

SNAP-LOC 24 | **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 THIS ROOF SYSTEM IF IT IS NOT INSTALLED IN ACCORDANCE WITH THE SUGGESTED INSTRUCTIONS REFERENCED IN THIS MANUAL. 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 SNAP-LOC 24 ROOFING SYSTEM SHOULD BE DIRECTED TO METAL SALES.

CONSULT METAL SALES FOR ANY ADDITIONAL INFORMATION NOT OUTLINED IN THIS MANUAL.

THIS MANUAL IS DESIGNED TO BE UTILIZED AS A GUIDE WHEN INSTALLING THE SNAP-LOC 24 ROOFING SYSTEM. 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 roof systems is a dangerous procedure and should be supervised by trained knowledgeable erectors. **USE EXTREME CARE WHILE INSTALLING ROOF 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 roof system is responsible for reading these instructions and determining the safest way to install the roof system.

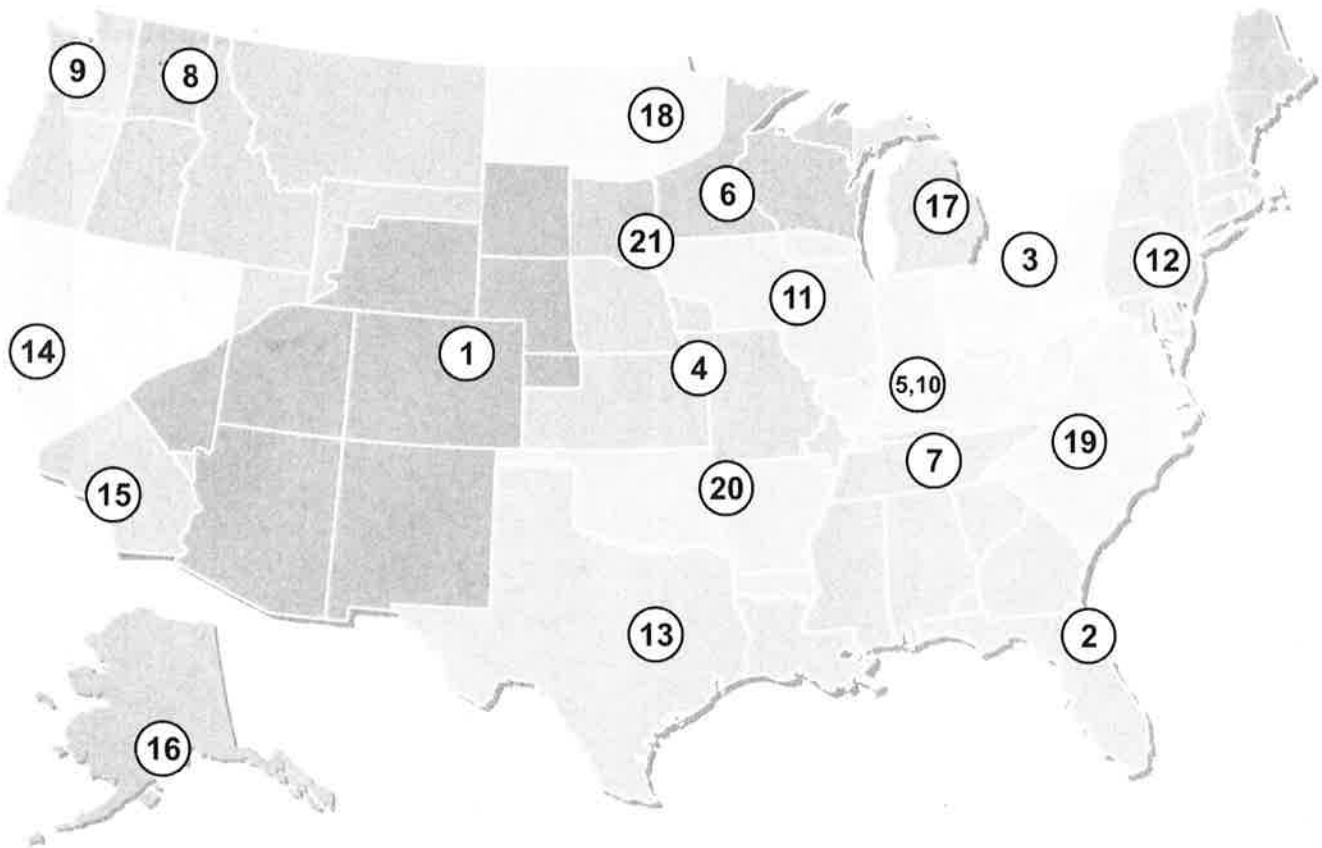
These instructions are provided only as a guide to show a knowledgeable, trained erector the correct parts placement one to another. If following any of the installation steps would endanger a worker, the erector should stop work and decide upon a corrective action.

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 an unseamed panel. Provide walking platforms for crew members required to walk on the roof before it is seamed.

Do not stand on the roof panel at the ends until the panel has been attached with fasteners.

SNAP-LOC 24 METAL SALES' LOCATIONS



Metal Sales offers a complete line of metal roof, wall, and fascia panel systems for the commercial, architectural, industrial, residential, and agricultural markets. We offer over 75 profiles with a wide selection of widths, colors, and gauges - new construction or retrofit. In addition, Metal Sales offers Energy Star certified colors, a 45 year paint warranty, and a series of panels that are tested for wind, fire, and uplift.

SNAP-LOC 24 CUSTOMER SERVICE

METAL SALES LOCATIONS

1.) DENVER BRANCH

7990 E. I-25 Frontage Rd
Longmont, CO 80504
303.702.5440
800.289.7663
800.289.1617 /FAX

2.) JACKSONVILLE BRANCH

7110 Stuart Avenue
Jacksonville, FL 32254
904.783.3660
800.394.4419
904.783.9175 /FAX

3.) JEFFERSON BRANCH

352 East Erie Street
Jefferson, OH 44047
440.576.9070
800.321.5833
440.576.9242 /FAX
800.233.5719 /FAX

4.) INDEPENDENCE BRANCH

1306 S. Powell Road
Independence, MO 64057
816.796.0900
800.747.0012
816.796.0906 /FAX

5.) SELLERSBURG BRANCH

7800 State Road 60
Sellersburg, IN 47172
812.246-1866
800.999.7777
812.246.0893 /FAX
800.477.9318 /FAX

6.) ROGERS BRANCH

22651 Industrial Blvd.
Rogers, MN 55374
763.428.8080
800.328.9316
763.428.8525 /FAX
800.938.9119 /FAX

7.) NASHVILLE BRANCH

4314 Hurricane Creek Blvd.
Antioch, TN 37013
615.641.7100
800.251.8508
615.641.7118 /FAX

8.) SPOKANE BRANCH

East 2727 Trent Avenue
Spokane, WA 99202
509.536.6000
800.572.6565
509.534.4427 /FAX

9.) SEATTLE BRANCH

20213 84th Avenue, South
Kent, WA 98032
253.872.5750
800.431.3470 (outside WA)
800.742.7900 (inside WA)
253.872.2008 /FAX

10.) NEW ALBANY BRANCH

999 Park Place
New Albany, IN 47150
812.944.2733
812.944.1418 /FAX

11.) ROCK ISLAND BRANCH

8111 West 29th Street
Rock Island, IL 61201
309.787.1200
800.747.1206
309.787.1833 /FAX

12.) DEER LAKE BRANCH

29 Pinedale Industrial Rd
Orwigsburg, PA 17961
570.366.2020
800.544.2577
570.366.1648 /FAX
800.544.2574 /FAX

13.) TEMPLE BRANCH

3838 North General Bruce Dr.
Temple, TX 76501
254.791.6650
800.543.4415
254.791.6655 /FAX
800.543.4473 /FAX

14.) WOODLAND BRANCH

1326 Paddock Place
Woodland, CA 95776
530.668.5690
800.759.6019
530.668.0901 /FAX

15.) FONTANA BRANCH

14213 Whittram Avenue
Fontana, CA 92335
909.829.8618
800.782.7953
909.829.9083 /FAX

16.) ANCHORAGE BRANCH

4637 Old Seward Hwy.
Anchorage, AK 99503
866) 640.7663
907) 646.7663
907) 646.7664 /FAX

17.) BAY CITY BRANCH

5209 Mackinaw Rd.
Bay City, MI 48706
989.686.5879
888.777.7640
989.686.5870 /FAX
888.777.0112 /FAX

18.) DETROIT LAKES BRANCH

1435 Egret Avenue
Detroit Lakes, MN 56501
218.847.2988
888.594.1394
218.847.4835 /FAX
888.594.4835 /FAX

19.) MOCKSVILLE BRANCH

188 Quality Drive
Mocksville, NC 27028
336.751.6381 Phone
800.228.6119 Toll Free
336.751.6301 Fax
800.228.7916 Toll Free Fax

20.) FORT SMITH BRANCH

7510 Ball Road
Fort Smith, AR 72908
479.646.1176 Phone
877.452.3915 Toll Free
479.646.5204 Fax

21.) SIOUX FALLS BRANCH

2700 West Third Street, Suite 4
Sioux Falls, SD 57104
605.335.2745 Phone
888.902.8320 Toll Free

TECHNICAL SUPPORT

TECHNICAL SERVICES

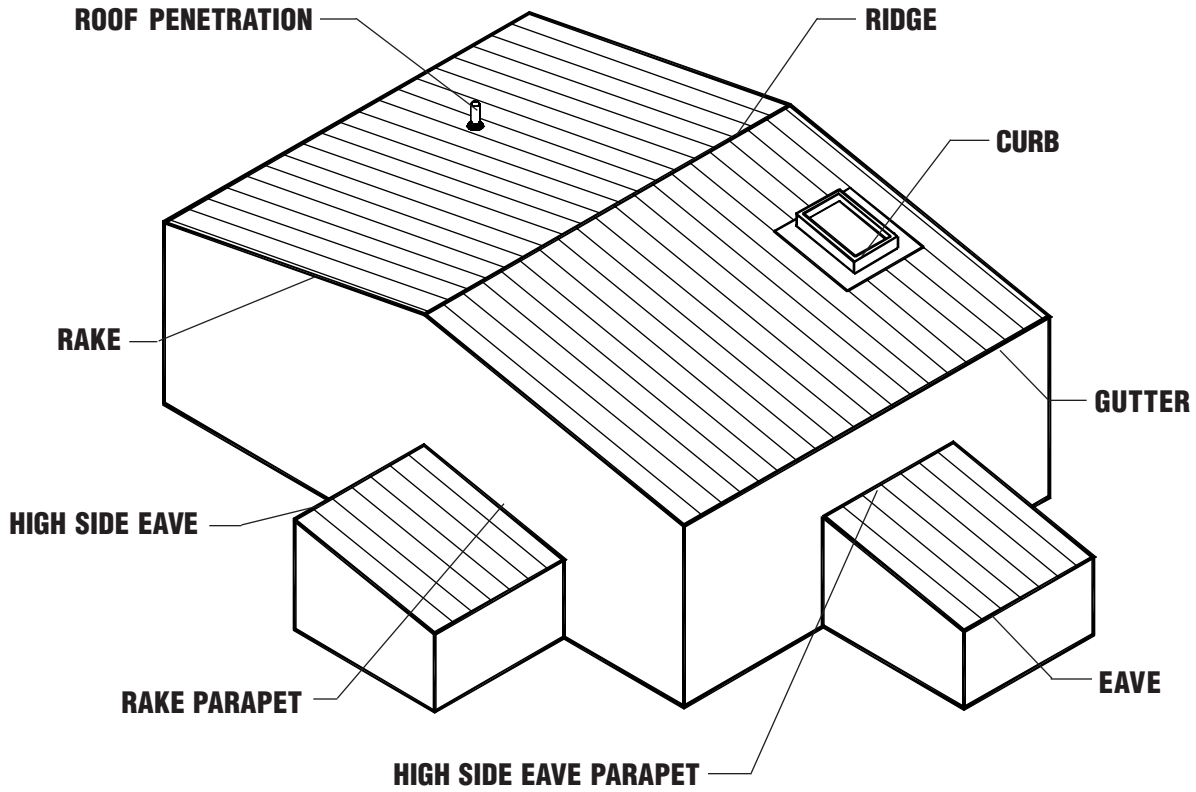
545 South 3rd Street, Suite 200
Louisville, KY 40202

502.855.4300 Phone
800.406.7387 Toll Free
502.855.4290 /FAX

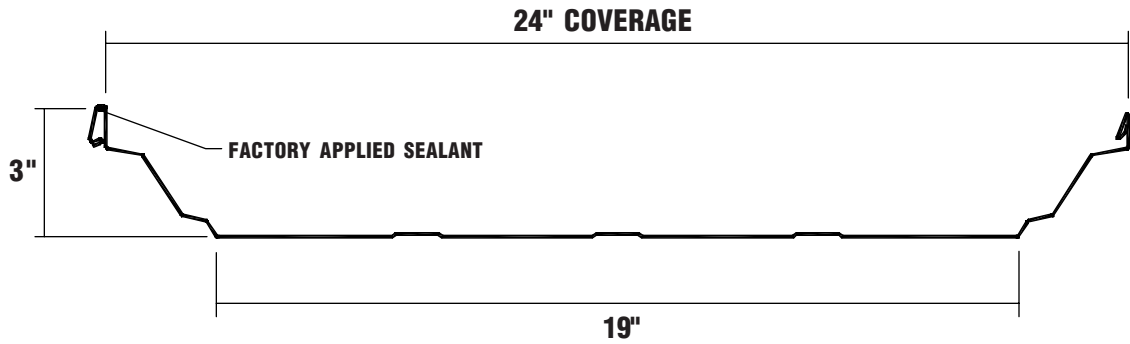
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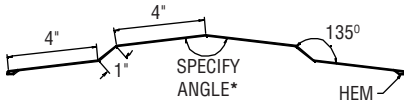
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**The above building refers to Commercial Details
over open framing. Refer to details on pages 55-67**

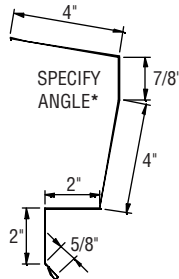


SSR RIDGE



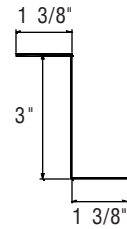
LENGTHS 10'-2", 20'-3"

SNAP-LOC SCULPTURED EAVE



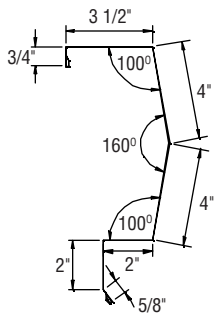
LENGTHS 10'-2", 20'-3"

SNAP-LOC Z-CLOSURE



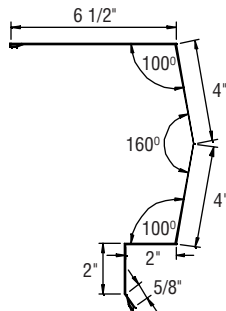
LENGTH 10'-2"

SSR SCULPTURED RAKE



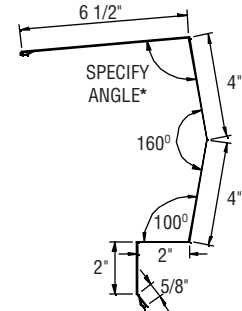
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SSR SCULPTURED RAKE (OFF MODULE)



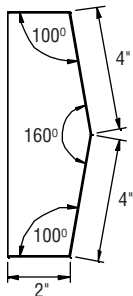
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SSR SCULPTURED HIGH SIDE EAVE

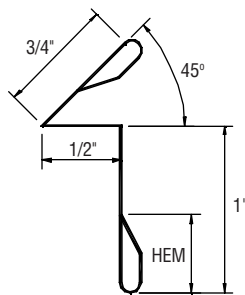


LENGTHS 10'-2", 20'-3"

SSR SCULPTURED RAKE END

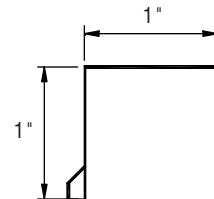


SSR RAKE SLIDE



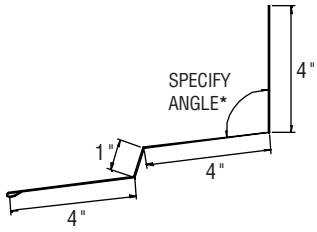
LENGTHS 10'-2"

SSR RAKE CLEAT



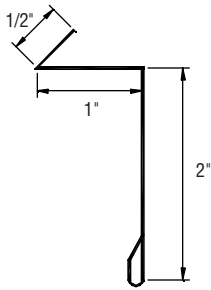
LENGTHS 10'-2"

**SSR HIGH SIDE
PITCH BREAK**



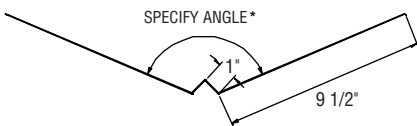
LENGTHS 10'-2", 20'-3"

REGLET FLASHING



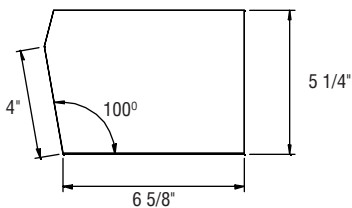
LENGTH 10'-2"

VALLEY

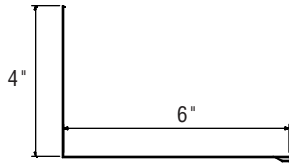


LENGTHS 10'-2", 20'-3"

**SNAP-LOC
GUTTER END**



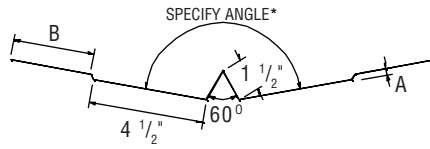
SSR RAKEWALL



LENGTH 10'-2"

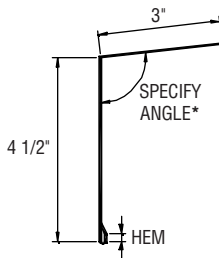
**SNAP-LOC 4.5"
DROP VALLEY**

| SYSTEM | A | B |
|--------|--------|--------|
| LOW | 1/4" | 4 1/2" |
| HIGH | 1 1/4" | 3 1/2" |



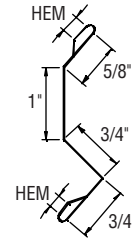
LENGTHS 10'-2", 20'-3"

GUTTER DRIP



LENGTH 10'-2"

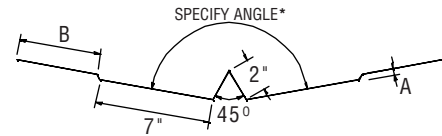
COUNTER FLASHING



LENGTH 10'-2"

**SNAP-LOC 7"
DROP VALLEY**

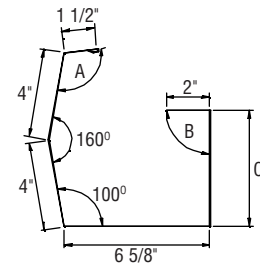
| SYSTEM | A | B |
|--------|--------|----|
| LOW | 1/4" | 5" |
| HIGH | 1 1/4" | 4" |



LENGTHS 10'-2", 20'-3"

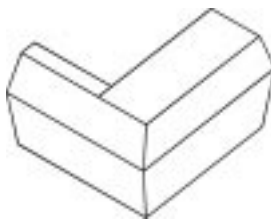
SNAP-LOC

SCULPTURED GUTTER

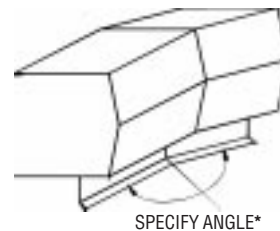


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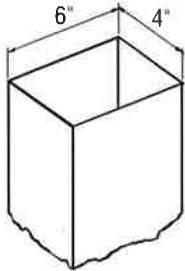
**SSR SCULPTURED
CORNER BOX**



**SSR SCULPTURED
PEAK BOX**

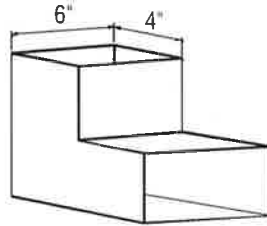


DOWNPOUT



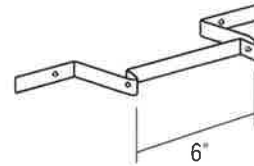
LENGTHS 10'-2", 20'-3"
(Also available 3 1/2" x 4")

95° ELBOW



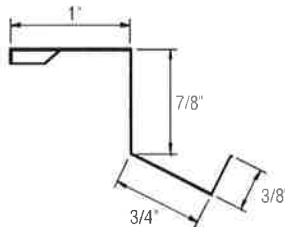
(Also available 45° and 3 1/2" x 4')

DOWNPOUT BRACKET



(Also available in 4")

SSR GUTTER SUPPORT



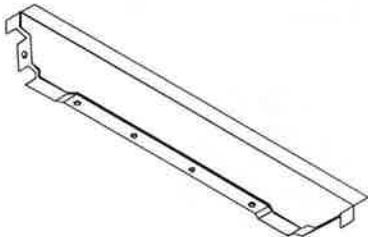
LENGTH 0'-10"

**SNAP-LOC SKYLIGHT
PANEL**

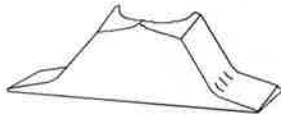


LENGTH 10'-6"
WHITE

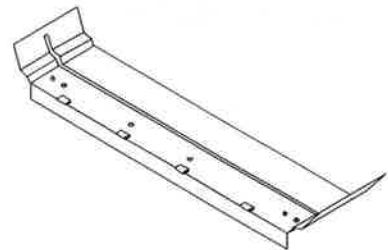
**METAL OUTSIDE
CLOSURE**



METAL INSIDE CLOSURE

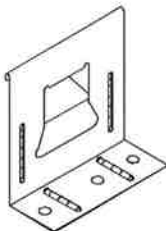


COMPRESSION PLATE



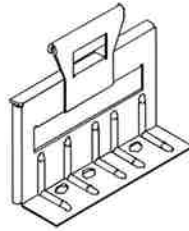
5" X 24"
GALVALUME

SNAP-LOC FIXED CLIP



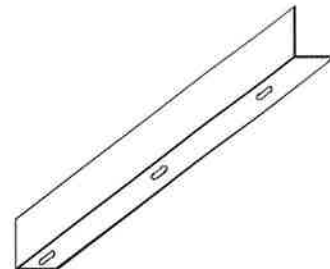
HEIGHT 3 1/4", 4 1/4"

SNAP-LOC FLOATING CLIP



HEIGHT 3 1/4", 4 1/4"

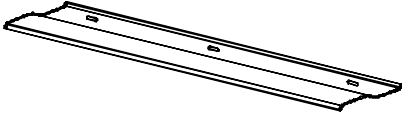
FLOATING RAKE ANGLE



LENGTH 10'-0"
HEIGHT 3 1/8", 4 1/8"
GALVANIZED

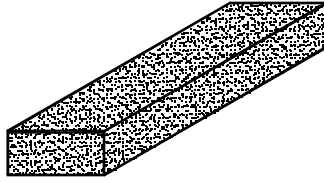
SNAP-LOC 24 FLASHING AND ACCESSORY PROFILES (CONT.)

EAVE PLATE



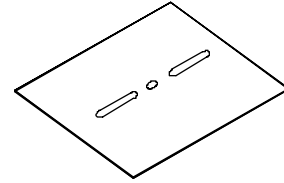
LENGTH 6'-0"
HEIGHT 1/4", 1 1/4"
GALVANIZED

THERMAL BLOCK



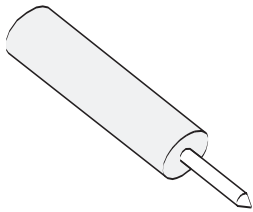
1" X 3" X 24"
POLYSTYRENE FOAM

BEARING PLATE (FLAT)



4" X 5"
GALVANIZED

TUBE SEALANT



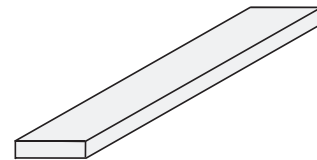
10.3 oz. CARTRIDGE
URETHANE

TAPE SEALANT



7/8" X 3/16" X 25'
DOUBLE BEAD
BUTYL - GRAY

ENDLAP PAD



1 1/2" X 3/32" X 26 1/4"
BUTYL - GRAY

TOUCH-UP PAINT



AVAILABLE IN PINTS

RUBBER ROOF JACK

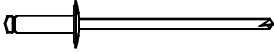


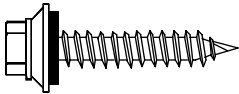
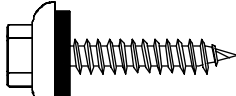
Mini (1/4" TO 1 1/8" O.D. PIPE)
#2 (1 3/4" TO 3" O.D. PIPE)
#4 (3" TO 6" O.D. PIPE)
#6 (6" TO 9" O.D. PIPE)
#8 (7" TO 13" O.D. PIPE)

RETRO ROOF JACK

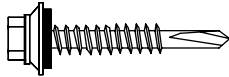
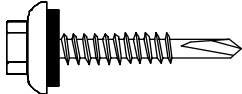


#801 (3/4" TO 2 3/4" O.D. PIPE)
#802 (2" TO 7 1/4" O.D. PIPE)
#803 (3 1/4" TO 10" O.D. PIPE)

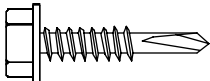
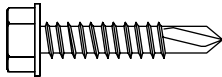
| POP RIVET | SIZE | TYPE | FINISH | APPLICATION |
|---|--------------|-----------------|---------------|-------------------------------|
|  | 1/8" x 3/16" | Stainless Steel | Unpainted | Flashing to Panel or Flashing |
| | 1/8" x 3/16" | Stainless Steel | Painted | Flashing to Panel or Flashing |

| WOODSCREW | SIZE | TYPE | FINISH | APPLICATION |
|---|-------------|-------------|----------------|-------------------------------------|
|  | 10 x 1" | A | Painted | Panel or Flashing to wood substrate |
| | 10 x 1 1/2" | A | Painted | |
| | 10 x 2" | A | Painted | |
| WOODSCREW XL | 10 x 1" | A | XL* | Panel or Flashing to wood substrate |
| | 10 x 1 1/2" | A | XL* | |
| | 10 x 2" | A | XL* | |
|  | 10 x 1" | A | XL (Painted)** | Panel or Flashing to wood substrate |
| | 10 x 1 1/2" | A | XL (Painted)** | |
| | 10 x 2" | A | XL (Painted)** | |

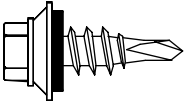
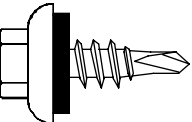
*XL Fasteners are recommended for use with bare galvalume panels and accessories.
 **Painted XL Fasteners are recommended for use with painted panels and accessories.

| SELF DRILLER | SIZE | TYPE | FINISH | APPLICATION |
|---|-----------------|-------------|----------------|---|
|  | 12-14 x 1 1/4" | Driller | Painted | Panel or Flashing to metal substructure |
| | 12-14 x 1 1/2" | Driller | Painted | |
| | 12-14 x 2" | Driller | Painted | |
| SELF DRILLER XL | 12-14 x 1 1/4" | Driller | XL* | Panel or Flashing to metal substructure |
| | 12-14 x 1 1/2" | Driller | XL* | |
| | 12-14 x 2" | Driller | XL* | |
| | 1/4-14 x 1 1/4" | Driller | XL* | Endlap Condition |
|  | 12-14 x 1 1/4" | Driller | XL (Painted)** | Panel or Flashing to metal substructure |
| | 12-14 x 1 1/2" | Driller | XL (Painted)** | |
| | 12-14 x 2" | Driller | XL (Painted)** | |
| | 1/4-14 x 1 1/4" | Driller | XL (Painted)** | Endlap Condition |

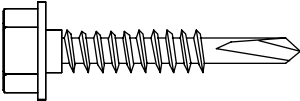
*XL Fasteners are recommended for use with bare galvalume panels and accessories.
 **Painted XL Fasteners are recommended for use with painted panels and accessories.

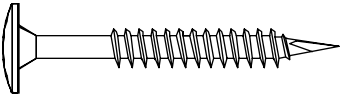
| SELF DRILLER N/W | SIZE | TYPE | FINISH | APPLICATION |
|---|-----------------|----------------------------|---------------|--|
|  | 1/4-14 x 1 1/2" | Driller | Plated | Panel Clips to metal substructure/ Accessories |
|  | 12-24 x 1 1/4" | Driller (#4 point minimum) | Plated | Panel Clips to bar joists |

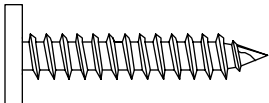
SNAP-LOC 24 FASTENER SELECTION GUIDE (CONT.)

| STITCH | SIZE | TYPE | FINISH | APPLICATION |
|---|---------------|--------|---------------|-------------------------------|
|  | 1/4-14 x 7/8" | Stitch | Painted | Flashing to Panel or Flashing |
| STITCH XL | 1/4-14 x 7/8" | Stitch | XL* | Flashing to Panel or Flashing |
|  | 1/4-14 x 7/8" | Stitch | XL(Painted)** | |

*XL Fasteners are recommended for use with bare galvalume panels and accessories.
**Painted XL Fasteners are recommended for use with painted panels and accessories.

| SHOULDER SELF DRILLER | SIZE | TYPE | FINISH | APPLICATION |
|---|----------------|---------|--------|--|
|  | 12-14 x 1 1/4" | Driller | Plated | For use with Floating Rake Angle to metal substructure |

| DEKFAST | SIZE | TYPE | FINISH | APPLICATION |
|---|-------------|---------|--------|--|
| | 14 x 1 5/8" | Driller | Black | For use on attachment of Panel Clip to wood framing |
|  | 15 x 4" | Driller | Black | Panel Clip/Bearing Plate to metal deck and rigid board insulation assembly |
| | 15 x 5" | Driller | Black | |
| | 15 x 6" | Driller | Black | |

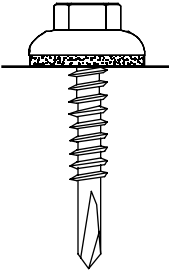
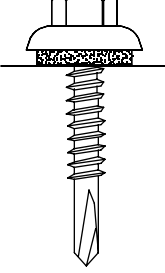
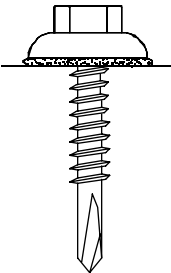
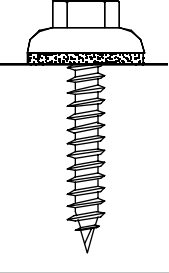
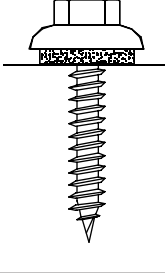
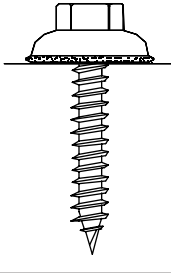
| PANCAKE HEAD WOODSCREW | SIZE | TYPE | FINISH | APPLICATION |
|---|---------|------|--------|---|
|  | 10 x 1" | A | Plated | For use with Panel Clip attaching to plywood deck |

SNAP-LOC 24 FASTENER INSTALLATION

TECHNIQUE

RECOMMENDED TOOL TYPE - Use depth locating nose or adjustable clutch on screw gun to prevent overdrilling and strip out. **DO NOT USE IMPACT TOOLS OR RUNNERS.**

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

| | CORRECT Sealing material slightly visible at edge of metal washer. Assembly is watertight. | TOO LOOSE Sealing material is not visible; not enough compression to seal properly. | TOO TIGHT Metal washer deformed; sealing material pressed beyond washer edge. |
|---------------------|--|---|---|
| SELF DRILLER |  |  |  |
| WOODSCREW |  |  |  |

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.

DRILLING THROUGH SHEET AND INSULATION - Ease up on pressure when drilling through insulation to avoid striking the purlin or girt with the point - apply more pressure after drill point contacts purlin or girt.

DRILLING THROUGH PURLIN OVERLAPS - Drilling through lapped purlins requires extra care. Excessive voids between purlins sometimes damages drill points and two self drillers might be necessary to complete the operation. It is sometimes advantageous to predrill.

