Metal Sales™

Installation Guide

VERTI-RIB™

metalsales.us.com

IMPORTANT INFORMATION

The application and detail drawings in this manual are strictly for illustration purposes and may not be applicable to all building designs or product installations. All projects should conform to applicable building codes for that particular area. It is recommended to follow all building regulations and standard industry practices.

Metal Sales Manufacturing Corporation is not responsible for the performance of the roof system if it is not installed in accordance with the suggested instructions referenced in this installation manual or in the product overview. (See Product Manual or Product Technical Literature). If there is a conflict between this manual and the actual erection drawings, the erection drawings are to take precedence.

Prior to ordering and installing materials, all dimensions should be verified by field measurements.

Metal Sales reserves the right to modify, without notice, any details, recommendations or suggestions. Any questions you may have regarding proper installation of the roofing system should be directed to your Metal Sales representative, see pages 2 and 3.

Consult Metal Sales for any additional information not outlined in this manual.

It is the responsibility of the erector to ensure the safe installation of this product system.

SAFETY

STUDY APPLICABLE OSHA AND OTHER SAFETY REQUIREMENTS BEFORE FOLLOWING THESE INSTRUCTIONS.

The installation of metal wall systems is a dangerous procedure and should be supervised by trained knowledgeable erectors. USE EXTREME CARE WHILE INSTALLING PANELS. It is not possible for Metal Sales to be aware of all the possible job site situations that could cause an unsafe condition to exist. The erector of the wall system is responsible for reading these instructions and determining the safest way to install the wall system.

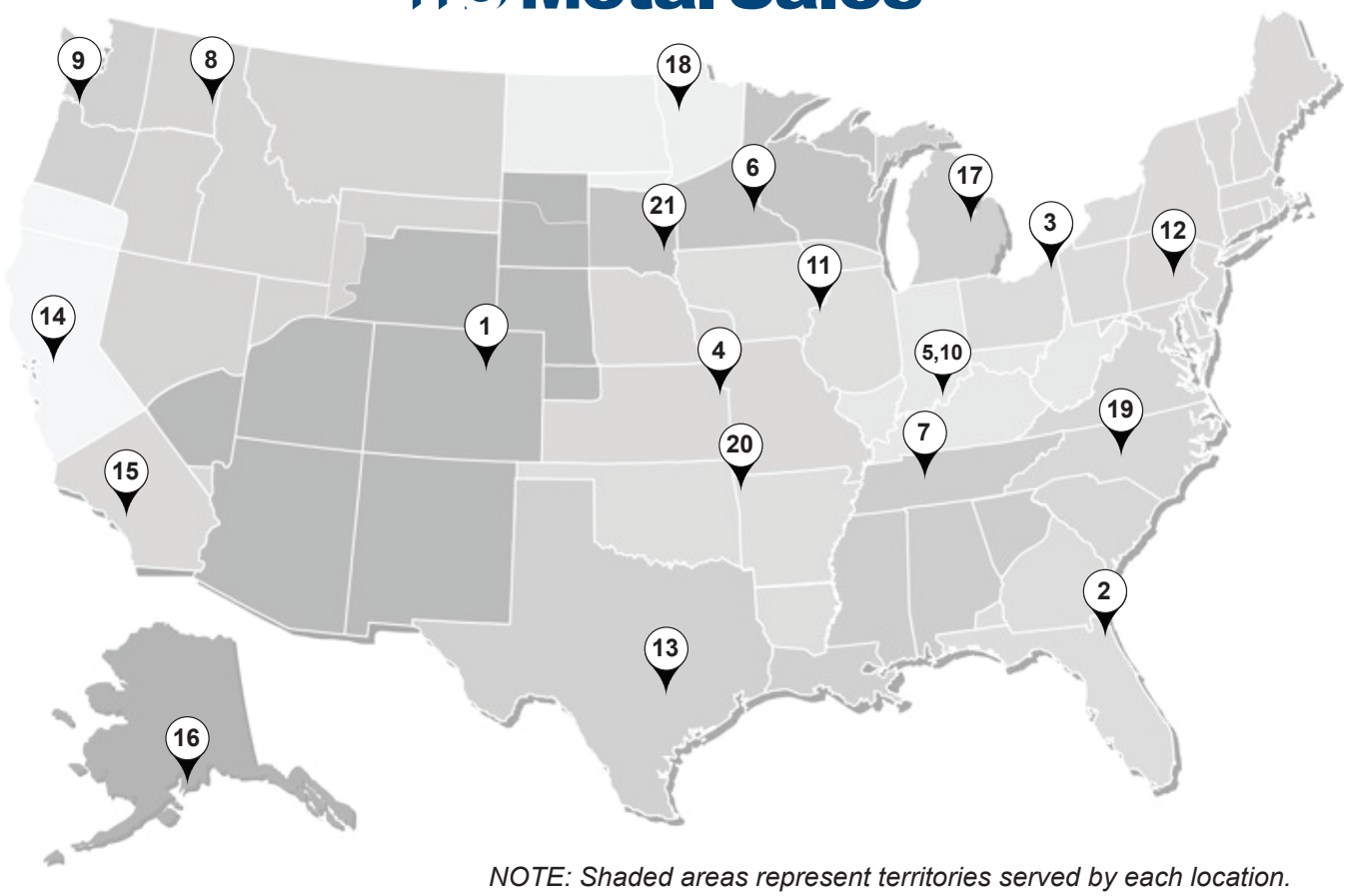
These instructions are provided only as a guide to show a knowledgeable, trained erector the correct relationship of parts to one another. If following any of the installation steps would endanger a worker, the erector should stop work and decide upon a corrective action.

Provide required safety railing, netting, or safety lines for crew members working on the roof.

Do not use the roof panel as a walking platform. The roof panels will not withstand the weight of a person standing at the edge of the panel.

Do not stand on the roof panel until the panels have been attached. Fall protection for workers installing wall panels must be provided.

BRANCH TERRITORY MAP



NOTE: Shaded areas represent territories served by each location.

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BRANCH LOCATIONS

1. DENVER
7990 East I-25 Frontage Road
Longmont, CO 80504
303.702.5440
800.289.7663
800.289.1617 Fax

2. JACKSONVILLE
7110 Stuart Avenue
Jacksonville, FL 32254
904.783.3660
800.394.4419
904.783.9175 Fax
800.413.3292 Fax

3. JEFFERSON (Production Branch)
352 East Erie Street
Jefferson, OH 44047
440.576.9070
800.321.5833
440.576.9242 Fax
800.233.5719 Fax

4. INDEPENDENCE
1306 South Powell Road
Independence, MO 64057
816.796.0900
800.747.0012
816.796.0906 Fax

5. SELLERSBURG
7800 Highway 60
Sellersburg, IN 47172
812.246.1866
800.999.7777
812.246.0893 Fax
800.477.9318 Fax

6. ROGERS
22651 Industrial Boulevard
Rogers, MN 55374
763.428.8080
800.328.9316
763.428.8525 Fax
800.938.9119 Fax

7. NASHVILLE
4314 Hurricane Creek Boulevard
Antioch, TN 37013
615.641.7100
800.251.8508
615.641.7118 Fax
800.419.4372 Fax

8. SPOKANE
2727 East Trent Avenue
Spokane, WA 99202
509.536.6000
800.572.6565
509.534.4427 Fax

9. KELSO
2680 Coweeman Park Drive
Kelso, WA 98626
253.872.5750
800.431.3470
253.872.2008 Fax

10. NEW ALBANY
999 Park Place
New Albany, IN 47150
812.944.2733
812.944.1418 Fax

11. ROCK ISLAND
8111 West 29th Street
Rock Island, IL 61201
309.787.1200
800.747.1206
309.787.1833 Fax

12. DEER LAKE
29 Pinedale Industrial Road
Orwigsburg, PA 17961
570.366.2020
800.544.2577
570.366.1648 Fax
800.544.2574 Fax

13. TEMPLE
3838 North General Bruce Drive
Temple, TX 76501
254.791.6650
800.543.4415
254.791.6655 Fax
800.543.4473 Fax

14. WOODLAND
1326 Paddock Place
Woodland, CA 95776
530.668.5690
800.759.6019
530.668.0901 Fax

15. FONTANA
14213 Whittram Avenue
Fontana, CA 92335
909.829.8618
800.782.7953
909.829.9083 Fax

16. ANCHORAGE
4637 Old Seward Highway
Anchorage, AK 99503
907.646.7663
866.640.7663
907.646.7664 Fax

17. BAY CITY
5209 Mackinaw Road
Bay City, MI 48706
989.686.5879
888.777.7640
989.686.5870 Fax
888.777.0112 Fax

18. DETROIT LAKES
1435 Egret Avenue
Detroit Lakes, MN 56501
218.847.2988
888.594.1394
218.847.4835 Fax
888.594.1454 Fax

19. MOCKSVILLE
188 Quality Drive
Mocksville, NC 27028
336.751.6381
800.228.6119
336.751.6301 Fax
800.228.7916 Fax

20. FORT SMITH
7510 Ball Road
Fort Smith, AR 72908
479.646.1176
877.452.3915
479.646.5204 Fax

21. SIOUX FALLS
2700 West 3rd Street, Suite 4
Sioux Falls, SD 57104
605.335.2745
888.299.0024

CORPORATE OFFICE

7800 Highway 60
Sellersburg, IN 47172
800.406.7387
800.944.6884 Fax

TECHNICAL SUPPORT

TECH SERVICES DEPT.
7800 Highway 60
Sellersburg, IN 47172
502.855.4300
800.406.7387
800.944.6884 Fax

RECEIVING MATERIAL

It is the responsibility of the installer to unload material from the delivery truck. The installer shall be responsible for providing suitable equipment for unloading of material from the delivery.

Metal Sales is not responsible for any damages or shortages unless they are documented in writing and presented to Metal Sales within 48 hours. A claim should be made against the carrier as soon as possible.

After receiving material:

- Check the condition of the material
- Review the shipment against the shipping list to ensure all materials are all accounted for
- If damages or shortages are discovered, it should be noted on the Bill of Lading at the time of delivery

GENERAL HANDLING

Each bundle should be handled carefully to avoid being damaged. Care should be taken to prevent bending of the panel or scratching of the finish. Whenever possible, the bundle should remain crated until it is located in its place of storage or use. If bundles must be opened, we recommend you re-crate them before lifting. To avoid damage lift the bundle at its center of gravity.

CAUTION

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

MECHANICAL HANDLING

Forklift - A forklift may be used for panels up to 20'-0" long. Make sure the forks are at their maximum separation. Do not transport open bundles. When transporting bundles across rough terrain, or over a longer distance, some means of supporting the panel load must be used.

Crane - A crane should be used when lifting panels with lengths greater than 20'-0". 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 the panels.

UNSTACKING MATERIAL

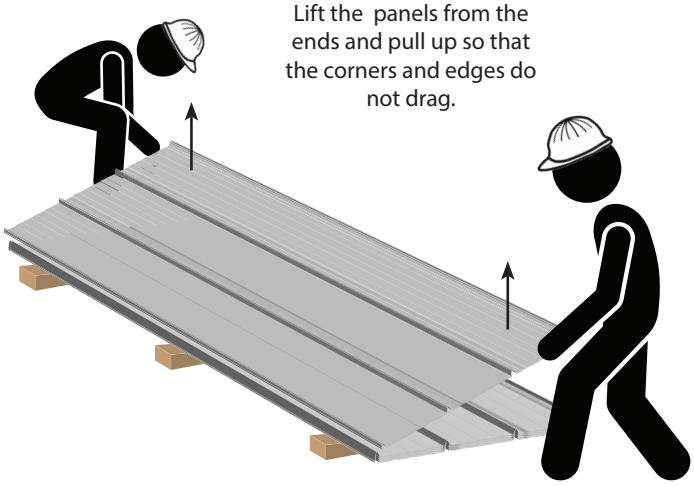
For panels over 5′-0″ in length at least two people on the ends of the panel are required. Additional help will be needed for every 10′-0″ in length beyond that.

Panels will arrive stacked vertically in a crate. If panels are moved out of the crate for staging, take care when unstacking to ensure panels are lifted up and not across other panels in the stack. Minimize handling of panels when unstacking and stacking to avoid damage. Be sure to wear appropriate safety equipment including clean gloves, as panel edges are sharp.

Inspect panels before lifting. Metal Sales is not responsible for damage created by unstacking panels incorrectly. Dragging or sliding the panels will cause the corners and edges to scratch the paint.

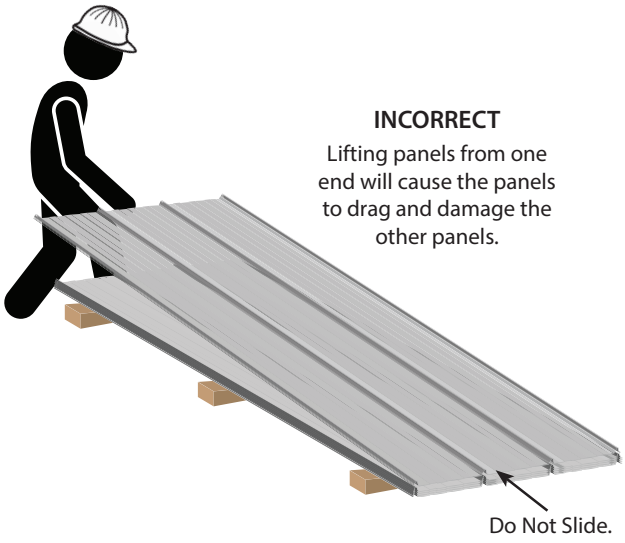
Defect claims must be reported upon inspection and *before* panels are handled or installed.

Restacking – Align bottom-side edge with the stack and lay panel onto the stack.



CORRECT

Lift the panels from the ends and pull up so that the corners and edges do not drag.



INCORRECT

Lifting panels from one end will cause the panels to drag and damage the other panels.

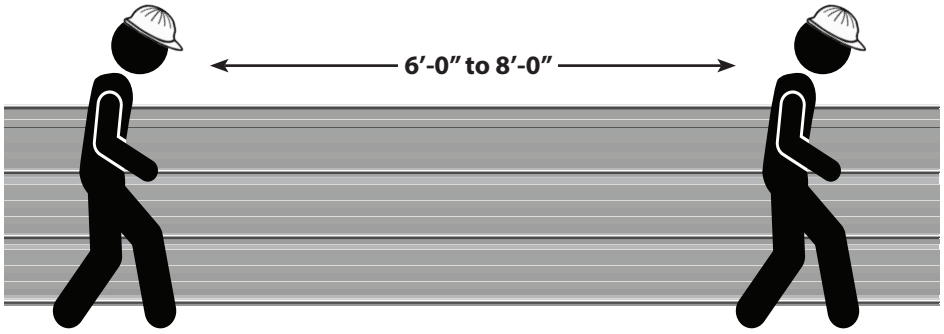
Do Not Slide.

TRANSPORTING MATERIAL

Handling of individual panels should be done carefully and properly to avoid bending or damaging. Panels should be carried by grasping the edge so that the panel is vertical to the ground.

Normally, individual panels can be handled by people placed every 6′-0″ to 8′-0″ along the length of the panel.

The panel should not be carried horizontal to the ground as this could cause the panel to buckle or bend in the center.



CORRECT

GENERAL

Please inspect panels for moisture accumulation. If moisture has formed, the panels should be unbundled, wiped dry, and allowed to dry completely. Once dry, carefully re-stack the panels and loosely recover allowing for ample air circulation.

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. Metal Sales recommends covering the bundle with a tarp. Do not use tight fitting plastic-type tarps as panel bundle 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 panels 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, plating works, kilns, fertilizer and wet or green lumber.

FOOT TRAFFIC

Care of metal panels and flashings must be exercised throughout erection. Foot traffic can cause distortion of panel and damage to finish. Avoid stepping on wall panels before installation if they are staged or stored on the ground. Any foot traffic on these panels will cause damage and hinder proper installation.

RECOMMENDED TOOLS

CUTTING TOOLS
Tin Snips
Electric Metal Shears
Turbo-Shears
Circular Saw

FASTENING
Nut Drivers or magnetic hex drivers
Screw Gun with adjustable torque

SAFETY
Gloves
Safety Googles
Ear Protection
Safety Harness and Fall Protection

MEASURING/MARKING
Tape Measure
Speed Square
Chalk Line
Marker or Scribe

GENERAL
Hammer
Utility knife
Caulking gun
Hand seamer
Ladder and/or scaffolding
Laser Level
Panel Lifters or Suction Cups
Deburring Tool
Tool Belt

CONDITION OF SUBSTRUCTURE

Metal Sales' panels are designed to be installed over open framing and/or directly over a wood substrate with synthetic building wrap. Always check with local building codes prior to all installations for any additional requirements that may be specific to your area.

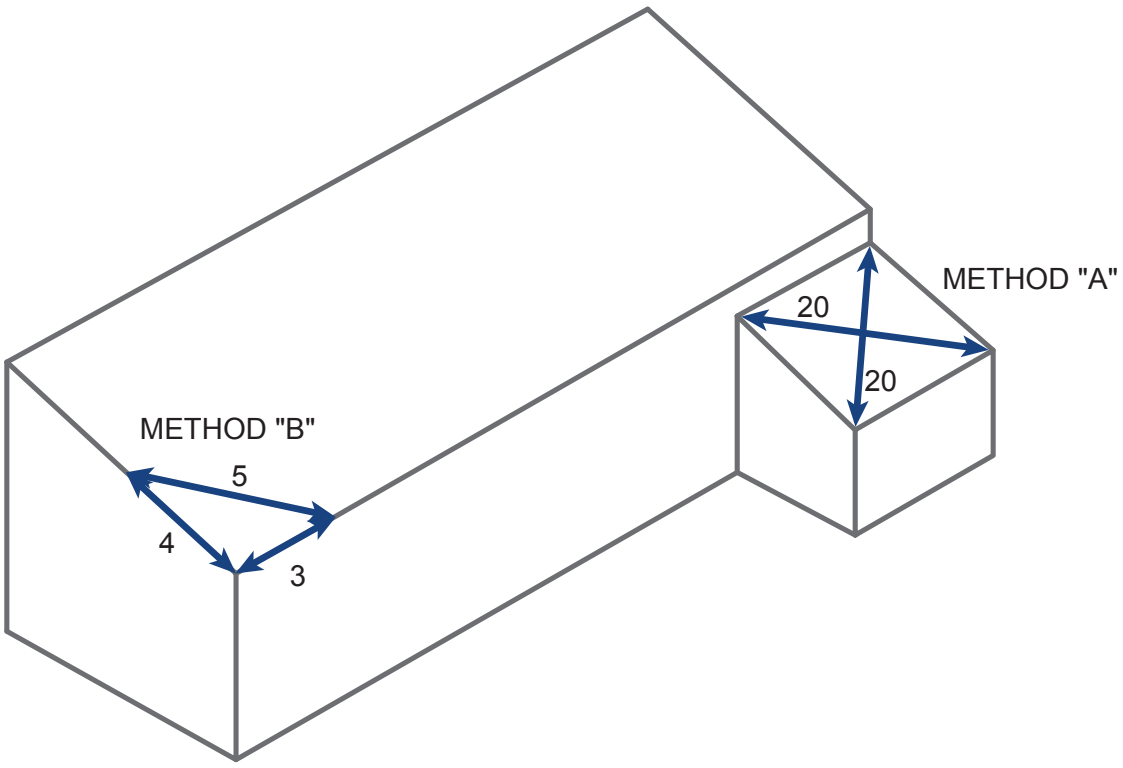
Galvalume panels should not be in contact with, or subject to, water runoff from copper, lead or uncoated steel materials. Condensate water from air conditioning units typically contains dissolved copper. This condensate should be discharged through a plastic pipe extended beyond the edge of the roof.

