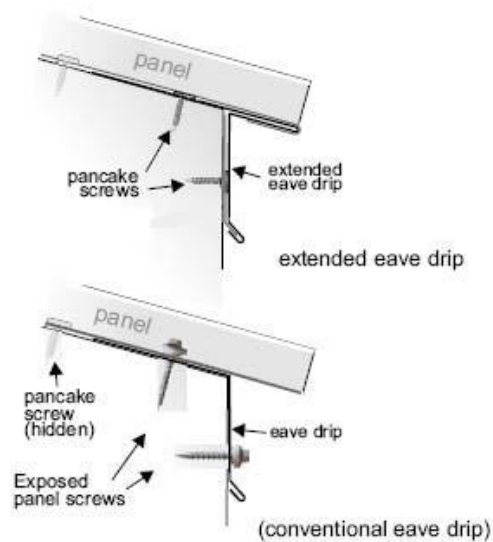
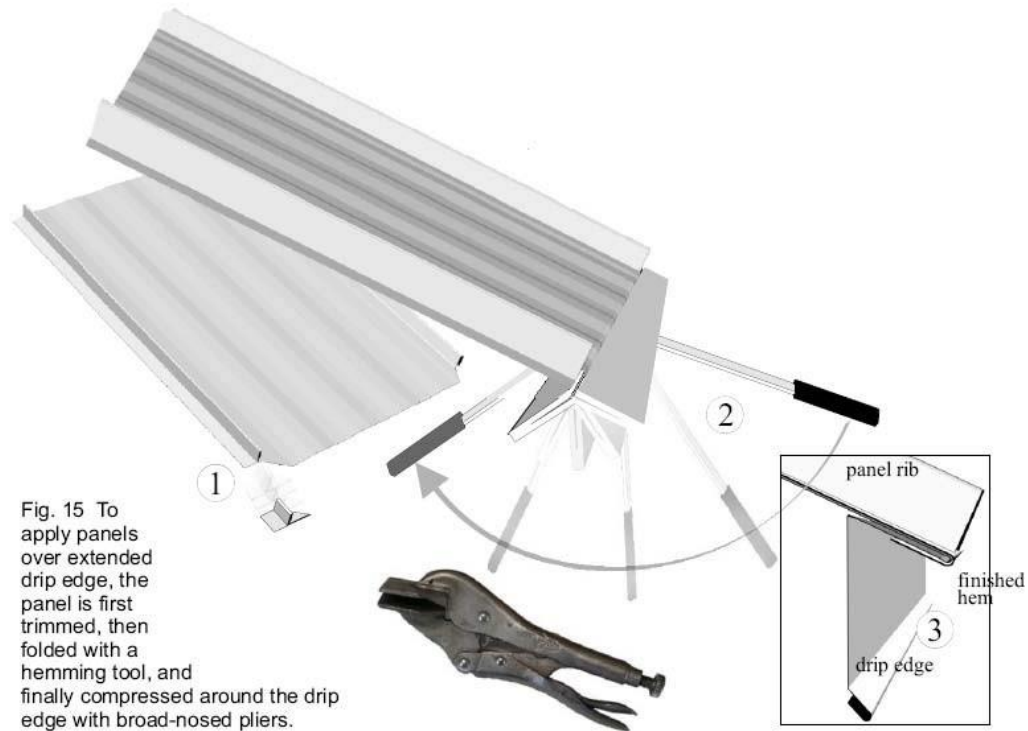
Fascia and extended drip edge (FHA Drip Edge) provide a protective covering for the fascia boards and edges of the roof decking at the eave of the building.



Layered view of eave, showing fascia and extended drip edge, and panel (which is bent on site by installer)

Panels are trimmed in a specific manner (see diagram below), bent with a hemming tool, and crimped around the extended eave drip, securing the lower end of the panel. Screws applied to the "nail strip" of the panel secure the rest of the length.

When ordering, care must be taken to specify the correct pitch of the eave drip to avoid unnecessary effort in applying the trim.



Some installers and DIYers elect to install the conventional eave drip (as shown in the second diagram above) along the eave of the building. It is a much easier procedure and simplifies installation, allowing for a much faster application of the roofing.

## GABLE FLASHING

Gable trim serves a similar purpose to the eave but acts mainly to protect the exposed edge of the gable end of the building.

One option for installing the gable trim is to attach a Z-Flashing that runs parallel to the panel ribs and is in turn, fastened to the roof with screws (see figure 16 below). Our recommended option in the gable trim is to use the **step rake**, which simplifies installation by allowing exposed screws at intervals along the length of the roof. **Either type of gable must be fastened with exposed screws to the eave side** (see diagram below).