SNAP-LOC 24 DESIGN / INSTALLATION CONSIDERATIONS

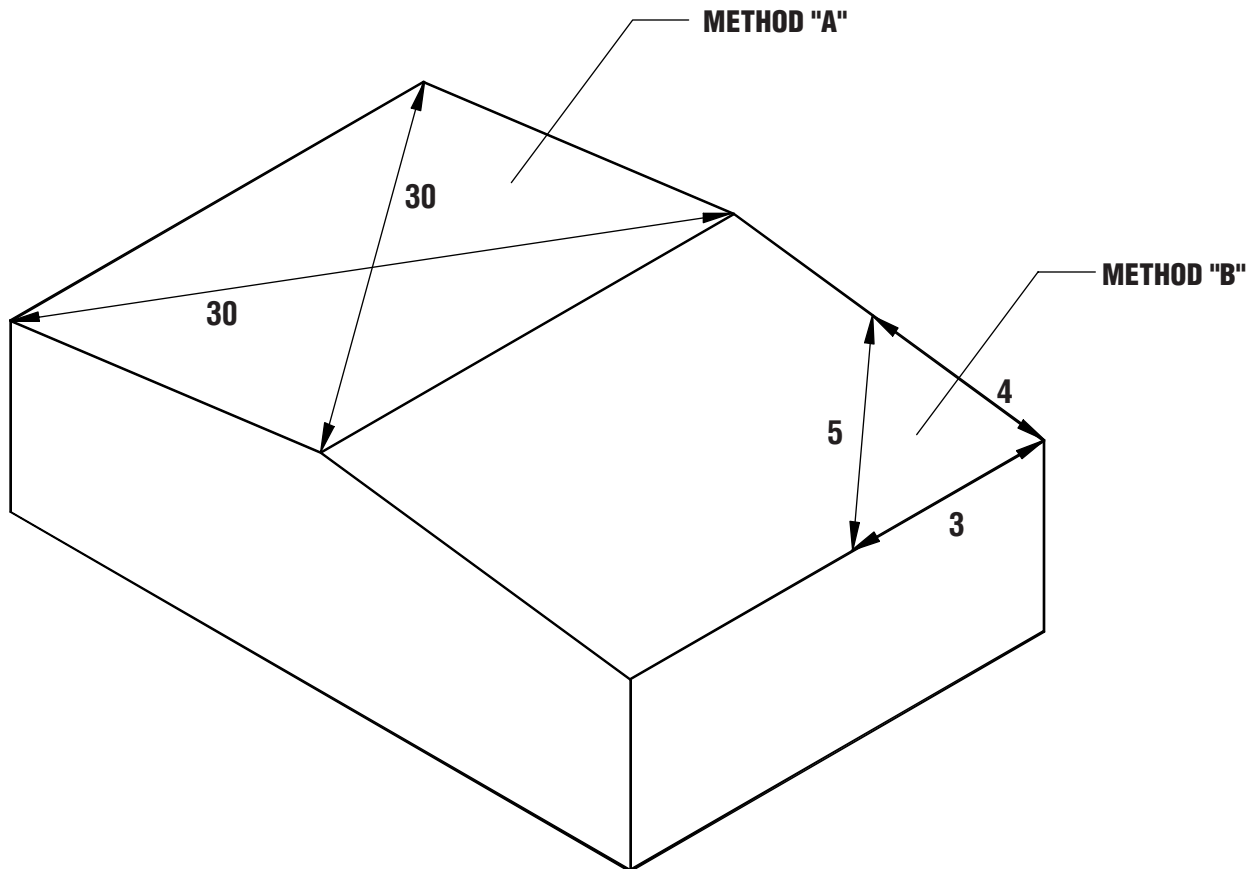
CONDITION OF SUBSTRUCTURE

Whether over solid substrate or open structural framing, panel distortion may occur if not applied over properly aligned and uniform substructure.

The installer should check the roof deck for squareness before installing Snap-Loc 24 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 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 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). Then 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 endwall cannot be made square, the roof system cannot be installed as shown in these instructions.



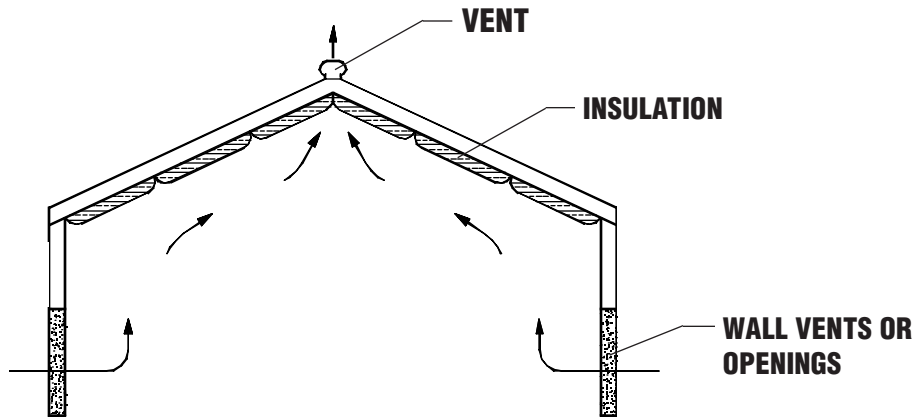
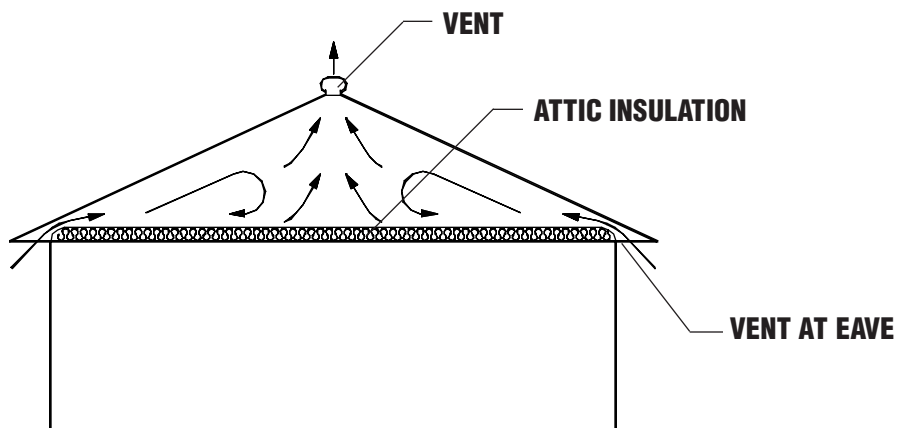
VENTILATION

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.

**TYPICAL METAL BUILDING (NO ATTIC)****BUILDING WITH ATTIC OR RETROFITTED**

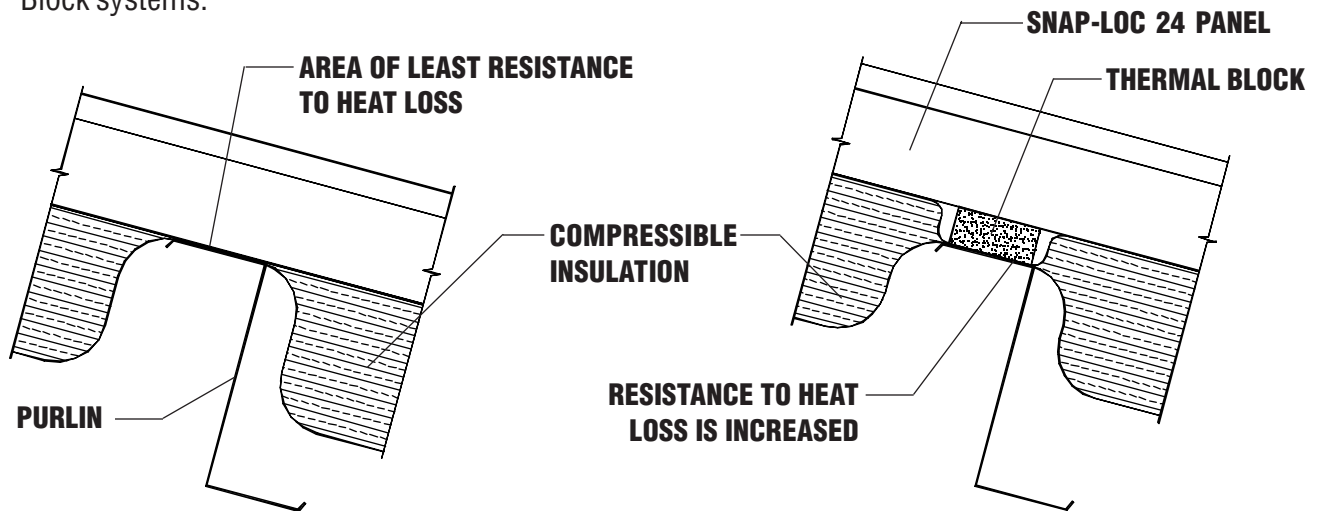
SNAP-LOC 24 DESIGN / INSTALLATION CONSIDERATIONS (CONT.)

INSULATION

In most cases insulation is installed directly under the roof panels. Insulation is recommended on all applications to act as a sound barrier, prevent condensation, and increase insulating value of a roof system. **Roof panels installed over open framing without insulation will cause excessive roof noise.** It is recommended that either urethane thermal blocks or 1 1/2" blanket insulation be used as illustrated to minimize noise potential.

Many different types of insulation can be used with the metal roof panels. Blanket, batt, rigid, and reflective insulation are just a few. Please contact your insulation supplier for specific recommendations on type of insulation, vapor barriers, and installation procedures.

When applying a compressible type of insulation over open framing members, rigid thermal blocks can be used to help eliminate heat lost at purlin locations. See chart on page 17 for available Thermal Block systems.



CAUTION

Use extreme care when working next to insulation. The insulation will provide a false sense of security by hiding the view of the ground below the insulation.

SYSTEM EXPANSION / CONTRACTION

Steel roofing panels are subject to dimensional changes after installation due to exposure to varying temperatures. The greatest influence is solar energy. Steel roofing absorbs various amounts of heat depending upon color, finish, angle of exposure, and time of exposure.

The relationship of ambient temperature to building structural temperature must be considered when designing a Snap-Loc 24 roof system. The floating clips for the Snap-Loc 24 panels are designed for expansion and contraction of the panels in the longitudinal direction. Lateral expansion and contraction is accommodated by the configuration of the panel cross section and causes negligible panel movement.

When the total length of panel run exceeds the capability of the floating clips to accommodate the thermal movement, expansion joints must be designed into the structure.

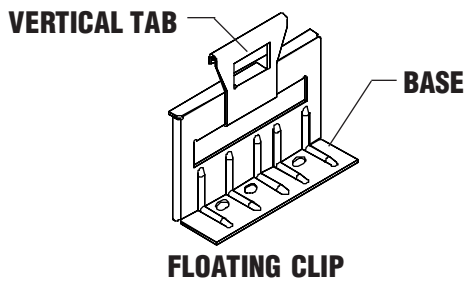
SELECTION OF SYSTEM COMPONENTS

The following information should be used to determine system components needed once insulation size has been selected. Refer to Fastener Selection Guide on pages 11, 12 for proper fasteners required for selected componenets.

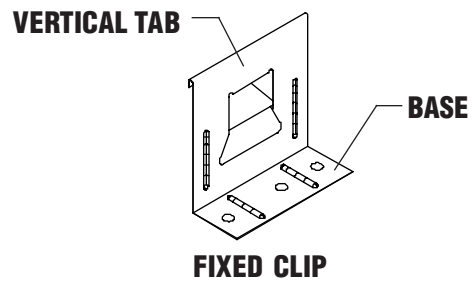
| SYSTEM COMPONENTS | | | | | |
|-------------------|-------------|-------------|-------------|---------------|------------------|
| SYSTEM | CLIP | RAKE ANGLE | EAVE PLATE | THERMAL BLOCK | INSULATION |
| LOW | 3 1/4" LOW | 3 1/8" LOW | 1/4" LOW | NONE REQUIRED | 4" TO 6" BLANKET |
| HIGH | 4 1/4" HIGH | 4 1/8" HIGH | 1 1/4" HIGH | 1" | 4" TO 6" BLANKET |

SEAM-LOC 24 PANEL CLIPS

- The **floating clip** allows the roof surface (panels) to move independently of the roof substructure to allow for thermal expansion and contraction. These clips are designed with a vertical tab that slides along the base section of the clip. Clips are placed along the male leg of each panel prior to installing adjacent panels. Design wind uplift requirements must be considered for proper clip spacing
- The **fixed clip** does not allow the roof surface (panels) to move independently of the roof substructure allowing for thermal expansion and contraction. These clips are only recommended for buildings designed with panel lengths less than 30'-0".



FLOATING CLIP



FIXED CLIP

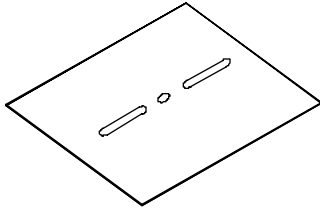
The following chart should be used to determine proper fasteners required for clip installation on the selected applications. See Fastener Selection Guide pages 11, 12 for other fasteners available.

| APPLICATION | TYPE OF FASTENER | NUMBER OF FASTENERS REQUIRED |
|--|--------------------------------|--------------------------------------|
| CLIP OVER PURLINS (12 GA. MAX) | 1/4-14 X 1 1/2" SD N/W | STANDARD - 1 FASTENERS |
| | 1/4-14 X 1 1/2" SD N/W | UL-90 (CONST. NO. 240) - 1 FASTENERS |
| CLIP OVER WOOD DECK | 10 X 1" PANCAKE HEAD WOODSCREW | STANDARD - 2 FASTENERS |
| CLIP OVER WOOD FRAMING | 14 X 1 5/8" DEKFAST | STANDARD - 2 FASTENERS |
| CLIP OVER BAR JOIST | 12-24 X 1 1/4" SD N/W #4 | STANDARD - 1 FASTENERS |
| | 12-24 X 1 1/4" SD N/W #4 | UL-90 (CONST. NO. 240) - 1 FASTENERS |
| CLIP OVER RIGID INSULATION / METAL DECK | DEKFAST #15* | STANDARD - 2 FASTENERS |

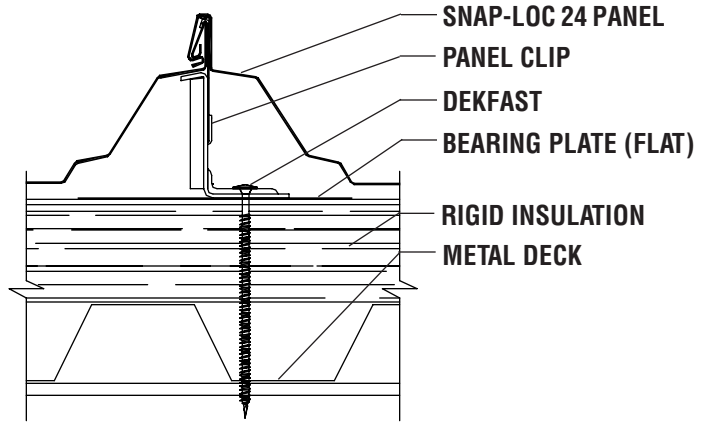
* Length of Dekfast will vary depending on the total thickness of the rigid insulation and metal deck.

SNAP-LOC 24 DESIGN / INSTALLATION CONSIDERATIONS (CONT.)

BEARING PLATE - Bearing Plate is used when installing panel directly over rigid insulation material. The Bearing Plate (Flat) is used in conjunction with a 3 1/4" Floating or Fixed Clip.



BEARING PLATE (FLAT)



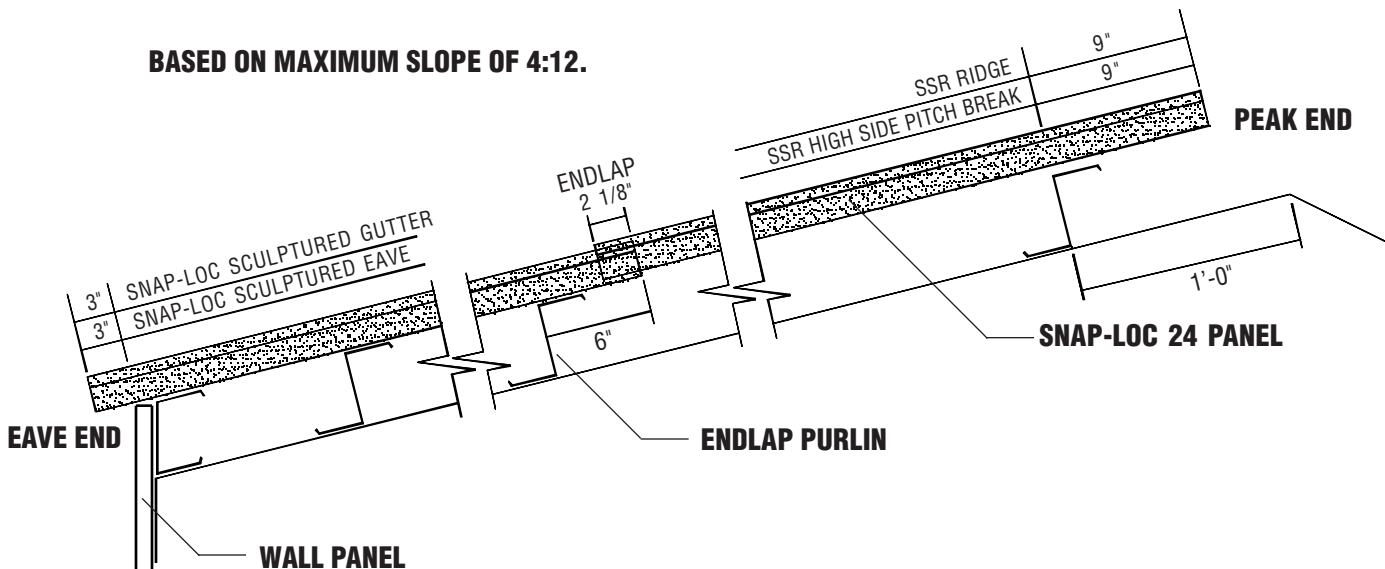
PANEL CLIP WITH BEARING PLATE (FLAT)

PANEL

LENGTH - Minimum factory cut length is 5'-0" on panels. Maximum recommended panel length is 45'-0". Longer panels require additional consideration in packaging, shipping, and erection. Please consult Metal Sales for recommendations.

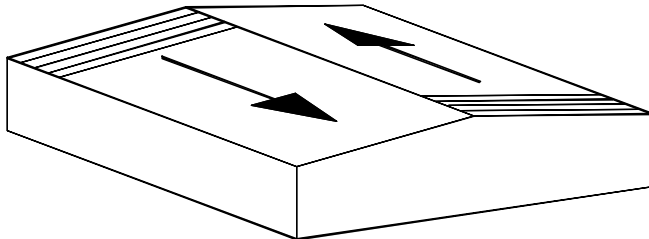
There are three critical measurements involving roof panels: the length of overhang required at the eave, the offset at the peak end, and the position of the panel endlap (if required). In each case a certain measurement is required. Check each measurement to ensure panel placement gives you the distance required at the eave, peak and endlap condition (if required). In most cases any variance can be taken out at the eave and peak.

BASED ON MAXIMUM SLOPE OF 4:12.

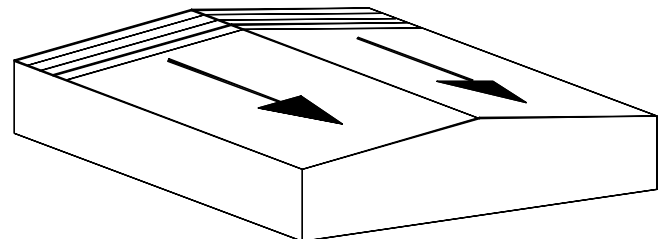


INSTALLATION DIRECTION

Snap-Loc 24 can be installed on each roof plane from left to right as shown in option #1. Snap-Loc 24 accessories are fabricated to allow the installer to begin work on the left side of the building, continue across the ridge, and work to the right side of the building, option #2. However, if endlapping of panels is required, panels must be laid from left to right.



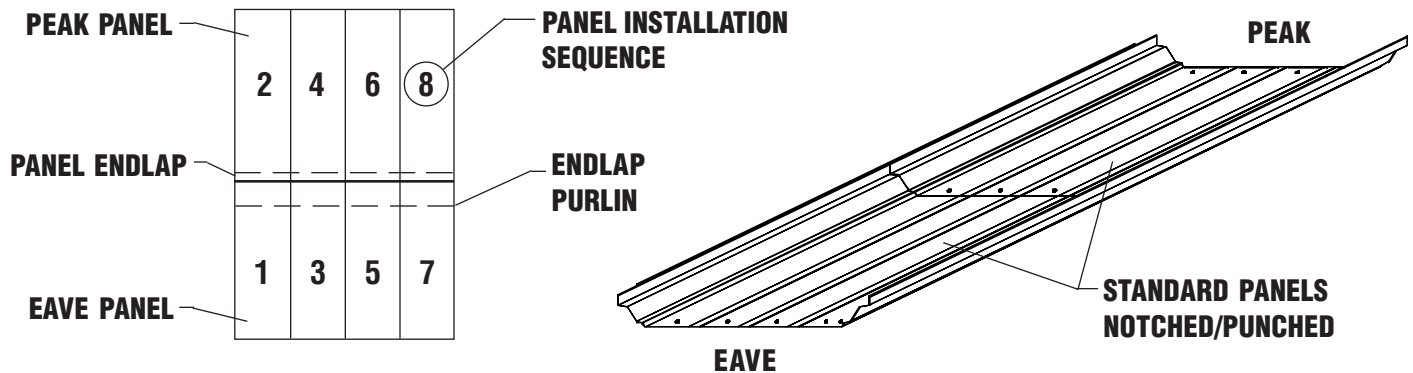
INSTALLATION OPTION #1



INSTALLATION OPTION #2

PANEL ENDLAPPING

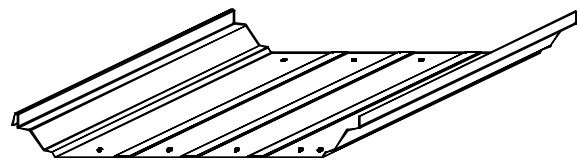
If panel endlapping is required, endlaps are to be applied in one continuous line. This allows the cinch straps to complete full coverage of the Snap-Loc 24 panel. See page 35-37



FACTORY NOTCHED/PUNCHED PANELS - Unless otherwise specified, Metal Sales provides all Snap-Loc 24 panels with factory rib notching and fastener hole punching on both panel ends. This eliminates reliance on field notching for weathertight seams at panel endlaps and ease of fastener hole alignment. **Panels that are not to be factory notched/punched must be specified at time of order.**

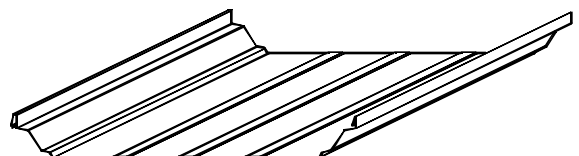
STANDARD PANEL-See page #7

- Required when endlapping panels
- Used as both the eave and peak panel
- Both ends factory notched and punched



OPTIONAL PANEL

- Optional if endlapping of panels is not required
- No Notching
- No Punching



SNAP-LOC 24 HANDLING MATERIAL

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 truck.

After receiving material check their condition 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. Metal Sales is not responsible for any damages or shortages unless they are documented in writing and presented to Metal Sales within 48 hours.

GENERAL HANDLING

CAUTION

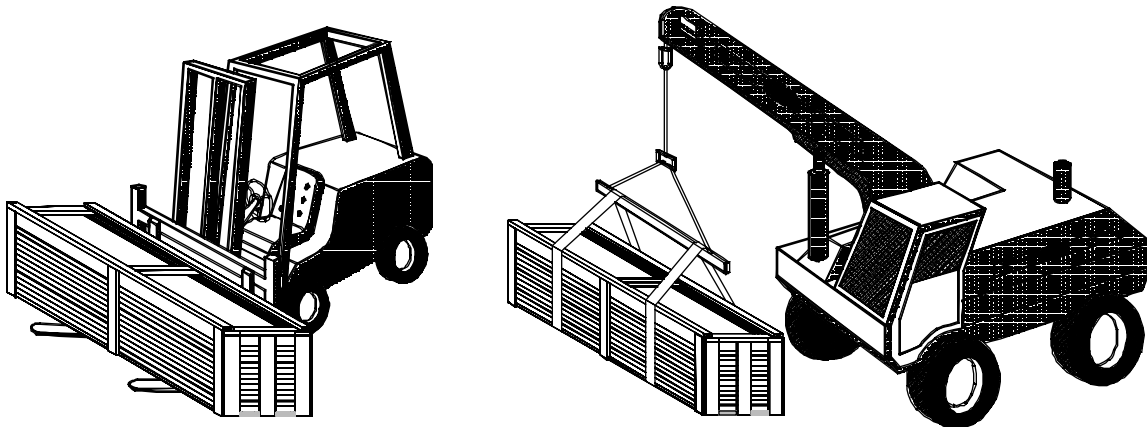
Improper loading and unloading of bundles and crates may result in bodily harm and/or material damage. Metal Sales is not responsible for bodily injuries and/or material damages resulting from improper loading and unloading.

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

MECHANICAL HANDLING

FORKLIFT - A forklift may be used for panels up to 20'-0" long. Please 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". 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 $\frac{1}{3}$ of the length of the panel should be left unsupported. Never use wire rope because this will damage the panels.



MANUAL HANDLING

When using unpainted, bare Galvalume panels, care should be taken to prevent staining of material. Clean gloves should be worn at all times to prevent a reaction with salts found on bare skin. Installers should wear rubber sole shoes to keep from scuffing material while walking on the roof. Acrylic Coated Galvalume panels will not stain like bare Galvalume, but the same precautions should be taken.

Handling of individual panels should be done carefully and properly to avoid bending or damaging. Snap-Loc 24 panels should be carried by grasping the edge of the panel so that the Snap-Loc 24 panel is vertical to the ground. The Snap-Loc 24 panel should not be carried with the flat of the panel horizontal to the ground as this could cause the panel to buckle or bend in the center.

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

CORRECT

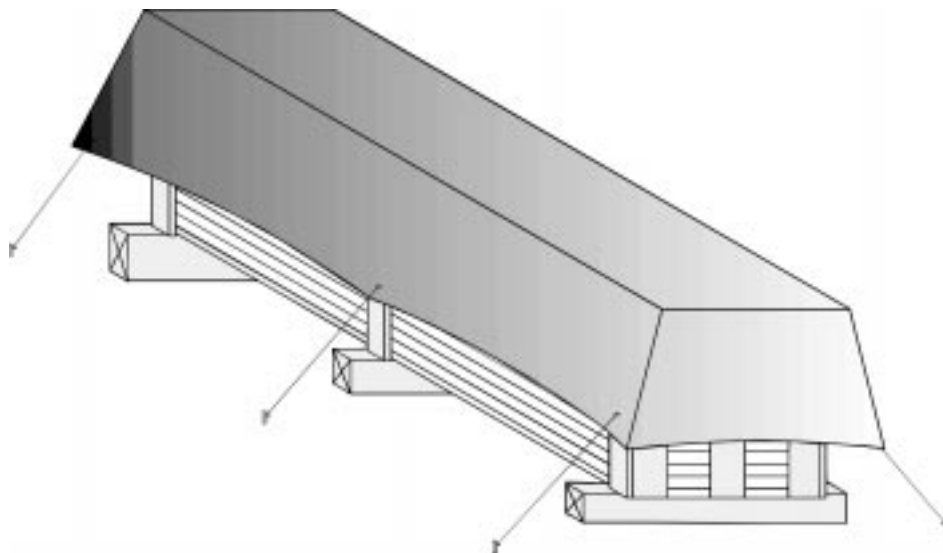
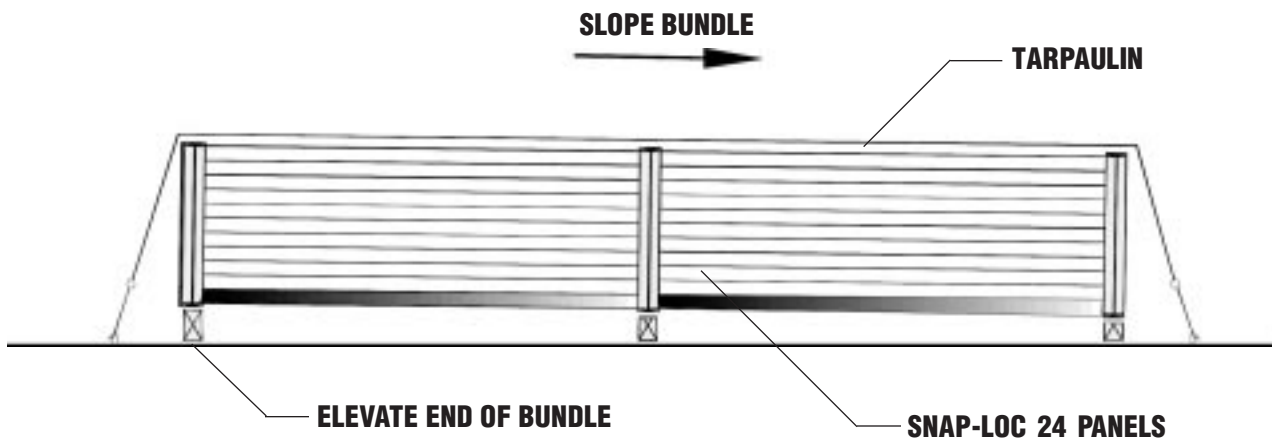
INCORRECT

SNAP-LOC 24 STORAGE

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 restack 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. If possible, elevate one end of the bundle to allow any moisture to run off the panels. Metal Sales recommends covering the bundle with a tarpaulin. Do not use tight fitting plastic-type tarpaulins 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 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, plating works, kilns, fertilizer, and wet or green lumber.**



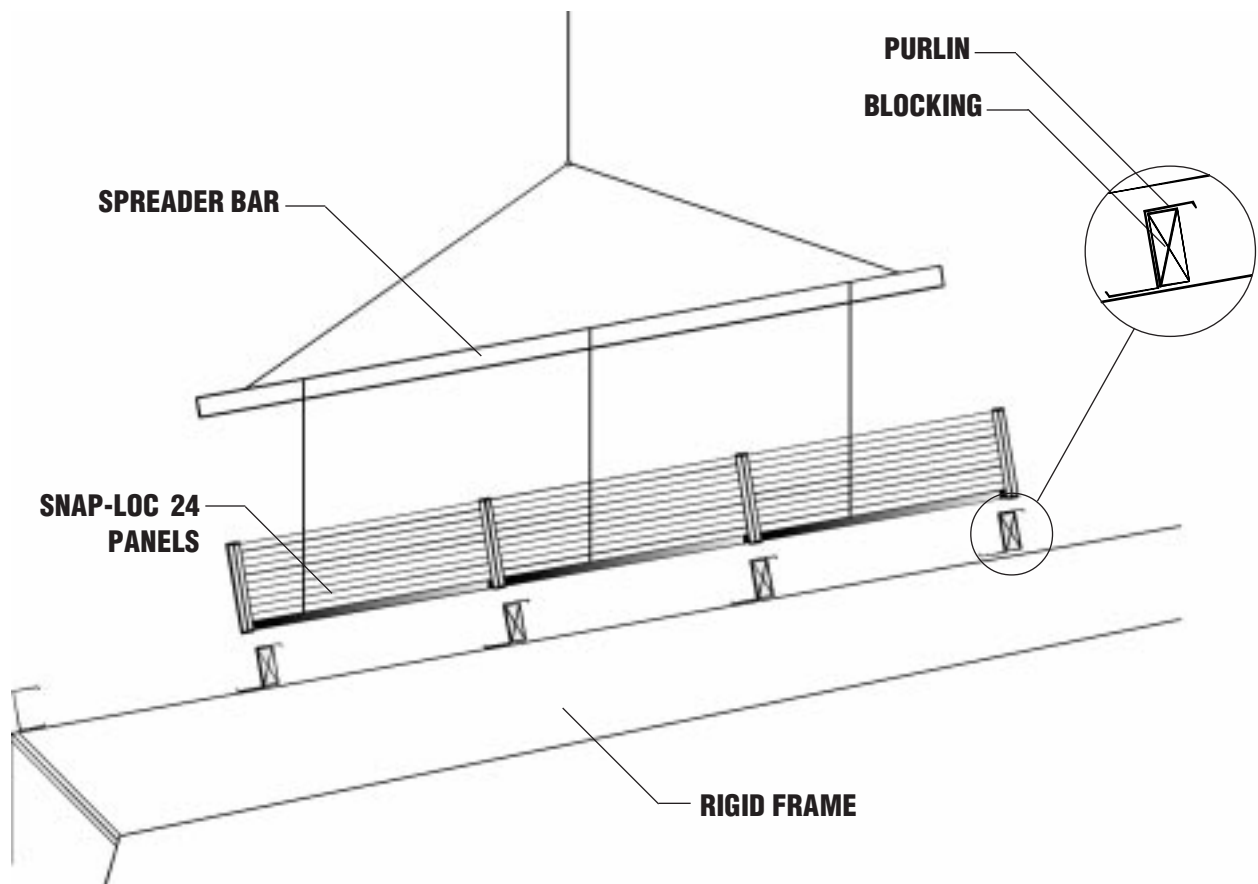
SNAP-LOC 24 STORAGE (CONT.)

STORAGE ON ROOF

To facilitate the handling of Snap-Loc 24 panels, panel bundles can be lifted and placed on the roof if located at a rigid frame with blocking in place to prevent the purlins, if any, from rolling over. Bundles need to be placed over the rigid frame in order for the roof structure to handle the weight. Loading capabilities of the structure must be checked.

