

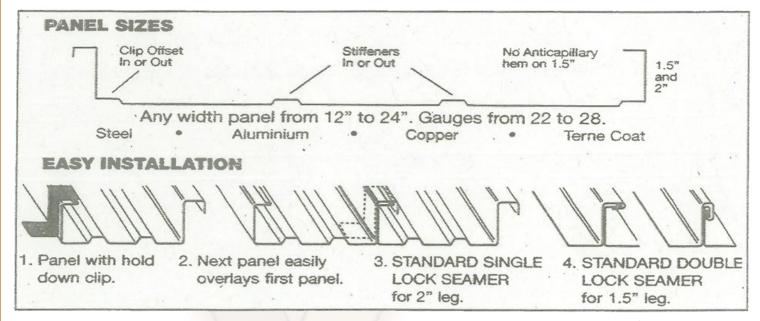
Standing Seam Panel and Trim Installation Guide

Standing seam panels are a hidden fastener system utilizing a locking rib or a mechanical attaches with specially designed clips. Panels come in a width of 12" to 24".

This manual will assist you with the application of metal roofing and siding products purchased from Versaframe Inc. It cannot possibly answer all installation questions as every project differs, but it will provide the basics of installing metal roofing and siding sheets in most common applications. Versaframe (the manufacturer) also provides a knowledgeable and well-trained support staff to assist with any install questions our customers have.



ROOFING PANELS



- 1) STANDING SEAM SYSTEM: The standing seam is to be an integral part of the profile, with a continuous job site seamed rib to ensure positive water tight interlocking connection. Standing seam profile to be 1.5" high or 2" high.
 - (a) Roof panels shall be of sufficient lengths to eliminate horizontal joints.
 - (b) Hold down clips shall be mechanically locked in the seam.
- 2) HOLD DOWN CLIP SYSTEM: Hold down clips to be located vertically 24" o.c. for lower 4 feet of system, thereafter 60" o.c.
 - (a) Clips shall be of a fixed type if panels are less than 26' long.
 - (b) When panels are longer than 26', fixed clips shall be used only at one point in the panel system. All other clips shall be sliding or movable hold-down clips to allow expansion and contraction of the metal.

Step 1) RECEIVING MATERIAL

Review the material list to ensure you are familiar with the pieces that arrive

It is the responsibility of the installer to unload material from the delivery truck

The installer shall be responsible for providing suitable equipment to unload delivered material

After receiving material, check the condition of the material, and review the shipment against the shipping list to ensure all materials are accounted for. If damages or shortages are discovered, it should be noted on the Bill of Lading at the time of delivery. A claim should be made against the carrier as soon as possible. Versaframe is not responsible for any damages or shortages unless they are documented in writing and presented to Versaframe Inc. within 48 hours.

Step 2a) HANDLING MATERIAL

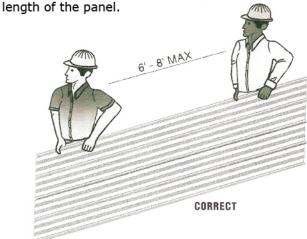
Handle bundles and individual panels with care to avoid damage.

Wear clean, non-marking, soft-soled shoes when walking on the panel to avoid damage to the finish. When walking on the roof panels is unavoidable, walk only in the flats of the panel. Walking on the ribs can cause damage to the panels.

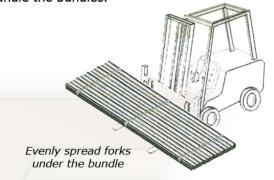
When handling painted steel, care should be taken to prevent scratching of material. Clean gloves should be worn at all times to prevent material damage and injury.

Handling of individual panels should be done carefully and properly to avoid bending and damaging. Panels should be carried by grasping the edge of the panel to buckle or bend in the centre.

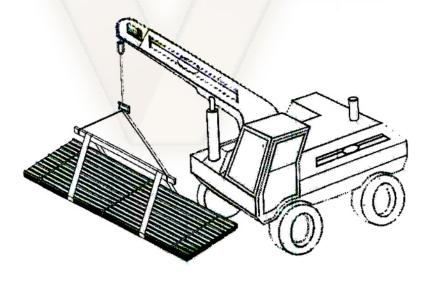
Normally, individual panels can be handled by people placed every 6'- 0" to 8'- 0" along the



Care in the handling of the standing seam panels from the time of arrival at the building site through their actual placement on the structure requires normal precautionary measures to prevent damage to the panels. This may involve the use of a spreader bar for a crane or the proper use of a forklift to handle the bundles.



Crane - a crane should be used when lifting panels with lengths greater than 20'-0". Please be sure to utilize a spreader bar to ensure the even distribution of the weight to the pick-up points. As a rule when lifting panels, no more than 1/3 of the length of the panel should be left unsupported. Never use wire rope because this will damage panels.



CAUTION

Improper loading and unloading of bundles and crates may result in bodily harm and/or material damage. VersaFrame is not responsible for bodily injuries and/or material damages resulting from improper loading and unloading.