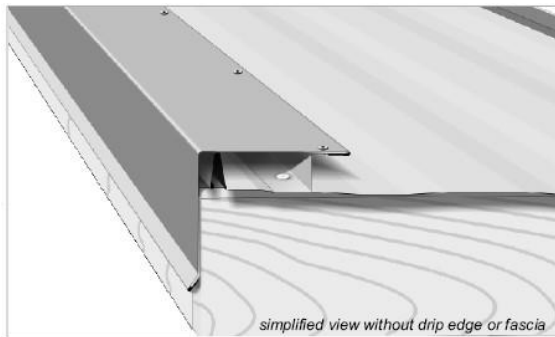


Fig. 16 Standard Gable trim attaches to the z-flashing

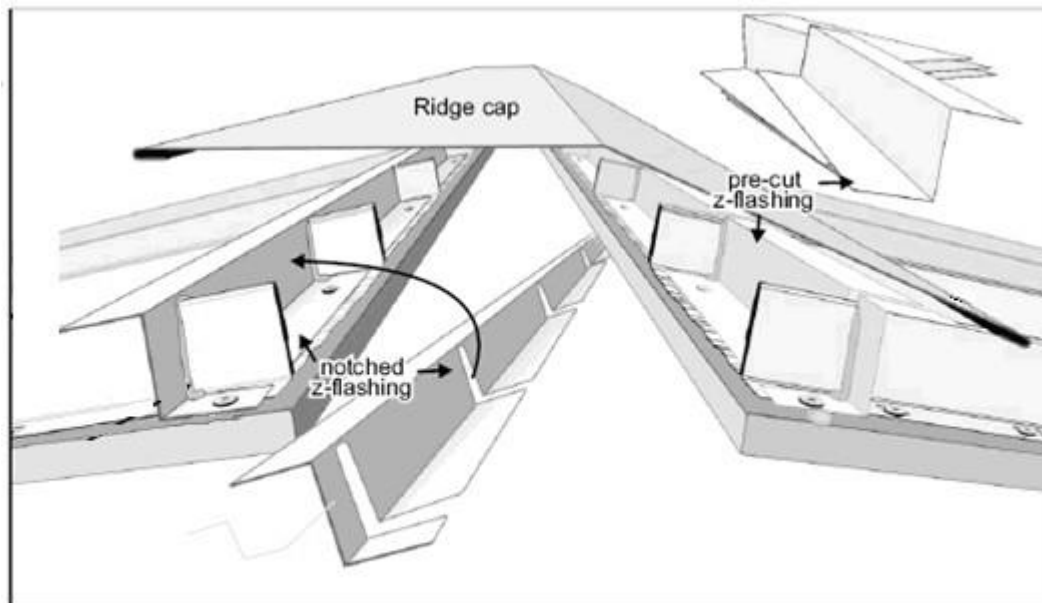
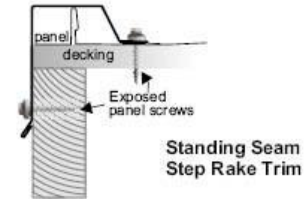
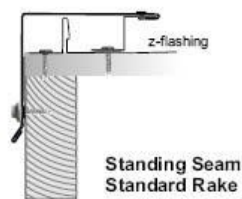


Fig. 10 To attach ridge caps, z-flashings are either notched (left) or cut into pieces (right) and mounted with screws at the upper ends of the panels.

## RIDGE CAP

The ridge cap is used to seal the upper point at which two slopes meet. This can be along both the ridge of the roof, as well as covering the hip and ridge of dormers.

Attachment to the roof is most generally accomplished using a Z-Flashing. Z-Flashings are either notched or cut to fit between the panel ribs. They are then attached with pancake screws to the roof through the panels. Ridge caps are in turn, attached with trim screws into the Z-Flashing.

Whether the Z-Flashing is notched, or cut to length, gaps should be kept to a minimum. When used on the hip of a roof, Z-Flashing is cut or notched at whatever widths are appropriate for the pitch and cut of the hip.