When lifting packaged sheets, make certain they are adequately supported. Panels less than 20'-0" in length can normally be lifted with a forklift; however, when lifting panels in excess of 20'-0", it is recommended that a spreader bar and slings be used. As a rule, when lifting, no more than $\frac{1}{3}$ of the length of the panel should be left unsupported.

Make a plan for bundle placement by determining how much area a bundle of panels will cover. Bundles should be placed on the roof in accordance with the direction the panel will be installed. Consider where the string line, if any, is to run at the eave to set roof panels by. Roof bundles should not interfere with this string line.



SNAP-LOC 24 FOOT TRAFFIC

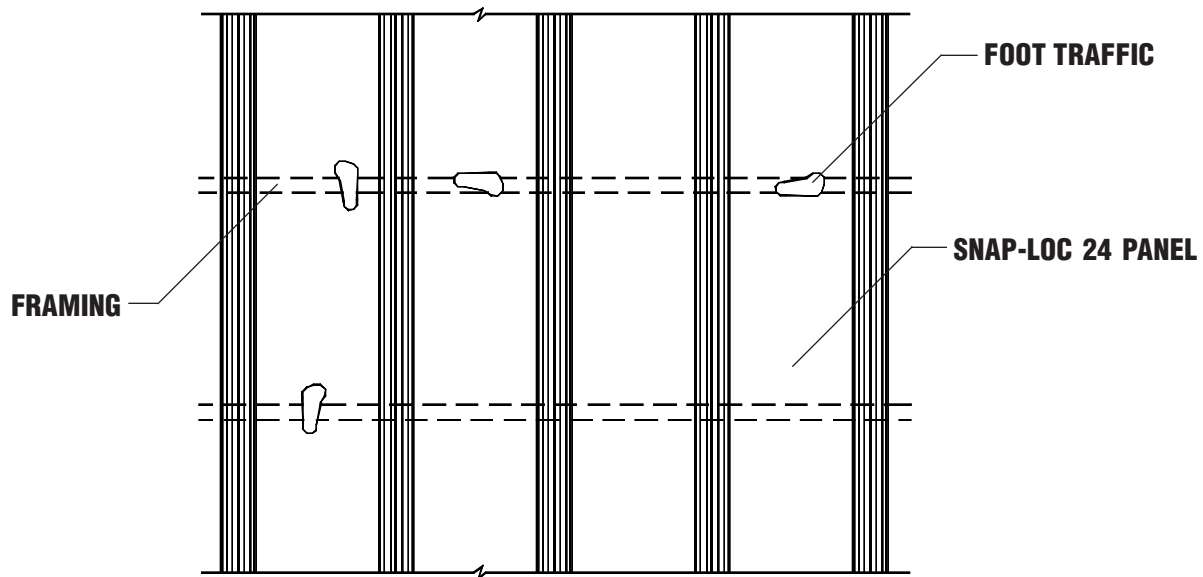
Care of metal panels and flashings must be exercised throughout erection. Foot traffic can cause distortion of panel and damage to finish. Traffic over the installed system must be kept to an absolute minimum. If continuous foot traffic is necessary for maintenance over certain areas of the roof, then a permanent walkway should be installed.

Do not use the roof panel as a walking platform. The roof panels will not withstand the weight of a person standing on the panel until the panel has been snapped into place and all eave/valley fasteners have been installed. Maximum load carrying capability of the Snap-Loc 24 panel is not achieved until the panel has been snapped into place and all fasteners installed. Failure to follow these instructions may result in serious or fatal injuries.

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. If Snap-Loc 24 is installed over open framing, step in the flat of the panel only and as close to the framing as possible.

CAUTION

Do not stand on the roof panel until the panel has been snapped into place and all fasteners have been installed. Failure to do so may result in serious or fatal injuries.



SNAP-LOC 24 FIELD CUTTING AND TOUCH-UP

FIELD CUTTING

Tin snips or a "nibbler" type electric tool are recommended for field cutting Snap-Loc 24 panels. Cutting the steel generates slivers or metal chips. These slivers and metal chips must be immediately removed from the Snap-Loc 24 panels because they will damage the finish and shorten the life of the product.

One method of preventing this problem is to flip the Snap-Loc 24 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.

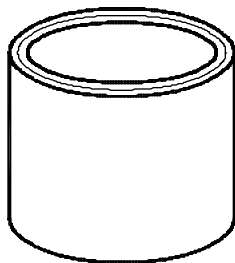
When cutting Snap-Loc 24 panels, goggles must be worn for eye protection.

CAUTION

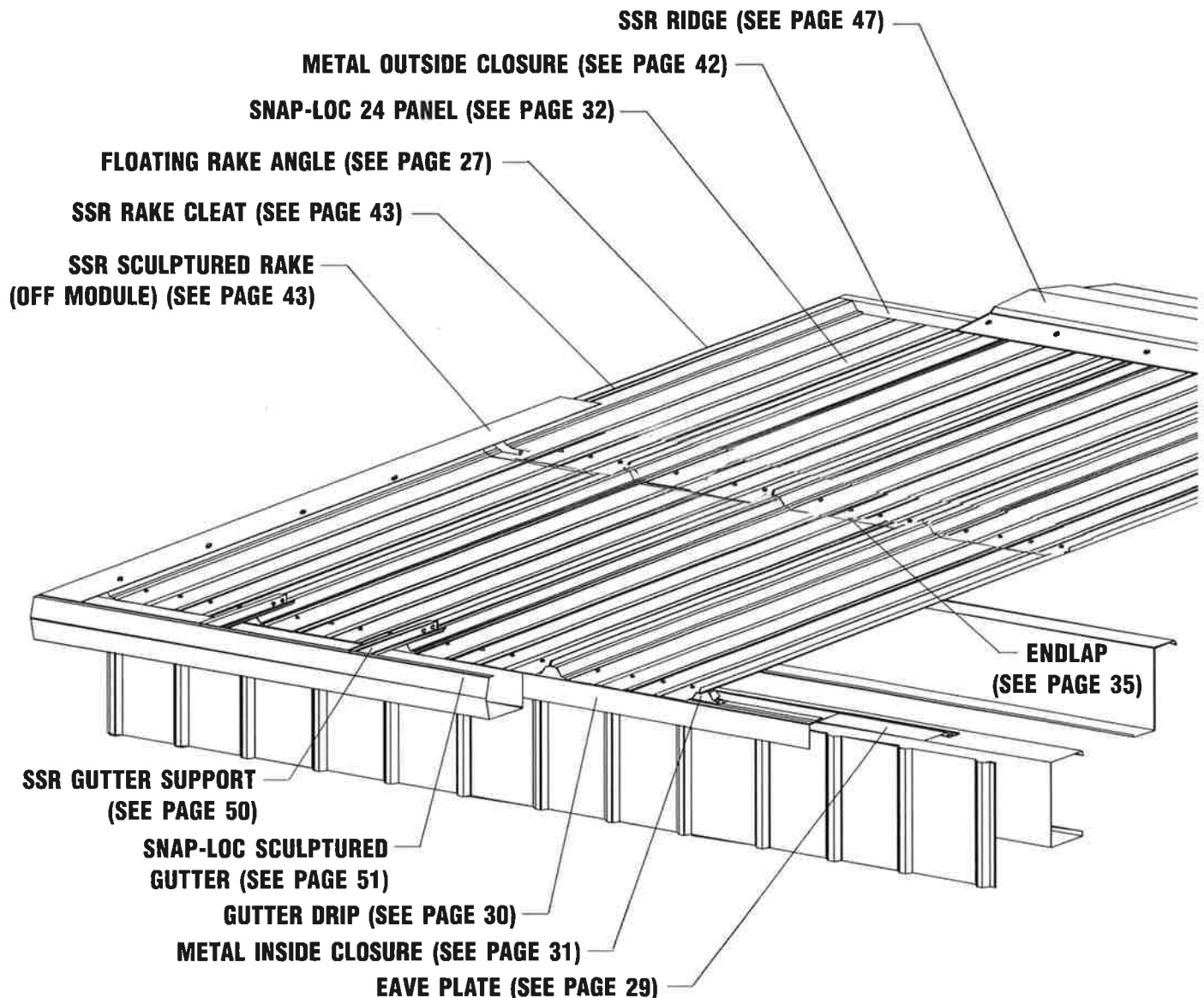
All product surfaces should be free of debris at all times. Installed surfaces should be wiped clean at the end of each work period. Never cut panels over metal surfaces. Metal shavings will rust on the surface, voiding the warranty.

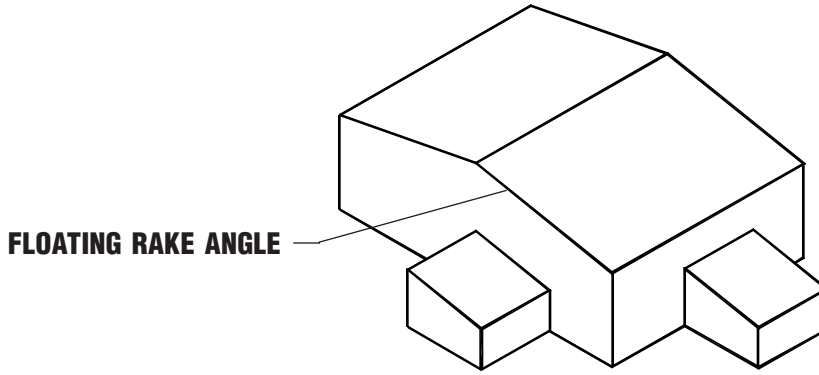
TOUCH-UP PAINT

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 overspray that may occur. Due to accelerated fade rate, touch-up paint should be applied sparingly.

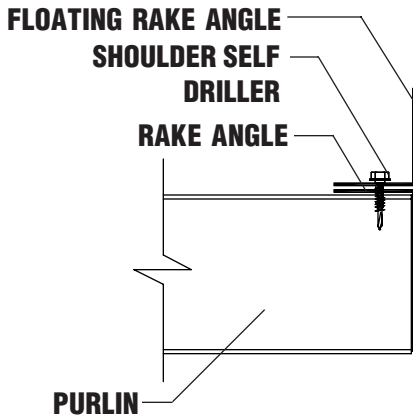


- The following procedures (pages 27-53) are presented as a general guide for installing Snap-Loc 24 panels, flashings, and accessories on a typical metal building.
- The installation procedures will involve:
 1. Panel installation from left to right (looking from eave to peak).
 2. Installation over steel purlins, rake angles, and eave struts.
 3. Panel installation over faced blanket insulation (insulation not shown).
 4. Clip system without Thermal Blocks.
 5. Eave Plate attached to eave framing member.
 6. Wall panel installation prior to roof panel.
 7. Gutter Drip and Snap-Loc Sculptured Gutter flashing used at the eave.
 8. Starting panels on module and ending panels off module.
 9. Panel runs with endlaps.
 10. SSR Sculptured Rake (off module) flashing used at the rake.
 11. SSR Ridge flashing used to close off peak end.

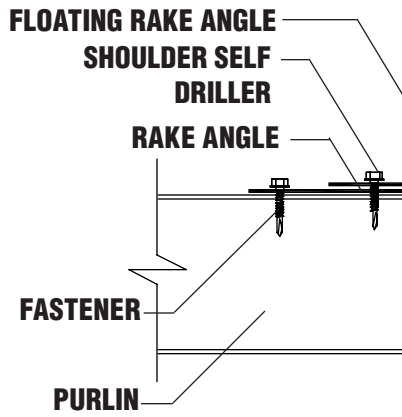




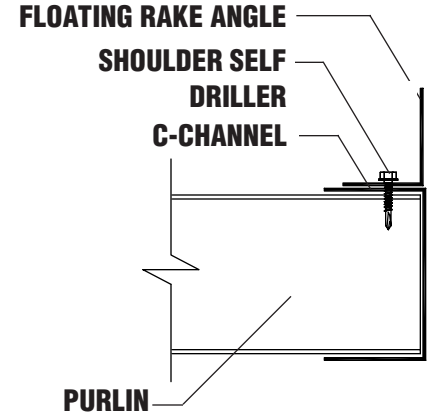
- The Floating Rake Angle must be attached to the framing member along the rake. There are several methods of installing the Floating Rake Angle (see below). Welding of the rake angle or c-channel to the purlins is recommended so not to obstruct the Floating Rake Angle attachment.



FLOATING RAKE ANGLE ATTACHMENT



ALTERNATE FLOATING RAKE ANGLE ATTACHMENT



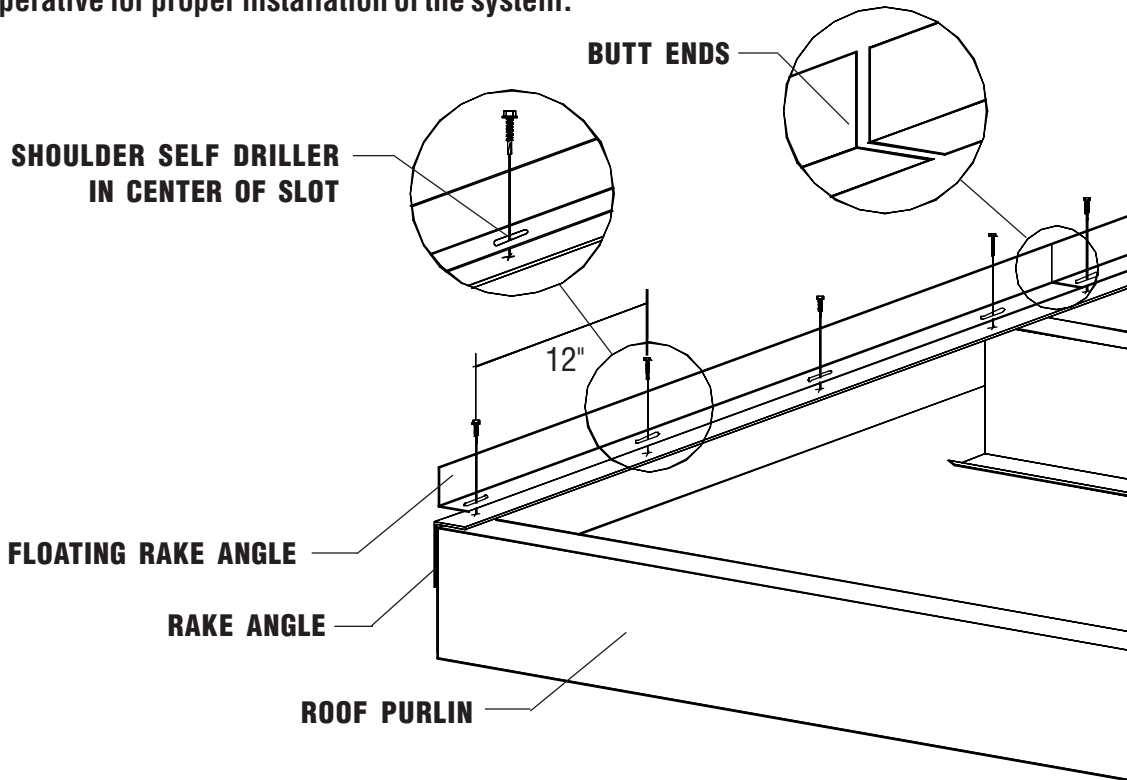
ALTERNATE FLOATING RAKE ANGLE ATTACHMENT

- Refer to the chart for determination of the proper Floating Rake Angle. Correct Floating Rake Angle must be used for panel system to function properly.

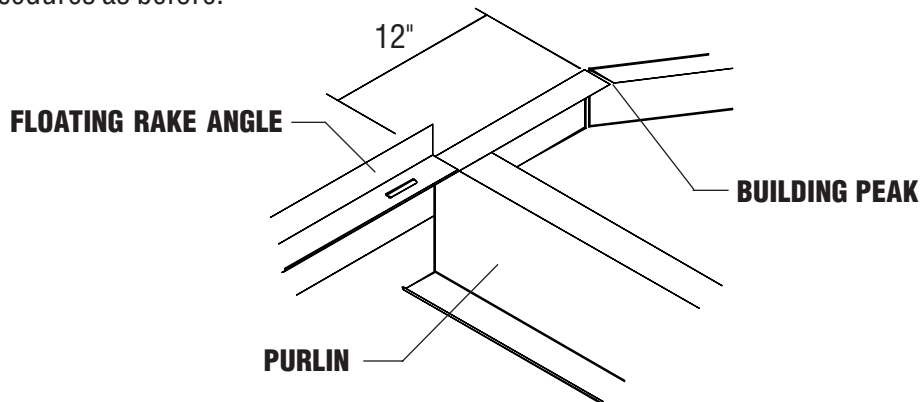
| SYSTEM COMPONENTS | | | | |
|-------------------|-------------|------------|---------------|------------------|
| SYSTEM | CLIP | RAKE ANGLE | THERMAL BLOCK | INSULATION |
| LOW | 3 1/4" LOW | 3 1/8" LOW | NONE REQUIRED | 4" TO 6" BLANKET |
| HIGH | 4 1/4" HIGH | 4 1/8" MID | 1" | 4" TO 6" BLANKET |

STEPS

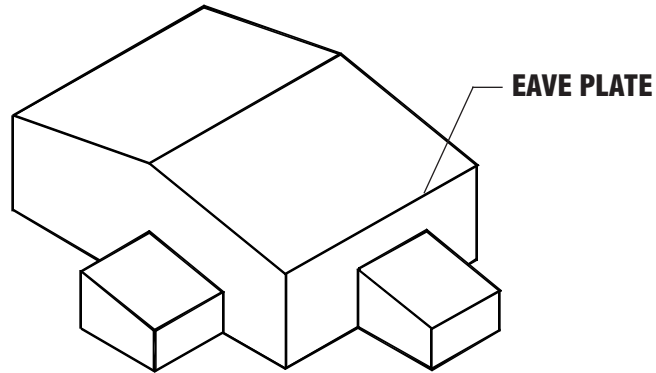
1. Starting on the left hand side, at the eave of the building (looking eave to peak), align the Floating Rake Angle flush with the existing rake angle. **It is critical that the Floating Rake Angle be straight and square with the building as it controls the alignment of the roof panels.**
2. Fasten the Floating Rake Angle with #12-14 x 1 1/4" Shoulder Self Driller screws into the center of each slot, (12" intervals). **Do not overfasten screws. Movement of Floating Rake Angles are imperative for proper installation of the system.**



3. If two or more Floating Rake Angles are required, butt ends of Floating Rake Angles (do not overlap) and continue fastening.
4. If necessary, field cut Floating Rake Angles to terminate 12" from peak of building.
5. Install Floating Rake Angles on the opposite end where the panels terminate using the same procedures as before.



6. After applying Floating Rake Angles, insulation (if required) can be installed. Roll out insulation eave to peak, laying side of insulation on Floating Rake Angle.
7. Avoid sidelap of insulation occurring directly beneath sidelap of panel.



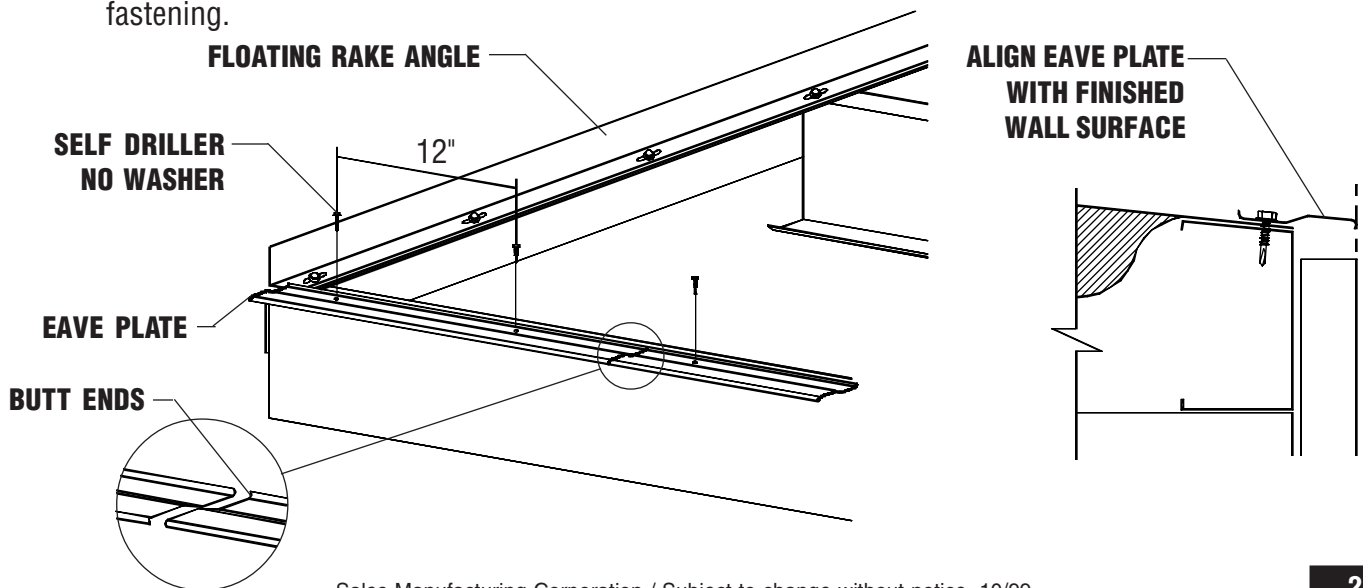
□ The Eave Plate serves as an extension of the structure to support and fasten the panel at the eave on applications utilizing the Low or High clip systems.

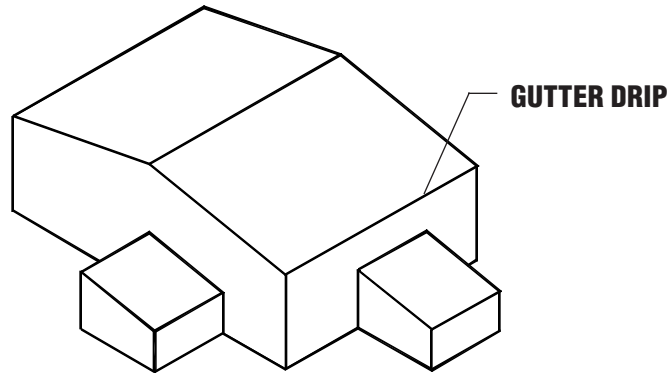
□ Refer to the chart for determination of the proper Eave Plate. The correct Eave Plate must be used for the panel system to function properly.

| SYSTEM COMPONENTS | | | | |
|-------------------|-------------|------------|---------------|------------------|
| SYSTEM | CLIP | EAVE PLATE | THERMAL BLOCK | INSULATION |
| LOW | 3 1/4" LOW | 3 1/8" LOW | NONE REQUIRED | 4" BLANKET |
| HIGH | 4 1/4" HIGH | 4 1/8" MID | 1" | 4" TO 6" BLANKET |

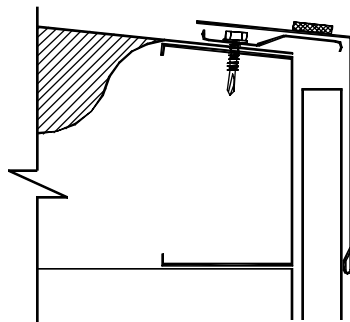
STEPS

1. If using blanket insulation the Eave Plate may be used to secure the insulation at the eave. Be sure to remove the fiberglass and fasten only the vapor barrier to avoid wicking.
2. Place pre-punched leg of Eave Plate on top of Floating Rake Angle lower leg. Align the top leg of the Eave Plate flush with the finished wall surface at the eave of the building.
3. Fasten Eave Plate to eave framing member with #1/4-14 x 1 1/2" Self Driller No Washer screws 12" O.C. **Do not fasten through Eave Plate into Floating Rake Angle. Movement of the Floating Rake Angle is imperative for proper installation of system.**
4. If two or more Eave Plates are required, butt ends of the Eave Plates (do not overlap) and continue fastening.

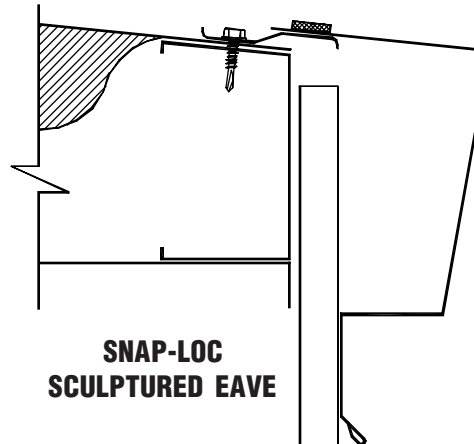




- The Gutter Drip flashing provides additional protection against moisture at the eave end of the roof and is used only in conjunction with the Snap-Loc Sculptured Gutter.
- The Gutter Drip flashing can be installed either prior to or during roof panel installation.
- It is recommended that the wall surface be installed prior to the Gutter Drip installation.
- The following procedures also apply to applications utilizing Snap-Loc Sculptured Eave.



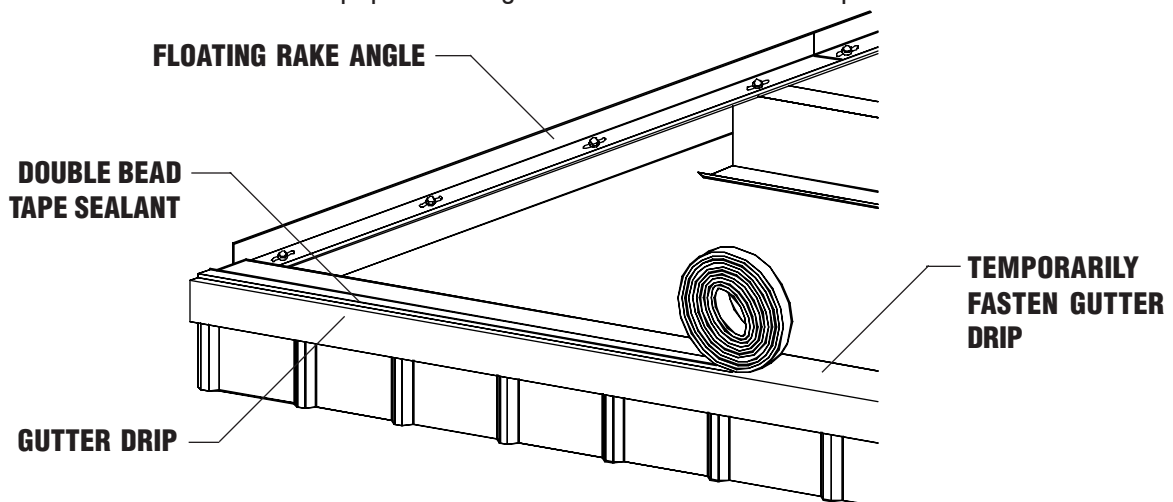
GUTTER DRIP

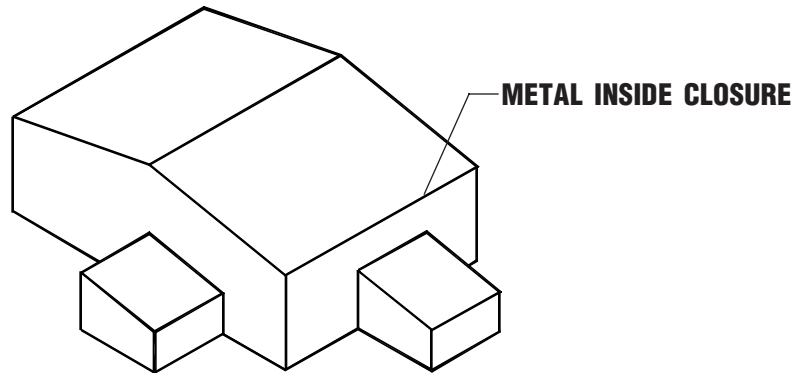


**SNAP-LOC
SCULPTURED EAVE**

STEPS

1. Place the Gutter Drip flashing along the eave on top of the upper leg of the Eave Plate. Make sure the Gutter Drip flashing is flush with the finish wall surface.
2. Temporarily fasten the Gutter Drip to the Eave Plate. Once panel installation occurs, permanent fasteners will be placed through the panel into the Gutter Drip and the Eave Plate.
3. Apply a continuous strip of Double Bead Tape Sealant where the Gutter Drip rests on top of the Eave Plate. Do not remove the paper backing off of the Double Bead Tape Sealant.

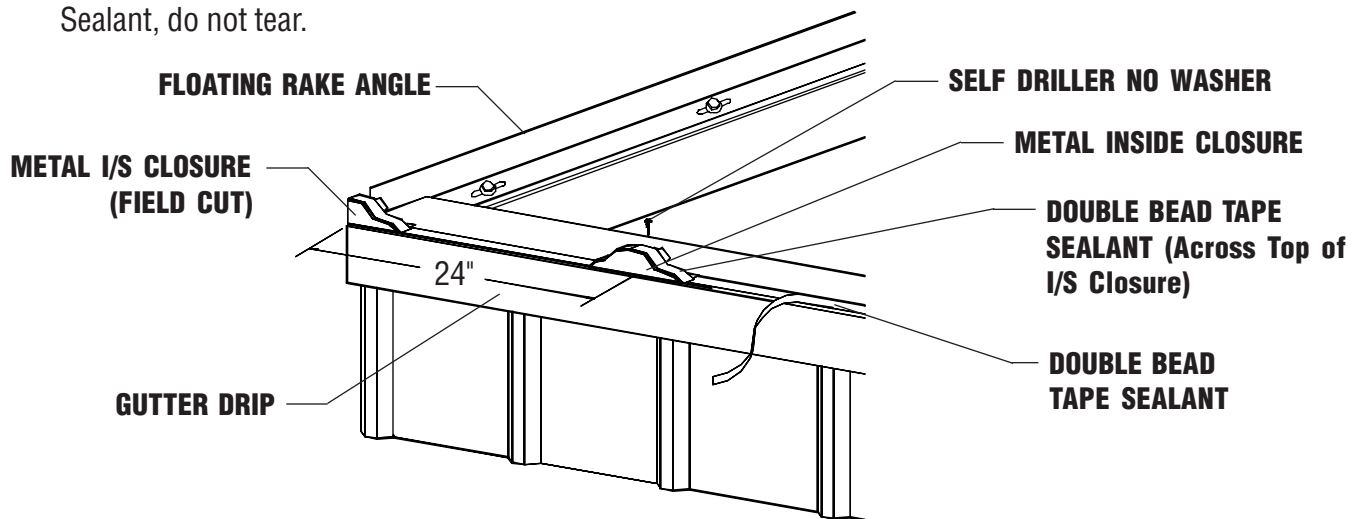


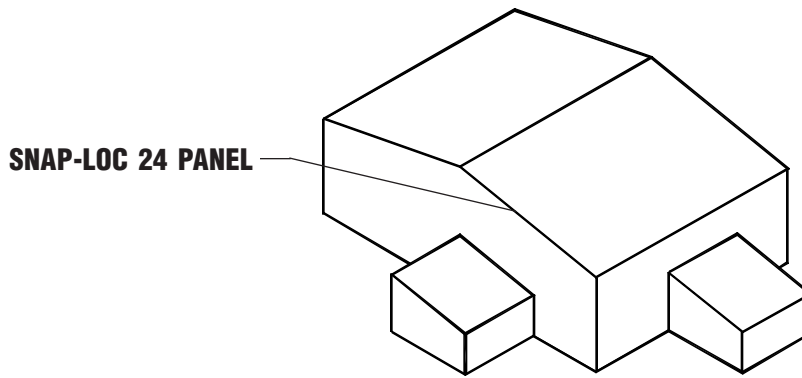


- ❑ Snap-Loc 24 panels can be installed going from either left to right or right to left, looking from eave to peak. If the roof is symmetrical about the ridge and without any endlaps, the panel can be installed on both sides simultaneously. However, if endlapping of panels is required, panels must be installed from left to right.
- ❑ The following procedures are based on installing Snap-Loc 24 panel from left to right starting on module (full panel width). For starting panel off module see page 41.
- ❑ The following procedures are for installing the Snap-Loc 24 panel to accommodate for Snap-Loc Sculptured Gutter and Gutter Drip flashing.
- ❑ Metal Inside Closures can be installed prior to panel installation or as the panel installation occurs. The following procedures are based on installing Metal Inside Closures as installation of each panel occurs.

STEPS

1. Starting at the left hand side of the building (looking eave to peak) measure from the vertical leg of the Floating Rake Angle along Gutter Drip flashing and mark every 24". Care should be taken in measuring as this helps determine panel modularity.
2. Strip off the paper backing on the Double Bead Tape Sealant a few inches past the first mark.
3. Field cut a Metal Inside Closure in half and place on top of the Double Bead Tape Sealant flush with the end of the Gutter Drip flashing. Place next Metal Inside Closure so that the hole at the base of the closure lines up with the first mark.
4. Fasten both Metal Inside Closures through Gutter Drip flashing and into Eave Plate with #¹/₄-14 x 1¹/₂" Self Driller No Washer screws.
5. Apply Double Bead Tape Sealant to the top of the Metal Inside Closures. Cut Double Bead Tape Sealant, do not tear.



