R&M STEEL CO

STEEL PANELS AND COMPONENTS FOR THE BUILDING INDUSTRY



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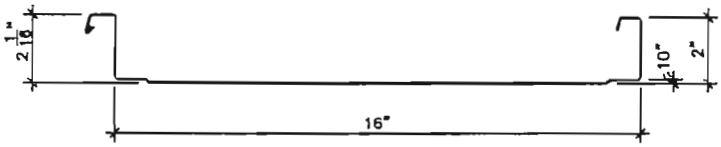
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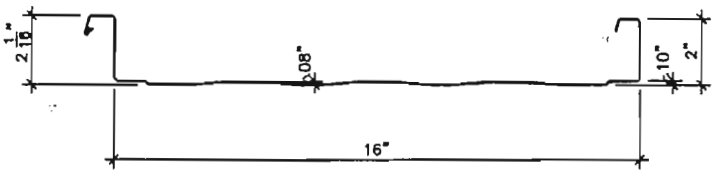
BRS, INC.

PanelCraft™ UNIVERSAL STANDING SEAM ROOF SYSTEM

One Panel

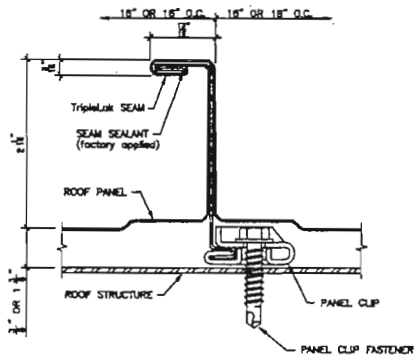


PC 216 ROOF PANEL
WITH FLAT PAN

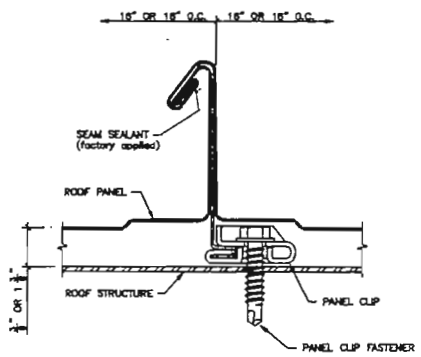


PC 216 ROOF PANEL
WITH STRIATED PAN

Two Seams



TripleLok Seam



QuadLok Seam

Building Research Systems, Inc.

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2.0 SAFE ROOF INSTALLATION

2.1 Erector's Responsibility

The erector of the roof system is responsible for the safe execution of this installation guide. These instructions are intended to describe the sequence and proper placement of parts. They are not intended to prescribe comprehensive safety procedures.

If the erector cannot safely assemble the roof in accordance with these instructions, it is the responsibility of the erector to stop the work and contact ***"Company Name"*** to determine alternate assembly procedures.

2.2 OSHA

The Occupational Safety and Health Act (OSHA) has promulgated many regulations applicable to the installation of this or any other roof system. These regulations, identified as Part 1926, Safety and Health Regulations for Construction, are available from any government bookstore. The objective of the OSHA standards is to protect the worker from injury or illness. These OSHA regulations should be recognized as job site requirements and be fully complied with.

Failure to do so may result in substantial fines in the event of an OSHA inspection. Safe installation practices may be further defined and made mandatory by state or local ordinances.

Maintaining good housekeeping on the jobsite is recognized as being important to both OSHA compliance and to successful job completion.

2.3 Walking & Working on Roof Panels

A. PLACING PANELS ON THE STRUCTURE

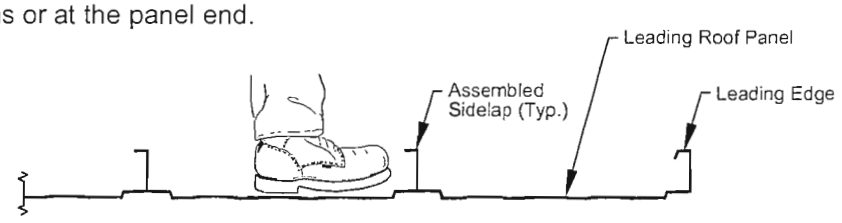
Do not place bundles of panels on the roof structure without first verifying the structure will safely support the concentrated weight of the panels and the weight of the installation crew. Some roof structures may not be designed to support the weight of a full panel bundle without additional structure support.

B. WALKING ON ROOF PANELS

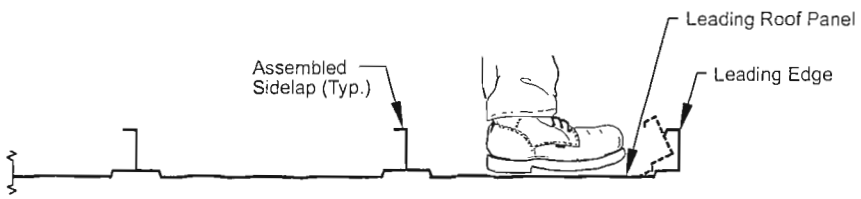
Do not use a roof panel as a working platform. An unsecured panel could collapse under the weight of a person standing between purlins or at the panel end.

Do not walk on the last installed panel run, as the unsecured edge could collapse under a person's weight. When installing clips or making endlap connections, etc., stand where the roof structural will support your weight.

An approved and safe walking platform should be used in high traffic areas to prevent the roof panel from being deformed, scratched, or scuffed.



CORRECT
Step ONLY on secured roof panels.



CAUTION
DO NOT step on leading (unsecured) roof panel.

2.0 SAFE ROOF INSTALLATION

2.3 Walking & Working on Roof Panels (Continued)

C. SAFETY EQUIPMENT

The use of safety equipment for the roof panel installation is recommended at all times during the installation process. However, when using lanyards, ensure that the clasp, belt hooks and wire cables are covered in such a manner that they will not scratch the panel surface if accidentally dragged along the panel.

D. CREW SIZE

The length of the individual roof panels should be considered when determining the crew size. It is recommended that under normal conditions, there be one person for every ten feet of panel length, plus one.

E. PANEL OVERHANG

Do not stand on the end of unsupported (cantilevered) panels at the eave or ridge. Standing on the cantilever portion may result in panel collapse.

F. POINT LOADS

When properly supported by the structurals, panels are designed to support uniform loads, which are evenly distributed over the panel surfaces. Point loads that occur in small or concentrated areas, such as heavy equipment, ladders or platform feet may cause panel deformation or even panel collapse.

G. SLICK SURFACES

Panel surfaces and structural steel surfaces are hard, smooth, and nonabsorbent, which causes these surfaces to be very slick when wet or covered with snow or ice. Even blowing sand or heavy dust can make these surfaces difficult to walk on without slipping.

Unpainted panel surfaces are often coated with oil to accommodate the panel-fabrication process. Although designed to wash away or evaporate during normal weather, the oil on new panels can be extremely slick, especially during periods of light rain or dew.

Caution must be exercised to prevent slipping and falling onto the roof surface or even sliding off the roof. Non-slip footwear is a necessity and non-slip working platforms are recommended.

H. ELECTRICAL CONDUCTANCE

Metal panels are excellent electrical conductors. A common cause of injury is the contact of metal panels with power lines during handling and installation. The location of all power lines must be noted and, if possible, flagged. The installation process must be routed to avoid accidental contact with all power lines and high voltage services and equipment. All tools and power cords must be properly insulated and grounded and the use of approved ground fault circuit breakers is recommended.

I. FALSE SECURITY OF INSULATION

Blanket and board insulation blocks the installer's view of the ground below the roof. Serious injury can occur when the installer gets a false sense of security because he cannot see the ground and steps through the insulation.

J. SHARP EDGES

Some edges of panels and flashing are razor sharp and can cause severe cuts if proper protective hand gear is not worn. Be careful not to injure others while moving panels and flashing.

2.4. Handling Roof Materials in Strong Winds

Do not attempt to move panels in strong winds. Wind pressure can easily cause a man to lose balance and fall. Strong wind uplift on a panel can lift the weight of the man carrying the panel.

Loose, wind borne panels are very dangerous and can cause severe injury and damage.

Secure stacks of panels with banding or tie-downs, so wind will not blow the panels off the roof. Clamp individual unsecured panels to the roof structurals. Clamp or block panel bundles an d accessory crates to prevent them from sliding down the roof slope.

3.0 CHECKING THE STRUCTURE

3.1 Completed and Braced

Before placing materials and workers on the roof structure to start roof installation, it must be confirmed that the structure is designed to accommodate the material and erection loads as well as the appropriate live loads and wind uplift loads. It also must be determined that the structure is complete and structurally sound with all structural connections and bracing in place and secure.

3.2 Lateral Stability

The sliding clip method of attaching the roof panels to the roof structurals provides only limited lateral stability and diaphragm bracing to the roof structurals.

Before placing materials on the roof and starting the roof installation, confirm that the necessary roof bracing and sag angles, strapping or bridging for purlin stability is in place and secured.

3.3 Alignment

Prior to installation, roof structurals should be checked for overall dimensions and evenness of plane. The roof structurals should also be checked to verify the roof system can be installed without interference. Also, roof structurals nearest the panel endlaps, ridge or high eave should be checked for correct location to properly accommodate the roof components.

A. TOLERANCES

To assure the roof system's correct fit-up and designed weather tightness, the structure must be aligned within the following tolerances:

Out of Square — The roof system can accommodate 1/8" of sawtooth of the roof panel ends at the eave, ridge and panel splices. This means the allowable out of square of the rake line relative to the eave line and ridge line is 1/2" for each 10' of rake run.

Structure Width and Eave Straightness — The roof system is designed to accommodate ±2" of overall structure width error, or ±1" of eave straightness error at each eave.

To assure that the accumulation of the structure width error and eave straightness error does not exceed the roof system's tolerance, the structure width should be measured from eave line to eave line at each rake, at the first frame line from each rake and at each point where there is a significant error or change in eave straightness (this usually occurs at a frame line or at a wind column).

Structure Length and Rake Straightness — The roof system is designed to accommodate ±2" of overall structure length error, or ±1" of rake straightness error at each rake.

To assure that the accumulation of structure length error and rake straightness error does not exceed the roof system's tolerance, the structure length should be measured from rake line to rake line at each eave, at the ridge and at each point where there is a significant error or change in rake straightness (this usually occurs at an end rafter splice).

B. MEASURING

Structure length and width may be measured with a steel measuring tape from the face of the eave or rake member to the face of the opposite eave or rake member. The measuring tape must be parallel to the relative eave or rake line and must be stretched taut.

Eave and rake straightness may be determined by measuring deviations from a string line, which is stretched taut along the eave or rake line.

C. AESTHETIC ACCEPTANCE

Although these structure alignment tolerances will allow for reasonable roof component fit-up and ease of installation, the extremes of these tolerances may be aesthetically objectionable and should be confirmed with the customer before starting the roof installation.

D. CORRECTIONS

Any structure alignment error, which exceeds the above stated tolerances, must be corrected before roof installation can begin. If it is decided that the structure alignment errors cannot be corrected, alternate roof details may have to be developed. The alternate details may require additional materials, modified parts (with additional cost, fabrication and delivery time) and additional installation time. ***"Company Name"*** cannot assure the performance of such alternate details.

4.0 RECEIVING & HANDLING ROOF MATERIALS

4.1 Material Inventory

Your material is carefully inspected and crated before leaving the plant and accepted by the transportation company as being complete and in satisfactory condition. It is the carrier's responsibility to deliver the shipment intact. It is the **consignee's responsibility** to inspect the shipment for damages and shortages when it is delivered.

Conducting a material inventory at the time of delivery is essential. By conducting the materials inventory, the erector is able to identify any material shortage or damage and avoid stopping installation later because of such shortage or damage.

It is imperative that any shortages or damage of the delivered materials be noted at once and clearly marked on the bill of lading before signature of acceptance. Notify ***"Company Name"*** immediately of any conflicts. ***"Company Name"*** will not be responsible for shortages or damages unless they are **noted on the bill of lading.**

In the case of packaged components (such as clips, fasteners and sealants, etc.), the quantities are marked on their container and should be checked against the bill of materials. ***"Company Name"*** **must be notified of any shortages or concealed damage within 15 days of delivery.**

4.2 Equipment For Unloading and Lifting

Hoisting equipment is necessary to unload and position the panels and accessory crates for site storage and installation. The equipment must have sufficient capacity and reach to place the material where it is required for efficient installation.

Slings will be required to minimize panel damage. The recommended slings are nylon straps of 6" minimum width and of sufficient length to accommodate the panel bundle girth.

A spreader bar will be required for the longer panel crates to assure correct sling spacing and uniform lifting. The spreader bar must be large enough to handle the maximum panel bundle weight and length.

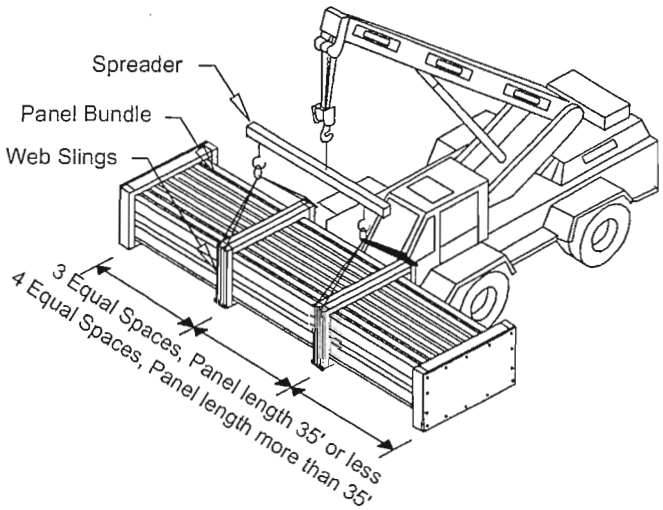
A forklift is handy for unloading and placing shorter panel and accessory crates.

4.3 Lifting Roof Panel Bundles

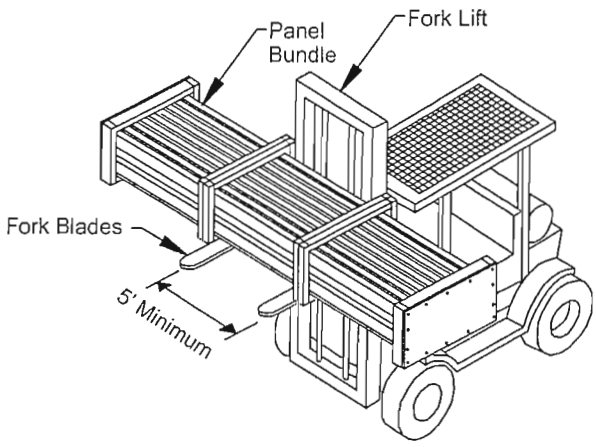
Under normal conditions, panel crates less than 35' long can be lifted with two slings spaced at third points. Panel crates longer than 35' can be lifted with three slings located at quarter points using a spreader bar to achieve correct sling spacing for uniform lift.

Slings should be located under the cross boards. Loads should always be checked for secure hook-up, proper balance, and lift clearance. Tag lines should be used if necessary to control the load during lifting, especially if operating in the wind.

Panel crates less than 25' long may be lifted with a forklift only if the forks are spread at least 5' apart and blocking is used to prevent panel damage by the forks.



Panels over 25'



Limited to 25'

4.0 RECEIVING & HANDLING ROOF MATERIALS

4.4 Field Storage of Roof Materials

Upon acceptance of the shipment, the customer or his representative is responsible for proper handling storage and security of the roof materials. ***"Company Name"*** is not liable for damage or loss of materials at the job site.

The roof panel bundles should be stored on the job site in accordance with the following recommendations:

A. Store panels in a protected area, out of standing water and drifting snow, etc.

B. Elevate panels with blocking to allow air circulation under the bundle.

C. Slope panels for drainage of moisture from the panels.

D. As necessary, cover panels with waterproof tarp, allowing for air circulation (do not wrap tarp under panel crate or restrict air movement).

E. Inspect panels daily for moisture accumulation.

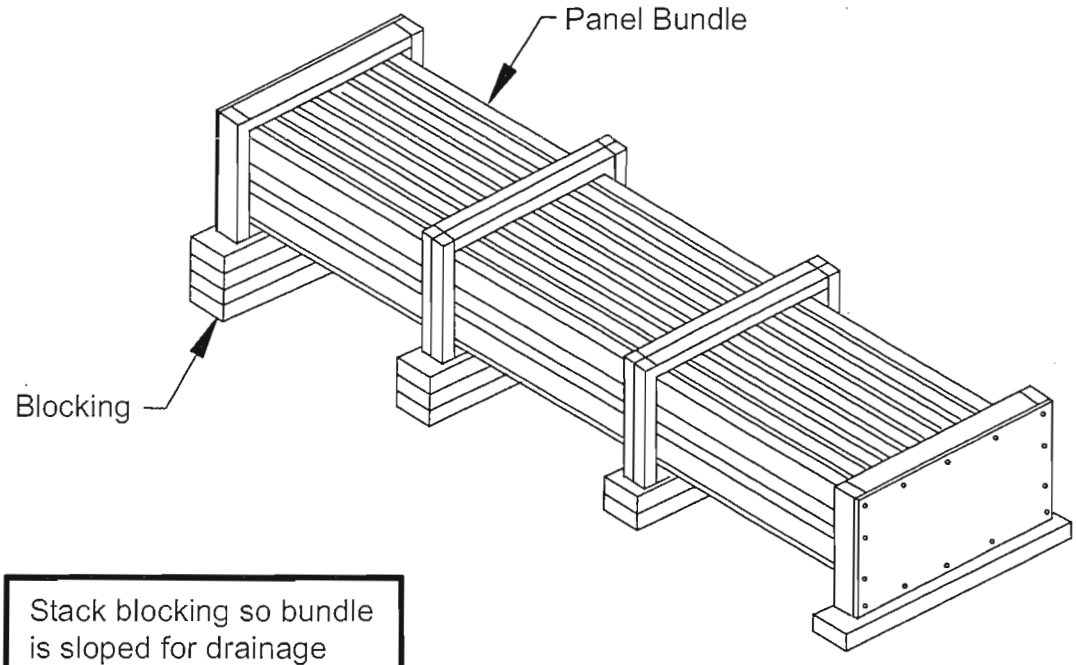
F. If panel bundles contain moisture, the panels should be dried and re-stacked. Use care in re-stacking to avoid damage to panels.

G. Opened or re-stacked panel bundles should be secured to prevent wind damage.

When moving panel bundles, extreme caution should be taken to prevent damage to the panel edges. Uncrated panels should be supported at each end and at 10' spaces.

All bundles or loose panels on the roof should be banded to the roof structurals at the end of each workday. On steep roofs, provisions should be taken to prevent panels and panel crates from sliding off the roof. Be sure to set panel bundles on the roof in the proper direction for the installation sequence.

Trim and accessories should be stored in a secure area and protected from damage, weather, and theft. Fasteners, sealants, closures, etc. should be stored out of the weather and protected from contamination.



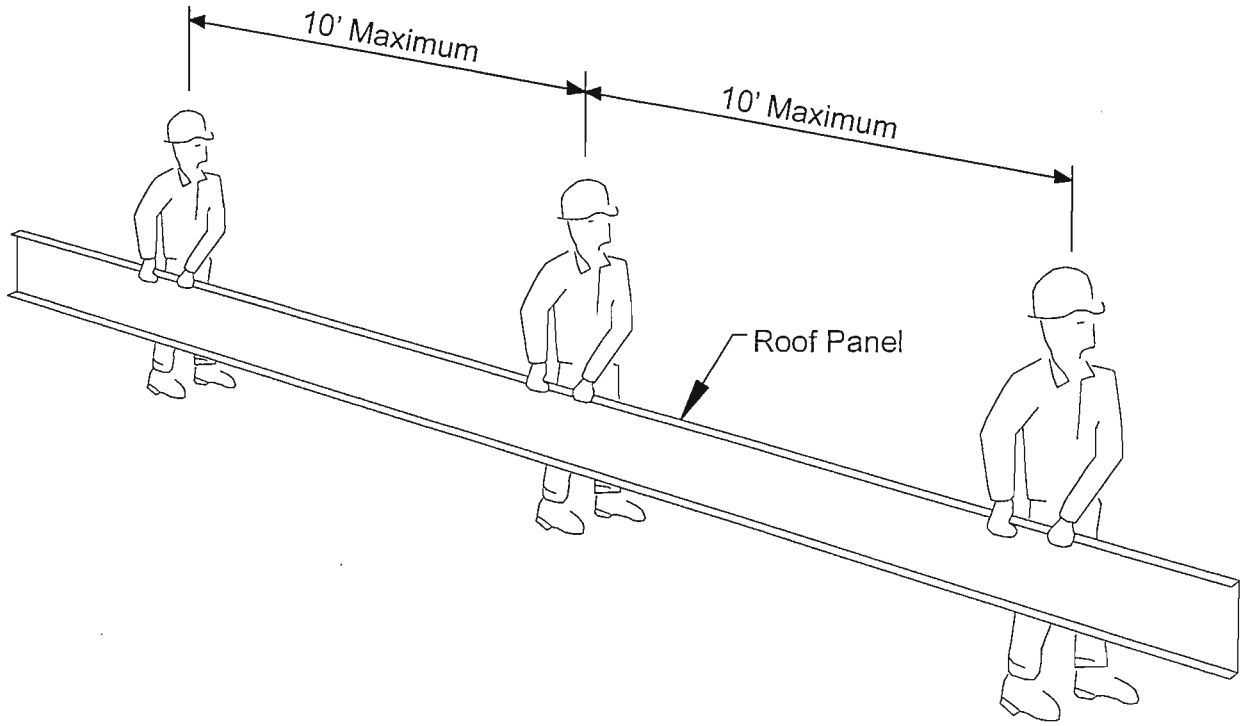
Stack blocking so bundle is sloped for drainage

4.0 RECEIVING & HANDLING ROOF MATERIALS

4.5 Handling Individual Roof Panels

To lift individual panels, lift one side of the panel by the seam letting it hang naturally to prevent buckling. Pick-up points should not be more than 10' apart. **Do not pick-up panels by the ends only, or in a flat position.**

If the individual panels are to be lifted to the roof by hand line, the common method is to use the vice grip "C" clamps. Position the clamps on the flat of the panel as close as possible to one edge so the panel is lifted in a vertical position. The jaws of the vice grips must be padded to prevent damage to the panel surface. The clamps should be uniformly spaced, no more than 10' apart and the hand lines must be pulled in unison so that uneven lifting does not buckle the panel. Be sure the clamps are tight on the panel and the line is secure to prevent dropping the panel which can result in personal injury and property damage.



5.0 ROOF INSTALLATION BASICS

5.1 Proper Tools

Before starting paneling, be sure that the proper equipment and tools are on hand. The tools must be in good operating condition and operators should adhere to safety precautions at all times.

Improperly operating tools, too few tools, **inadequate power source**, or other equipment deficiencies slow down the installation process. The cost of inefficient working is usually greater than the cost of providing good equipment.

5.2 Equipment List

The following tools and equipment should be considered for efficient installation of the ***"Company Name"*** standing seam roof. Actual tools and equipment required may vary due to variations in building type and construction.

This list should not be interpreted as a limitation to your inventory of installation equipment.

*PC Seam Clamp — Minimum of (2) required
*PC Motorized Seaming Machine
*ESE #812 Manual Seaming Tool
Screw Guns — Designed for use with self-drilling screws
Socket Extensions — 6" extension for screw gun
Hex Socket Heads — 5/16" and 3/8", magnetic
Drill Motor — 1/4" capacity
Drill Bits — Assortment
Sheet Metal Cutter — or power shears or nibbler
"C" Clamps — vise grip, with swivel pads
Pop Rivet Tool — 1/8" capacity
Sheet Metal Shears — left and right cut
Steel Measuring Tape — 12', 50', 100'
Nylon String
Chalk Line — (No Red Chalk)
Brooms
Marking Pen — (No Lead Pencil)
Caulk Guns — for 1/10 gallon sealant tubes
Power Source and Extension Cords — capable of handling the total equipment requirements, including 20-amp seamer machine, without power drop due to extension cord length.

*These tools are specifically designed for the ***"Company Name"*** Roof Panel and are available from the ***""Company Name"***.

5.3 Sealants

A. TEMPERATURE EFFECTS

Temperature extremes must be considered during installation of the roof due to the sensitivity of sealants. The recommended installation temperature range is 20° F to 120° F. At colder temperatures, the sealant stiffens resulting in loss of adhesion and compressibility. At hotter temperatures, the sealant becomes too soft for practical handling. On cold but sunny days, the panel's surface may become warm enough to accept the application of a heated sealant even though the air temperature is below 20° F.

When overnight temperatures fall below freezing, the sealant should be stored in a heated room so it will be warm enough to use the following day. On hot days, the sealant cartons should be stored off the roof in a cool and shaded area. While on the roof, sealant rolls should be kept shaded until actual use.

In very cold weather, it is recommended that the fasteners be tightened slowly and only tight enough that the sealant is in full contact with the panel or flashing. Then on the next sunny day, complete the tightening process after the sun warms the panel and flashing surfaces.

B. CONTAMINATION

To assure proper adhesion and sealing, the sealant must have complete contact with adjoining surfaces and achieve 30% compression. Contaminants such as water, oil, dirt and dust prevent such contact. The panel and flashing surfaces must be dry and thoroughly cleaned of all contaminants. Before applying tape sealant, the sealant should be checked for contaminants. If the sealant surfaces are contaminated, it must not be used.

During cool weather, condensation or light mist can accumulate on the panel and flashing surface and not be easily noticed. It is recommended that sealants always be kept under protective cover and that the panel and flashing surfaces be wiped dry immediately before installation.

Tape sealant is provided with a protective paper to reduce contamination. Incomplete removal of the protective paper will prevent the sealant's adhesion to the panel or flashing surfaces. Always check that the protective paper is completely removed. Do not remove the protective paper until immediately before the panel or flashing is installed over the sealant.

5.0 ROOF INSTALLATION BASICS

5.3 Sealants (Continued)

C. COMPRESSION

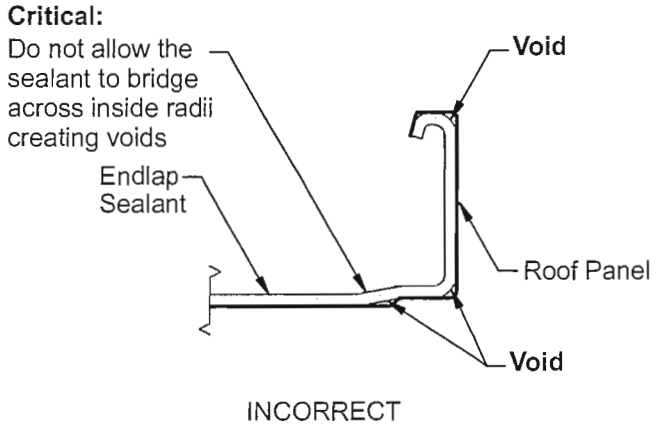
To assure proper adhesion and seal, the tape sealant must be compressed between the panel and flashing surfaces with firm and uniform pressure. In most cases, the required pressure is applied by the clamping action of screws pulling the adjoining surfaces together. However, the tape sealant's resistance to pressure becomes greater in cold weather.

During cold weather, the fasteners must be tightened slowly to allow the sealant time to compress. If the fasteners are tightened too fast, the fastener may strip out before the sealant compresses adequately, or the panel or flash may deform in the immediate area of the fastener, leaving the rest of the sealant insufficiently compressed.

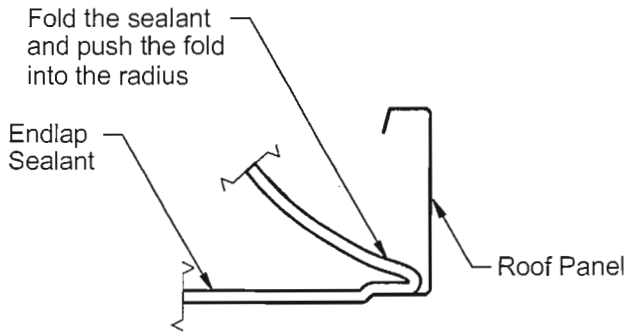
D. INSIDE CORNERS

An inside radius, such as where the panel flat meets a rib, is usually the most critical area to seal. A common mistake for the installer, is to bridge the sealant across the inside radius. When the lapping panel or flashing is pushed into place, the bridged sealant is stretched and thinned. The sealant may then be too thin to adequately seal this critical area.

When tape sealant is applied at an inside radius, it is recommended that the sealant be folded back on itself, then push the sealant fold into the radius. Do not tear but cut the tape sealant to length with a box knife or equal.



INCORRECT



CORRECT

5.4 Fasteners

A. SCREW GUN

Use torque control and variable speed screw guns for driving self-drilling screws. 2000-2500 RPM screw gun speeds are necessary to attain efficient drilling speeds. High tool amperage (4 to 7 AMP) is required to achieve the proper torque for proper seating and to secure the fastener.

B. SOCKETS

Use good quality sockets. Good fitting sockets reduce wobble and stripping of the screw heads, especially the alloy and capped heads. They also minimize objectionable paint chipping and scuffing on colored screws and minimize damage to the protective coating on unpainted screws.

Magnetic sockets collect drill shavings, which will build up and eventually prevent the socket from seating properly on the screw heads. One method of removing the drill shavings is to roll up a ball of tape sealant and push the socket into the sealant.

When the socket is removed from the sealant, most of the drill shavings will remain embedded in the sealant thereby cleaning the socket. This process should be repeated as often as needed to keep the socket clear of drill shavings.

C. SOCKET EXTENSION

A 4" or 6" socket extension is recommended for installing the panel clip screws. With the extension, the screw can be driven straight down without tilting the screw gun to clear the panel or clip. Since socket extensions are slow to wear out, it is usually more cost effective to purchase socket extensions and good quality sockets rather than purchase sockets with built-in extensions.

D. INSTALLATION

Before starting the screw, the materials to be joined must be pressed together with foot or hand pressure. The pressure must be maintained until the screw has drilled through all the materials and the threads have engaged.

5.0 ROOF INSTALLATION BASICS

5.4 Fasteners (Continued)

Most self-drilling screws require 20 pounds of pressure to maintain the drilling action and to start the thread cutting action. Also, applying such pressure before starting the screw gun will usually prevent tip walking or wandering.

If too little pressure is applied, the drill point may not cut into the metal and the point will heat up and become dull. If the pressure is too heavy, the bottom material may be deflected away, causing a standoff condition, or the drill tip may be broken or split.

Screws must be held perpendicular to the panel or flashing surface during starting and driving.

For proper seating of the fastener-sealing washer, the panel or flashing surface must be clean and drill shavings must be removed from under washers before seating. The fastener must be driven perpendicular to the panel surface so that the washer can seat level without warping or cupping.

Do not over drive screws. Over driving can strip the threads and/or damage the sealing washer. Use screw gun with torque control set to function properly for the combination of fastener size, hole size and material thickness.

The fastener should be driven tight enough to uniformly compress the washer but not so tight that the washer splits or rolls out from under it's metal dome. The recommended procedure is to tighten the fastener until the sealing washer just starts to visually bulge from under the metal dome.

As a good installation practice, all roof installers should carry approved oversized screws. Upon stripping or breaking a screw, the screw must be immediately removed and replaced with the appropriate oversized screw. Do not defer the screw replacement to be remembered and fixed later, or to be found by the clean-up crew. The majority of such screws will be overlooked until the customer complains of leakage.

5.5 Field Cutting Panels and Flashing

A. ABRASIVE SAW PROBLEMS

Abrasive saws (circular saws with friction disks) are not recommended for cutting roof panels or flashing. Abrasive saws create high heat that may burn away the protective coating from the panel edge, causing the edge to rust.

Also, abrasive saw dust contains fine, hot steel particles, which accumulate on panel and flashing surfaces where they rust and can cause staining and rusting of those surfaces.

Rust caused by abrasive saw damage or abrasive dust particles can be excluded from warranty claims.

B. SHEARING METHODS

It is recommended that panels and flashing be cut with shears to provide a clean, undamaged cut. On shear cut edges, the protective coating extends to the edge of the cut and is often wiped over the edge to further protect the base metal.

Whenever possible, fit the material so that the factory cut edge is exposed and the field cut edge is covered.

When field cutting complex shapes, it is usually easier to cut out a 1" wide strip using both left and right hand shears. The 1" cutout provides clearance to smoothly cut the flats and the clearance to work the shears around tight corners.

When making repetitive cuts (such as cutting panels at a hip condition) it is recommended that a template be made from a piece of drop-off panel or flash to provide fast and accurate marking of the field cut. When using panel material for the template, cut off the top portion of the panel ribs so that the template is easily laid onto the panel being marked.

C. MARKING PANELS

Avoid marking the panels for cutting, etc., in a manner that will leave visible markings and stains, etc., on the finished roof surface. Use chalk or felt tip ink markers. **Do not use graphite (lead) pencils on unpainted panel surfaces**, the graphite can cause rusting of the surface.

6.0 ROOF PANEL LAYOUT

6.1 Sheeting Direction and Modularity

Although the ***"Company Name"*** roof system is designed so it can be installed in either direction (left to right or right to left), there may be roof conditions which require a specific sheeting direction. Check the erection drawings to determine if a specific sheeting direction is required.

Panels with factory swagged ends must be installed with the swag at the downslope end. Swagged panels can only be installed in the left to right direction.

The recommended installation sequence is to complete each panel run from eave to ridge before starting the next panel run. This sequence will help ensure straight runs and allow the insulation to be installed immediately ahead of each panel run.

During installation of the roof, considerations must be made for maintaining panel modularity. By maintaining panel modularity, the roof panel sidelap and seam can be properly assembled, the proper roof coverage can be obtained and the standard perimeter parts will fit properly without necessity of field modifications or reordering of parts, etc.

Caution: FAILURE TO MAINTAIN PANEL COVERAGE WIDTH within the specified tolerance can cause faulty roof panel seams which can result in seaming difficulty or in severe cases reduction in roof performance specifications.

For proper fit-up between the panel, sealant and closures or endlap parts, the panels must be held to the width dimension of the panel, as designated on the erection drawings, within a 1/16" width tolerance per panel.

The accumulated coverage (start panel to finish panel) tolerance is determined by the ability to keep the panels parallel and to correctly fit and assemble the finish rake condition.

If the roof has conditions such as fixed location penetrations, parapets, fire walls, etc., the accumulated panel coverage may require tighter tolerances for proper fit-up and weather tightness of the roof system.

6.2 Layout & Checking for Coverage

Recommended for all roofs, but a must for large or complex roofs, is to make a layout of the actual structure (field measured as described in section 3.3) so that the roof panel start and stop dimensions can be laid out to accommodate any structural misalignments.

When the optimal start and finish dimensions are determined, a string line should be set to precisely locate the leading edge of the start panel. After the start panel is secured and engaged with the next panel, the start panel seam will be the reference line for checking accumulated panel coverage.

Panel coverage is always checked at the eave, ridge, and end splices so that non-parallel seam (or dogleg) conditions can be detected and corrected before they become objectionable. The coverage check should be done with a measuring tape held taut and measured to the same side of the seam and always parallel to the eave to prevent any measuring error.

Every four to six panel runs should be checked for panel modularity. This will assure that the panels are maintaining a straight line and proper coverage is being maintained. If the panels are off module, they should be corrected by equal adjustments of the next four to six panel runs.

6.3 Appearance Considerations

Although the above stated coverage tolerance will provide for reasonable ease of installation and water tightness, such visible conditions as non-parallel panel seams, dogleg of the panel seam at the end splices, non-parallel finish panel width, and mismatch of panel seams across the ridge, may be objectionable and should be confirmed with the customer before continuing roof installation.

7.0 INSPECTION OF ROOF ASSEMBLY DURING INSTALLATION

7.1 Importance of Inspection

During the roof installation, all areas of the roof system assembly must be frequently inspected to ensure the correct assembly in accordance with the erection drawings and this installation guide.

Failure to assemble the roof system correctly will result in roof performance problems that may require costly corrective work, roof replacement, and performance and damage claims etc. Also, incorrect installation may void the performance and material warranties.

7.2 Inspection List

A. ERECTION DRAWINGS

Check that the erection drawings are available at the job site and have been reviewed for difference with the actual job conditions and differences with this installation guide. Also, confirm that the drawings are the latest issue with the latest revisions and additions.

B. ROOF LAYOUTS

Check that the roof start and finish dimensions have been correctly determined based on the erection drawings and the actual structural conditions.

C. BEFORE INSTALLING ROOF PANELS

Check that the structural misalingments were corrected in accordance with Section 3.0 of this installation guide.

Check that the correct eave and rake plates and eave trim are in place before installing the roof panels.

Check that the roof panel elevation provided by the panel clip height and insulation system matches the eave and rake plate elevation.

D. PANEL LENGTH

Check that the installed roof panels have the correct overhang at the eave and endlaps and have the correct hold back at the ridge or high eave in accordance with the erection drawings.

E. EAVE SEAL

Check that the eave sealant is in the correct position on top of the eave trim and that the eave pigtail sealants are correctly placed. Check that the eave fasteners penetrate the center of the eave sealant and into the eave plate. Check that the fasteners are not loose or stripped.

Check that the eave sealant is in complete contact with the roof panel and eave trim without any voids or gaps. Confirm that the roof panel and eave trim are clean and dry during installation and that the sealant is not wet or otherwise contaminated.

F. ENDLAP SEAL

Check that the roof panel endlaps are correctly assembled and that the lapping panels are tightly nested without visible gaps.

Check that the sealant is in the correct position and is in complete contact with the lapped panels without any voids or gaps, especially at the radius between the panel flat and the vertical legs of the panel. Confirm that the panels are clean and dry during installation and that the sealant is not wet or otherwise contaminated.

Check that the pigtail sealant is in the correct position and seals the endlap seam notches.

Check that the endlap fasteners penetrate through the center of the sealant and into the back-up channel. Check that the fasteners are not loose or stripped.

Check that the panel surfaces above and below the endlap are not bowed down causing water ponding and debris accumulations.

G. RIDGE SEAL

Check that the end dams are correctly assembled.

Check that the sealant is in the correct position and is in complete contact with the end dam and the roof panel without any voids or gaps. Confirm that the end dam and roof panels are clean and dry during installation and the sealant is not wet or contaminated.

Check that the end dam fasteners penetrate through the center of the sealant and into the back-up channel. Check that the fasteners are not loose or stripped.

Check that the tube sealant is installed along the back of the end dam as necessary to seal any voids around the panel seam area.

7.0 INSPECTION OF ROOF ASSEMBLY DURING INSTALLATION

7.2 Inspection List (Continued)

H. RAKE SEAL

Check that the termination zee is correctly assembled with the splices correctly oriented for downhill watershed.

If there are roof panel endlaps, check that the endlap sealant contacts the termination zee sealant or that a pigtail sealant is applied for that purpose.

Check that the sealant is in the correct position above and below the roof panel.

Check that the termination zee sets fully on the sealant and that the sealant is in complete contact with the roof panel and the zee without any voids or gaps. Confirm that the roof panel and zee are clean and dry during installation and that the sealant was not wet or contaminated.

Check that the termination zee fasteners penetrate the center of the sealant and into the rake plate. Check that the fasteners are not loose or stripped.

I. PANEL CLIP ATTACHMENT

Check that the panel clips are correctly and tightly fitted to the panel without any distortion or damage of the clip tab. On sliding clips, check that the clip tab is centered on the clip base between the centering tabs.

Check that the clips are located along each panel sidelap at each roof structural or at the locations specified on the erection drawings.

Check that the panel clip fasteners are of the type, size, length, finish and quantity-per-clip as specified on the erection drawings.

Check that the panel clip fasteners are not loose or stripped. In the case of multi-layered construction, verify that the fasteners penetrated and engaged the specified structural member.

J. SIDELAP

Check that the panel sidelaps are on module (held within the 1/16" panel width tolerance) and are assembled so that the male and female panel edges and panel clips are properly nested together prior to seaming.

Check that the full length of each sidelap seam is correctly seamed.

Check that the factory installed sidelap sealant is in the correct position without voids or interruptions and is not damaged, wet or otherwise contaminated.

Check that the accumulated coverage will allow proper fit and assembly of the end dams and finish rake condition and any other critical fit conditions such as penetrations, parapets, etc.

K. FLASHING AND PENETRATIONS

Check that all flashing (including penetrations) are correctly assembled and tightly fitted. Check that the required sealants are correctly positioned and in complete contact with the adjoining surfaces without voids or interruptions. Confirm that the sealants and adjoining surfaces are clean and dry during installation.

Check that the flashing splices are correctly lapped, sealed and fastened.

Check that the flashing is sufficiently pitched to shed water and eliminate ponding areas, especially at the critical splices, endlaps and corners.

Check that the fasteners are of the specified type, size, length, finish and spacing. Check that the fasteners are not loose or stripped. Check that the sealing washers are in full contact with the flashing surface and not distorted, split or otherwise damaged.

Along the rakes, high eave transitions and fixed penetrations, check that the flashing is not constrained and will allow for the roof's expansion/contraction movement.

L. SURFACE CONDITIONS

Damaged roof system surfaces are subject to corrosion and performance problems and may void the material and performance warranties.

Check that the panel and flashing surfaces are not being subjected to abusive conditions such as careless handling of panels and flashing, excessive roof traffic, abrasive or contaminated footwear, rough handling of materials, tools and equipment, contact with abrasive materials or residue.

7.0 INSPECTION OF ROOF ASSEMBLY DURING INSTALLATION

7.2 Inspection List (Continued)

L. SURFACE CONDITIONS (CONT)

Check that the panel and flashing surfaces are not being subjected to exposed metal objects and materials left on the roof such as tools, material drop-off, fasteners, wire, staples, drill and nibbler chips, saw and file particles. In the process of rusting, these materials will absorb the panel's protective coating thus leaving the panels exposed to rusting.

Check that the panels and flashing are not being subjected to long term wet conditions such as standing water, consistent sources of steam, mist, spray, dripping or runoff, wet debris, wet insulation or other moisture holding material.

Check that the panels and flashing are not subjected to direct contact or runoff from corrosive materials such as copper pipes and flashing, uncured cement, treated lumber anti-icing chemicals, strong solvents or other corrosive materials.

Check that graphite pencils were not used to mark on unpainted surfaces. **The graphite marks can cause rusting.**

Check that the roof materials are not subjected to damaging heat such as cutting torches, abrasive saws, etc.

M. UNSPECIFIED MATERIALS

Use of the wrong materials may cause installation and performance problems and may void the performance and material warranties.

Check that all installed roof system materials, especially sealants and fasteners, are only those which are provided or specified by ***"Company Name"*** for your specific project and are used only as specified on the erection drawings and this installation guide.

"Company Name" **cannot be responsible for the performance of roof materials that are not provided, specified or approved by** *""Company Name"* **.**

8.0 STANDARD PARTS

8.1 General

The following details provide a basic description and graphic illustrations of the standard roof assembly parts. The purpose of these details is to assist the erector in the correct selection and identification of parts.

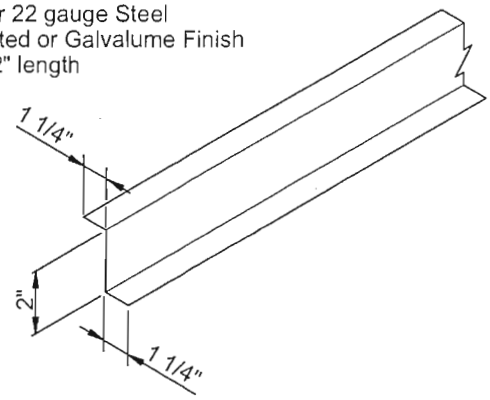
Because of the many variations in conditions, it is important that you review the job conditions to identify the specific parts required for your job.

Review the erection drawings for any special parts or parts which are different from the standard parts shown in these details. If differences exist, the erection drawings will have preference.

For proper fit-up, sealing and fastening, and to help ensure the roof assembly's weathertightness, structural capability, durability and appearance, the correct parts must be used. Do not use parts other than those specified on the erection drawings.