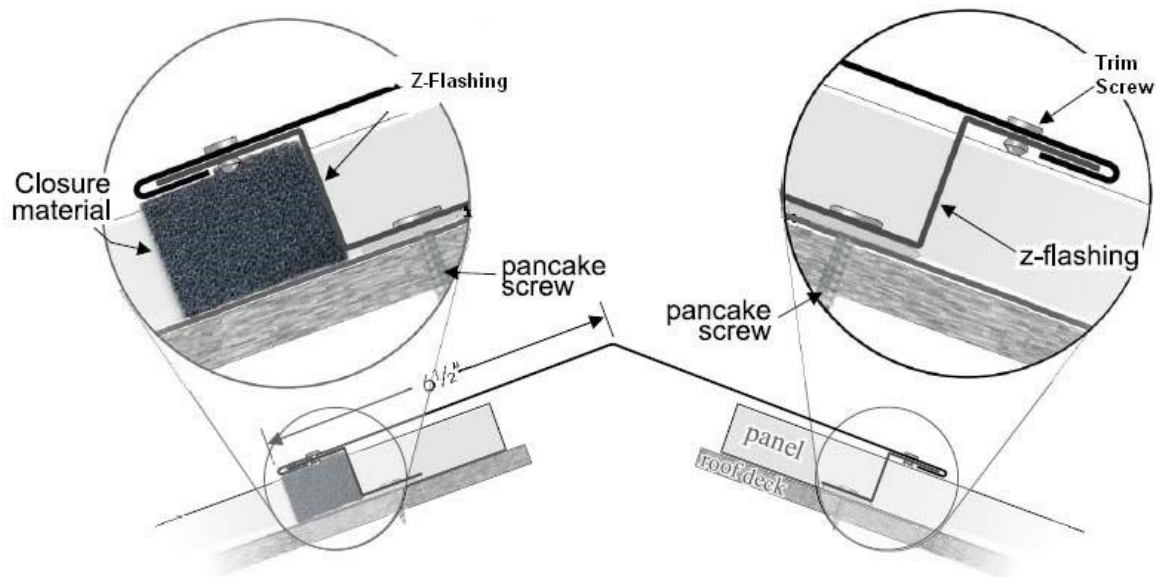
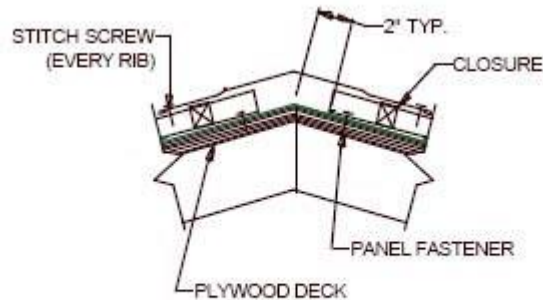


Fig. 11 Ridge caps can be installed as vented (using vent material) or sealed (using z-flashing), as shown also in Fig. 12.

When attic ventilation is desired, a Profile Vent can be used in place of Z-Flashing. Closure material is inserted between the ribs and sandwiched between the panels and ridge cap. The ridge cap is then attached with trim screws through the ridge and into the ribs of the panel (see diagram below).



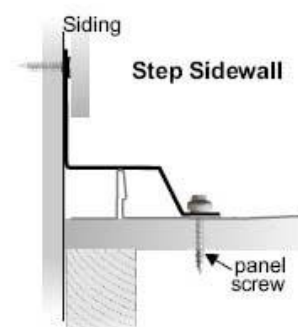
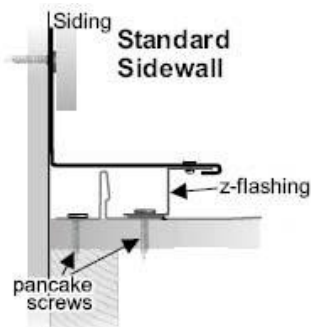
The decking must be cut at the ridge to let out hot air. Vent material is either a sponge-like or fibrous material that prevents wind driven rain, insects, leaves, and other debris from entering the attic. At the same time, it allows the release of hot air out of the attic. While there typically is a 'sticky side' to the vent material, installation may require caulking to hold the material in place.

## SIDEWALL FLASHING

Sidewall installation is like that of gable trim. As with the gable, one option is attaching the sidewall with a Z-Flashing over the roof panel. We recommend the **step sidewall** that mounts directly to the roof with trim screws.