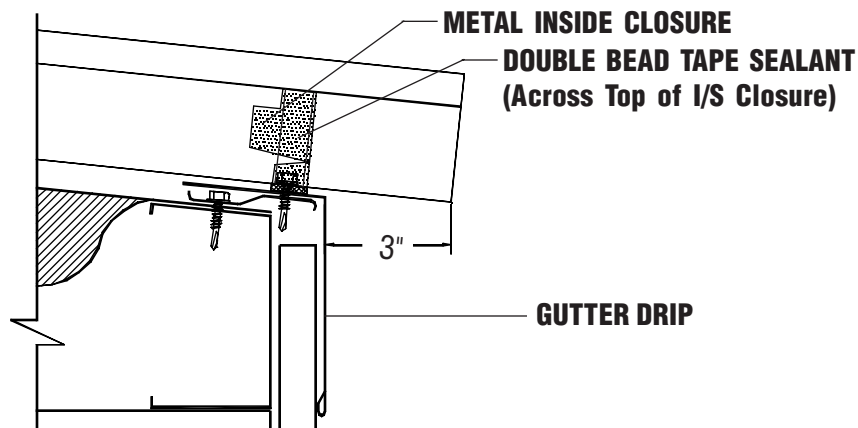
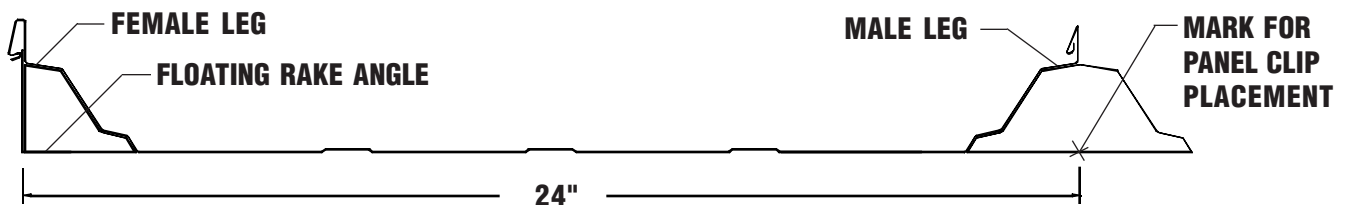


INSTALLING FIRST PANEL

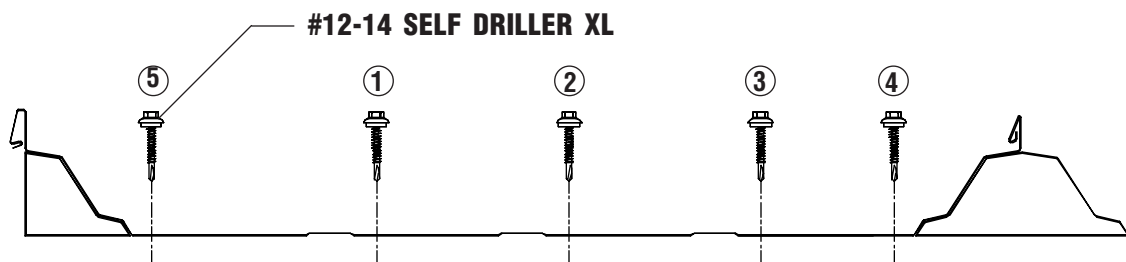
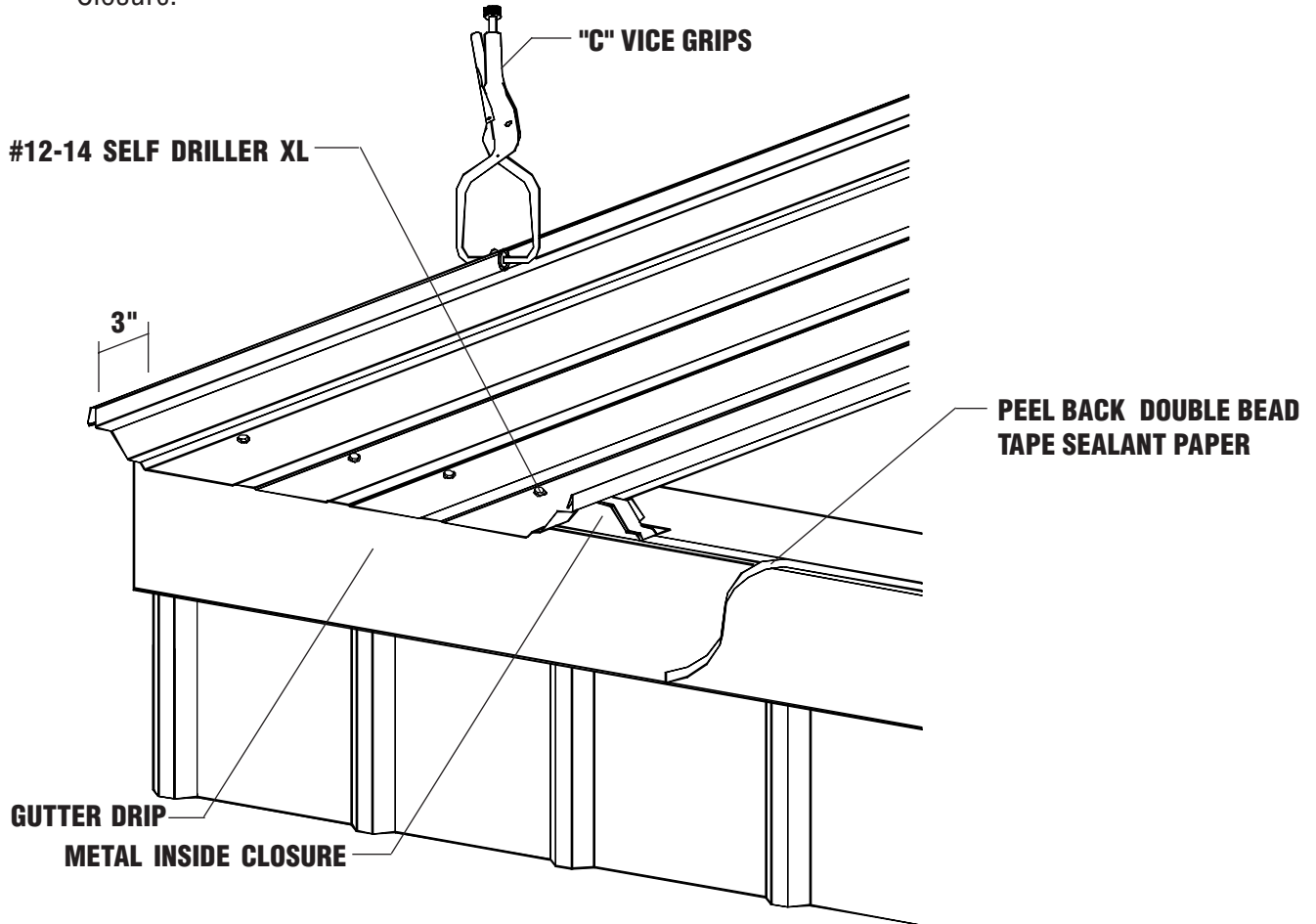
- Snap-Loc 24 panels can be installed going from either left to right or right to left, looking from eave to peak. If the roof is symmetrical about the ridge and without any endlaps, the panel can be installed on both sides simultaneously. However, if endlapping of panels is required, panels must be installed from left to right.
- The following procedures are based on installing Snap-Loc 24 panel from left to right starting on module (full panel width). For starting panel off module see page 41.
- The following procedures are for installing the Snap-Loc 24 panel to accommodate for Snap-Loc Sculptured Gutter and Gutter Drip flashing. If Snap-Loc Sculptured Eave, is to be used, installation can occur prior to or during roof panel installation.

STEPS

1. Prior to installing panel, measure from the vertical leg of the Floating Rake Angle along each framing member and mark every 24" for panel clip placement. Care should be taken in measuring as this helps determine panel modularity.
2. Position the first panel so the female leg is on the top of the Floating Rake Angle and the panel is against the vertical leg of the Floating Rake Angle.
3. Slide the panel over the Gutter Drip 3" past finished wall surface.



4. Use a "C" vice grip to clamp the panel against the vertical leg of the Floating Rake Angle.
5. Recheck the panel overhang dimension at eave, peak, and endlap (if required), and adjust if necessary.
6. Fasten panel to the Gutter Drip flashing and Metal Inside Closure using six (5) #12-14 Self Driller XL screws. Fasteners must penetrate the Eave Plate below the Gutter Drip and the Metal Inside Closure.

**FASTENING PATTERN SEQUENCE****CAUTION**

Do not attach the Snap-Loc 24 panel at both the eave and peak ends. This will restrict the thermal movement of the panel. Panel runs with endlaps must be fastened to the substructure at the eave.

INSTALLING PANEL CLIPS

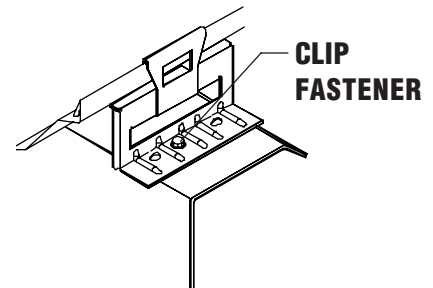
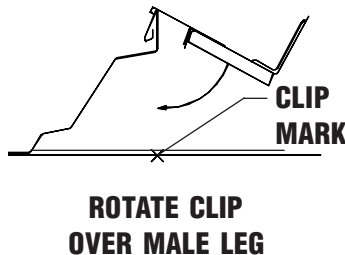
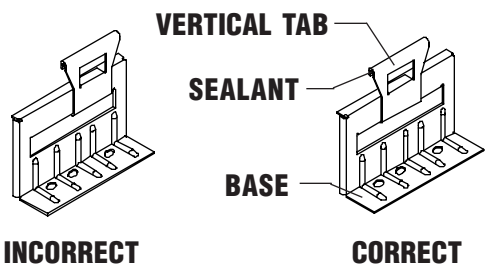
- Design wind uplift requirements must be considered for proper placement of clip and spacing.
- Refer to the chart for determination of the proper clip size. Correct clip size must be used for panel system to function properly.

| SYSTEM COMPONENTS | | | |
|-------------------|-------------|---------------|------------------|
| SYSTEM | CLIP | THERMAL BLOCK | INSULATION |
| LOW | 3 1/4" LOW | NONE REQUIRED | 4" TO 6" BLANKET |
| HIGH | 4 1/4" HIGH | 1" | 4" TO 6" BLANKET |

- It is important to maintain 24" increments between panel clips along the same framing member as the panel clips control panel modularity.
- The following procedures are based on installing panel clips over steel roof purlins. For fastening clips to a substructure other than steel purlins, see page 17 for correct fastener selection.

STEPS

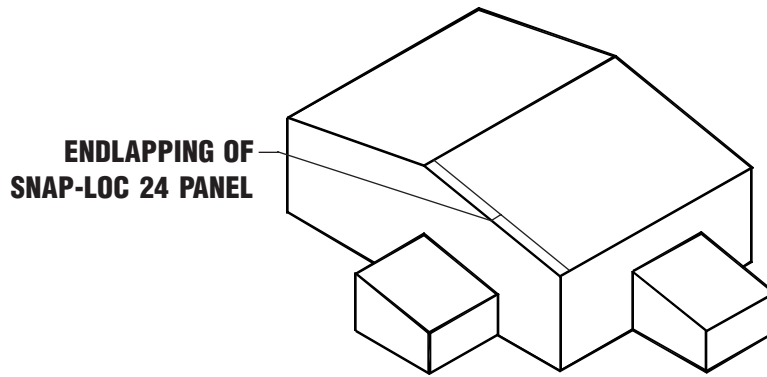
1. Center the vertical tab of the clip with the slot in the base, this allows the system to float properly.
2. Apply a bead of Tube Sealant to the underside of the vertical tab of the clip.
3. Place the panel clip over the male leg of the panel and center the base of the clip with the center of the purlin top flange.
4. Rotate the clip to a vertical position so that the base of the clip rests on the top flange of the purlin and aligns with clip placement mark.
5. Fasten clip to purlin with one (1) #1/4-14 x 1 1/2" Self Driller No Washer screw into the 2ND hole on the clip.



CAUTION

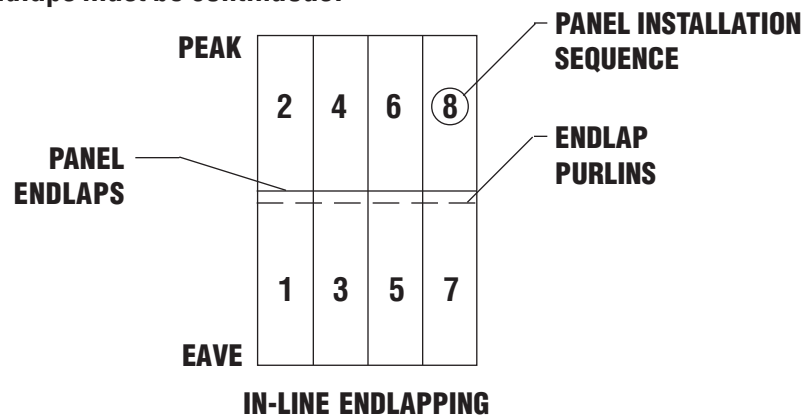
If a fastener strips out, you must remove the clip and reposition it so the fastener can drill a new hole at least 3/8" from the stripped hole or install an oversized fastener in the stripped hole. Failure to do this will result in weakening the roof wind uplift resistance.

6. Clips should be installed at all purlin intersections. **Panel clips are not required at eave framing members.**
7. As installing clips along the male leg of the panel, measure across the panel to confirm modularity.
8. If installing over insulation, some method of finding the purlins for clip location must be used. Insulation should be installed as panels are installed allowing for ease of locating purlins.



ENDLAPPING OF PANEL

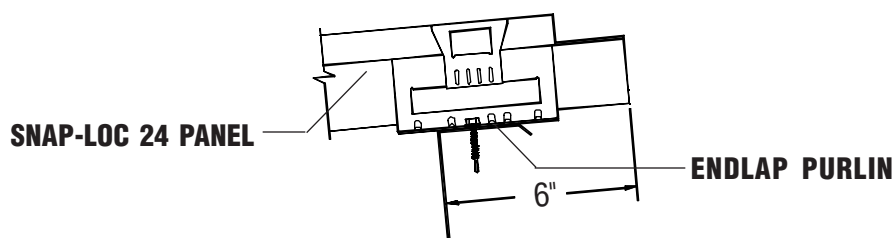
- If required, Snap-Loc 24 panels can be endlapped for longer panel runs.
- Factory notching and punching is standard on all Snap-Loc 24 panels. This eliminates material buildup at endlaps and allows easy alignment of panels and accessories.
- It is critical that the purlins or joists at the ridge and endlaps be located exactly as detailed and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the endlaps to loosen as the panels expand and contract.
- Panel runs with endlaps must be fastened to the substructure at the eave.
- Fasteners used at the endlaps must not penetrate the framing members, as this will restrict the system's ability for thermal movement.
- Placement of endlaps must be continuous.



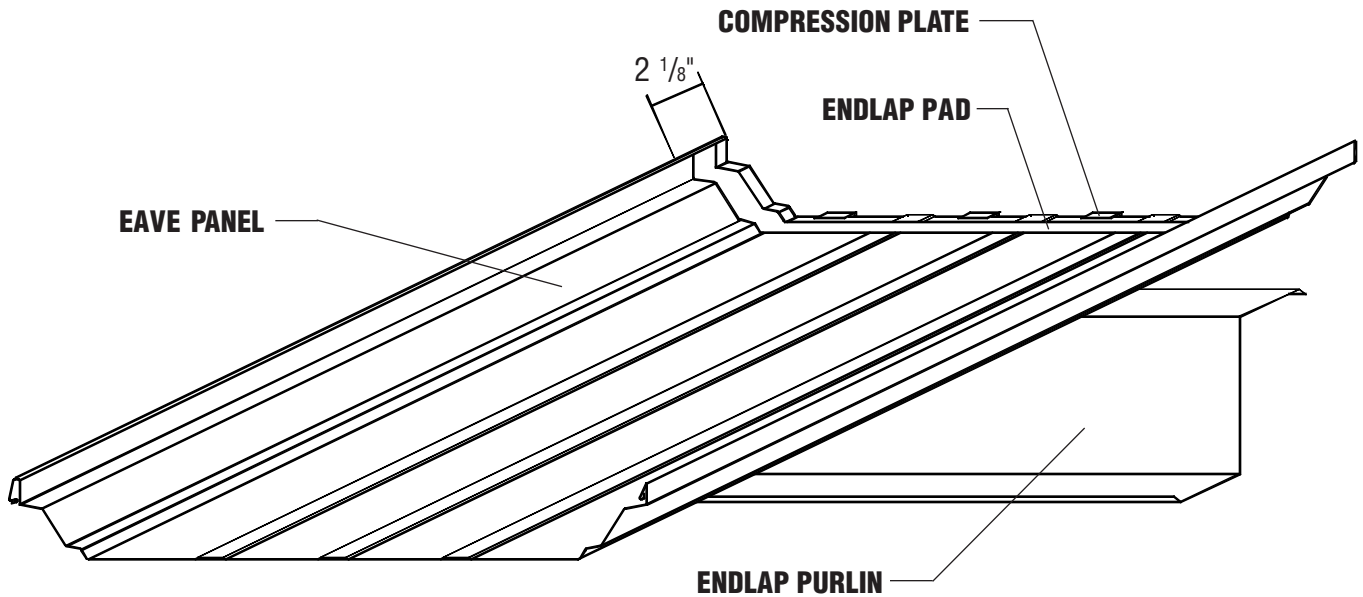
- The following procedures are for installing two (2) panels from eave to peak. The same procedures apply when installing more than two panels from eave to peak.

STEPS

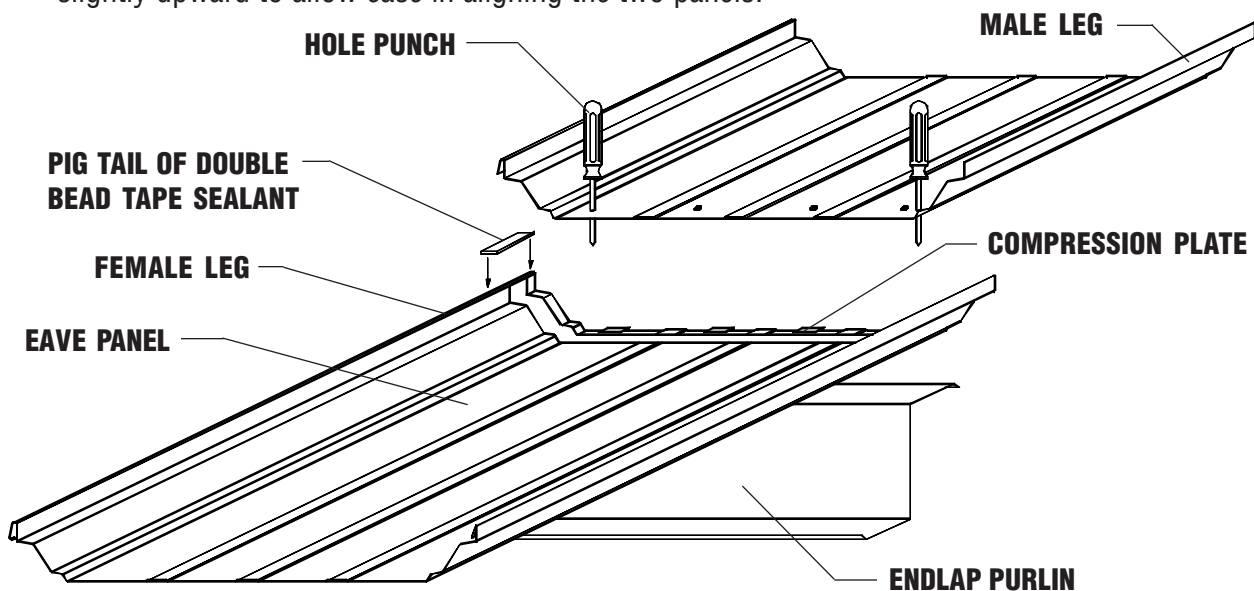
1. The eave panel when installed should overhang from the web of the endlap purlin by 6". This dimension must be verified. If the panel overlaps the web of the endlap purlin by a dimension other than 6", verify that the eave overhang dimension is correct.



2. The male and female side of both ends of the eave panel are factory notched $2 \frac{1}{8}$ " to allow the peak panel to nest inside the eave panel.
3. Slide the Compression Plate on to the end of the eave panel. The tab on the Compression Plate should engage the panel. A portion of the Compression Plate should rest on the purlin flange.
4. Apply an Endlap Pad on the endlap end of the eave panel down the male leg, across the panel, and up the female leg $\frac{1}{4}$ " from the end of the panel. Center the Endlap Pad over the factory punched holes. Do not stretch the Endlap Pad as this will cause gaps in the pads coverage.

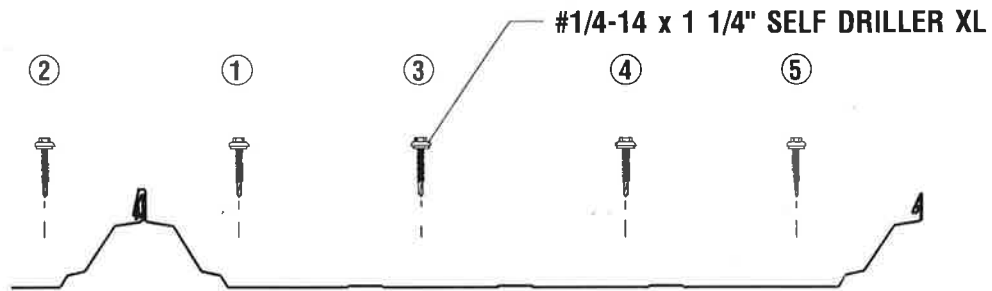
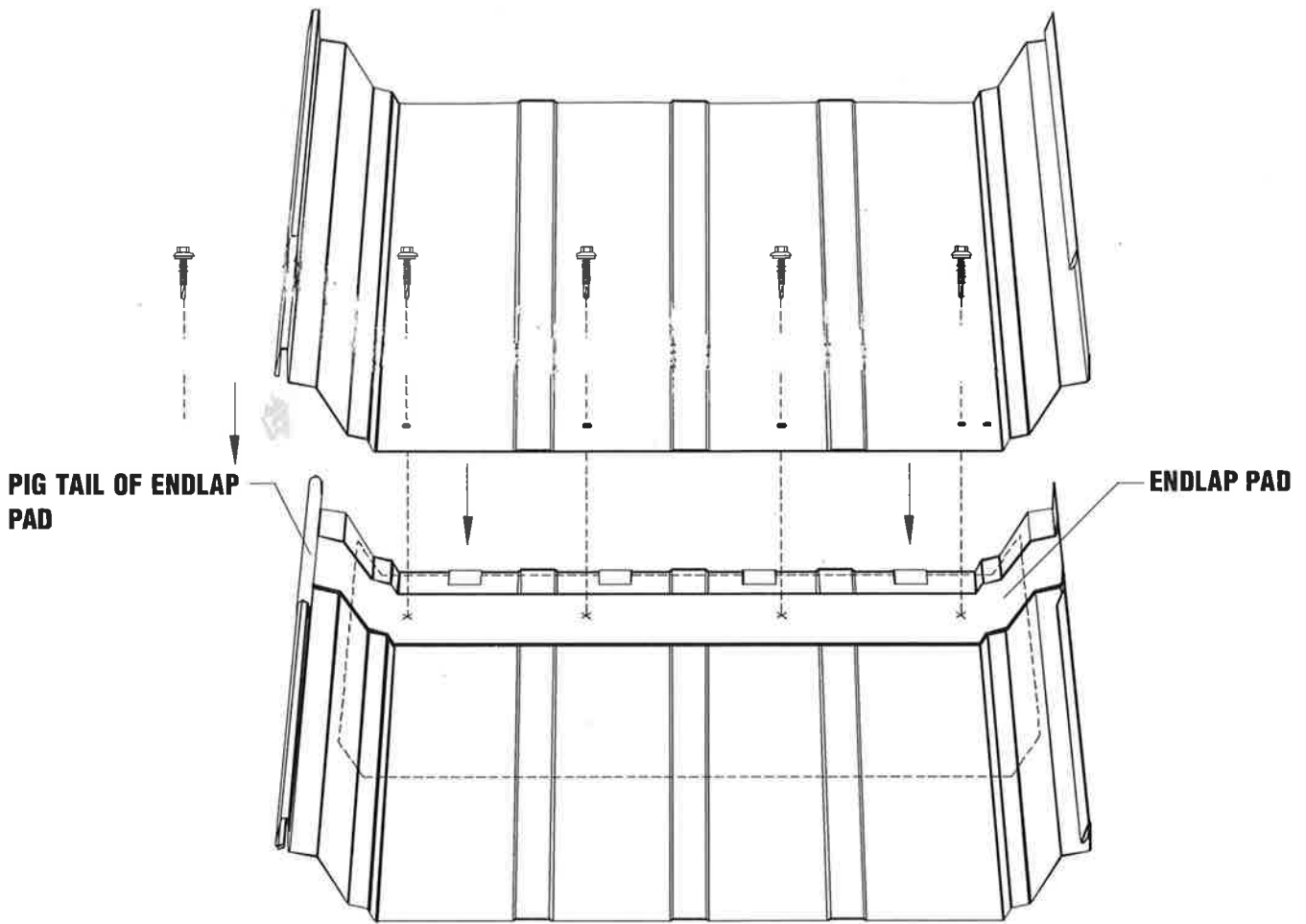


5. Apply a $2 \frac{1}{8}$ " pig tail of Double Bead Tape Sealant over the factory notched section of the Snap-Loc 24 panel legs.
6. Place two hole punches in the peak panel in the outer most factory punched holes. Push punches through endlap pad and factory punched holes in compression plates, thus aligning panels and lapping the proper $2 \frac{1}{8}$ ".
7. Nest the peak panel into the eave panel. It may be necessary to bow the center of the peak panel slightly upward to allow ease in aligning the two panels.



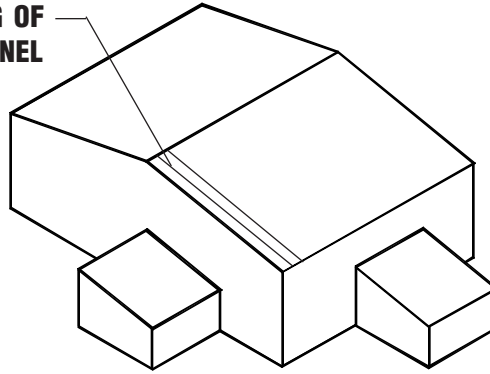
SNAP-LOC 24 INSTALLATION OF PANEL (CONT.)

8. Use a hole punch to align the holes in the panels with the holes in the compression plate. Two hole punches will be needed and placed in the first and last hole prior to fastening. Fasten the panels and compression plate together with five (5) #1/4-14 x 1 1/4" Self Driller XL screws.



FASTENING PATTERN SEQUENCE

SIDELAPPING OF SNAP-LOC 24 PANEL

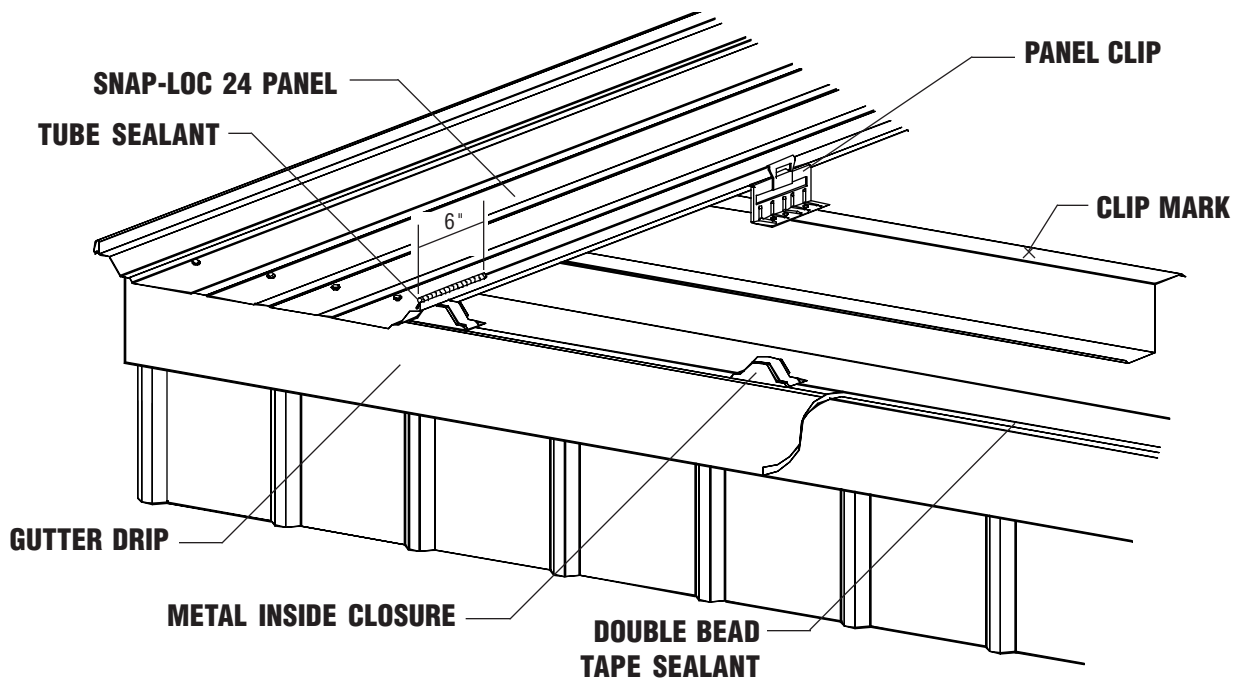


SIDELAPPING OF PANEL

- Before sidelapping of panel can occur, panel clips must be installed properly on the previous panel run. Verify that all clip tabs have been properly centered on the clip base.
- It is important to maintain 24" increments between panel clips along the same framing member as the panel clips control even panel modularity.

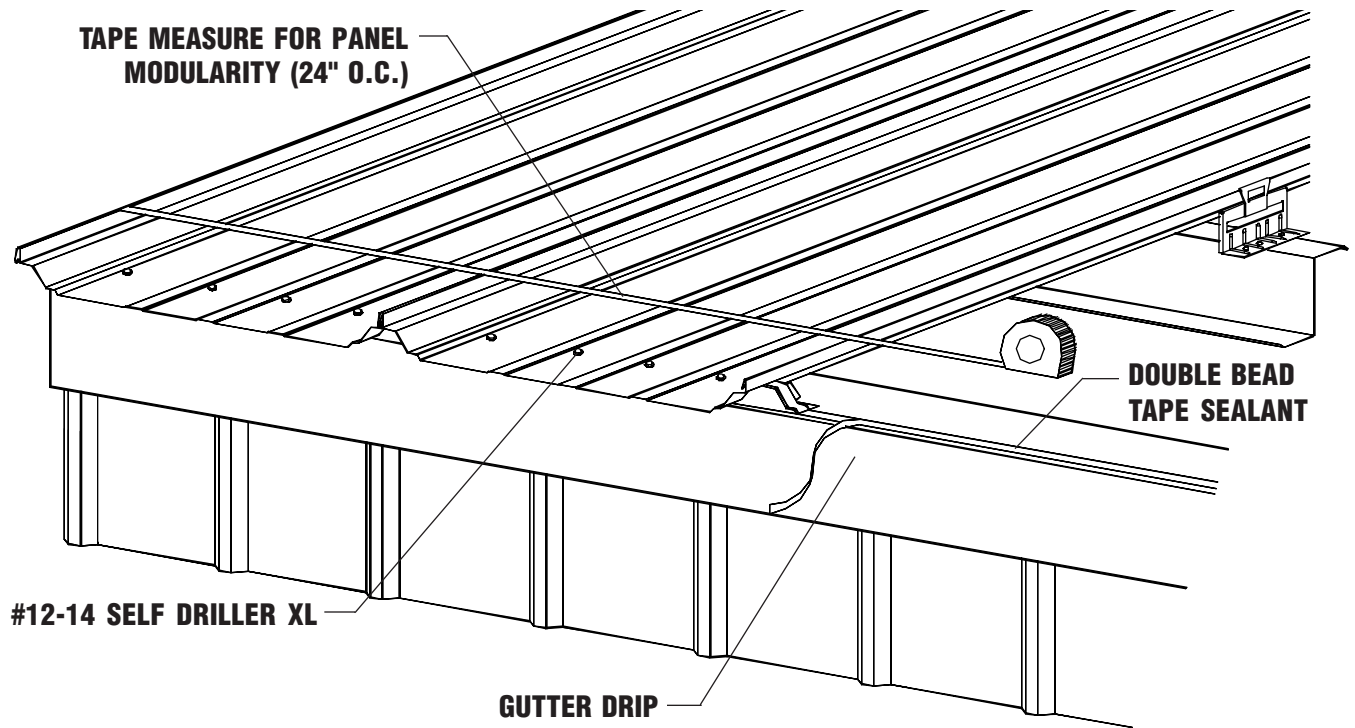
STEPS

1. Strip off the paper backing on the Double Bead Tape Sealant a few inches past the next mark. Place Tube Sealant on top of the male leg of the previously installed panel 6" from the eave of the panel.
2. Install the Metal Inside Closure at the eave following the same procedures as previously shown (see page 31).