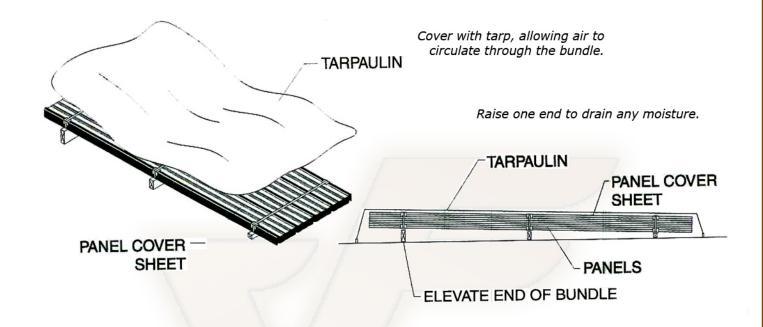
Step 2b) STORAGE

Store panels and other material in a dry, well ventilated area away from traffic.

Storing panels in a wet condition can cause deterioration of the panels

If moisture has formed, the panels should be unbundled, wiped dry and allowed to dry completely.

Bundled sheets should be stored high enough off of the ground to allow for air circulation and prevent contact with accumulating water. Elevate one end of the bundle to allow any moisture to run off the panels. Versaframe recommends covering the bundles with a tarpaulin. Do not use tight fitting plastic-type tarpaulins as panel bundles covers. While they may provide protection from heavy downpours, they can also retard necessary ventilation and trap heat and moisture that may accelerate metal corrosion. If panels are to be stored in possible bad weather, we suggest they be stored inside. Extended storage of panels in a bundle is not recommended. **Under no circumstances should the sheets be stored near or come in contact with salt water, corrosive chemicals, ash, or fumes generated or released inside the building or nearby plants, foundries, planting works, kilns, fertilizer, and wet or green lumber.**



Step 3) TOOLS REQUIRED

Before starting have the following tools available and in good working condition:

- Screw Gun 1/4" and 5/16" Hex Head socket
- Snips three pair required for left edge, right edge, and centreline cuts
- Chalk Line
- Caulking gun and caulking
- Marking pencils or scratching tool
- Utility knife for Misc. cutting
- String line for general alignment and measuring
- Tape measure (minimum 25')
- Vice grip pliers, both standard and duckbill type
- Hammer
- Safety gloves
- Ear plugs
- Pop rivet gun

Optional Tools:

- Electric shears for metal cutting
- Electric drill to drill holes when necessary c/w bits

Cutting - Steel roofing and trim should be cut with nibblers, tin snips or a profile shear. Although VersaFrame Inc. does not advocate the use of a saw, the reality is many people use a power saw in some manner. There are two concerns when using a saw:

First, be sure that no burns are left on the ends of the panel. The rough edges are not protected and will rust.

Second, the fillings coming off the blade are hot and will adhere to surface of the panels and theses will rust. Be sure all filings are removed from the surface as they will rust and pit the surface of the sheet.

Step 4) Roof Preparation

Versaframe panels are designed to be installed over open framing, and / or directly over a wood substrate (Minimum 5/8") with a minimum 15lb felt.

For your roof to provide years of service prevent wood decay and simplify the task of application, the roof must be properly prepared. If your Job is a re-roof with irregular surface or has any type of debris, it needs to be cleared off before you start the job. The underlayment should be checked at this time, and any decayed lumber must be replaced. The foundation of your roof should be sound.

When installed, panel distortion may occur if not applied over properly aligned and uniform substructure.

Galvanized and galvalume panels should not be in contact with, or subject to, water runoff from copper, lead or uncoated steel materials.

Condensate water from air conditioning units typically contains dissolved copper. This condensate should be discharged through a plastic pipe extended beyond the edge of the roof.

Always check with local building codes prior to all installation for any additional requirements that may be specific to your area.

Underlayment

Standing seam roofing can span up to 2 foot on centre, and still fall within most loading requirements.

We at Versaframe Inc recommend that standing seam be installed on a solid underlayment.

The building owner will be happier with the application for three main reasons:

- 1) **Aesthetics:** A standing seam roof system tends to telegraph whatever the underlayment is. Although "oil canning" with steel cannot be 100% eliminated, flat underlayment will greatly reduce the possibility.
 - 2) Sound: It makes sense that if steel roofing is applied onto a solid surface, there will be no dead air space for the sound of rain to reverberate. You should not have a "noisy metal roof", if it is applied on a solid surface.
 - 3) **Maintenance:** A solid underlayment makes it much easier to walk on your roof without worrying about denting the product where you step. With standing seam, you have no exposed fasteners to know where your support would be if using purlins.

Note: Safety Considerations

- Never use unsecured or partially installed panels as a working platform.
- · Metal roofing panels are slippery when wet, dusty, frosty, or oily.
- · Do not walk on the panel seams.
- Always be aware of your position on the roof.
- Wear proper clothing in order to minimize the potential for cuts, abrasions, and other injuries.
- Use care when operating electrical and power equipment.
- · Roof installation on windy or stormy days can be dangerous.
- · Always have at least two people working in case someone needs to call for help.

Use Fall Protection Equipment

WORK SMART. WORK SAFE.

Snow Conditions and Standing Seam Roofing

Metal roofing has traditionally been very good roofing for geographical areas that are prone to high volumes of snow. There are few recommendations that Versaframe Inc. Would like to make concerning snow and your standing seam roof.