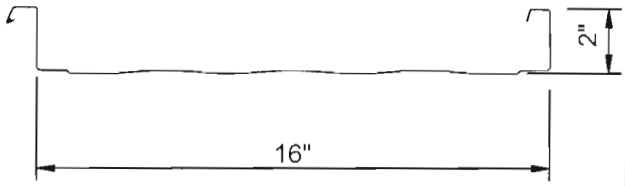
8.0 STANDARD PARTS

TERMINATION ZEE
- 24 or 22 gauge Steel
- Painted or Galvalume Finish
- 10'-2" length



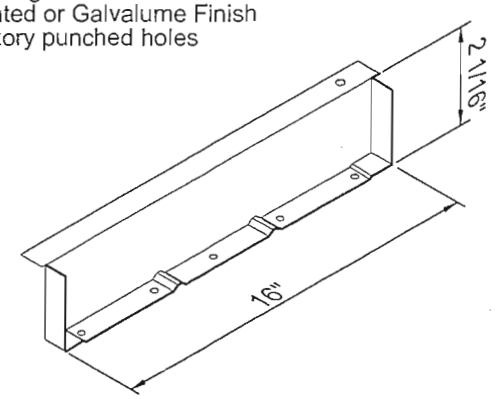
Part No. TZ102 (Specify gauge & finish)
Weight - 3.72 (24 gauge)
Weight - 4.65 (22 gauge)

216 ROOF PANEL (16" wide panel)
- 22 or 24 gauge Steel
- Painted or Galvalume Finish
- Flat, striated or beaded pan
- Factory notched for endlap
- Factory punched holes
- Factory swage (optional)



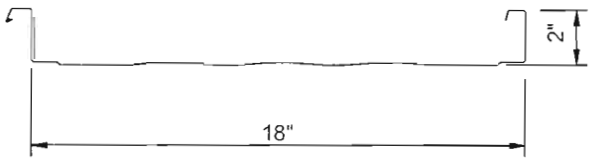
Part No. PC-216
(Specify gauge, finish, pan pattern & length)

END DAM (for 16" wide panel)
- 24 gauge steel
- Painted or Galvalume Finish
- Factory punched holes



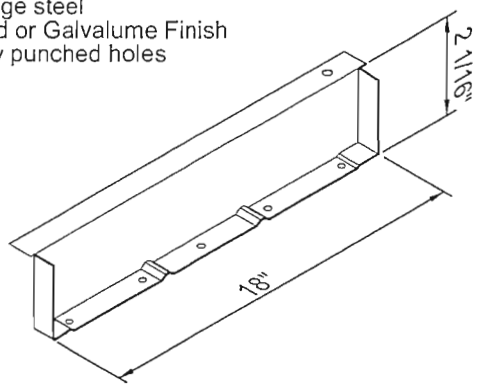
Part No. FED216 (Specify finish)
Weight - 0.56

218 ROOF PANEL (18" wide panel)
- 22 or 24 gauge Steel
- Painted or Galvalume Finish
- Flat, striated or beaded pan
- Factory notched for endlap
- Factory punched holes
- Factory swage (optional)



Part No. PC-218
(Specify gauge, finish, pan pattern & length)

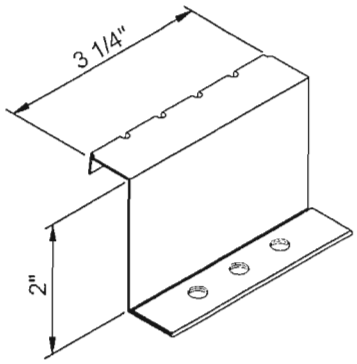
END DAM (for 18" wide panel)
- 24 gauge steel
- Painted or Galvalume Finish
- Factory punched holes



Part No. FED218 (Specify finish)
Weight - 0.62

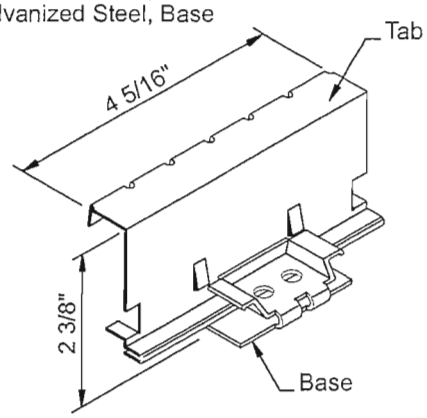
8.0 STANDARD PARTS

FIXED CLIP (for 0" stand-off)
- 22 ga. Galvanized Steel



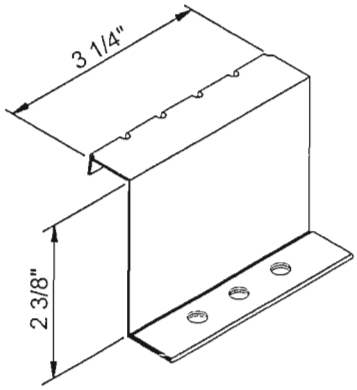
Part No. FC 10200
Weight - 0.13

FLOATING CLIP (for 3/8" stand-off)
- 22 ga. Galvanized Steel, Tab
- 16 ga. Galvanized Steel, Base



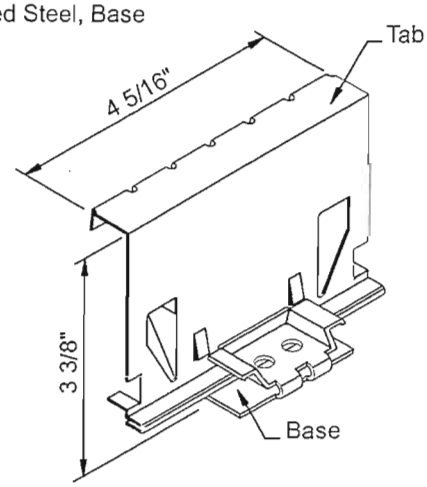
Part No. MC 1203
Weight - 0.25

FIXED CLIP (for 3/8" stand-off)
- 22 ga. Galvanized Steel



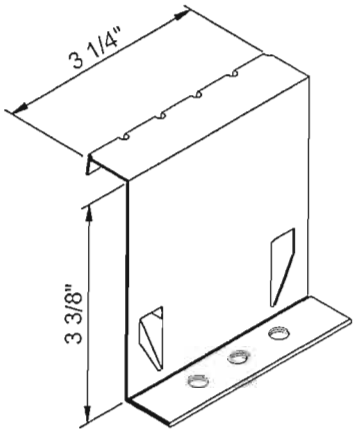
Part No. FC 10203
Weight - 0.14

FLOATING CLIP (for 1 3/8" stand-off)
- 22 ga. Galvanized Steel, Tab
- 16 ga. Galvanized Steel, Base



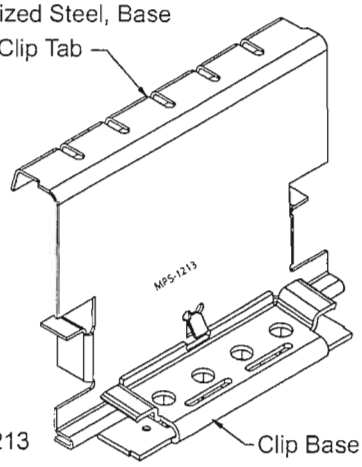
Part No. MC 1213
Weight - 0.28

FIXED CLIP (for 1 3/8" stand-off)
- 20 ga. Galvanized Steel



Part No. FC 10213
Weight - 0.17

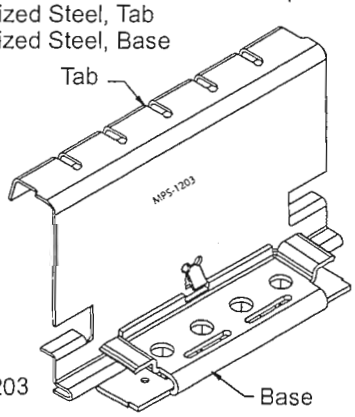
PURLIN STABILIZING FLOATING CLIP (for 1 3/8" stand-off)
- 20 ga. Galvanized Steel, Tab
- 16 ga. Galvanized Steel, Base



Part No. MPS 1213
Weight - 0.34

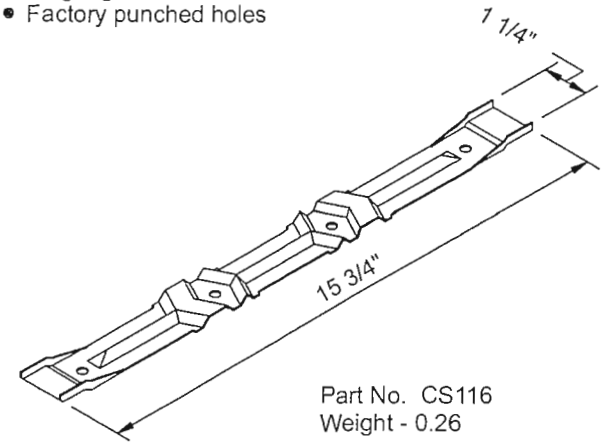
8.0 STANDARD PARTS

PURLIN STABILIZING FLOATING CLIP (for 3/8" stand-off)
- 20 ga. Galvanized Steel, Tab
- 16 ga. Galvanized Steel, Base



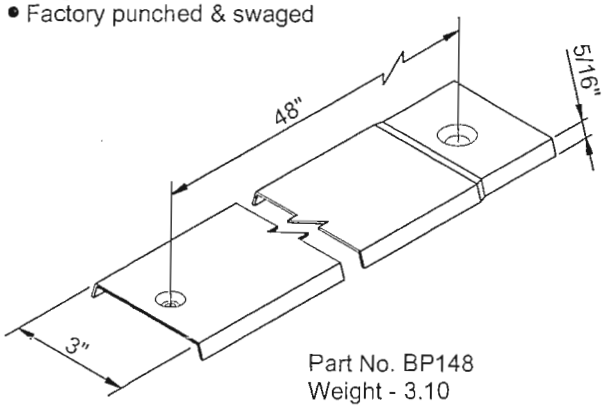
Part No. MPS 1203
Weight - 0.30

ENDLAP CINCH STRAP (for 16" wide panel)
- 18 gauge Stainless Steel
- Factory punched holes



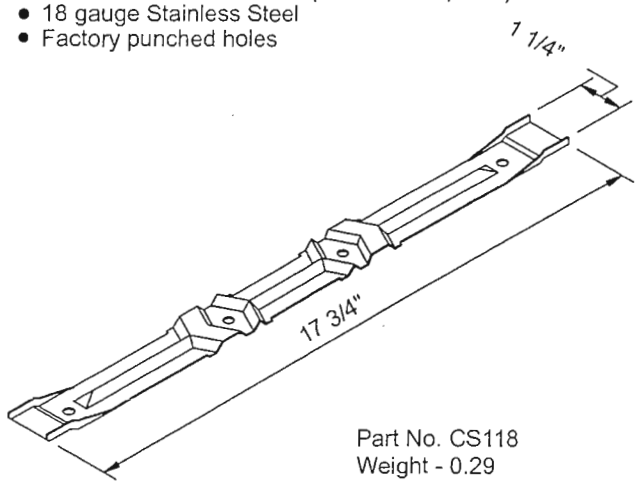
Part No. CS116
Weight - 0.26

ENDLAP BACK-UP CHANNEL
(for 48" wide insulation)
- 16 ga. Galvanized Steel
- Factory punched & swaged



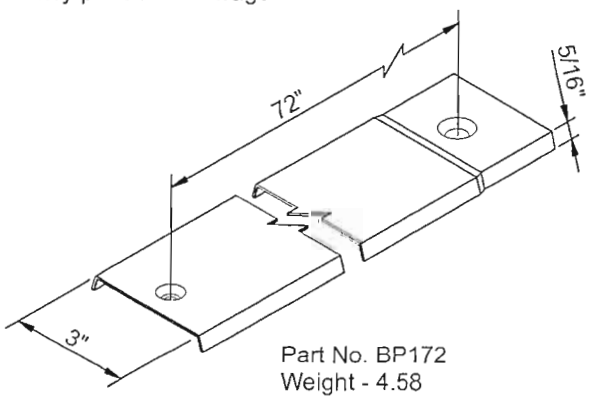
Part No. BP148
Weight - 3.10

ENDLAP CINCH STRAP (for 18" wide panel)
- 18 gauge Stainless Steel
- Factory punched holes



Part No. CS118
Weight - 0.29

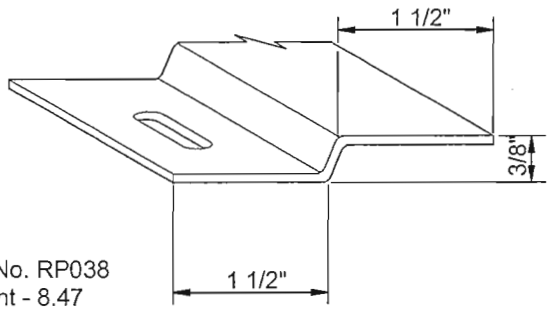
ENDLAP BACK-UP CHANNEL
(for 72" wide insulation)
- 16 ga. Galvanized Steel
- Factory punched & swaged



Part No. BP172
Weight - 4.58

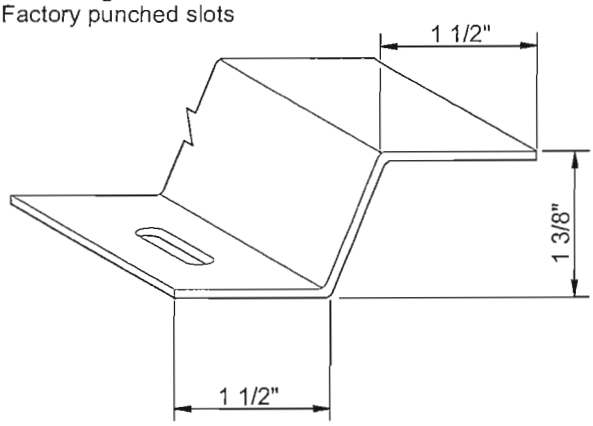
8.0 STANDARD PARTS

FLOATING PERIMETER PLATE (for 3/8" stand-off)
- 16 gauge, Galvanized Steel
- 10'-0" length
- Factory punched slots



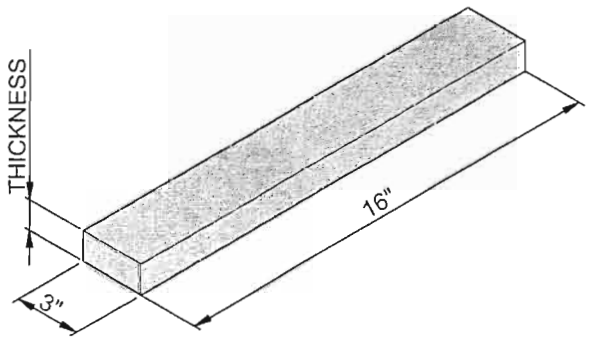
Part No. RP038
Weight - 8.47

FLOATING PERIMETER PLATE (for 1 3/8" stand-off)
- 16 gauge, Galvanized Steel
- 10'-0" length
- Factory punched slots



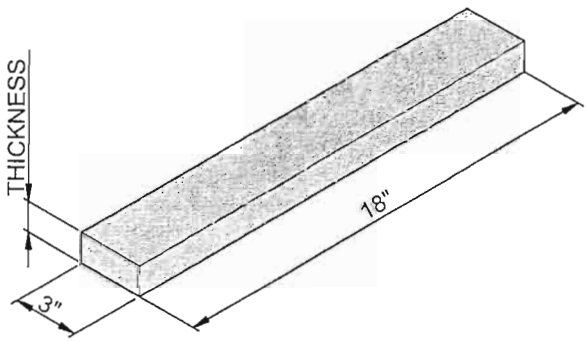
Part No. RP138

SPACER BLOCK (for 16" wide panel)
- Extruded Polystyrene Foam
- 3/8", 5/8", or 1" Thickness



Part No. SB316 (Specify thickness)

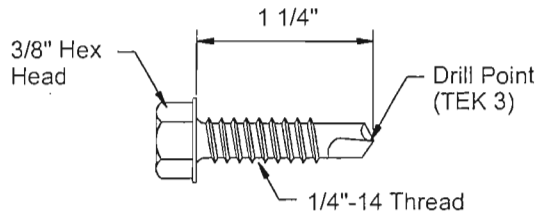
SPACER BLOCK (for 18" wide panel)
- Extruded Polystyrene Foam
- 3/8", 5/8", or 1" Thickness



Part No. SB318 (Specify thickness)

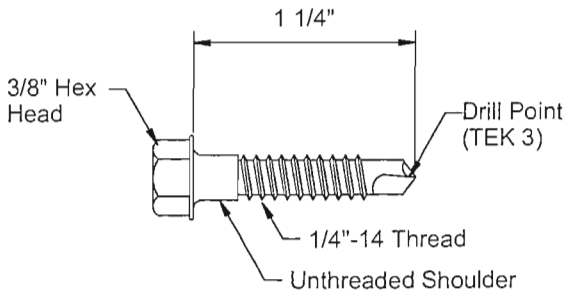
8.0 STANDARD PARTS

CLIP FASTENER
(for panel clip & eave plate attachment to steel purlins)
- 1/4"-14 x 1 1/4", hex head, Self Drilling Screw
- Corrosion resistant plating



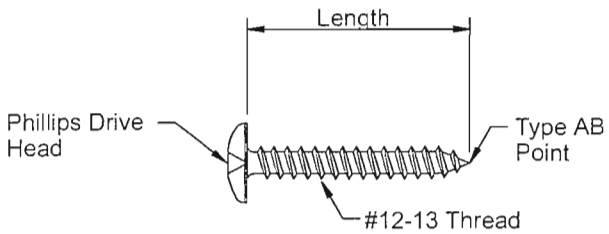
Part No. CF1

SHOULDER FASTENER
(for floating rake plate attachment to steel purlins)
- 1/4"-14 x1 1/4", hex head, Self Drilling Screw
- Shoulder feature
- Corrosion resistant plating



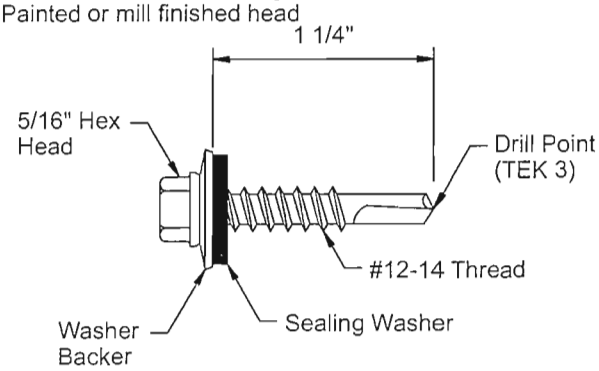
Part No. SF1

CLIP FASTENER
(for panel clip attachment to metal decking)
- #12-13, Phillips drive, Truss Head Screw
- Corrosion resistant coating



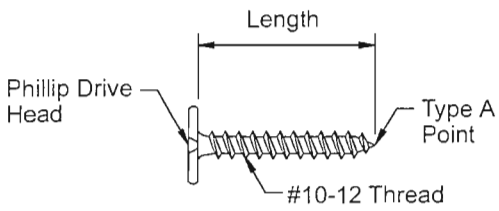
Part No. CF2 (Specify length)

ROOF FASTENER
(for panel edge and endlap attachment)
- #12-14 x 1 1/4", hex head, Self Drilling Screw
- EPDM Sealing Washer
- Corrosion resistant coating or alloy head
- Painted or mill finished head



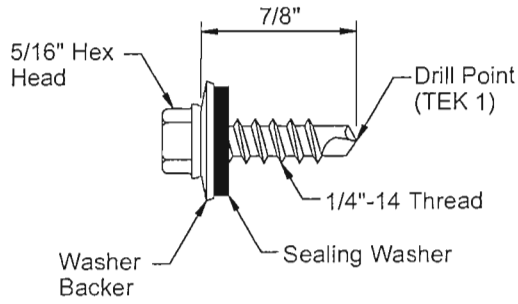
Part No. RF2 (Specify finish)

CLIP FASTENER
(for panel clip attachment to wood decking)
- #10-12, Phillips drive, Pan Head Screw
- Corrosion resistant coating



Part No. CF3 (Specify length)

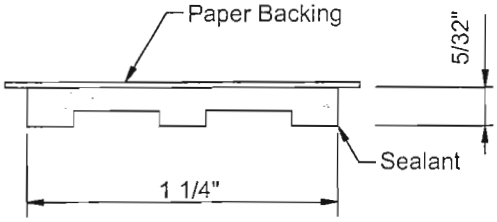
LAP FASTENER
(for flashing attachment)
- 1/4"-14 x 7/8", Self Drilling Screw
- EPDM Sealing Washer
- Corrosion resistant coating or alloy head
- Painted or mill finished head



Part No. RF3 (Specify finish)

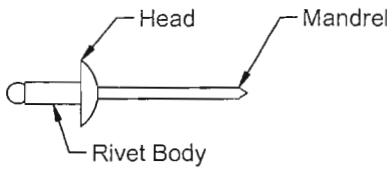
8.0 STANDARD PARTS

ENDLAP SEALANT (for roof panel endlaps)
- 5/32" x 1 1/4" triple bead Butyl Tape Sealant
-



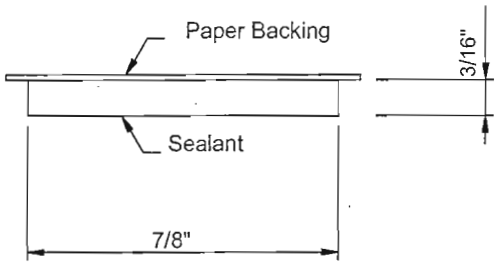
Part No. RS1

BLIND RIVET (for flashing joints)
- Stainless steel
- 1/8" dia. x 3/16" length



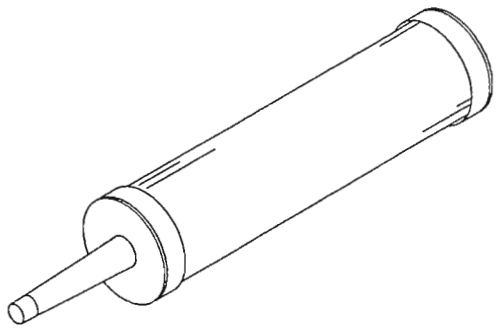
Part No. RF4

FLASHING SEALANT (for flashing laps & joints)
- 3/16" x 7/8" Butyl Tape Sealant



Part No. RS2

TUBE SEALANT
- Urethane Gun Grade Sealant
- Color-brown, white, or grey
- 1/10 Gal. Tubes



Part No. TS3 (Specify color)

9.0 ROOF INSTALLATION DETAILS

9.1 GENERAL

The following details provide graphic illustration of the roof assembly steps. The purpose is to instruct the erection crew in correct and efficient assembly of the roof system.

Because of the many variations in conditions, it is important that you review the job to identify and isolate the specific installation details required for your job.

Review the erection drawings for differences with these details. If differences exist, the erection drawings have precedence.

These details are arranged in a step-by-step sequence. Following this sequence ensures correct assembly and ensures that the part to be worked on will be readily accessible for the next assembly step.

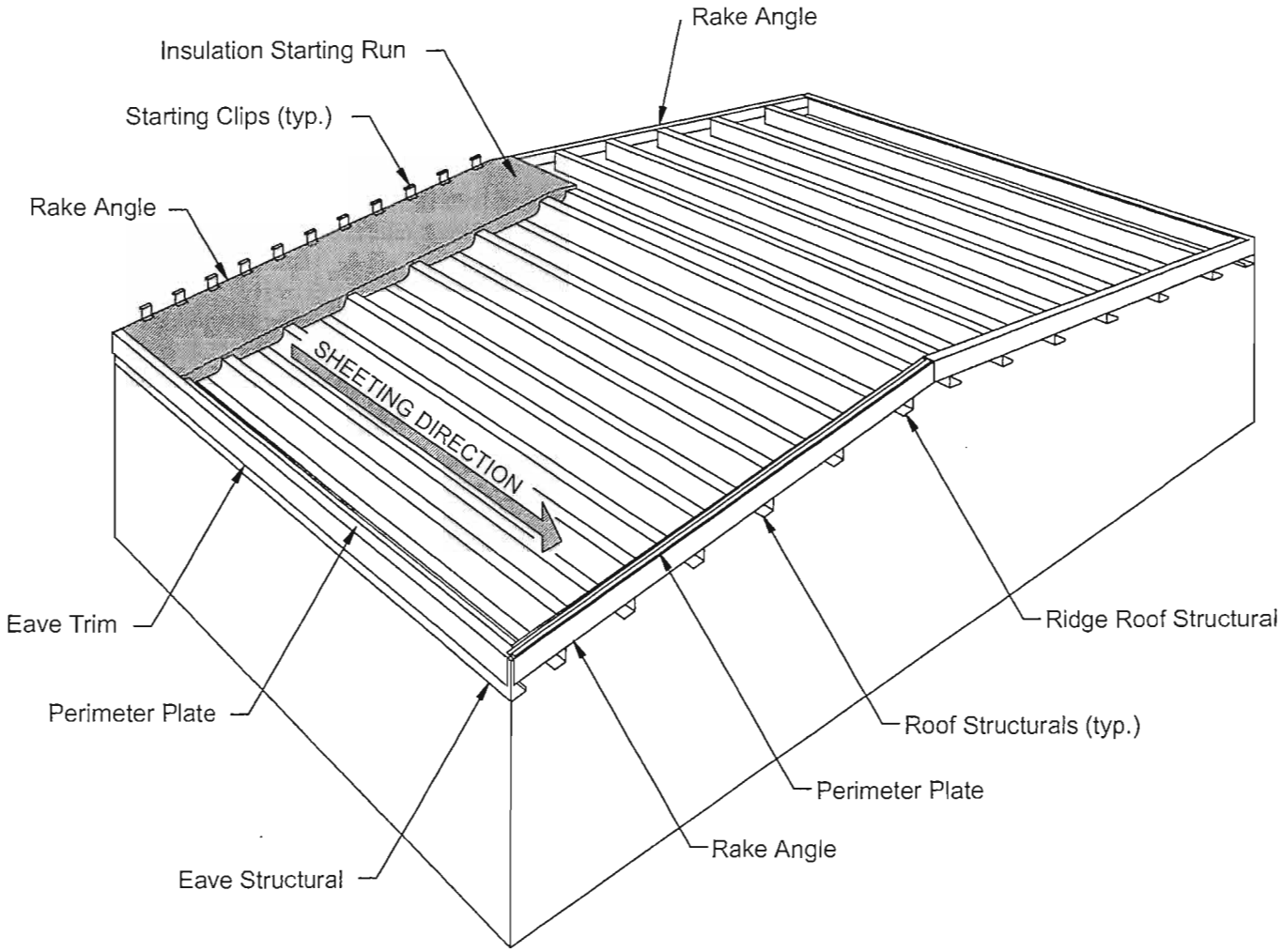
Do not shortcut these assembly steps without careful consideration of the possibility of incorrect or omitted assembly and the resulting corrective rework.

To minimize confusion, the details are always oriented so that the view is from eave to ridge, with the starting rake at the left and finish rake at the right. Refer to the erection drawings to determine the required sheeting direction and rake conditions.

To help ensure weathertightness, the details emphasize proper fit-up, sealing and fastening. It is most important that only the specified sealants and fasteners be used for each condition and that they be installed correctly as shown on these details and the erection drawings.

Be sure that these critical instructions are reviewed often and the roof assembly is checked at each assembly step.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION

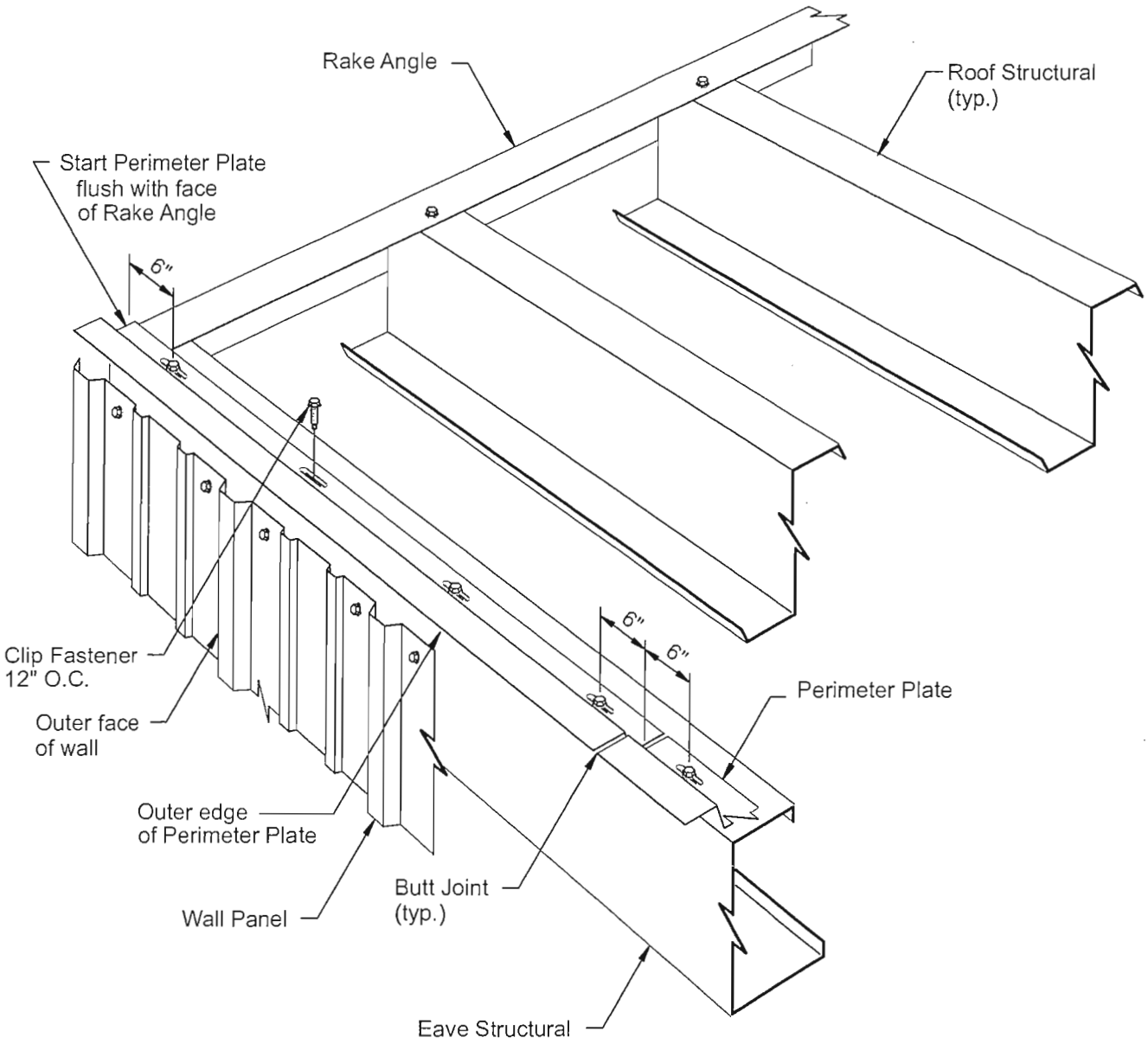


The details in this section will show installation of the eave perimeter plate, rake perimeter plate, start clips, eave trim, eave sealant and the first run of insulation. These are parts that must be installed before the roof panel installation can begin.

This view shows the roof system oriented for a left-to-right sheeting direction. For right-to-left sheeting, reverse the parts orientation.

On this view, the starting rake is shown with starting clips (for a starting panel) and the finish rake is shown with a rake perimeter plate (for a termination panel). Some buildings may require a rake perimeter plate at the starting rake. Refer to the erection drawings for the required rake conditions.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION



The eave perimeter plate provides a solid attachment surface for the eave end of the roof panel and raises the roof panel to match the panel clip's stand-off height.

The eave perimeter plate must be installed before the roof insulation is installed.

Before installing the eave perimeter plate, check that the eave structural members are in straight alignment from rake to rake. Shim the eave perimeter plate as necessary to provide a level roof line.

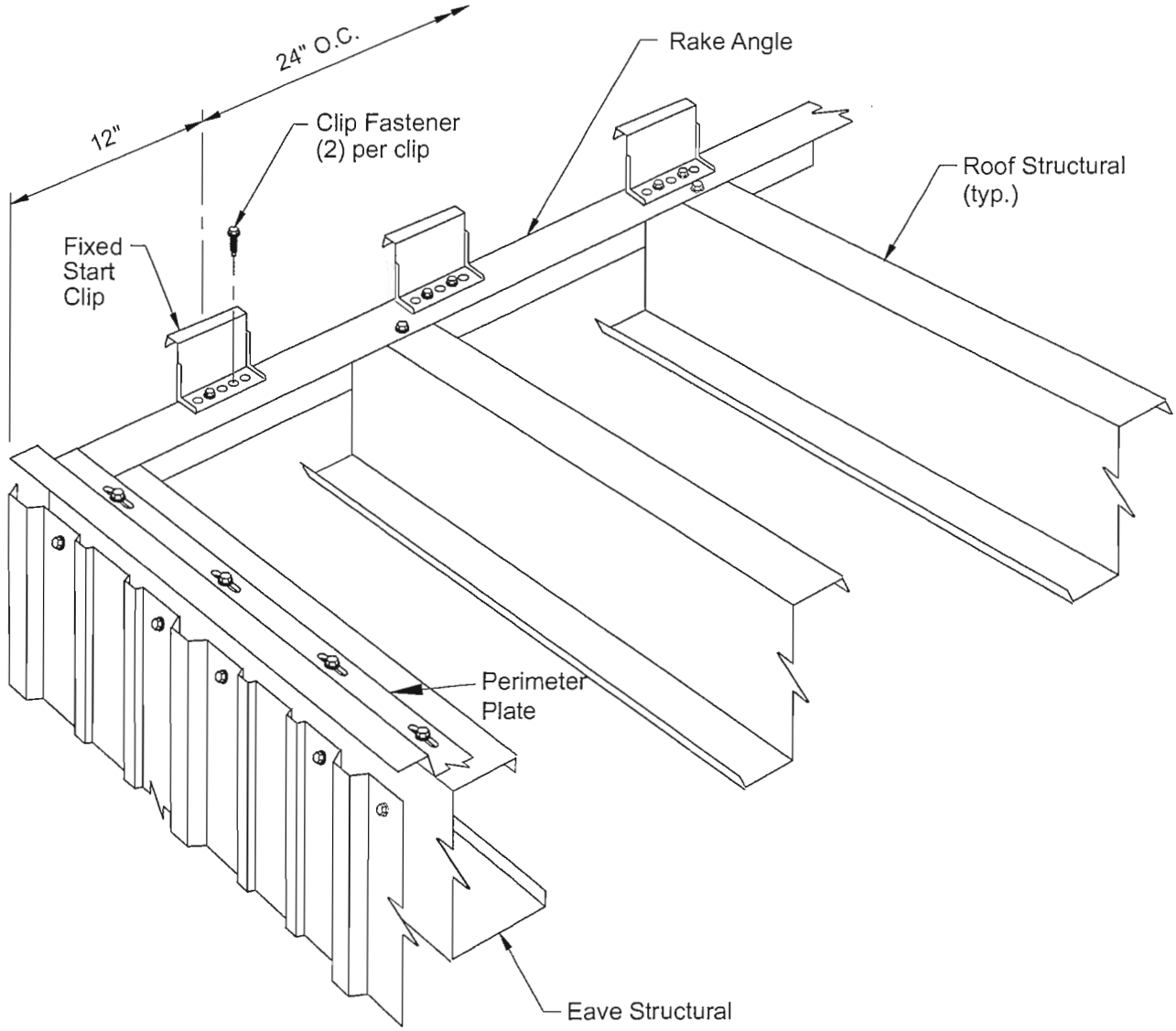
Install the starting and finish ends of the eave perimeter plates flush with outer face of rake angle.

Align the outer edge of the eave perimeter plate flush with the outside face of the wall panel.

Tightly butt join the eave perimeter plates and fasten to the eave structural as shown.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION

NOTE
Refer to erection drawings for structural fastener type and quantity



The appropriate height fixed clips are used as start clips.

Refer to the erection drawings and the structural layout (as described in Section 6.2) to determine the start dimension.

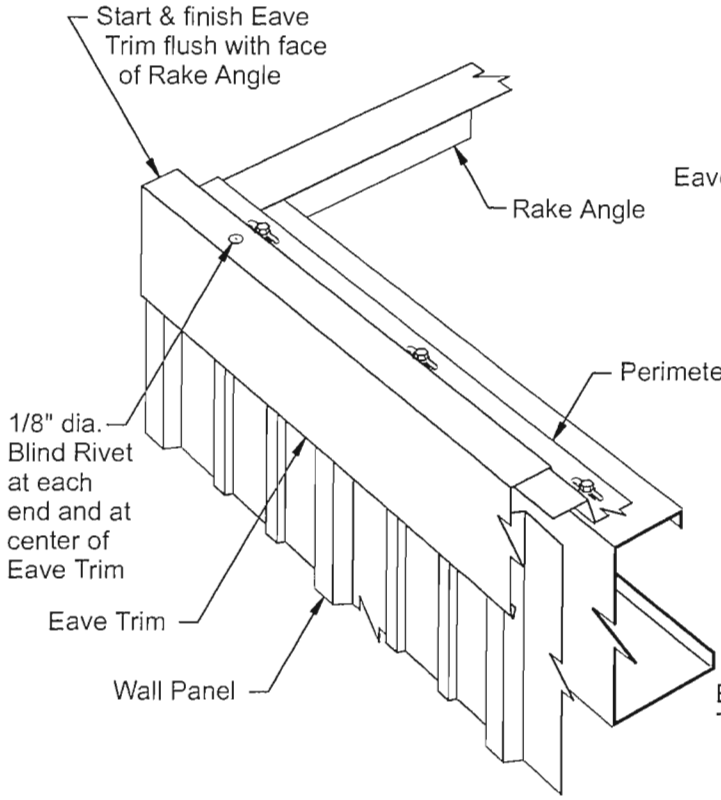
The position of the start clips establishes the starting roof panel alignment. It is very important that the start clips are installed in a straight line, parallel to the rake line.

If the rake angles have been installed true and square, the edge of the rake angle can be used to align the start clips.

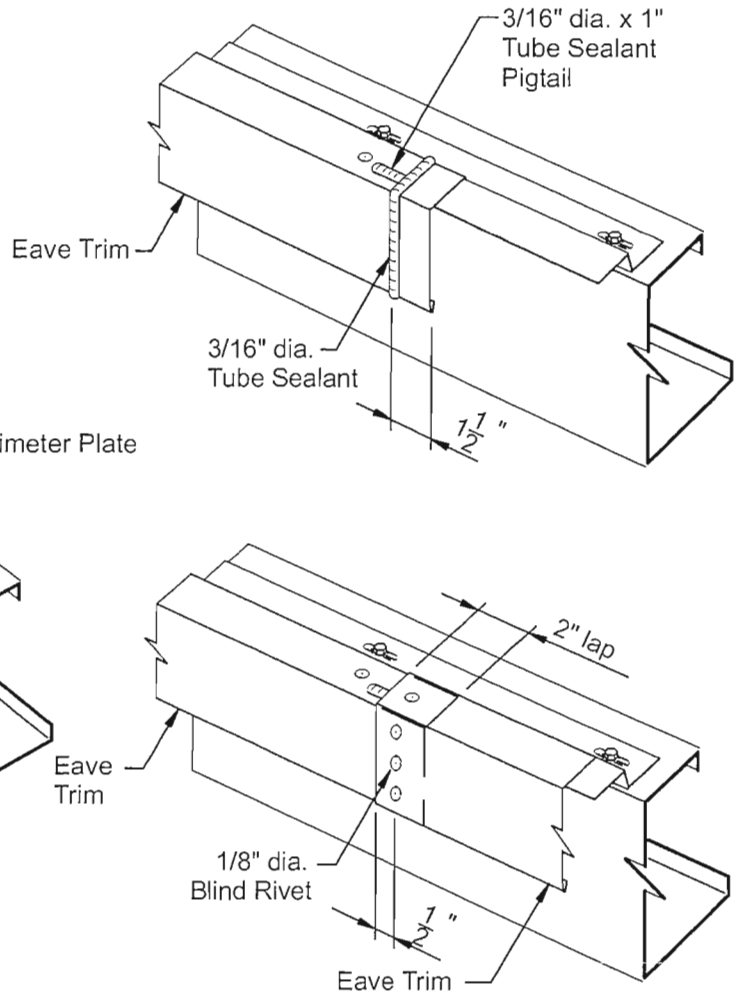
If the rake angle is not true and square, a chalk line should be used to guide the installation of the start clips.

Locate the start clips at the spacing shown and fasten to the rake angle as shown.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION



Starting Eave Trim



Eave Trim Splice

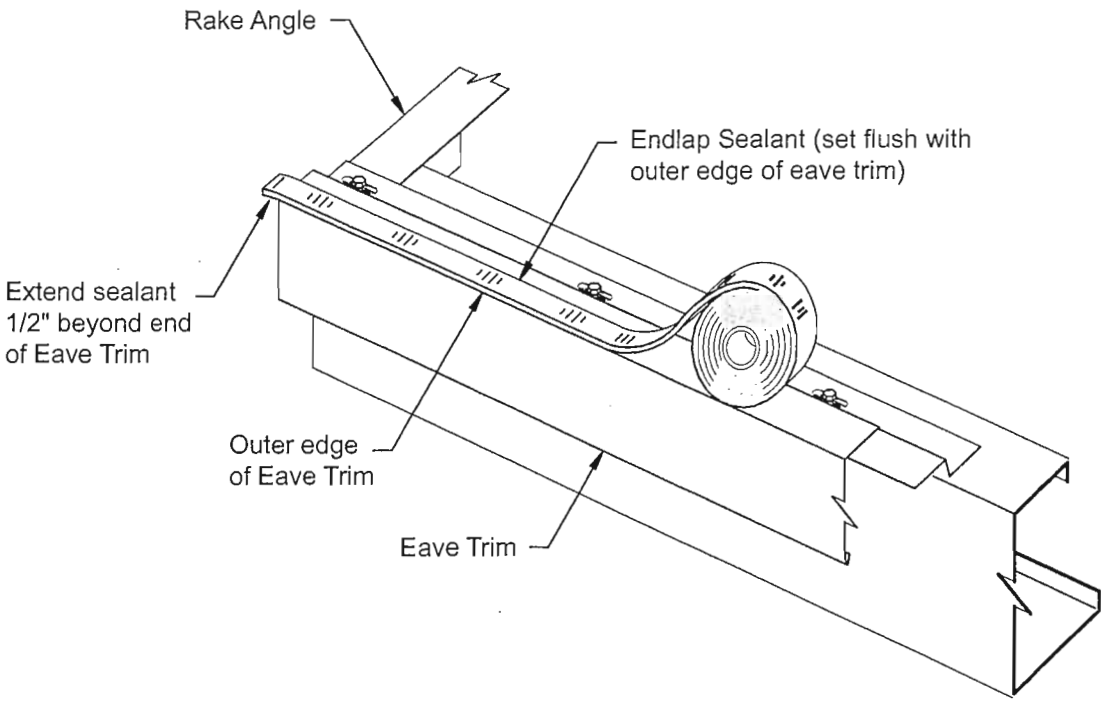
Set the eave trim over the eave perimeter plate as shown and align the face of the eave trim with the face of the wall panel.

Install the starting and finish ends of the eave trim flush with the ends of the eave perimeter plate.

The eave trim provides a water seal between the roof panel and the wall panels. All laps of the eave trim must be sealed with tube sealant and rivets as shown to minimize water entry.

Fasten each piece of eave trim to the eave plate with three blind rivets. The rivets will hold the trim in position until the roof panels are installed and fastened.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION



Apply a continuous strip of endlap sealant along the top edge of the eave trim.

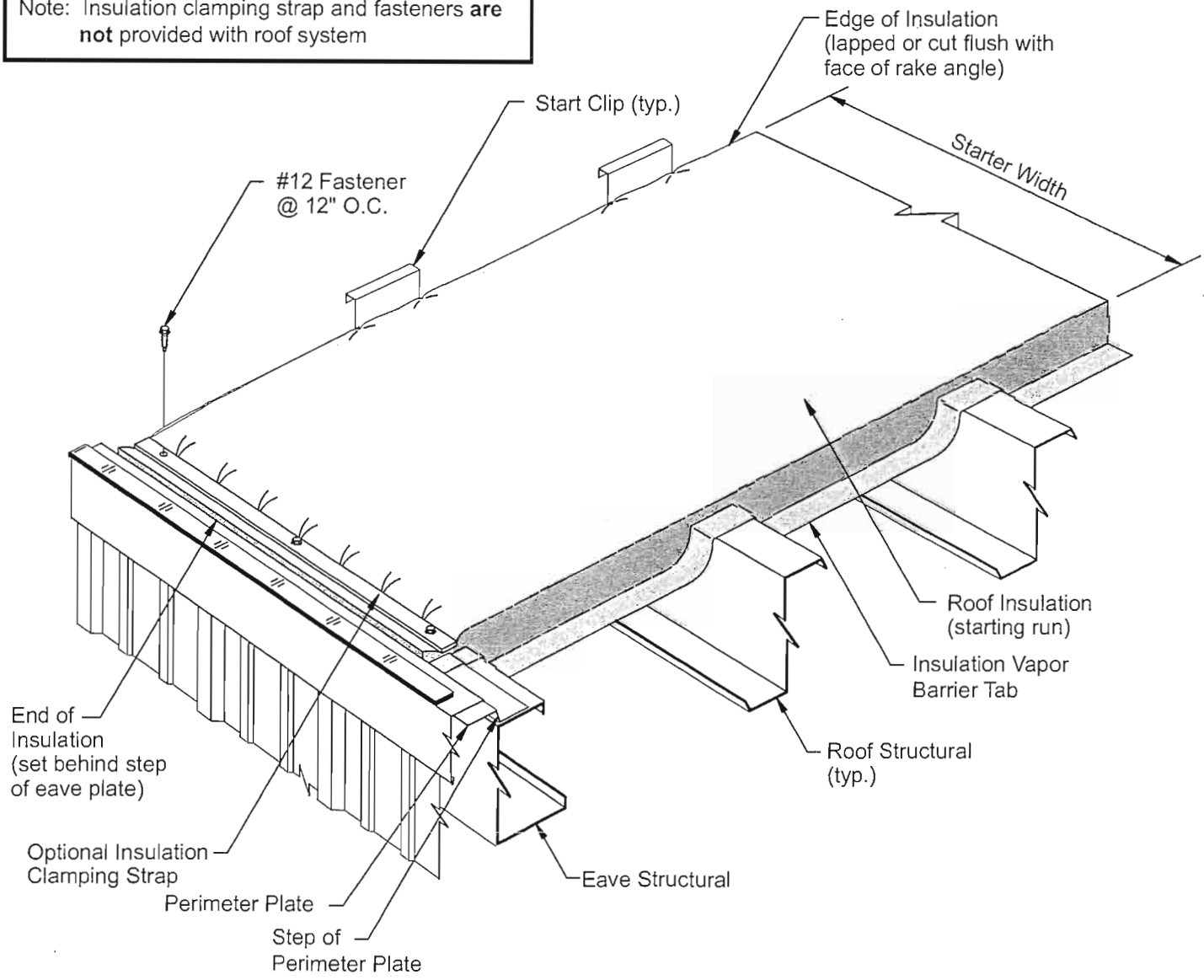
Align the outer edge of the sealant flush with the outer edge of the eave trim.