The roof should be inspected for any trapped moisture or structural damage such as bowing or sagging members and warped or loose sheathing. Also make sure there are no nails or fasteners protruding from the wall framing or wood substrate which could damage the panels and impede the installation process. These areas must be repaired prior to installing new metal wall panels. Panel distortion may occur if not applied over properly aligned and uniform substructure.

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

METHOD "A" - One method for checking the roof for squareness is to measure diagonally across one plane from similar points at the eave and base and obtain the same dimension.

METHOD "B" - The 3-4-5 triangle system may also be used. 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 points established, the dimension should be exactly a module of five (5) to have a square corner. Multiple uses of this system may be required to determine building squareness. If the roof cannot be made square, the wall system cannot be installed as shown in these instructions.



FIELD CUTTING AND TOUCH-UP

FIELD CUTTING

Tin snips or a "nibbler" type electric tool are recommended for field cutting metal panels. Cutting the steel generates slivers or metal chips. These slivers and metal chips must be immediately removed from the panels because they will damage the finish and shorten the life of the product.

One method of preventing this problem is to flip the panels over when cutting. This allows the slivers and metal chips to be brushed from the back side and avoids damaging the paint on the top side of the panels.

When cutting metal panels and flashings, goggles must be worn for eye protection.

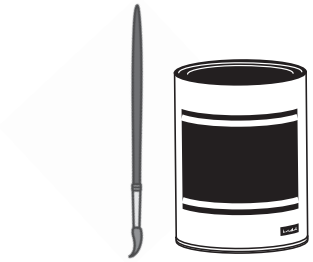
CAUTION

All product surfaces should be free of debris at all times. Installed surfaces should be wiped clean at the end of each work period. Never cut panels over metal surfaces. Metal shavings will rust on the surface, voiding the warranty.

TOUCH-UP PAINT

All painted panels and flashings have a factory applied baked on finish. Handling and installing panels may result in some small scratches or nicks to the paint finish. Touch-up paint is available in matching colors from Metal Sales. It is recommended that a small brush be used to apply touch-up paint to those areas that are in need of repair. Touch-up paint does not have the superior chalk and fade resistance of the factory applied paint finish and will normally discolor at an accelerated rate. Aerosol paint should not be used because of the over-spray that may occur.

SPRAY PAINT



TOUCH-UP PAINT

CAUTION

Use as little Touch-up paint as possible. Paint will fade and there is no finish warranty with this product.

VENTILATION

Proper design and installation of vapor barriers and ventilation systems are important to prevent condensation and the resulting problems of moisture damage and loss of insulation efficiency.

Condensation occurs when moisture laden air comes in contact with a surface temperature equal to or below the dew point of the air. This phenomenon creates problems that are not unique with metal buildings; these problems are common to all types of construction.

The underside of the metal roof on a typical metal building (no attic) should be protected from condensation by insulating with a faced insulation. This should reduce the potential of condensation forming on the underside of the panels.

On buildings that have an attic space or are being retrofitted with a metal roofing system, vents should be placed at both the eave and peak of the roof in order to prevent a buildup of moisture (humidity) in the attic space.

CARE AND MAINTENANCE

Though factory applied pre-painted finishes are very durable and will last many years, eventually it may be desirable to thoroughly clean or repaint them.

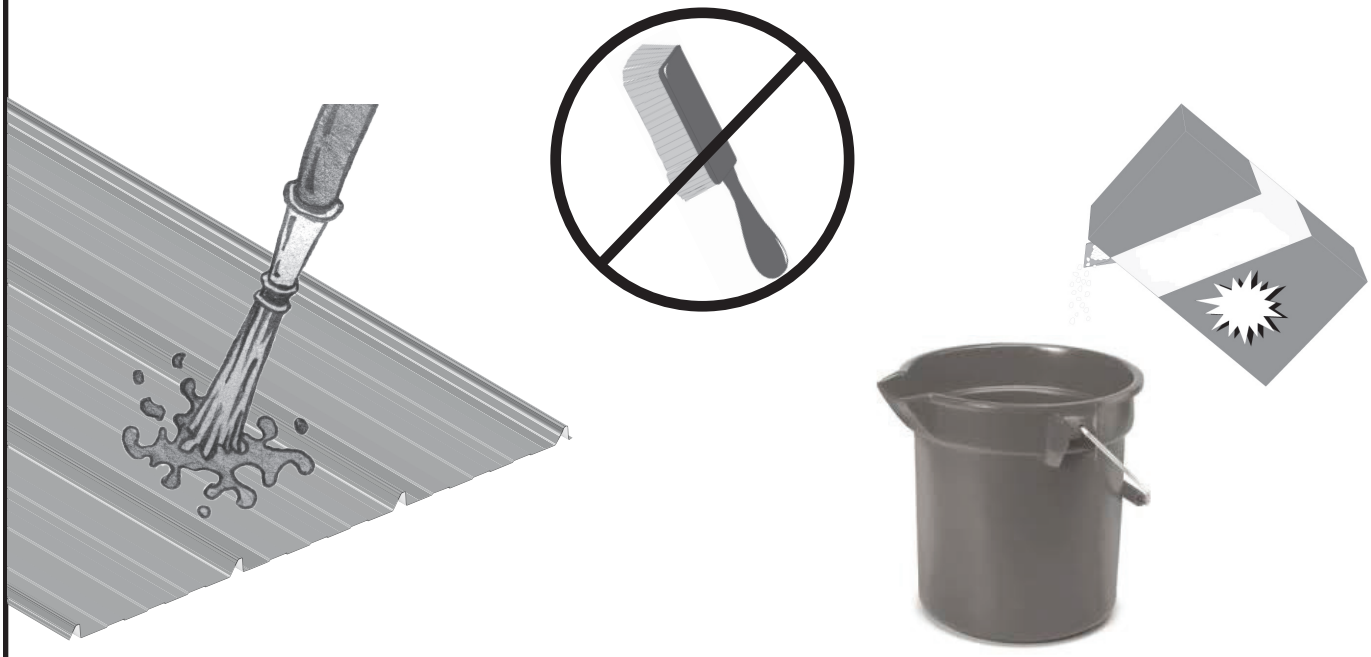
Dirt pickup may cause apparent discoloration of the paint when it has been exposed in some dirt-laden environments for long periods of time. In areas of strong sunlight, slight chalking may cause some change in appearance. A good cleaning will often restore the appearance of these buildings and render repainting unnecessary. An occasional light cleaning will help maintain a good appearance.

In many cases, simply washing the building with plain water using a hose or pressure sprayer will be adequate. In areas where heavy dirt deposits dull the surface, a cloth or soft bristle brush and solution of water and detergent ($^1/_3$ cup of laundry detergent per gallon of water for example) may be used. This should be followed by an adequate rinse of water. Do not use wire brushes, abrasives or cleaning tools which will damage the coating surface.

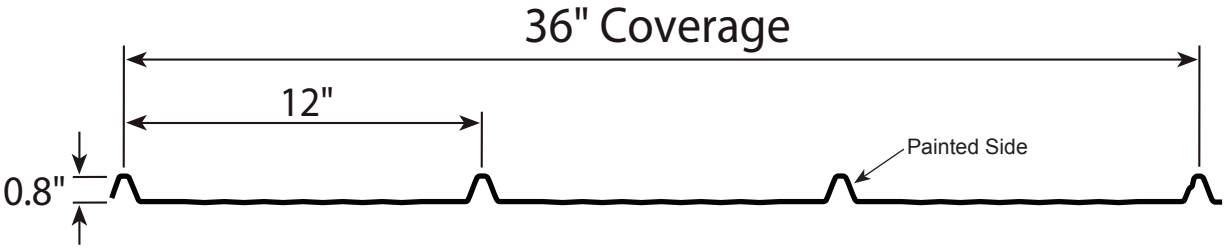
Mildew may occur in areas subject to high humidity but is not normally a problem due to the high inherent mildew resistance of the baked finish that is used. To remove mildew along with the dirt, the following solution is recommended.

$^1/_3$ cup detergent (Tide® or equivalent)
$^2/_3$ cup trisodium phosphate (Solex® or equivalent)
1 quart of 5% sodium hypochlorite solution (Clorox® or equivalent)
3 quarts of water

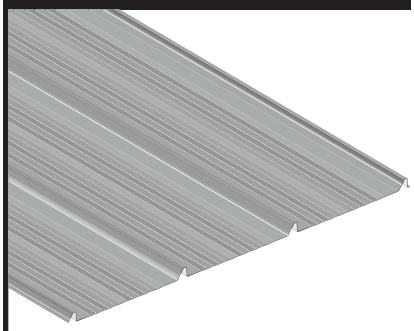
Strong solvents and abrasive type cleaners should be avoided. Most organic solvents are flammable and toxic and must be handled accordingly. When using a solvent, consult maintenance professionals and label instructions for proper handling and disposal of washings. If required, a mild solvent such as mineral spirits can be used to remove caulking compounds, oil, grease, tars, wax and similar substances. Use a cloth dampened with mineral spirits and apply only to areas which are contaminated. Follow up the use of this mild solvent with detergent cleaning and rinsing.



VERTI-RIB™ STRIATED PANEL PROFILE



Profile



Product No.	Coverage	Gauge	Finish
22972XX	36"	29	ColorFit40™
2297500	36"	29	Galvanized
2297541	36"	29	Acrylic-Coated Galvalume® (ACG)
22975XX	36"	29	MS Colorfast45®
22982XX	36"	29	Elite G100 - MS Colorfast45
22980XX	36"	27	MS Colorfast45®
2287241	36"	26	Acrylic-Coated Galvalume® (ACG)
22872XX	36"	26	MS Colorfast45®
2277241	36"	24	Acrylic-Coated Galvalume® (ACG)
22772XX	36"	24	PVDF Painted

Length

Minimum length 5'-0". Shorter panels to be field cut.
Maximum recommended panel length is 45'-0".
Longer panels require additional consideration in packaging, shipping, and erection.
Please consult your Metal Sales branch for recommendations.

Fasteners

The fastener selection guide should be consulted for choosing proper fasteners for specific applications. Quantity and type of fastener must meet necessary loading and code requirements.

Materials

Steel Grade 80 per ASTM A 792 (29 or 26 gauge)
Steel Grade 50 per ASTM A 792 (24 gauge)

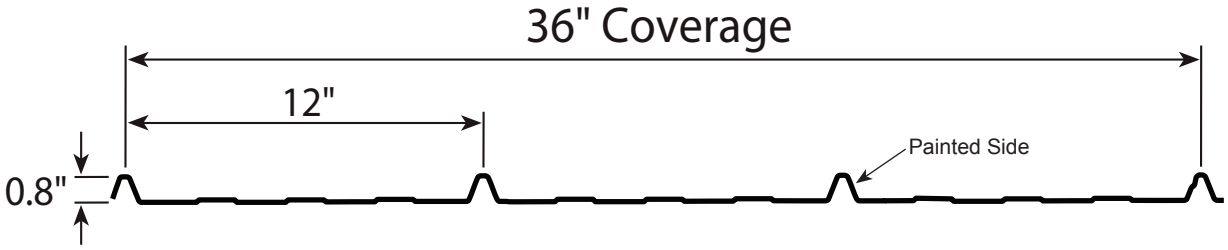
Finish

Acrylic Coated Galvalume® (ACG) / ASTM A792 - AZ55
Pre-painted Galvalume / ASTM A792 - AZ50
ColorFit40™
MS Colorfast45®
PVDF (Kynar 500® or Hylar 5000®)
Differential appearance of Acrylic Coated Galvalume roofing materials is not a cause for rejection.

Support Materials

Steel Framing – 18 gauge or thicker
Plywood – 1/2" or thicker
OSB – 7/16" or thicker
Lumber – 1x or thicker

VERTI-RIB™ MINOR RIB PANEL PROFILE



Profile

Product No.	Coverage	Gauge	Finish
22973XX	36"	29	ColorFit40™
2297600	36"	29	Galvanized
2297641	36"	29	Acrylic-Coated Galvalume® (ACG)
22976XX	36"	29	MS Colorfast45®
22983XX	36"	29	Elite G100 - MS Colorfast45
22981XX	36"	27	MS Colorfast45®
2287341	36"	26	Acrylic-Coated Galvalume® (ACG)
22873XX	36"	26	MS Colorfast45®
2277341	36"	24	Acrylic-Coated Galvalume® (ACG)
22773XX	36"	24	PVDF Painted

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Finish

Acrylic Coated Galvalume® (ACG) / ASTM A792 - AZ55
Pre-painted Galvalume / ASTM A792 - AZ50
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Differential appearance of Acrylic Coated Galvalume roofing materials is not a cause for rejection.

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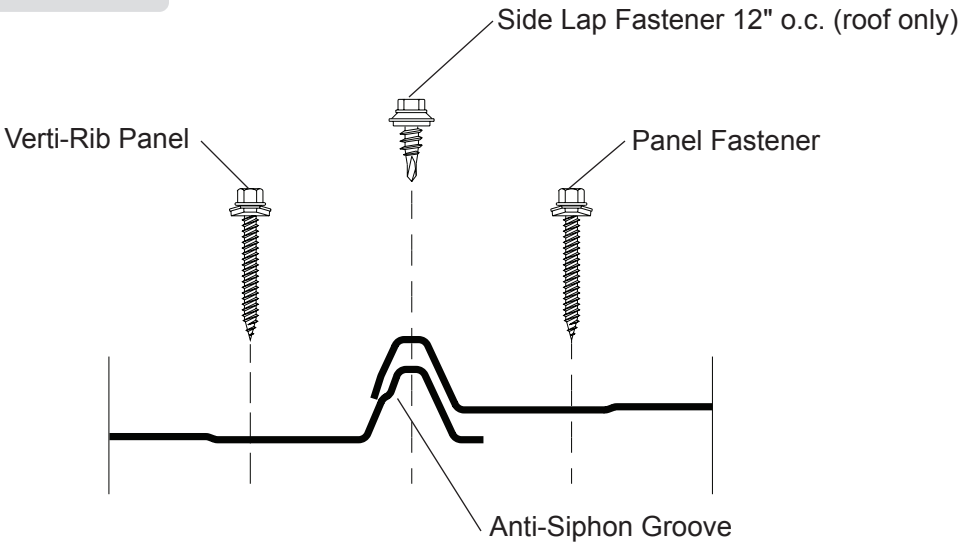
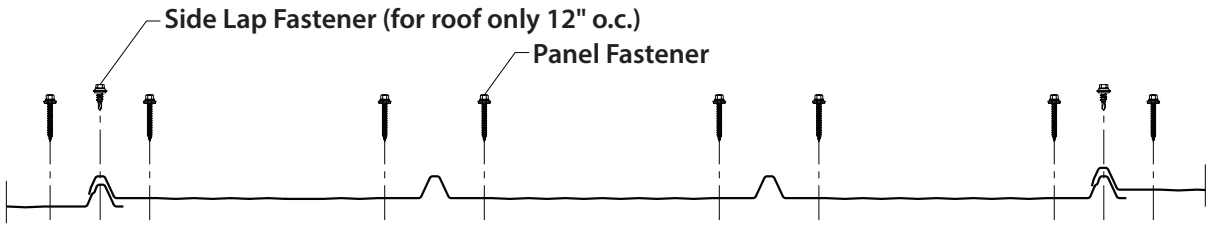
PANEL LAP DETAIL

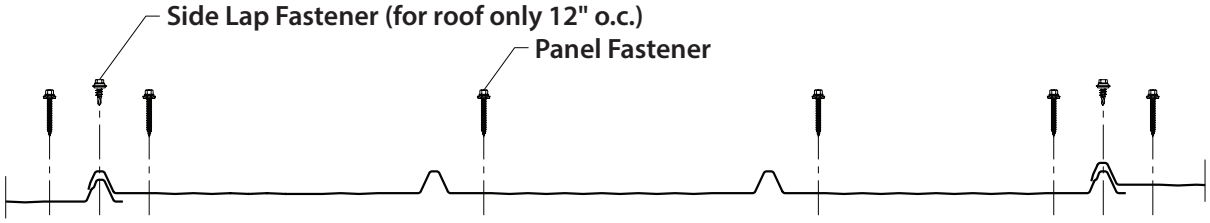


FASTENING PATTERNS

END OF PANEL



FIELD OF PANEL

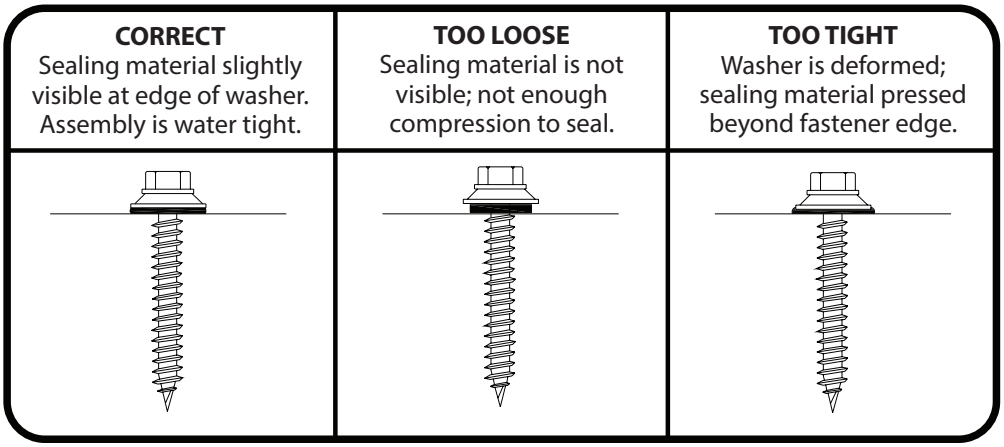


LOAD TABLES

SECTION PROPERTIES								ALLOWABLE UNIFORM LOADS, psf For various fastener spacings									
Ga	Width in	Yield ksi	Weight psf	Top in Compression		Bottom in Compression		Inward Load						Outward Load			
				Ixx in^4/ft	Sxx in^3/ft	Ixx in^4/ft	Sxx in^3/ft	1.5'	2'	2.5'	3'	3.5'	4'	1.5'	2'	2.5'	3'	3.5'	4'
29	36	80	0.62	0.0070	0.0100	0.0037	0.0083	85	48	31	21	16	12	103	58	37	26	19	15
26	36	80	0.79	0.0090	0.0132	0.0050	0.0107	110	62	40	28	20	16	135	77	49	34	25	19
24	36	50	1.03	0.0117	0.0171	0.0070	0.0143	145	82	53	37	27	21	146	83	53	37	27	21

1. Theoretical section properties have been calculated per AISI 2016 'North American Specification for the Design of Cold-Formed Steel Structural Members'. Ixx and Sxx are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with AISI 2016 specifications considering bending, shear, combined bending & shear and deflection. Allowable load does not address web crippling, fasteners or support material. Allowable load considers the three or more equal spans condition. Panel weight is not considered.
3. Deflection consideration is limited by a maximum deflection ratio of L/180 of span.
4. Allowable loads do not include a 1/3 stress increase for wind.