We recommend that an ice and water shield underlayment be used on eave lines and in valley areas on your roof. This underlayment is designed to protect your roof in case of any ice-damming problems. There are many of these types of underlayment on the market. Versaframe Inc. Has one called ice and winter shield that works very well. Ask Versaframe Inc. For specification sheets and proper installation methods.

Installers should install snow and stops above entry areas and walkways. This prevents snow from avalanching off the roof and causing harm to people or property.

Installers should take proper precautions to make sure that all pipes and chimneys are not ripped off their roof when snow and ice slides of. Here are a few ideas for you to consider:

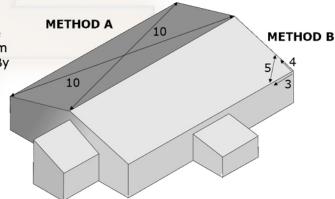
- Re-plum your pipes so that they are coming up through the ridge of your building.
- Use heavy-duty pipes and extensive guy wires for support.
- Build and flash crickets behind all pipes

We cannot possibly anticipate all problems that could be associated with a large amount of snow. These ideas should help eliminate the majority of snow-caused problems.

Whether installing over new or existing roof, the installer should check the roof deck for squareness before installing panels. Several methods can be used to verify square ness of the structure for proper installation of the panels.

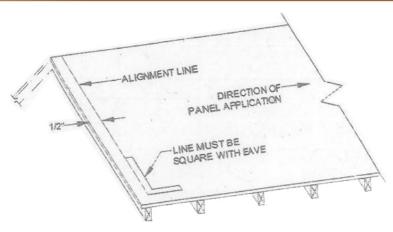
METHOD "A" – One method for checking the roof for square ness is to measure diagonally across one slope of the roof from similar points at the ridge and eave and obtain the same dimension.

METHOD "B" – The 3-4-5 triangle system may also be use. To use this system, measure a point from the corner along the edge of the roof at a module of three (3). Measure a point from the same corner along another edge at a module of four (4). By measuring diagonally between the two point established, the dimension should be exactly a module five (5) to have a square corner. Multiple uses of this system may be required to determine building squareness. If the end wall cannot be made square, the roof system cannot be installed as shown in theses instruction.



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 be added to the deck prior to roof panel installation (vented ridge for example)
- 3) Cover the entire roof deck with min 15 lb felt paper. 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 the previous one by 4-6". Overlay 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 metal roof. (see illustration below) Ice and water shield should be used in cold climates staring at eave and extending at least 24" past exterior walls.
- 4) Place alignment line along gable end where the first roof panel will be installed. THIS 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 Versaframe Inc representative if you need assistance. (see illustration on next page)



Existing Roof Application

In many cases Versaframe standing seam 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. Be sure to check the existing roof and repair any damaged areas prior it installation of the new roof system.

The following steps should be taken when installing standing seam 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 is 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.

Note: For best results, standing seam roofing requires a relatively smooth and flat surface substrate. Application over rough and/or uneven surfaces is not recommended, as this will cause oil canning.

Panel Installation

- 1) Install eave trim.
- 2) Working off the eave edge, establish a straight line up the gable edge from which you are staring. This will insure that the first panel laid will be straight and square with the eave (see illustration above)
- 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)
- 4) Once the first panel is in the proper position, secure it to the roof deck with the proper fasteners along the screw flange (#10 X 1" pancake woodscrew on 18" centres maximum.)
- 5) Install the gable trim and face screw it to fascia board. This fully secures the panel to the roof deck.
- 6) Position the second panel (overlap edge on top of the under lap edge of the first panel) assuring that the eave edge is in position (1" overhang). Secure the second panel to the first panel by applying slight pressure with your foot on the overlap seam (or use rubber mallet) working from the eave toward the ridge. The overlap edge of the panel contains factory-applied sealant to ensure weather tightness. Be sure that you achieve a position engagement between panels. Fasten the panel to the roof deck as in step #3 above.

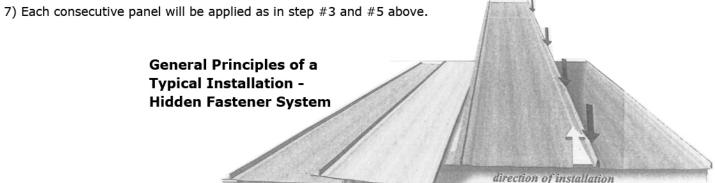


FIGURE 7 - Each panel should be installed over the extended eave drip, pressed down and attached with the appropriate fasteners, and eave hems finished before installing the next panel.

Listed below are the fasteners recommended for the proper installation of the standing seam panels. Also note the diagram below for proper installation of gasketed fasteners.