Fig. 17 Standard Sidewall attaches to z-flashing with screws



## ENDWALL FLASHING

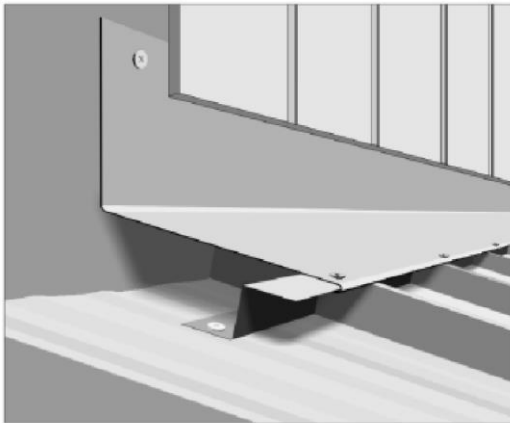
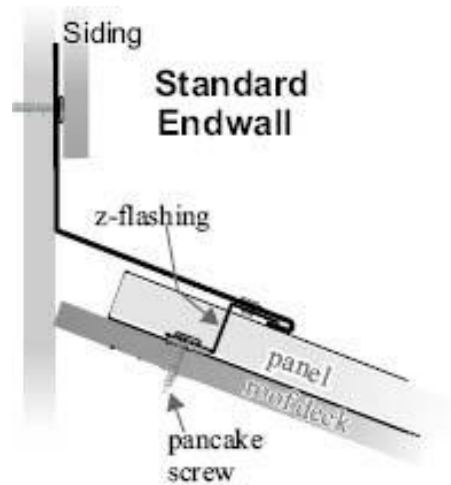


Fig. 18 Endwall flashing is applied where the upper slope of a roof meets a wall.



Installation of the endwall combines principles like those described for the sidewall and ridge cap.

Z-Flashing is either notched or cut in lengths between ribs and attached with screws. The end wall is then attached to the Z-Flashing with trim screws. **Specify pitch when ordering.**

## PREFORMED VALLEY

Panels ending in valleys **must be cut diagonally** and screwed down to the roof through the valley with trim screws.

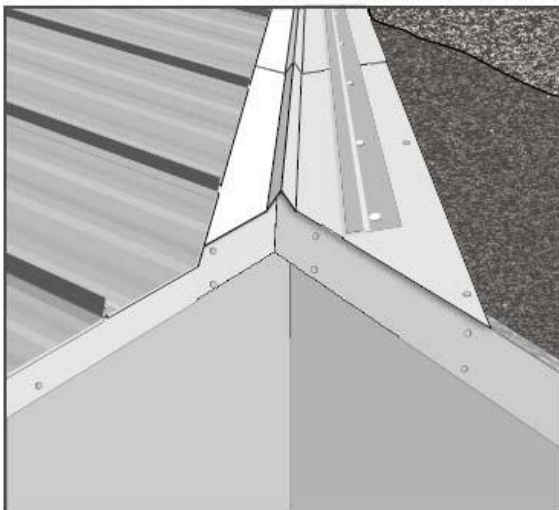
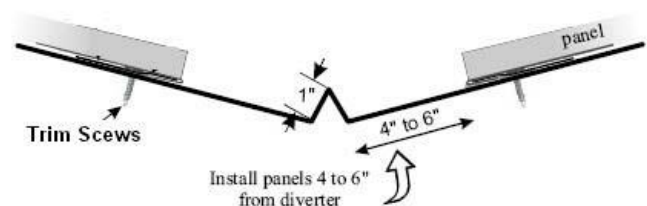


Fig. 19 Diagonally-cut panels are mounted on the surface of the valley.

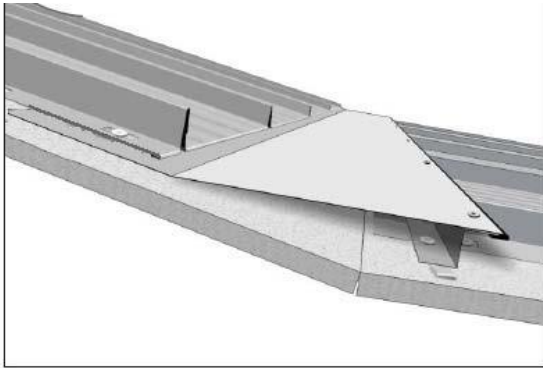




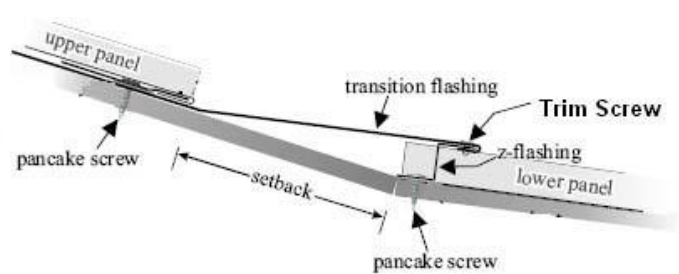
## TRANSITION FLASHING

Transition flashing is required when a roof makes a change from a steeper pitch to a lesser pitch. The panels on the upper slope are attached in the same way as valleys. On the lower side, the transition flashing extends over the panels and is attached to Z-Flashing with trim screws.