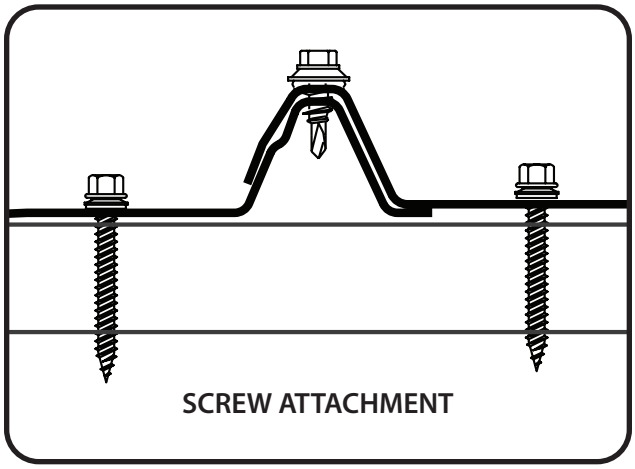
USING SCREWS:
For fastening with screws, it is best to use a painted or plated screw, Type A or driller tip with a flat rubber washer. The correct screw gun is also important to the proper installation of self-drilling or self-tapping screws. A tool with the appropriate speed and torque setting (as recommended by the fastener manufacturer) will help prevent fastener thread strip-out and possible damage to the panel or its coating.



SEATING THE WASHER - Apply sufficient torque to seat the washer - do not overdrive the fastener.

TO PREVENT WOBBLING - Make sure fastener head is completely engaged in the socket. If the head does not go all the way in the socket - tap the magnet deeper into the socket to allow full head engagement. Metal chips will build up from drilling and should be removed from time to time.

PROTECT DRILL POINT - Push only hard enough on the screw gun to engage clutch. This prevents excess friction and burn out of the drill point. Correct pressure will allow screw to drill and tap without binding.



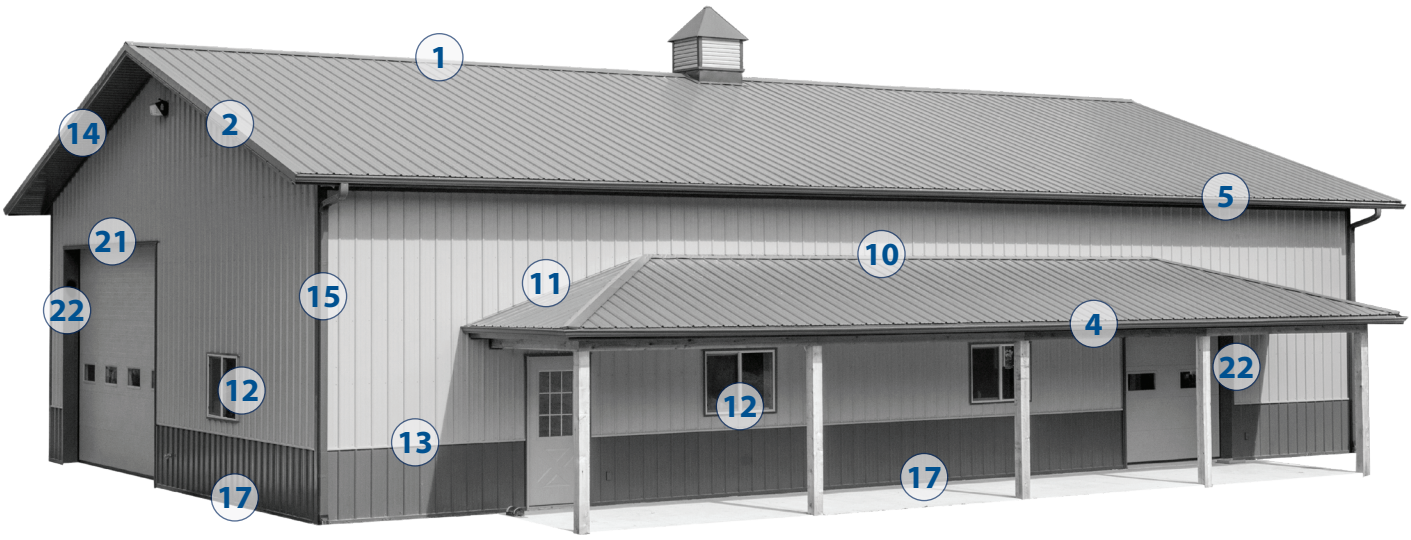
Expansion and Contraction

Verti-Rib is a direct-fastened panel system. Fasteners throughout the system penetrate the panel and secure the system to the building framing. When the temperature of the panels increase, the panels lengthen. When the temperature of the panels decrease, the panels shorten. This change in length can adversely affect the fastener connections by loosening the embedment in the supporting member, by causing the fasteners to back-out, by breaking fasteners and by elongating the fastener hole in the panels.

Strategies to address the effects of thermal expansion and contraction include: use shorter panel runs, use a flexible support system, install fasteners in ribs rather than in the panel flat between the ribs, breakup long panel runs by introducing a roof step, use endlaps without fasteners through the endlap - allowing the panels to slide at the endlap and use a slope-change type flashing to bridge a gap between panels - allowing the panels to move independently, rather than using an endlap.

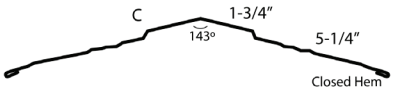
Thermal expansion and contraction should be considered on panels longer than 20'. Panel runs longer than 40' generally require some means of accommodating thermal expansion and contraction to avoid fastener issues.

POST FRAME FLASHINGS

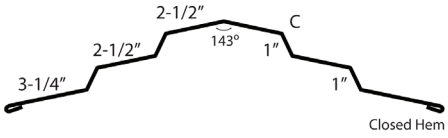


Flashings shown are representative of the types of flashings used. Actual flashings dimensions may vary slightly based on project location.

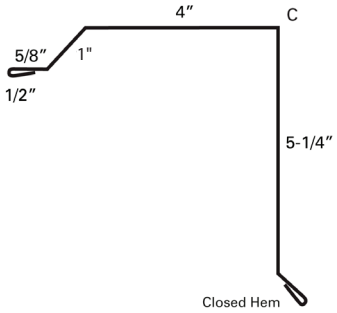
1 14" UNIVERSAL RIDGE



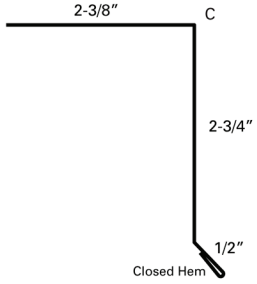
1 20" UNIVERSAL RIDGE



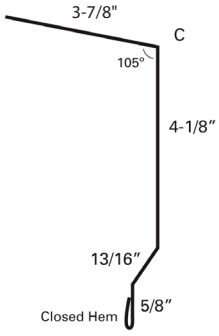
2 GABLE TRIM



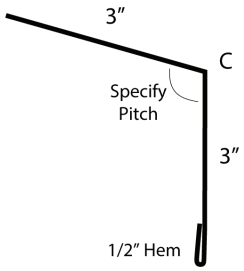
3 DRIP EDGE



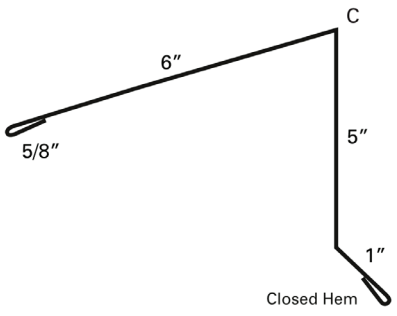
4 EAVE MOLDING



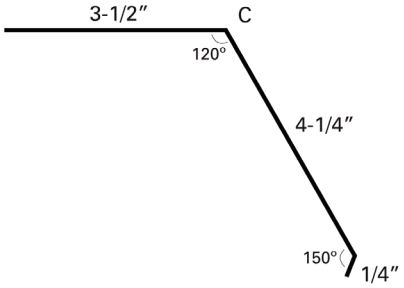
5 GUTTER DRIP



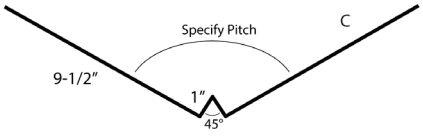
6 PEAK



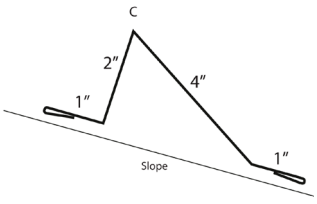
7 UNIVERSAL GAMBREL



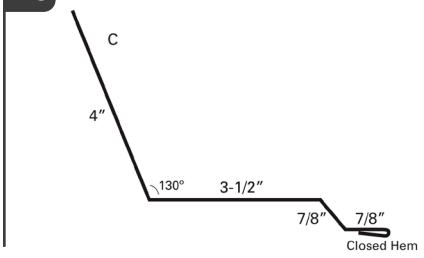
8 W-VALLEY



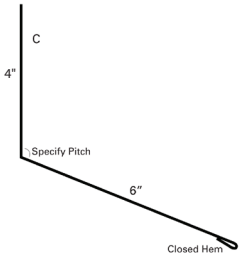
9 SNOW GUARD



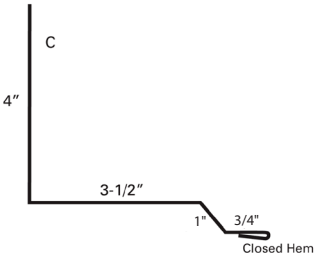
10 UNIVERSAL ENDWALL



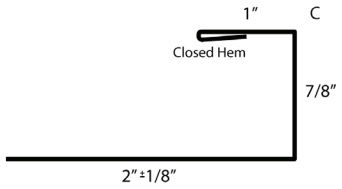
10 PITCH BREAK



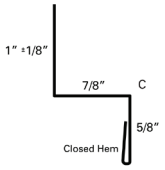
11 UNIVERSAL SIDEWALL



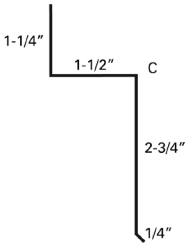
12 J-CHANNEL



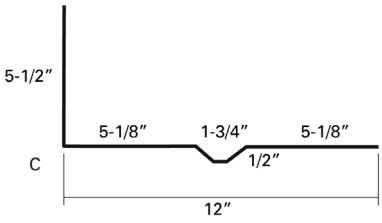
13 DOUBLE ANGLE



13 WIDE Z ANGLE

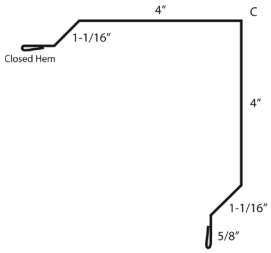


14 12" SOFFIT TRIM

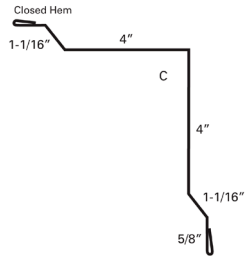


14 12" SOFFIT FASCIA TRIM

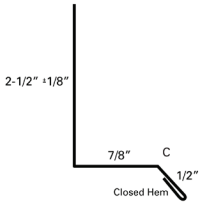
15 OUTSIDE CORNER



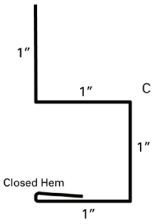
16 INSIDE CORNER



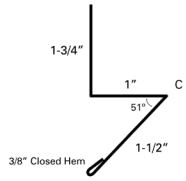
17 DRIP CAP



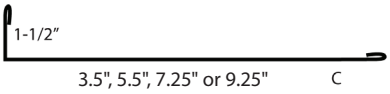
17 BASE MOLDING



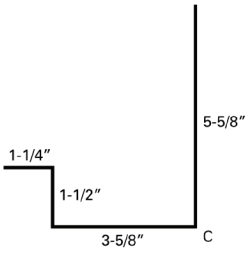
17 ANGLE BASE



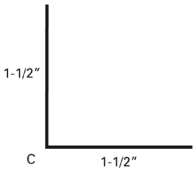
18 POST TRIM



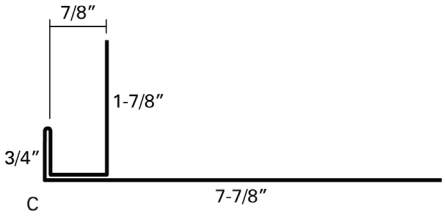
19 DOOR POST TRIM



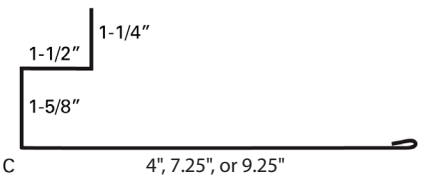
20 MINI ANGLE



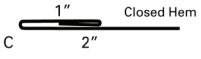
21 OVERHEAD DOOR TRIM



22 DOOR JAMB MOLDING



23 HEM TRIM



RESIDENTIAL FLASHINGS

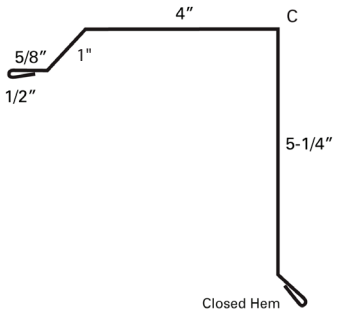
Flashings shown are representative of the types of flashings used. Actual flashings dimensions may vary slightly based on project location.

1 RESIDENTIAL RIDGE

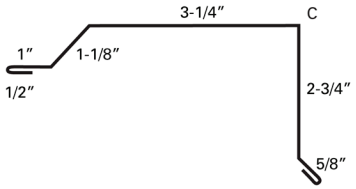
1 13" STEP RIDGE

1 RIDGE/HIP COVER

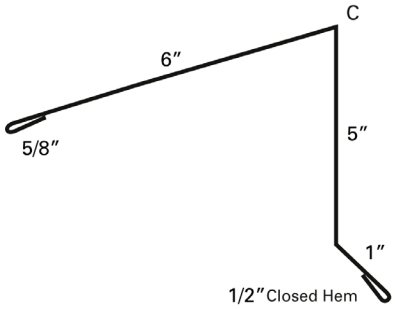
2 RESIDENTIAL RAKE



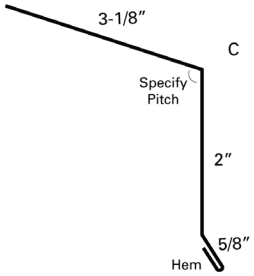
2 RESIDENTIAL RAKE



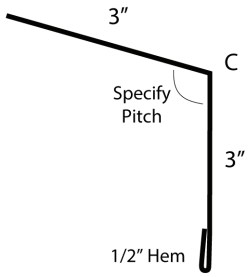
4 PEAK



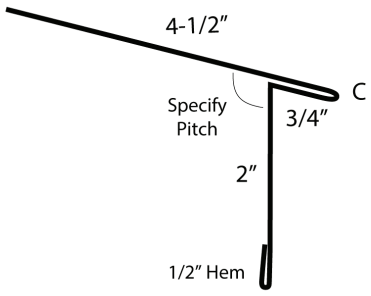
5 RESIDENTIAL EAVE



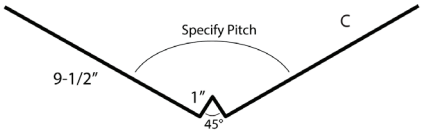
6 GUTTER DRIP



7 EXTENDED EAVE

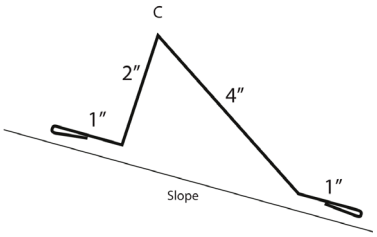


8 W-VALLEY 1"

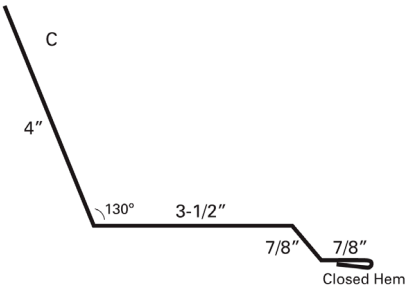


8 W-VALLEY 2"

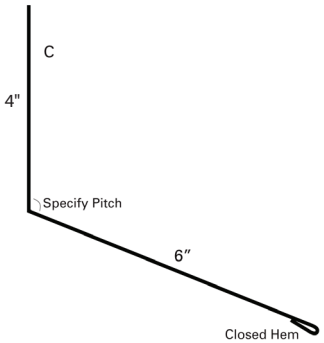
9 SNOW GUARD



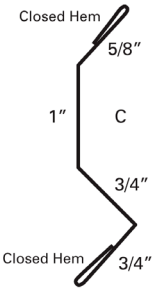
10 UNIVERSAL ENDWALL



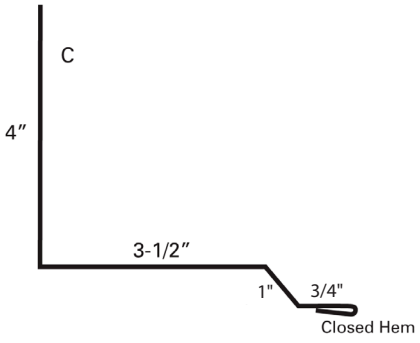
10 PITCH BREAK



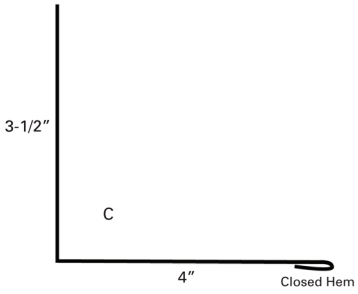
11 COUNTER FLASHING



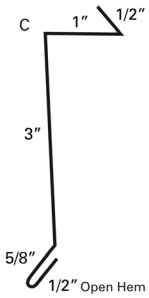
12 UNIVERSAL SIDEWALL



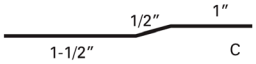
12 RAKEWALL



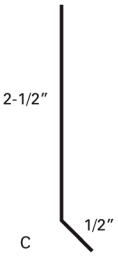
13 REGLET FLASHING



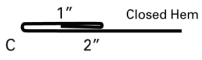
14 OFFSET CLEAT



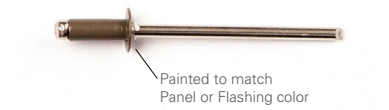
15 CLEAT



16 HEM TRIM

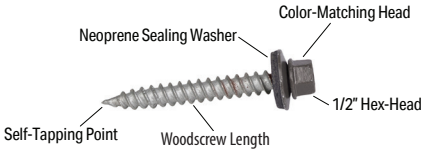


POP RIVET



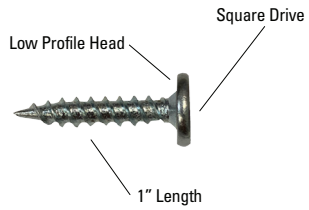
SIZE	TYPE	PRODUCT NO.	FINISH	APPLICATION
1/8" x 3/16"	Aluminum	8240901	Unpainted	Metal to Metal
1/8" x 3/16"	Aluminum	82409xx	Painted	Metal to Metal
1/8" x 3/8"	Aluminum	82402xx	Painted	Metal to Metal