#10 x 1" Pancake Head Wood Fast Screw

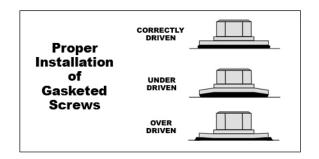
USES: Panel to deck or trim to wood attachments (unexposed)

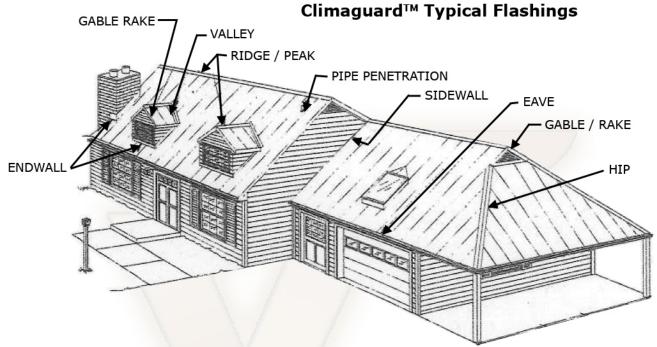
#14 x 1" Mill Point Screw

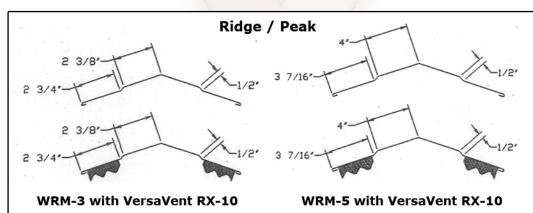
USES: Panel to deck attachments at ridge. Also used for flashing to fascia applications.

#12 x 3/4" Stitch Screw

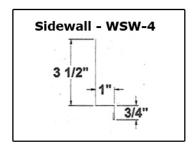
USES: Panel to panel or trim to panel attachments (may be used as an alternative to blind rivets)

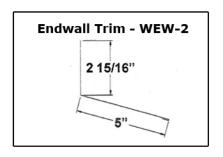


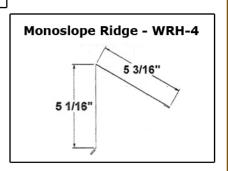












Climaguard™ Typical Flashings (continued)

Gable Trim - WGF-4 **Transition Trim - WTF-1** -1 1/2" 8 1/2" 5 1/6" Gambel Trim - Mod WTF-1 (bent down) Bottom Flashing 2' - Skylight WSCB-1 (34") & WSCB-2 (58") Top Flashing 2' - Skylight / Chimney WSCT-3 (34") & WSCT-4 (58") 4 3/16" 4 3/16" **Eave Hem Bending Tool** W-Valley Flashing - RV-4 BRENK TO PITCH FRONT VIEW SIDE VIEW Valley Cleat - WVC-1 **Profile Vent** XXXXIXXXXIXXXX #10 x 1" Pancake Head #14 x 1" Mill Point Screw #12 x 3/4" Stitch Screw **Wood Fast Screw**

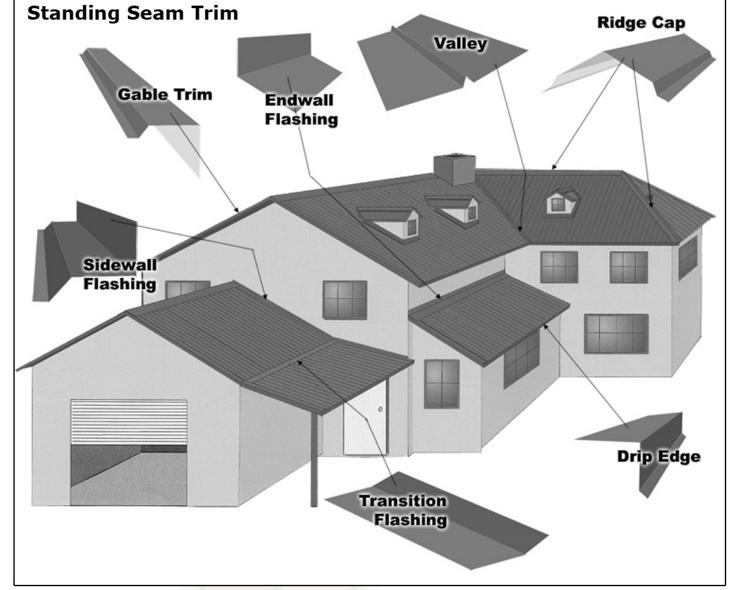
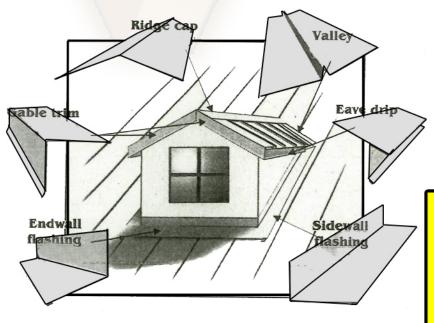


Figure 5 - Roofing trims and flashings are named by the location or function of that particluar piece on the building.

Dormer Detail

Figure 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. All but valleys and eave drip requires flashing; valleys require panel starter and eave drip may be screwed or fastened with eave cleats.



CAUTION!

Clean all metal shavings & particles off of roof to avoid unsightly rust stains.

Eave Trim

Eave Trim or drip edge is located at the eave or gutter edge of the building and must be installed before any panels.

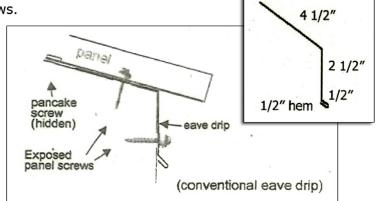
Fasten the eave trim down using flat head nails or screws.