Do not remove the paper backing from the sealant at this time.

Until the roof panels are installed, the eave sealant is vulnerable to damage from foot traffic or dragging material over the eave. Do not step on or otherwise damage the sealant.

9.2 PREPARATION FOR ROOF PANEL INSTALLATION

Note: Insulation clamping strap and fasteners **are not** provided with roof system



Refer to the erection drawings to determine the specific insulation required for the project. In all cases refer to the insulation manufacturer's instructions for proper insulation installation and vapor seal assembly. This detail shows fiberglass blanket insulation, which is the most commonly used insulation for metal standing seam roofs.

The leading edge of each insulation run should extend approx. 12" beyond the leading edge of the roof panel. This will allow for easy assembly of the vapor barrier seal between insulation runs.

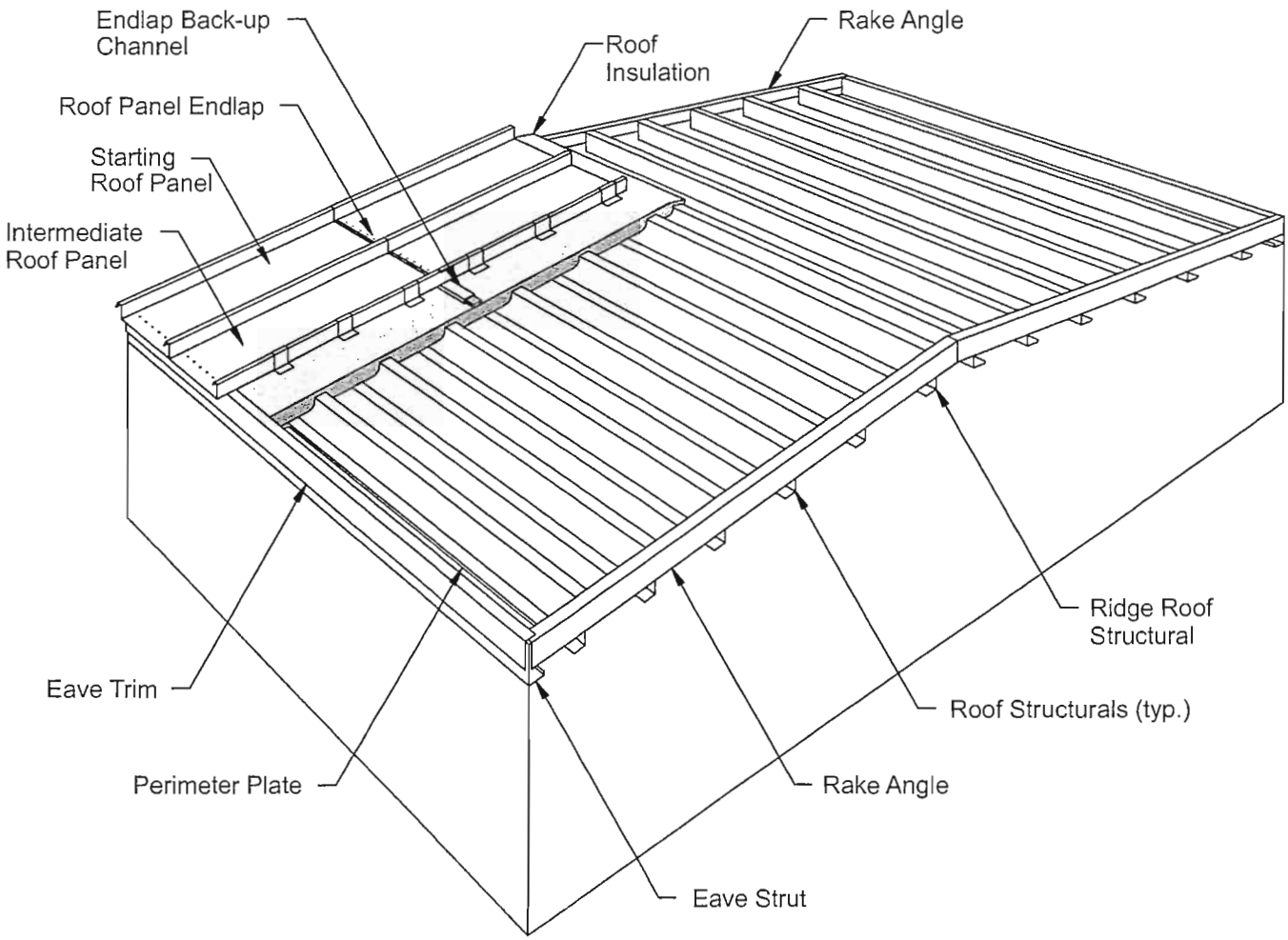
With four foot or six foot wide insulation, the first run should be installed to only cover three feet or five feet respectively.

The extra foot of width can be cut or lapped over the rake.

Use double-faced tape along the backside of the eave strut and along the rake angle to hold the insulation in place until the roof panel is installed.

In **high wind areas** or when using **high stand-off clips**, use metal insulation retainer straps to secure the insulation to the low flange of the eave perimeter plate. In all cases, do not extend the end of the insulation onto the high flange of the eave plate.

9.3 ROOF PANEL INSTALLATION

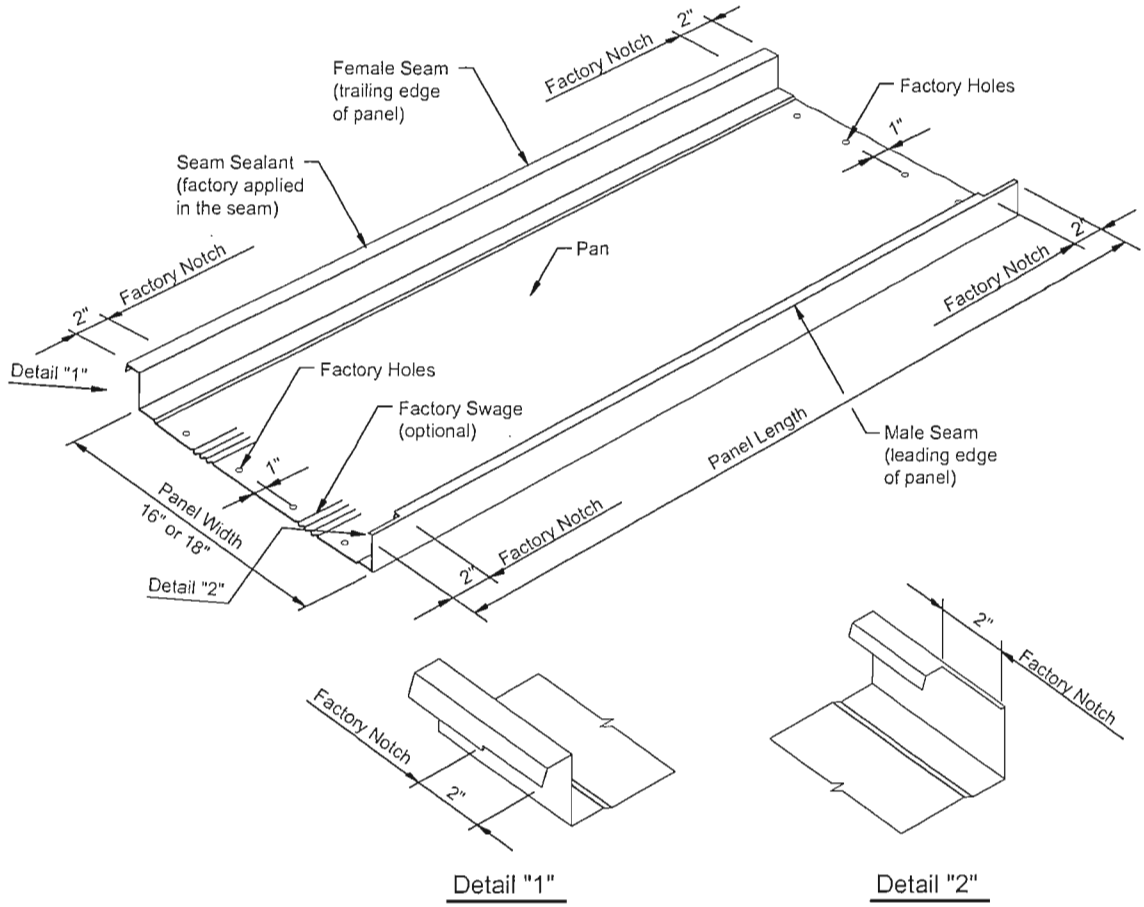


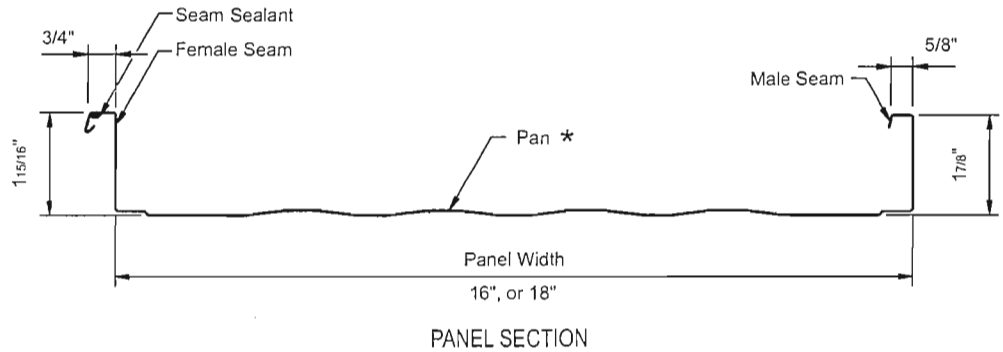
The details in this section show the installation of the starting and intermediate roof panels.

The roof panel endlap details are shown as an intergral part of the roof panel installation. If the project does not require roof panel endlaps, the endlap details are clearly identified and can be disregarded.

The termination roof panels require specific installation and are shown in a later section.

9.3 ROOF PANEL INSTALLATION





PANEL SECTION

Throughout these instructions, the references to the panel will be made using the terms shown on the above illustration.

Roof panels with the optional swage, are to be positioned so the swaged end is downslope. The sheeting direction for swaged panels is from left-to right.

Roof panels without the swage may be sheeted in either direction, (left-to-right) or (right-to-left). Check the erection drawings and job conditions to determine if the roof must be sheeted in a specific direction.

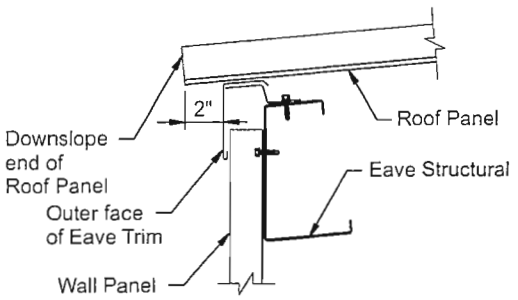
Factory punched holes may not be used at the eave unless there is gutter or eave trim. It is okay to leave them open.

The leading edge of the roof panel is the edge towards the sheeting direction. On the ***"Company Name"*** roof panel, the male seam is the always the leading edge.

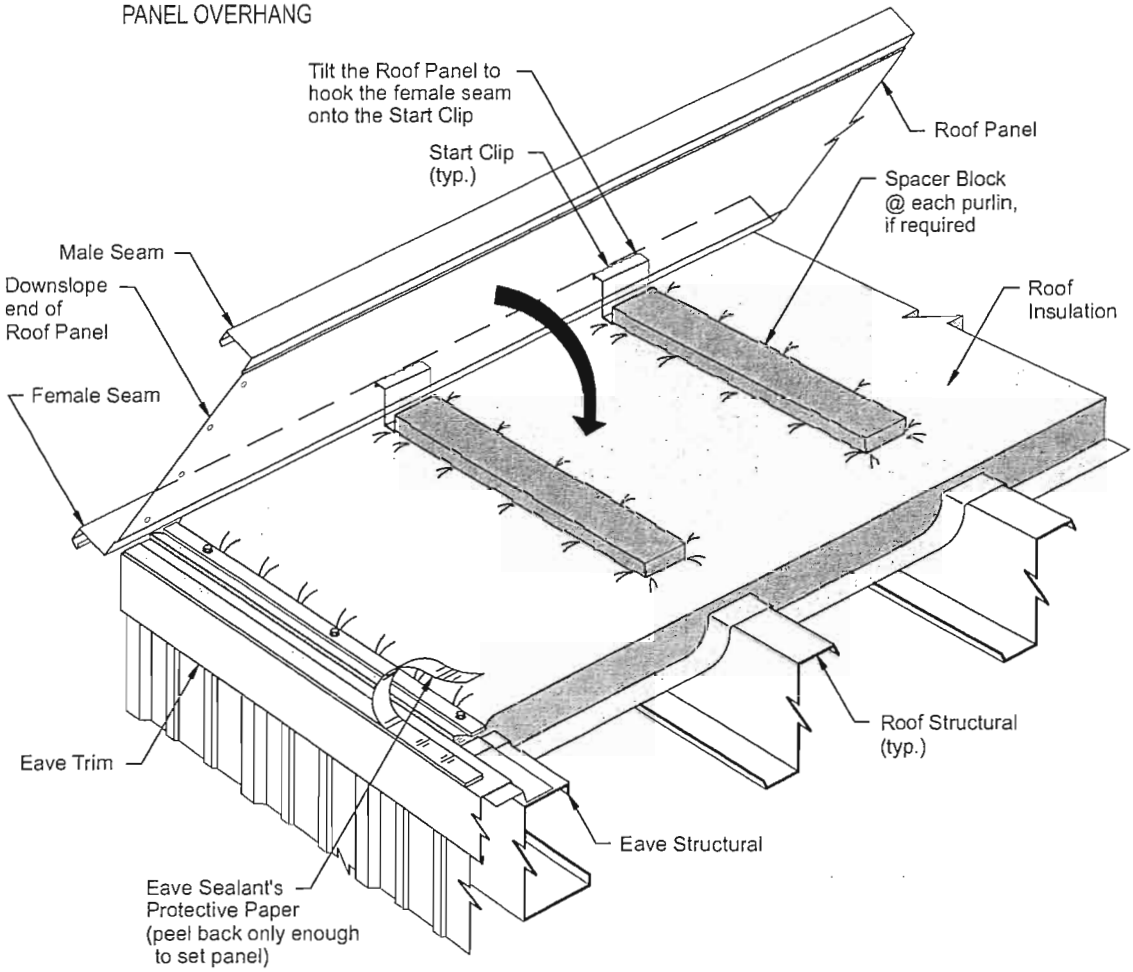
Before loading the panels onto the roof structurals, orient the panels so that the male seam is the leading edge.

* Striations not shown throughout remainder of text for clarity.

9.3 ROOF PANEL INSTALLATION



PANEL OVERHANG



The roof panel's eave overhang dimension is critical as it establishes the location of endlaps and ridge cover attachment points.

The end of the roof panel extends 2" beyond the face of the eave trim unless another dimension is specified on the erection drawings.

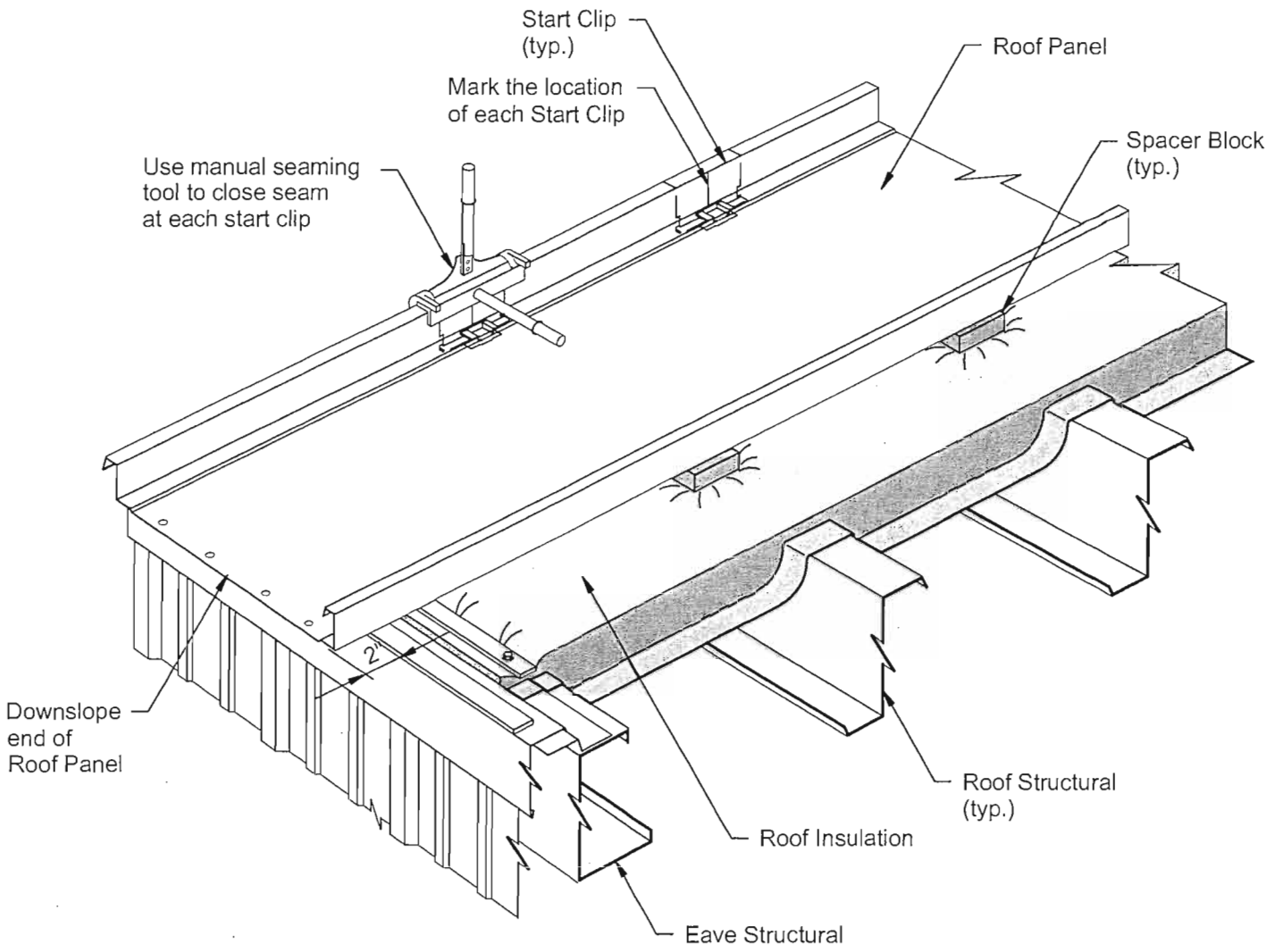
If insulation spacer blocks are required, place the blocks on top of the insulation directly over the roof structurals. Spacer blocks are not required at the eave structural.

Position the female edge of the panel over the start clips and position the end of the panel 2" beyond the face of the eave trim.

Tilt the panel as shown so the female seam can be hooked over the start clips. Check that each clip is hooked inside of the seam.

Do not completly remove the eave sealant's protective paper at this time

9.3 ROOF PANEL INSTALLATION



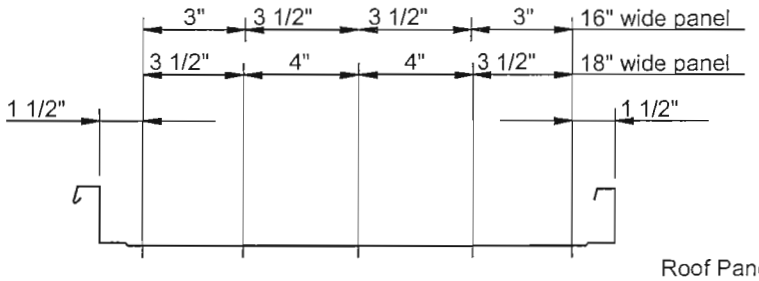
Verify that the roof panel's overhang dimension is correct and verify that the roof panel is aligned parallel to the rake line. Raise the leading corner of the panel and remove the protective paper from the eave sealant.

Rotate the panel down to rest on the spacer blocks or insulation.

Using the manual seaming tool, **close the panel seam over each start clip**. For proper operation of the seaming tool, refer to the Seaming Instructions section.

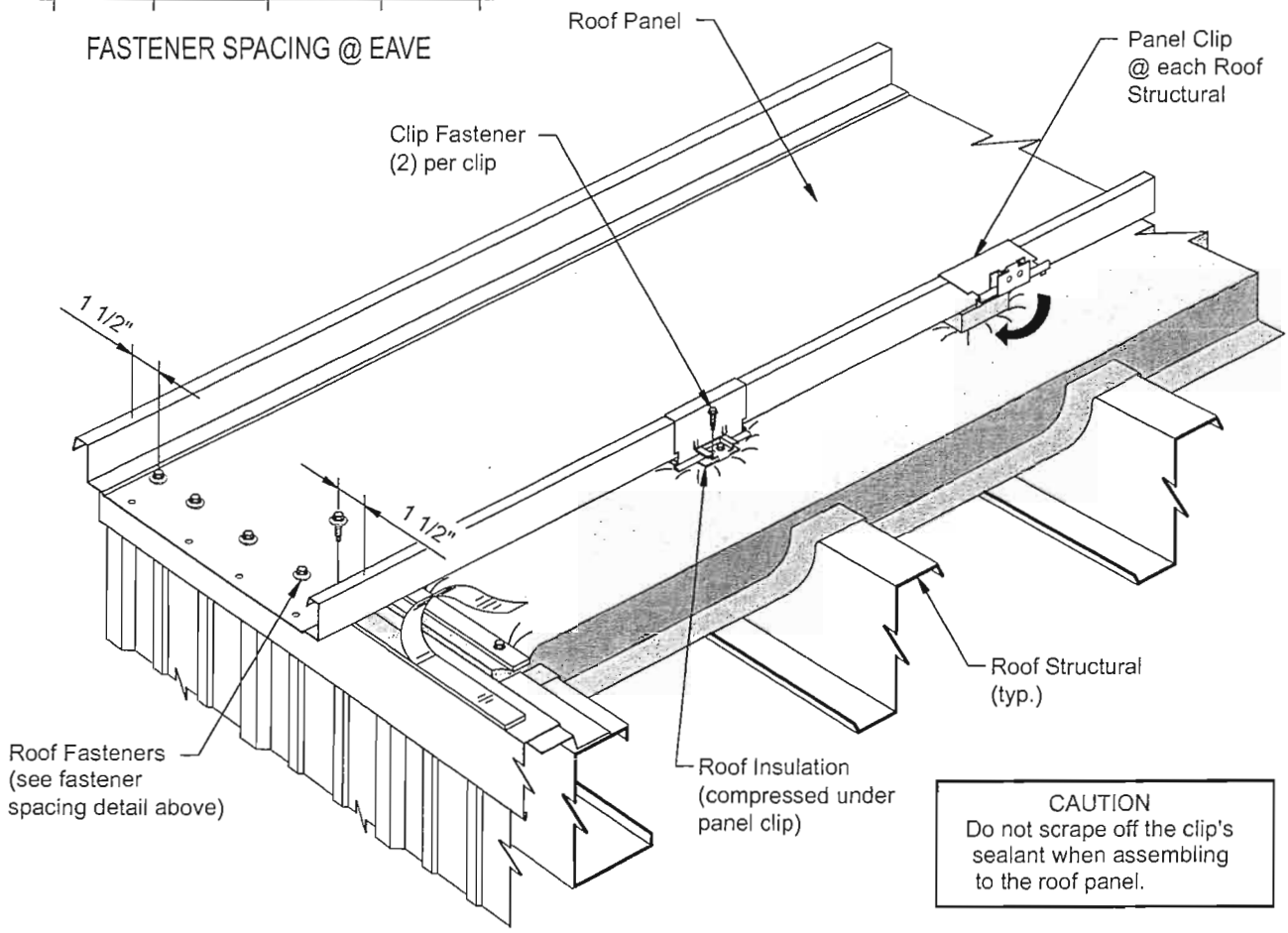
Mark the roof panel's vertical leg at each clip location. This will guide the later installation of the rake trim fasteners to ensure they are not installed through the start clip tabs.

9.3 ROOF PANEL INSTALLATION



FASTENER SPACING @ EAVE

NOTE
Refer to erection drawings for clip fastener type and quantity



CAUTION
Do not scrape off the clip's sealant when assembling to the roof panel.

Before fastening the roof panel to the eave perimeter plate and fastening the leading edge of the panel with the panel clips, check that the panel coverage is correct and the leading edge of the panel is straight and parallel to the rake line.

Fasten the eave end of the panel with roof fasteners spaced as shown on the fastener spacing detail. Position the fasteners to penetrate through the center of the sealant, through the eave trim and into the eave perimeter plate.

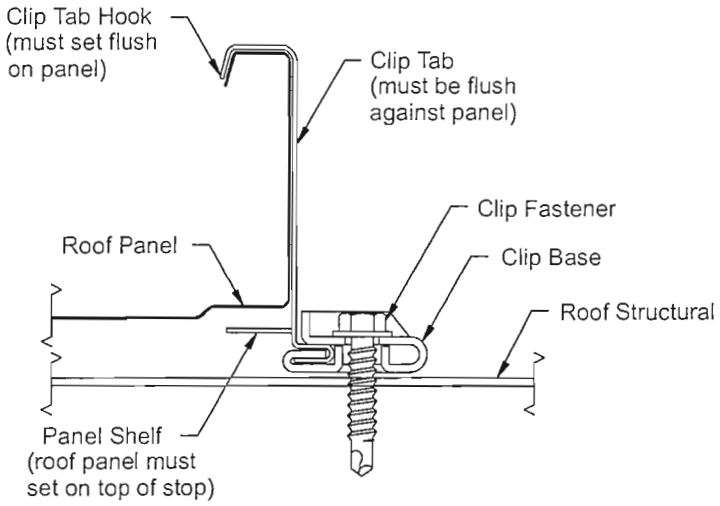
Install roof panel clips to the leading edge of the roof panel at each roof structural. Panel clips are not required at the eave structural.

To install the clips, tilt the clip so that its tab can be hooked over the edge of the roof panel's male seam. Position the clip's base so that the clip fasteners can be installed through the holes in the base and into the roof structural, then rotate the clip down into the vertical position.

When fiberglass roof insulation is used, the panel clips normally set top of the insulation and the insulation is compressed between the clip's base and the top of the roof structural. In all cases, refer to the erection drawings to determine the required insulation assembly and the relationship of the panel clips to the insulation.

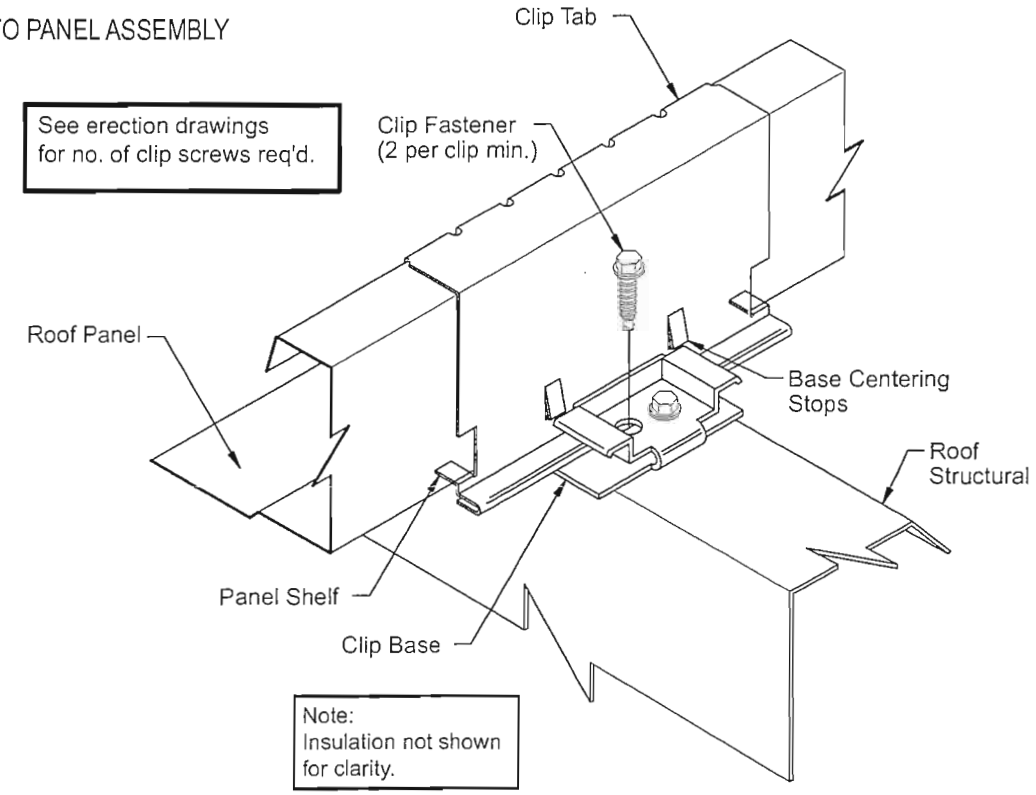
Specific panel clip details are shown on the following page.

9.3 ROOF PANEL INSTALLATION



CAUTION
Failure to fully nest the clip flush against the panel can cause faulty seaming and objectionable seam appearance.

CLIP TO PANEL ASSEMBLY



See erection drawings for no. of clip screws req'd.

Note:
Insulation not shown for clarity.

Panel clips are available as floating clips or fixed clips and are available in different stand-off heights. Refer to the erection drawings to determine the type of clip and quantity of fasteners required for each roof condition.

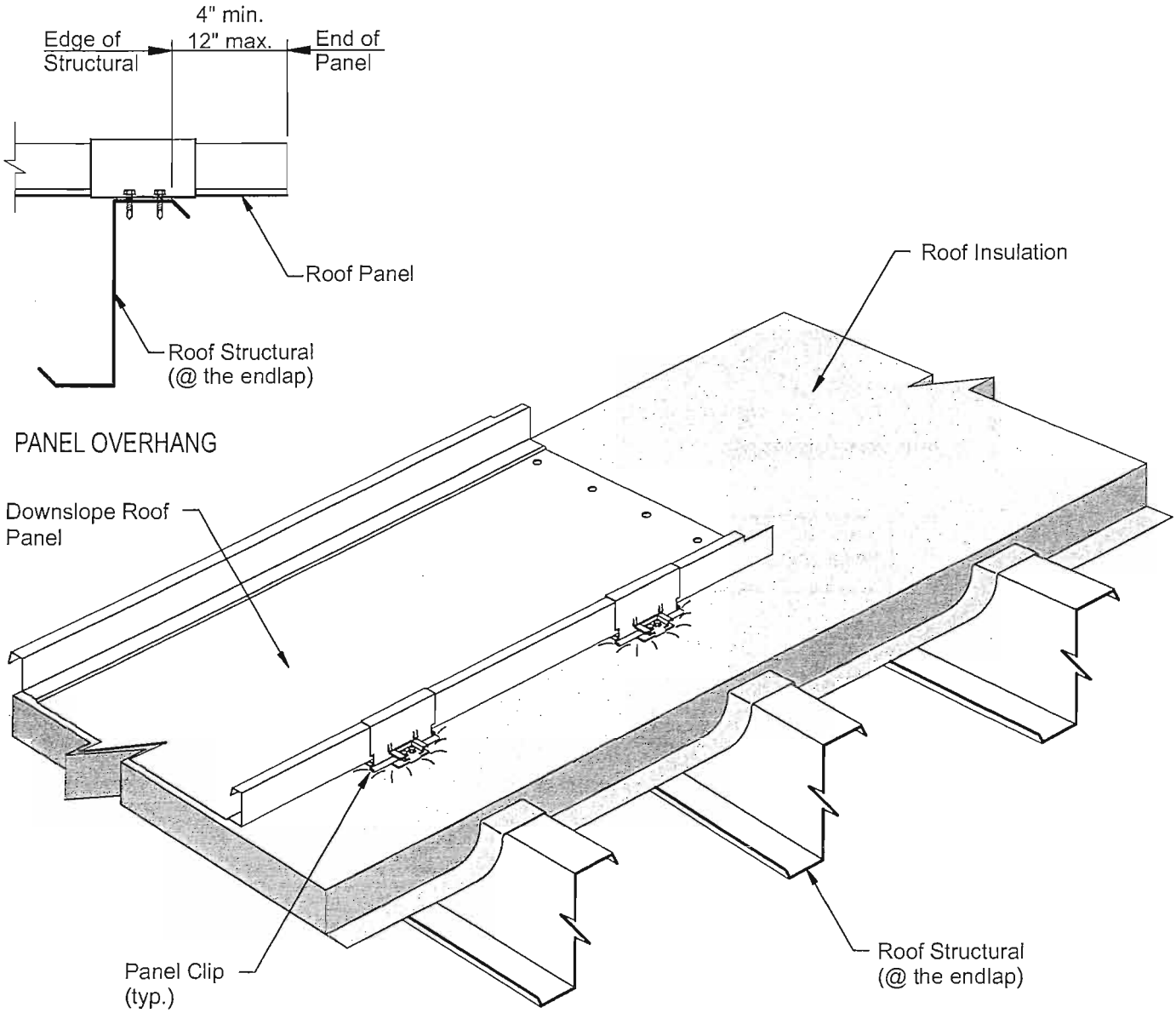
Check that the panel clip's tab is seated tightly around the roof panel's seam.

Check that the clip's base is vertical and that the base is set square and firmly over the roof structural.

Panel clip fastener type and quantity vary according to the roof structural material and roof load requirements. Refer to the erection drawings for the required type and quantity of panel clip fasteners.

Check that the clip fasteners are equally spaced through the clip base holes and are securely engaged into roof structural.

9.3 ROOF PANEL INSTALLATION

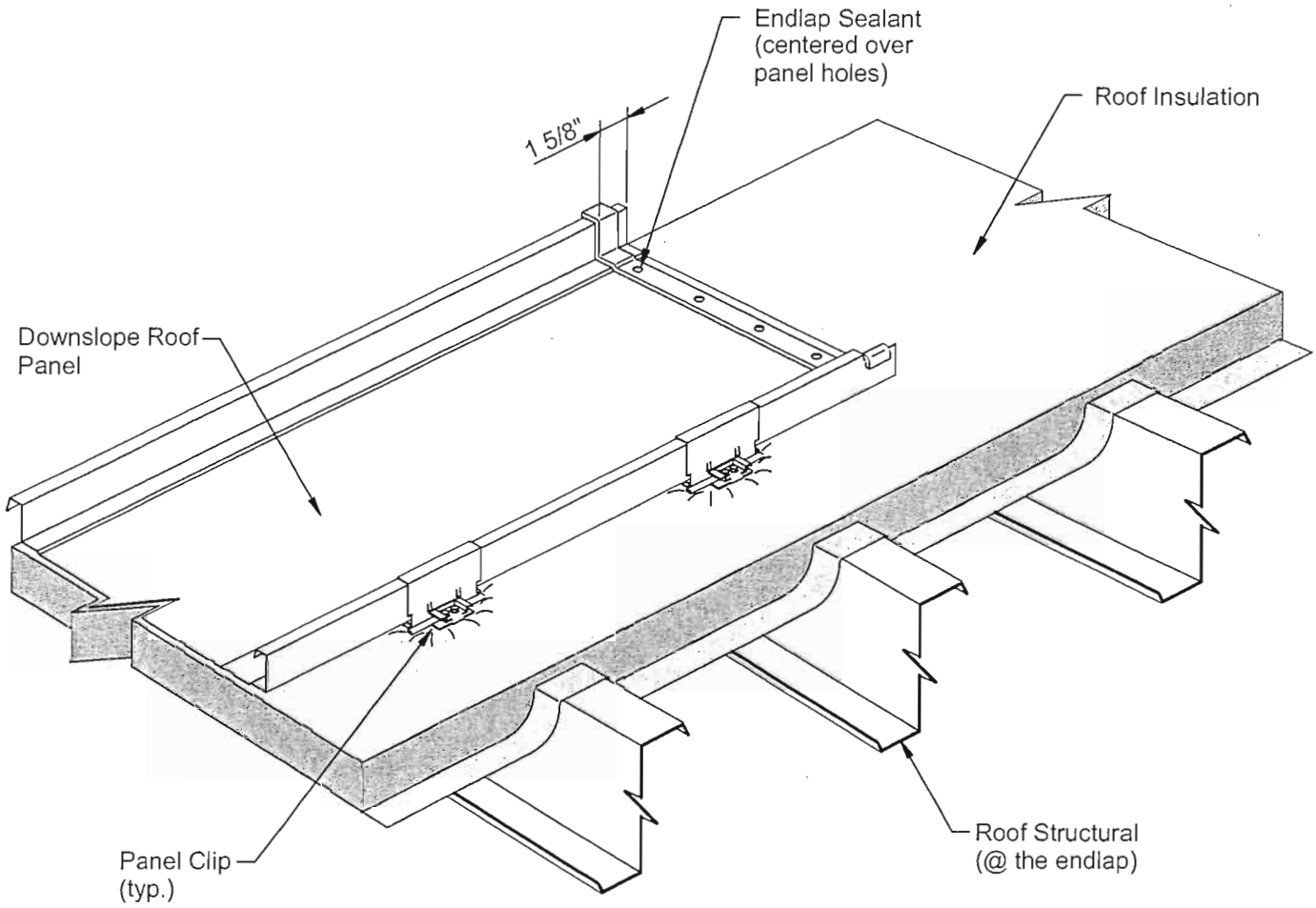


With the eave end of the roof panel attached, measure the panel overhang at the endlap roof structural (see illustration).

The panel should extend **4" to 12"** beyond the up-slope edge of the roof structural.

If the panel overhang is not **within this range**, call ***"Company Name"*** before proceeding with the installation of roof panels. Also reference the erection drawings for prescribed dimensions.

9.3 ROOF PANEL INSTALLATION



The proper placing of the endlap sealant is critical to the weathertightness of the roof endlaps.

Before installing the endlap sealant, the roof panel's surface must be wiped clean and dry.

Position the sealant so that its downslope edge is uniformly 1 5/8" from the end of the panel. If the roof panels have factory punched holes, the sealant must be centered over the holes.

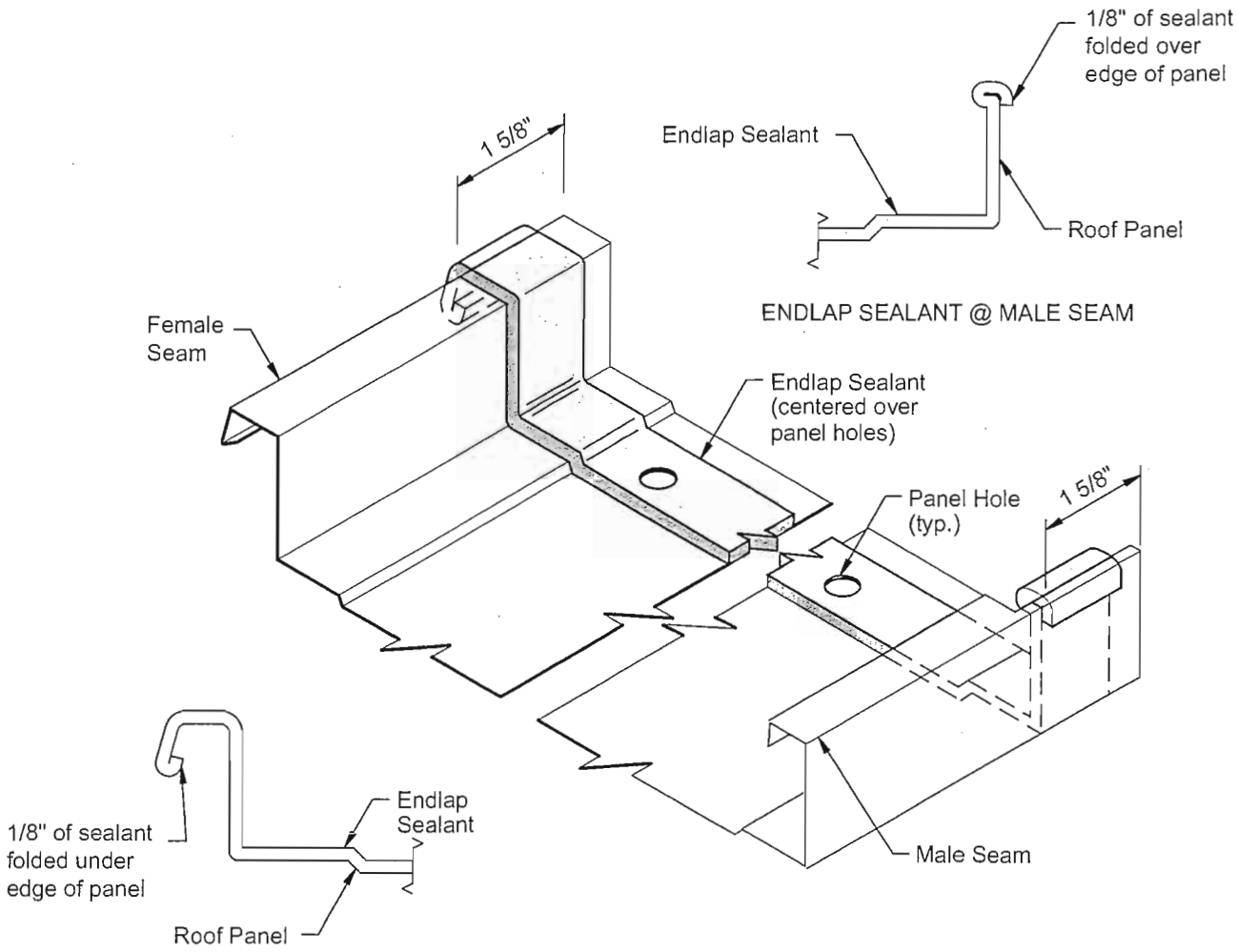
Install a continuous strip of endlap sealant along the end of the roof panel as shown.

Check that the sealant fully contacts the roof panel's surface and that it is completely fitted into the panel corners and around the seams.

The sealant's protective paper helps to retain the sealant's shape during installation and protects the sealant's surface from damage and contamination. Do not remove the protective paper until immediately before the installation of the up-slope roof panel.

Specific endlap sealant details are shown on the following page.