WOODSCREW



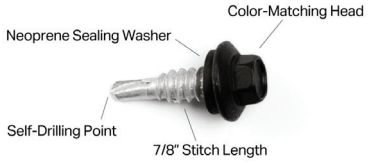
SIZE	TYPE	PRODUCT NO.	FINISH	APPLICATION
#10-14 x 1"	A	8211000	Unpainted	Panel to Wood
#10-14 x 1"	A	82110xx	Painted	Panel to Wood
#10-14 x 1 1/2"	A	8211200	Unpainted	Panel to Wood
#10-14 x 1 1/2"	A	82112xx	Painted	Panel to Wood
#10-14 x 2"	A	8211300	Unpainted	Panel to Wood
#10-14 x 2"	A	82113xx	Painted	Panel to Wood
#10-14 x 2 1/2"	A	8211400	Unpainted	Panel to Wood
#10-14 x 2 1/2"	A	82114xx	Painted	Panel to Wood
#10-14 x 3"	A	8211500	Unpainted	Panel to Wood
#10-14 x 3"	A	82115xx	Painted	Panel to Wood

PANCAKE HEAD WOODSCREW



SIZE	TYPE	PRODUCT NO.	FINISH	APPLICATION
#10-12 x 1"	A	8243100	Plated	Concealed

STITCH SCREW



SIZE	TYPE	PRODUCT NO.	FINISH	APPLICATION
1/4"- 14 x 7/8"	Stitch	8234800	Unpainted	Flashing to panel, Flashing to Flashing, Panel Sidelap
1/4"- 14 x 7/8"	Stitch	82348xx	Painted	Flashing to panel, Flashing to Flashing, Panel Sidelap

CLOSURES - WITH GLUE

	APPLICATION	TYPE	PRODUCT NO.	WEIGHT	COLOR
	Inside Closure	Polyethylene Foam	6452299	0.3 lbs	Grey
	Outside Closure	Polyethylene Foam	6452399	0.3 lbs	Grey

FLEX-O-VENT VENTED CLOSURE

SIZE	TYPE	PRODUCT NO.	COLOR
1" x 2" x 20'	Vented	6463599	Black
1" x 2" x 50'	Vented	6463550	Black

FLEXPRO PROFILE VENT

SIZE	TYPE	PRODUCT NO.	WT/EA
3/8" x 3/32" x 20'	With Adhesive	6466820	1.3 lbs
3/8" x 3/32" x 50'	With Adhesive	6466850	3.3 lbs

Net Free Area: **FlexPro Panel Fit - 1-1/8" free-standing product, NFA 26 sq. in.**
Air Permeability: **>800 cubic feet per minute**
Tear Strength: **3.5 ppi**
Tensile Strength: **16 psi – Elongation 175%**
Compressive Strength: **1.8 psi at 75%**

LP2 RIDGE VENT

SIZE	TYPE	PRODUCT NO.	WEIGHT	COLOR
36" Wide	Python™ Polyester Vent Material	6452399	0.7 lbs	Grey

SINGLE BEAD TUBE SEALANT

SIZE	TYPE	PRODUCT NO.	WT/CTN	CTN QTY
3/8" x 3/32" x 50'	Butyl	6404099	48.0 lbs	24 Rolls

TUBE SEALANT

SIZE	COLOR	TYPE	PRODUCT NO.	WT/CTN	CTN QTY
10.3 oz	White	Urethane	6402830	29.1 lbs	30
10.3 oz	Bronze	Urethane	6402999	29.1 lbs	30

MS-HT UNDERLAYMENT

SIZE	TYPE	COVERAGE	WEIGHT
36" x 67'-0"	Peel and Stick	2 Squares	44 lbs

VERTI-RIB™ PIPE BOOTS (RUBBER ROOF JACKS)

ROUND BASE

Hi-Temp

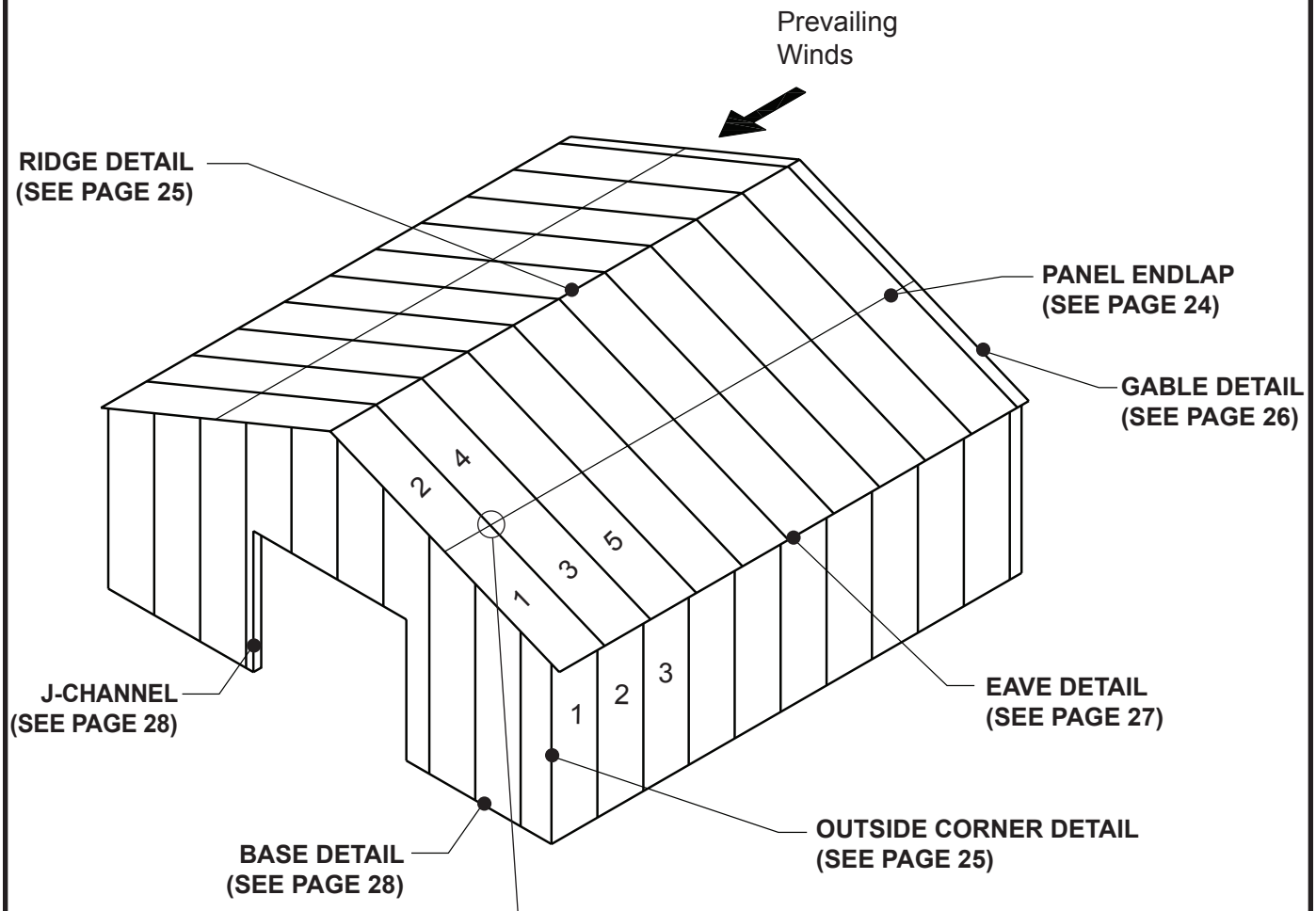
SIZE	TYPE	PRODUCT NO.	BASE DIAMETER	WEIGHT
#1 Flasher	Rubber	68501XX*	1/4" - 2"	0.9 lbs
#2 Flasher	Rubber	68502XX*	1 3/4" - 3 1/4"	1.5 lbs
#3 Flasher	Rubber	68503XX*	1/4" - 5"	2.1 lbs
#4 Flasher	Rubber	68504XX*	3" - 6 1/4"	2.8 lbs
#5 Flasher	Rubber	68505XX*	4 1/4" - 7 1/2"	3.9 lbs
#6 Flasher	Rubber	68506XX*	5" - 9"	4.6 lbs
#7 Flasher	Rubber	68507XX*	6" - 11"	5.9 lbs
#8 Flasher	Rubber	68508XX*	7" - 13"	7.0 lbs
#9 Flasher	Rubber	68509XX*	10" - 19"	10.2 lbs
*Special order colors: 93=Brown; 94=Green; 95=Red; 96=Blue; 97=White; 98=Grey; 99=Black				
#1 Flasher	HT Silicone	6850011	1/4" - 2"	3.0 lbs
#2 Flasher	HT Silicone	6850012	1 3/4" - 3 1/4"	3.5 lbs
#3 Flasher	HT Silicone	6850013	1/4" - 5"	4.0 lbs
#4 Flasher	HT Silicone	6850014	3" - 6 1/4"	4.5 lbs
#5 Flasher	HT Silicone	6850015	4 1/4" - 7 1/2"	5.0 lbs
#6 Flasher	HT Silicone	6850016	5" - 9"	6.0 lbs
#7 Flasher	HT Silicone	6850017	6" - 11"	11.0 lbs
#8 Flasher	HT Silicone	6850018	7" - 13"	12.0 lbs
#9 Flasher	HT Silicone	6850019	10" - 19"	13.0 lbs

RETROFIT

SIZE	TYPE	PRODUCT NO.	PIPE DIAMETER	WEIGHT
#1 Masterflash	Retrofit HT	6850060	1/4" - 2"	1.2 lbs
#2 Masterflash	Retrofit HT	6850061	1-1/4" - 3"	2.5 lbs
#3 Masterflash	Retrofit HT	6850062	1/4" - 4"	3.9 lbs
#1 Masterflash	Retrofit E.P.D.M	6850073	3/4" - 2-3/4"	1.2 lbs
#2 Masterflash	Retrofit E.P.D.M	6850074	2" - 7-1/4"	2.5 lbs
#3 Masterflash	Retrofit E.P.D.M	6850075	3/4" - 10"	3.9 lbs
#1 Masterflash	Retrofit E.P.D.M	6850070	3/4" - 2-3/4"	1.2 lbs
#2 Masterflash	Retrofit E.P.D.M	6850071	2" - 7-1/4"	2.5 lbs
#3 Masterflash	Retrofit E.P.D.M	6850072	3/4" - 10"	3.9 lbs
#1 Masterflash	Retrofit E.P.D.M	6850046	1/2" - 4"	1.2 lbs
#2 Masterflash	Retrofit E.P.D.M	6850047	1-1/4" - 3"	2.5 lbs
#3 Masterflash	Retrofit E.P.D.M	6850048	1/4" - 5"	3.9 lbs

POST FRAME OVERVIEW

■ As shown below with the number designations, install panel against the prevailing wind. Installing Wall Panels first then Roof Panels. All panels and trims must not hold water, but allow it to run off.
■ To minimize corrosion, siding panels should not be installed all the way to the ground.
■ Siding panels should lap over the foundations or splash boards at least three inches.
■ Make sure panels are square and plumb, to assure straight and proper alignment of the entire row of panels.
■ For areas with high wind considerations, closer fastener spacing may be required.
■ It is necessary to attach a temporary guide to the foundation to use as an alignment guide when installing siding panels.
■ Siphon groove side of panel must be overlapped with the non siphon groove side of the adjacent panel (if applicable).
■ When endlapping panels, both of the ridge panels must overlap the eave panels at the sidelaps.
■ At endlaps, apply Tape Sealant across the full width of the upper end of the eave panels. Tube sealant may be needed to fill some gaps.



NOTE: Panel 2 will overlap Panel 1 by the order of installation. Panel 2 must also overlap Panel 3 after it is installed. During installation of Panel 3 lift up the lower edge of Panel 2 and tuck Panel 3 under it before installing Panel 4. This installation will be the same throughout the length of the endlapped panels.

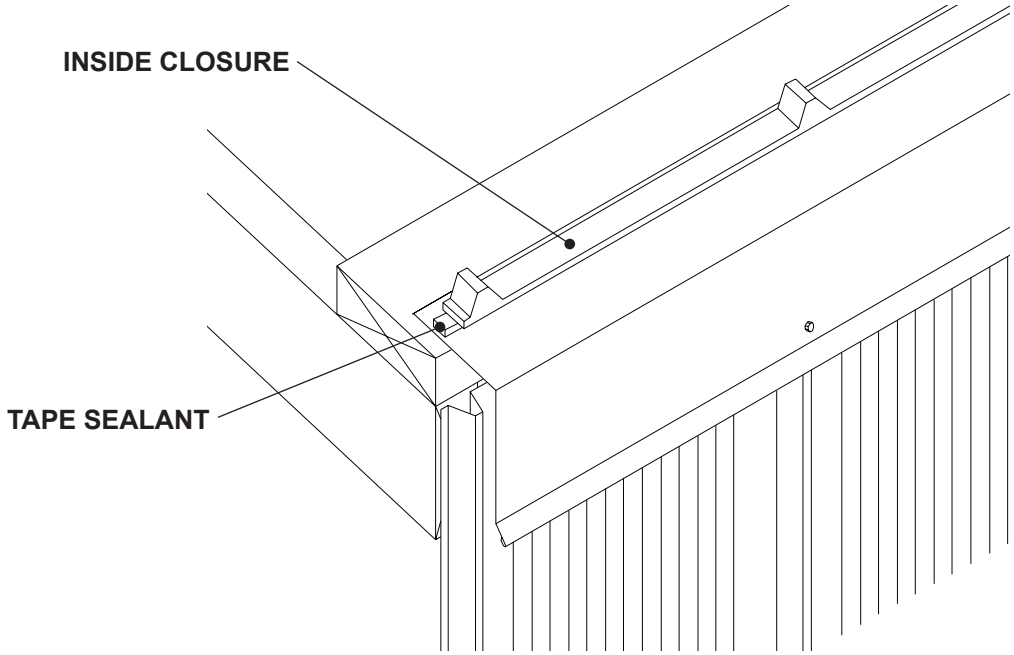
POST FRAME INSTALLATION

NOTE: -Eave Molding, Gutter and Valley Flashings must first be installed before panel installation can begin.
-Panels can be installed going from either left to right or right to left, looking from eave to peak.

INSTALLING INSIDE CLOSURES

STEP 1

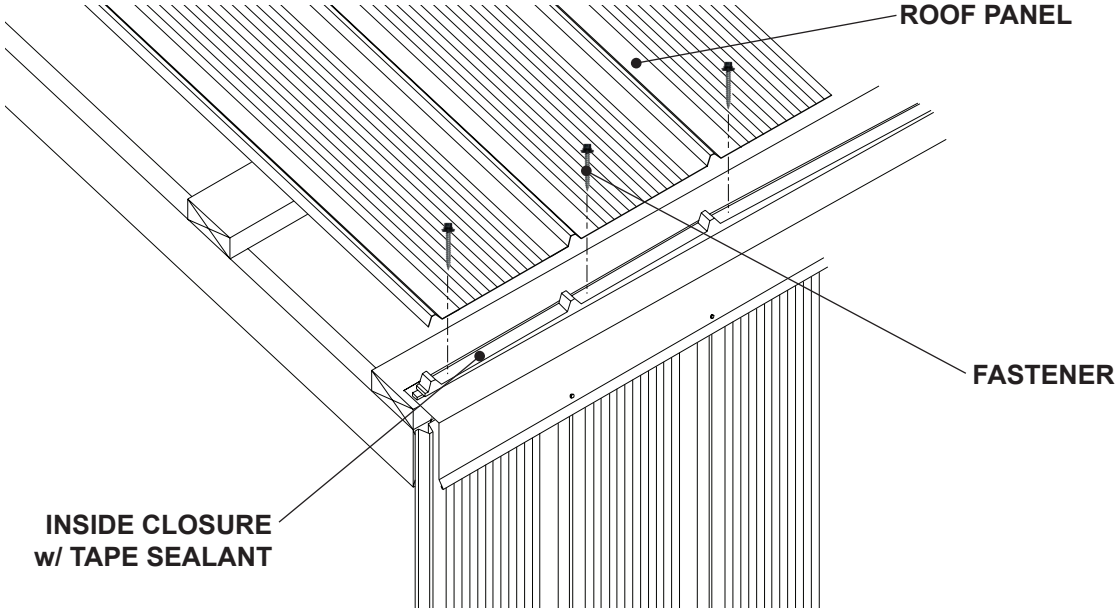
1. Apply a row of Tape Sealant across the top leg of the Eave Molding along the width of the building.
2. Align and place Inside Closures over the Tape Sealant. It is critical that Inside Closures are square to building as this will control the alignment of the panels. (See page 7 to check building square).
3. Apply a row of Tape Sealant across the top of the Inside Closure (Not shown for clarity).