Install the eave trim first.

Run a bead of caulking on top making sure that your sealant is below the line of screws, this will seal the eave line and prevent water from trying to siphon up under the panels.

Apply the roof panels on top of the eave trim.

The standing seam panels will often be bowed at the bottom. This is not a bad thing. It helps to prevent oil canning. Usually you do not see the bottom of the panels because of the gutters.



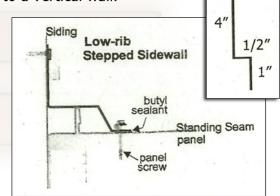
Sidewall Flashing

Sidewall Flashing is used when the roofing panel is installed parallel to a vertical wall.

Butt the side edge of the standing seam panel against the wall. Install the flashing to cover the rib. The flashing usually slides underneath the siding on the wall.

Butyl tape or caulking is necessary to seal under the sidewall flashing and top of the roofing pan.

If a rib does not match up with the wall, cut the panel 1" wider than the area, bend the panel up, and tack it to the wall and install flashing.



Endwall Flashing

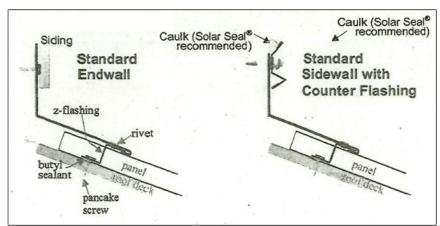
End wall flashings are used when the upper end of panels butt into a vertical wall (wall to roof transition)

Two flashings are notched or cut in lengths between the ribs and attached with screws and sealant.

The end wall flashing is installed on top of the standing seam ribs and fastened to the 2 flashings with screws.

When not covered by siding the counter flashing version is necessary to seal the wall sidewall.

Specify roof pitch when ordering.



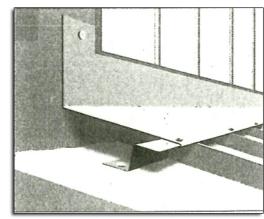


Figure 7 - Endwall Flashing is applied where the upper slope of a roof meets a wall.

Valley Flashing

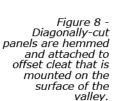
Valley flashings are used to flash valleys formed by intersecting roof panels.

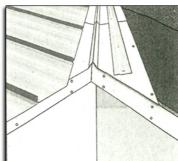
Ice and water shield similar membrane is recommended in all valleys. Install this before installing roofing felt. Panels ending in valleys must be cut and hemmed diagonally and attached to an offset cleat that is

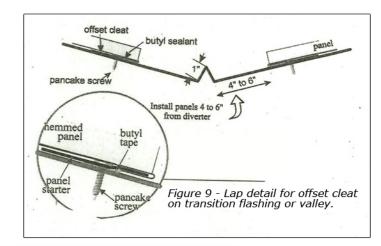
screwed down to the roof through the valley.

Because of the amount of water flow in the valley, care should be taken to apply Butyl tape or sealant between the offset cleat and the valley.

It is important to leave 4" to 6" between the end of the panels and the middle V of the W- valley to allow water and debris to drain off properly.







Transition Flashing

Transition flashings are used when 2 roofs of different pitch meet. The top section being steeper than the lower section.

Install standing seam panels on the lower pitch first.

Two Flashings are notched or cut in lengths between the

rib and attached with screws and sealant (at the top of the lower panel) prior to install of the transition flashings.

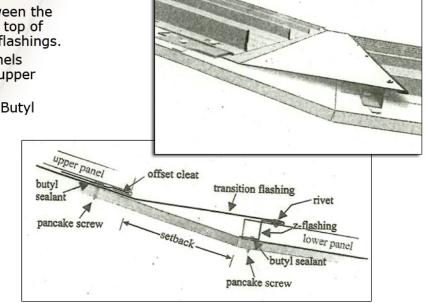
Install the transition flashings over the lower panels using flat head screws or nails under where the upper panels will rest.

Before installing the upper panels, lay a bead of Butyl tape or caulking for the upper panels to sit on.

Make sure this bead is downhill of the flat head screws.

Install the upper panels off far head screws. (Note: Back the upper panels off far enough to allow for the height of the lower ribs)

Specify upper and lower pitches when ordering flashing.