9.3 ROOF PANEL INSTALLATION



ENDLAP SEALANT @ MALE SEAM

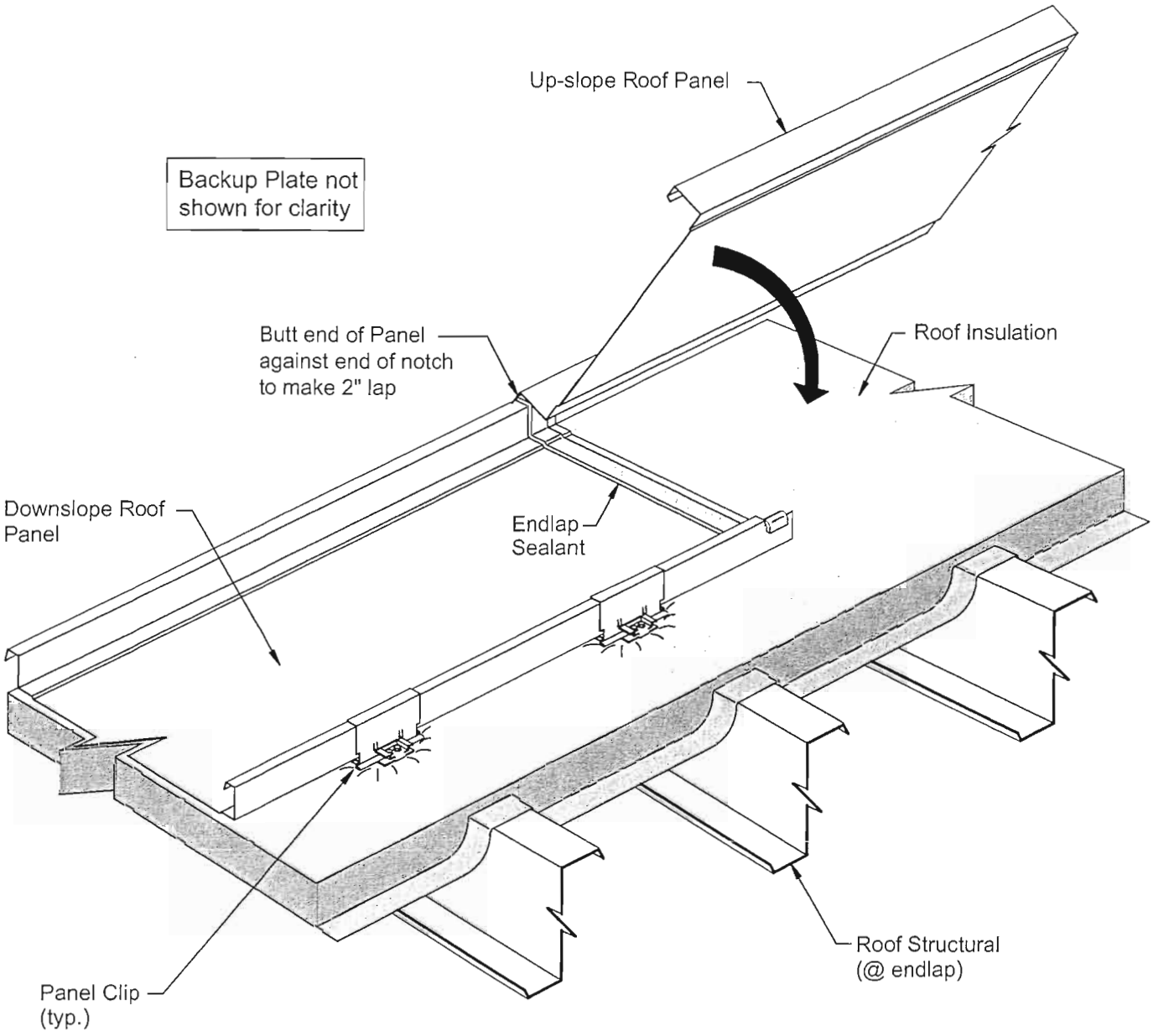
ENDLAP SEALANT @ FEMALE SEAM

Cut the endlap sealant to be fitted around the roof panel's seams as shown.

Check that the 1/8" ends of the sealant are correctly folded around the roof panel's edges. Excess sealant in the roof panel seams will cause difficult panel assembly. Remove any excess sealant.

After the sealant is correctly positioned, uniformly press the sealant against the roof panel's surface to assure adhesion. Do not use excess pressure which can thin the sealant.

9.3 ROOF PANEL INSTALLATION



Wipe dry and clean the underside surface of the up-slope roof panel.

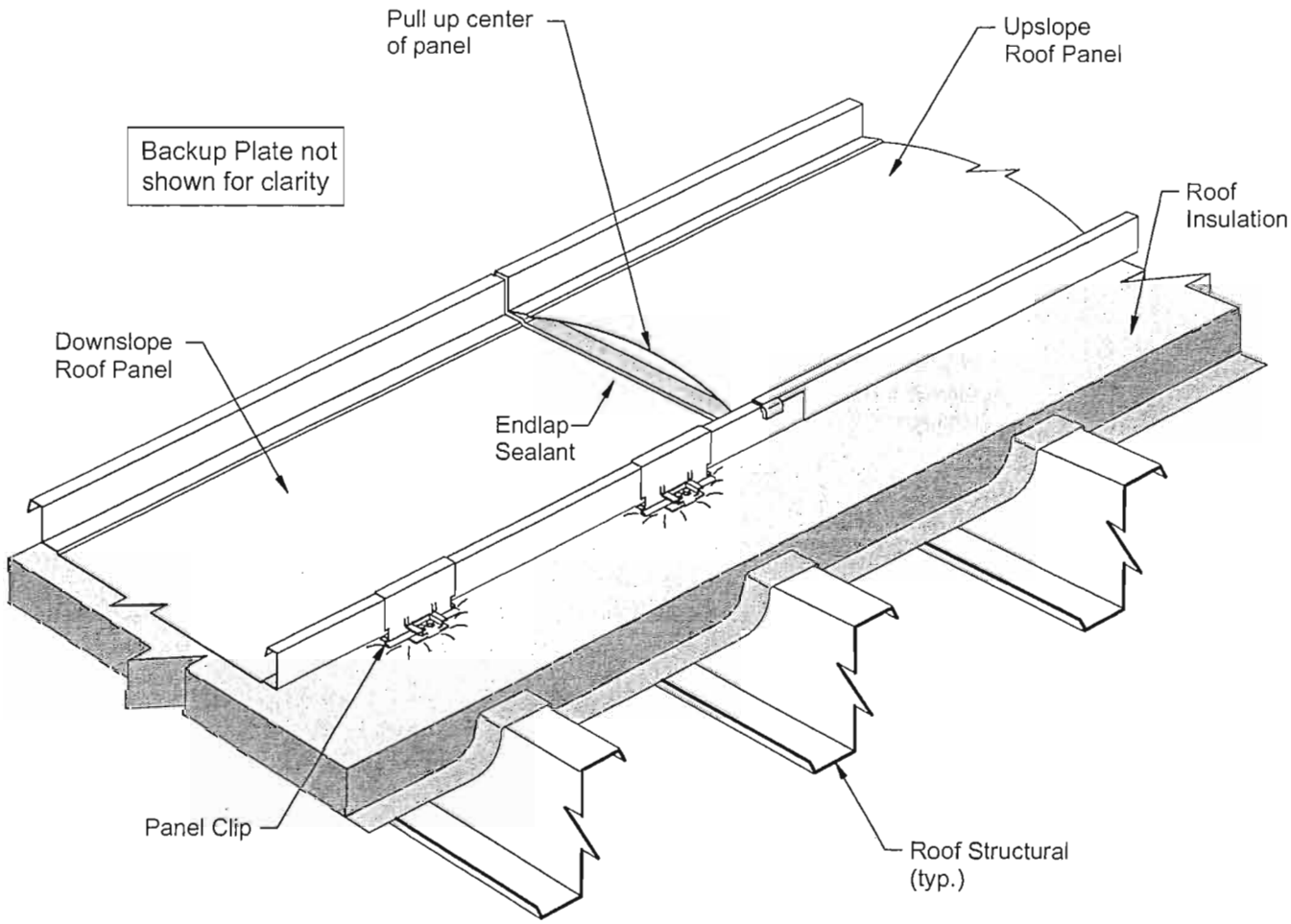
Remove the protective paper from the installed endlap sealant.

Position the end of the up-slope roof panel to make a 2" lap over the downslope roof panel.

At the seams, the end of the up-slope roof panel should butt against the notch on the downslope roof panel.

Check that the up-slope roof panel will correctly lap over the endlap sealant. If the panel has factory punched holes, check that the holes are centered over the sealant.

9.3 ROOF PANEL INSTALLATION



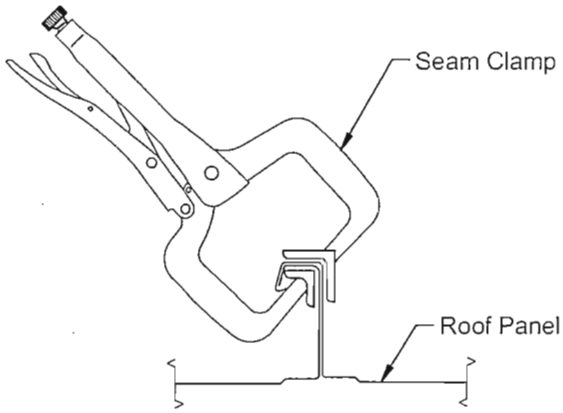
Caution
While setting the roof panel, Do not wipe the endlap sealant off the sides of the panel.

Lower the up-slope roof panel to lap onto the downslope roof panel.

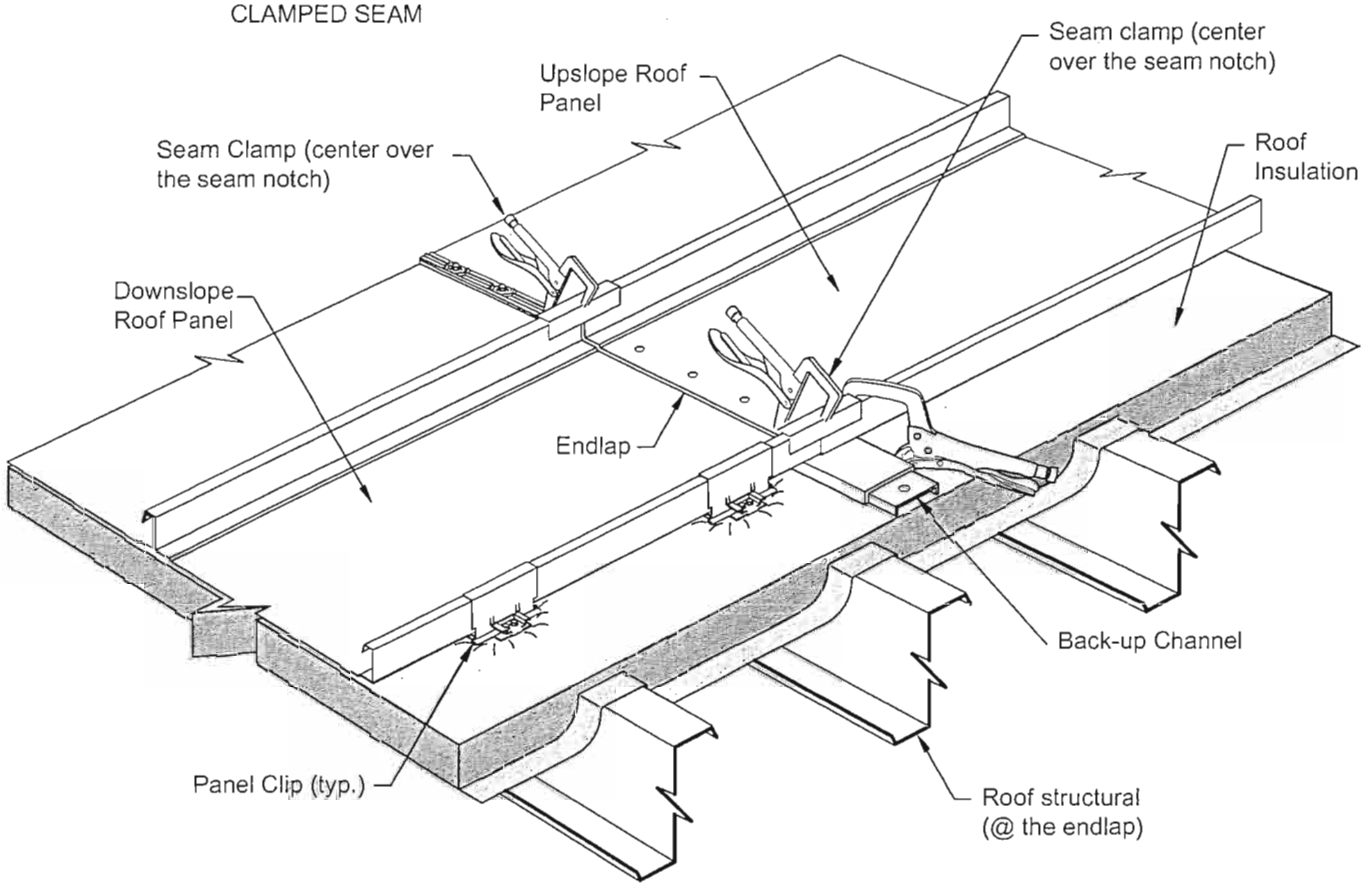
While lowering the upslope roof panel, bow the end of the panel by pulling up on its center. This will allow the panel to more easily nest into the down-slope panel.

Do not displace or damage the sealant while nesting the up-slope panel.

9.3 ROOF PANEL INSTALLATION



CLAMPED SEAM



Use the seam clamps to draw the lapping panel seams together as shown.

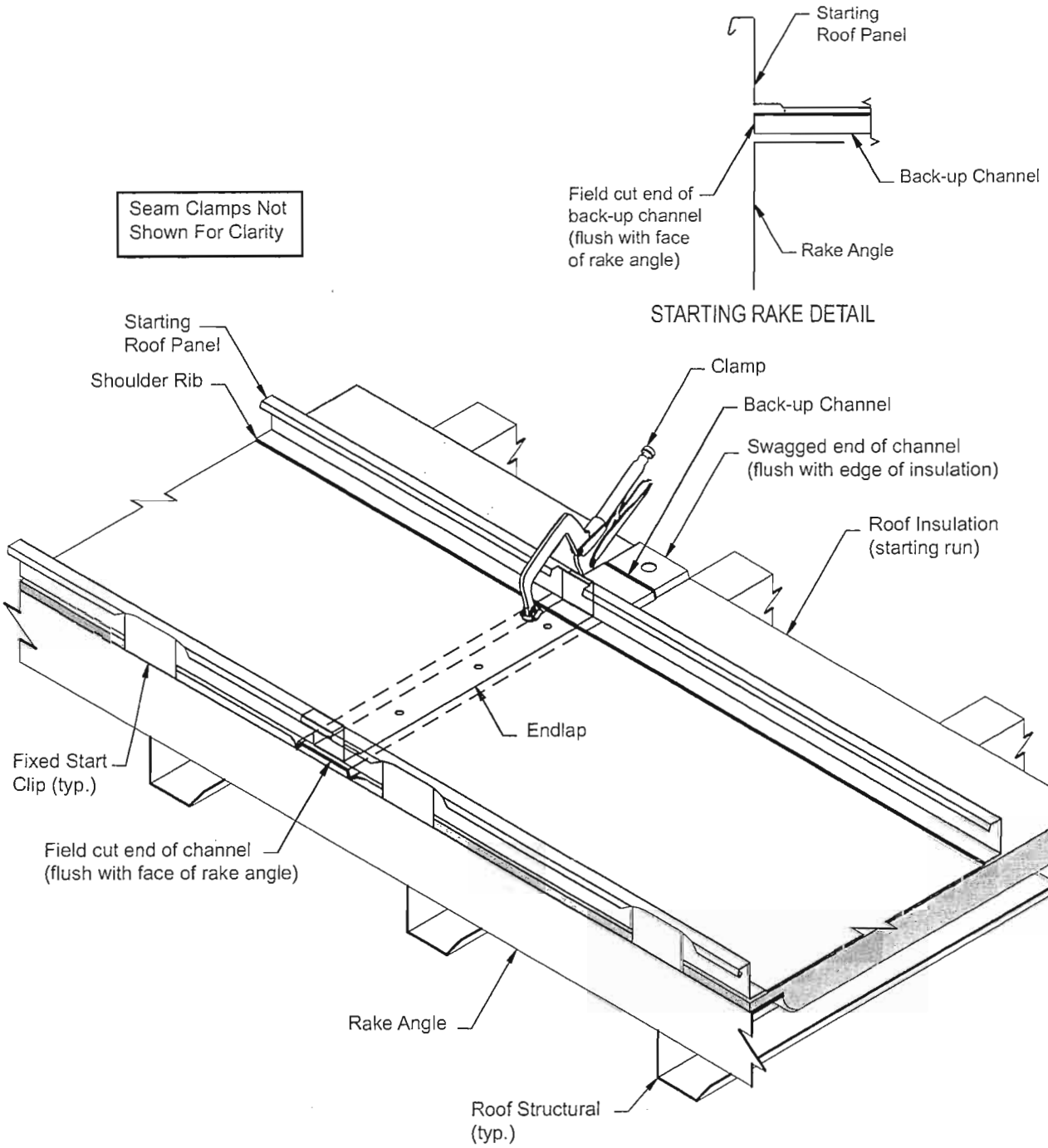
Check that the clamp jaws are correctly aligned to the seam before closing the clamp. Misaligned clamps can distort and damage the roof panel seams.

Slowly close the clamp to allow the sealant to flow between the lapped seams.

With the seam clamps installed, uniformly press down on the up-slope panel to close the panel lap and to assure adhesion to the endlap sealant.

Do not remove the seam clamps until after the endlap cinch strap has been installed.

9.3 ROOF PANEL INSTALLATION



Field cut the starting back-up channel. Cut the channel's length equal to the width of the starting run of roof insulation. The cut-off must be the end opposite of the swagged end.

Slide the channel under the roof panel and on top of the roof insulation. Position the channel so its cut end rests on the rake angle and is flush with the face of the rake angle.

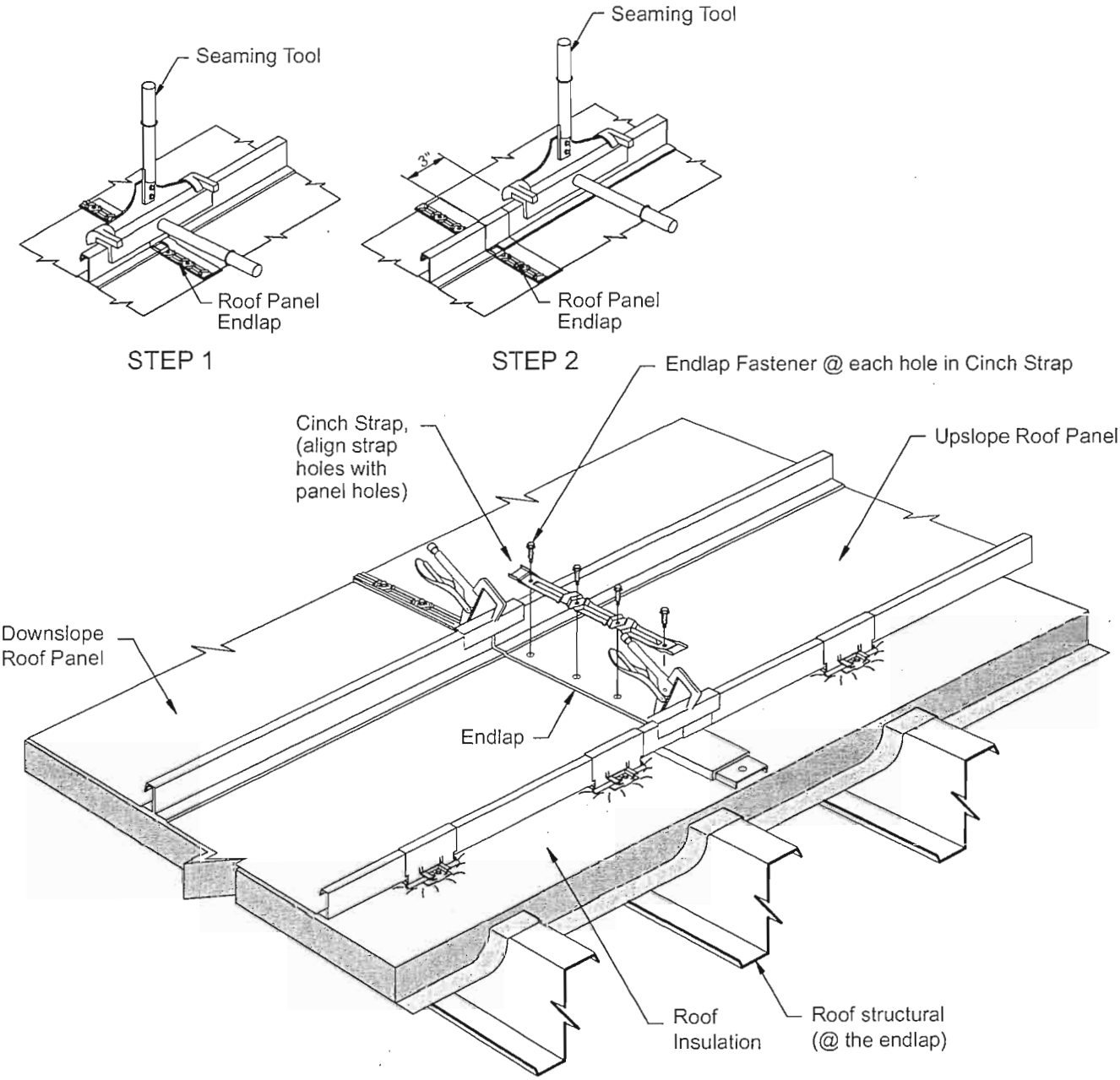
Position the channel so it is centered under the roof panel endlap.

Check that the swagged end of the channel is flush with the leading edge of the roof insulation.

Clamp the channel to the leading edge of the roof panel. Position the clamp at the edge of the channel, so the clamp will not interfere with the installation of the cinch strap.

Check that the clamp is bearing on the flat of the roof panel, not on the panel's shoulder rib.

9.3 ROOF PANEL INSTALLATION



A cinch strap is not required on all roof applications. Refer to the erection drawings to determine if a cinch strap is required.

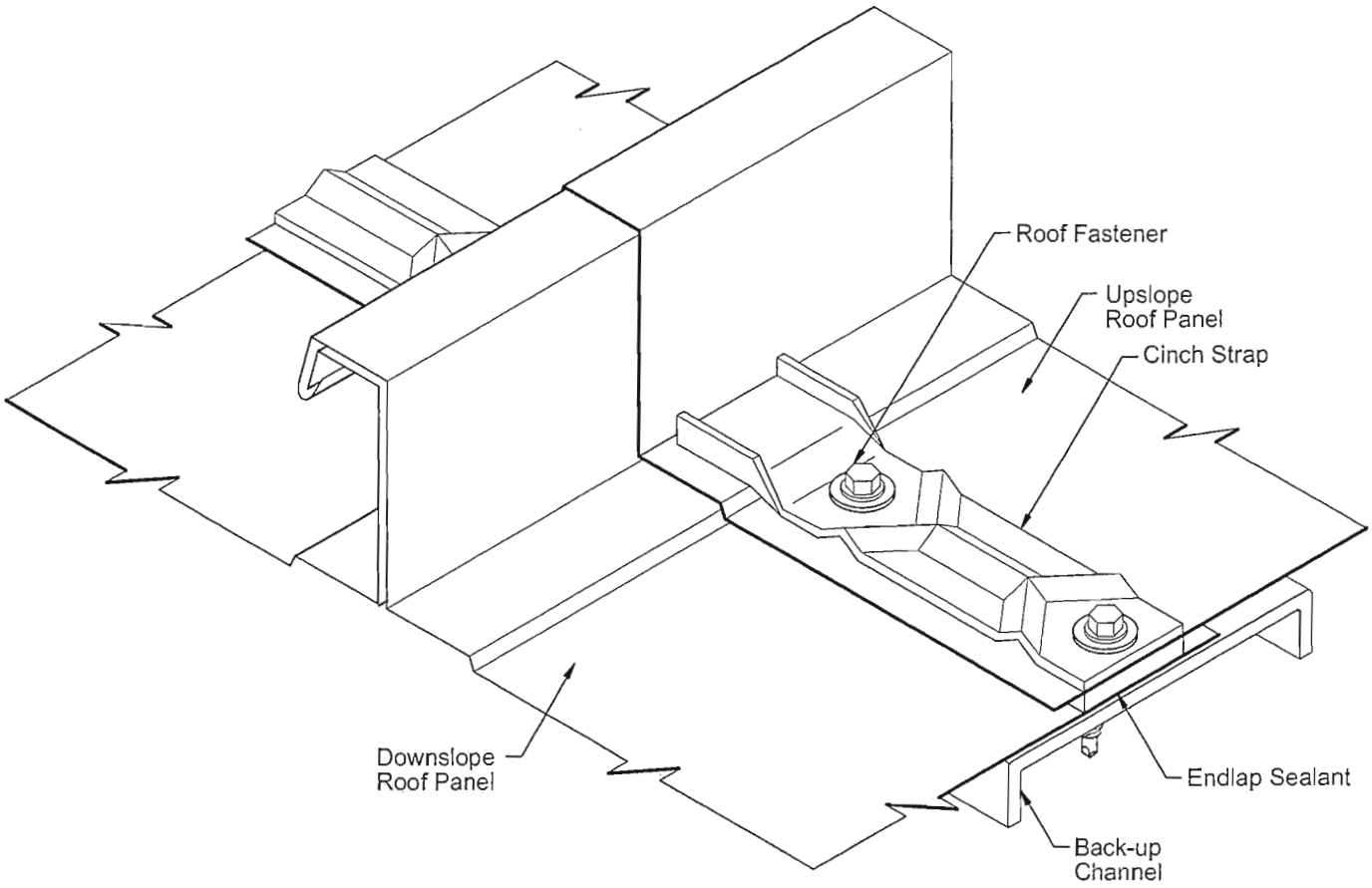
If a cinch strap is required, carefully position the cinch strap over the factory punched holes in the roof panel.

Install roof fasteners in the holes at each end of the cinch strap. Then install fasteners in the remaining holes.

Check that the roof fasteners penetrate thru the center of the endlap sealant and are securely engaged into the back-up channel.

Hand seam end lap, refer to seaming guide for specific steps.

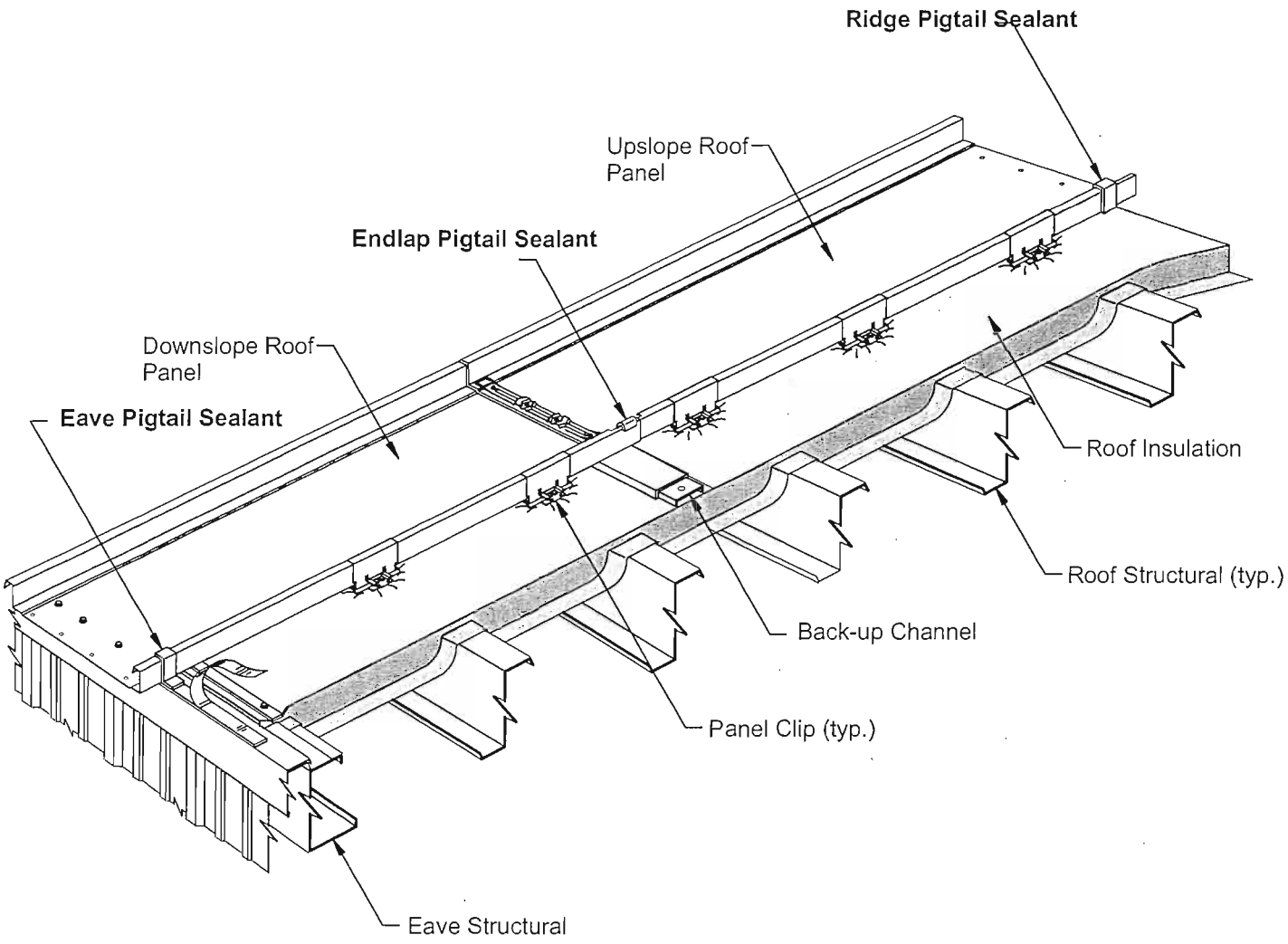
9.3 ROOF PANEL INSTALLATION



Check that the endlap is correctly assembled as shown.

Check that there are no unsealed voids between the lapped panels, especially at the critical corner areas.

9.3 ROOF PANEL INSTALLATION



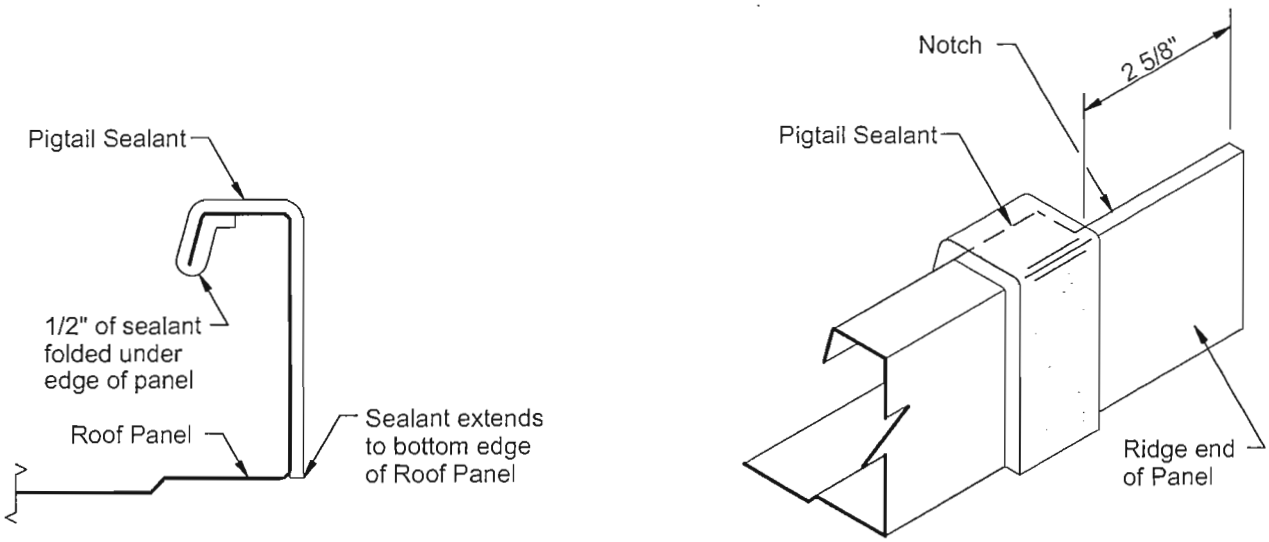
The pigtail sealants must be correctly installed before the next roof panel run can be installed.

Install the eave, endlap and ridge pigtail sealants on the leading edge of the roof panel as shown.

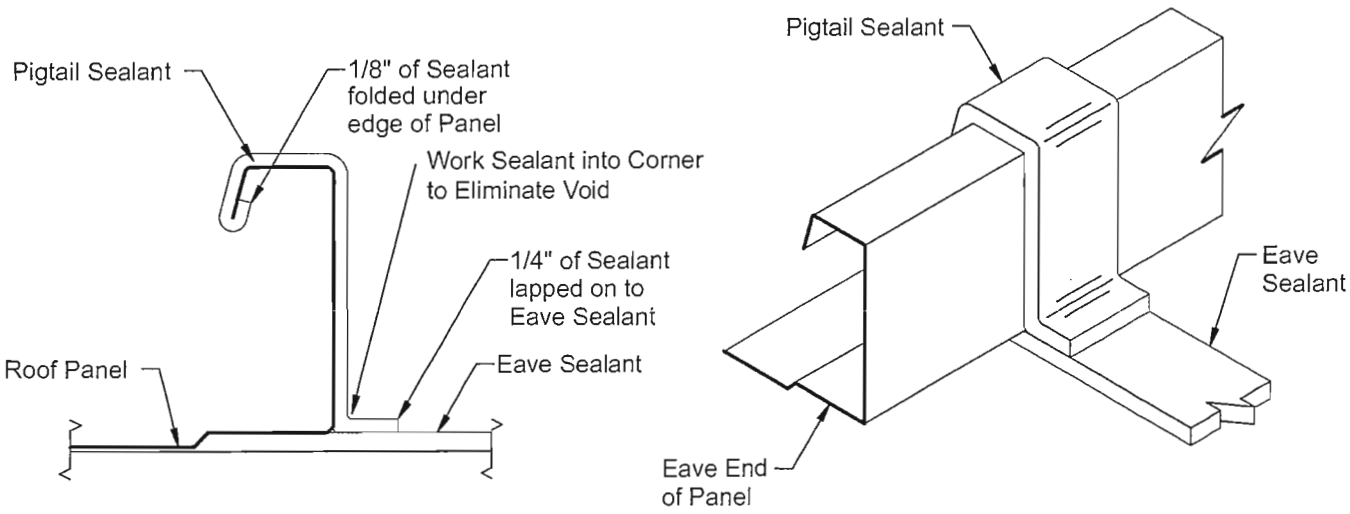
The pigtail sealants are pieces of endlap sealant cut to the required length.

Refer to the next pages for specific pigtail sealant details.

9.3 ROOF PANEL INSTALLATION



RIDGE PIGTAIL SEALANT DETAIL



EAVE PIGTAIL SEALANT DETAIL

Using a box knife or scissors, cut the pigtail sealants to be fitted around the roof panel's seam as shown.

At the eave, lap 1/4" of the pigtail sealant onto the eave sealant. Cut the other end of the pigtail sealant so 1/8" can be folded under the edge of the roof panel.

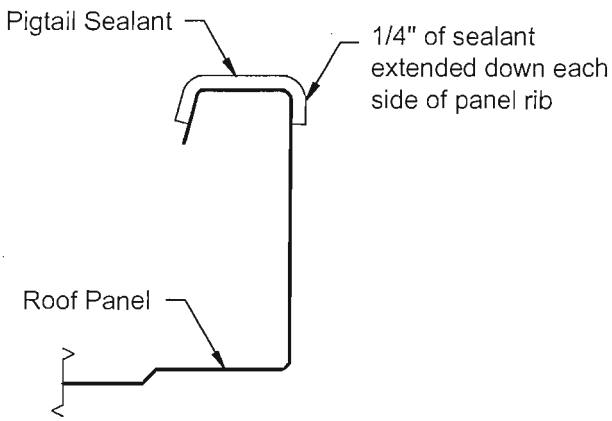
At the ridge, position the pigtail sealant so its edge is 1 5/8" from the end of the roof panel. The sealant must lap over the edge of the roof panel's notch.

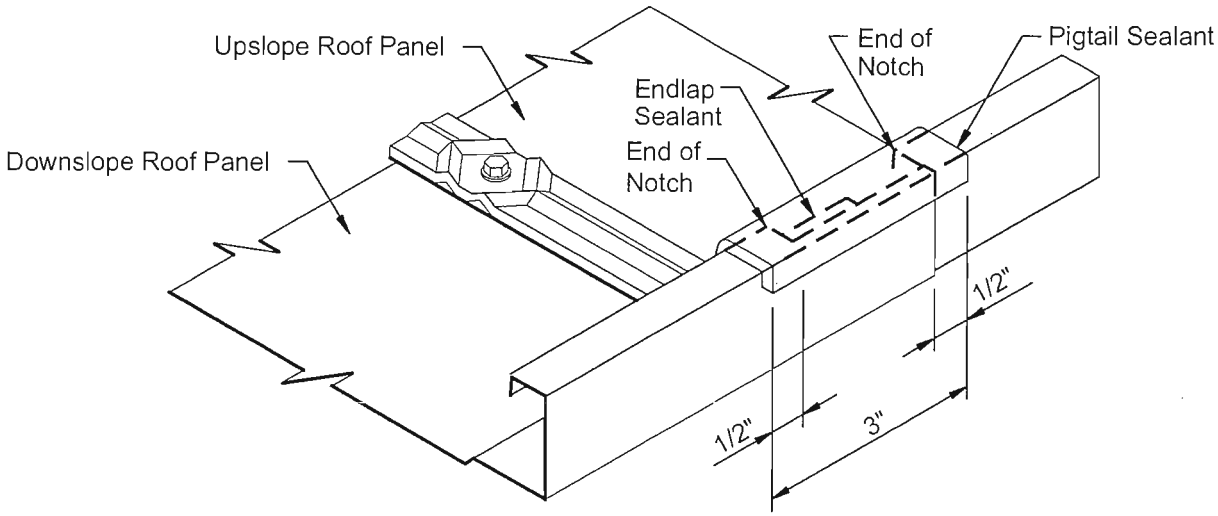
Fold 1/2" of the ridge pigtail sealant under the edge of the roof panel. Cut the other end of the sealant so it sets flush with the bottom edge of the roof panel's rib.

Excess sealant in the seams will cause difficult roof panel assembly. Remove any excess sealant.

After the pigtail sealant is correctly placed, uniformly press the sealant against the panel's surface to assure adhesion.

9.3 ROOF PANEL INSTALLATION





Using a box knife or scissors, cut the pigtail sealant to a 3" length and fit around the roof panel's seam as shown.

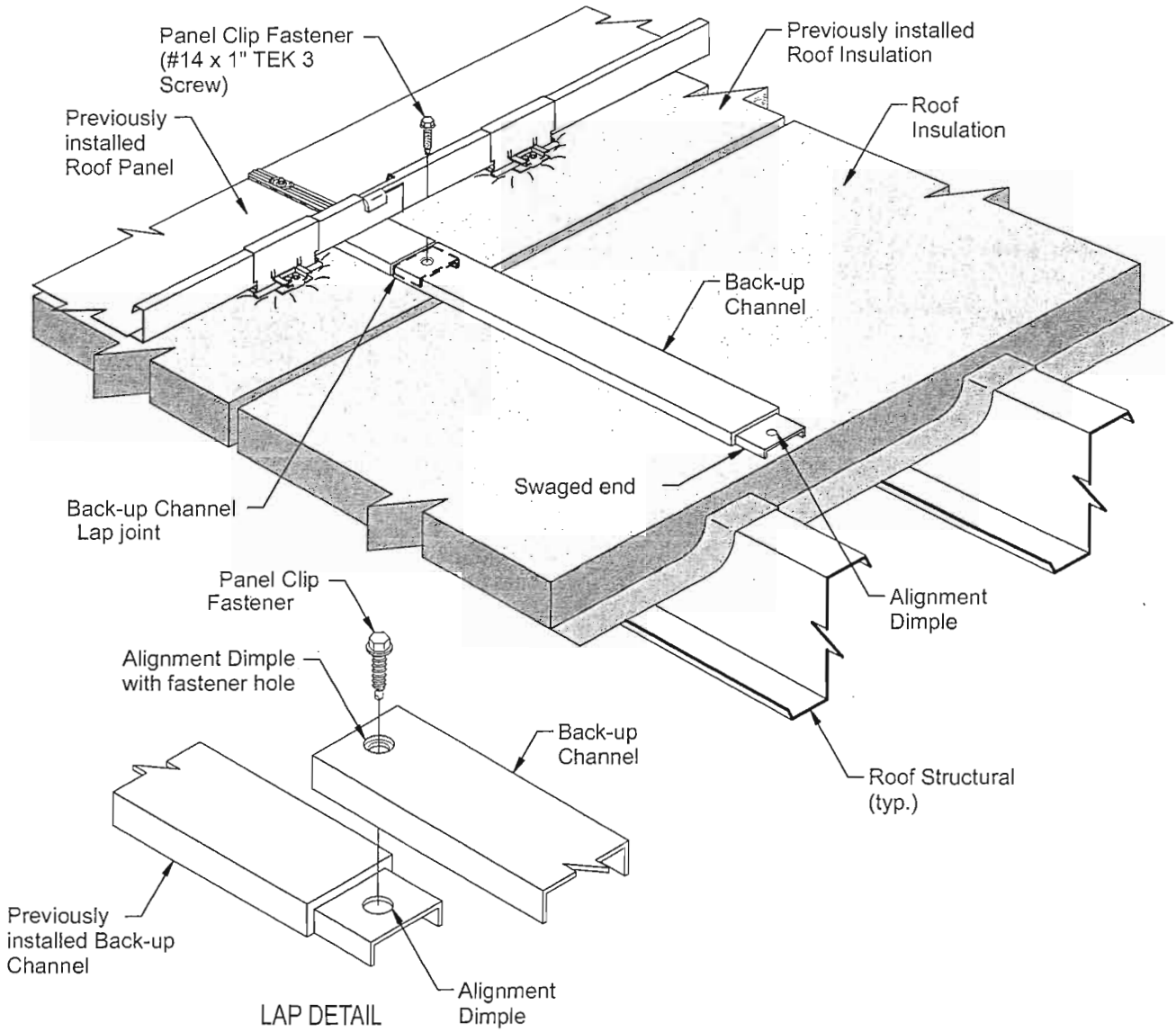
Position the pigtail sealant to lap 1/2" beyond each end of the roof panel's notch.

Center the sealant over the roof panel's seam. Fold the edges of the sealant down over the sides of the seam.

Excess sealant in the seams will cause difficult roof panel assembly. Remove any excess sealant.

After the pigtail sealant is correctly placed, uniformly press the sealant against the panel's surface to assure adhe-

9.3 ROOF PANEL INSTALLATION



The back-up channels are available in **4' or 6' lengths**, so they can be more easily installed over **4' or 6' wide** roof insulation. Verify that the back-up channels are provided in the correct length to match the roof insulation.

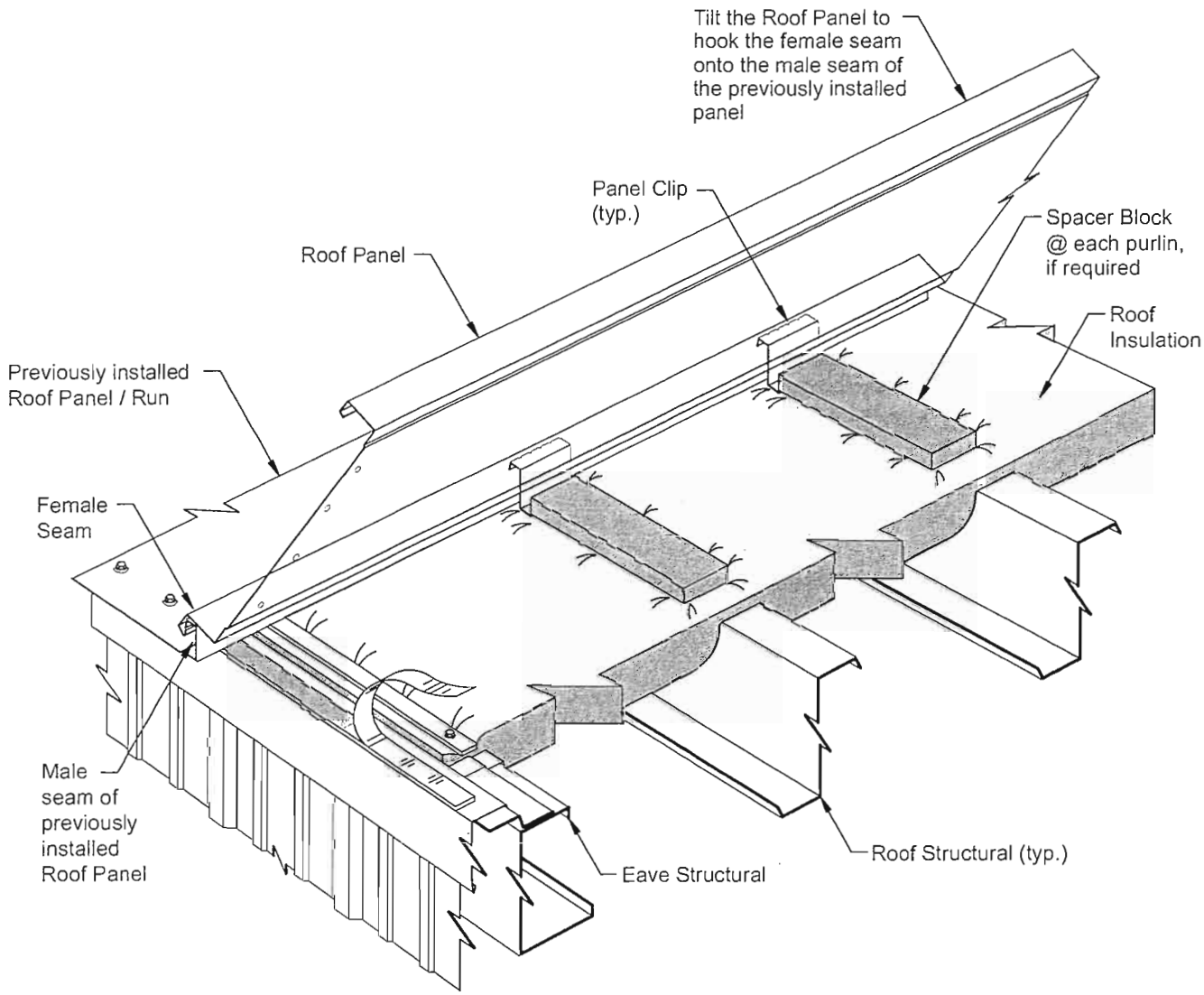
Install the next run of roof insulation.