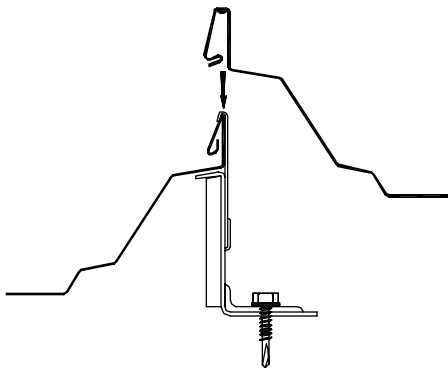
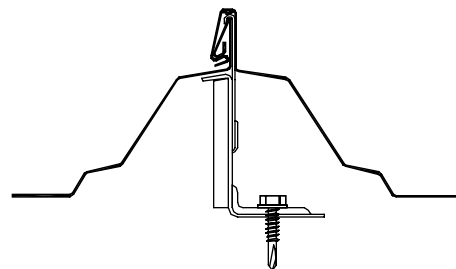


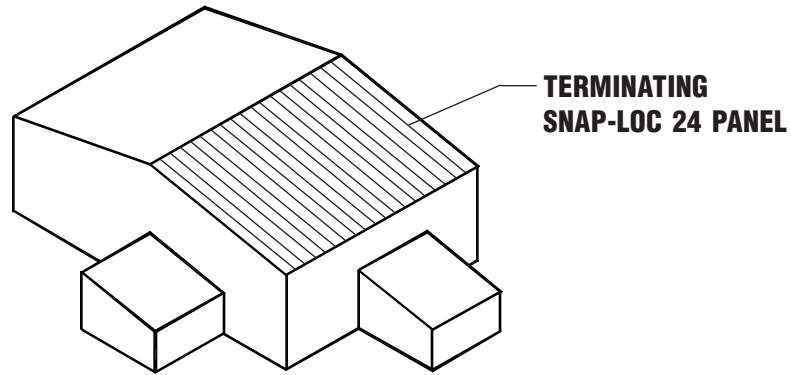
3. Place the female leg of the second panel on top of the male leg of the previously installed panel. Align the panel ends so that they are flush at the eave 3" past the finished wall surface. **Do not let the flat of the second panel touch the Double Bead Tape Sealant at the eave until the ends are flush.**
4. Beginning at the eave end of the panel, use hand force to push the female leg of the panel down over the male leg. If required, a rubber mallet may be used to start the snapping at the eave.

5. Fasten the panel to the Gutter Drip flashing and Metal Inside Closure using six (5) #12-14 Self Driller XL screws. Fasteners must penetrate the Eave Plate below the Gutter Drip and the Metal Inside Closure.
6. Install panel clips along the male leg of the panel at each framing member (except at the eave) as previously shown.



7. Measure the distance from the female leg of the first panel installed. This dimension should be an even multiple of $24" \pm 1/8"$ for every four panels. It is very important that the dimension from the starting panel to the last male leg, at the eave and peak, be the same dimension within a $1/4"$ of each other.
8. Make certain that all clips are properly installed and that the panel sidelap is properly snapped into place. Use of a rubber mallet may be required to snap panels together at the panel clip locations.

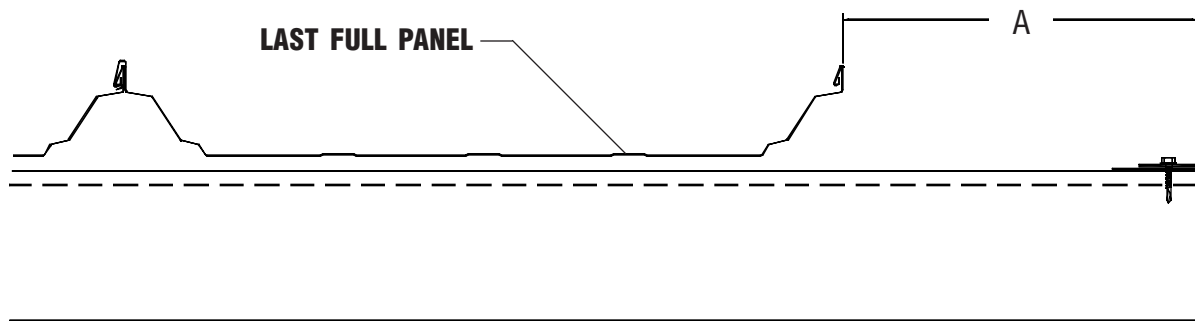
BEFORE SNAPPED**AFTER SNAPPED**



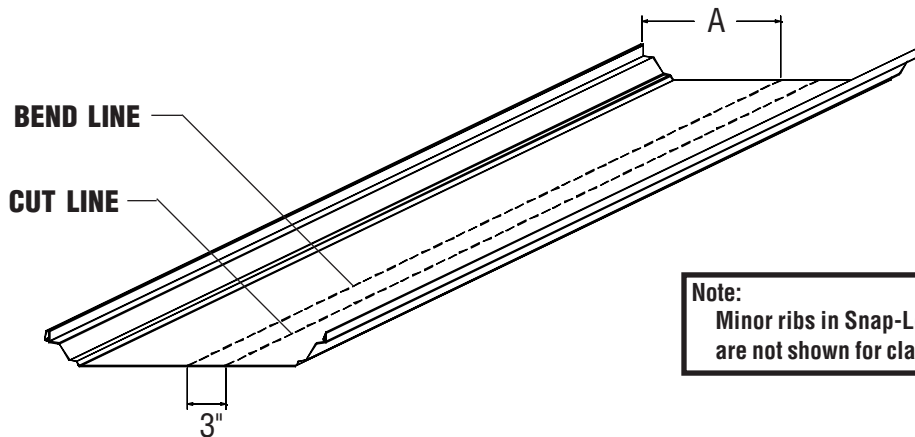
TERMINATION OF PANEL

STEPS

1. When the roof panel installation reaches the opposite end of the roof, the last panel run may need to be field modified to attach to the Floating Rake Angle along the rake.
2. Measure the distance between the leg of the last full panel run and the vertical leg of the Floating Rake Angle at the eave, endlap, and peak (Dimension "A").



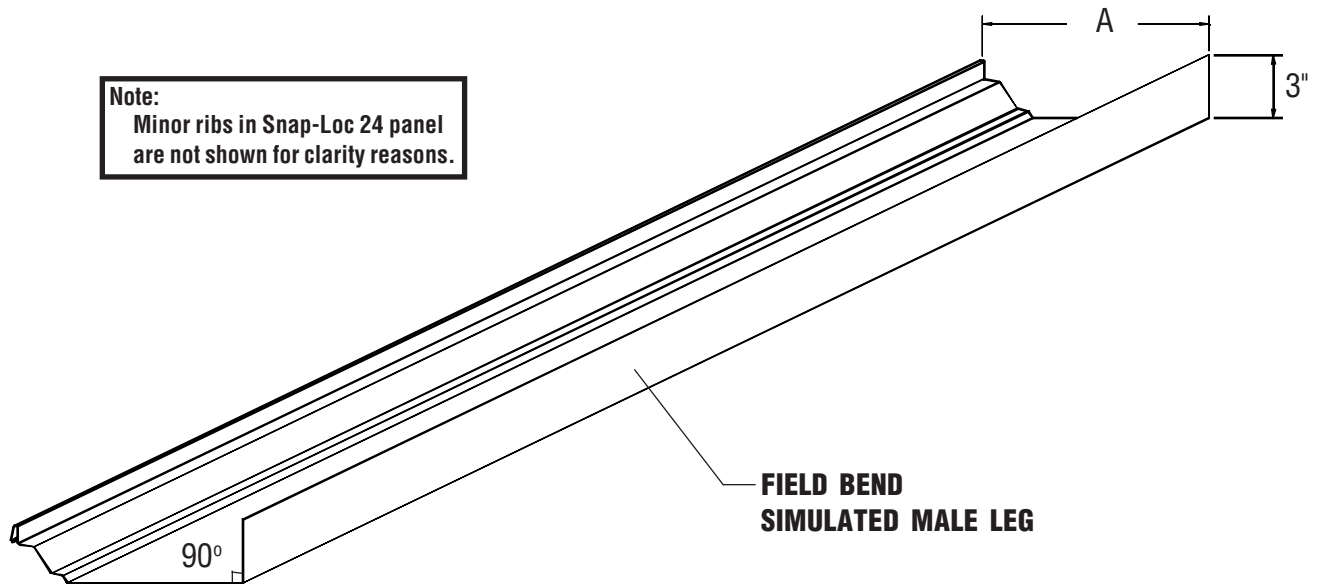
3. Determine if a full panel will fit between the last full panel run and the Floating Rake Angle. In most cases it will not fit. If the full panel will fit, then continue with the installation of the roof. When the last panel is installed the leg of the male side must fit flush with the Floating Rake Angle.
4. If a full panel is too wide to fit between the last full panel run and the Floating Rake Angle, a panel will have to be field-cut and bent to simulate the male leg.
5. Use the dimension taken between the last full panel run and the Floating Rake Angle and mark a roof panel. Cut the panel flat 3" wider than the mark to allow for the correct height of a field bent vertical leg.



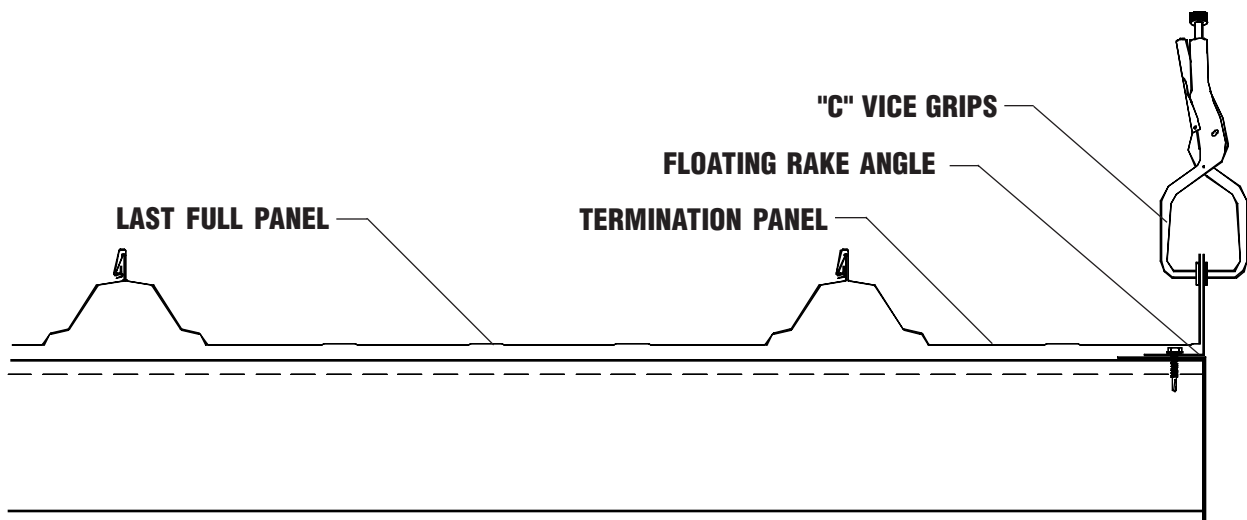
Note:
Minor ribs in Snap-Loc 24 panel are not shown for clarity reasons.

SNAP-LOC 24 INSTALLATION OF PANEL (CONT.)

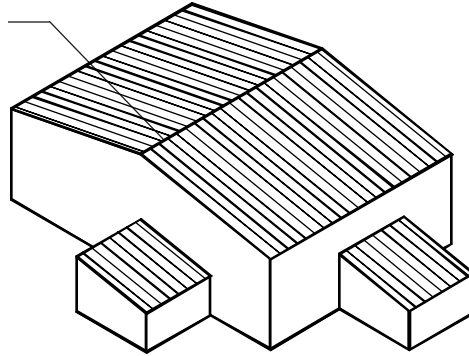
- Field bend the cut edge of the roof panel up 90 degrees to form a vertical leg.



- Place the termination panel between the last full panel run and the vertical leg of the Floating Rake Angle, making sure the panel fits properly.
- Clamp the termination panel to the vertical leg of the Floating Rake Angle temporarily, until rake flashing can be installed.
- Install required fasteners at eave.



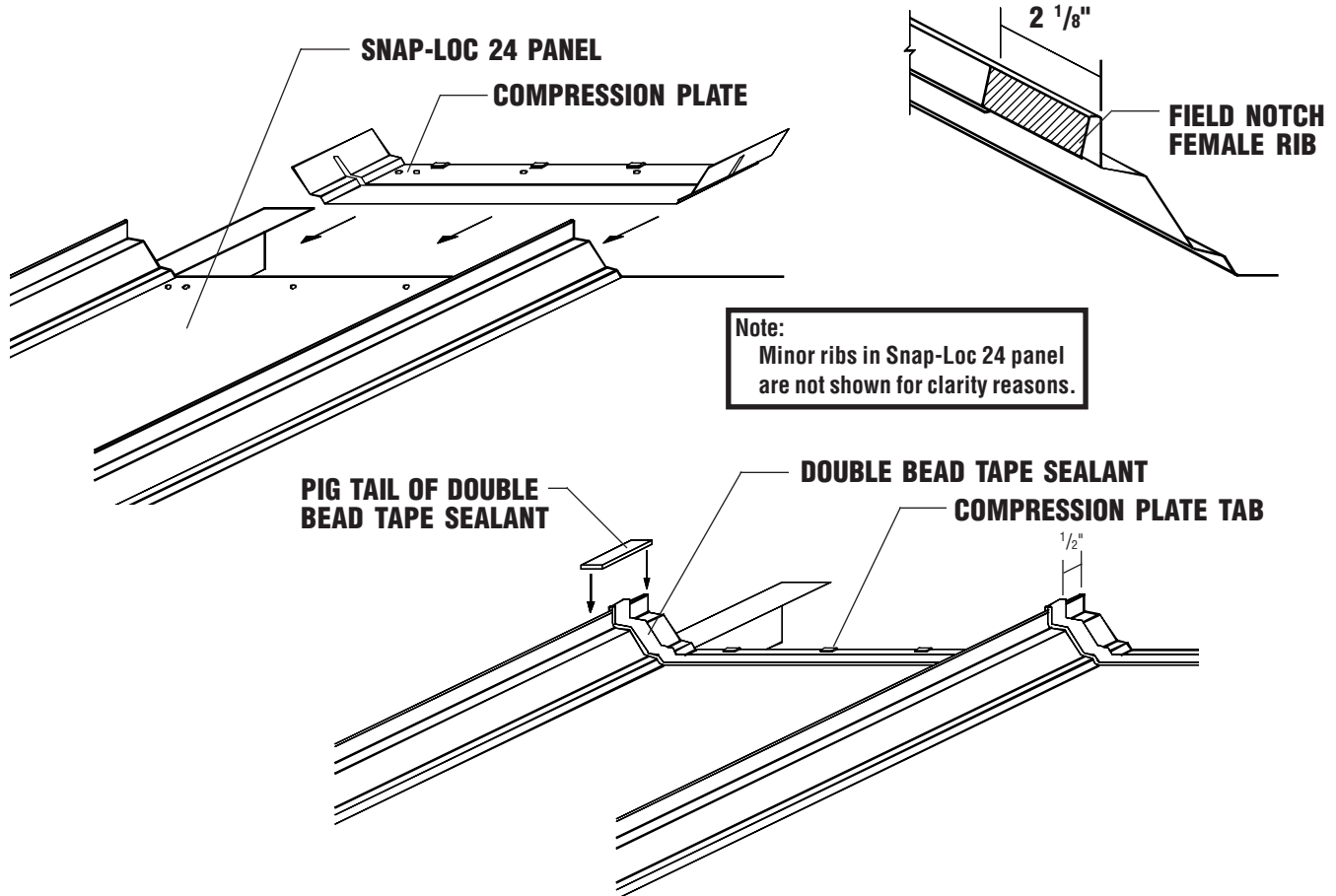
METAL OUTSIDE CLOSURE



- The Metal Outside Closure is used to close off the high end of the panel.
- Proper placement of the Metal Outside Closure is necessary for correct installation of flashing.
- Fasteners used at the Metal Outside Closures must not penetrate the framing members, as this will restrict the system's ability for thermal movement.
- Before installation of the Metal Outside Closure can begin, female rib must be field notched beyond that which was done at the factory. See detail below.

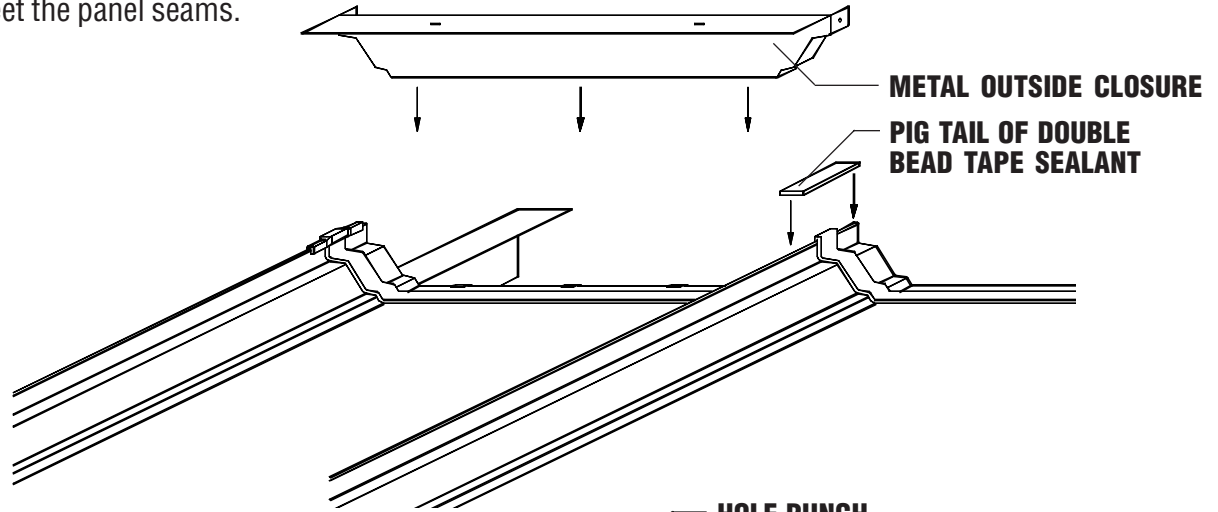
STEPS

1. Slide a Compression Plate on to the end of the panel with the tab engaging the panel.
2. Apply Double Bead Tape Sealant down the female leg, across the panel and up the male leg $\frac{1}{2}$ " from the end of the panel. Double Bead Tape Sealant must completely cover all factory punched holes. Apply a 2 $\frac{1}{2}$ " long pig tail of Double Bead Tape Sealant over the section of the female rib which must be field notched.

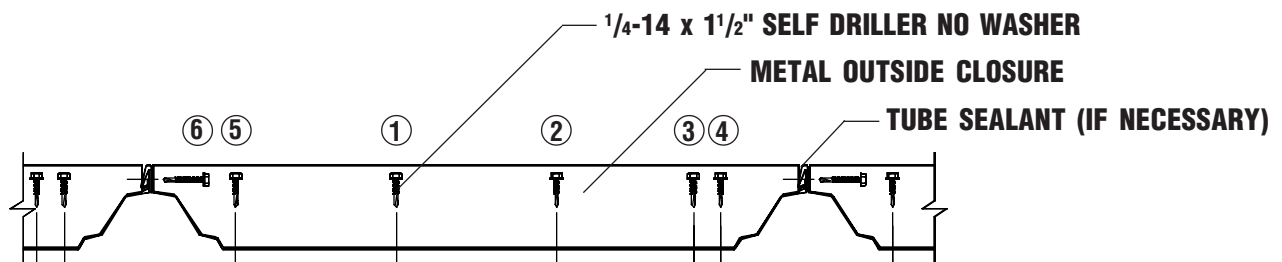
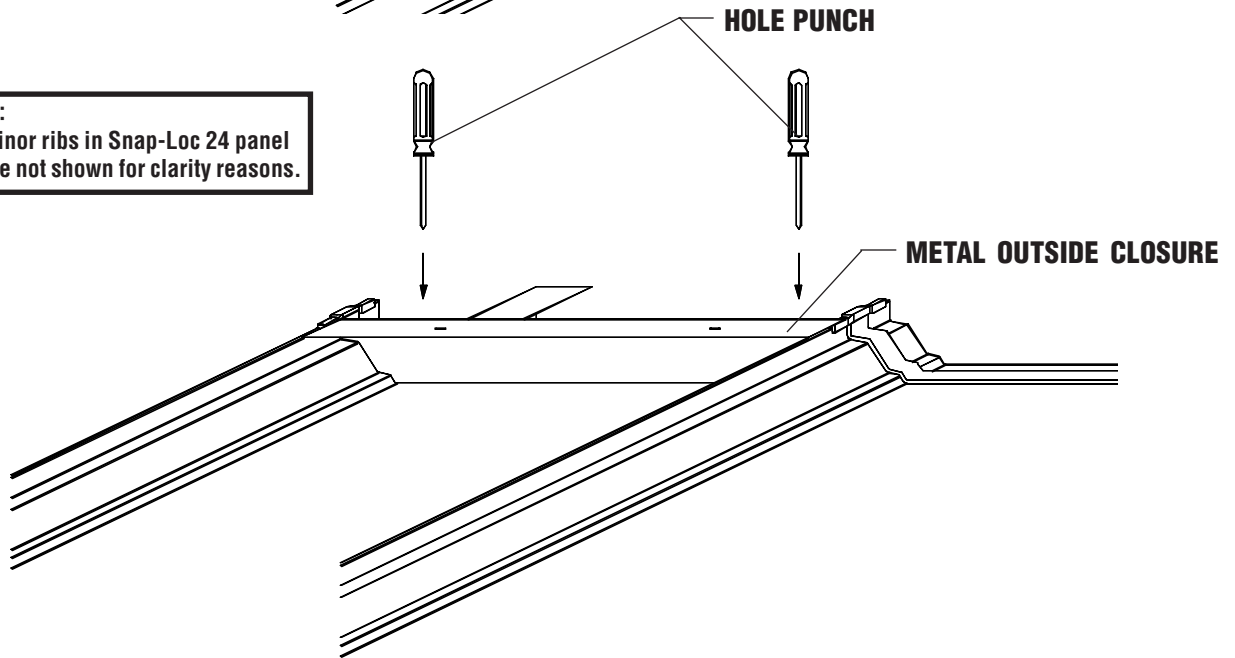


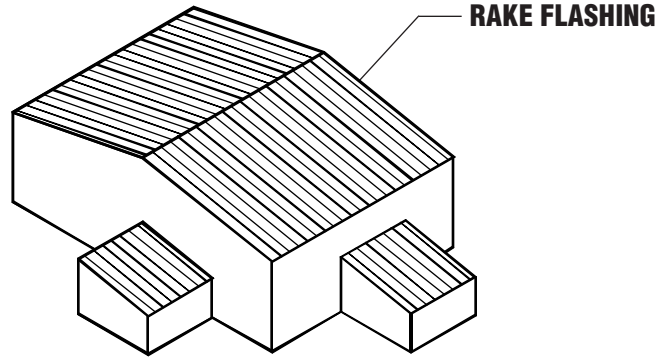
Note:
Minor ribs in Snap-Loc 24 panel are not shown for clarity reasons.

3. Place the Metal Outside Closure on Double Bead Tape Sealant making sure the punched lower leg is towards the tab of the Compression Plate. The punched lower leg's holes will line up with the holes in the panel. Place round hole punches in the two outer most holes, thus aligning the Metal Outside Closure, Compression Plate, and panel. Use a "C" vise grip to hold parts until fastened.
4. Fasten the Metal Outside Closure with six (6) #1/4-14 x 1 1/2" Self Driller No Washer screws. Fasten center holes first, then remove round hole punches and fasten. Fasteners must penetrate the Metal Outside Closure, sealant, and Compression Plate. Apply rib fastener last. (See Below)
5. Once Metal Outside Closures are installed, apply Tube Sealant (if necessary) where the closures meet the panel seams.

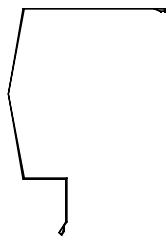


Note:
Minor ribs in Snap-Loc 24 panel are not shown for clarity reasons.





- The rake flashing should not be installed until the endwall panels have been installed.
- The following procedures are based on installing the SSR Sculptured Rake (Off Module) flashing.



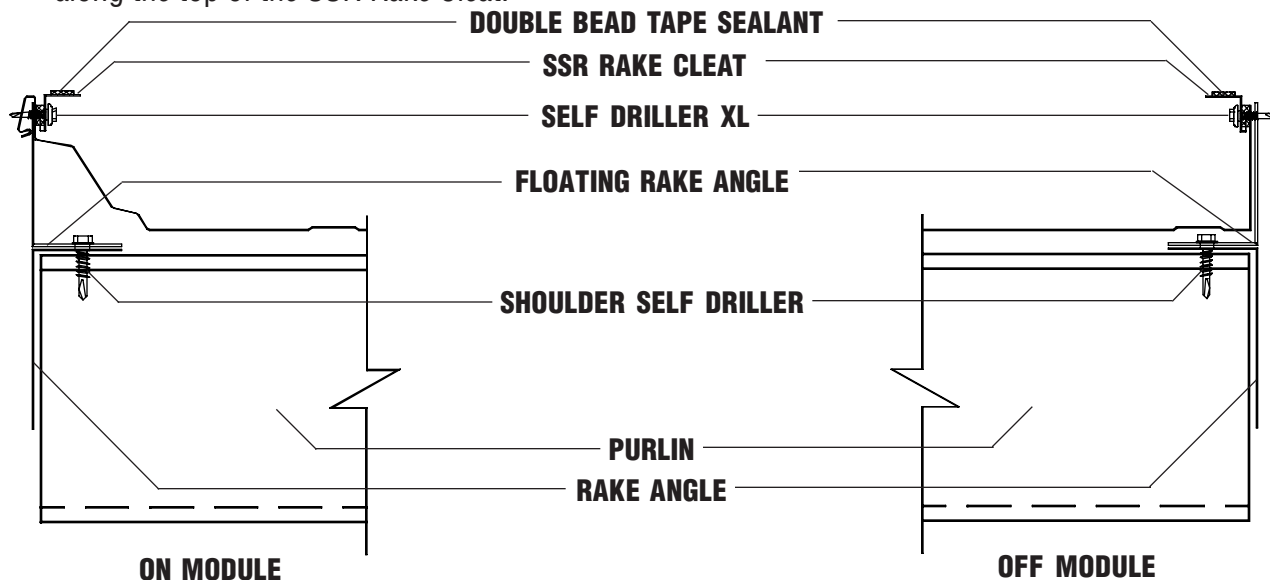
SSR SCULPTURED RAKE (OFF MODULE)



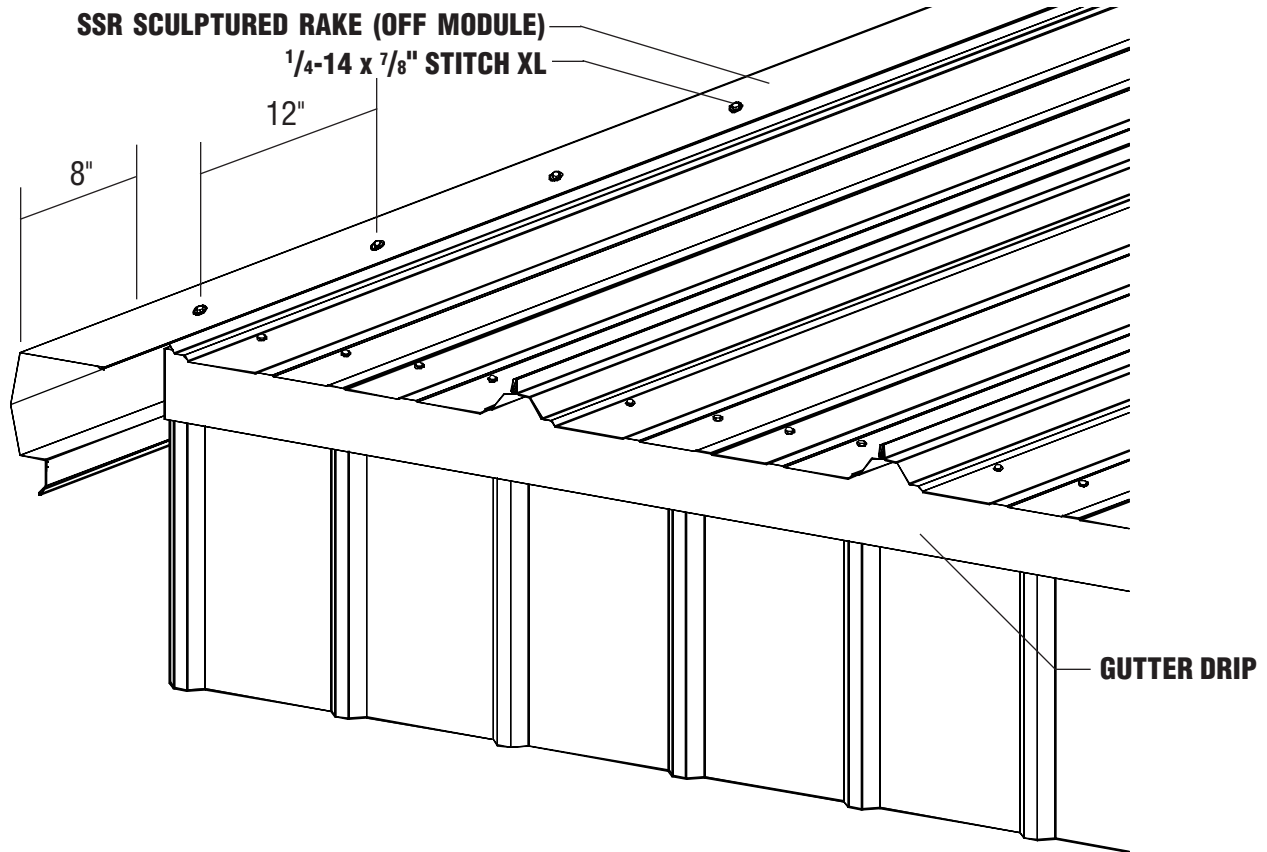
SSR SCULPTURED RAKE

STEPS

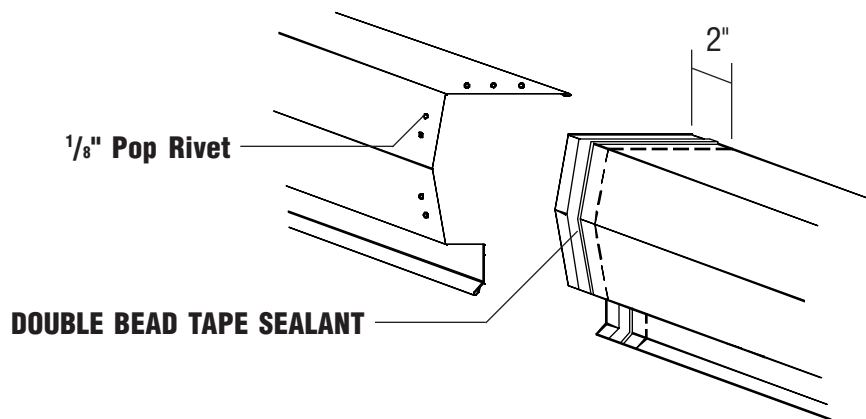
1. The SSR Sculptured Rake (Off Module) flashing requires the use of a SSR Rake Cleat flashing. For installation of the SSR Rake Cleat, run a continuous strip of Double Bead Tape Sealant along the top edge of the female leg on the starting panel and along the top edge of the field formed leg of the terminating panel.
2. Position a SSR Rake Cleat over the Double Bead Tape Sealant and install #12-14 Self Driller XL screws 12" O.C. through the Rake Cleat, Sealant, roof panel, and the vertical leg of the Floating Rake Angle.
3. Once the SSR Rake Cleat is installed, apply a continuous strip of Double Bead Tape Sealant along the top of the SSR Rake Cleat.