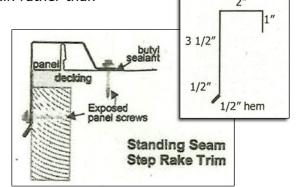
Gable Flashing

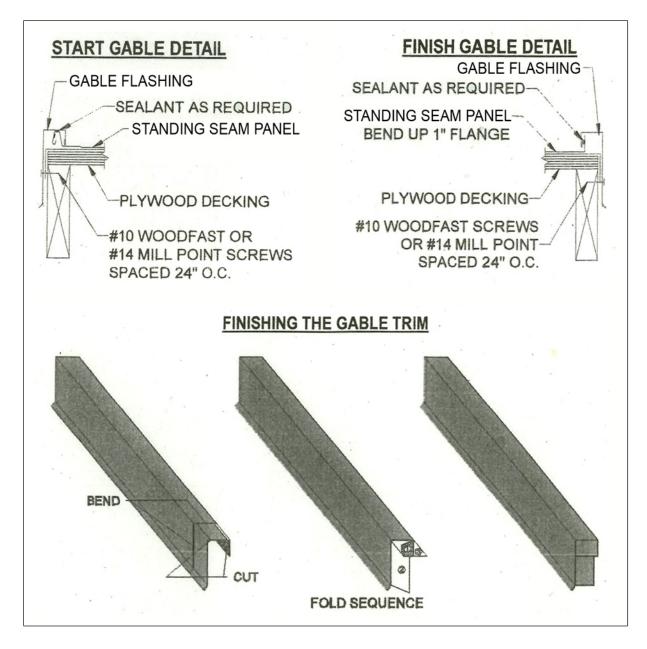
The gable trim serves a similar purpose to eave drip but acts mainly to protect the exposed edge of the gable end of the building from both wind and rain rather than serve any function in anchoring panels. A common option in gable trim is the step rake, which simplifies installation by allowing exposed screws at intervals along its lengths on the

roof side.

The gable trim is applied on the top of the panel over the rib before the ridge cap is applied. It is fastened to the fascia board with exposed painted trim fasteners.

If a rib does not fall flush with the last panel gable end, you must make an artificial rib by cutting the panel vertically 1" wider than the building and bending the pan up to form a rib.





After snapping the Gable Flashing over the cleat, pull the Gable Flashing over the eave end fascia by 2-3" 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.

Roof to Wall Shed Flashings

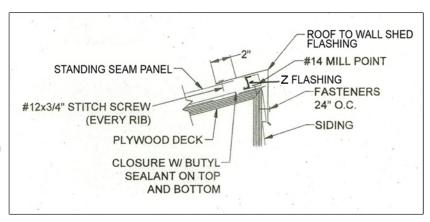
The roof wall flashing is simply a ridge cap for a single slope roof.

Install the roof panels.

Z Flashings are notched or cut in lengths between the rib and attached with screws or sealant. (see Ridge Cap install detail)

After the gable trim is installed, place the roof to wall shed flashing on top of panels and fasten to the Z Flashing with screws.

Fasten the cap down at the wall using an exposed painted trim fastener.



Ridge Cap

The Ridge Cap is used to seal the upper point at which two slopes meet. This can be both along the ridge of the roof as well as the covering for a hip, or on the ridge of dormers.

Attachment to the roof is most generally accomplished through the use of a Z Flashing. Z Flashings are either notched or cut to length (to fit between panel ribs) and attached with screws to the roof through the panels.

Ridge Caps are in turn attached with rivets to the Z Flashing. Whether the Z Flashing is notched or cut to length, gaps between it and the panels should be kept to a minimum (no more than 1/4 inch) since the gap will be sealed with caulk.

Z Flashing must be sealed both beneath and where it butts against the panel ribs with caulk or equivalent. Thus sealed, Z Flashing forms a water-proof barrier to protect the roof peak against leaks from blowing rain. When used on a hip roof, Z Flashing is cut or notched at whatever widths are appropriate for the pitch and cut of the hip.

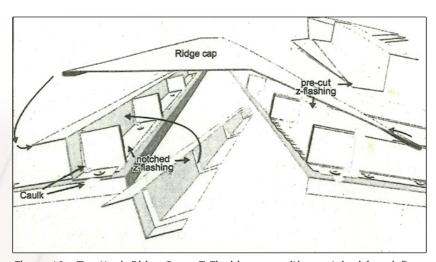


Figure 10 - To attach Ridge Caps, Z Flashings are either notched (see left illustration) or cut into pieces (see rigfht illustration) and mounted with screws at the upper ends of the panels. Caulk is applied on the bottom side and around the panels ribs to seal the ridge against rain. The mounted Ridge Cap is attached to the Z flashing with rivets.

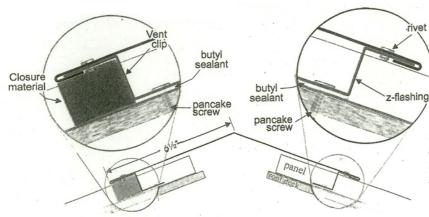


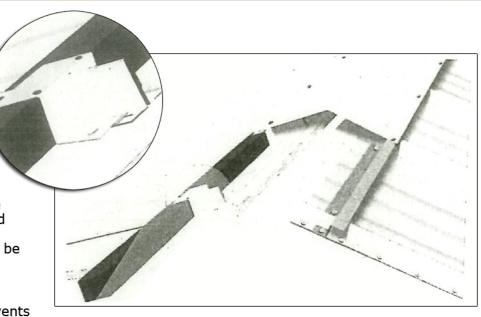
Figure 11 - Ridge Caps can be installed as vented (using vent clips and vent material) or sealed (using Z Flashing), as shown also in Figure 12 (next page).

Figure 12 - 3-dimensional view of ridge showing closure vent clips and closure material installed on left, and Z Flashing installed on right.

When attic ventilation is desired, vent clips can be used in the place of Z Flashing. Vent clips straddle each rib, and support the Ridge Cap in much the same manner as the Z Flashing. Closure material is inserted between the ribs and sandwiched between the panels and the Ridge Caps. The decking must of course be cut at the ridge to let out hot air.