Set the next back-up channel on top of the roof insulation. Position the channel so its non-swagged end laps over the swagged end of the previously installed channel. Check that the channel ends and their alignment dimples are fully nested together.

Position the channel's swagged end so the channel will be centered and parallel to the next roof panel endlap.

Secure the back-up channels together with a panel clip fastener installed through the factory punched hole in the alignment dimple of the overlapping channel. Check that the fastener fully engages the underlying channel.

9.3 ROOF PANEL INSTALLATION



Remove the protective paper from the eave sealant. Remove only enough of the protective paper to allow installation of the next roof panel.

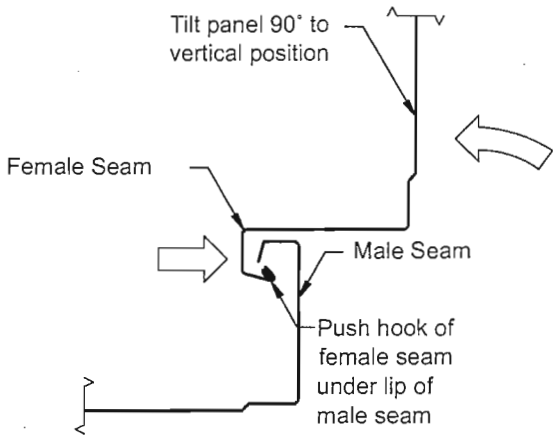
If required, place the insulation spacer blocks on top of the insulation directly over the roof structural.

Position the trailing edge of the roof panel over the leading edge of the previously installed roof panel and position the end of the roof panel 2" beyond the face of the eave trim.

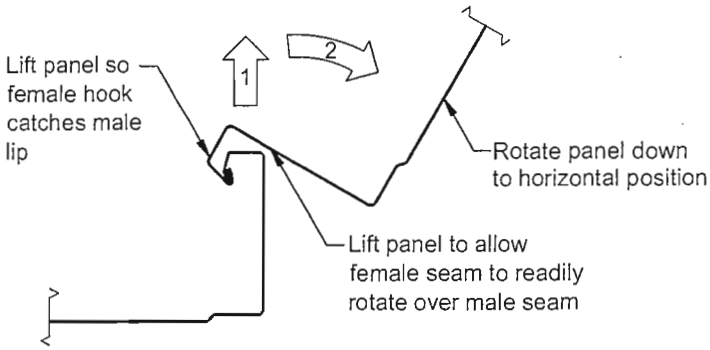
Tilt the panel as shown so the female seam can be hooked over the male seam of the previous roof panel.

Specific roof panel sidelap assembly details are shown on the following page.

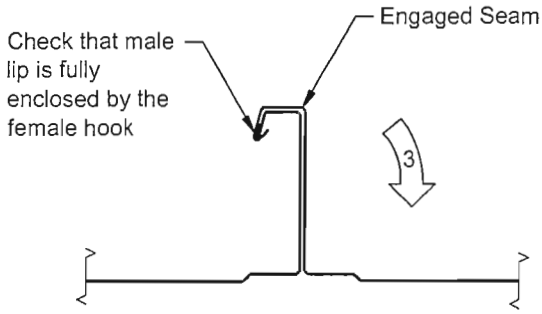
9.3 ROOF PANEL INSTALLATION



STEP 1



STEP 2



STEP 3

CAUTION
Do not scape off seam sealant during the sidelap assembly.

It is easier to hook the roof panel seams together if the roof panel is first tilted up to the vertical position.

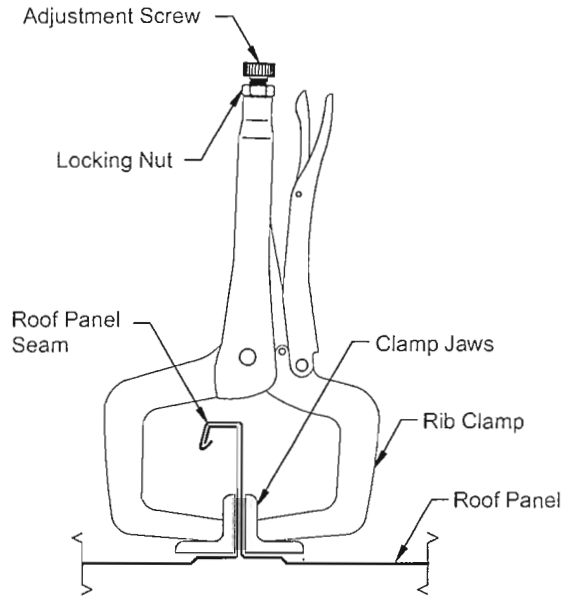
With the roof panel in the vertical position, align its female seam to slide under the male seam of the previous roof panel.

With the female seam under the male seam, lift up the roof panel so the female seam's hook catches the lip of the male seam.

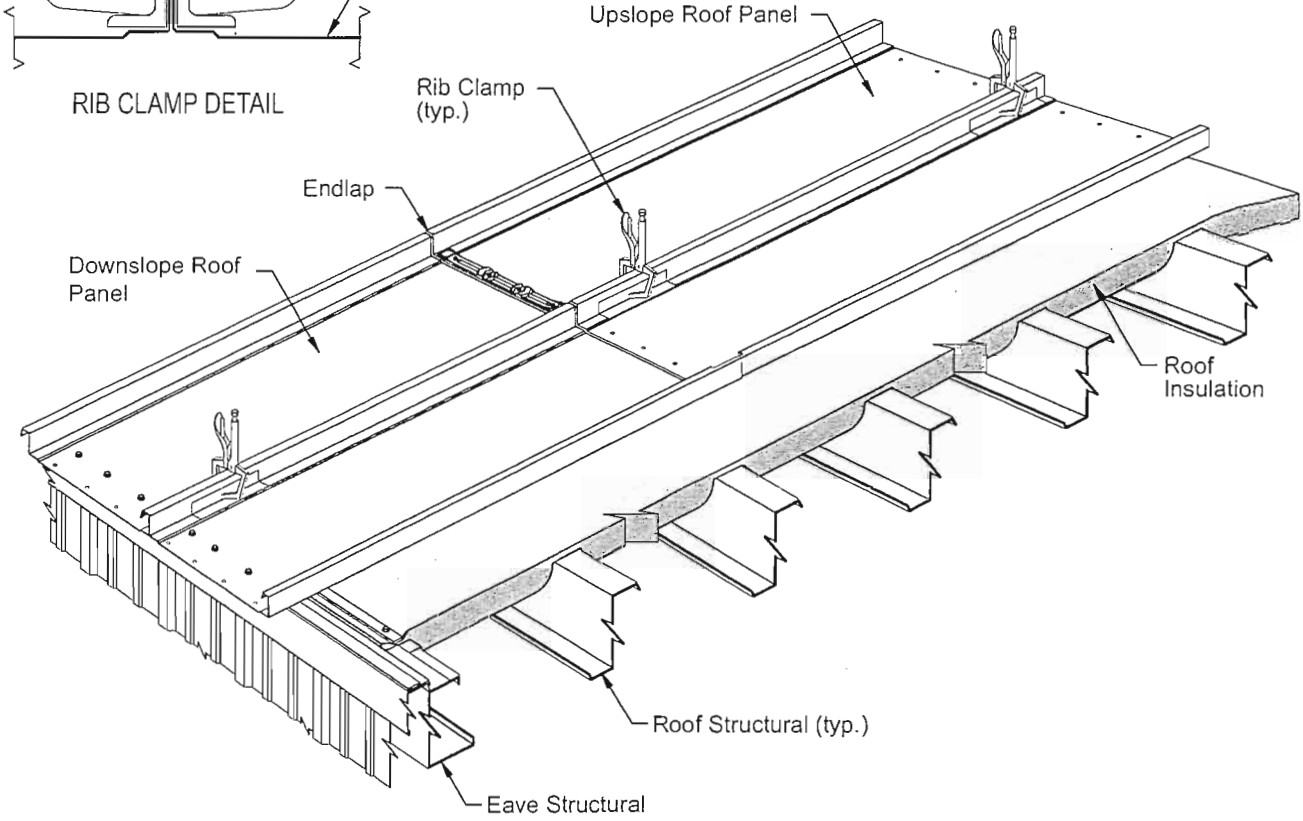
While continuing to lift up on the roof panel, rotate the panel down to rest on the insulation or spacer blocks.

IMPORTANT: Check that the female hook has enclosed the male lip along the entire length of the roof panel. If not, the roof panel sidelap must be correctly reassembled before installing the next roof panel.

9.3 ROOF PANEL INSTALLATION



RIB CLAMP DETAIL



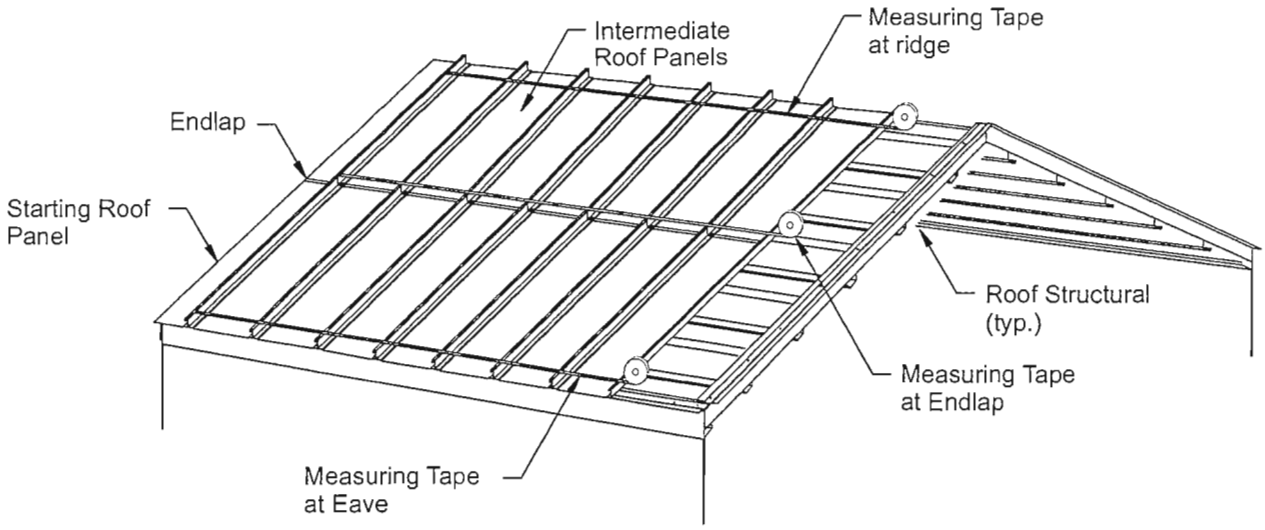
The most common coverage error is the spreading of the roof panel sidelaps, especially at the panel ends. This can cause excess panel coverage along the eave, endlaps and ridge.

Before installing the next run of panel clips, use rib clamps to squeeze together the previous sidelap as shown.

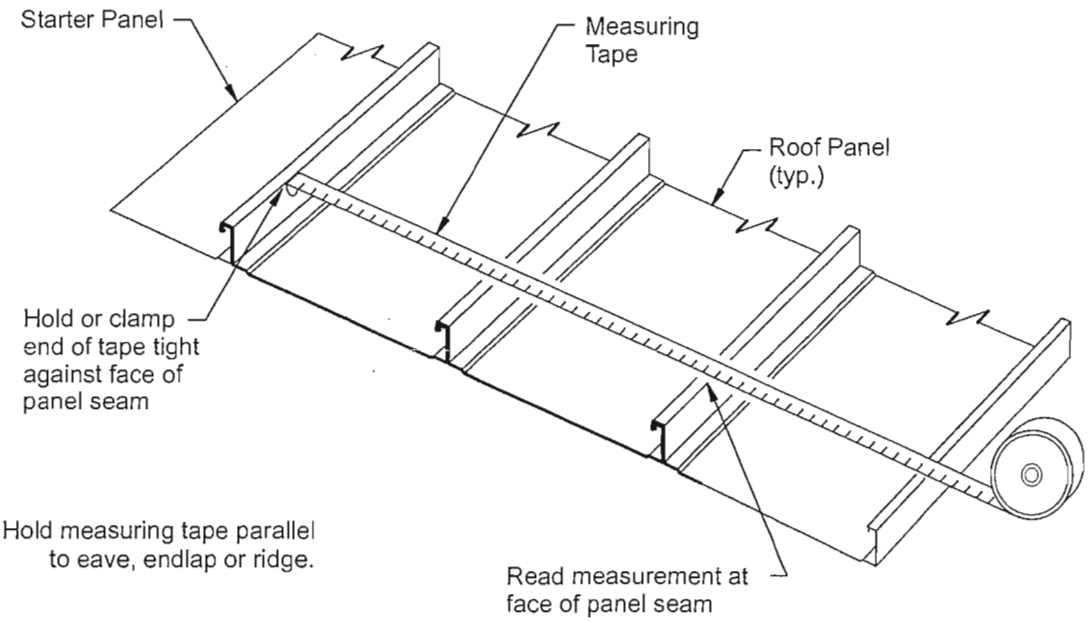
The rib clamps can be adjusted and locked so that they will squeeze the panel ribs to provide a consistent coverage width.

If excessive coverage has accumulated over several panel runs, do not try to correct all of the error at one time. Corrected roof panel coverage must not be greater than 1/16" per panel. Correct accumulated coverage error by making the correction over several panel runs. **Continue this sheeting process until the opposite end of the building is reached.** End dams should be installed as the sheeting process continues.

9.3 ROOF PANEL INSTALLATION



CHECKING PANEL COVERAGE



Note: Hold measuring tape parallel to eave, endlap or ridge.

PANEL COVERAGE MEASUREMENT

Caution: To assure proper fit-up of the sidelap assembly, proper seaming and proper fit-up of closures, flashing, curbs, etc., it is important that each panel be held within the 1/16" panel coverage tolerance and that overall coverage be checked frequently and any coverage error be corrected before it accumulates.

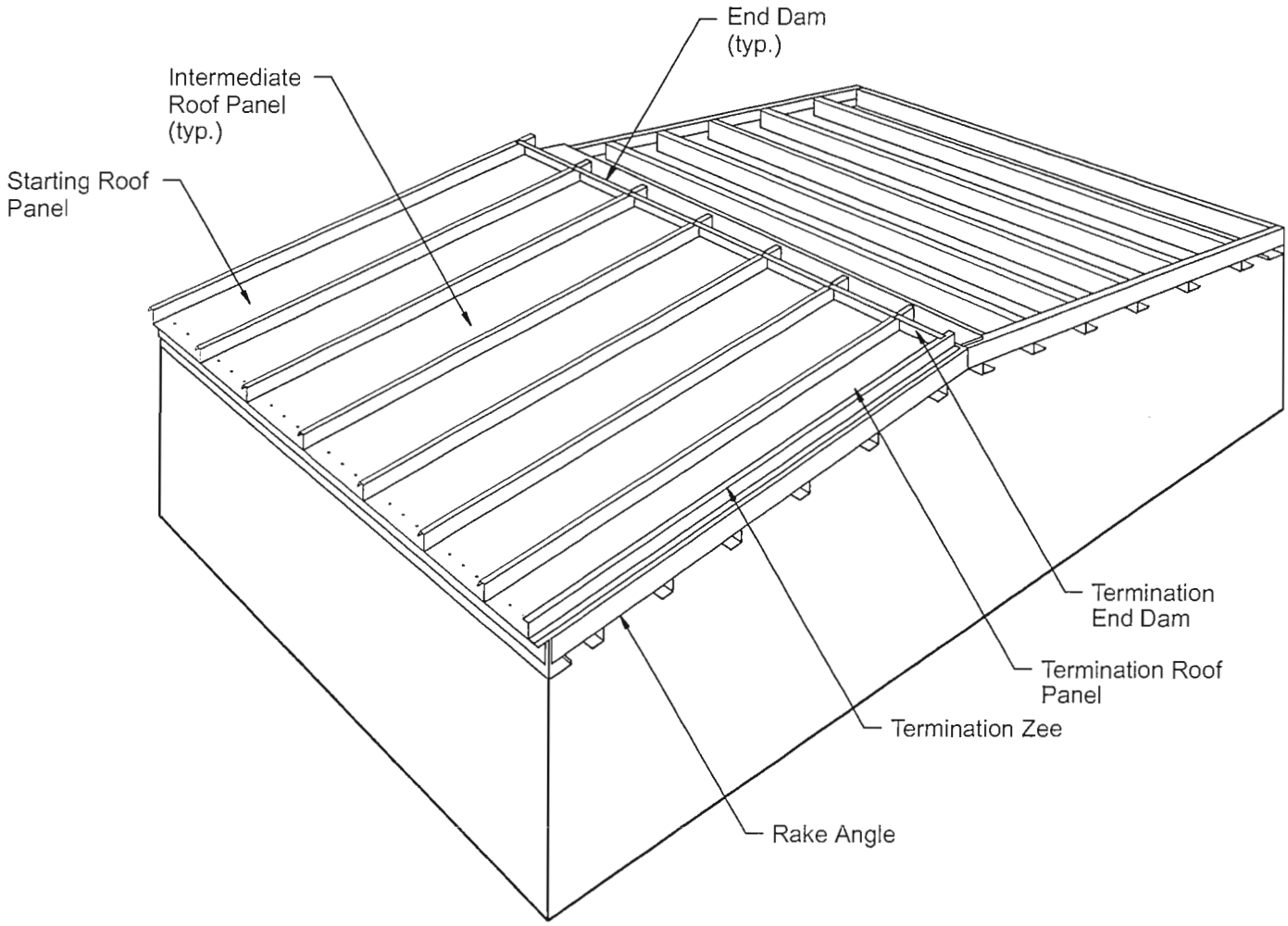
Coverage must be checked at the eave, ridge and at every endlap.

To avoid accumulation error, the coverage measurement should always be from the rake line or the starting roof panel's seam.

To avoid measurement error, the measuring tape must be free and taut and must be parallel to the eave line or ridge line.

Improper coverage will cause difficulty in seaming.

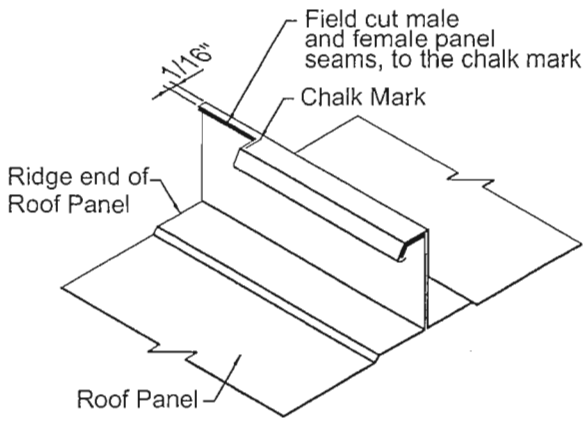
9.4 END DAM INSTALLATION



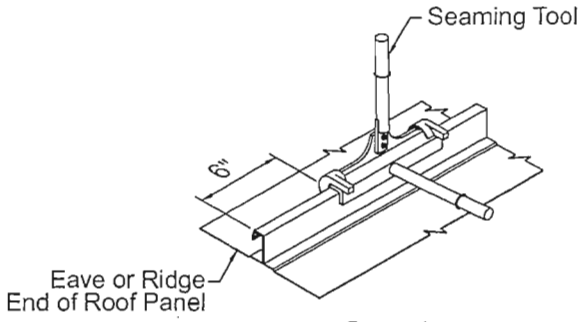
Metal end dams are used to close the ends of the roof panels at the ridge, high eave and high eave transition conditions.

The details in this section will show roof panel preparation and installation of the end dams.

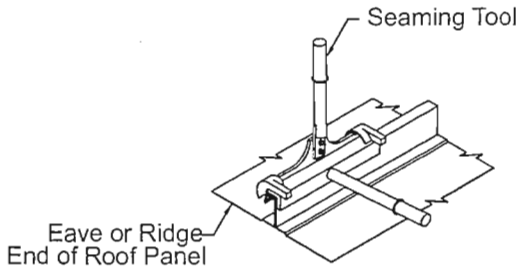
9.4 END DAM INSTALLATION



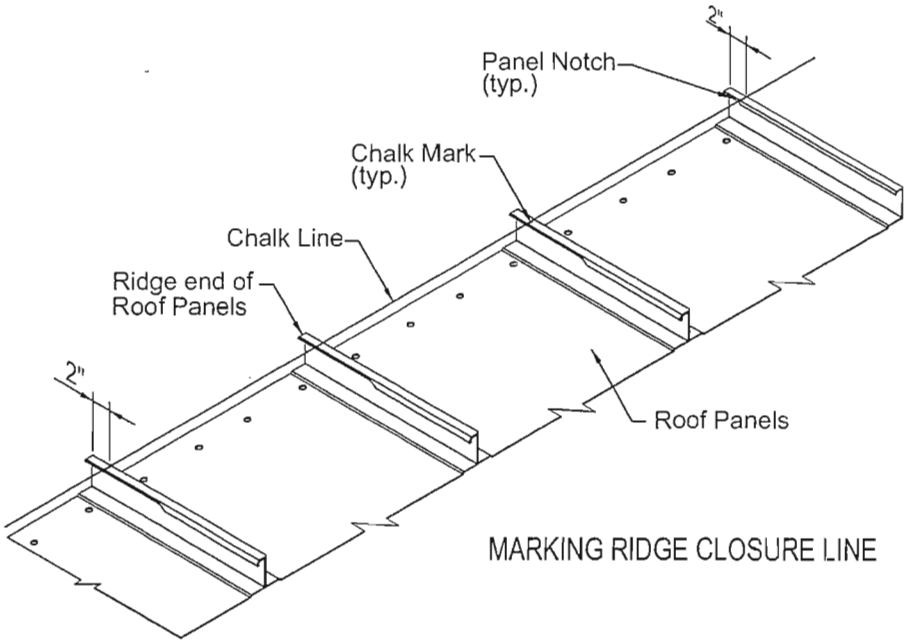
NOTCH FOR RIDGE CLOSURE



Step 1



Step 2



MARKING RIDGE CLOSURE LINE

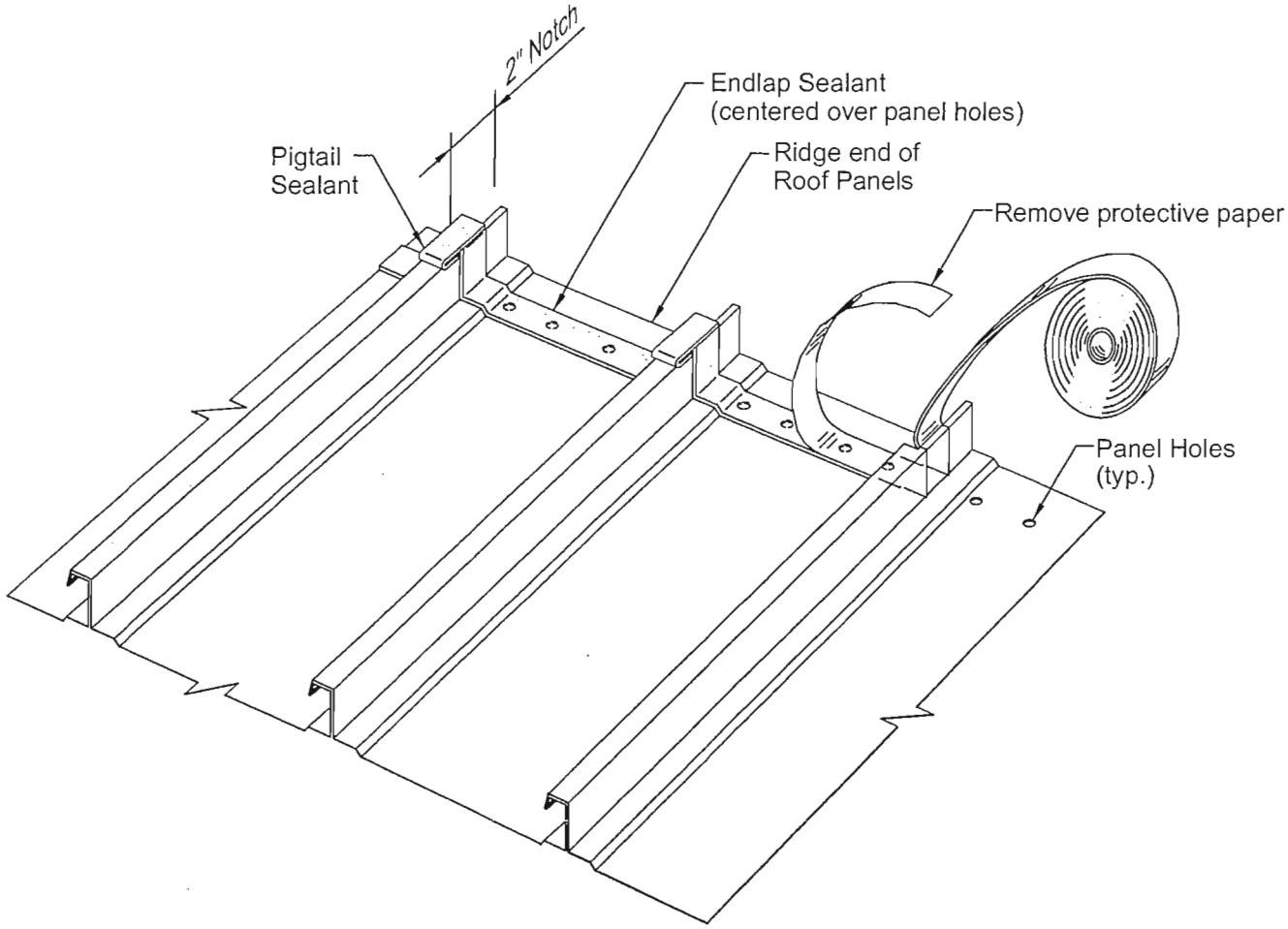
The end dams should be installed before four roof panel runs are completed. Installation of the end dams helps maintain the correct roof panel coverage at the ridge. If the end dams are installed after the roof panels are in place, roof panel coverage error may prevent proper installation of the end dams.

Check the alignment of the roof notches along the ridge. If the notches are staggered more than 1/4", use a chalk line to establish a straight notch line. Position the chalk line so no notch extends below the line.

Using the end of the factory notch (or chalk marks) as a guide, field cut the additional notching in both male and female portions of the seam as shown.

Hand seam 16" of uphill panel end before applying tape sealant and end dam to accomodate motor seamer. **Refer to seaming guide for specific steps to accommodate motor seamer.**

9.4 END DAM INSTALLATION



Before installing the endlap sealant, the roof panel's surface must be wiped clean and dry.

Install a continuous strip of endlap sealant along the end of the roof panel as shown.

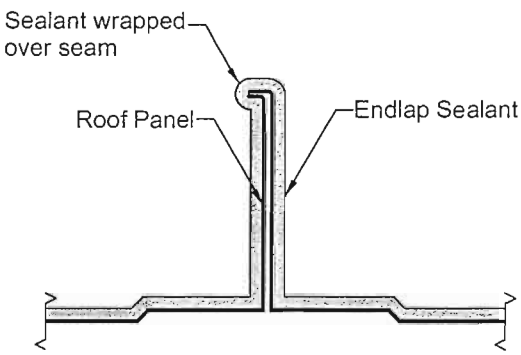
Position the sealant so that its downslope edge is uniformly 2" (edge of notch) from the end of the panel. The sealant must completely cover the roof panel's factory punched holes (if punched).

Be sure to check that the sealant fully contacts the roof panel's surface and that it is completely fitted into the panel corners and around the seams

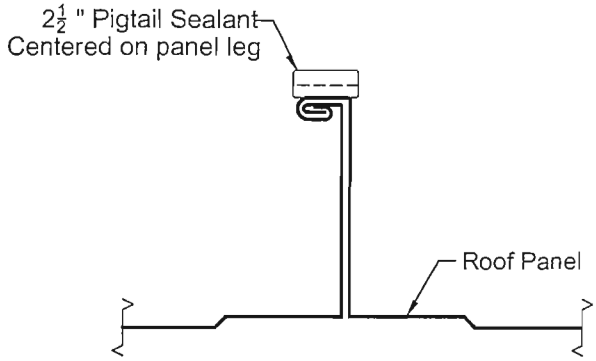
Cut a 2-1/2" long strip of endlap sealant and install as the pigtail sealant as shown.

Specific endlap sealant details are shown on the following page.

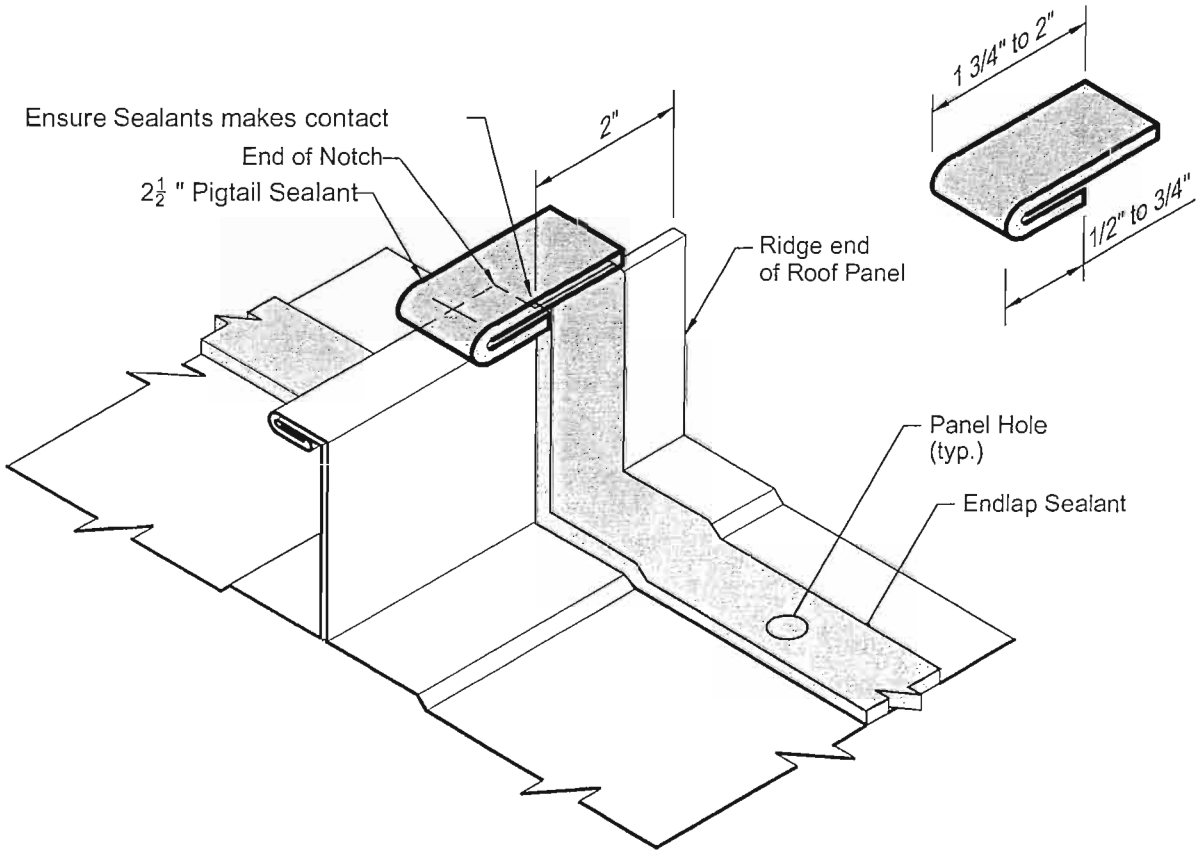
9.4 END DAM INSTALLATION



ENDLAP SEALANT @ RIDGE



PIGTAIL SEALANT @ RIDGE

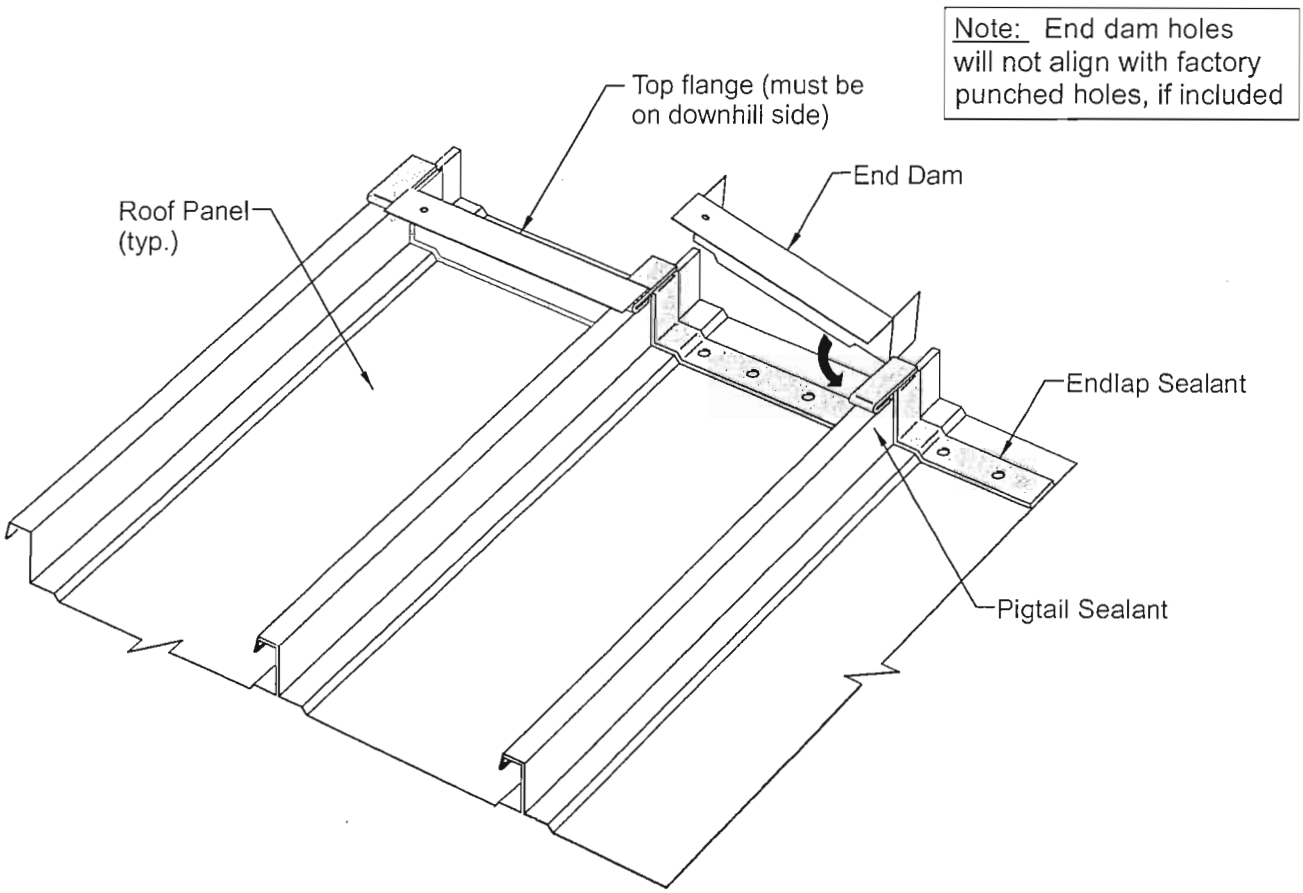


The correct installation of the ridge sealant is critical to the weather resistance of the roof system.

Be sure to verify that the sealant is installed as shown above before installing end dams.

After the sealant is correctly positioned, uniformly press the sealant against the roof panel's surface to assure adhesion. Do not use excess pressure which can thin the sealant.

9.4 END DAM INSTALLATION



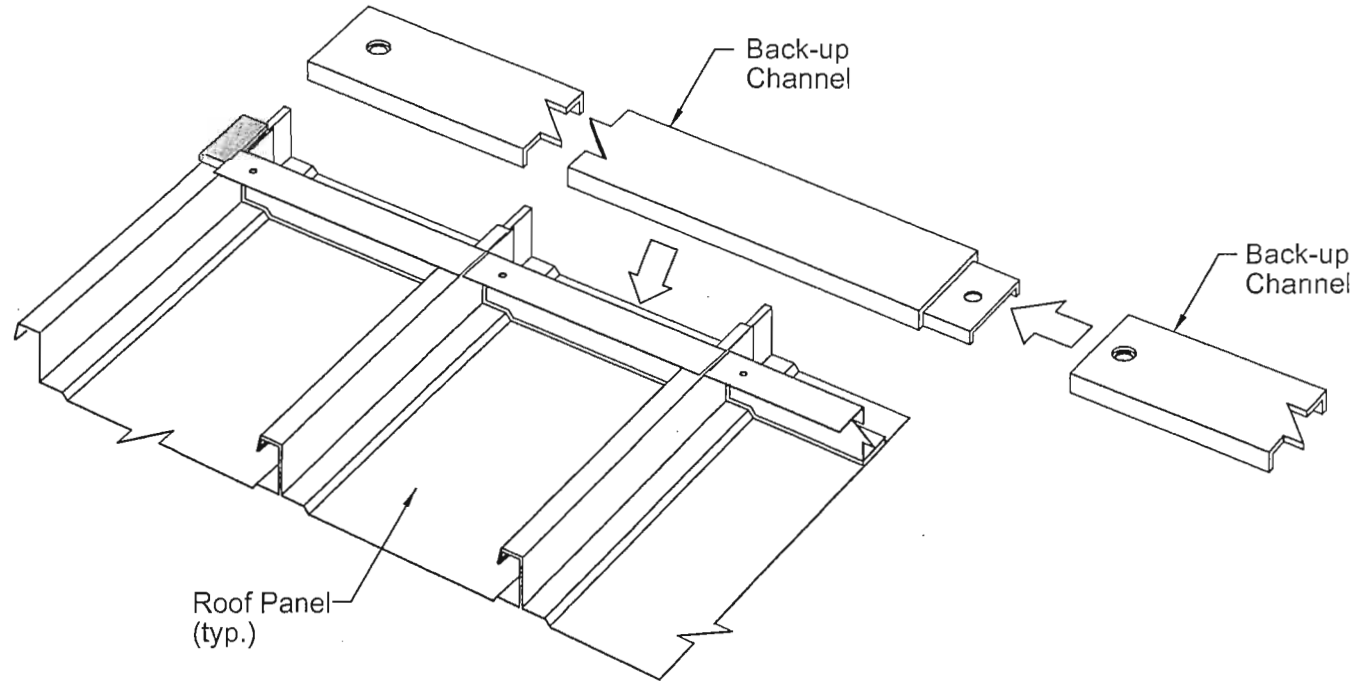
Wipe dry and clean the underside surface of the end dam flanges.

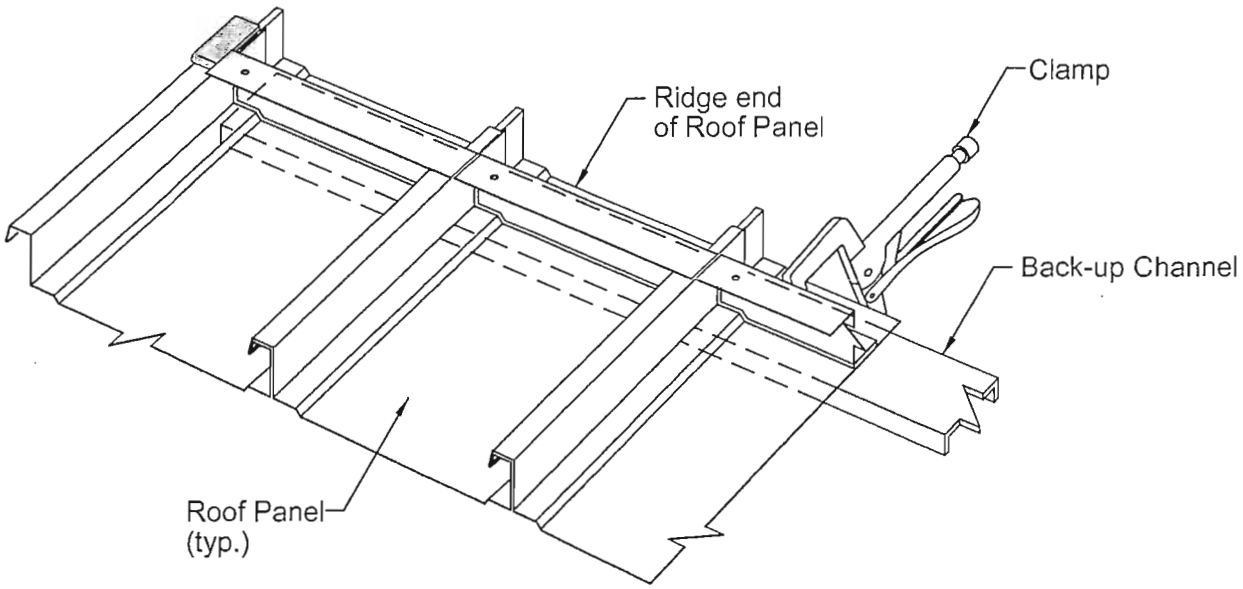
Position the end dam so its bottom flange is turned up-slope and its top flange is downslope.

Position the end dam's bottom flange directly over the ridge sealant and align the end dam web with the panel notch (2" from end of panel).

Be careful not to displace or damage the sealant while installing the end dam and punches.

9.4 END DAM INSTALLATION





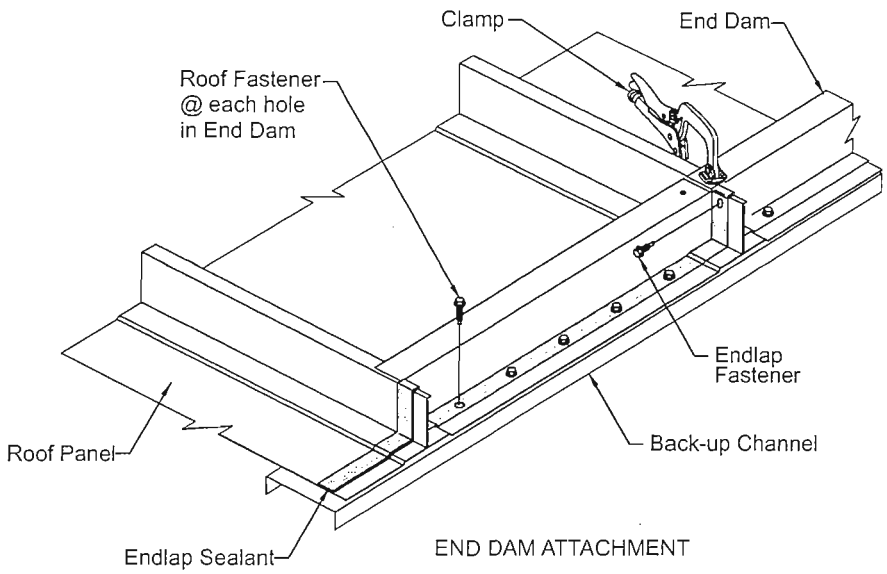
At the ridge or high eave, the back-up channels do not require fastening together as is done at the roof panel endlaps.

Slide a back-up channel under the roof panel and on top of the roof insulation. Position the channel so it is centered under the end dams.

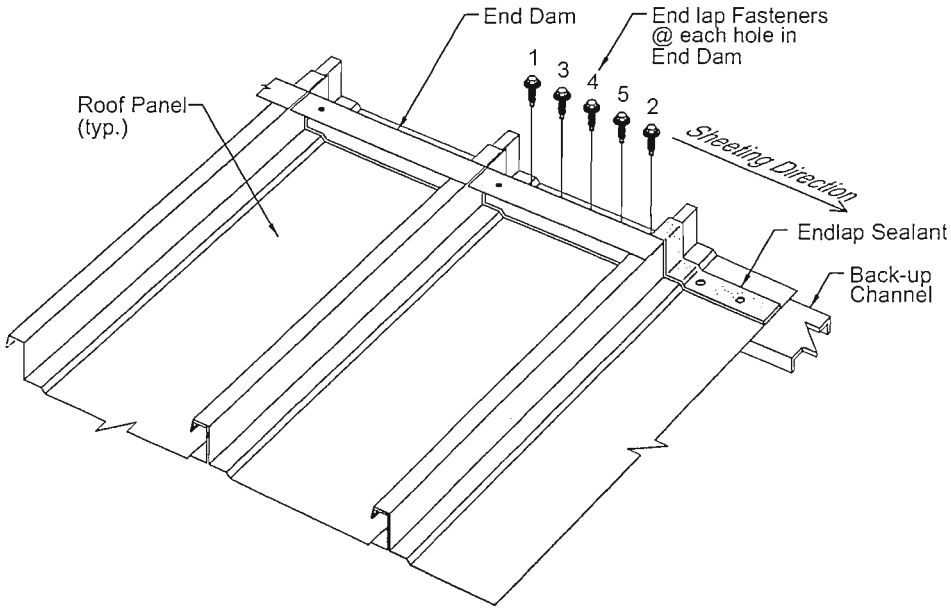
At the rake, position the end of the channel so it sets on the rake angle and is flush with the face of the rake channel. Slide the next channel into position so it laps the previous channel.