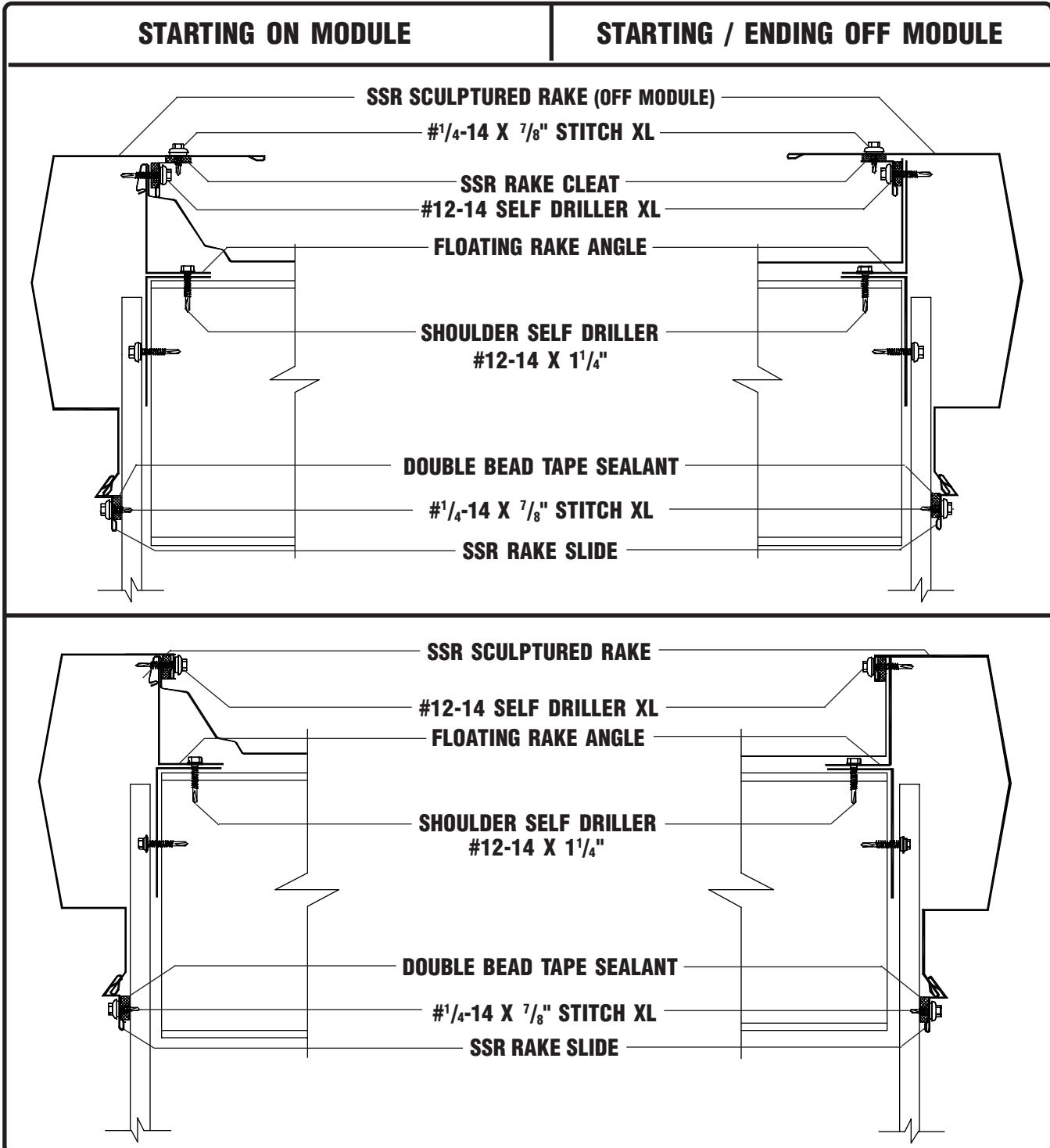
4. If Snap-Loc Sculptured Gutter is to be installed, start the SSR Sculptured Rake flashing at the eave by placing the rake flashing 8" past the eave end of the panel. If Snap-Loc Sculptured Eave is to be installed, start the rake flashing at the eave 4" past the eave end of the panel. For installing flashings other than sculptured flashings consult Metal Sales.
5. Position the top part to the SSR Rake flashing so that it rests on the wall panel and the SSR Rake Cleat. Adjust the SSR Rake flashing until the top part is level. Fasten the SSR Sculptured Rake flashing to the SSR Rake Cleat using #1/4-14 x 7/8" Stitch XL screws. Fasten every 12" O.C.

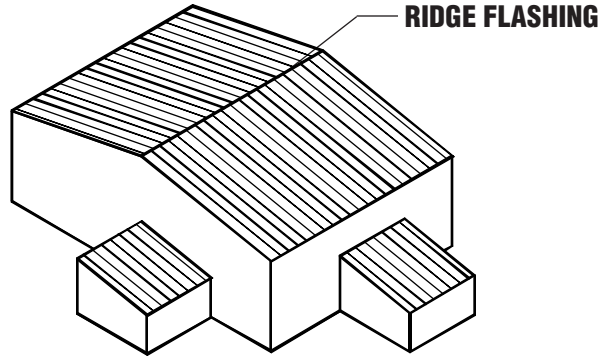


6. If two or more SSR Sculptured Rake flashings are required, working from eave to peak of building, lap rake flashing over previously installed flashing by a minimum of 2" placing Double Bead Tape Sealant between the flashings along the edge where they lap. Fasten at lap with eight (8) #1/4-14 x 7/8" Stitch XL screws or 1/8" Pop Rivets as shown.



7. Attachment of the lower leg of the SSR Sculptured Rake flashing must be accomplished with the use of a SSR Rake Slide flashing. The SSR Rake Slide will allow the rake flashing to move with the roof panels (thermal expansion and contraction).
8. Place the SSR Rake Slide over the lower leg of the SSR Sculptured Rake and fasten it to the wall with the proper type of fasteners every 12" O.C. max.



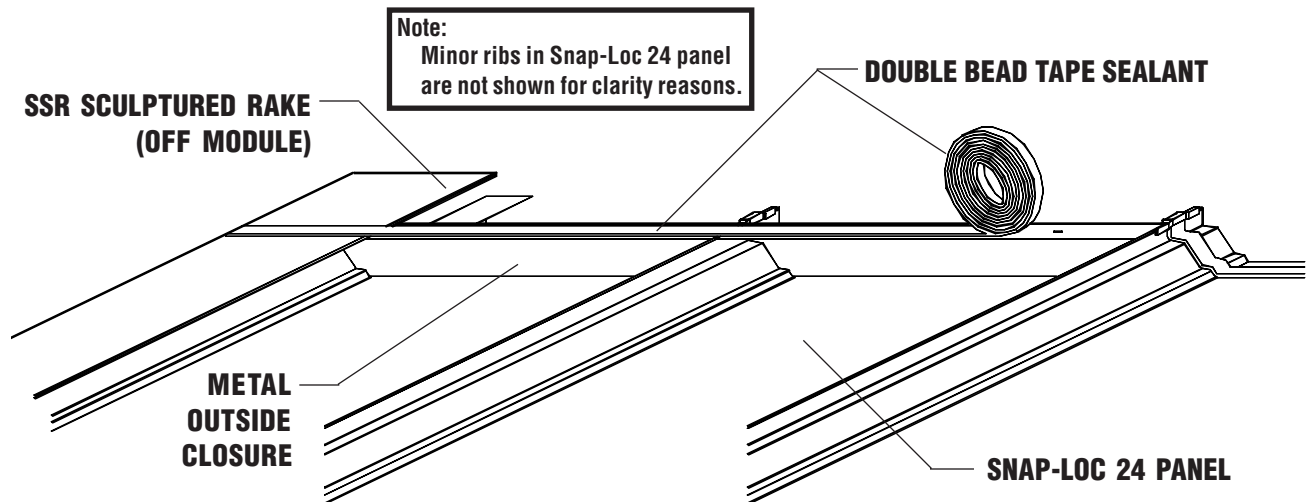


- The ridge flashing should not be installed until the rake flashing has been installed.
- The following procedures are based on installing the SSR Ridge flashing.

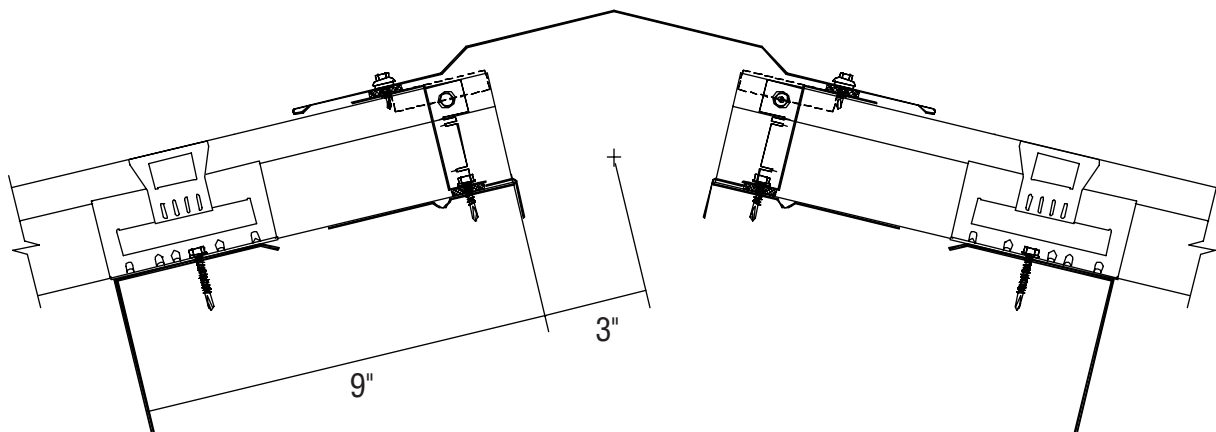


STEPS

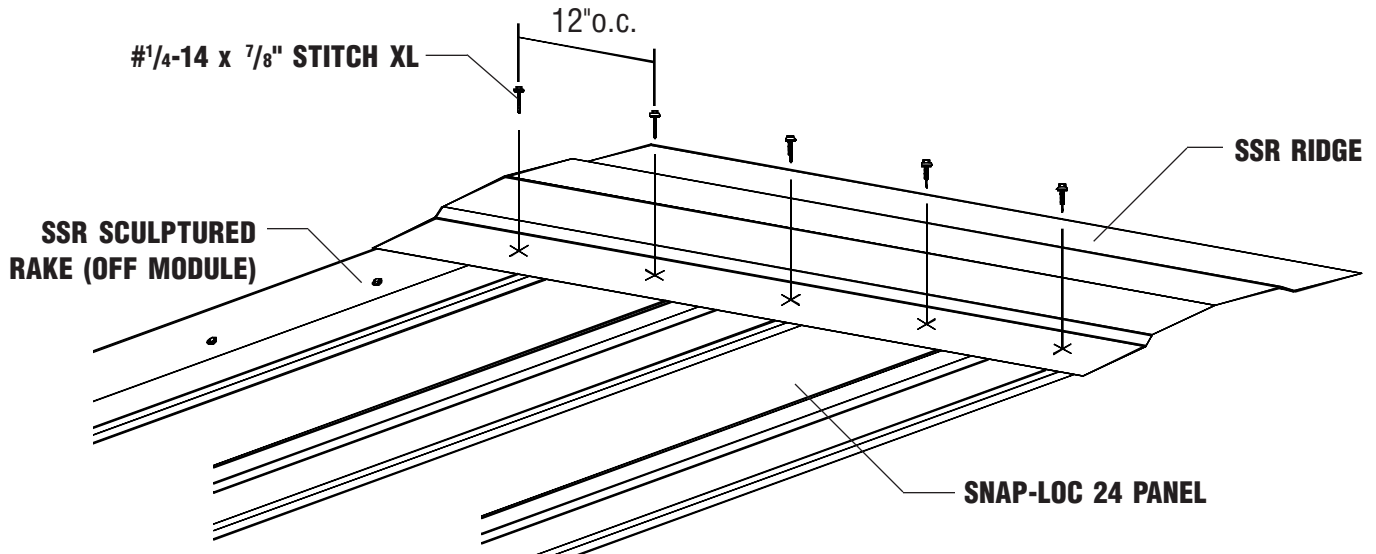
1. Apply a continuous strip of Double Bead Tape Sealant to the top of the Metal Outside Closures at the ridge starting at the outer edge of the rake flashing.



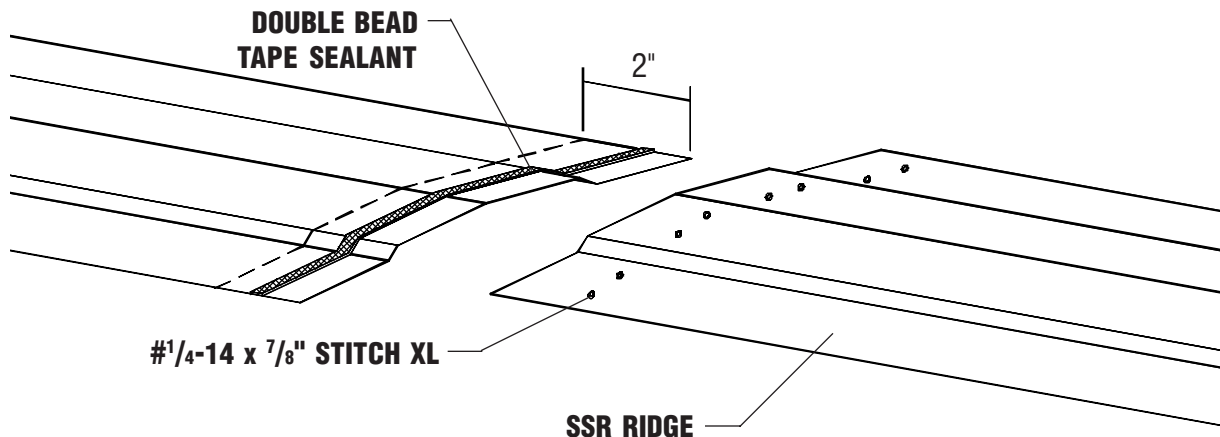
2. Place SSR Ridge flashing over the rake flashing and the Metal Outside Closure. Make sure that proper placement of the SSR Ridge flashing is achieved. It is critical that the ridge flashing be installed correctly to insure a weathertight system.



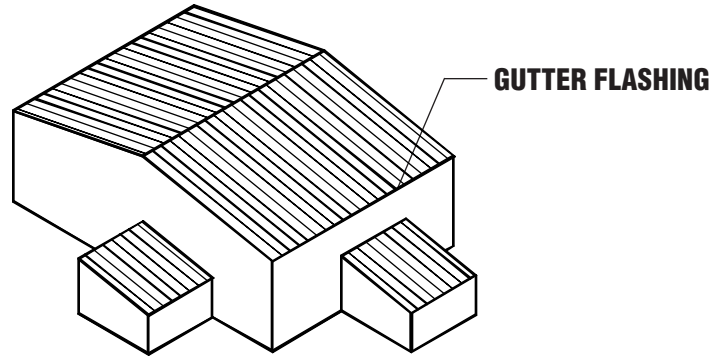
3. Attach the SSR Ridge flashing to the Metal Outside Closure with #¹/₄-14 X ⁷/₈" Stitch XL screws spaced 12" o.c.



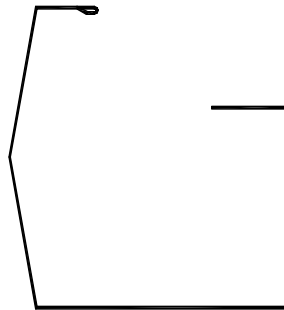
4. If two or more SSR Ridge flashings are required, apply a continuous strip of Double Bead Tape Sealant over the end of the previously installed ridge flashing ¹/₂" in from the end of the flashing.
5. Install the next SSR Ridge flashing lapping the previously installed flashing by 2".
6. Place eight (8) #¹/₄-14 X ⁷/₈" Stitch XL screws where the ridge flashings lap. Fasteners are located where the Double Bead Tape Sealant is applied.
7. Continue fastening the SSR Ridge flashing to the Metal Outside Closures as before.



8. When using a SSR Ridge flashing, the ends of the ridge where the flashing meets the rake must be closed off. In most cases a closure can be field fabricated from excess material to fit the gap.



- The gutter flashing is an important visual aspect of the building. If the gutter is not installed straight or if the gutter joints are unsightly, the building will not have a quality appearance. When installing the gutter flashing, any dimensional flaws in the structure or roof can affect the gutter position.
- The following procedures are for installing the Snap-Loc Sculptured Gutter flashing.



SNAP-LOC SCULPTURED GUTTER

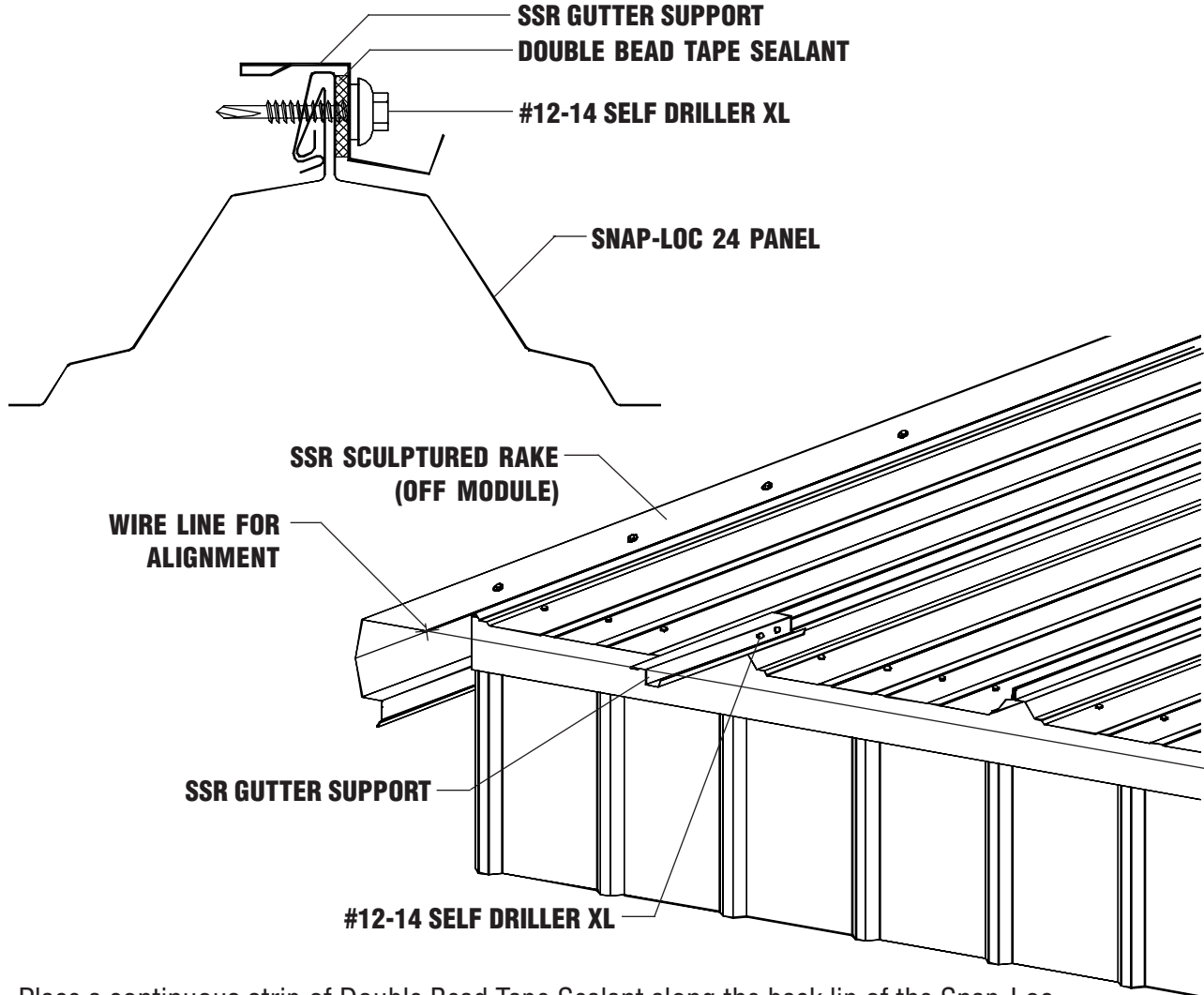
CAUTION

In locations where heavy rainfall or severe ice and snow may occur, Metal Sales' standard gutters may not be suitable for use. Consult Metal Sales for recommendations on design of proper gutter.

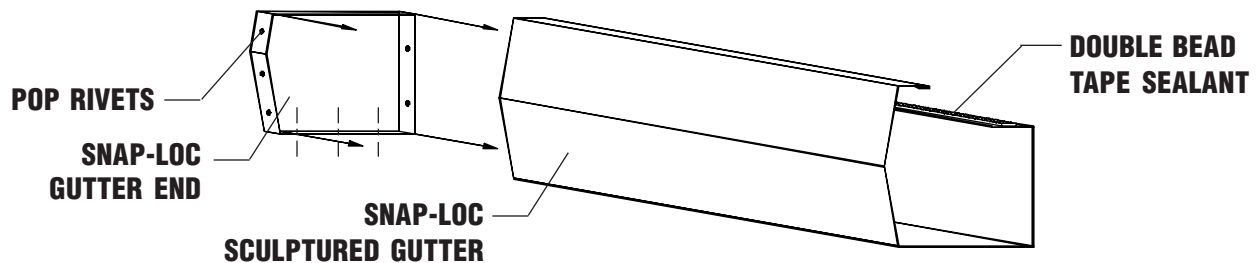
STEPS

1. Snap-Loc Sculptured Gutter is designed to accommodate some of the imperfections of the roof and the structure. Determine the best distance from the end of the panel to position the front lip of the Snap-Loc Sculptured Gutter. The range of dimensions is from 4 ⁵/₈" to 3 ⁵/₈" without trimming the back lip of the gutter. If required, the back lip can be trimmed from 2" to 1". Doing this will increase the range from 5 ⁵/₈" to 3 ⁵/₈".

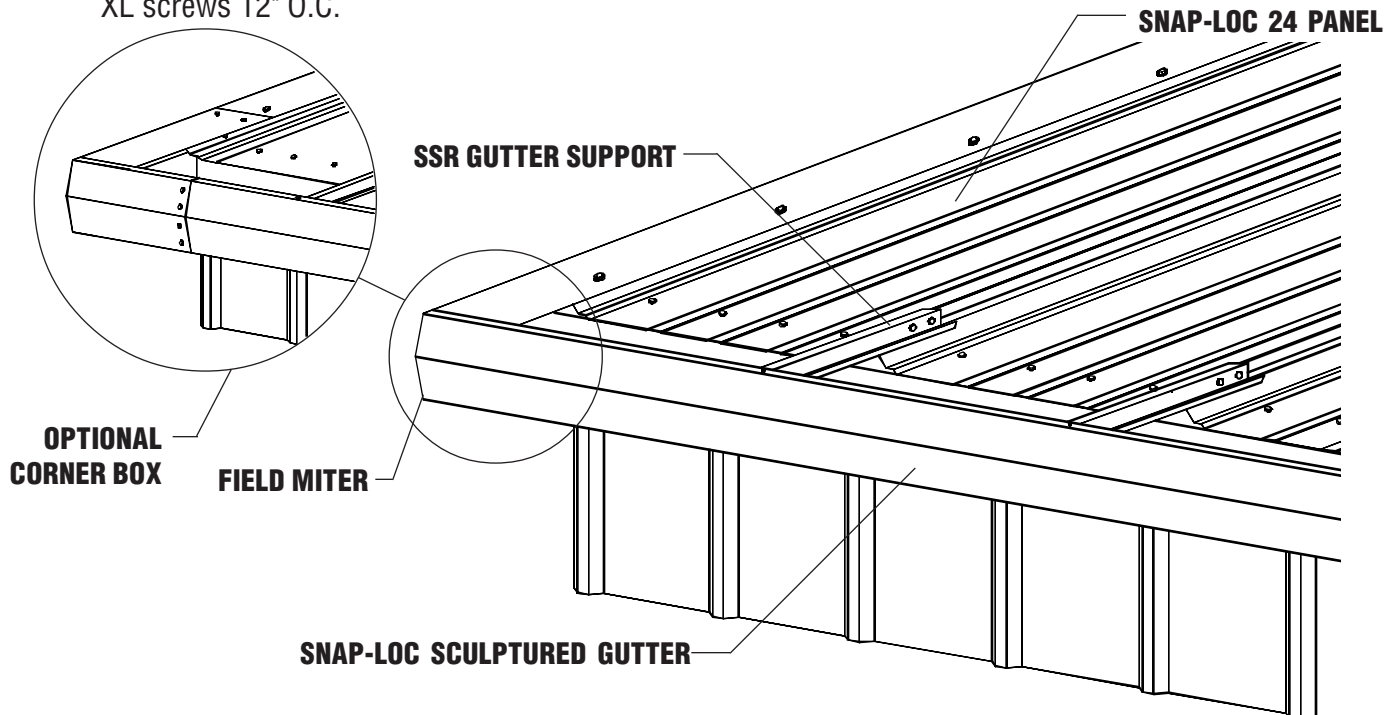
- Attach the SSR Gutter Support to the panel rib every other panel (48" O.C.) with two (2) #12-14 Self Driller XL screws. A section of Double Bead Tape Sealant is placed on the panel rib where the SSR Gutter Support is fastened. A transit or a wire line should be used to align the SSR Gutter Supports at a set distance from the wall. The SSR Gutter Supports can be adjusted as much as 1" to allow the gutter to be installed in a straight line, even if the edge of the roof is not perfectly aligned.



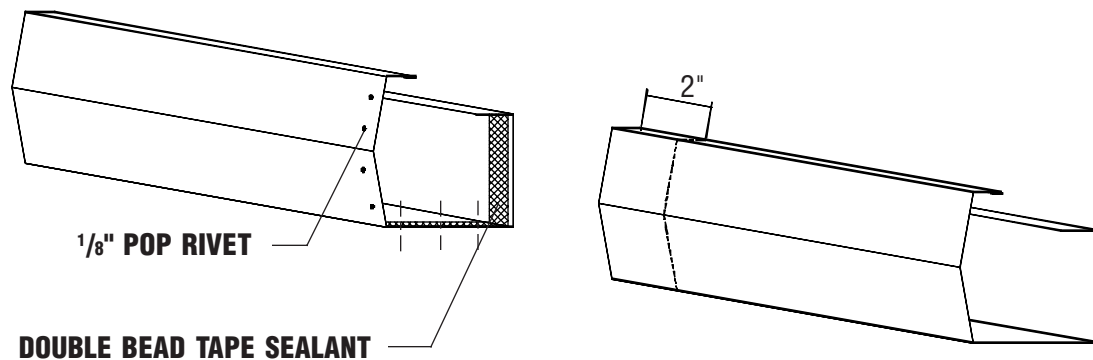
- Place a continuous strip of Double Bead Tape Sealant along the back lip of the Snap-Loc Sculptured Gutter and remove the paper backing.
- Prepare the first gutter section with a Snap-Loc Gutter End. Consider rake to gutter connection for proper placement of Snap-Loc Gutter End. Use Double Bead Tape Sealant to seal between the Snap-Loc Gutter End and the gutter flashing. Fasten with eight (8) $\frac{1}{4}$ -14 x $\frac{7}{8}$ " Stitch XL screws or Pop Rivets.



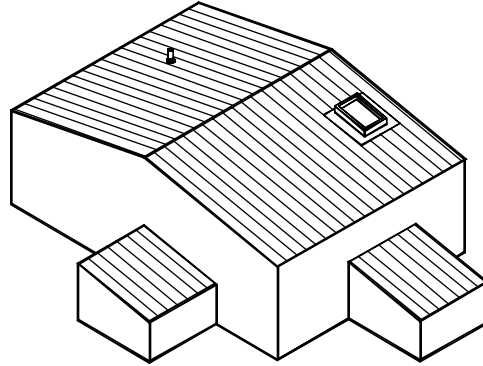
5. Position the gutter over the SSR Gutter Supports with one end against the rake flashing.
6. Clamp the top of the back lip of the gutter in position with a "C" vice-grip clamp. Field miter the rake trim to fit the gutter contour at the corner of the building or a SSR Sculptured Corner Box can be installed.
7. Install a #1/4-14 x 7/8" Stitch XL screw or Pop Rivet where the front lip of the gutter rests on the SSR Gutter Support, and fasten the back lip of the gutter to the panel flat with #1/4-14 x 7/8" Stitch XL screws 12" O.C.



8. If two or more gutter flashings are required, apply Double Bead Tape Sealant on the inside of the gutter flashing, two inches from the end.
9. Lap the gutter flashing 2" and fasten with ten (10) #1/4-14 x 7/8" Stitch XL screws or Pop Rivets as shown below.



10. Continue fastening the gutter flashing to the SSR Gutter Support and the panel flat as before.
11. Terminate the gutter at the rake flashing by attaching a Snap-Loc Gutter End to the gutter flashing and field cut the rake trim to fit the gutter contour.

**GENERAL**

Another important consideration is the size and location of all roof penetrations and roof mounted mechanical units.

Areas around roof vents or rooftop units may show that corrosive fumes are emitted from a process within the building. If highly corrosive conditions are present, metal panel might not be the best solution for roofing.

On buildings that are being retrofitted with metal roofing it should be asked which units can be removed from the old roof and do any need to be added. If new equipment is to be added, will it have the same weight, opening, etc. of the old units? If any units require a high amount of maintenance, a walkway should be considered.

For retrofit roofs, installation of roof penetrations, curbs, and roof mounted mechanical units must be installed as panel installation occurs.

VENT PIPES

- **The following procedures are for vent pipes 9" or less and not transmitting extremely hot or caustic materials.**
- **When installing vent pipes abide by the local plumbing codes.**

STEPS

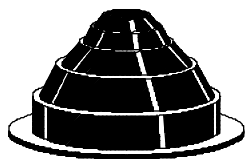
1. Determine the size and length of the vent pipe to be raised.
2. Take the appropriate measurements for the vent location and mark them on the Snap-Loc 24 panel. The vent pipe must extend through the flat of the roof panel. If the vent pipe extension cannot be raised directly into the flat of the new roof panel, elbows should be used to offset the pipe. Cut the panel to fit the vent pipe properly.
3. Use a light gauge angle to secure and plumb the vent pipe to the framing system.
4. Flash the vent pipe with a Rubber Roof Jack or similar pipe flashing.
5. Apply Tube Sealant between the panel and the base of the Rubber Roof Jack as well as the top where the boot meets the pipe.
6. Attach the base of the Rubber Roof Jack to the panel using #1/4-14 x 7/8" Stitch XL fasteners.

**RUBBER ROOF JACK
(APPLY SEALANT AROUND
BASE AND COLLAR)**

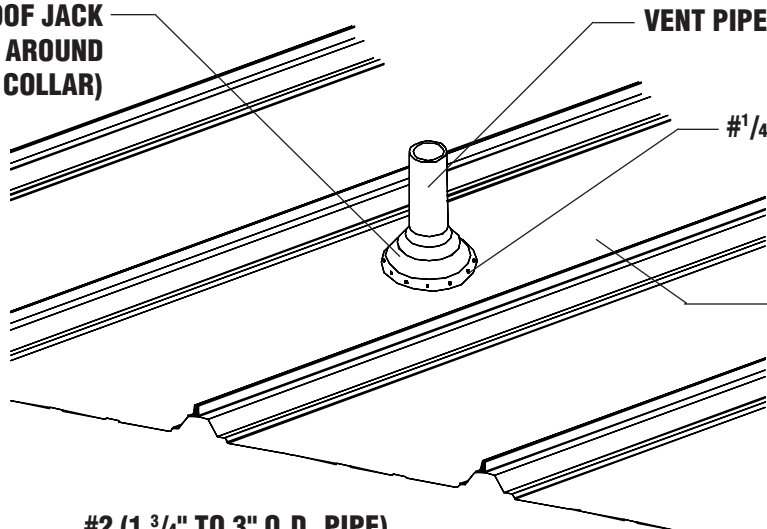
VENT PIPE

#¹/₄-14 X ⁷/₈" STITCH XL

SNAP-LOC 24 PANEL



- #2 (1 ³/₄" TO 3" O.D. PIPE)**
- #4 (3" TO 6" O.D. PIPE)**
- #6 (6" TO 9" O.D. PIPE)**
- #8 (7" TO 13" O.D. PIPE)**

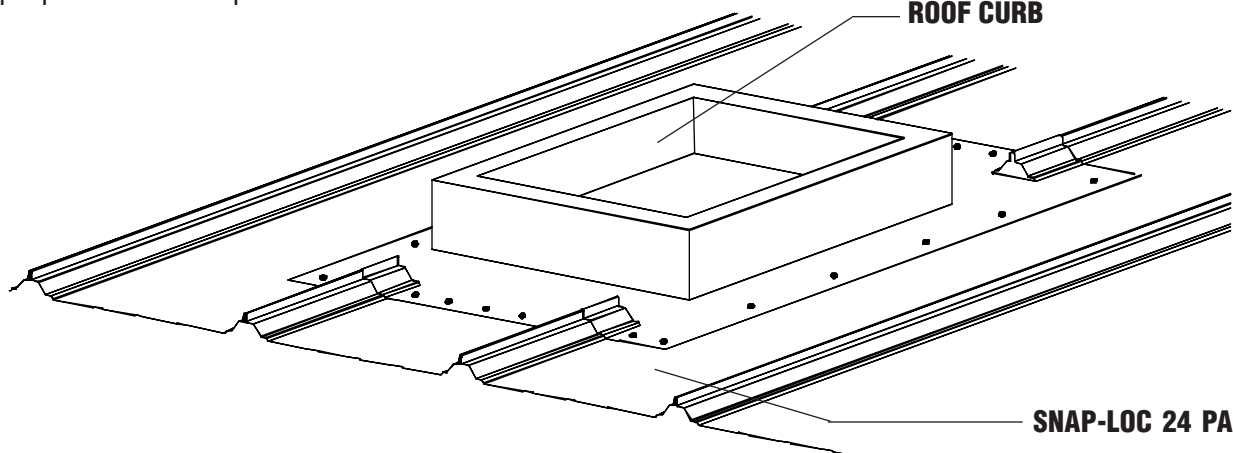


CURBS

There are several different types of roof curbs available to fit with Metal Sales' Snap-Loc 24 panel. Some are designed to seam together with the adjacent roof panels, making the curb an integral part of the roof system. Others are designed to be installed by cutting holes in the roof after the panels have been installed. No matter which type of curb you decide upon, you should consult the manufacturer for proper installation procedures.