INSTALLING FIRST PANEL

STEP 2

1. Install the first panel over the Inside Closure allowing desired overhang. Make sure the panel is square to the eave and rake.
2. Fasten through panel, closure and sealants into decking with appropriate amount of fasteners to meet local building code. (See fastening patterns on page 12). Fasteners must penetrate closure and sealant.
3. After securing panel at eave, repeat the fastening pattern at all panel support locations.

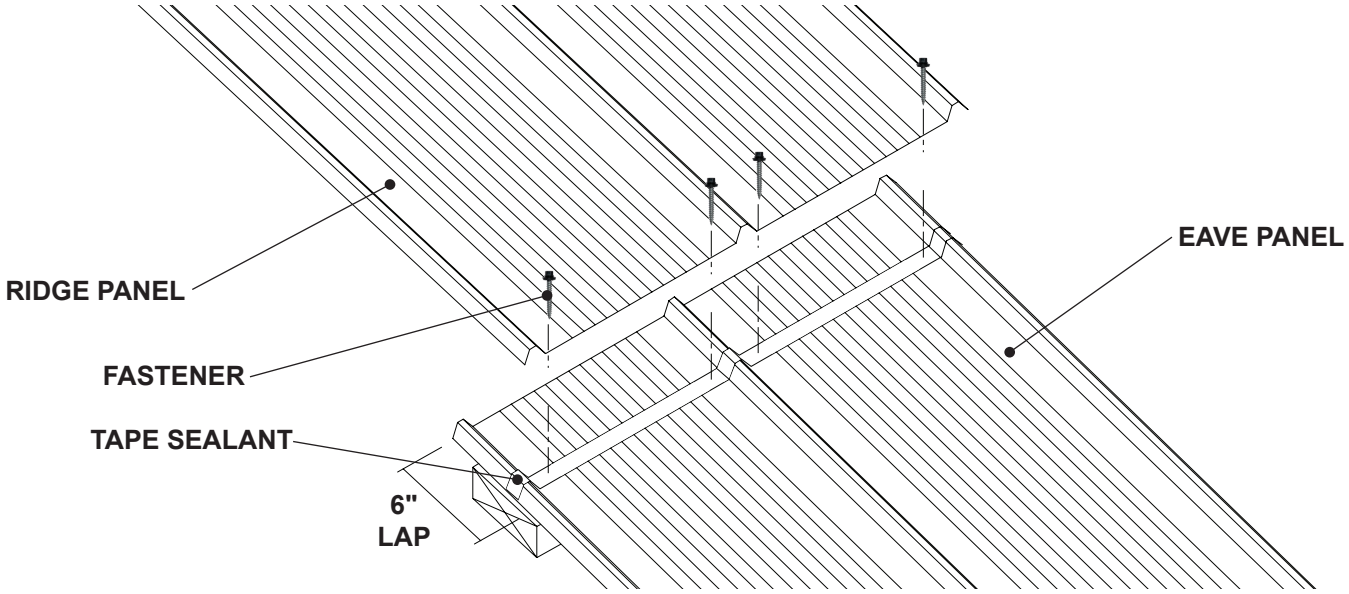


INSTALLING ENDLAP PANEL (IF REQUIRED)

STEP 3

1. Apply a row of Tape Sealant across and over the ribs of the eave panel about 3" from panel end.
2. Install the ridge panel over the eave panel and Tape Sealant with a 6" Endlap. Fasten through both panels and Tape Sealant into support with appropriate amount of fasteners to meet local building code. (See fastening patterns on page 12). Fasteners must penetrate sealant.
3. After securing panel, repeat the fastening pattern at all panel support locations.

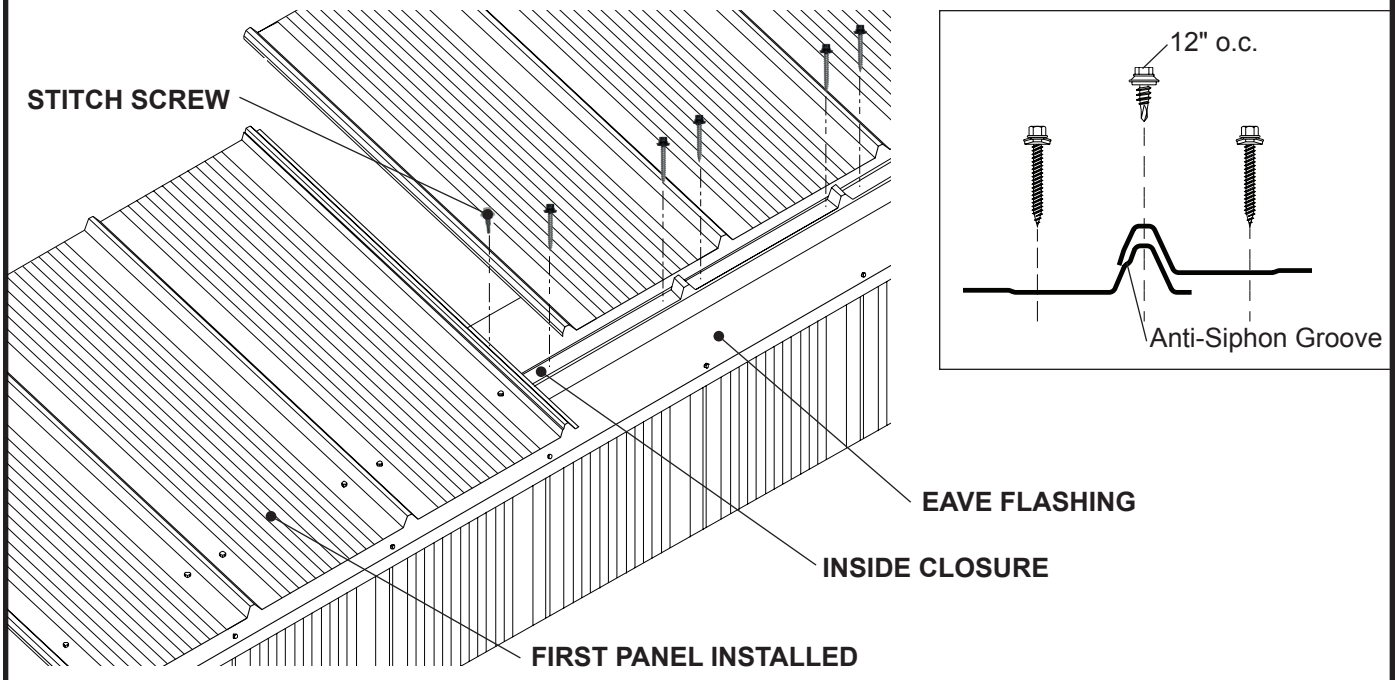
Note: When endlapping multiple panels, at the sidelaps, both Ridge Panels must overlap both Eave Panels.



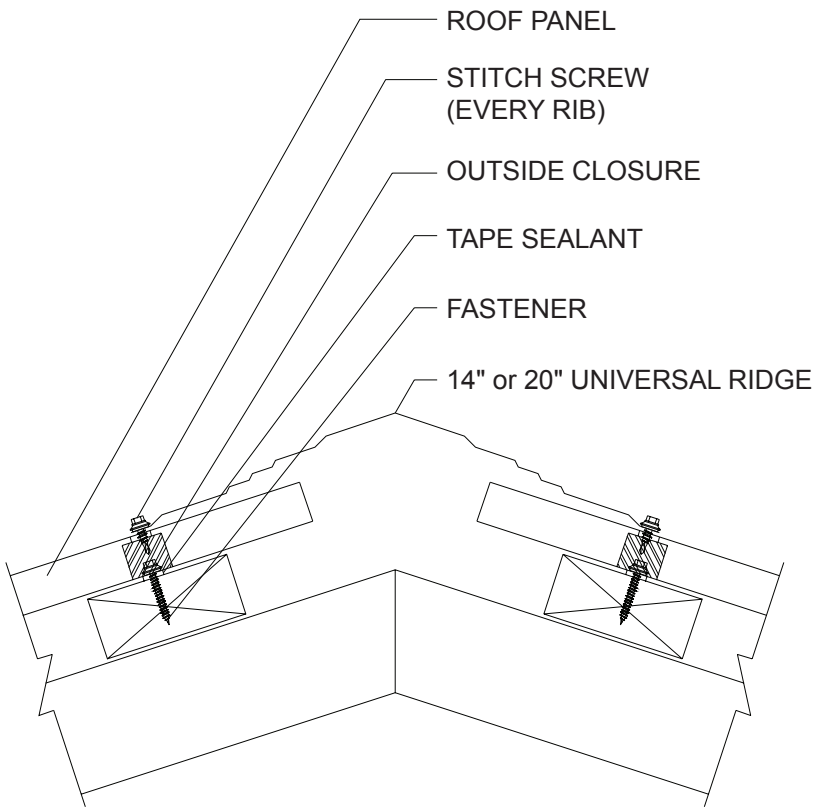
INSTALLING SIDELAP PANEL

STEP 4

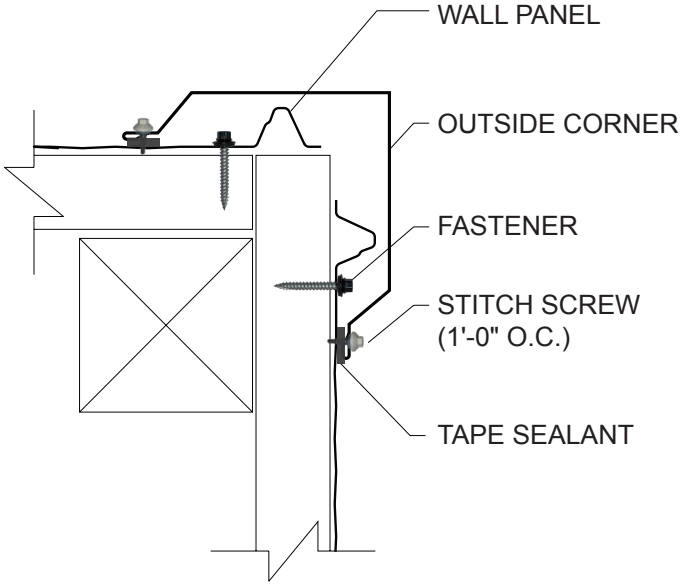
1. Place the Overlap Rib of the second panel on top of the Underlap Rib of the previously installed panel so that panel ends are flush at eave (See below).
2. Fasten through panel, closure, and Tape Sealant into support with appropriate amount of fasteners to meet local building code. (See fastening patterns-page 12). Fasteners must penetrate closure and sealant.
3. After securing panel, repeat the fastening pattern at all panel support locations.



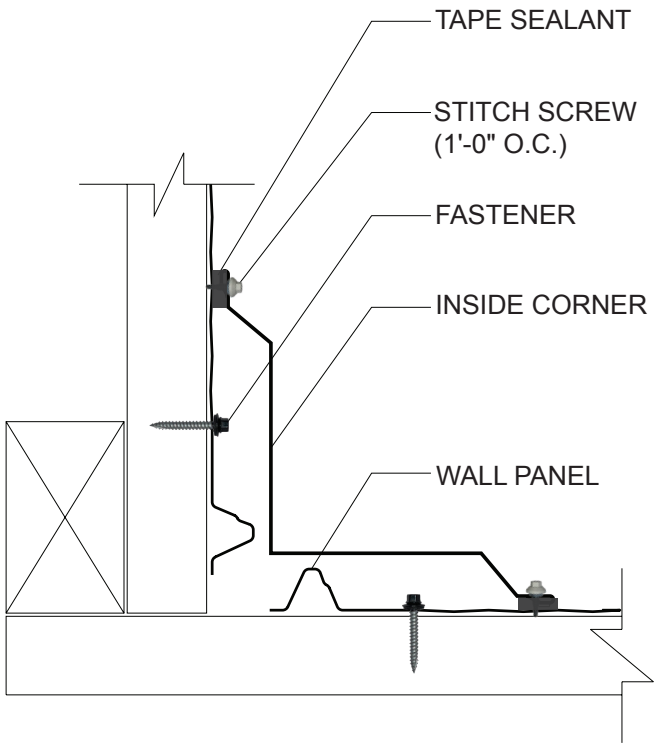
RIDGE DETAIL



OUTSIDE CORNER DETAIL

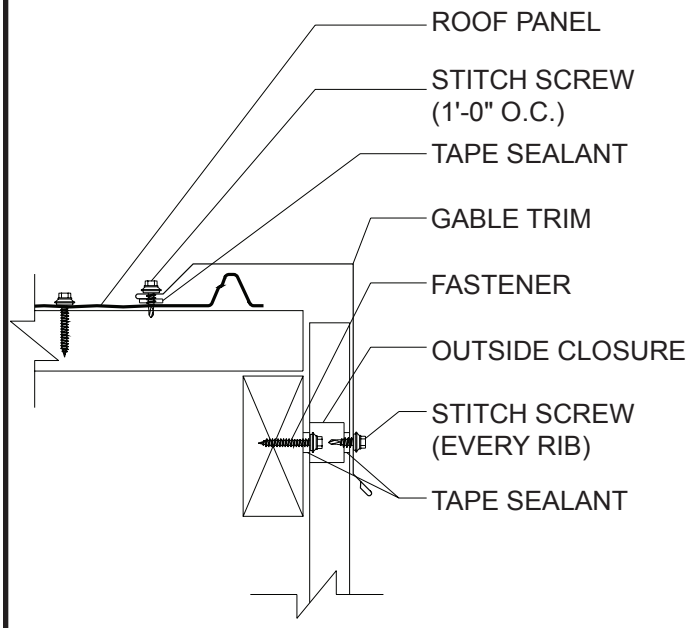


INSIDE CORNER DETAIL

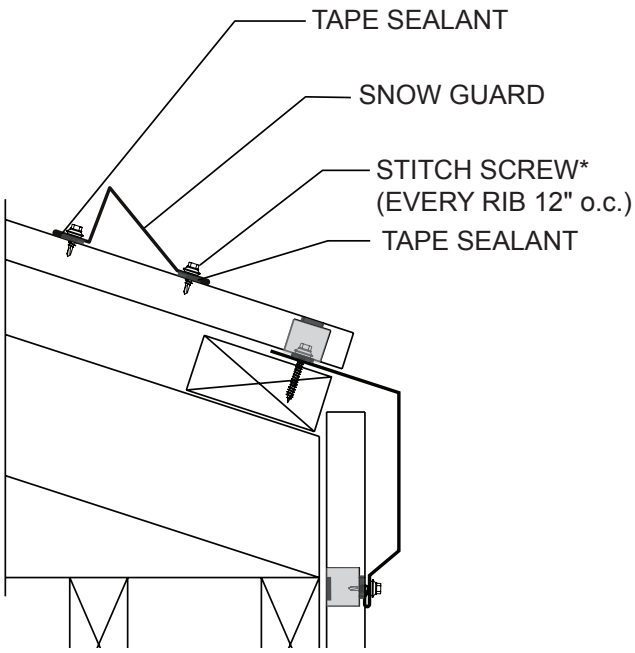


POST FRAME DETAILS

GABLE TRIM DETAIL



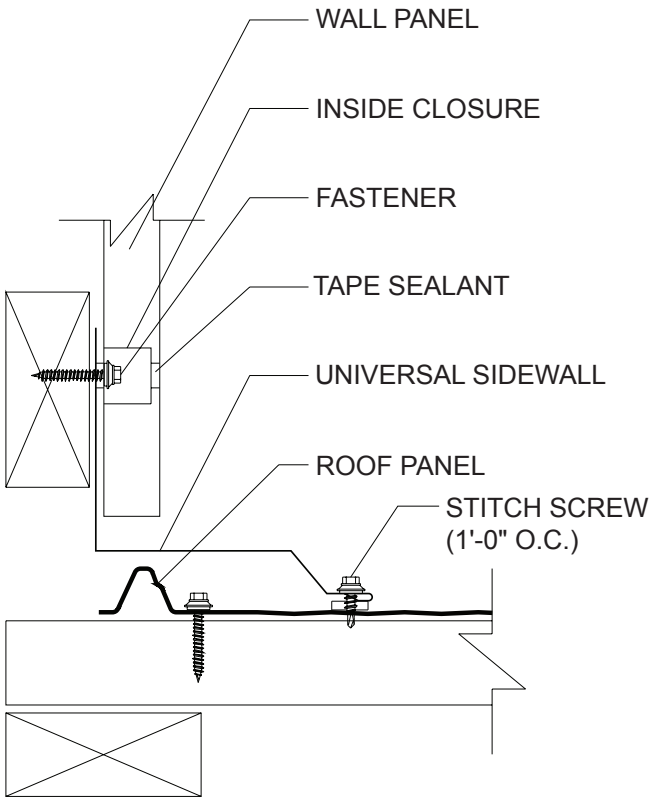
SNOW GUARD DETAIL



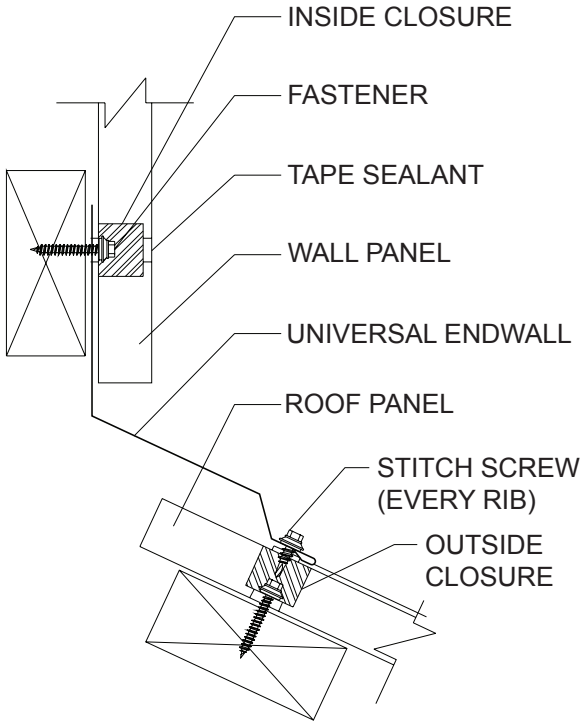
*Apply a piece of Tape Sealant between the Snow Guard and the panel at each Stitch Screw.