Use clamps to hold the end dams and back-up channel in place until after the end dam fasteners are installed.

9.4 END DAM INSTALLATION



END DAM ATTACHMENT



Uniformly press the end dam into the ridge sealant to assure adhesion. Use a clamp to hold the assembly together while installing the fasteners.

Install endlap fasteners through the holes in the end dam's bottom flange. Note fastener placement sequence.

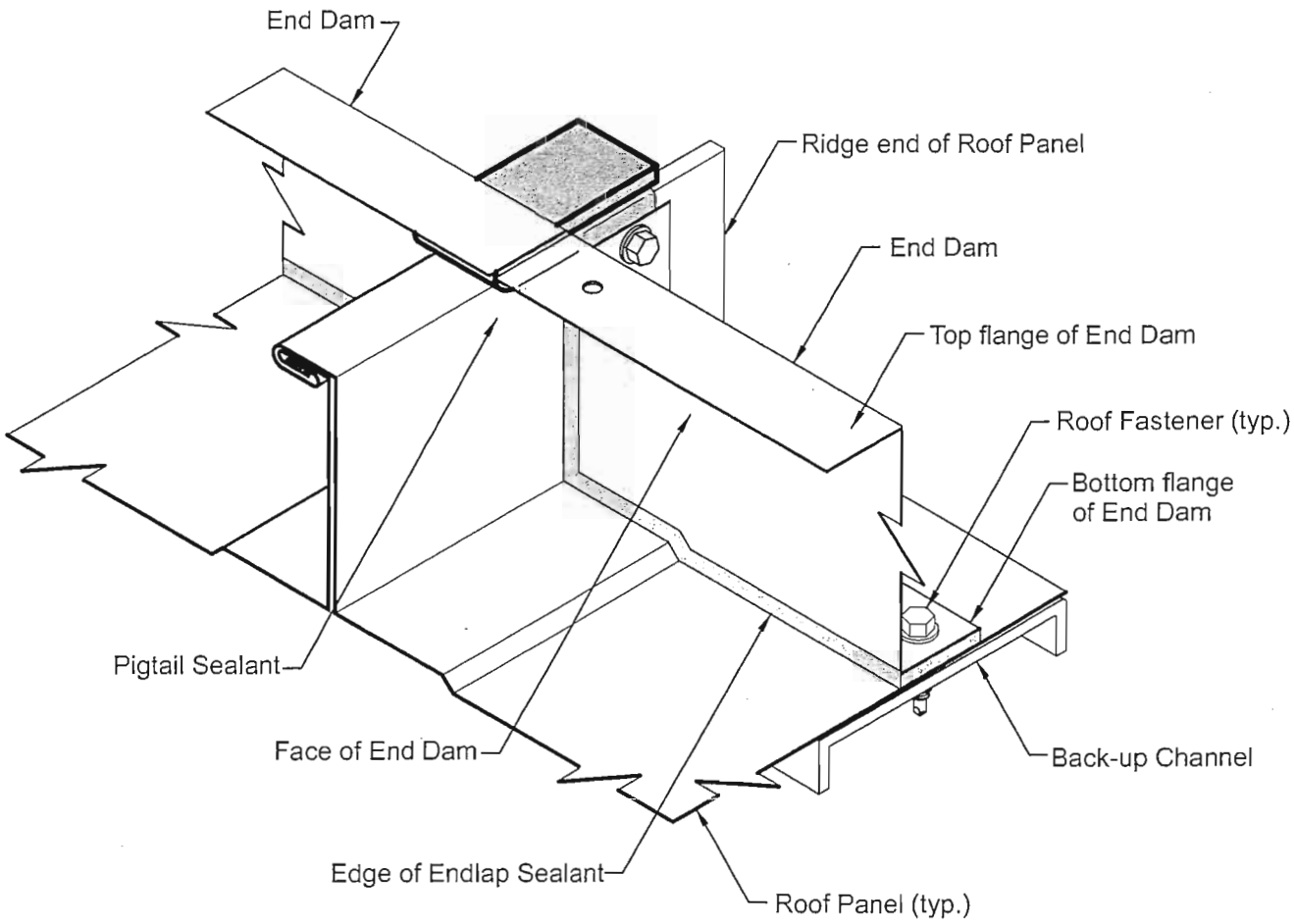
Check that the fasteners penetrate through the center of the ridge sealant and are securely engaged into the back-up channel.

Check that the face of the end dam is perpendicular to the roof panel and aligned with the previously installed end dams. If not, push the top of the end dam to the correct position and clamp.

Install a fastener through the hole at the side of the end dam, through the roof panel vertical leg and into the opposite end dam.

Important: Overtightening this fastener will squeeze the roof panel sidelap assembly together and may affect the roof panel's coverage width. Carefully tighten the fastener only as necessary to maintain the correct panel width.

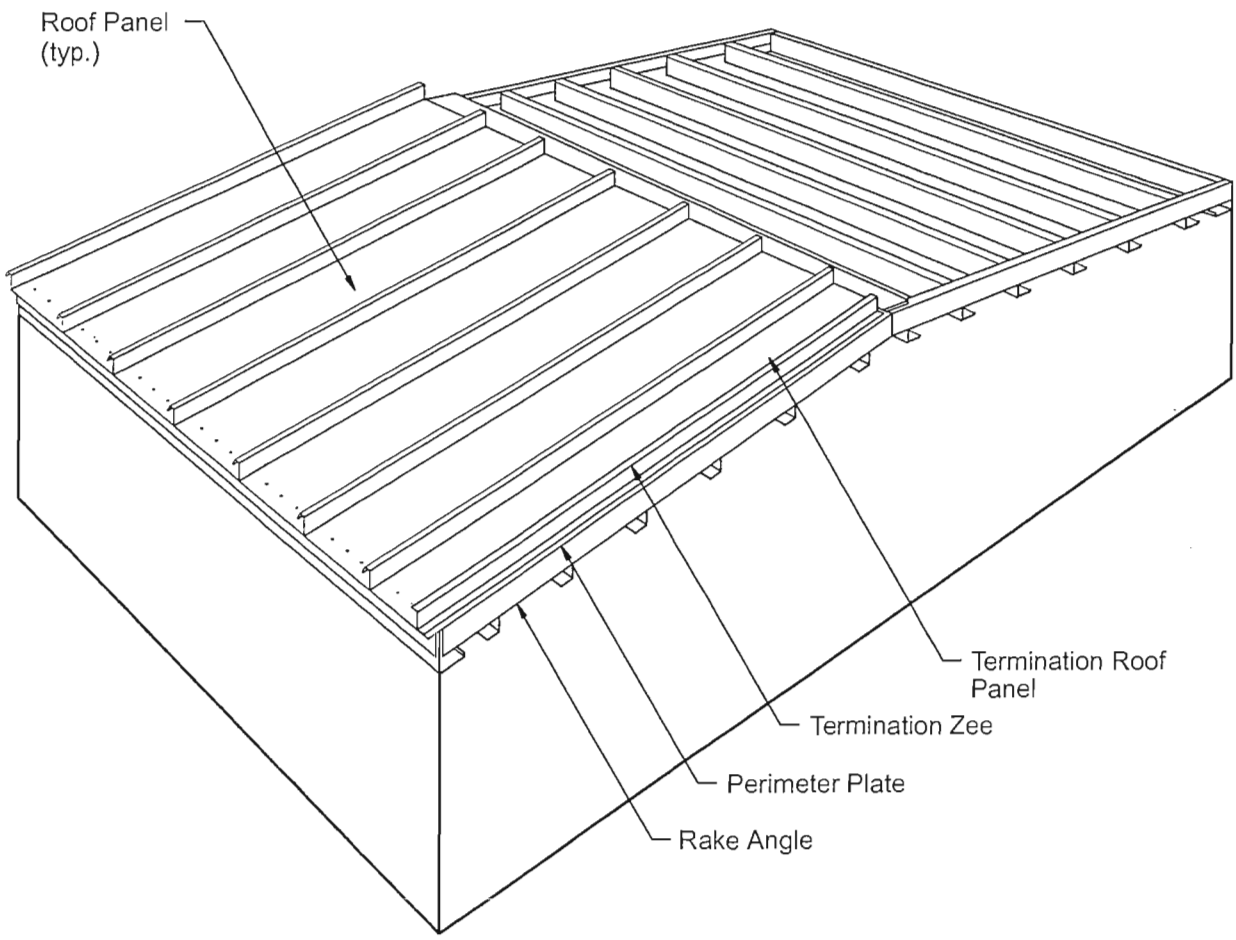
9.4 END DAM INSTALLATION



Verify that the end dam is correctly assembled as shown.

Check that there are no un-sealed voids between the roof panel and the end dam, especially in the critical areas around the roof panel ribs and seams.

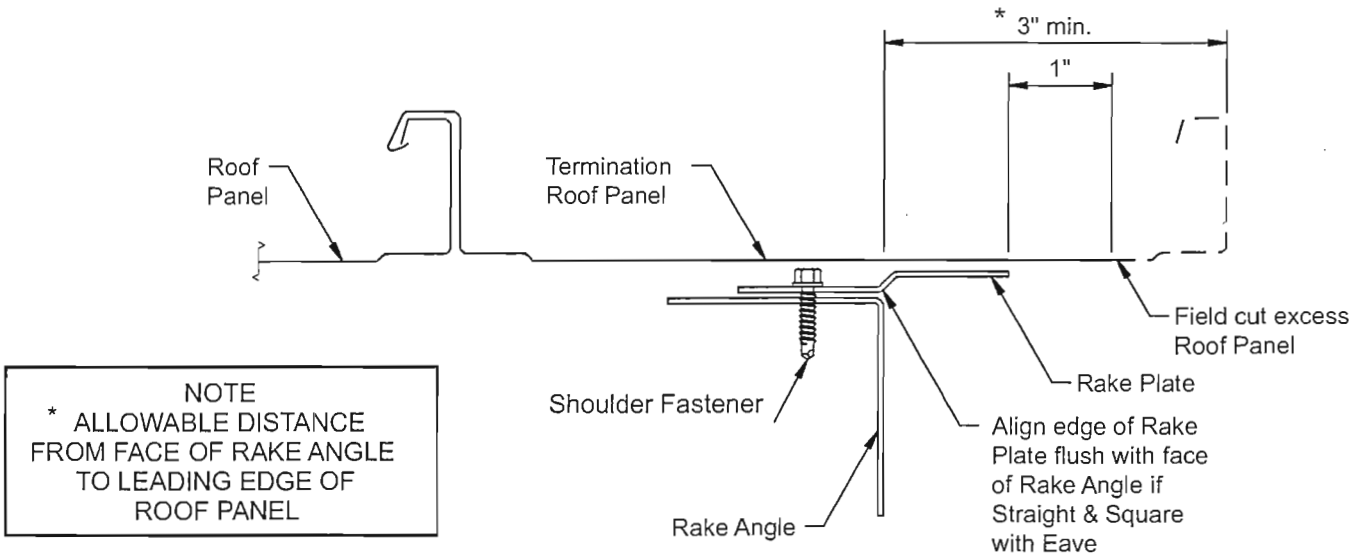
9.5 TERMINATION PANEL INSTALLATION



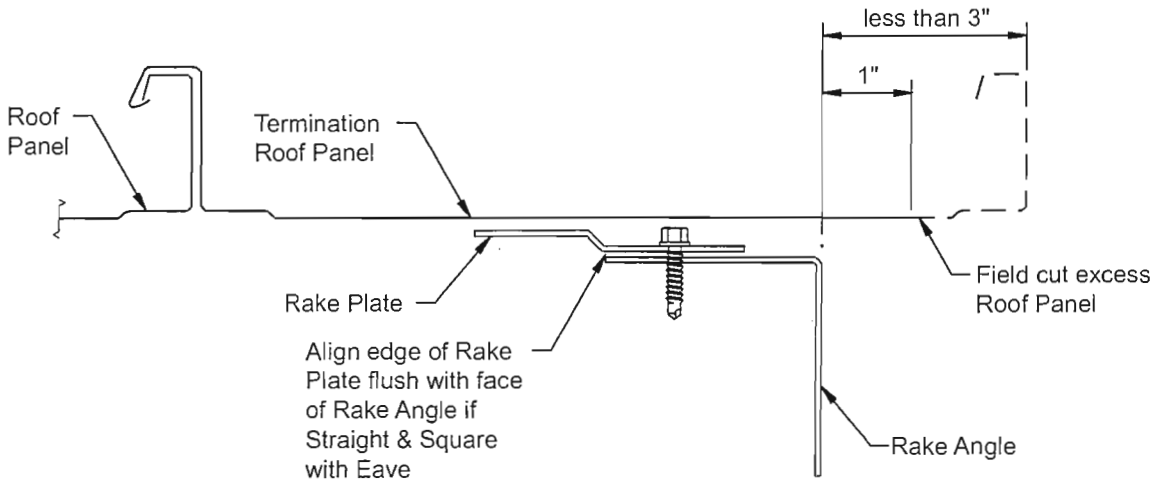
The details in this section show the installation of the termination roof panel and the termination zee.

The details show the termination roof panel installed at the finish rake. The installation of the termination panel at the starting rake is similar.

9.5 TERMINATION PANEL INSTALLATION



STANDARD RAKE PLATE POSITION



ALTERNATE RAKE PLATE POSITION

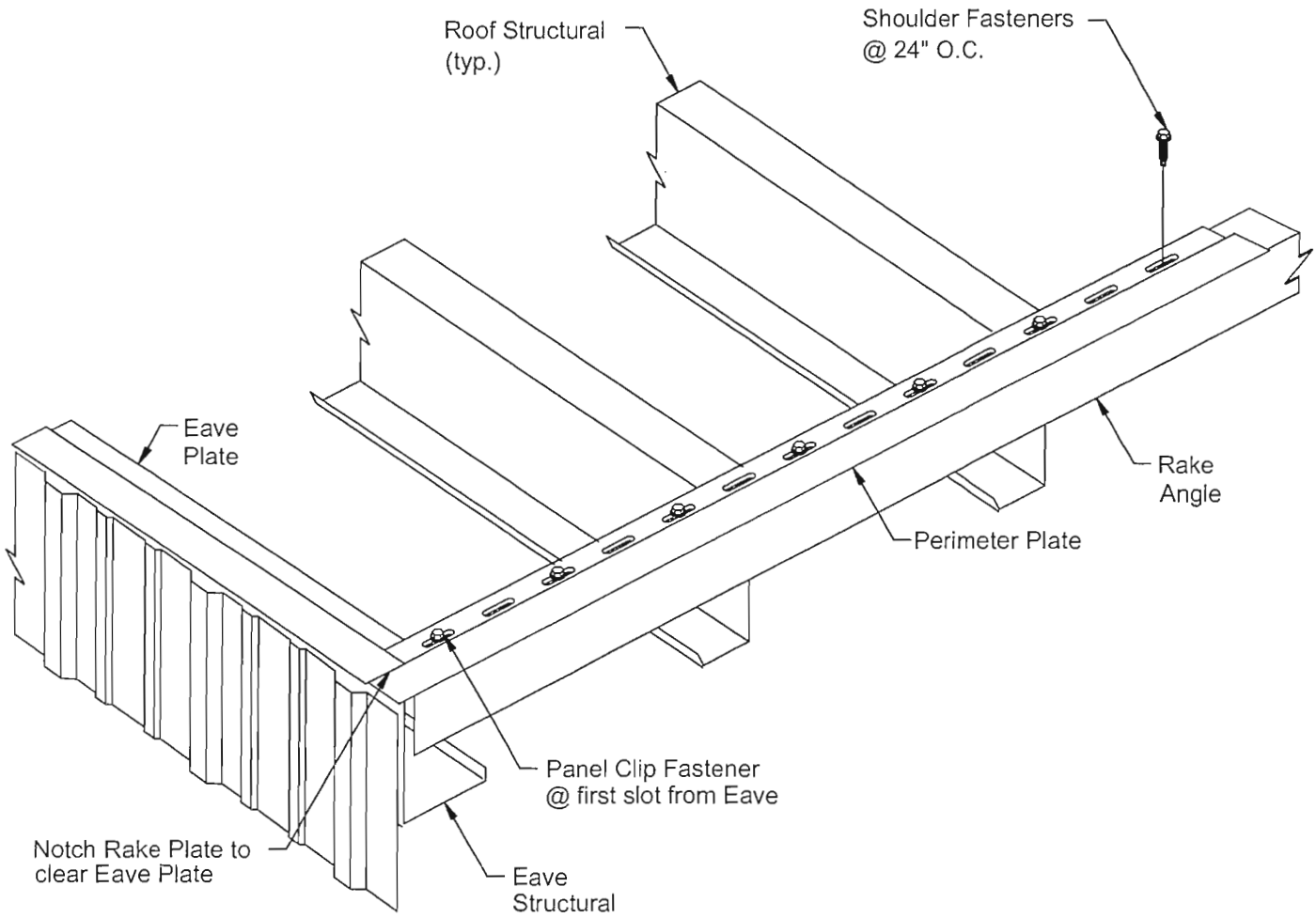
Refer to the erection drawings to determine which position to place the rake perimeter plate. The position of the rake perimeter plate will depend on the location of the termination roof panel as shown on the above illustrations.

If the leading edge of the panel extends 3" or more beyond the face of the rake angle, install the rake perimeter plate in the **standard** position.

If the leading edge of the panel extends less than 3" beyond the face of the rake angle, install the rake perimeter plate in the **alternate** position.

If the rake condition requires transition flashing, refer to the following page.

9.5 TERMINATION PANEL INSTALLATION



It is important that the rake perimeter plate is installed in a straight line and square with the eave.

If the rake angles have been installed straight and true, the edge of the rake angle can be used to align the rake perimeter plate.

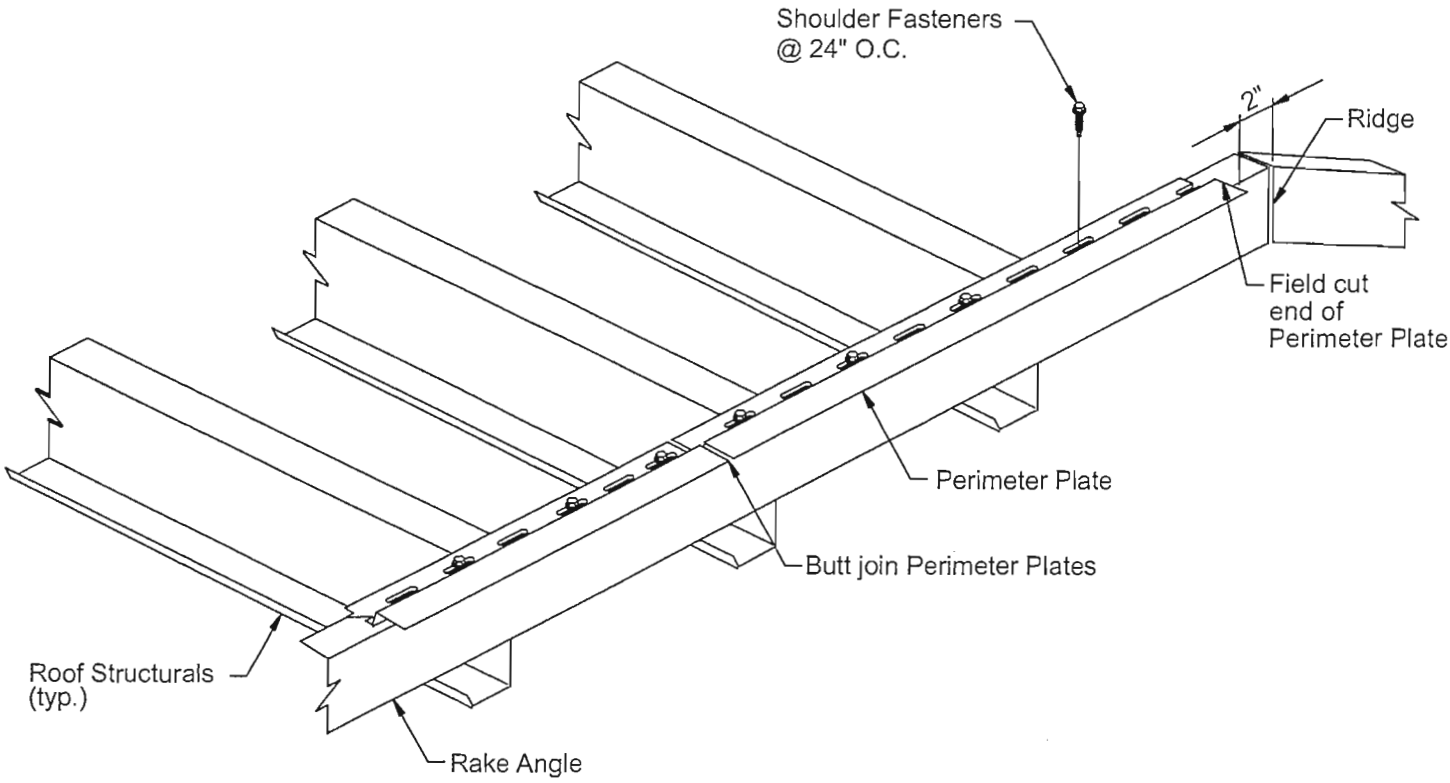
If the rake angle is not true and square, a chalk line should be used to guide the installation of the eave perimeter plate.

Start the end of the rake plate flush with the outer edge of the rake perimeter plate. Notch the bottom flange of the rake plate to clear the eave plate.

Secure the starting end of the perimeter plate to the rake angle with a clip fastener in the rake plate's first slot.

To allow for expansion/contraction movement, secure the rest of the rake plate run to the rake angle with **shoulder fasteners** spaced as shown. Install the shoulder fasteners in the center of the slots.

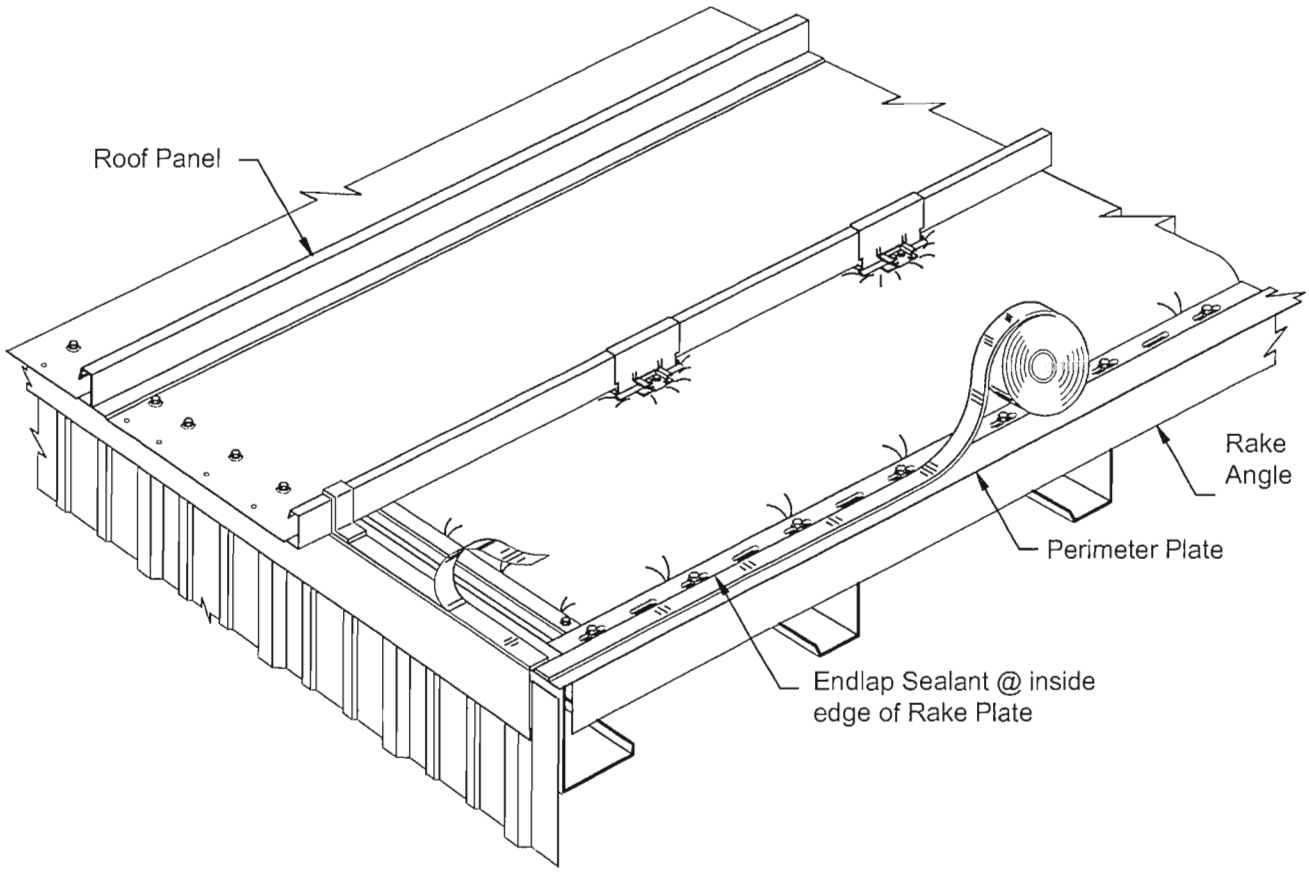
9.5 TERMINATION PANEL INSTALLATION



Butt join the ends of the rake perimeter plate. Install the shoulder fasteners in the slots on either side of the butt joints.

Field cut the last rake perimeter plate two inches (2") from the ridge line or high eave line.

9.5 TERMINATION PANEL INSTALLATION

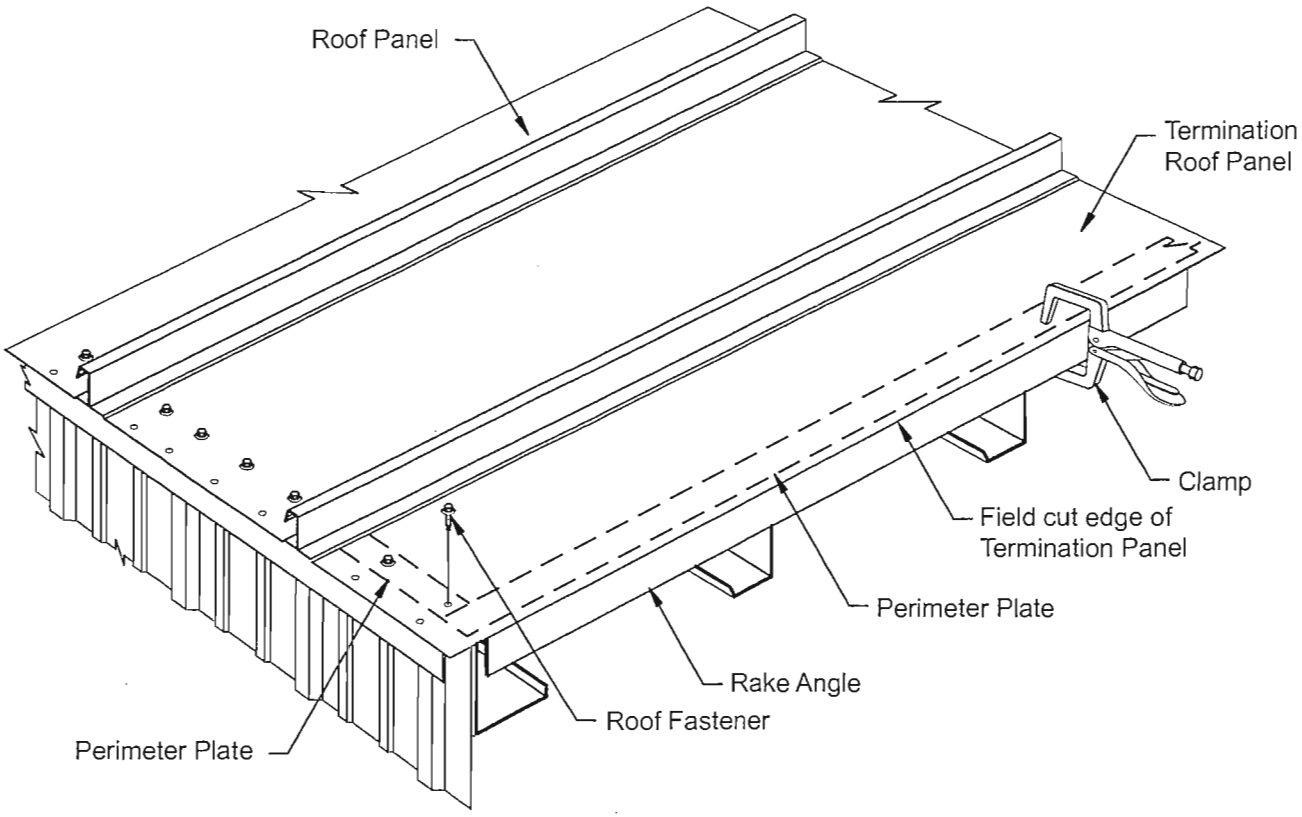


Install end lap sealant along the top flange of the rake plate as shown.

Position the edge of the sealant flush with the inside edge of the rake plate bend. At the eave, lap the end of the sealant on top of the eave sealant.

Do not remove the protection paper until immediately before installing the termination roof panel.

9.5 TERMINATION PANEL INSTALLATION



Field cut the termination roof panel to the required width. The cut edge of the panel should extend 1" beyond the outer edge of the rake perimeter plate's top flange.

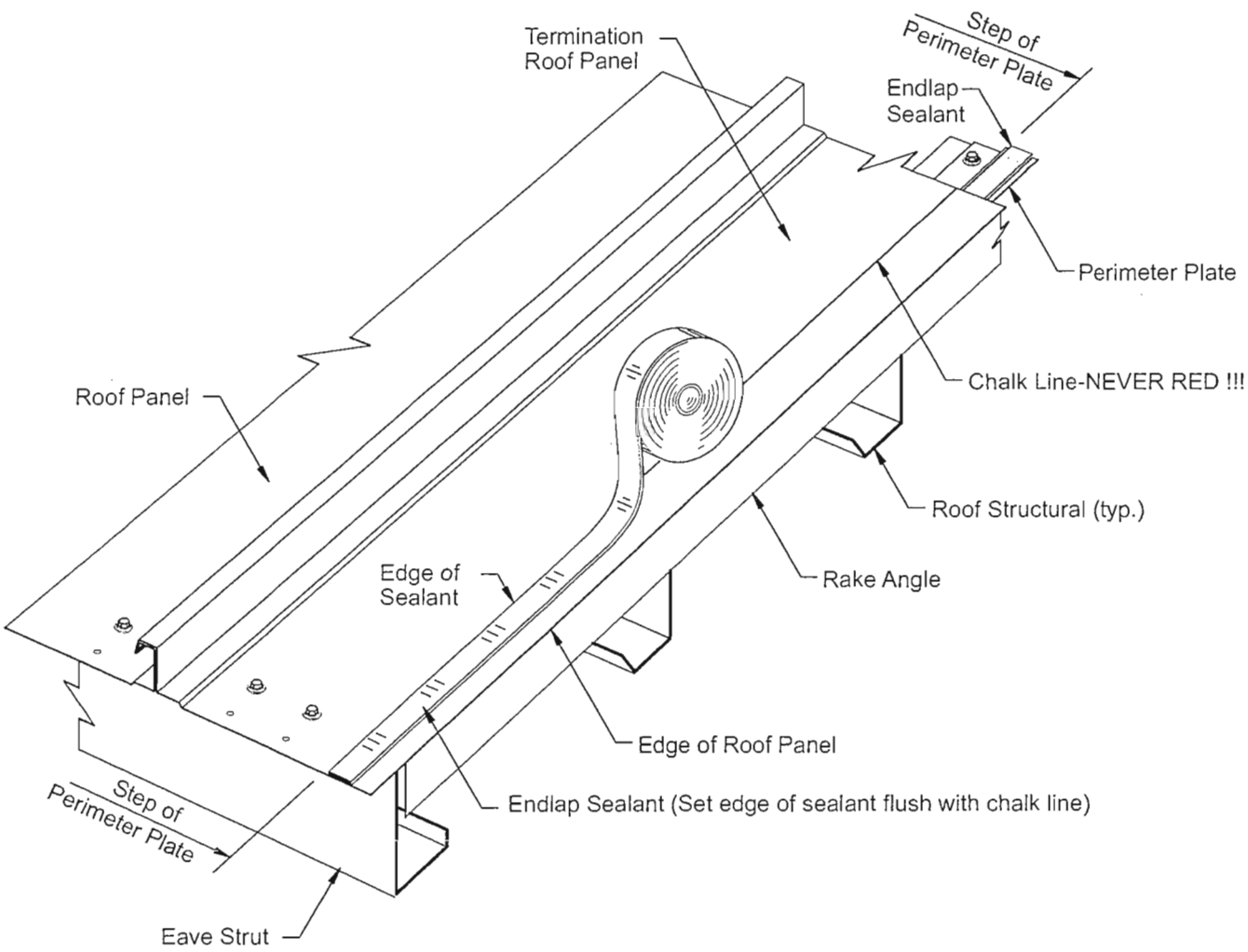
Along the cut edge of the termination roof panel, wipe the underside clean and dry.

Remove the protective paper from the eave sealant and rake perimeter plate sealant.

Install the termination panel into position as shown.

Install the eave fasteners and temporarily clamp the edge of the panel to the rake perimeter plate.

9.5 TERMINATION PANEL INSTALLATION



Along the cut edge of the termination roof panel, wipe the top surface clean and dry.

Install endlap sealant continuous along the edge of the termination roof panel as shown.

The sealant must be positioned directly over the rake perimeter plate's top flange. Layout the sealant location on the panel's top surface with a chalk line as shown. Align the chalk line with the rake perimeter plate's step **(no red chaulk)**.

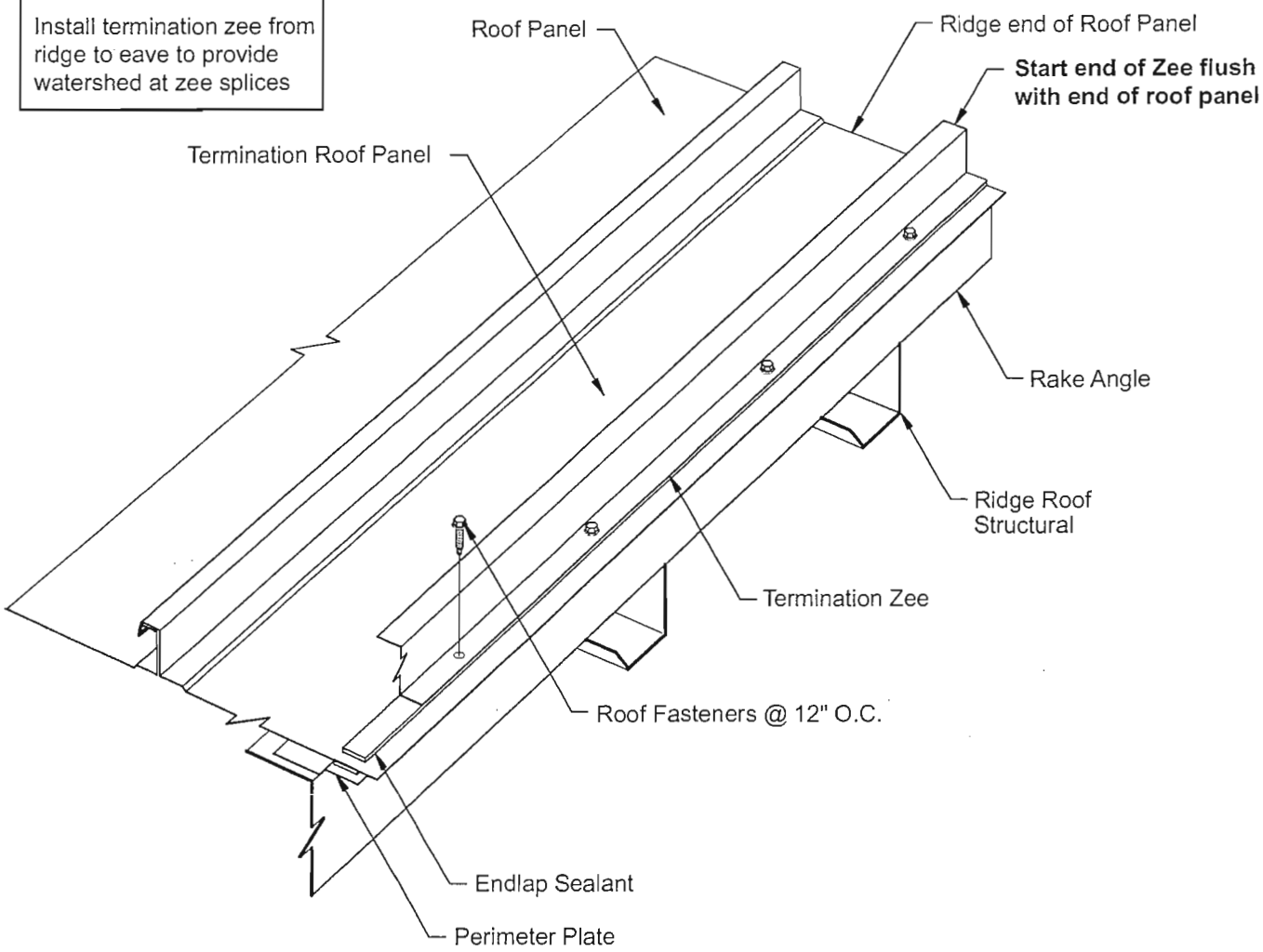
Position the edge of the sealant on the chalk line. Start and finish the ends of the sealant flush with the ends of the roof panel.
Check the entire length of the sealant to assure that it is correctly positioned and that there are no voids or thinned areas.

After the sealant has been correctly installed, lightly press the sealant against the roof panel to assure adhesion. Do not use excess pressure which can thin the sealant.

9.5 TERMINATION PANEL INSTALLATION

IMPORTANT

Install termination zee from ridge to eave to provide watershed at zee splices



The termination zee must be installed from ridge-to-eave to provide for watershed at the termination zee splices.

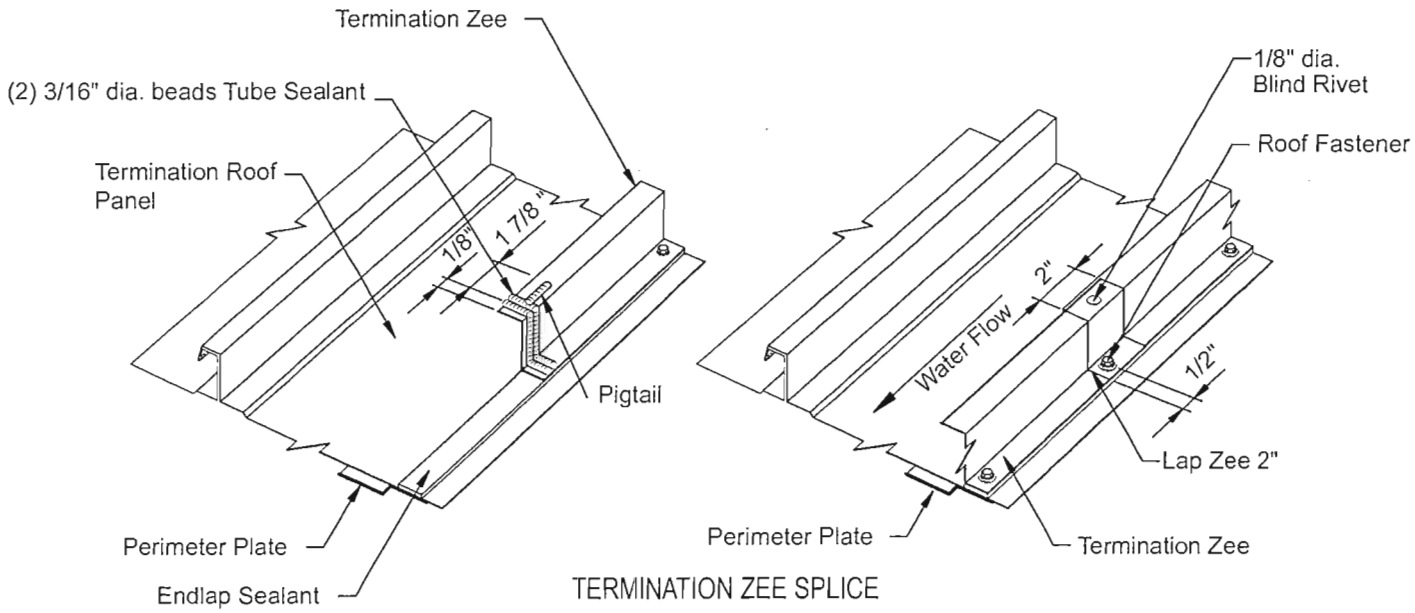
Install the termination zee on top of the sealant as shown.

Position the zee so its bottom flange is turned outward and its inside edge is flush with the inside edge of the sealant. Position the end of the zee flush with the uphill end of the roof panel.

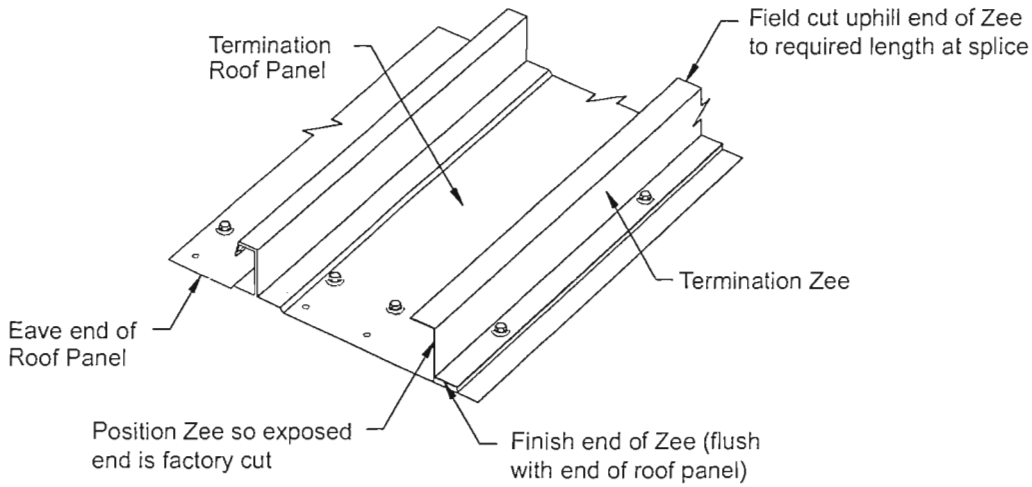
Uniformly press the zee against the sealant to assure adhesion.

Attach the termination zee with the roof fasteners at 12" spacing. Check that the fasteners penetrate the center of the sealant and securely engage the rake perimeter plate.

9.5 TERMINATION PANEL INSTALLATION



TERMINATION ZEE SPLICE



TERMINATION ZEE AT EAVE

Apply two 3/16" beads of tube sealant along the downslope end of the termination zee as shown.

Position the next downhill zee overlapping the previously installed zee by 2".

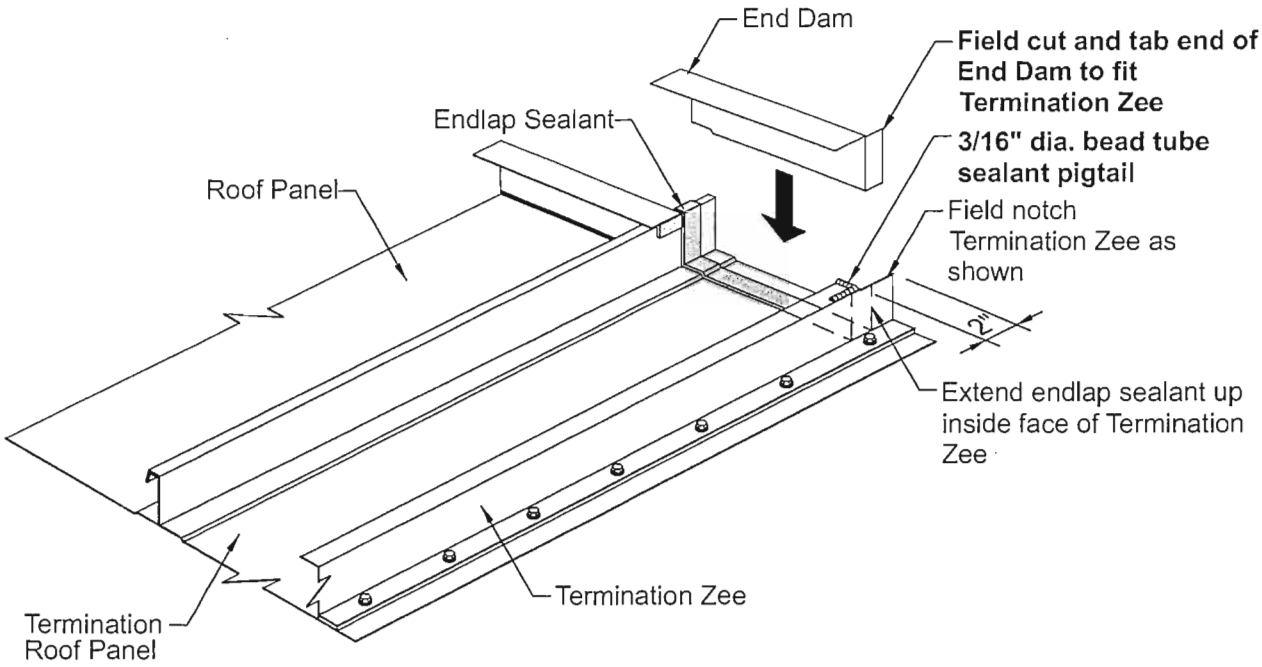
Clamp the lapped zee while installing the fasteners.