ROOF CURB

SNAP-LOC 24 PANEL



MANUFACTURERS OF ROOF CURBS:

Kentuckiana Curb Company Inc.
Louisville, KY - Phone (800) 382-2872

Custom Curb Inc.
Chattanooga, TN - (615) 629-6241
Phoenix, AZ - (602) 278-0245

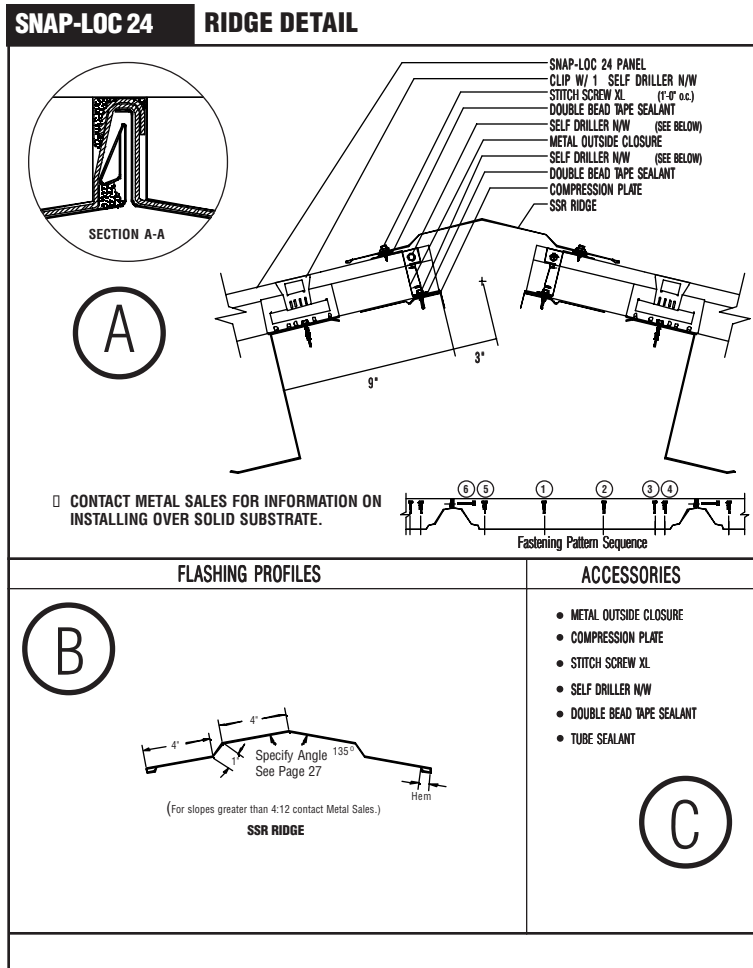
Design Components Inc.
College Park, GA - Phone (903) 297-2148

ThyCurb Corporation
Addison, IL - (708) 543-5300
Carrollton, TX - (214) 416-6220
Akron, OH - (216) 762-0061

LMCurbs
Longview, TX - Phone (903) 297-2148

SNAP-LOC 24 CONDITION DETAIL EXPLANATION

The following pages depict Metal Sales suggested Snap-Loc 24 details and are for illustration purposes only. These details may not be applicable to all conditions or designs.



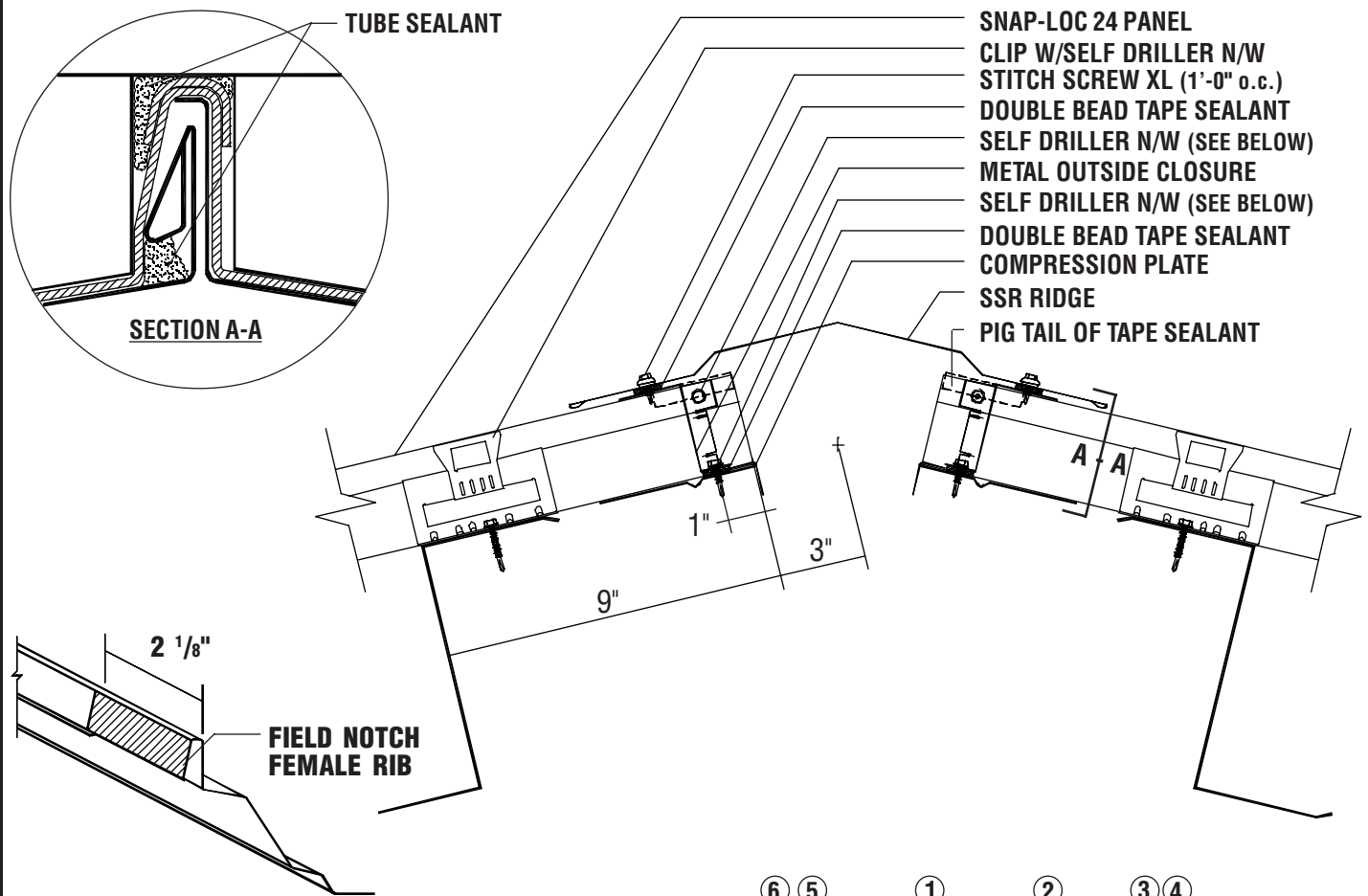
The condition pages contain a clear illustration of the various flashing details, illustrations of all necessary manufactured components, and a listing of the remaining components necessary to assemble the flashing condition.

A Refers to Metal Sales' suggested flashing condition detail. These illustrations show the correct placement for each component.

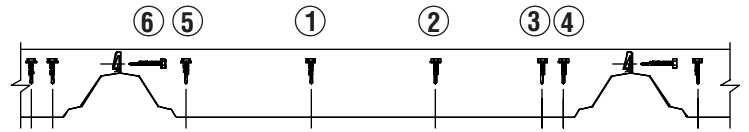
B Refers to Metal Sales' standard manufactured flashing profiles required to assemble the flashing condition.

C Refers to Metal Sales' accessories required to assemble the flashing condition.

SNAP-LOC 24 RIDGE DETAIL



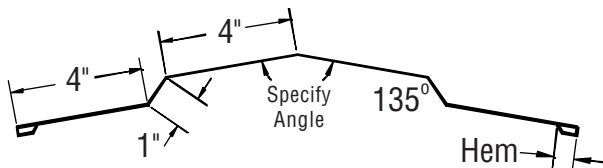
□ CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.



FASTENING PATTERN SEQUENCE TO BE FASTENED IN PRE-PUNCHED HOLES

FLASHING PROFILES

ACCESSORIES

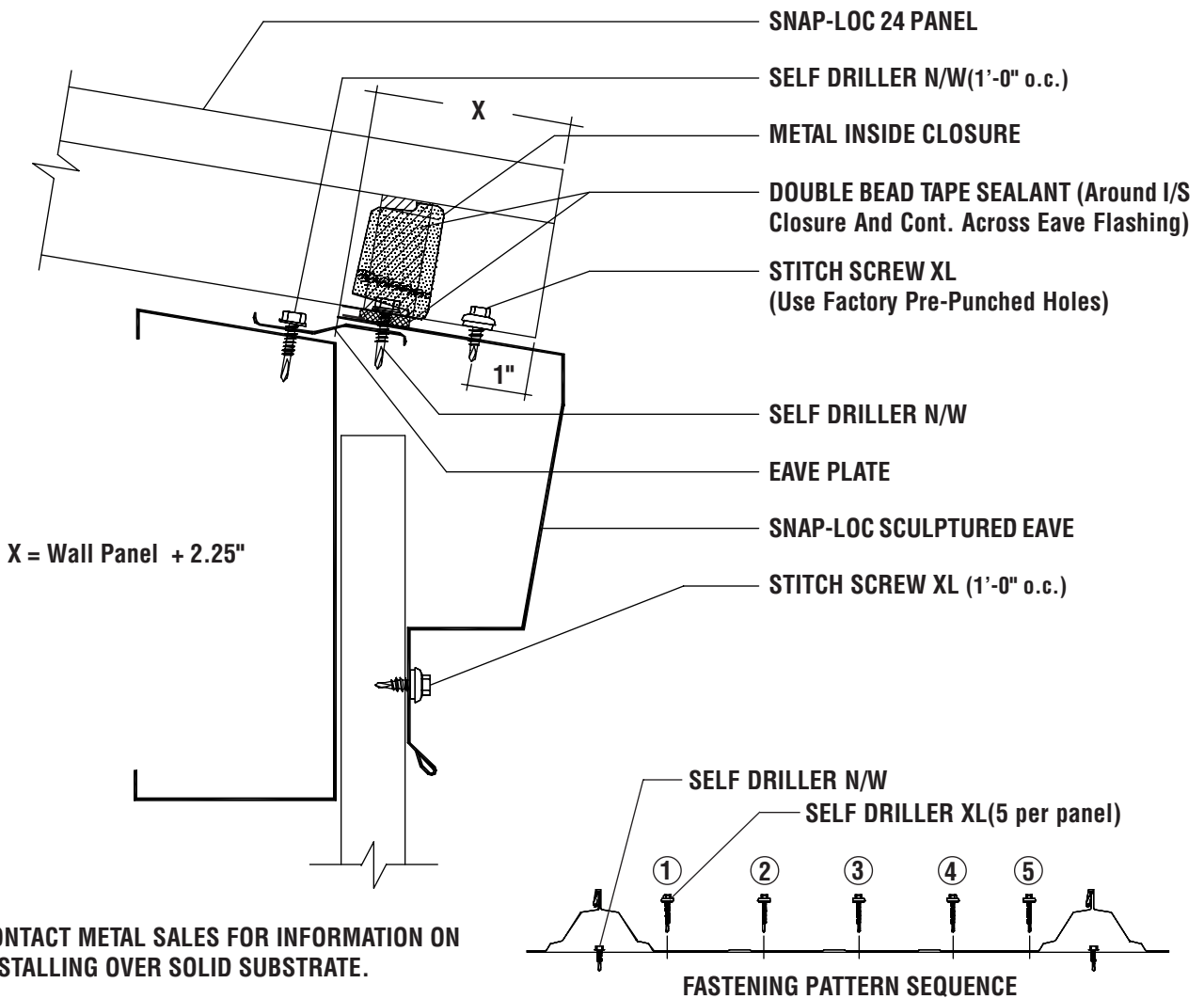


(For slopes greater than 4:12 contact Metal Sales.)

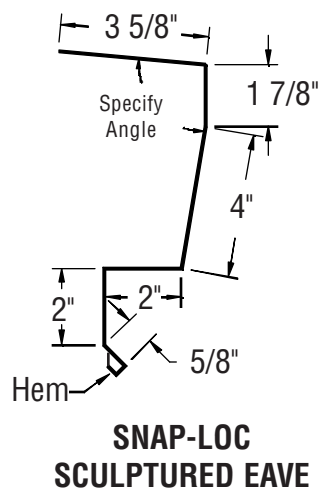
SSR RIDGE

- METAL OUTSIDE CLOSURE
- COMPRESSION PLATE
- STITCH SCREW XL
- SELF DRILLER N/W
- DOUBLE BEAD TAPE SEALANT

SNAP-LOC 24 EAVE DETAIL

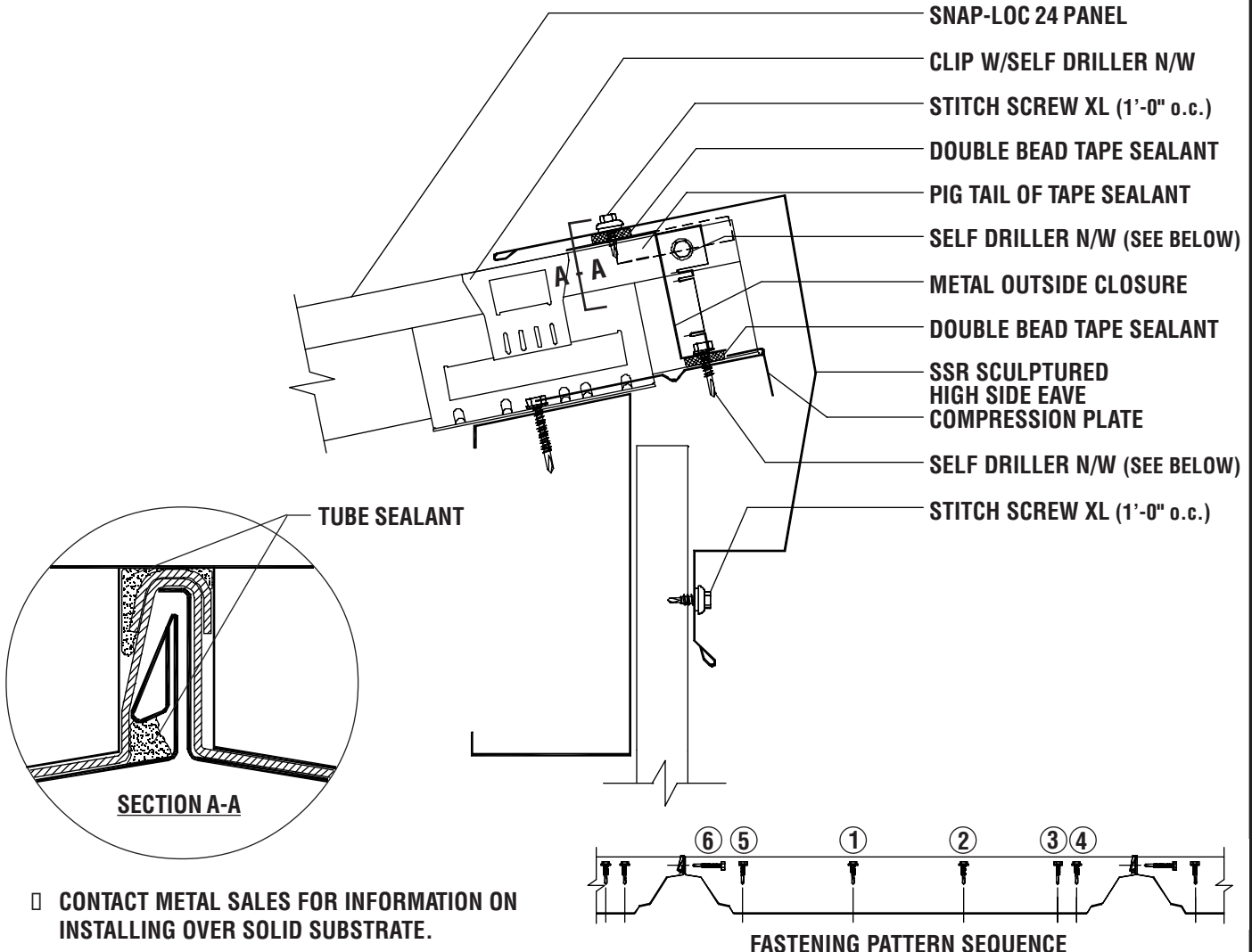


FLASHING PROFILES

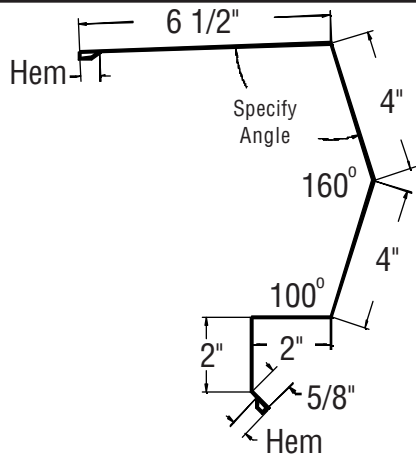


ACCESSORIES

- METAL INSIDE CLOSURE
- EAVE PLATE
- STITCH SCREW XL
- SELF DRILLER XL
- SELF DRILLER N/W
- DOUBLE BEAD TAPE SEALANT



FLASHING PROFILES



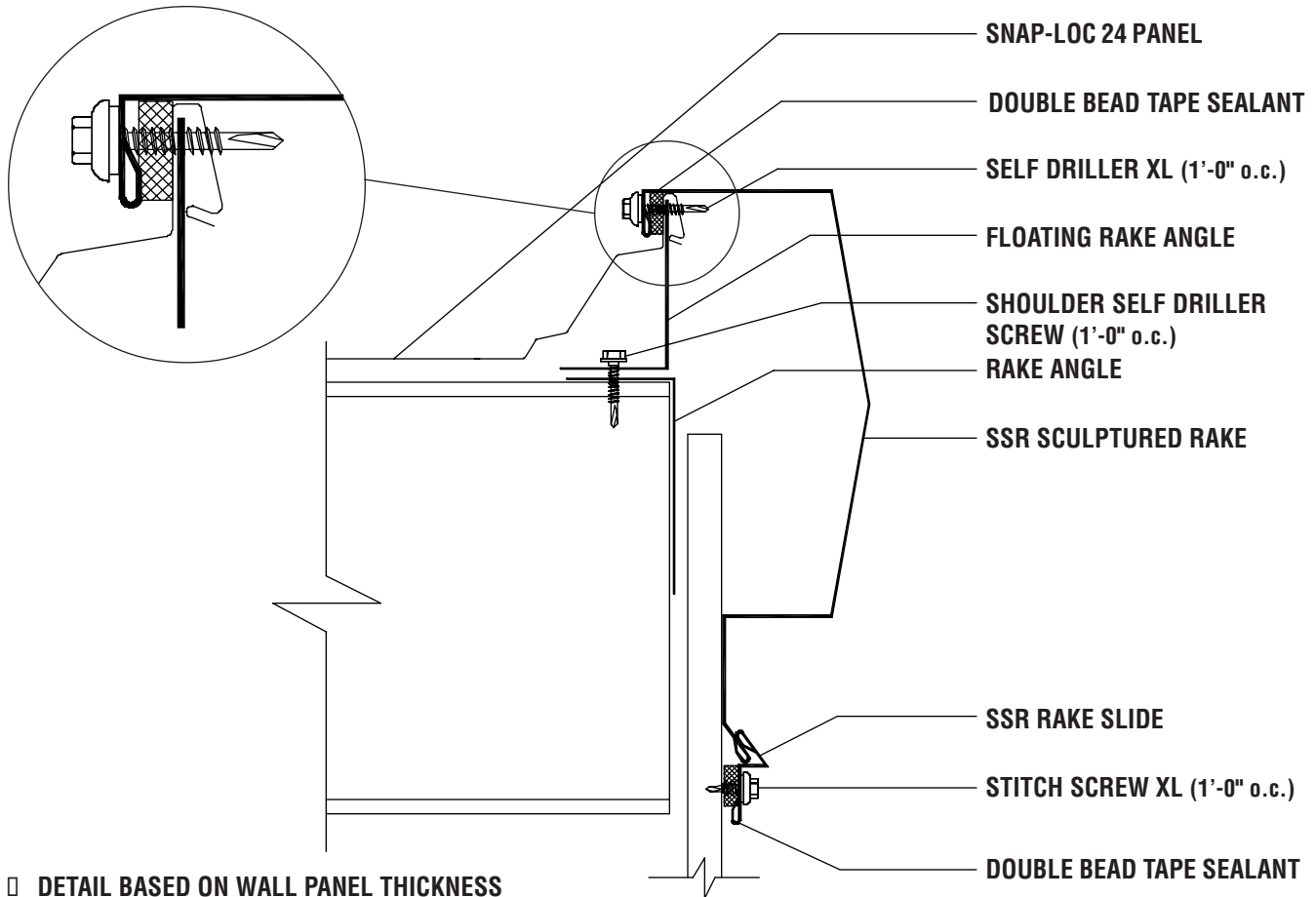
(For slopes greater than 4:12 contact Metal Sales.)

SSR SCULPTURED HIGH SIDE EAVE

ACCESSORIES

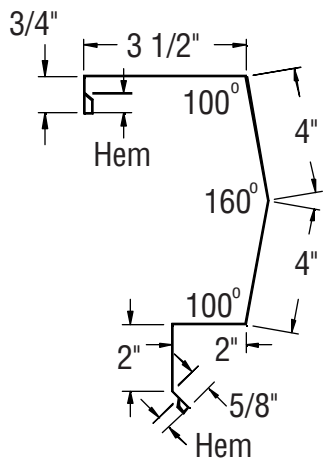
- METAL OUTSIDE CLOSURE
- COMPRESSION PLATE
- STITCH SCREW XL
- SELF DRILLER N/W
- DOUBLE BEAD TAPE SEALANT

SNAP-LOC 24 RAKE DETAIL

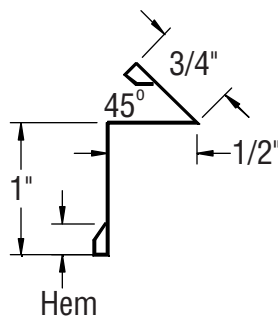


- DETAIL BASED ON WALL PANEL THICKNESS OF 1" TO 1 3/8".
- CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

FLASHING PROFILES



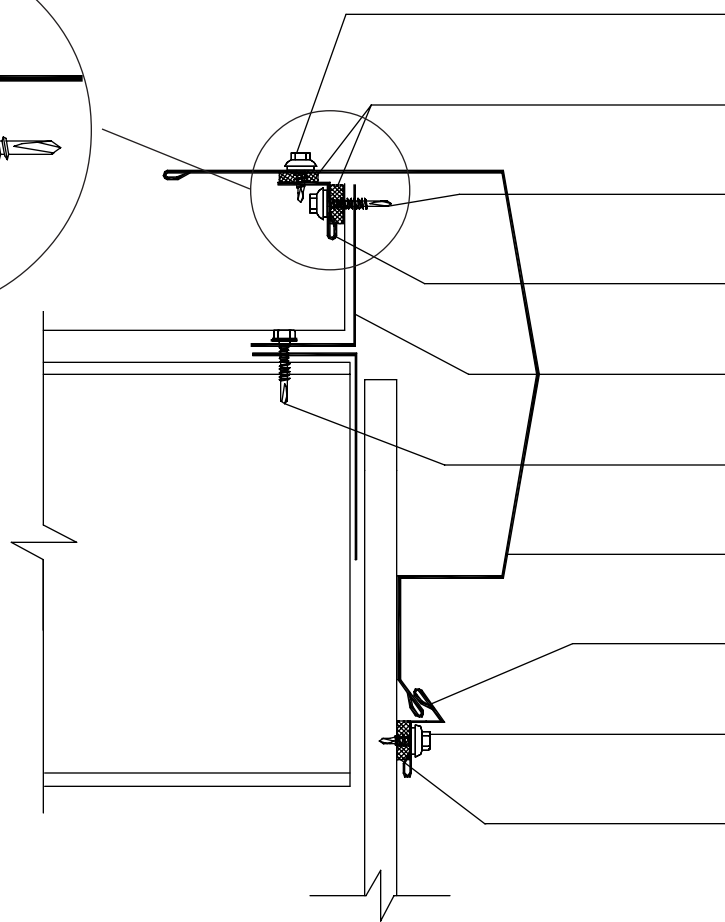
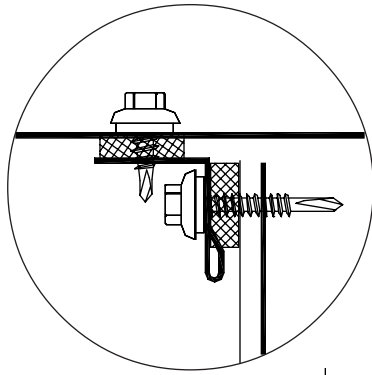
SSR SCULPTURED RAKE



SSR RAKE SLIDE

ACCESSORIES

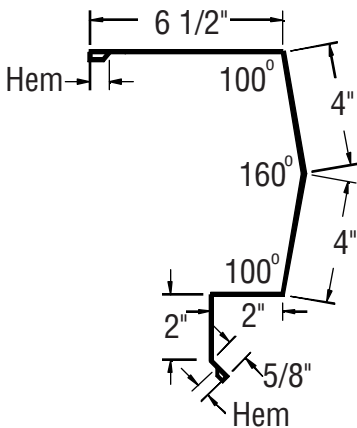
- FLOATING RAKE ANGLE
- STITCH SCREW XL
- SELF DRILLER XL
- SHOULDER SELF DRILLER
- DOUBLE BEAD TAPE SEALANT



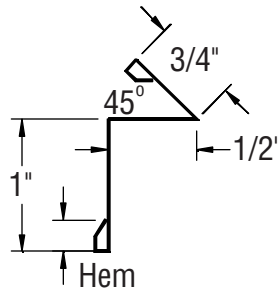
- STITCH SCREW XL (1'-0" o.c.)
- DOUBLE BEAD TAPE SEALANT
- SELF DRILLER XL (1'-0" o.c.)
- SSR RAKE CLEAT
- FLOATING RAKE ANGLE
- SHOULDER SELF DRILLER SCREW (1'-0" o.c.)
- SSR SCULPTURED RAKE (OFF MODULE)
- SSR RAKE SLIDE
- STITCH SCREW XL (1'-0" o.c.)
- DOUBLE BEAD TAPE SEALANT

CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

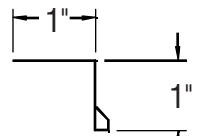
FLASHING PROFILES



SSR SCULPTURED RAKE (OFF MODULE)



SSR RAKE SLIDE

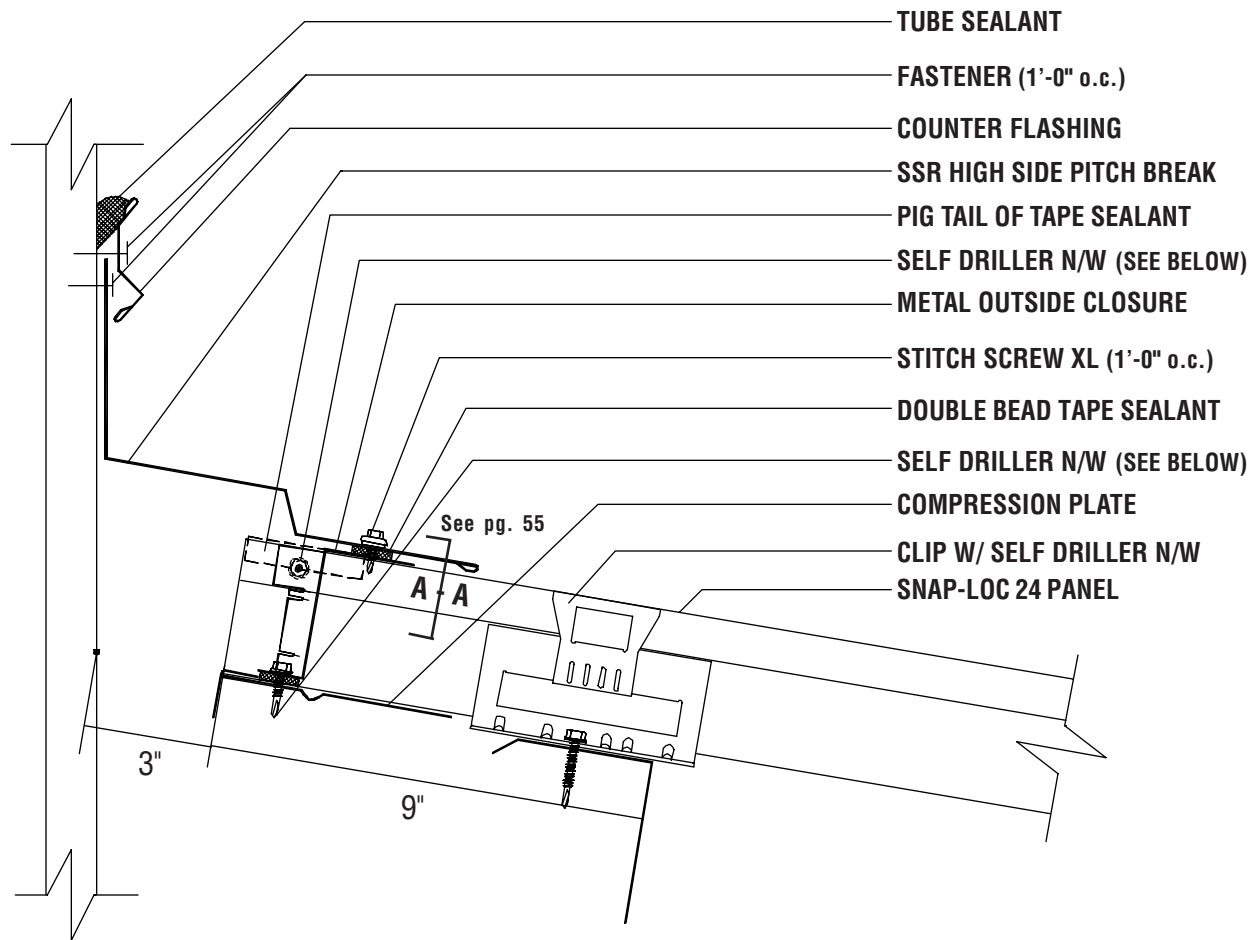


SSR RAKE CLEAT

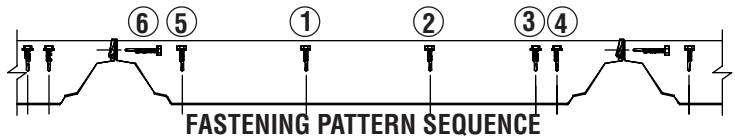
ACCESSORIES

- FLOATING RAKE ANGLE
- STITCH SCREW XL
- SELF DRILLER XL
- SHOULDER SELF DRILLER
- DOUBLE BEAD TAPE SEALANT

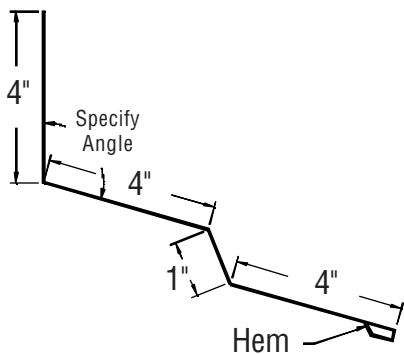
SNAP-LOC 24 HIGH SIDE EAVE PARAPET DETAIL



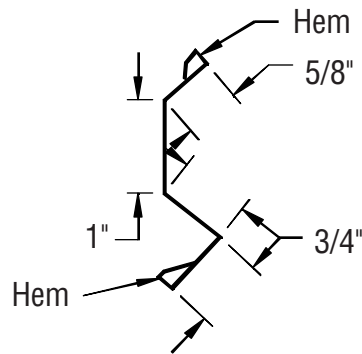
□ CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.