NOTE: Additional Snow Guard flashings may be necessary in some applications.

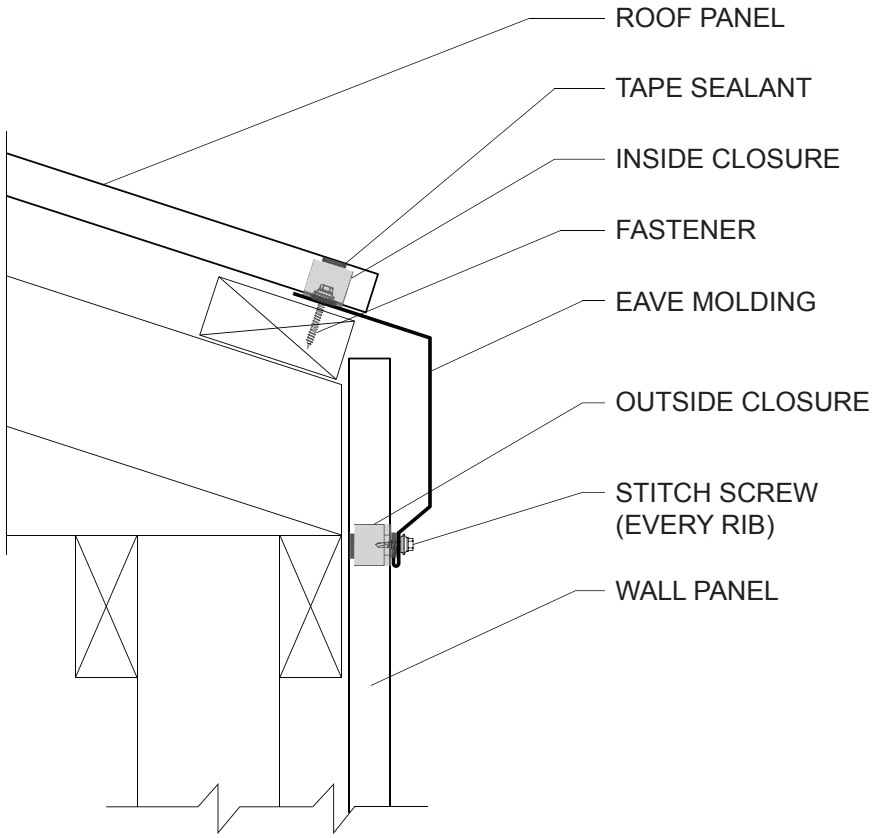
UNIVERSAL SIDEWALL DETAIL



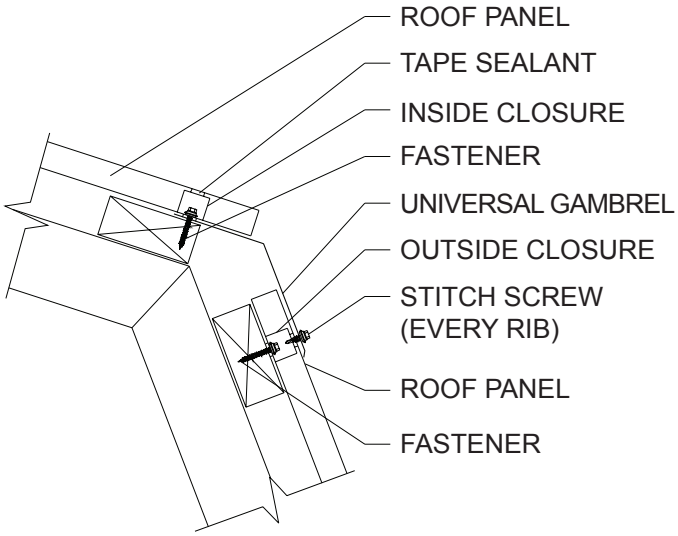
UNIVERSAL ENDWALL DETAIL



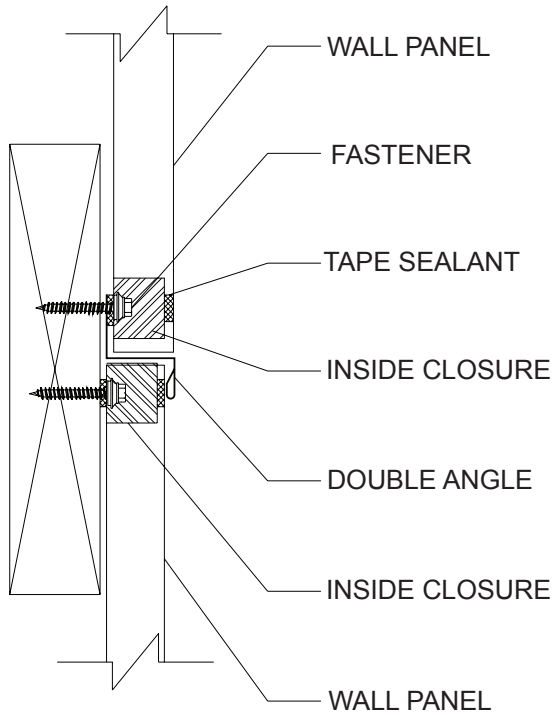
EAVE MOLDING DETAIL



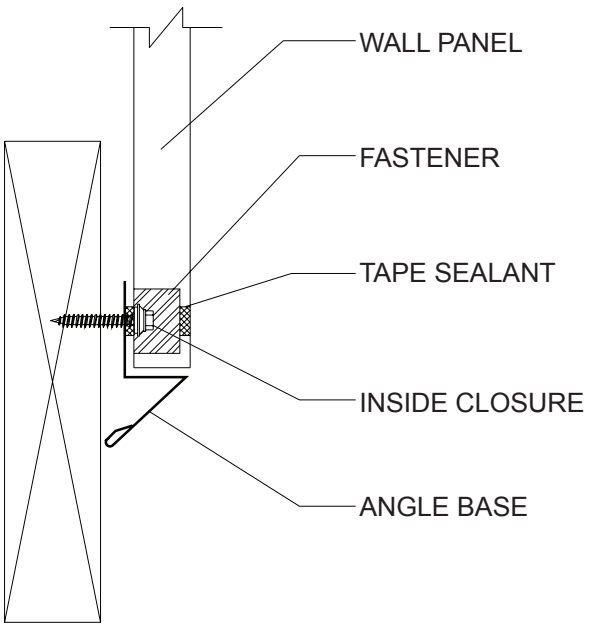
GAMBREL DETAIL



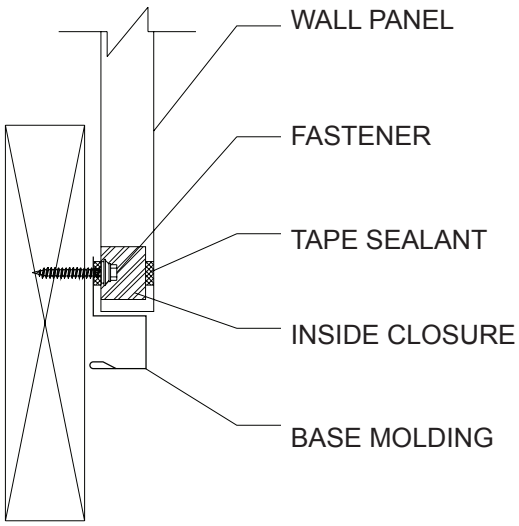
DOUBLE ANGLE DETAIL



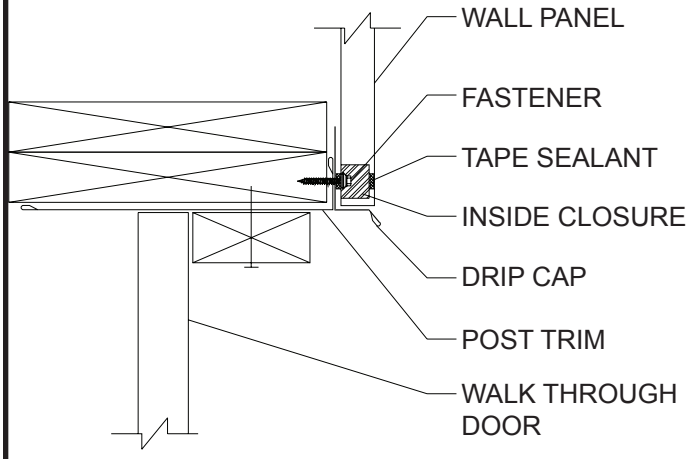
ANGLE BASE DETAIL



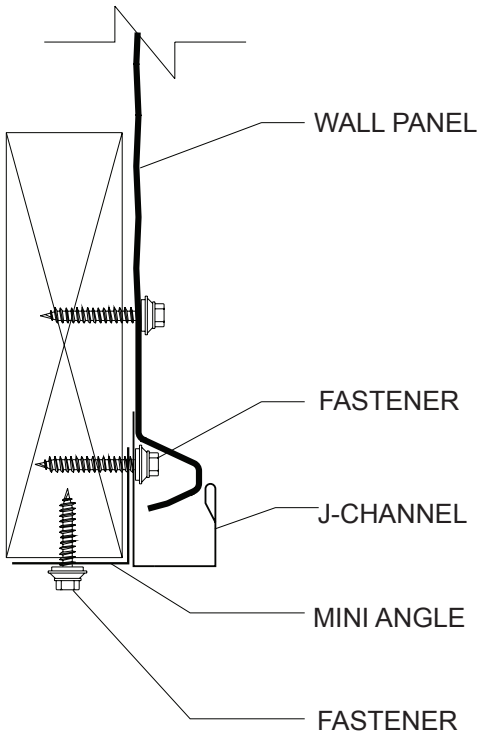
BASE MOLDING DETAIL



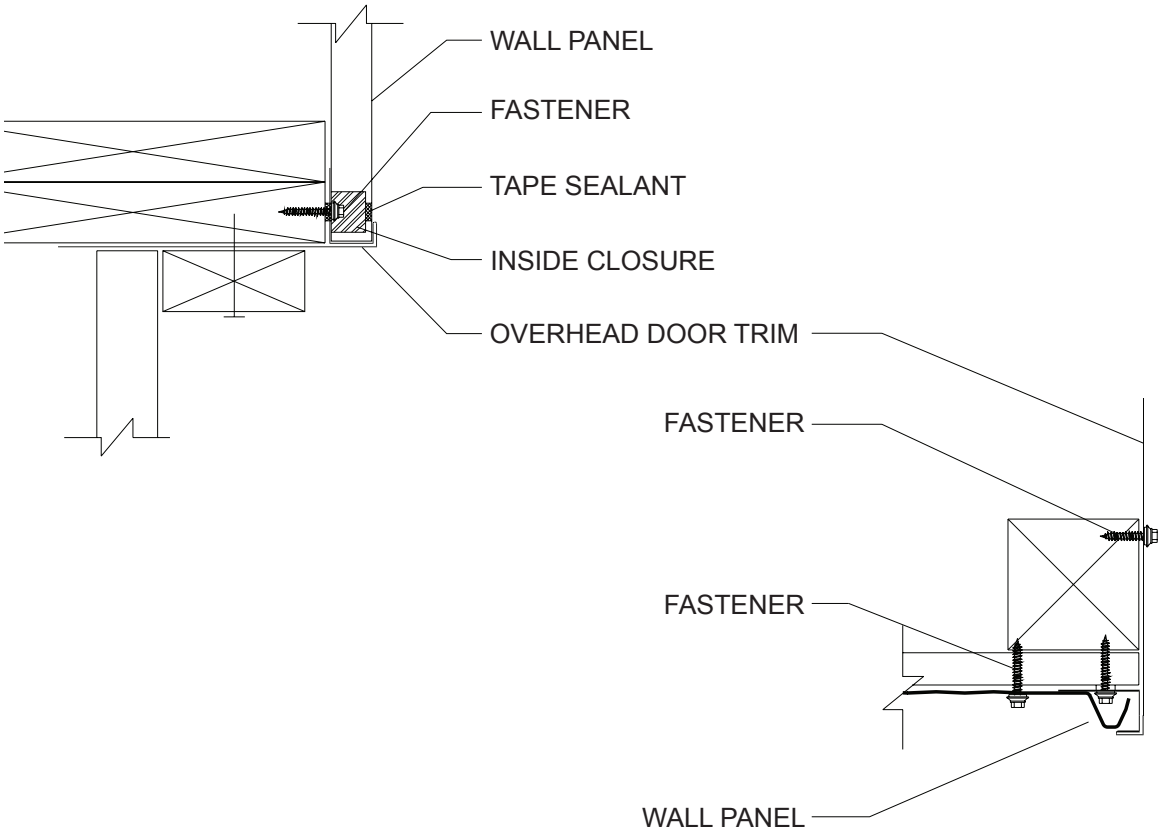
DRIP CAP DETAIL



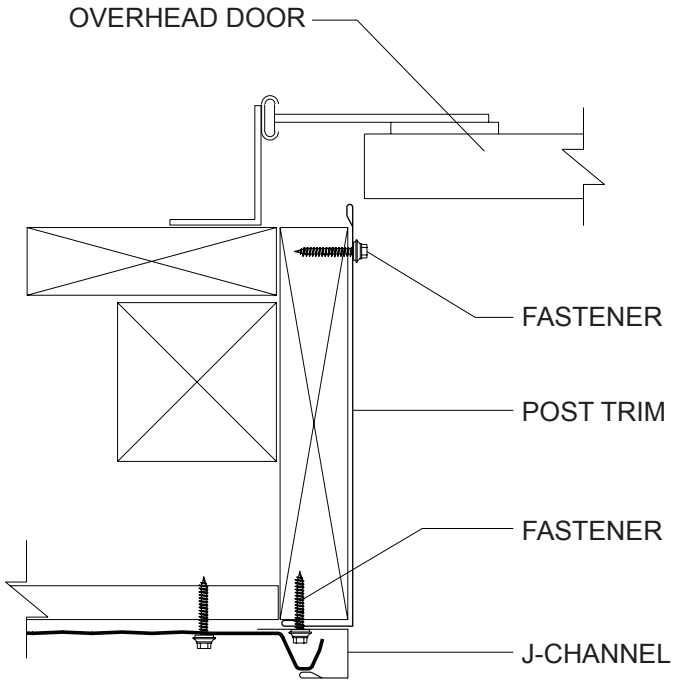
MINI-ANGLE DETAIL



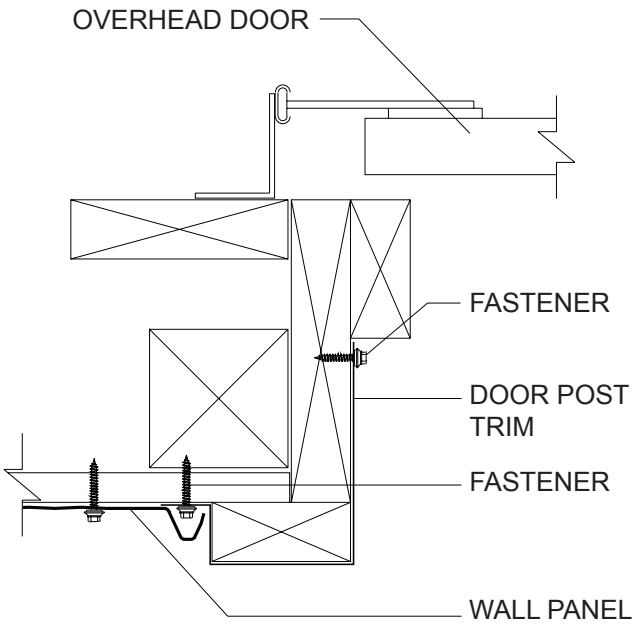
OVERHEAD DOOR TRIM DETAIL



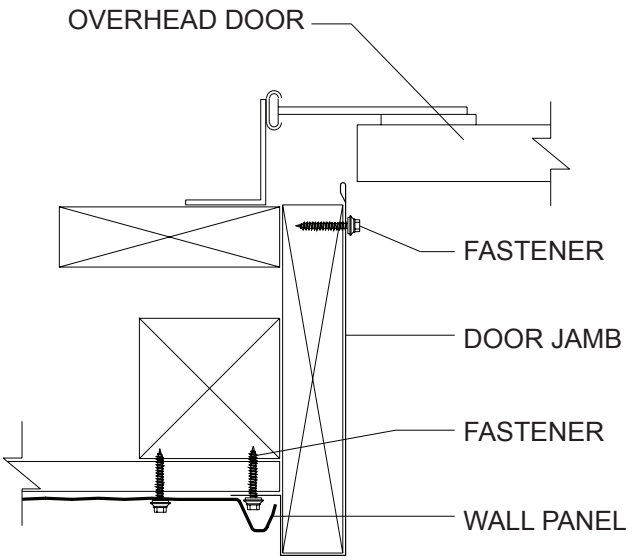
POST TRIM DETAIL



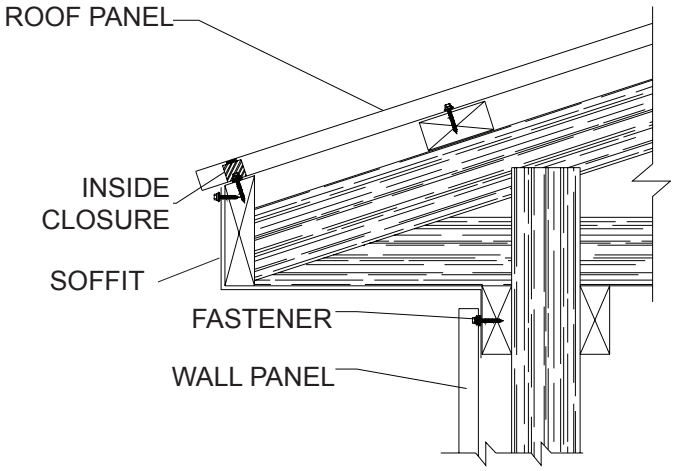
DOOR POST TRIM DETAIL



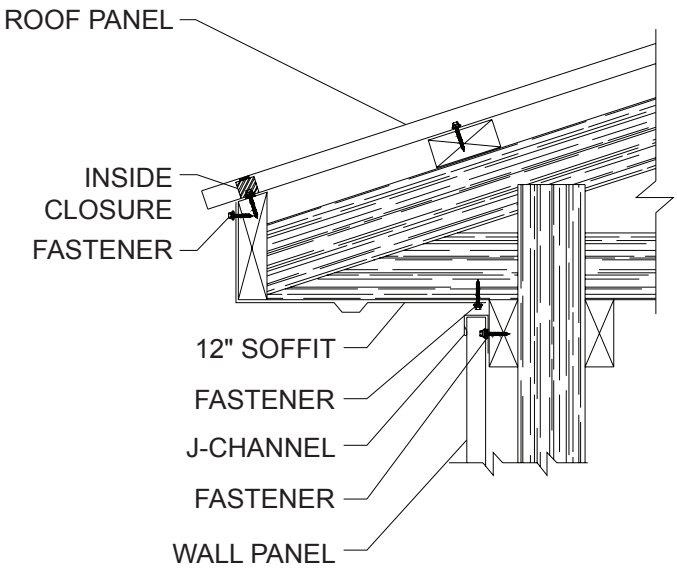
DOOR JAMB DETAIL



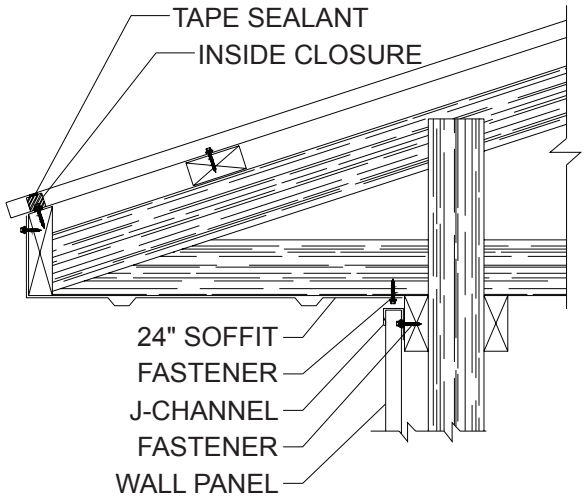
SOFFIT DETAIL



12" SOFFIT DETAIL

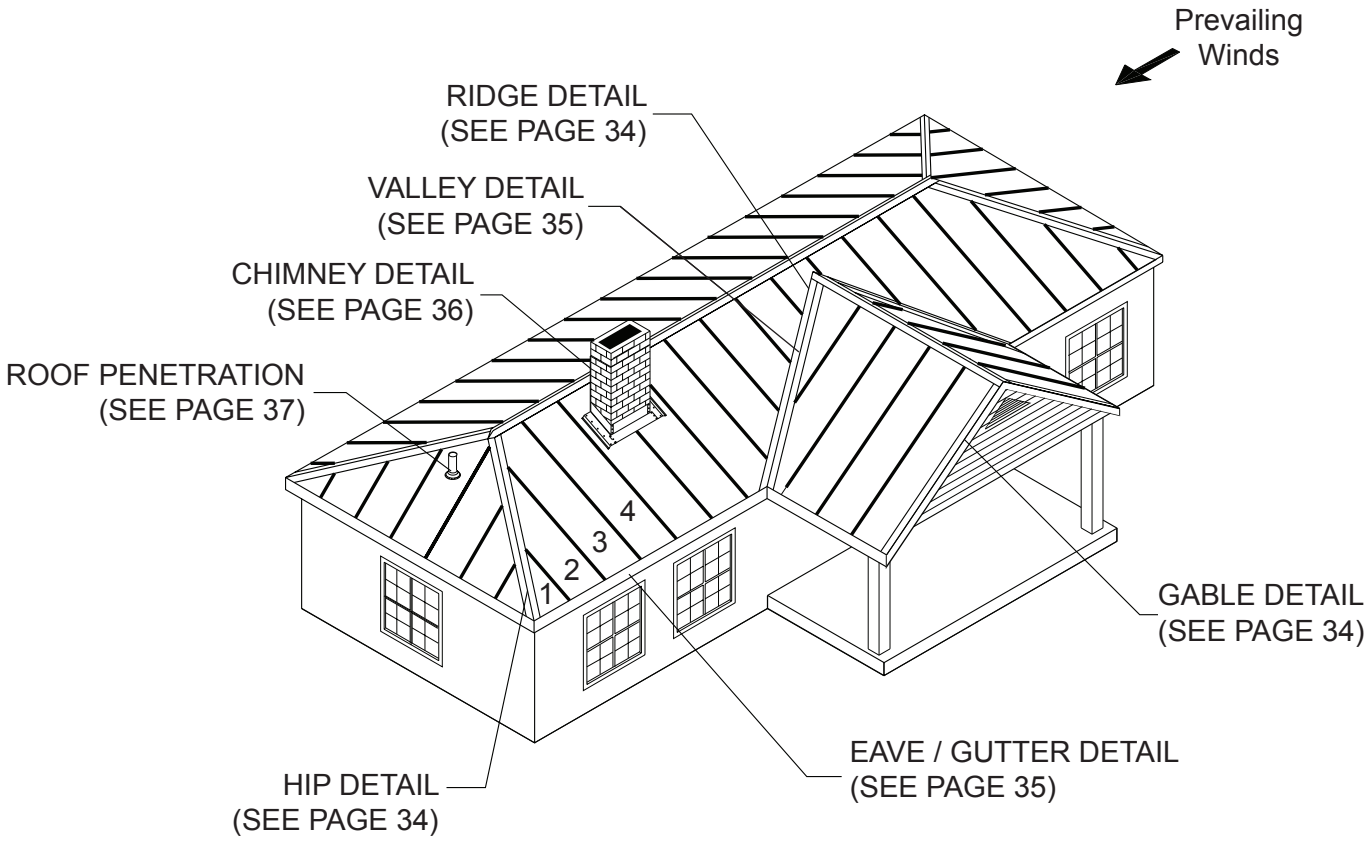


24" SOFFIT DETAIL



RESIDENTIAL OVERVIEW

- As shown below with the number designations, install panel against the prevailing wind.
- Make sure panels are square and plumb, to assure straight and proper alignment of the entire row of panels.
- For areas with high wind considerations, closer fastener spacing may be required.
- It is necessary to attach a temporary guide to the foundation to use as an alignment guide when installing siding panels.
- Anti-Siphon groove side of panel must be overlapped with the non-siphon groove side of the adjacent panel.

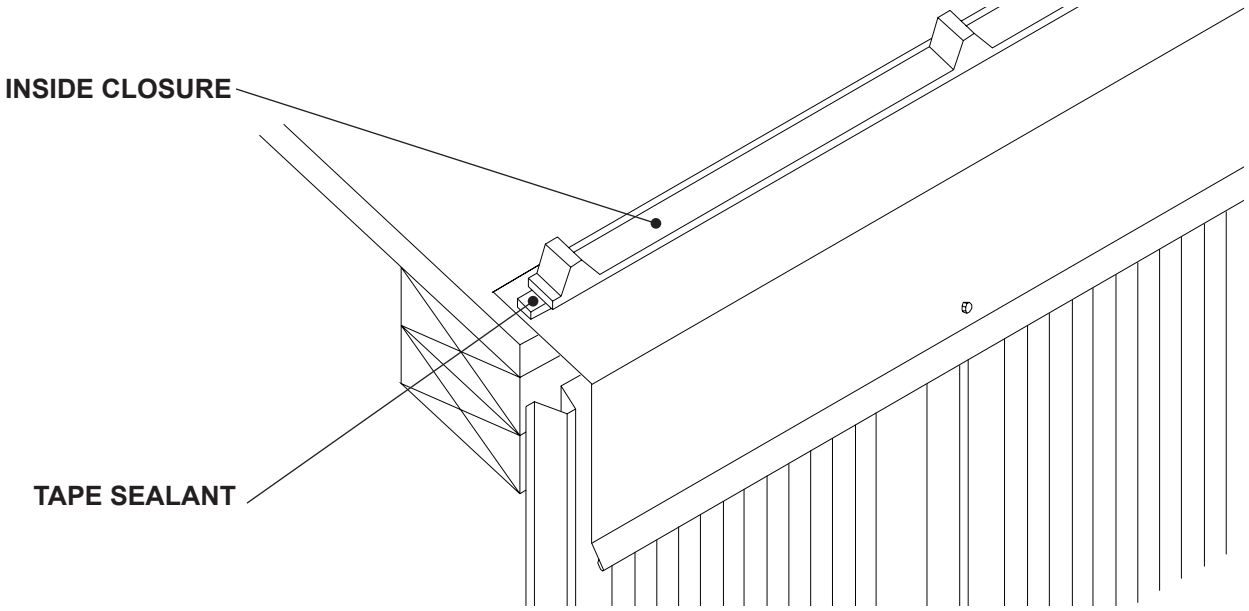


NOTE: -Eave Molding, Gutter and Valley Flashings must first be installed before panel installation can begin.
-Panels can be installed going from either left to right or right to left, looking from eave to peak.

INSTALLING INSIDE CLOSURES

STEP 1

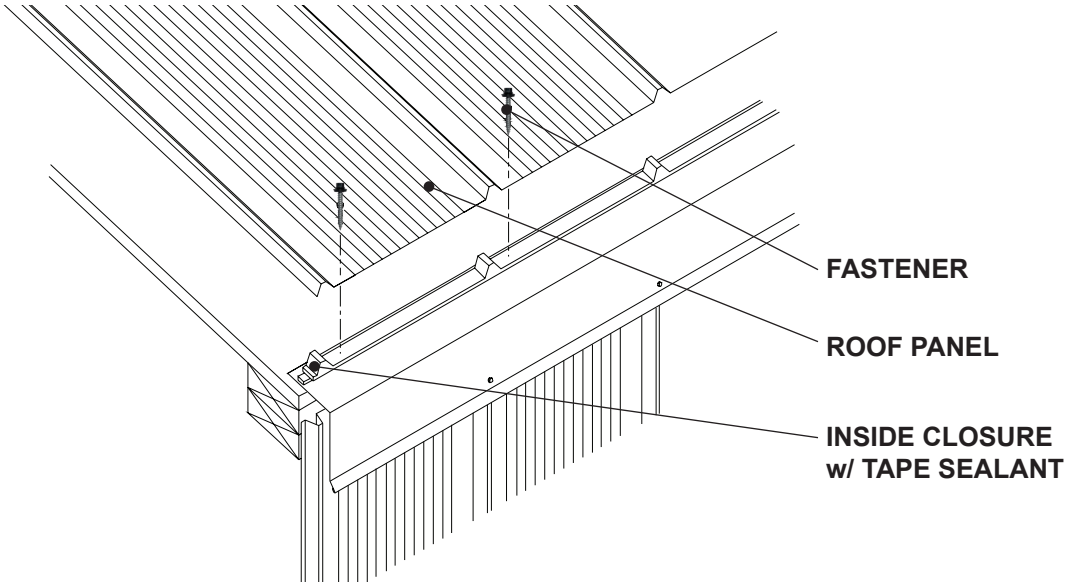
1. Apply a row of Tape Sealant across the top leg of the Eave Molding along the width of the building.