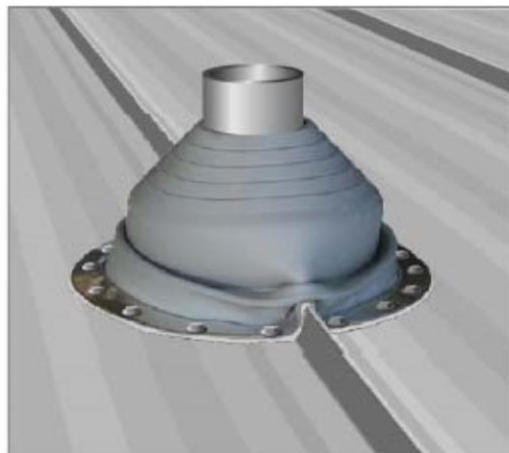
**Specify both upper and lower pitches when ordering.**



*Fig. 21* Transition flashing combines the attachment techniques of valleys (top of page) with that used with ridge caps (p. 10). Notice the panel set-back that allows proper watershed from the upper panels onto the lower. The less the difference in pitch, as well as the flatter the roof, the greater the amount of set-back, and the more need for a longer lower side on the transition flashing.



## PIPE BOOTS AND ACCESSORIES



Pipe boots provide a water-tight seal around roof vents and come in a variety of sizes. They seal with caulk under the base and around the pipe, conforming to the shape of the panel ribs.

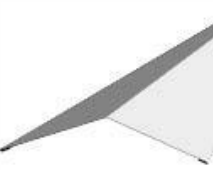
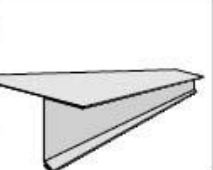
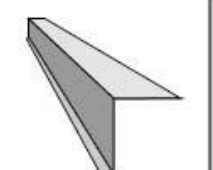
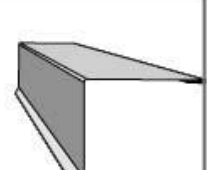
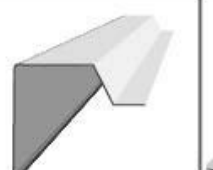

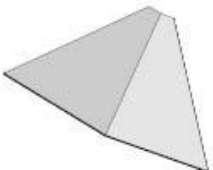

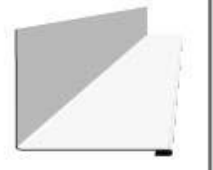
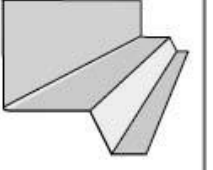
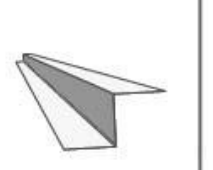





Other accessories include electrical boots, touch-up paint, butyl tape, ice and water, felt underlayment, nails, and more. Be sure to ask about needed accessories when ordering.

### Guide to Misc. Accessories

<i>item</i>	<i>application</i>
pipe boot	Fits over vent and heat pipes. Available also in <i>heat-resistant</i> boots.
electrical boot	Fits around pipes with inaccessible tops (such as weatherheads).
touch-up paint	Hides scratches and mars encountered in installation.
butyl tape	General purpose low-cost sealant, used on panel laps and under trim.
TurboShear HD <sup>®</sup>	The best tool for cutting metal roofing panels. Great for angle cuts.
low profile insulation	Greatly reduces radiant heat when installed under panels.
Pancake screws	Used in all applications attaching metal to wood. 1", 1½" sizes.
Woodgrip <sup>®</sup> screws	Used in applications attaching metal to wood. 1", 1½" sizes.

## SUMMARY OF TRIMS AND FLASHINGS

<i>item</i>	<i>Summary of Trims and Flashings special order information</i>
Ridge caps	State roof pitch when ordering. Attached with Z-flashing
Extended Drip Edge	Specify roof pitch when ordering.
Gable flashing	Use butyl sealant between step rake and panel. Butyl tape is optional, you can use caulk also
Valleys	Specify pitch when ordering.
Sidewall	Use butyl sealant between sidewall flashings and panel. Butyl tape is optional, you can use caulk also
Endwall	Specify pitch when ordering. Attaches with Z-flashing
Transition flashing	Specify pitches of both roof sections.

					
Ridge cap (pg. 11)	Extended eave drip (pg. 8)	Eave drip (pg. 8)	Gable rake (pg. 9)	Step rake	valley (pg. 8)
					
Transition flashing (pg. 10)	Endwall (pg. 10)	Sidewall (pg. 9)	Step Sidewall	Z-flashing	
					
Pancake screws	Woodgrip® Screws	Electrical Boots	Pipe Boots (pg. 11)	Butyl Tape	