FLASHING PROFILES



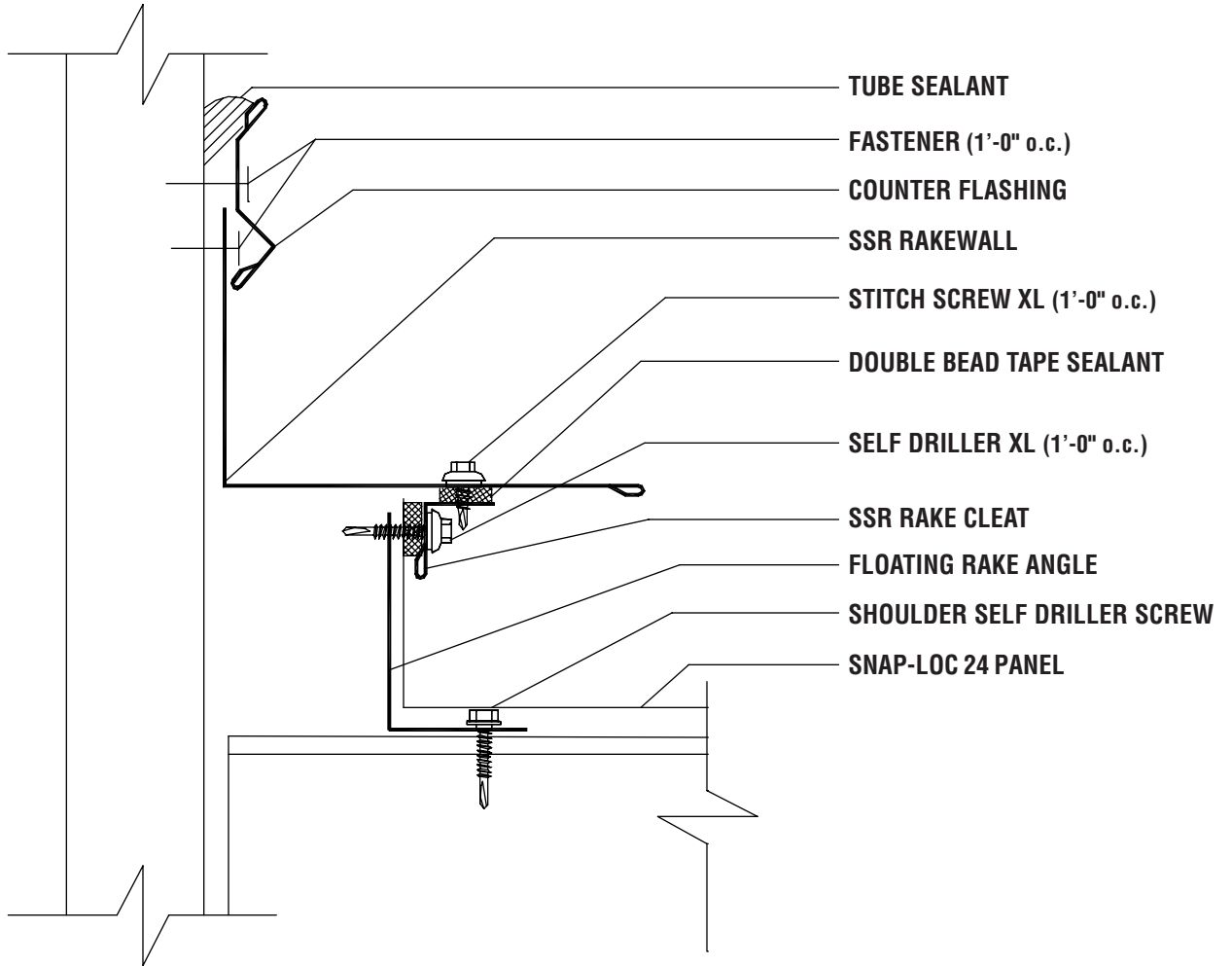
SSR HIGH SIDE PITCH BREAK



COUNTER FLASHING

ACCESSORIES

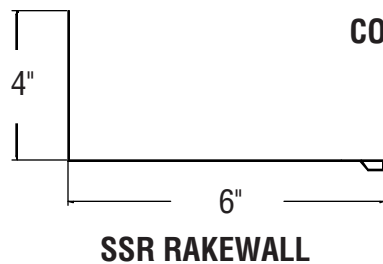
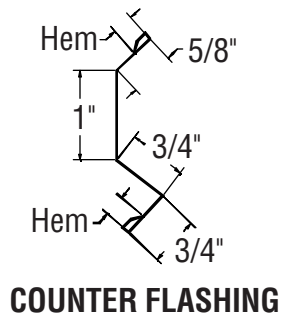
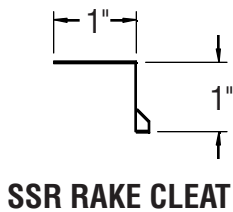
- METAL OUTSIDE CLOSURE
- COMPRESSION PLATE
- STITCH SCREW XL
- SELF DRILLER N/W
- DOUBLE BEAD TAPE SEALANT
- TUBE SEALANT



□ CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

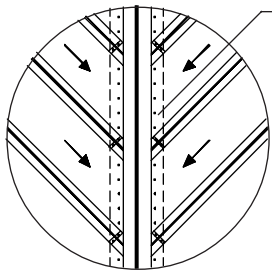
FLASHING PROFILES

ACCESSORIES

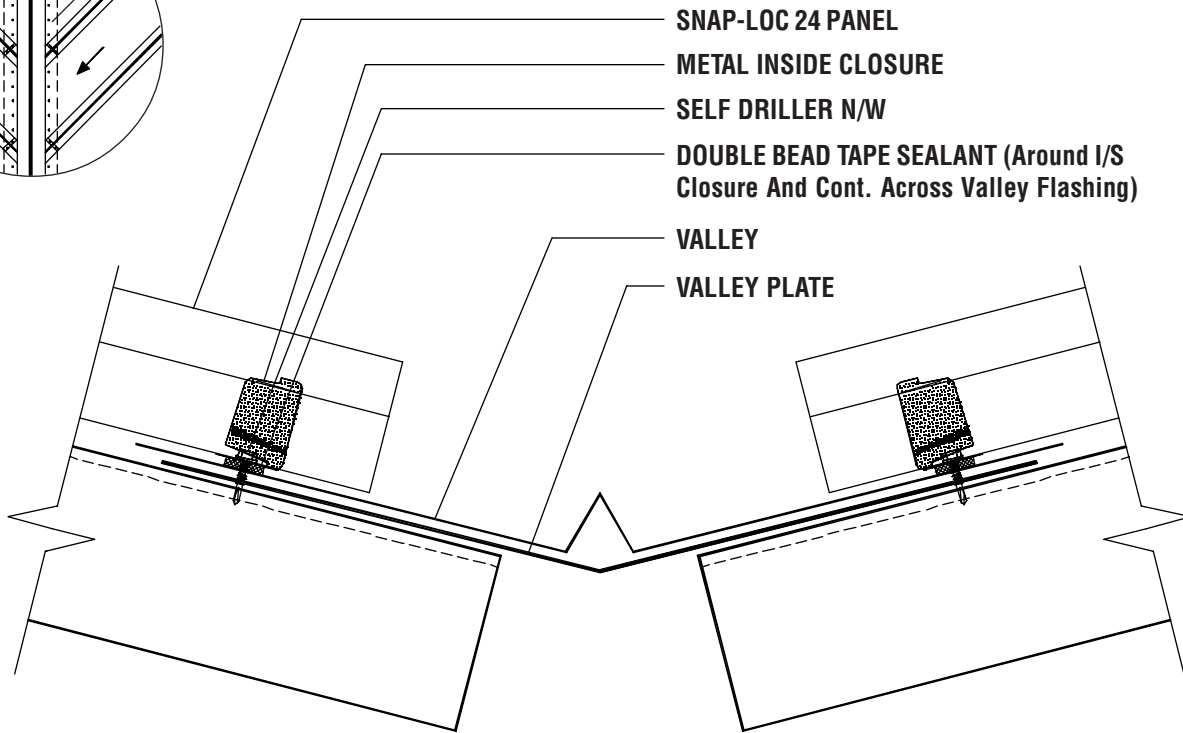


- **FLOATING RAKE ANGLE**
- **STITCH SCREW XL**
- **SELF DRILLER XL**
- **SHOULDER SELF DRILLER**
- **DOUBLE BEAD TAPE SEALANT**
- **TUBE SEALANT**

SNAP-LOC 24 VALLEY DETAIL



SELF DRILLER XL (SEE BELOW)



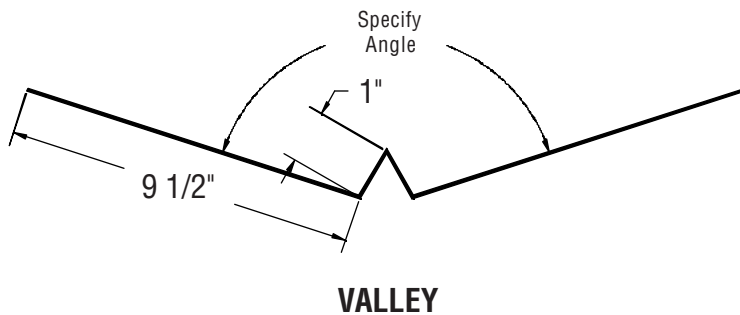
SELF DRILLER XL (5 per panel)



FASTENING PATTERN SEQUENCE

CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

FLASHING PROFILES

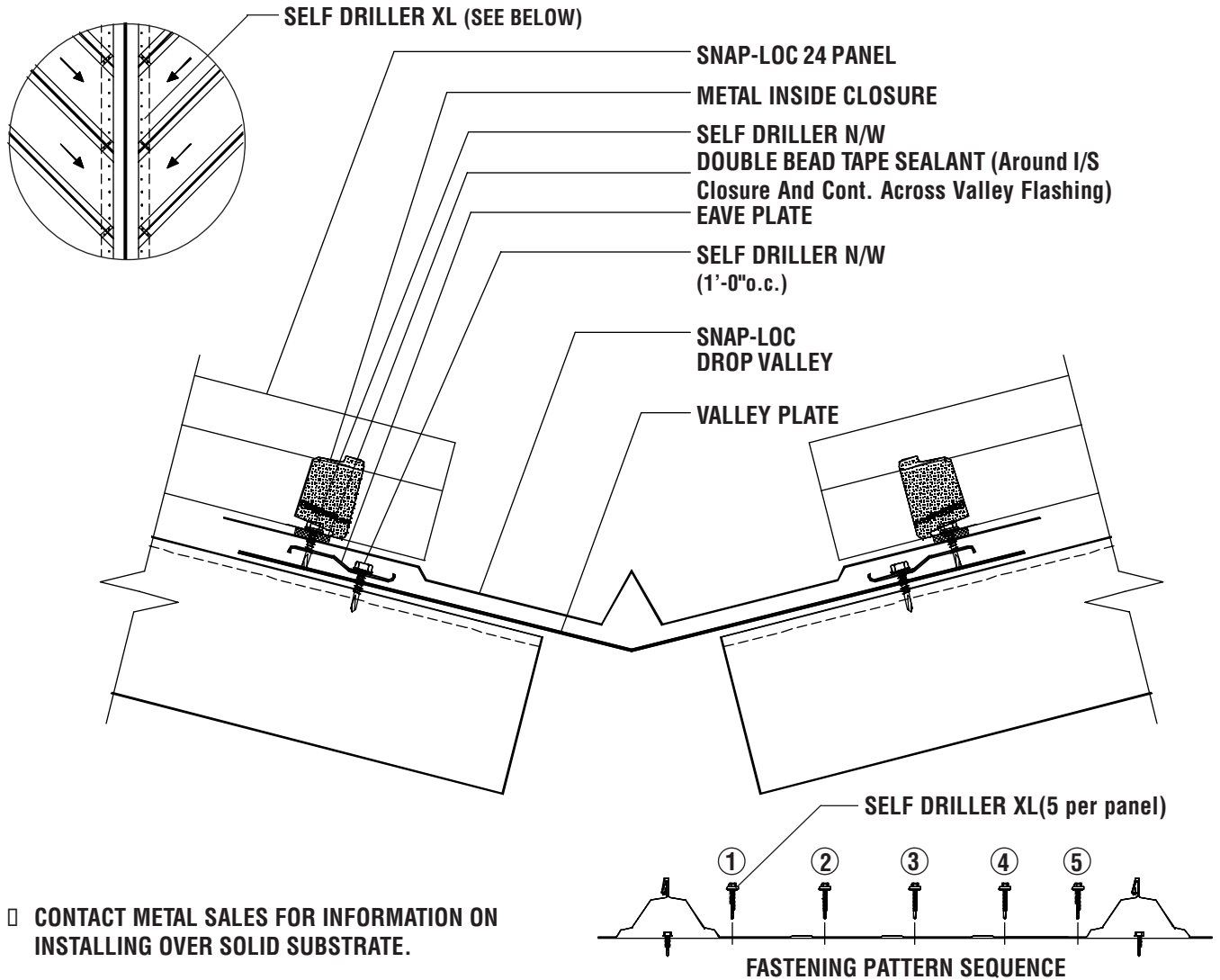


VALLEY

ACCESSORIES

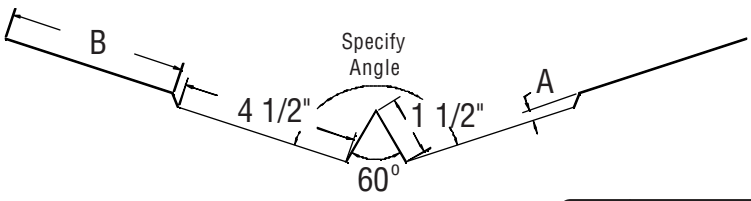
- METAL INSIDE CLOSURE
- VALLEY PLATE
- SELF DRILLER N/W
- SELF DRILLER XL
- DOUBLE BEAD TAPE SEALANT

SNAP-LOC 24 DROP VALLEY DETAIL



CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

FLASHING PROFILES



**SNAP-LOC
DROP VALLEY**

| SYSTEM | A | B |
|--------|--------|--------|
| LOW | 3/8" | 4 1/2" |
| MID | 1" | 3 7/8" |
| HIGH | 1 3/8" | 3 1/2" |

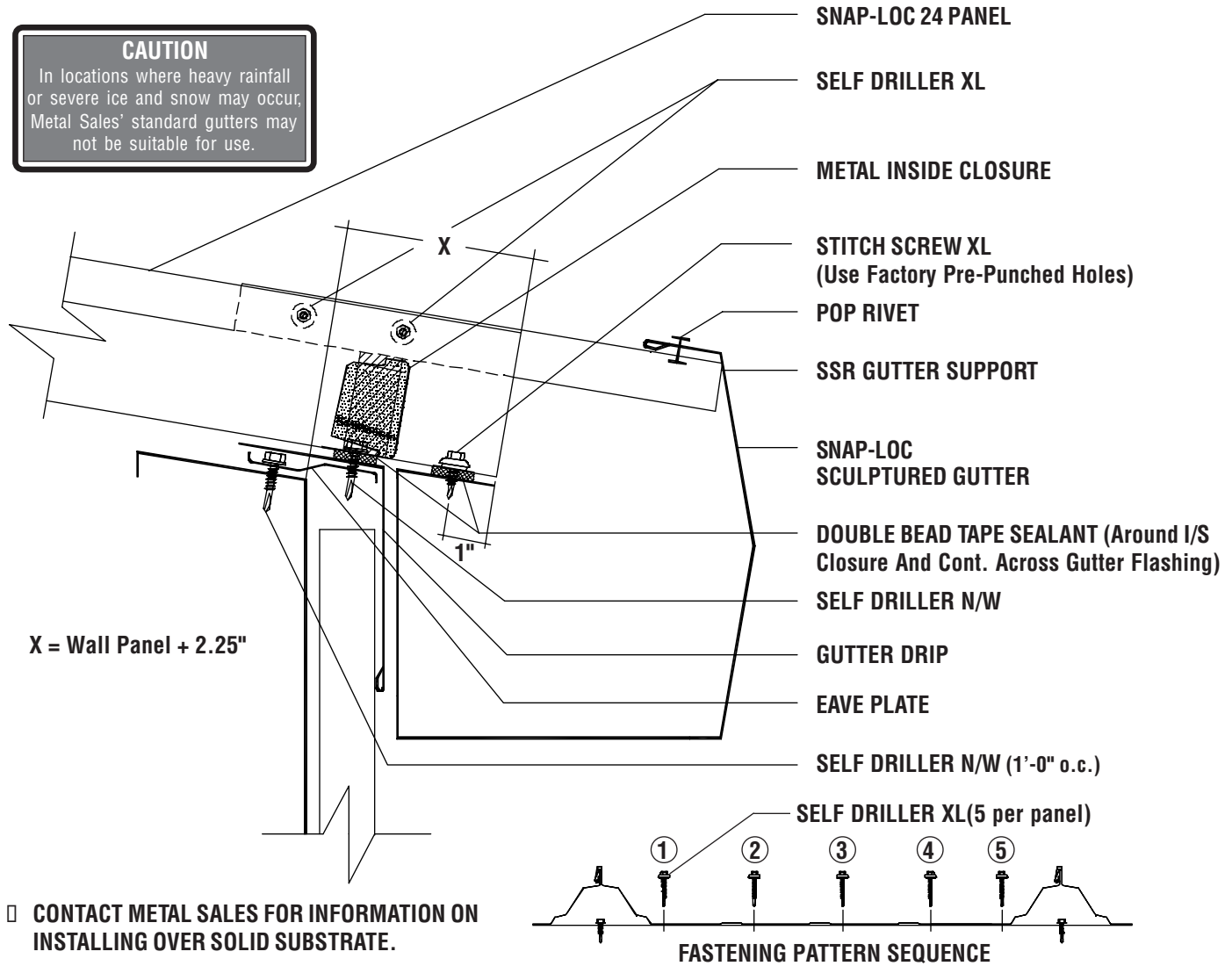
ACCESSORIES

- METAL INSIDE CLOSURE
- VALLEY PLATE
- EAVE PLATE
- SELF DRILLER N/W
- SELF DRILLER XL
- DOUBLE BEAD TAPE SEALANT

SNAP-LOC 24

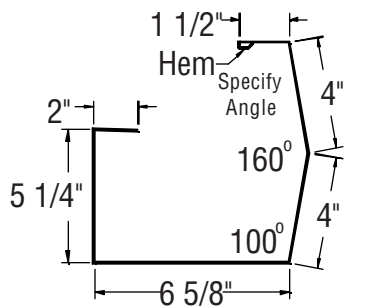
GUTTER WITH GUTTER DRIP DETAIL

CAUTION
 In locations where heavy rainfall or severe ice and snow may occur, Metal Sales' standard gutters may not be suitable for use.

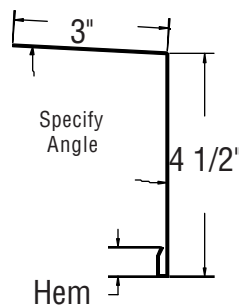


FLASHING PROFILES

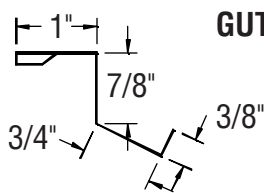
ACCESSORIES



(For slopes greater than 1:12 see page 24)
SNAP-LOC SCULPTURED GUTTER



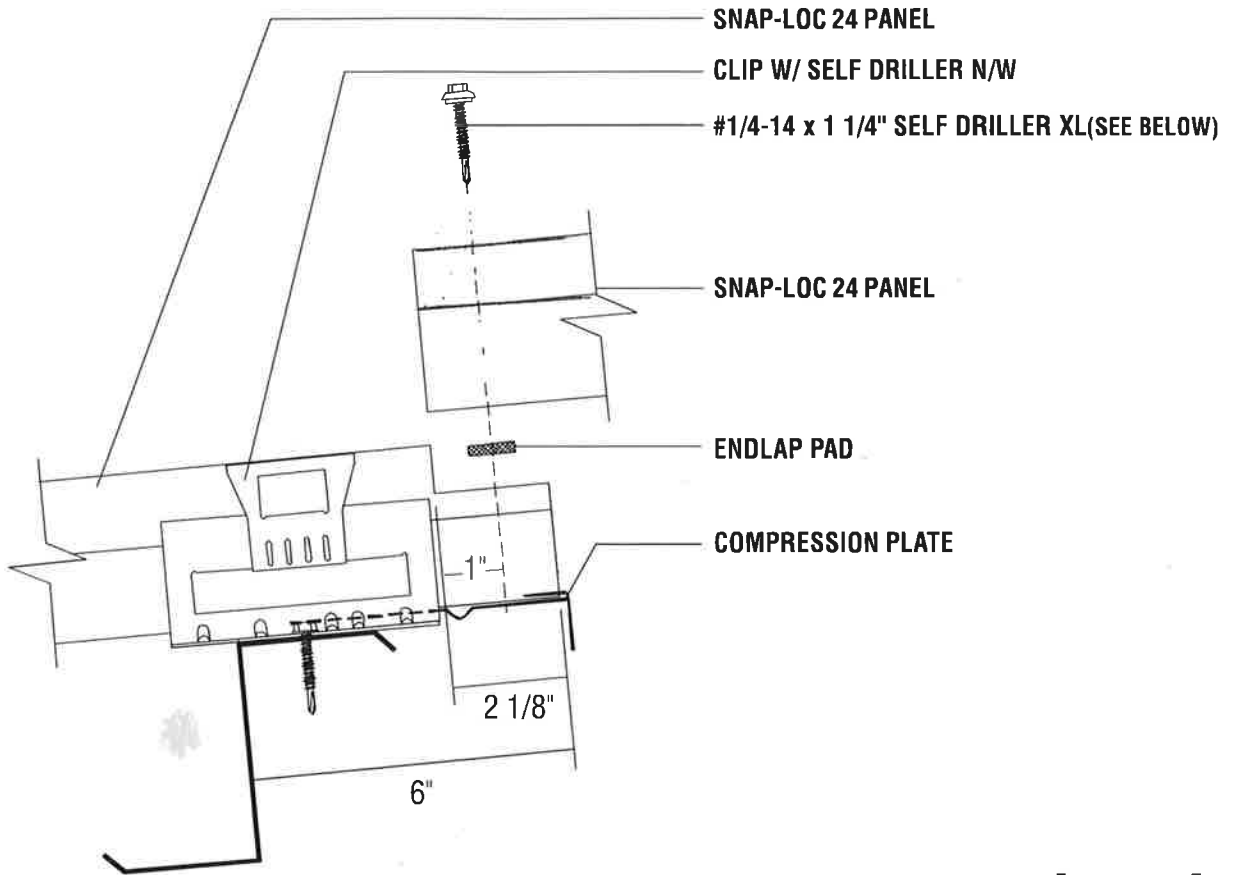
GUTTER DRIP



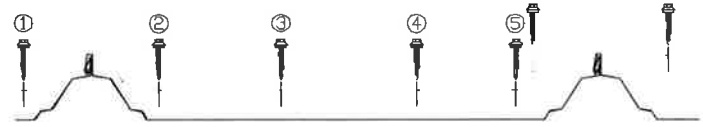
SSR GUTTER SUPPORT

- METAL INSIDE CLOSURE
- EAVE PLATE
- STITCH SCREW XL
- SELF DRILLER XL
- SELF DRILLER N/W
- POP RIVET
- DOUBLE BEAD TAPE SEALANT
- TUBE SEALANT

SNAP-LOC 24 ENDLAP DETAIL



CONTACT METAL SALES FOR INFORMATION ON INSTALLING OVER SOLID SUBSTRATE.

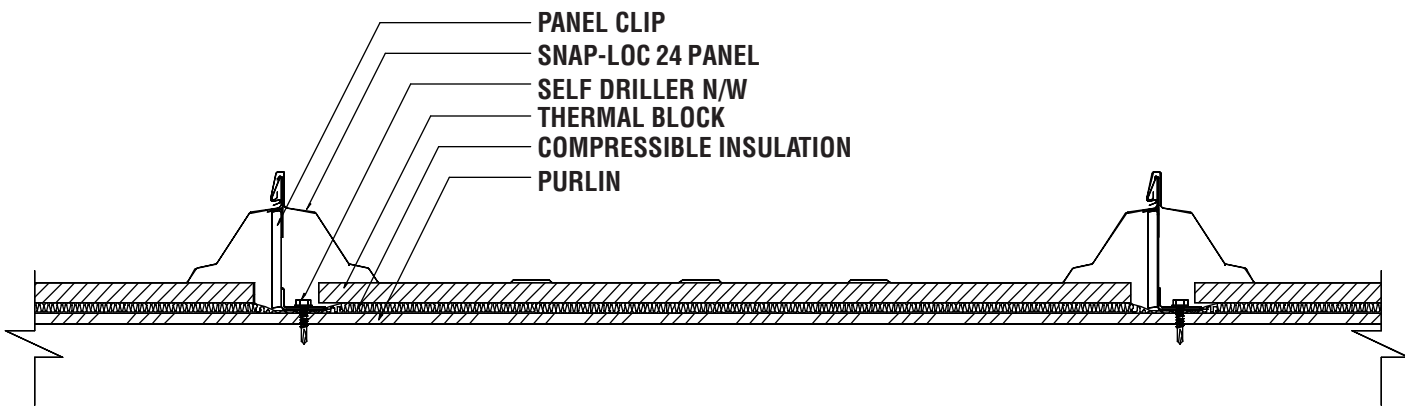
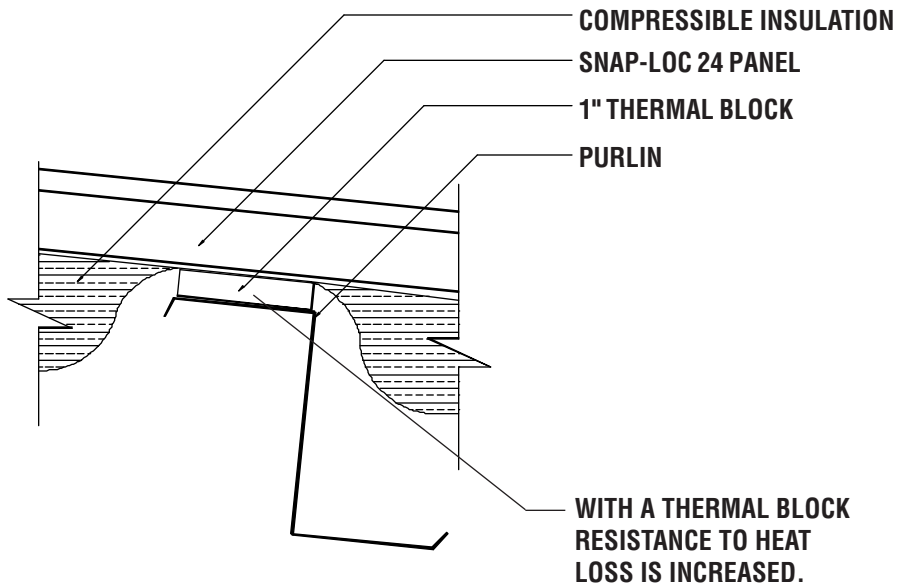


FASTENING PATTERN SEQUENCE TO BE FASTENED IN PRE-PUNCHED HOLES

FLASHING PROFILES

ACCESSORIES

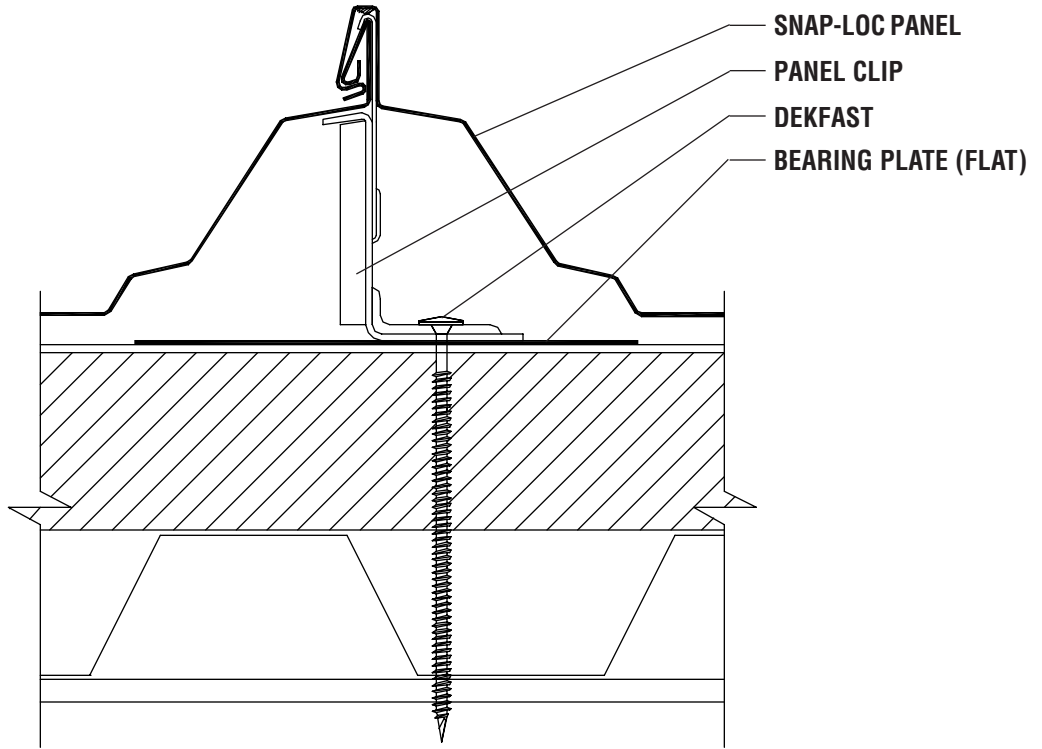
- COMPRESSION PLATE
- ENDLAP PAD
- SELF DRILLER XL



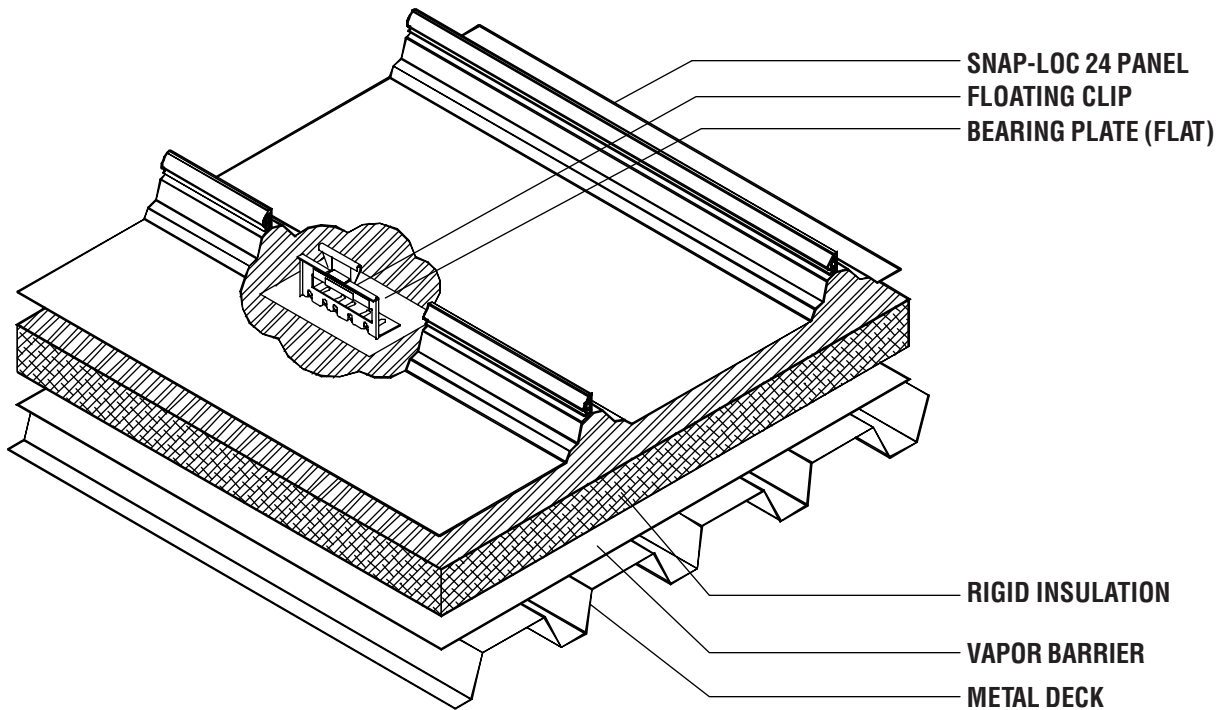
FLASHING PROFILES

ACCESSORIES

- 1" THERMAL BLOCK



PANEL CLIP WITH BEARING PLATE (FLAT)



**PANEL CLIP WITH BEARING PLATE (FLAT)
-ISOMETRIC-**

Though factory applied prepainted 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 laded atmospheres 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 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 ($\frac{1}{3}$ cup of Tide 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 abrade 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. However, mildew can grow on dirt and spore deposits in some cases. To remove mildew along with the dirt, the following solution is recommended.

- $\frac{1}{3}$ cup detergent (Tide or equivalent)
- $\frac{2}{3}$ 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.