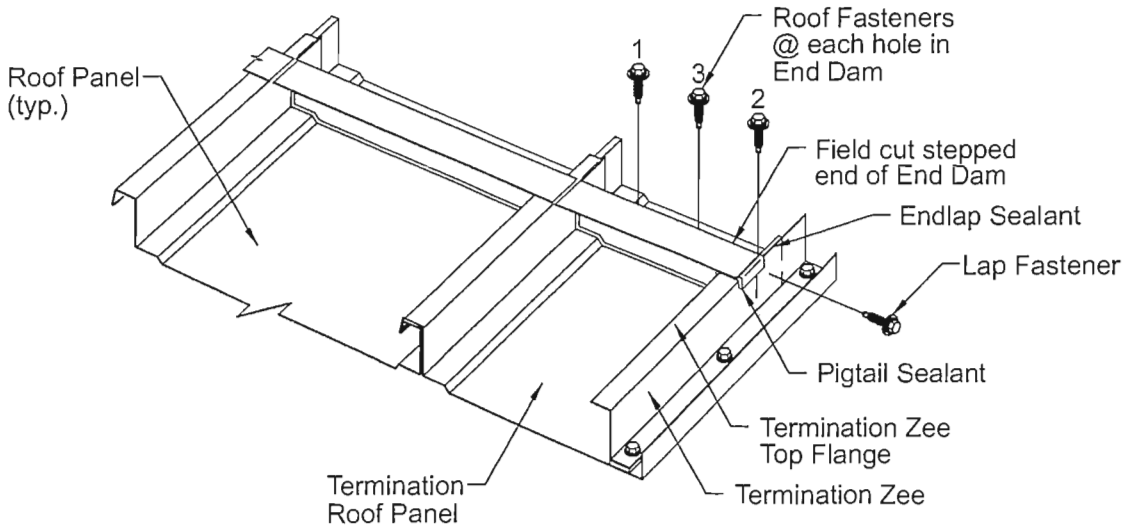
Attach the next zee with roof fasteners. Install the first fastener through the lapped bottom flanges.

Install a 1/8" pop rivet through the lapped upper flanges.

Position the last zee so its down slope end is flush with the eave end of the roof panel. Then cut the up-slope end for a 2" lap at the splice.

9.5 TERMINATION END DAM INSTALLATION



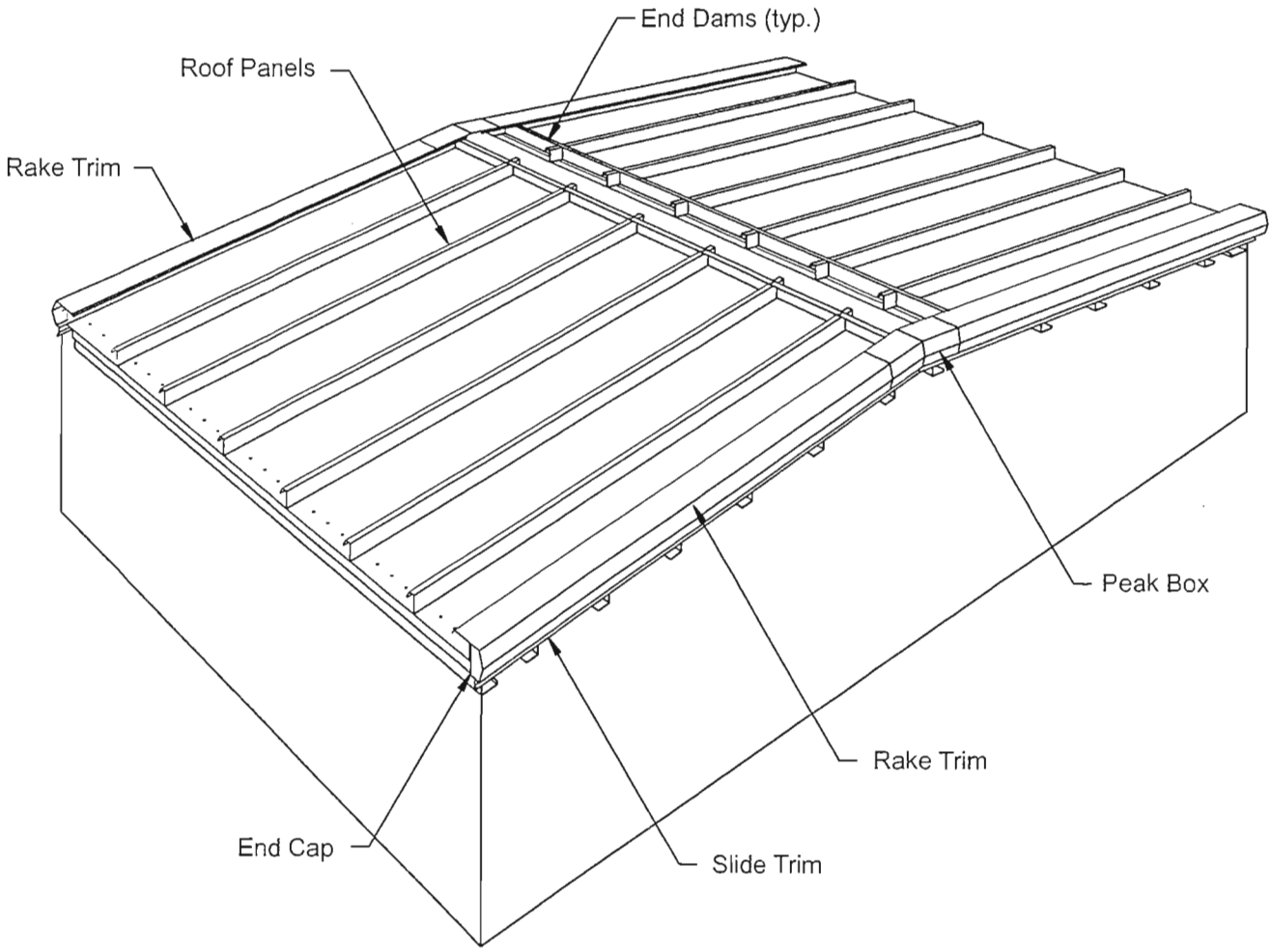


An end dam must be field modified to fit between the roof panel rib and the termination zee.

Install the ridge sealant to extend up the face of the termination zee as shown.

Field modify the end dam as shown above and install as shown.

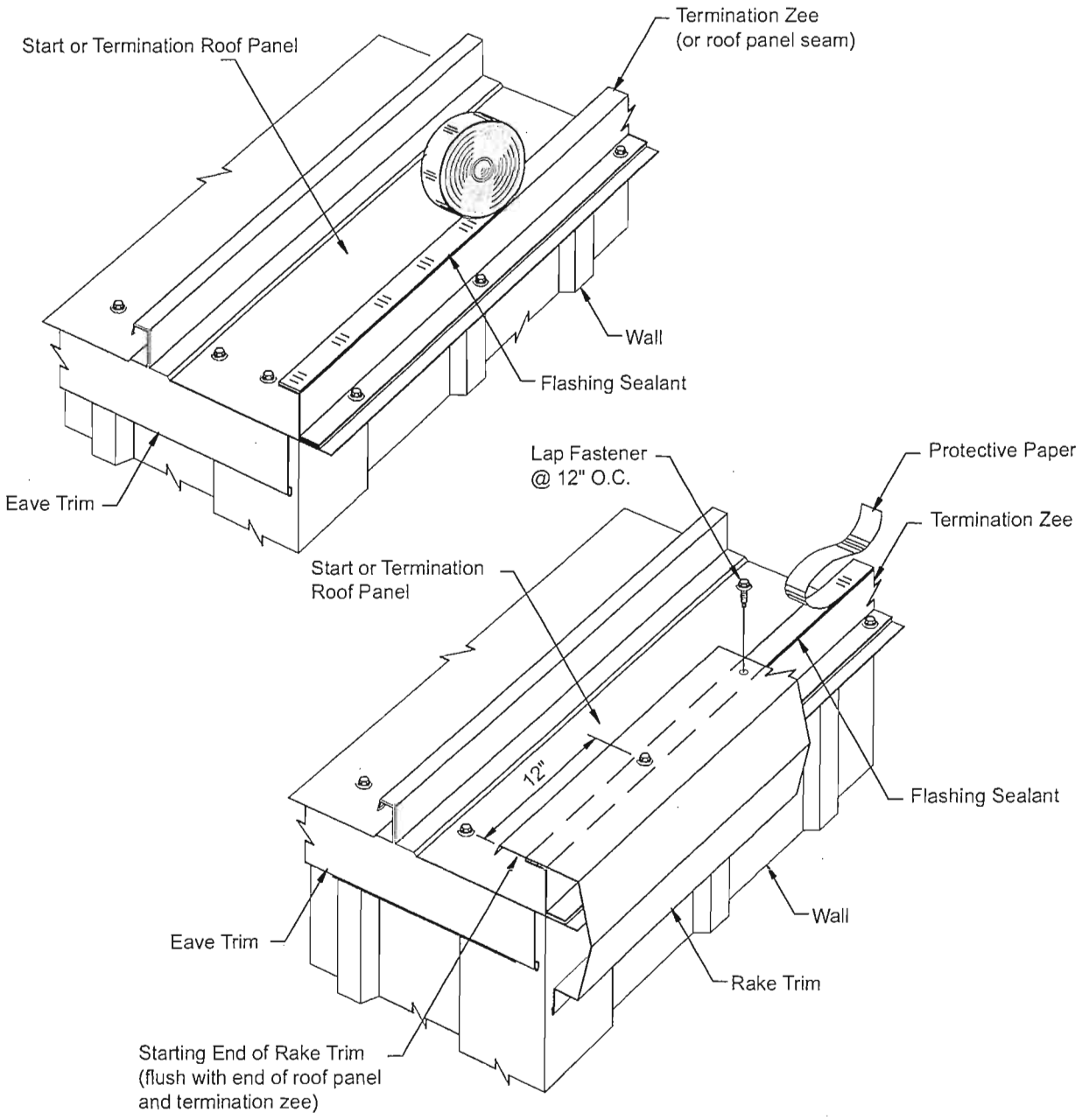
9.6 RAKE TRIM INSTALLATION



The details in this section show the installation of the rake trim, peak box and end caps.

These details show the rake trim at a termination roof panel condition. The details at a starting roof panel condition are similar.

9.6 RAKE TRIM INSTALLATION



Install the rake trim from eave to ridge to provide for water-shed at the splices.

Install flashing sealant continuous along the top flange of the termination zee (or roof panel seam).

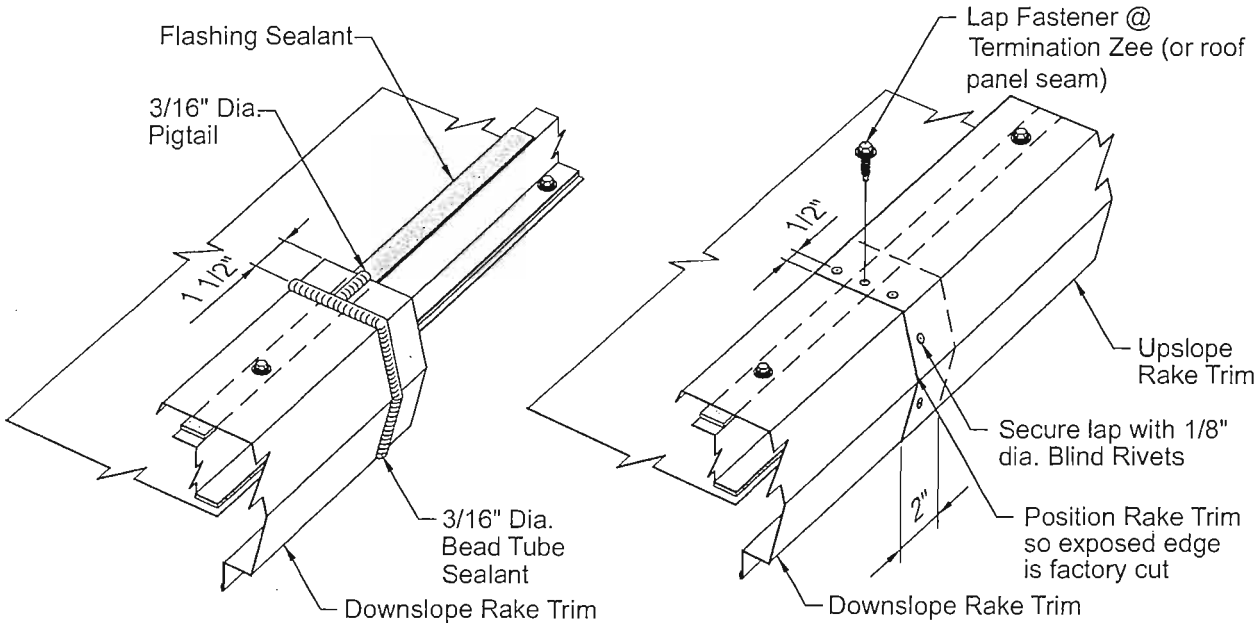
Start the down-slope end of the rake trim flush with the end of the roof panel.

Check that the rake trim is properly aligned with the face of the wall panel.

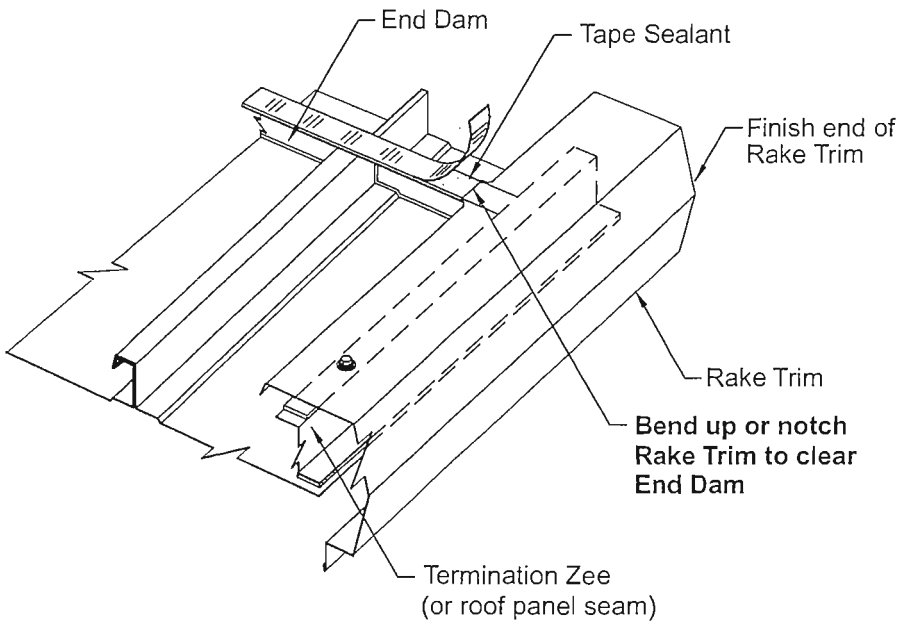
Fasten the rake trim to the termination zee with lap fasteners at 12" spacing, as shown. **Be sure the fasteners do not penetrate the start clip tabs and are 2" from each side.**

Be sure to check that the fasteners penetrate the center of the sealant and securely engage the termination zee (or roof panel seam).

9.6 RAKE TRIM INSTALLATION



RAKE TRIM SPLICE



RAKE TRIM @ RIDGE

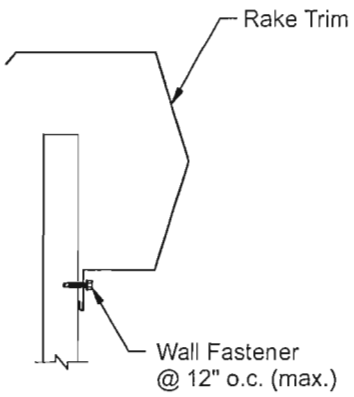
Assemble rake trim splices with tube sealant and rivets as shown.

Bend or notch the rake trim's lip to clear the top flange of the end dam.

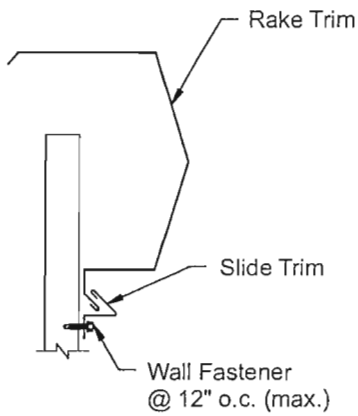
At the ridge, field cut the uphill end of the rake trim 2" back from the center line of the ridge.

At a high eave transition, field cut the end of the rake trim as required for a weathertight joint with the adjacent construction.

9.6 RAKE TRIM INSTALLATION

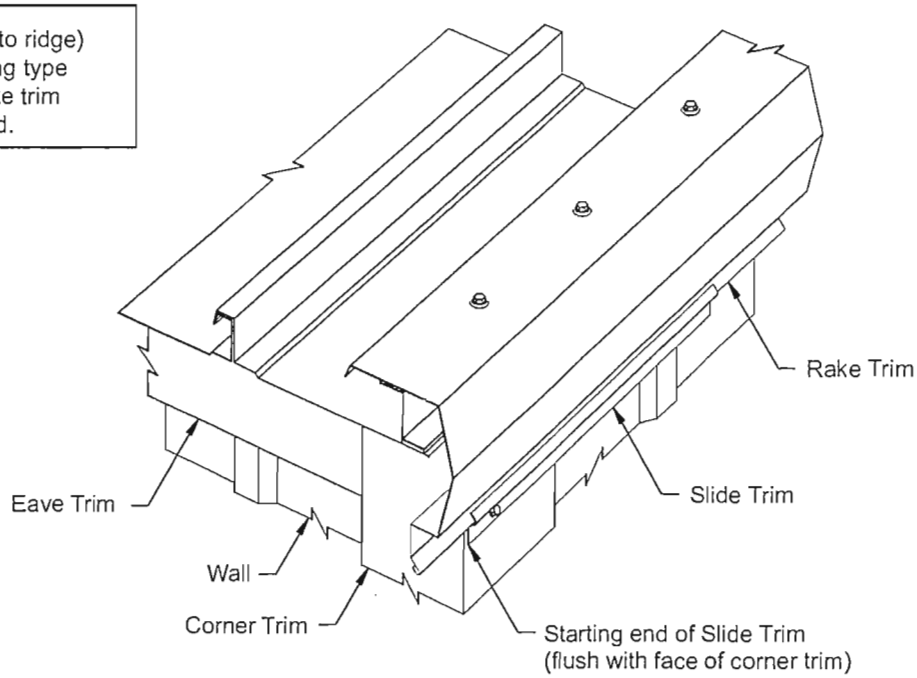


FIXED ATTACHMENT
(25' or Less)



SLIDING ATTACHMENT
(Greater than 25')

IMPORTANT
For rake lengths (eave to ridge) exceeding 25', a sliding type attachment of the rake trim to wall is required.



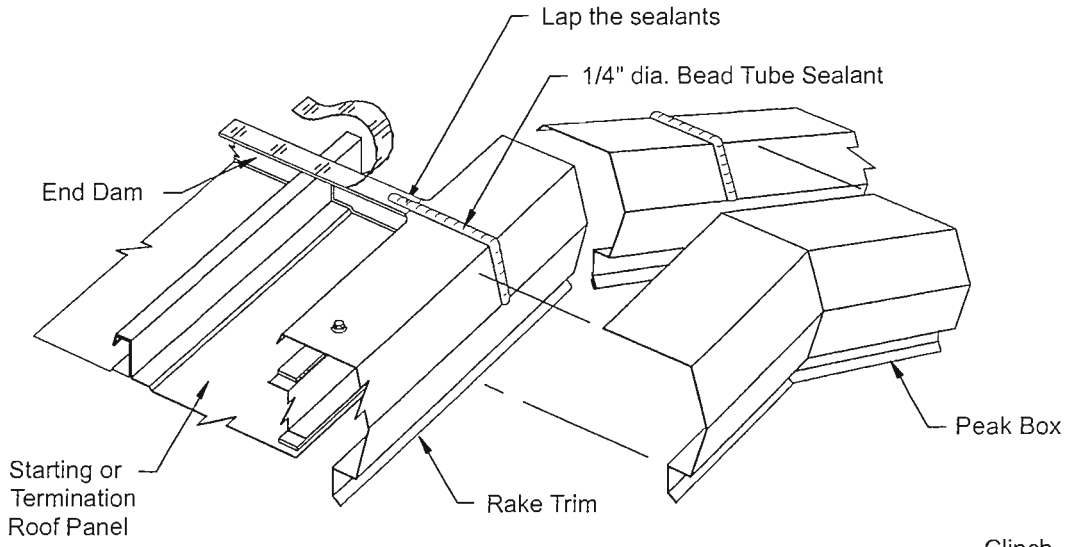
If the rake trim run is 25' or less, the bottom edge of the rake trim can be attached directly to the wall with wall fasteners as shown.

If the rake trim run exceeds 25', the bottom edge of the rake trim must be secured with the slide trim to allow for roof expansion/contraction.

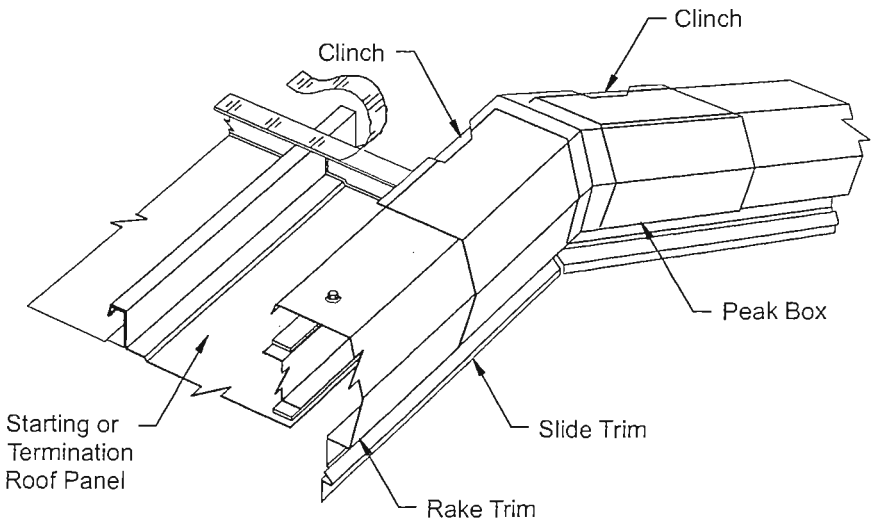
Install the slide trim continuous along the bottom edge of the rake trim as shown.

In all cases, the bottom edge of the rake trim must be installed straight and parallel to the roof line. Use a chalk line to guide the alignment of the rake trim's bottom edge.

9.6 RAKE TRIM INSTALLATION



NOTE
If slide trim is not required, attach Peak Box to Rake Trim with 1/8" dia. blind rivets.



If the rake trim does not require the slide trim for expansion/contraction, the peak box can be installed with tube sealant and rivets in the same manner as a splice.

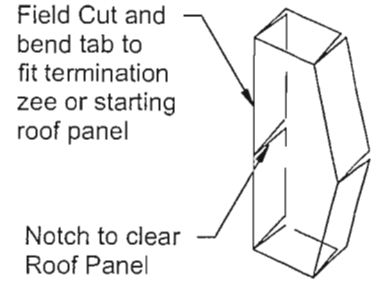
If the rake trim requires the slide trim for expansion/ contraction, the peak box must be installed as shown in the above details.

Secure the top of the peak box by clinching its top edge around the top edge of the rake trim.

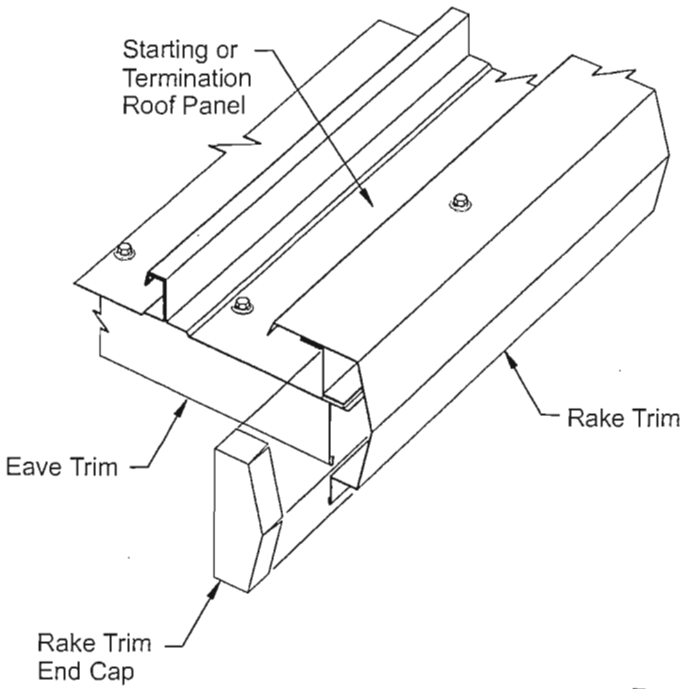
Secure the bottom edge of the peak box with the slide trim.

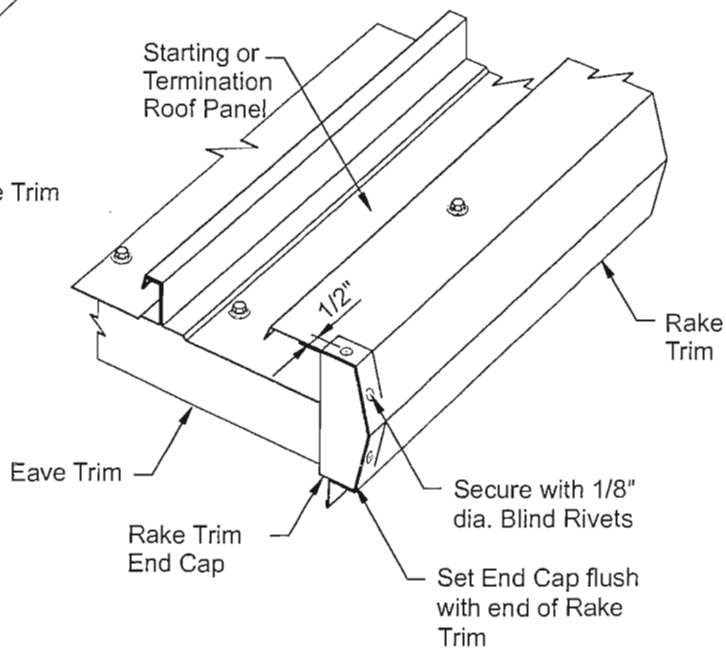
9.6 RAKE TRIM INSTALLATION

NOTE
Rake Trim End Cap is not required when eave has Eave Gutter or Eave Box Trim



END CAP DETAIL



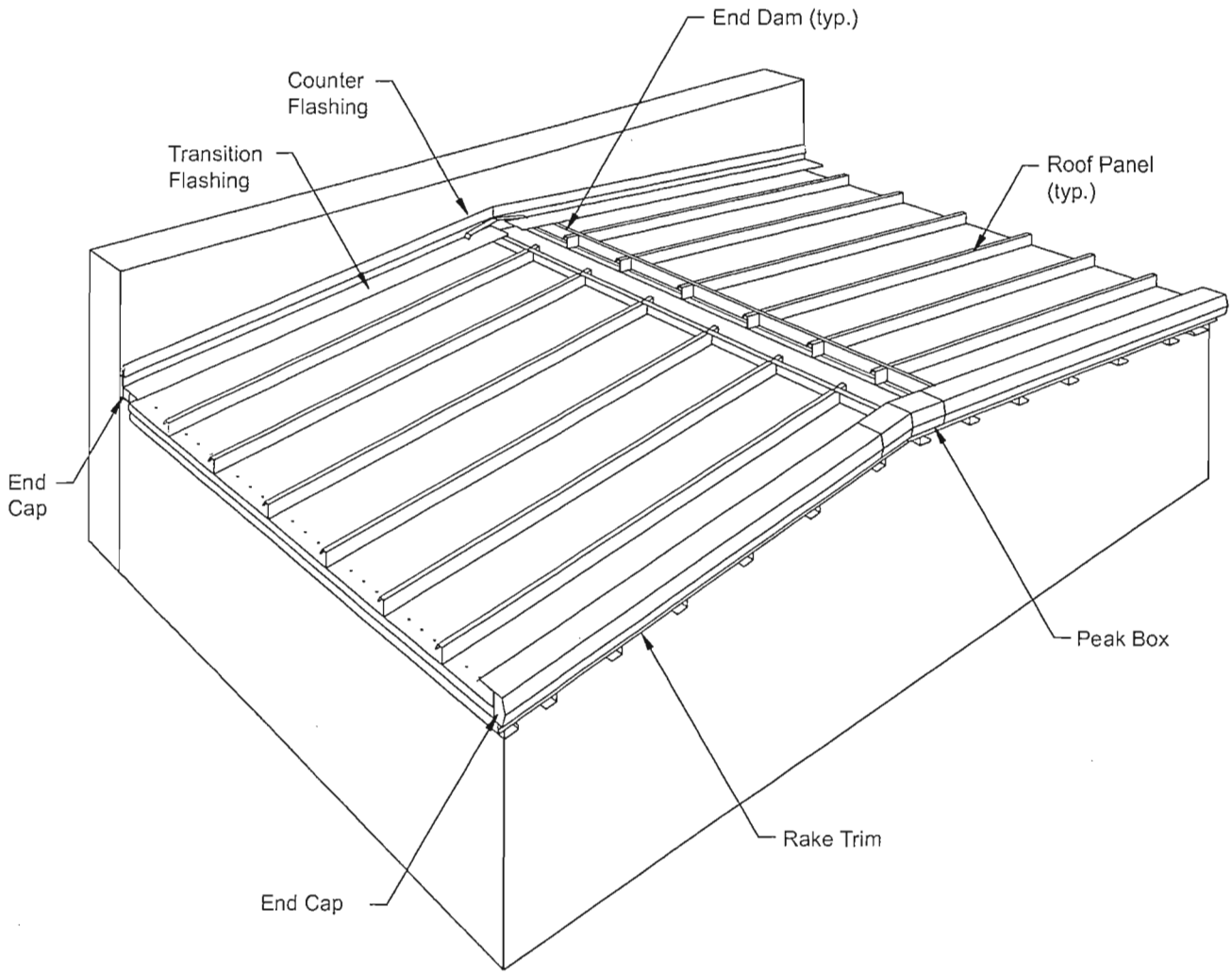


The rake trim end cap is only required for roof applications without eave gutter.

The end cap must be field cut and a tab bent to fit the termination zee or starting roof panel as shown.

Install the end cap with tube sealant and rivets in the same manner as a splice.

9.7 RAKE TRANSITION INSTALLATION



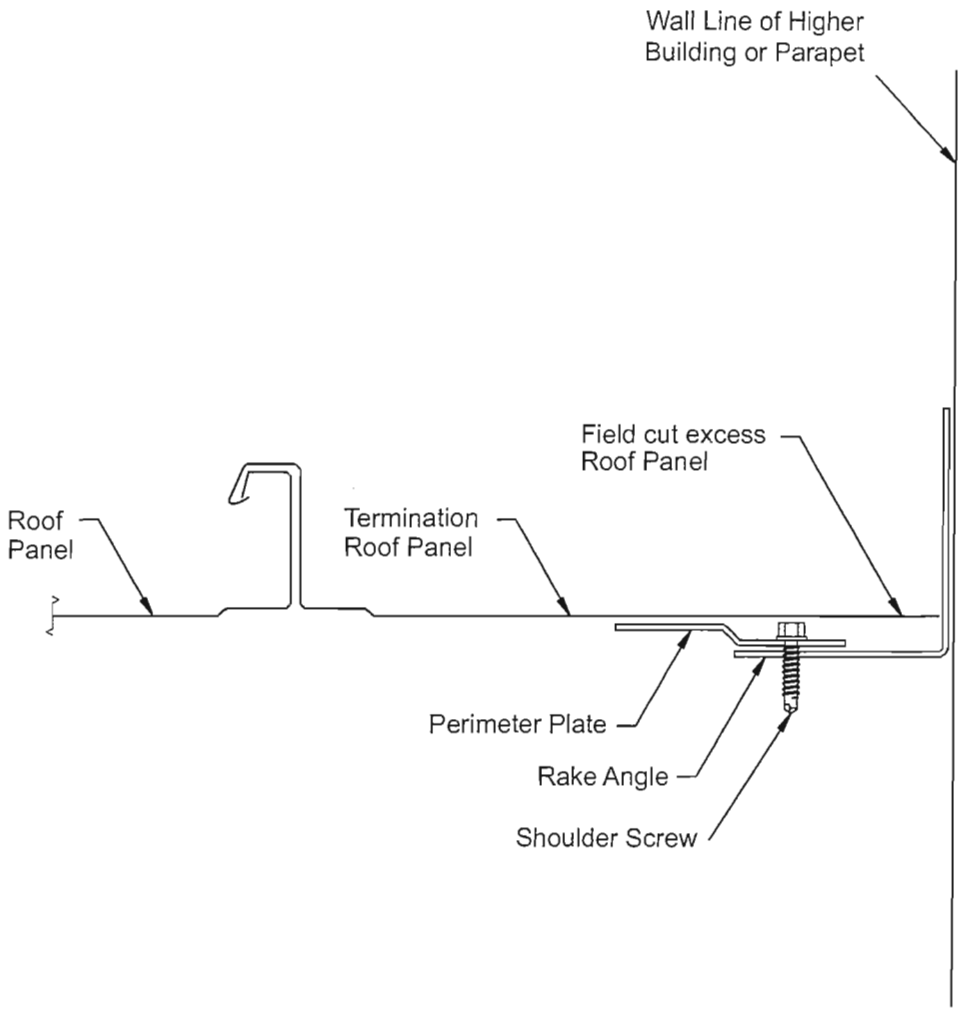
The details in this section show the installation of the rake transition flashing.

Counter flashing details are not shown. Refer to the erection drawings for the required counter flashing.

In all cases, verify that counter flashing will:

1. Allow expansion/contraction of the transition flashing.
2. Restrain the transition flashing during roof live loads and wind loads.
3. Provide a weather resistant seal between the transition flashing and the wall.

9.7 RAKE TRANSITION INSTALLATION

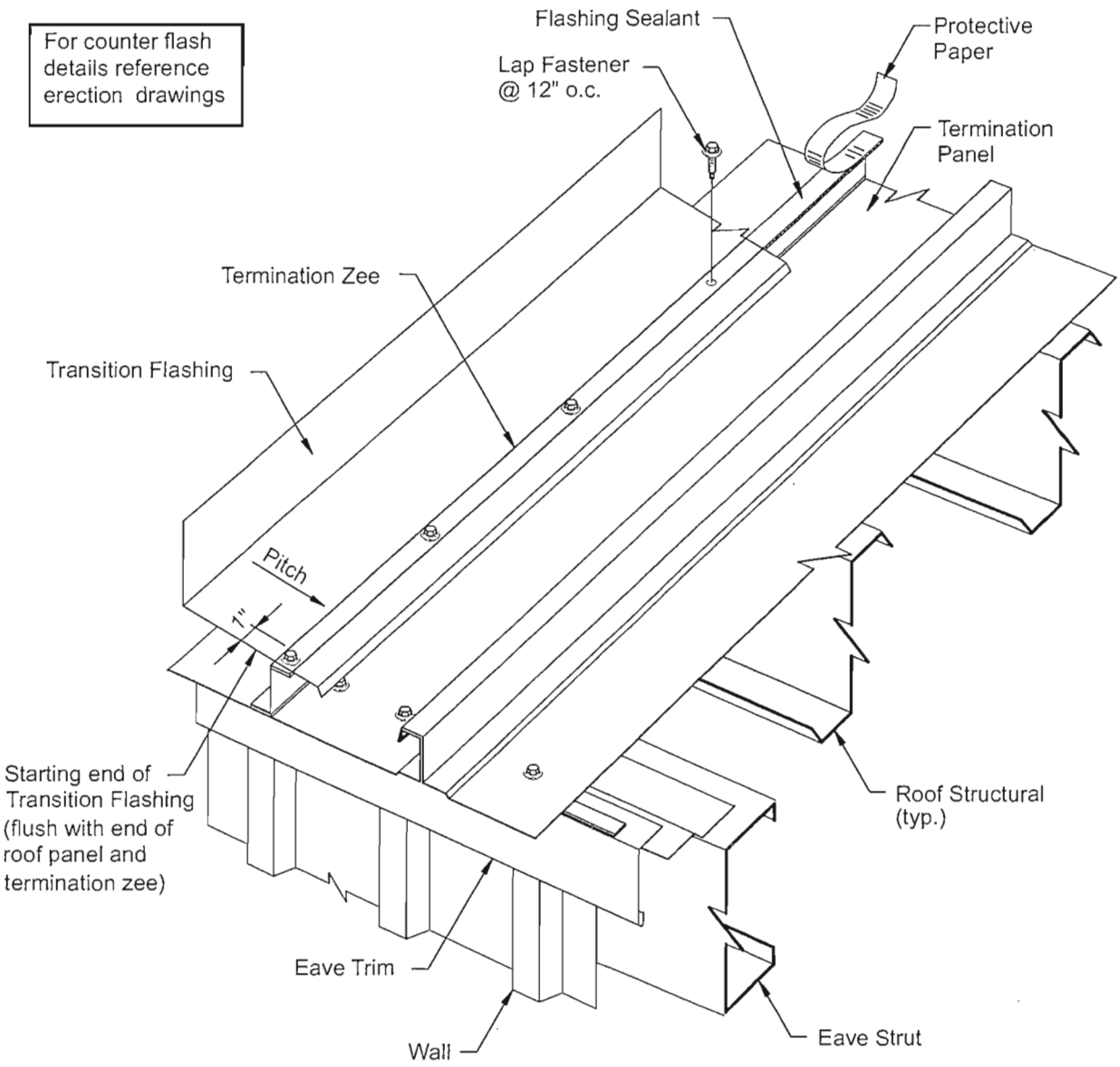


RAKE PERIMETER AT HIGH WALL

For rake to wall transition conditions, position rake plate as shown.

Refer to the erection drawings for the required spacing of the rake plate from the face of the rake angle.

9.7 RAKE TRANSITION INSTALLATION



Install termination zee per standard details. Install the transition flashing from eave to ridge to provide for watershed at the splices.

Install flashing sealant continuous along the bottom flange of the termination zee, making sure the bottom flange is pointed inwards and fasten. Start at the ridge and down towards the eave.

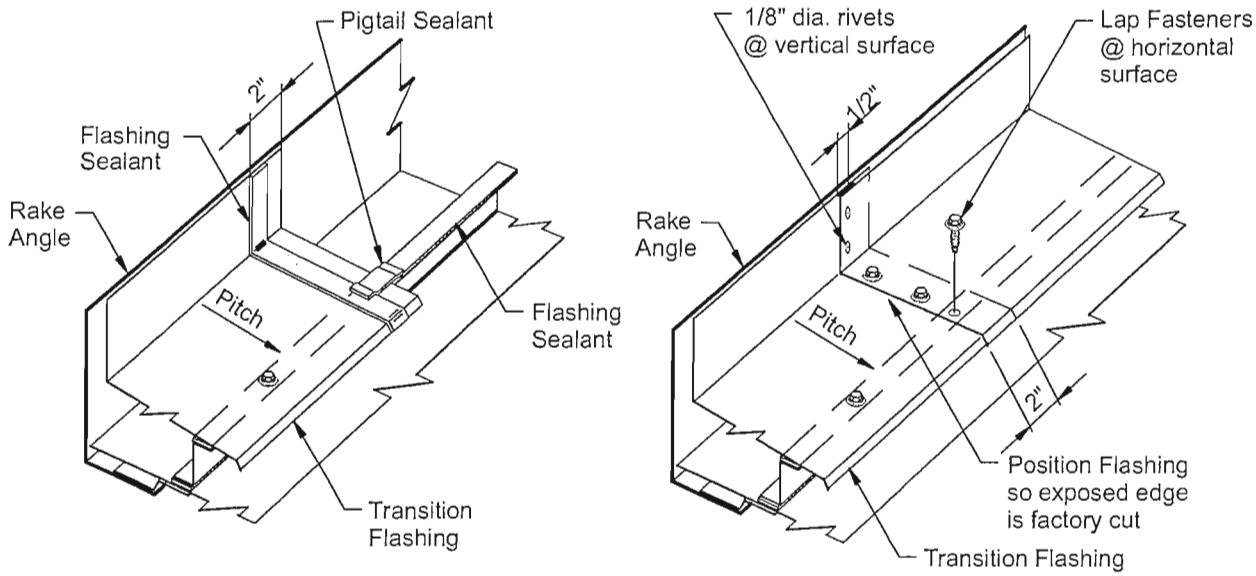
Start the downslope end of the transition flashing flush with the end of the roof panel and position the back leg flush with the rake angle or wall construction.

Be sure to raise the vertical leg of the transition flashing to provide a positive pitch to assure watershed.

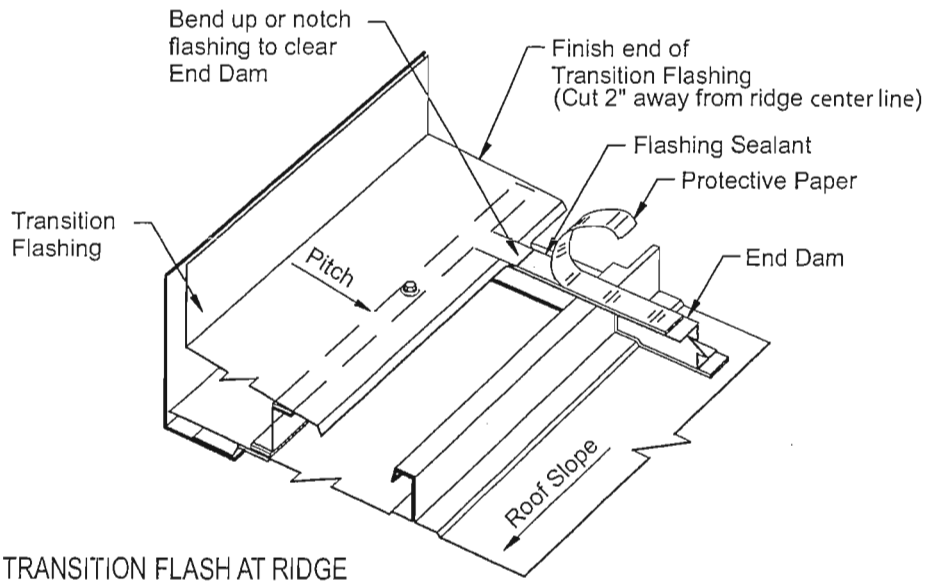
Attach the flashing to the termination zee with lap fasteners at 12" spacing as shown.

Check that the fasteners penetrate the center of the sealant and securely engage the termination zee.