2. Align and place Inside Closures over the Tape Sealant. It is critical that Inside Closures are square to building as this will control the alignment of the panels. (See page 7 to check building square).
3. Apply a row of Tape Sealant across the top of the Inside Closure (not shown for clarity).



INSTALLING FIRST PANEL

STEP 2

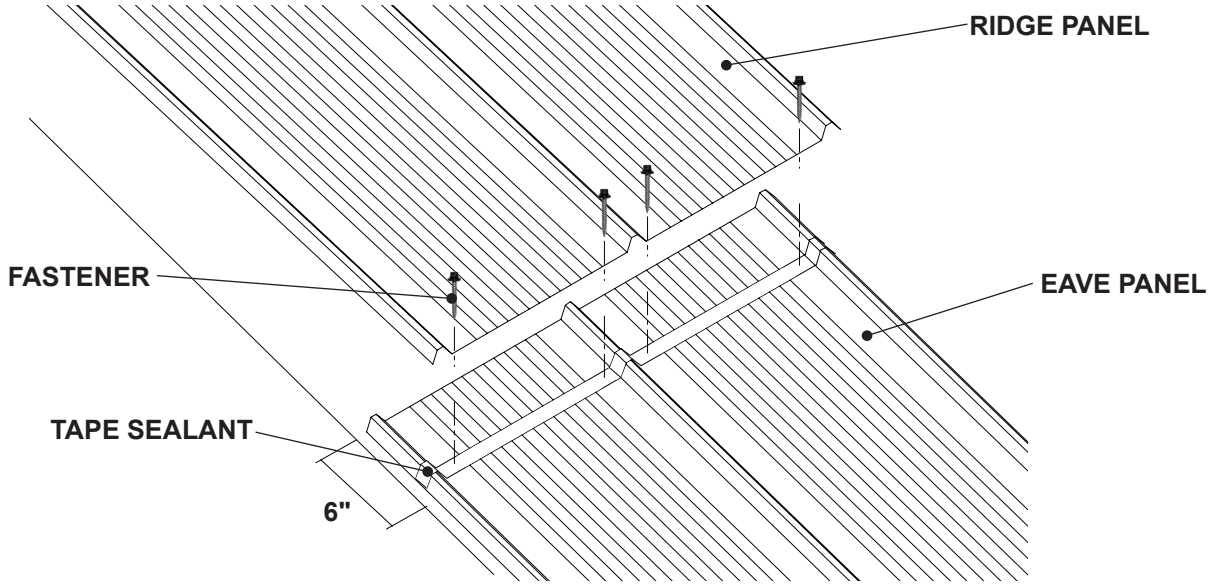
1. Install the first panel over the Inside Closure to allow for desired overhang. Make sure the panel is square to the eave and rake.
2. Fasten through panel, closure and sealants into decking with appropriate amount of fasteners to meet local building code. (See fastening patterns on page 12). Fasteners must penetrate closure and sealant.
3. After securing panel at eave, repeat the fastening pattern at the appropriate spacing to meet local building codes.



INSTALLING ENDLAP PANEL (IF REQUIRED)

STEP 3

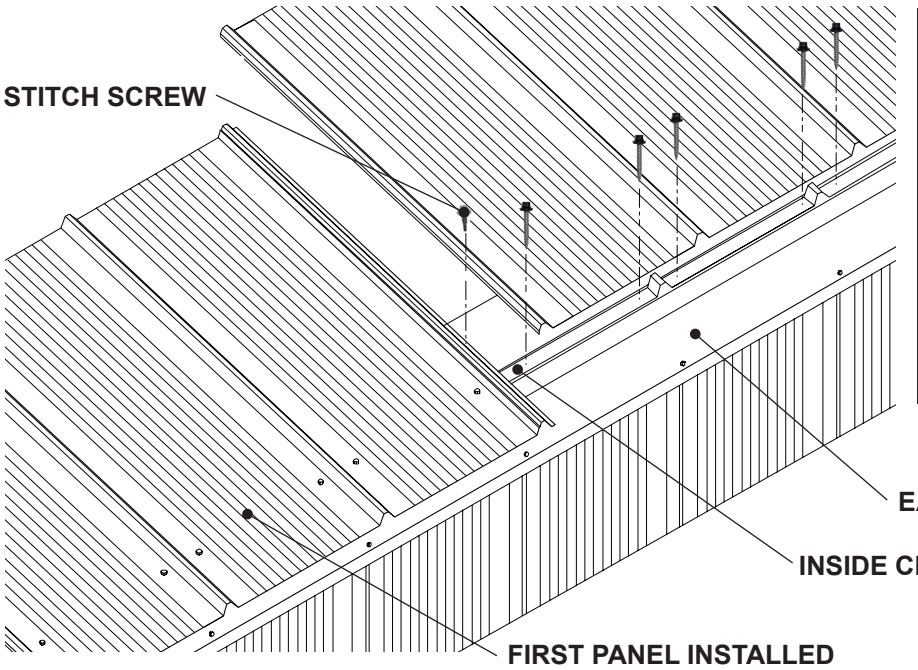
1. Apply a row of Tape Sealant across and over the ribs of the first panel about 3" from panel end.
2. Install the second panel over the first panel and Tape Sealant with a 6" Endlap. Fasten through both panels and Tape Sealant into support with appropriate amount of fasteners to meet local building code. (See fastening patterns on page 12). Fasteners must penetrate sealant.
3. After securing panel at eave, repeat the fastening pattern at the appropriate spacing to meet local building codes.

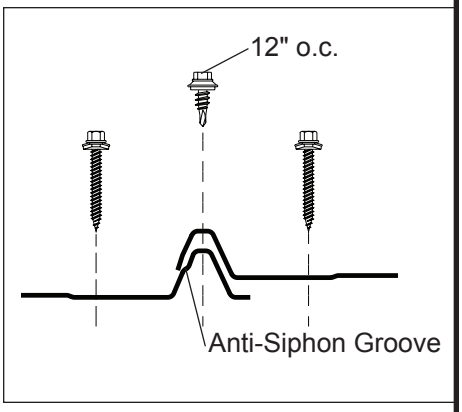


INSTALLING SECOND EAVE PANEL

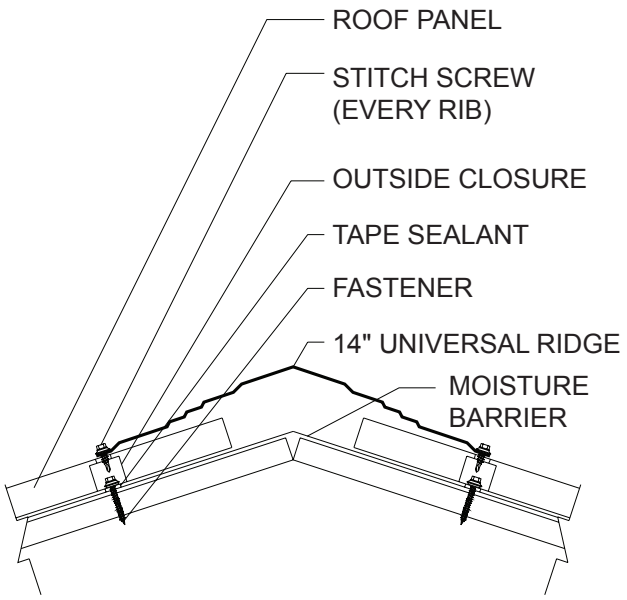
STEP 4

1. Place the Overlap Rib of the second panel on top of the Underlap Rib of the previously installed panel so that panel ends are flush at eave (See below).
2. Fasten through panel, closure and Tape Sealant into support with appropriate amount of fasteners to meet local building code. (See fastening patterns on page 12). Fasteners must penetrate closure and sealant.
3. After securing panel at eave, repeat the fastening pattern at the appropriate spacing to meet local building codes.