Vent material must be cut to the proper length for installation. It is either a sponge-like or fibrous material that prevents

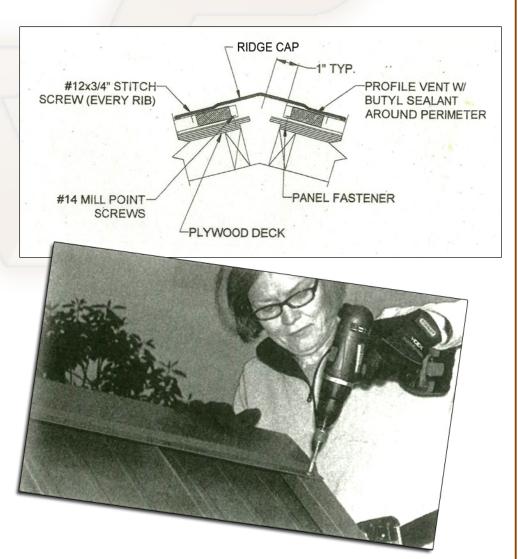
wind-driven rain, insects, and leaves and debris from entering the attic, while at the same time allowing the release of hot air out of the attic. Installation may require caulk to hold the material in place.



Vented Ridge

Notes:

- 1. The gable flashing must be installed prior to installing the ridge.
- 2. Roofing underlayment not shown.
- 3. Plywood should be held back or cut back 1" from each side of the ridge.
- 4. Install profileVent on each side of the ridge.
- 5. Fasten the ridge cap using #12 x ¾" stitch screws on each panel rib 1" back from the edge of the ridge cap.



Pipe Flashing

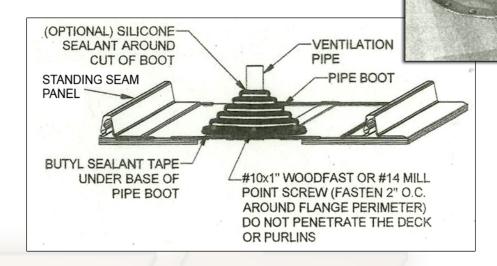
Pipe boots or deck tights provide a watertight seal around roof vents and come in a variety of sizes. They seal with caulking under the base and around the pipe and conform to the shape of the panel ribs.

Cut the hole in the flashing 20% smaller.

Slide the flashing down the pipe.

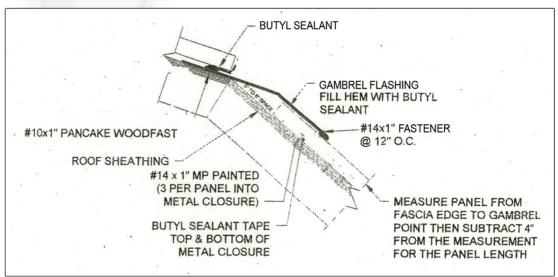
Form the flashing to the roof profile.

Apply sealant around the perimeter of the underside of the flashing base and fasten to roof using $#10 \times 1$ " or $#14 \times 1$ " woodscrew fasteners 2" o.c. as shown.



Gambrel Flashing

The Gambrel flashing is used to transition from a low slope on the upper roof to a steep slope on the lower roof.



Standing Seam Skylight Detail

The next 2 pages are dedicated to detailing the skylight trim application. The first page shows where and how to cut out the panels and flashings. The second page shows these items after they have been cut and bent, and where each piece is placed around the skylight.

Step #1

Working from right to left, cut and install the first panel (#1). The next two panels are cut flush with the curb of the skylight, and may be bent up, if needed. Next panel #2 is cut and bent to fit, then installed.

Step #2

The next to install is the pan flashing (#3). First place a bead of sealant on the top of panel #1 and #2 to stop any water from siphoning at the joint. Next, cut and bend the pan flashing to fit. The artificial ribs should be $\frac{1}{2}$ high. Set in and fasten.

Step #3

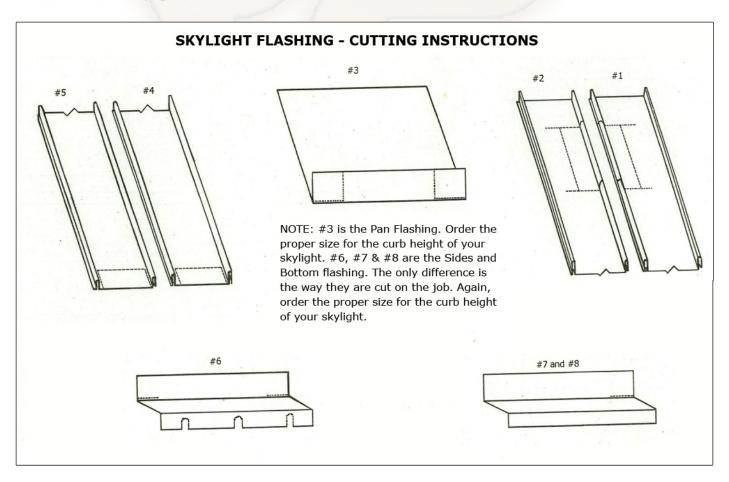
Before installing the upper panels, run a bead of sealant on the top of the pan flashing parallel to the upper curb. Hold the upper panels back far enough from the curb to allow the water to drain to either side. Generally 4" to 6" is sufficient, depending on the width of the skylight. Working from right to left, cut and install panel #4, snapping it into place and continue fastening as usual across the panel #5.

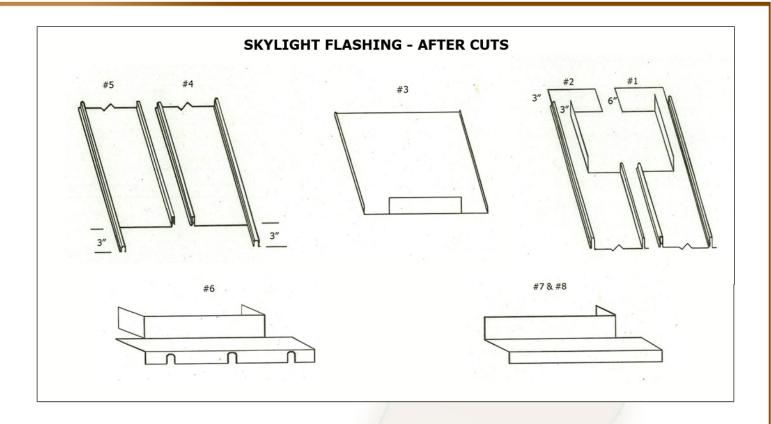
Step #4

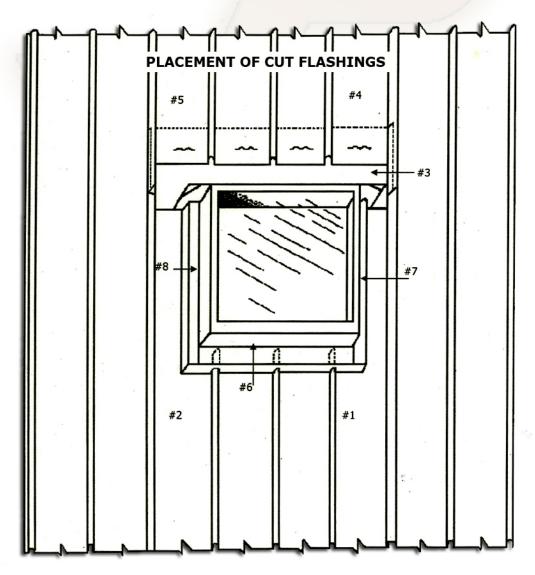
Install the bottom flashing #6 as you would the standard end wall flashing. Next, apply side flashing (#7-#8) finishing off around the curb of the skylight. (Trim items show in the pictures as #6, #7 and #8 are actually all the sides and bottom flashings. They are just cut differently on the job.

General Notes:

- Sealant should be used at all joints and where the metal is to be overlapped.
- The care and attention to detail that is used when installing the flashings determines the overall finished appearance.
- The preceding information is designed as a general guideline to be used and is not the only acceptable method to flash a skylight.



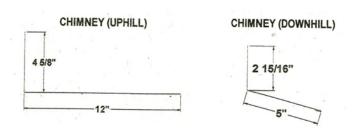


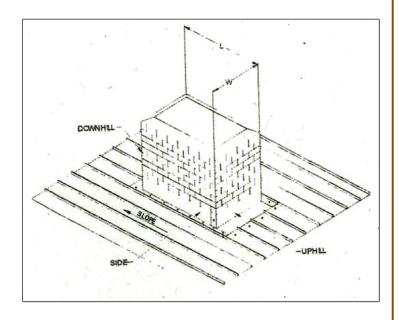


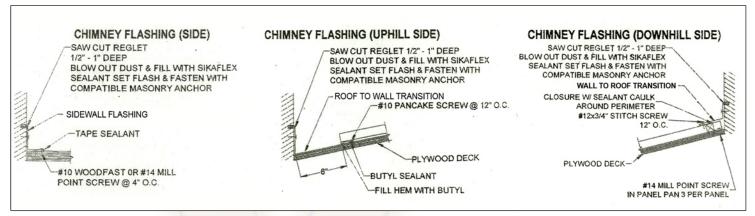
CHIMNEY FLASHING

Notes:

- 1. Procedures for the installation of Chimney Flashings are similar to the Skylights.
- 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.







Spray Paint

We don't sell spray paint. The paint is usually used to paint existing flashings, pipe boots, and other items that can enhance the appearance of your building. DO NOT SPRAY DIRECTLY INTO YOUR ROOF TO TOUCH UP SCRATCHES OR ABRASIONS. No spray paint can match a baked-on silicone modified polyester (SMP) paint finish. It will fade at a different rate and can be extremely visible at a later date. Steel building panels don't necessarily rust when they are scratched or cut. These panels are galvanized before they are painted. The zinc undercoating will protect exposed areas with mild scratches.

YOU ARE FINISHED!

Remove all tools and debris from the roof.

Remember, the smallest amount of metal shavings may cause rust-discoloration!

BE PROUD OF A JOB WELL DONE!!

THANK YOU FOR SELECTING VERSAFRAME INC.
ROOFING AND SIDING.