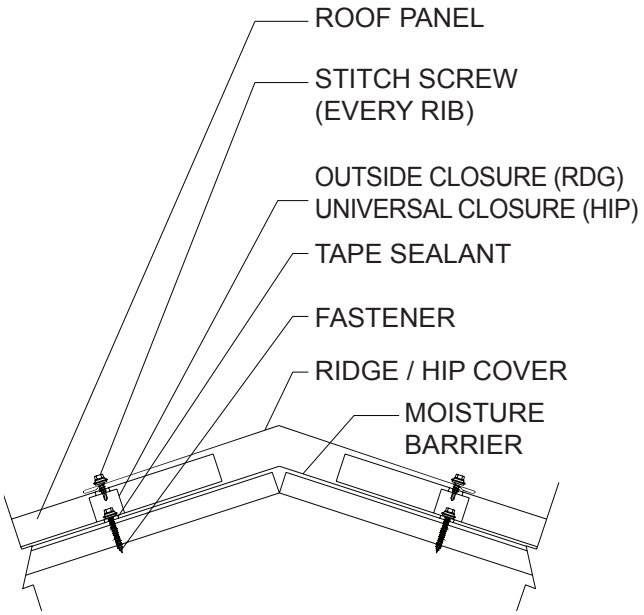




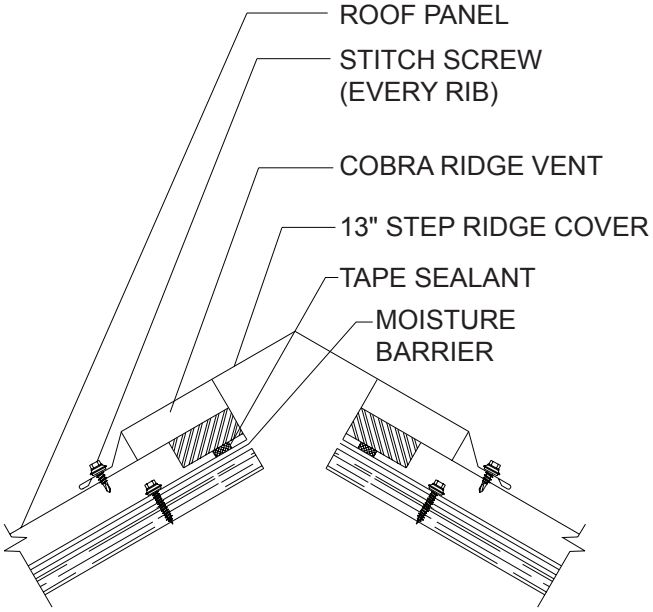
14" UNIVERSAL RIDGE DETAIL



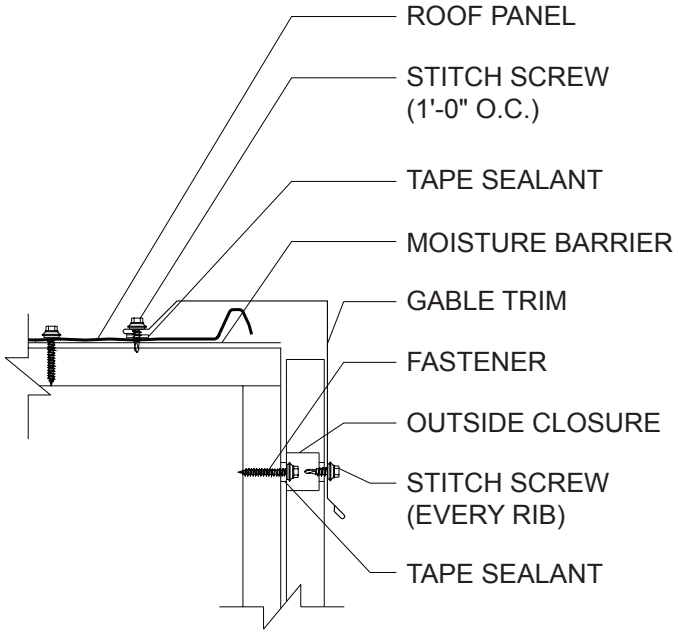
RIDGE / HIP COVER DETAIL



VENTED RIDGE DETAIL

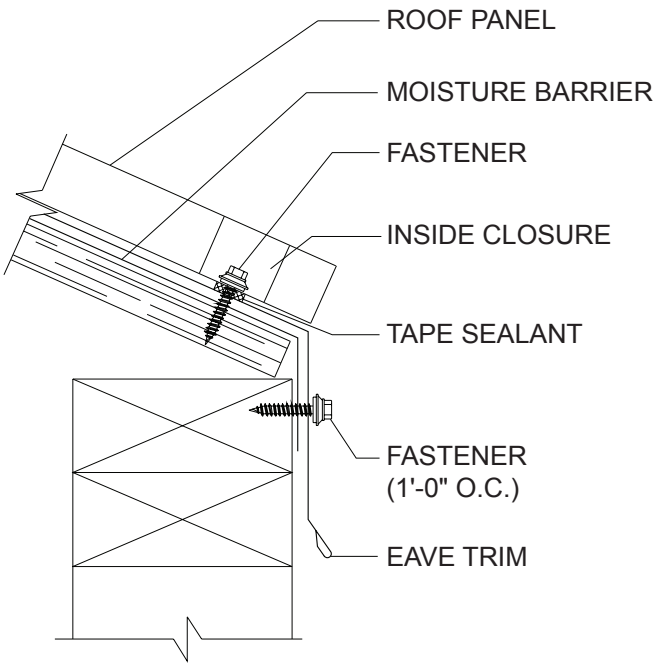


GABLE TRIM DETAIL

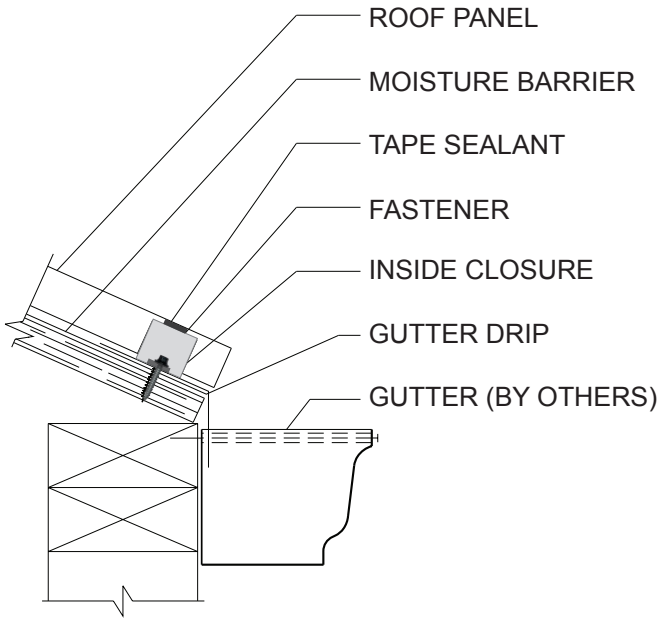


RESIDENTIAL DETAILS

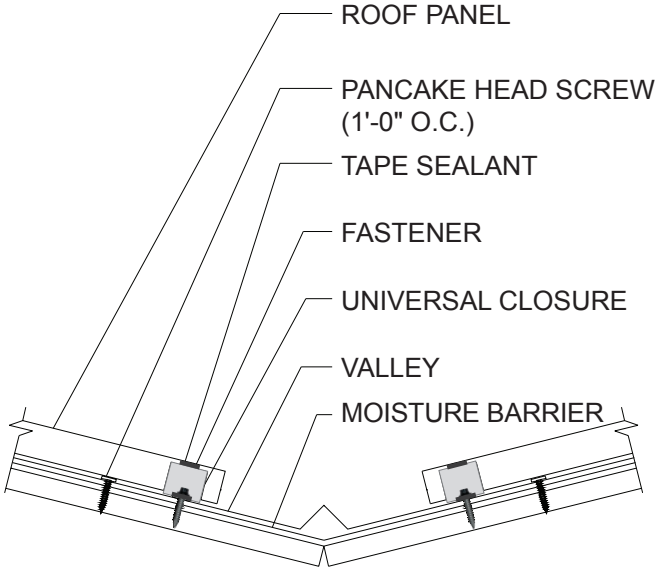
EAVE DETAIL



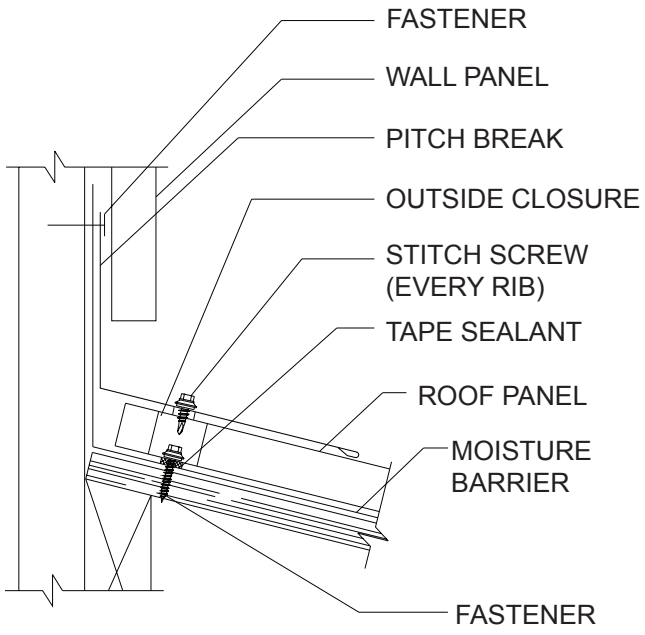
GUTTER DETAIL



VALLEY DETAIL



PITCH BREAK DETAIL



CHIMNEY / CRICKET DETAIL

1. Prepare the Chimney. Ensure chimney siding (brick, stucco, or siding) is in good condition. Clean any old caulk, debris, or damaged flashing. Consider adding a reglet cut (a groove) into brick mortar joints if using counter flashing.

2. Cut Roof Panels to Fit. If installing new roofing, cut panels to fit around the chimney with a 1–2 inch gap for flashing. If panels are already installed, remove any interfering ones carefully or cut back as needed.

3. Install Front Pan Flashing (Down-slope then Side Panels). This flashing sits at the front (bottom) of the chimney. Like the back pan, it should extend past the chimney on both sides and sit on top of the roof panels. Seal underneath and screw down. This flashing should overlap the side wall flashings.

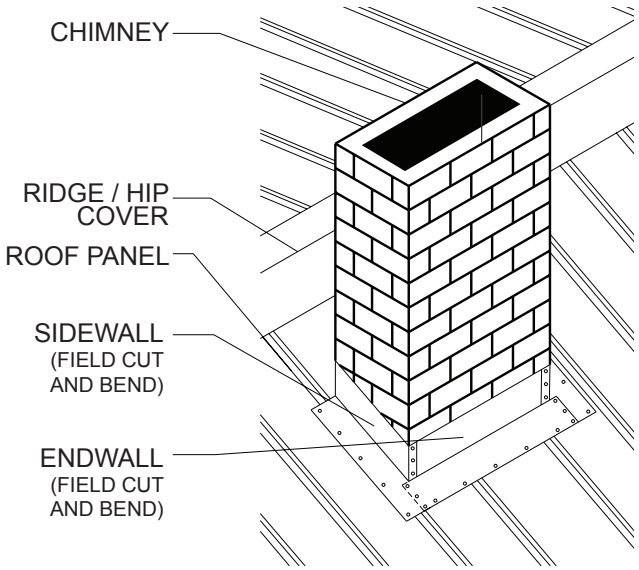
4. Install Side Wall Flashings (Left and Right Sides) Bend metal flashing into an L-shape to wrap the sides of the chimney and lay flat on the roof panels. The vertical leg should go up the chimney 4–6 inches; the horizontal leg should go under the side edges of the metal roofing panels. Use sealant underneath and screw into place. These side flashings should overlap the back pan flashing at the bottom and extend past it at the top.

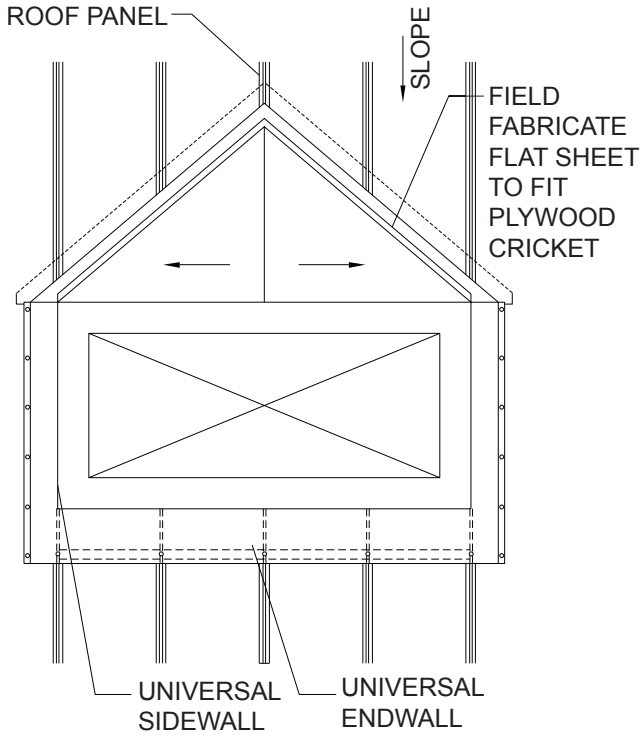
5. Install Back Pan Flashing (Up-slope Side). Cut a piece of flashing that extends wider than the chimney on both sides (6–12 inches past). Place it up the slope behind the chimney. The bottom edge of this flashing should direct water around the chimney. Seal the underside with roofing sealant and secure with screws.

6. Install Counter Flashing. Counter Flashing is a second layer of flashing that covers the top edge of the pan and side flashings on the chimney. It is typically embedded into a groove (reglet) in the brick or fastened to siding. Seal the top edge with a bead of Tube Sealant.

7. Final Sealing. Apply roofing sealant at all critical areas:
- a) Where flashing meets chimney
- b) At flashing overlaps,
- c) Around screw heads for added protection

8. Inspect. Ensure all flashing overlaps are installed shingle style (higher layers over lower layers). Check that water will shed properly downhill and not be trapped. Confirm that all seams are sealed and fastened securely.





PRO TIP:
- ***Never rely on sealant alone. Proper flashing installation should manage water flow first, then use sealant as backup protection.***

PIPE BOOT DETAIL

ROOF PENETRATION DETAIL

1. Choose the Right Pipe Boot. Make sure the rubber pipe boot is compatible with and correctly sized for the pipe diameter.

2. Mark and Cut the Boot. Slide the Pipe Boot over the pipe and mark the correct size if not pre-cut. Use a utility knife or scissors to trim the rubber to the correct size so it fits snugly around the pipe.

3. Prepare the Roof. Clean the area around the pipe where the boot will sit. Remove any debris, rust or sealant so the flashing and sealant can bond properly.

4. Cut the Metal Panel. (If pipe isn't already through)
If the pipe hasn't been installed yet, measure and mark the panel where the pipe will go. Use tin snips or a metal cutting blade to cut a hole slightly larger than the pipe.

5. Apply Single Bead Tape Sealant. Apply a continuous line of tape sealant around the underside base of the Pipe Boot. Also add a generous bead of Tube Sealant around the pipe where the rubber will contact it.

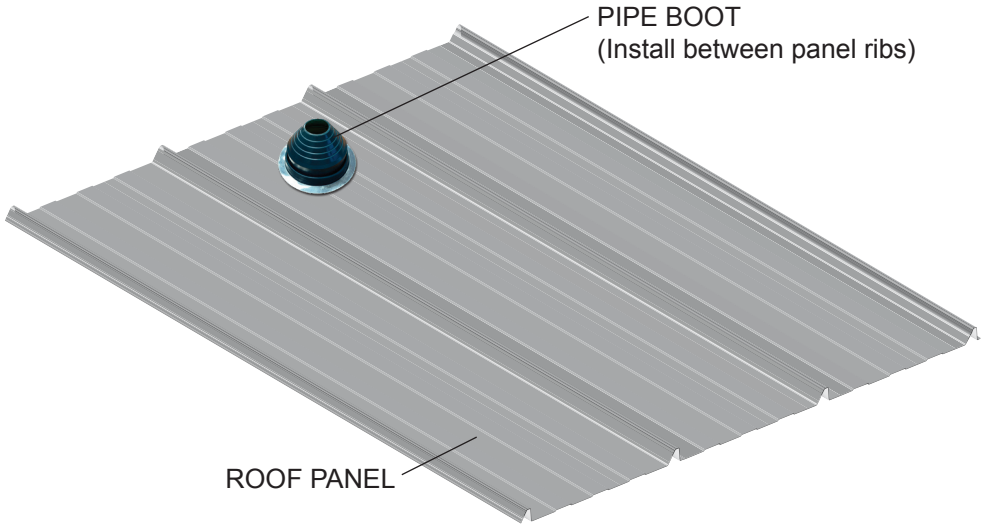
6. Install the Boot. Slide the rubber boot over the pipe until the base flange lays flat on the metal roofing. Press down firmly to embed the Pipe Boot into the sealant.

7. Secure the Pipe Boot. Use self-tapping stitch screws to secure the base flange. Space screws evenly (about every 1–2 inches) around the perimeter.
NOTE: Do not overtighten – you want compression, not distortion.

8. Final Sealant Pass. Apply an extra bead of sealant around the top edge where the rubber meets the pipe. You can also run a light bead along the screw heads for extra water protection (optional but common).

9. Inspect the installation. Double check for gaps, missed spots, or uncompressed areas. Ensure the boot is flush and the sealant is fully covering the base.

Notes: Water must be able to drain around the Pipe Boot. Provide bracing for pipe to resist sliding snow.



PRO TIP:
- ***Install on a warm day so the rubber is flexible and easier to work with.***
- ***Use Metal Sales roofing-specific sealant, not just general silicone.***