9.7 RAKE TRANSITION INSTALLATION



TRANSITION FLASHING SPLICE



TRANSITION FLASH AT RIDGE

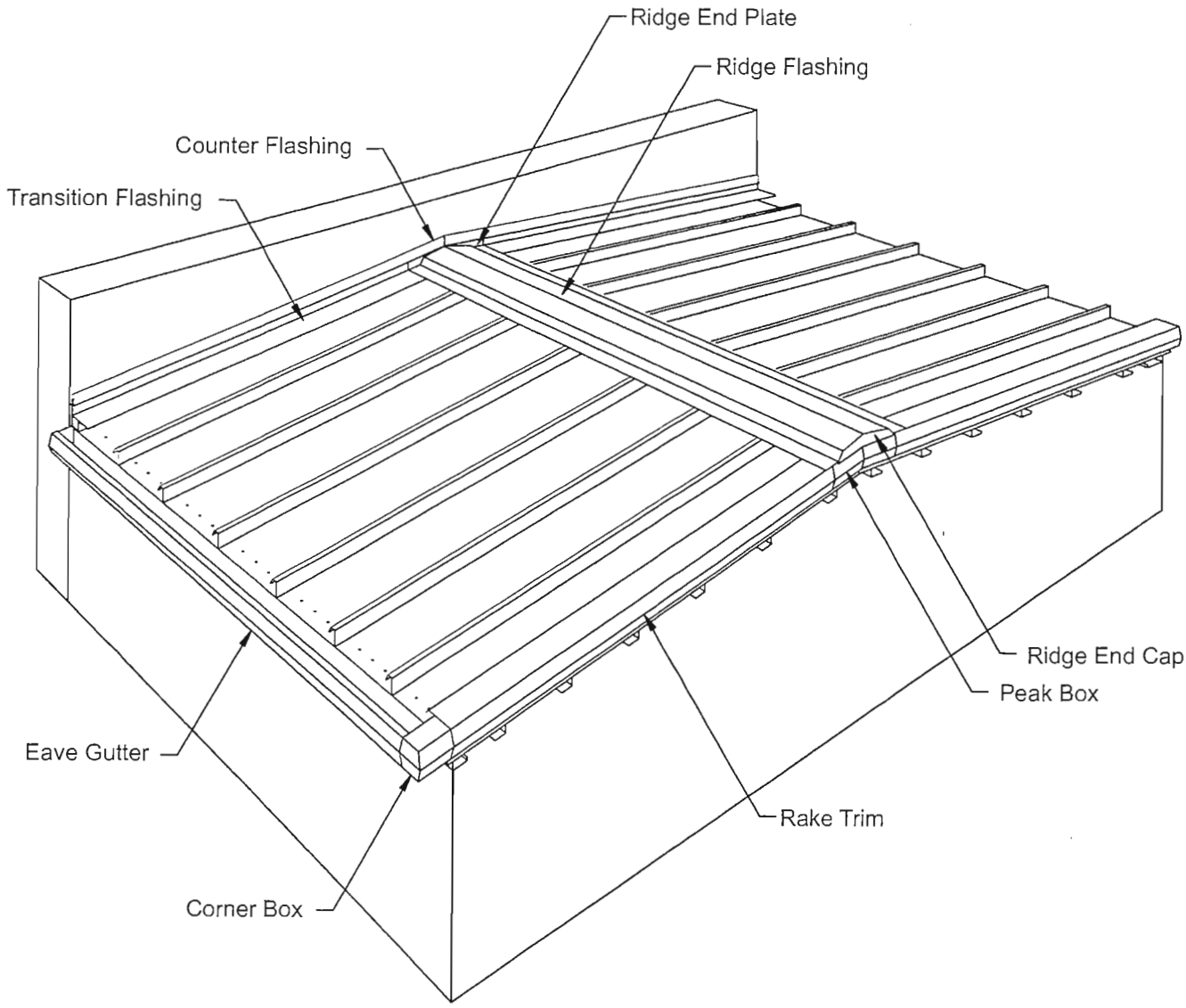
Assemble transition flashing splices with flashing sealant and lap fasteners as shown. Wipe dry and clean the lapping surfaces of the flashing.

Bend or notch the flashing's lip to clear the top flange of the end dam.

At the ridge, field cut the end of the flashing 2" away from the center line of the ridge.

At a **high eave transition**, field cut the end of the flashing as required for a weathertight joint with the adjacent construction.

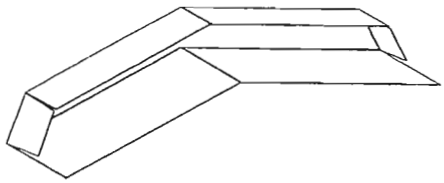
9.8 RIDGE COVER INSTALLATION



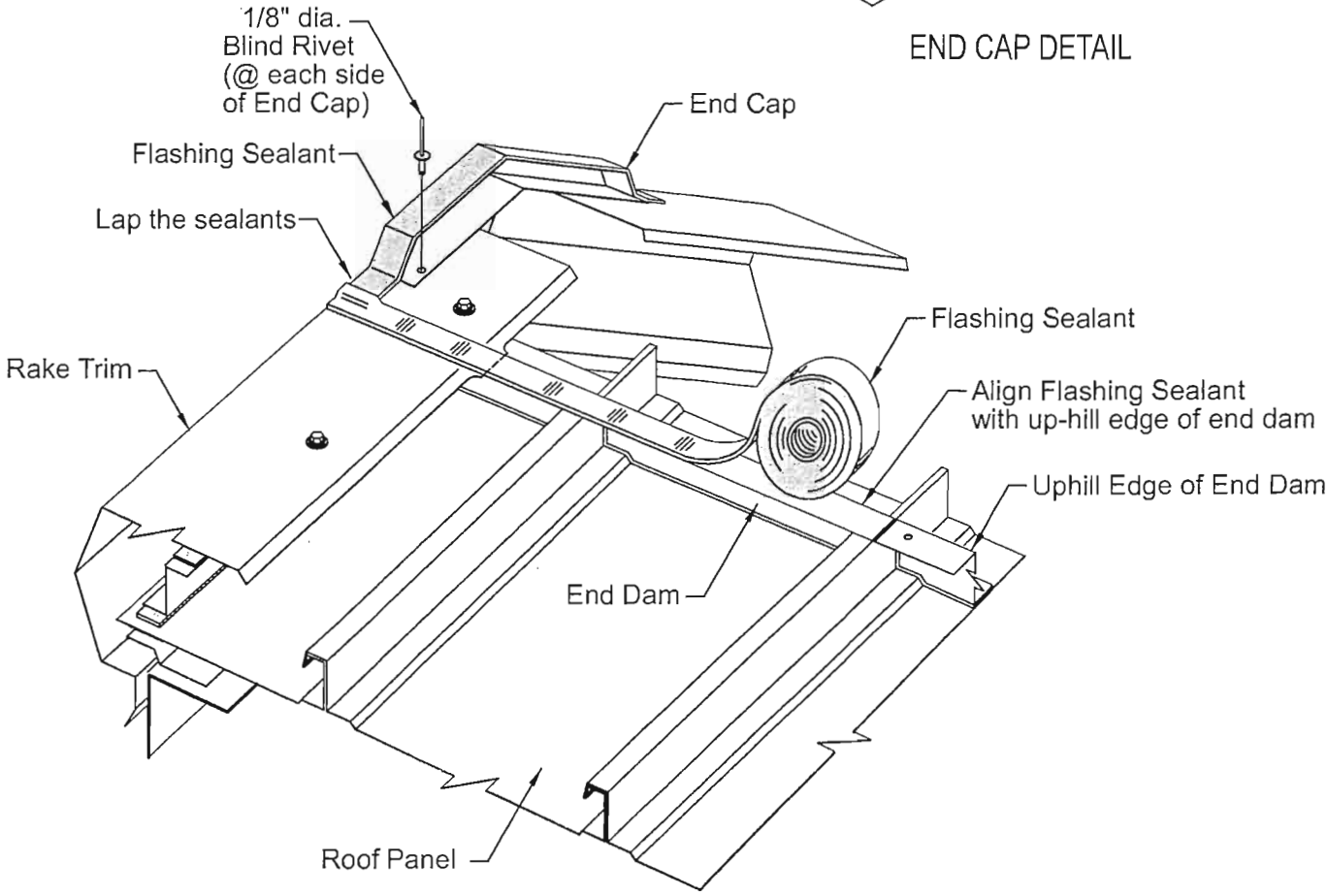
The details in this section show the installation of the ridge cover.

The ridge cover can start or finish at either a rake trim condition or a rake transition condition.

9.8 RIDGE COVER INSTALLATION



END CAP DETAIL



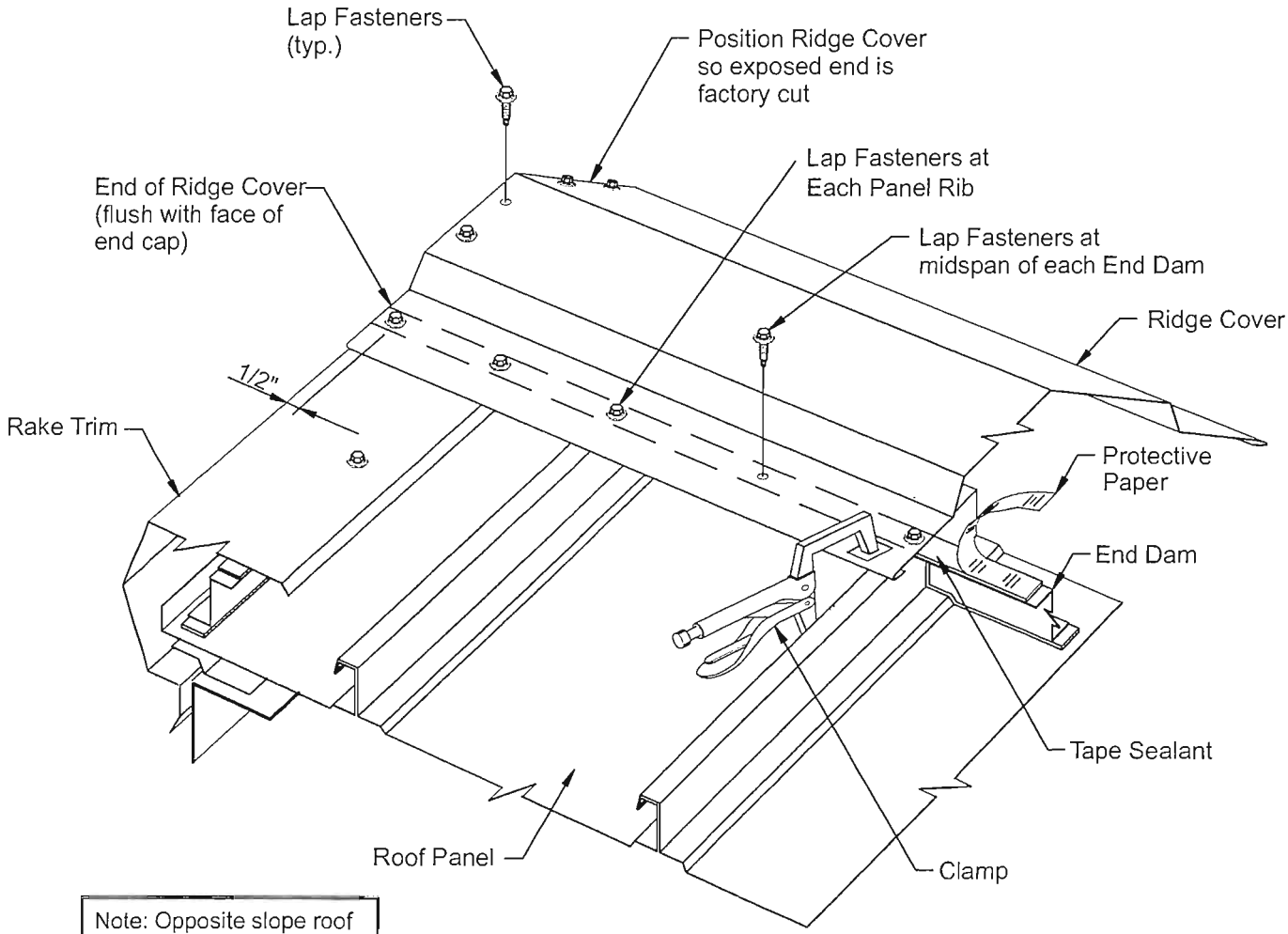
Position the end cap so its face is flush with the face of the rake trim.

Fasten the end cap to the rake trim with (2) rivets as shown.

Install flashing sealant on top of the end cap as shown. Align the edge of the sealant flush with face of the end cap and extend the sealant to align with the end dams uphill edge.

Install flashing sealant continuous along the top flange of the end dams. Lap the end of the sealant over the end cap sealant.

9.8 RIDGE COVER INSTALLATION



Install the ridge cover to span across the opposing end dam runs as shown.

Position the end of the ridge cover flush with the face of the end cap.

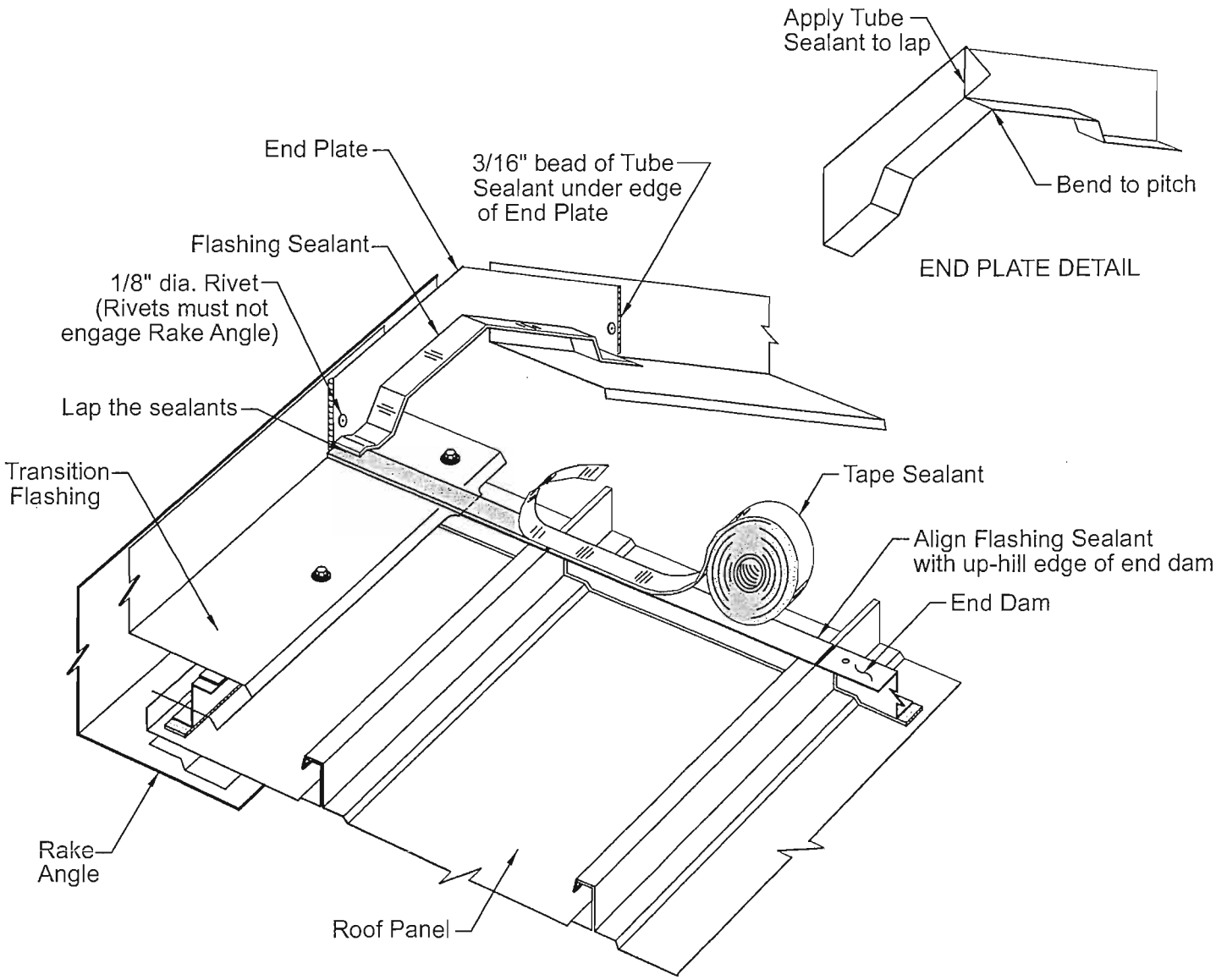
Align the center of the ridge cover over the ridge centerline. Use a string line to assure a straight ridge cover installation.

Fasten the ridge cover to the end dams with lap fasteners spaced as shown. Check that the fasteners penetrate the center of the sealant and securely engage the termination zee.

Important: To provide watershed, the ridge cover must have a positive pitch, even during roof panel contraction.

To increase the ridge cover's pitch, first fasten only one edge of the ridge cover, then push on the opposite edge of the ridge cover to deflect its center upward. Hold it in this position with clamps while fastening the other edge.

9.8 RIDGE COVER INSTALLATION



Note: Opposite slope roof panels omitted for clarity.

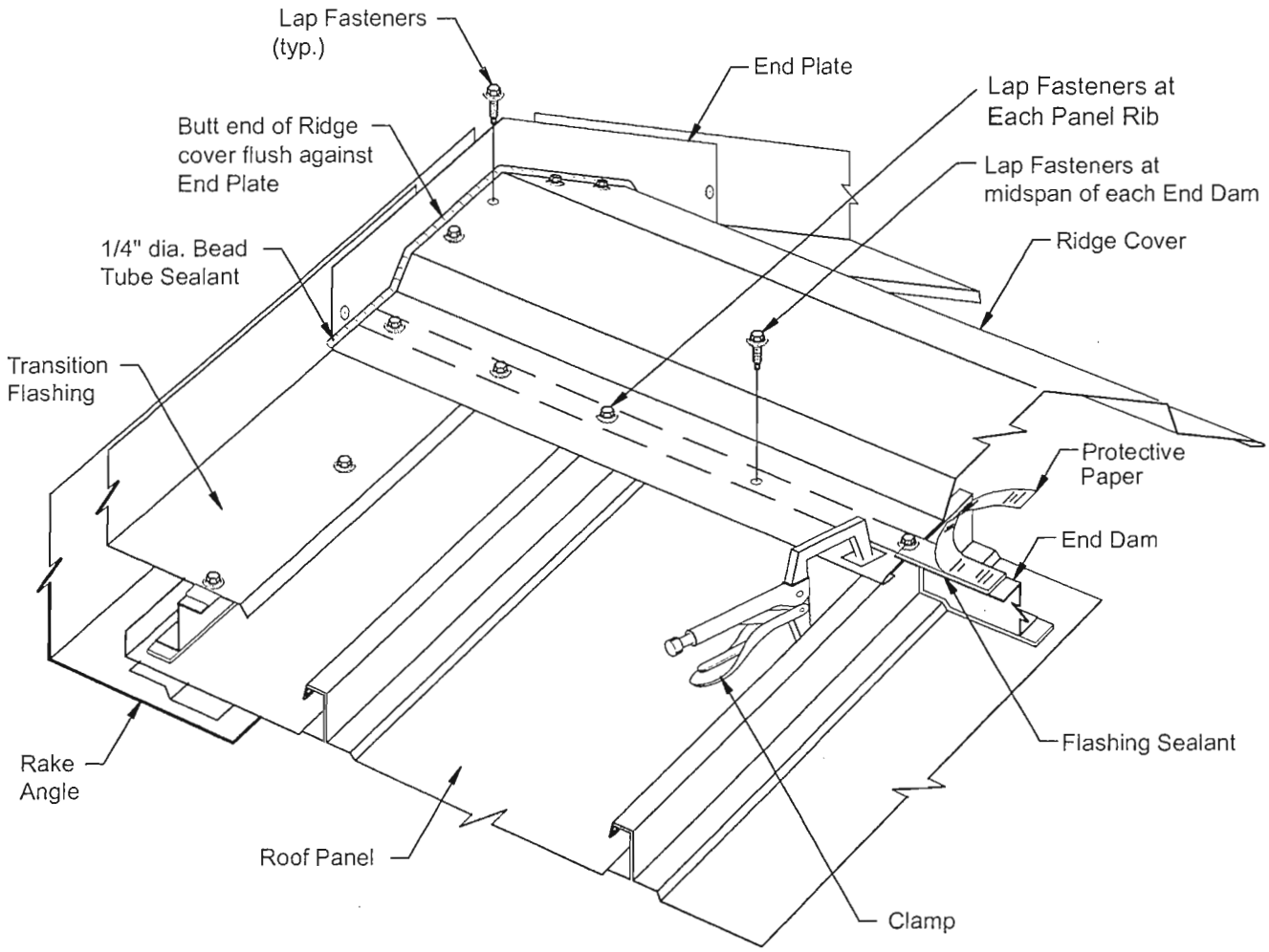
Position the end plate so its face is flush with the face of the transition flashing.

Fasten the end plate to the transition flashing with rivets as shown.

Install flashing sealant on top of the end plate as shown. Position the edge of the sealant flush against the face of the transition flashing and extend the ends of the sealant to align with the end dam's uphill edge.

Install flashing sealant continuous along the top flange of the end dams. Lap the end of the sealant over the end cap.

9.8 RIDGE COVER INSTALLATION



Note: Opposite slope roof panels omitted for clarity.

Install the ridge cover to span across the opposing end dam runs as shown.

Position the end of the ridge cover flush against the face of the transition flashing.

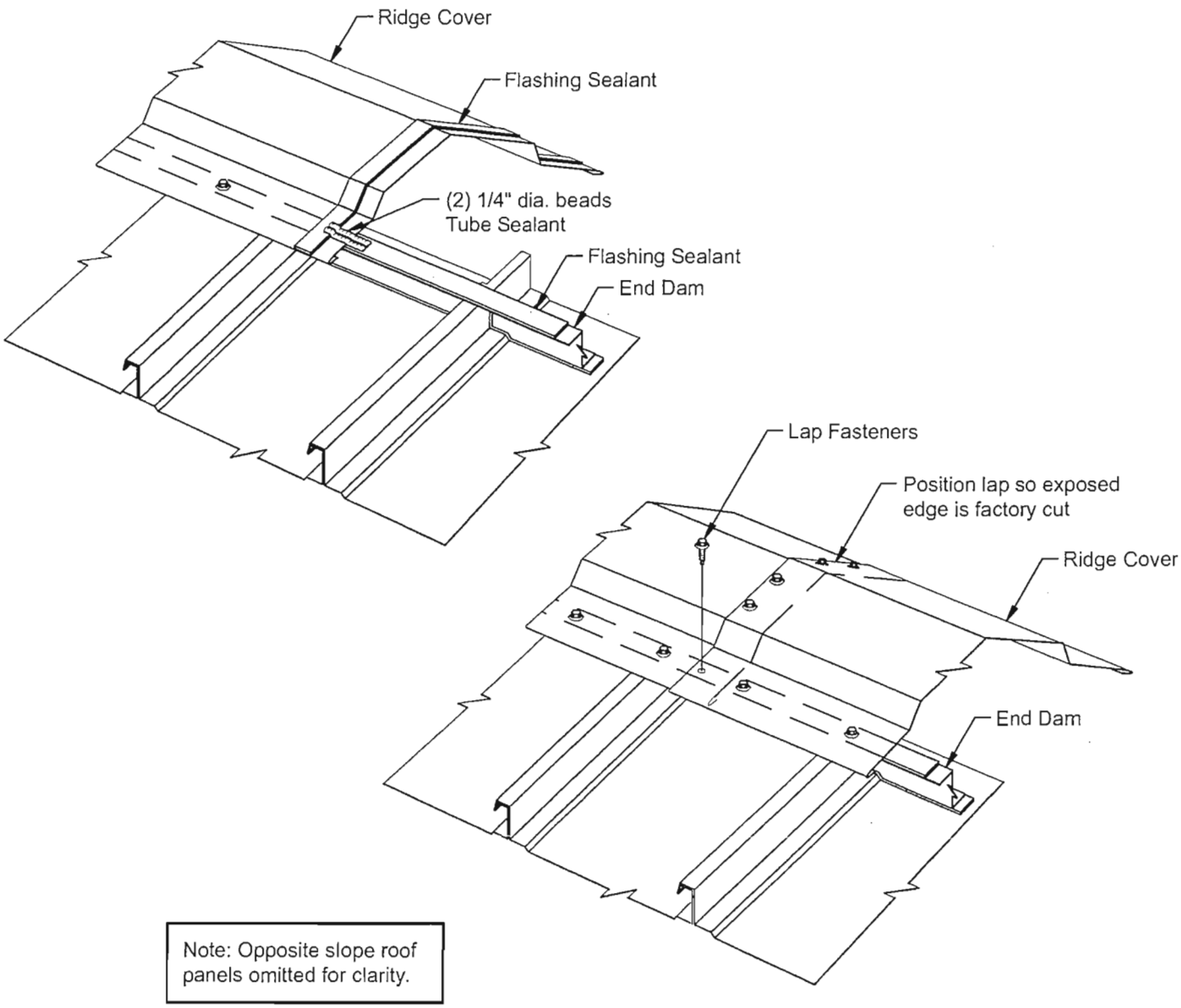
Align the center of the ridge cover over the ridge centerline. Use a string line to assure a straight ridge cover installation.

Fasten the ridge cover to the end dams with lap fasteners spaced as shown. Check that the fasteners penetrate the center of the sealant and securely engage the termination zee.

Important: To provide watershed, the ridge cover must have a positive pitch, even during roof panel contraction.

To increase the ridge cover's pitch, first fasten only one edge of the ridge cover, then push on the opposite edge of the ridge cover to deflect its center upward. Hold it in this position with clamps while fastening the other edge.

9.8 RIDGE COVER INSTALLATION

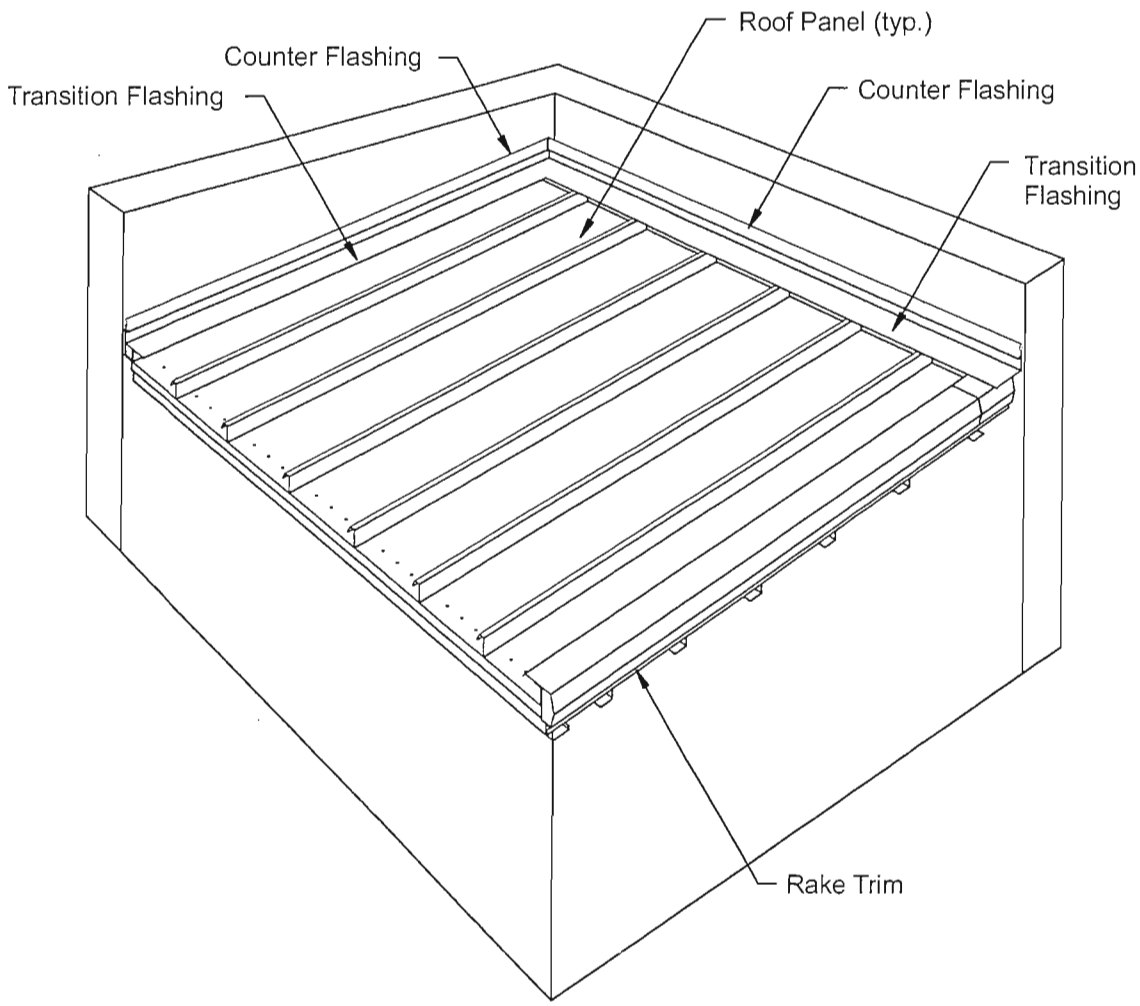


Note: Opposite slope roof panels omitted for clarity.

Assemble the ridge cover splices with flashing sealant and lap fasteners as shown.

Important: The splice fasteners must be installed carefully to avoid downward deflection and buckling of the ridge cover ends.

9.9 HIGH EAVE TRANSITION INSTALLATION



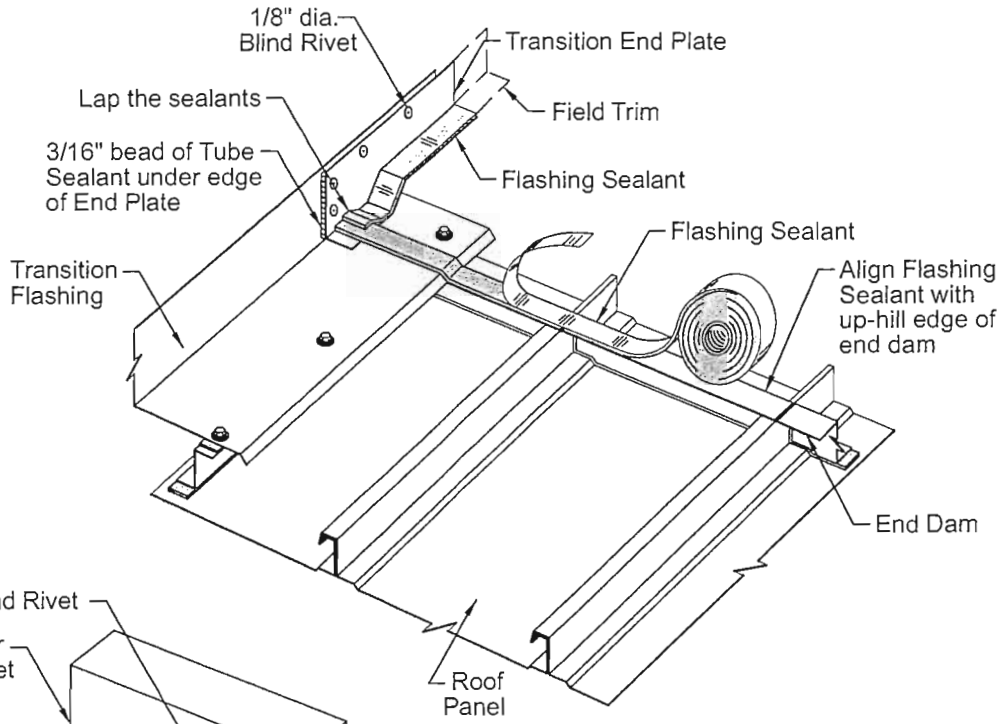
The details in this section show the installation of high eave transition flashing.

The transition flashing can start or finish at either a rake trim condition or a rake transition condition.

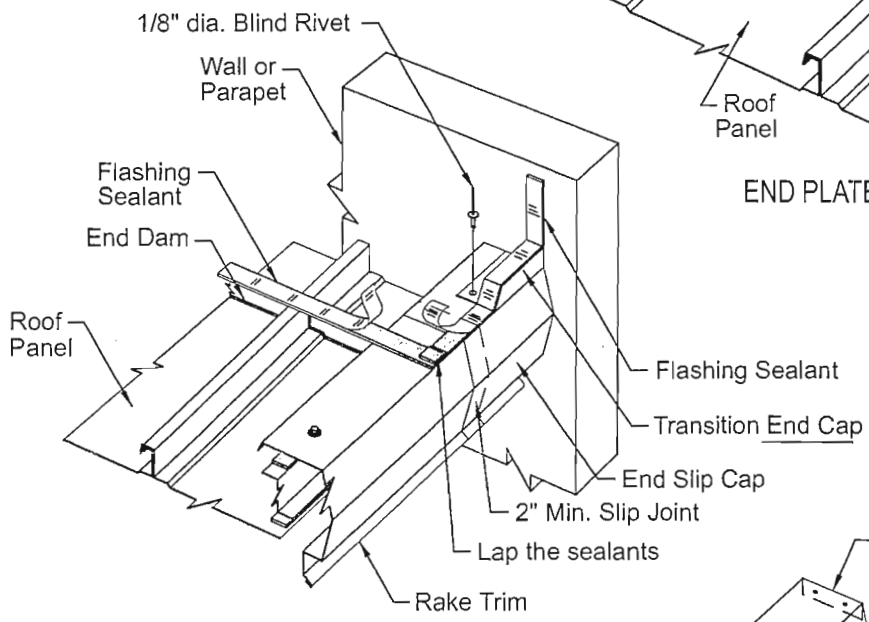
In all cases, verify that counter flashing will:

1. Restrain the transition flashing during roof live loads and wind loads.
2. Provide a weather resistant seal between the transition flashing and the wall.

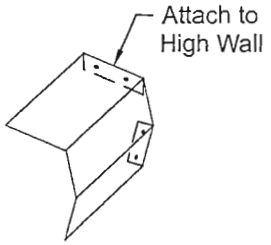
9.9 HIGH EAVE TRANSITION INSTALLATION

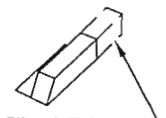


END PLATE @ RAKE TRANSITION



END CAP @ RAKE TRIM





END CAP

Install end slip cap to wall using the cable trim to locate position.

Field cut the end cap or end plate to fit as shown.

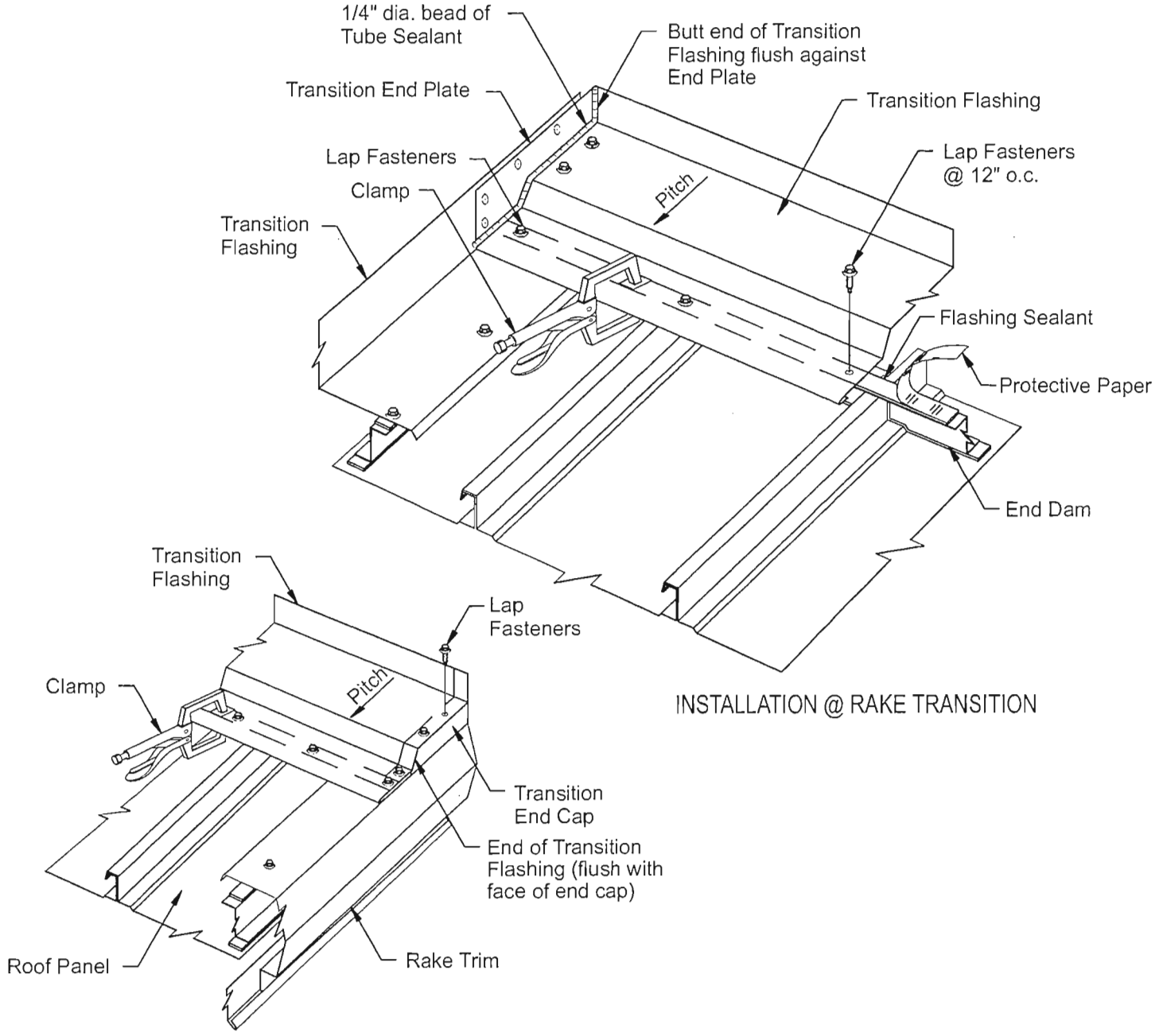
Position the end transition plate so its face is flush with the face of the rake trim or transition flashing.

Fasten the end cap or end plate with rivets as shown.

Install flashing sealant on top of the end cap or end plate as shown. Align the edge of the sealant flush with face of the end cap or transition flashing and extend the sealant to align with the end dams.

Install flashing sealant continuous along the top flange of the end dams. Lap the end of the sealant over the end cap sealant.

9.9 HIGH EAVE TRANSITION INSTALLATION



INSTALLATION @ RAKE TRANSITION

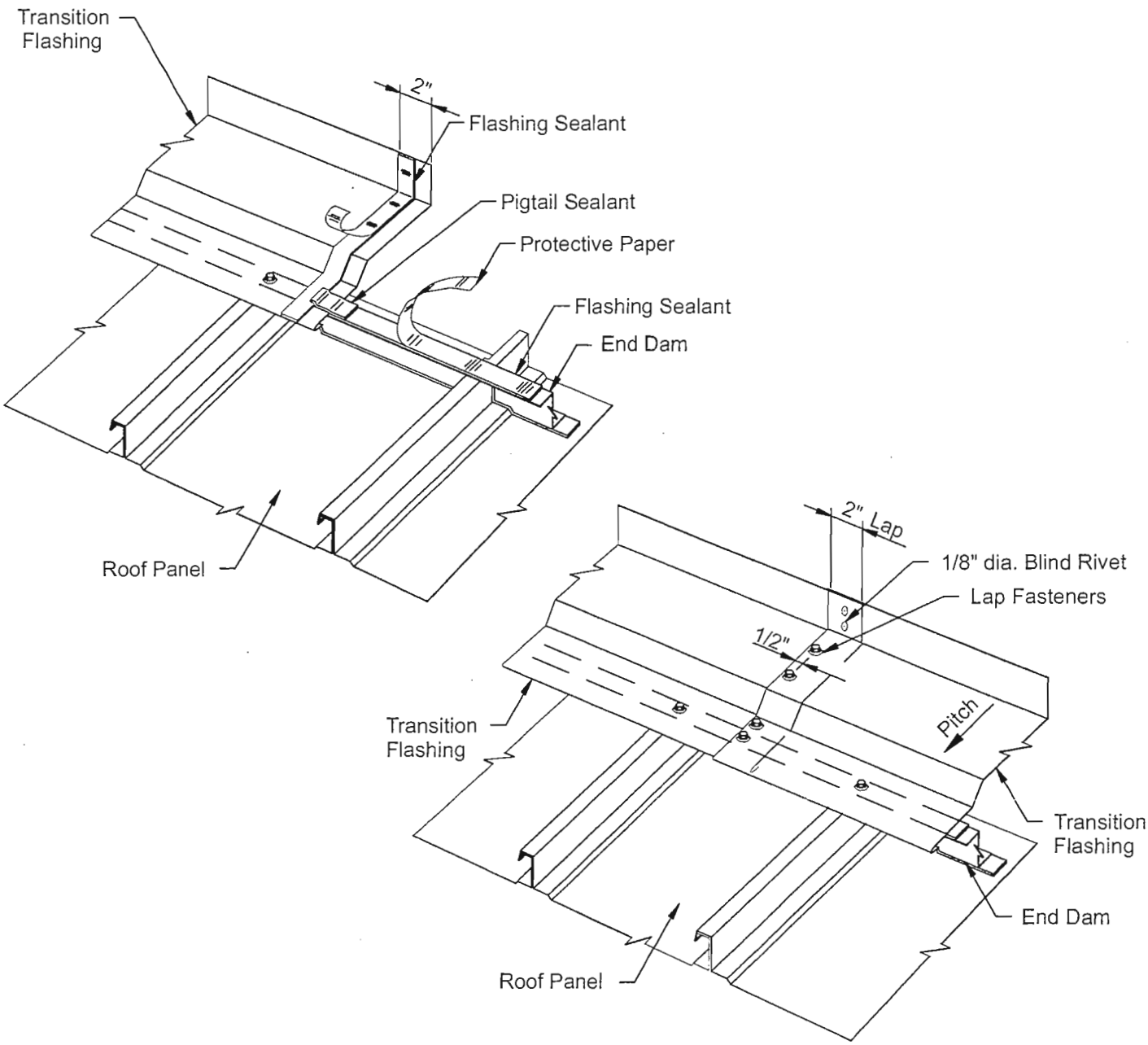
INSTALLATION @ RAKE TRIM

Position the end of the flashing flush with the face of the end cap or rake transition flashing and position the back leg flush with the wall construction.

Check that the flashing is set at a positive pitch to assure watershed.

Fasten the transition flashing to the end dams with lap fasteners spaced at 0'-6" on center. Check that the fasteners penetrate the center of the sealant and securely engage the termination zee.

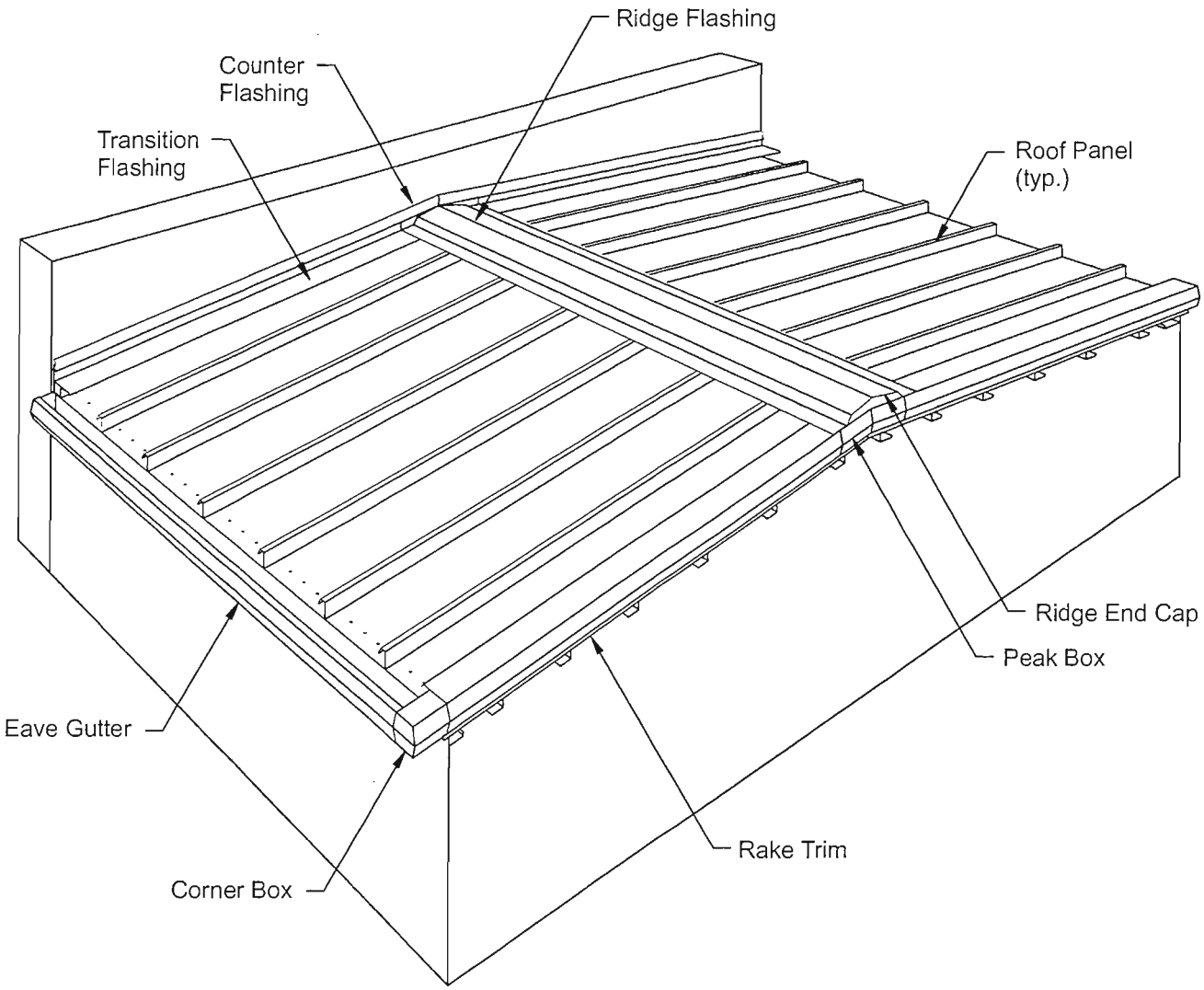
9.9 HIGH EAVE TRANSITION INSTALLATION



Assemble the transition flashing splices with flashing sealant and lap fasteners as shown.

Important: The splice fasteners must be installed carefully to avoid downward deflection and buckling of the flashing ends.

9.10 EAVE GUTTER INSTALLATION



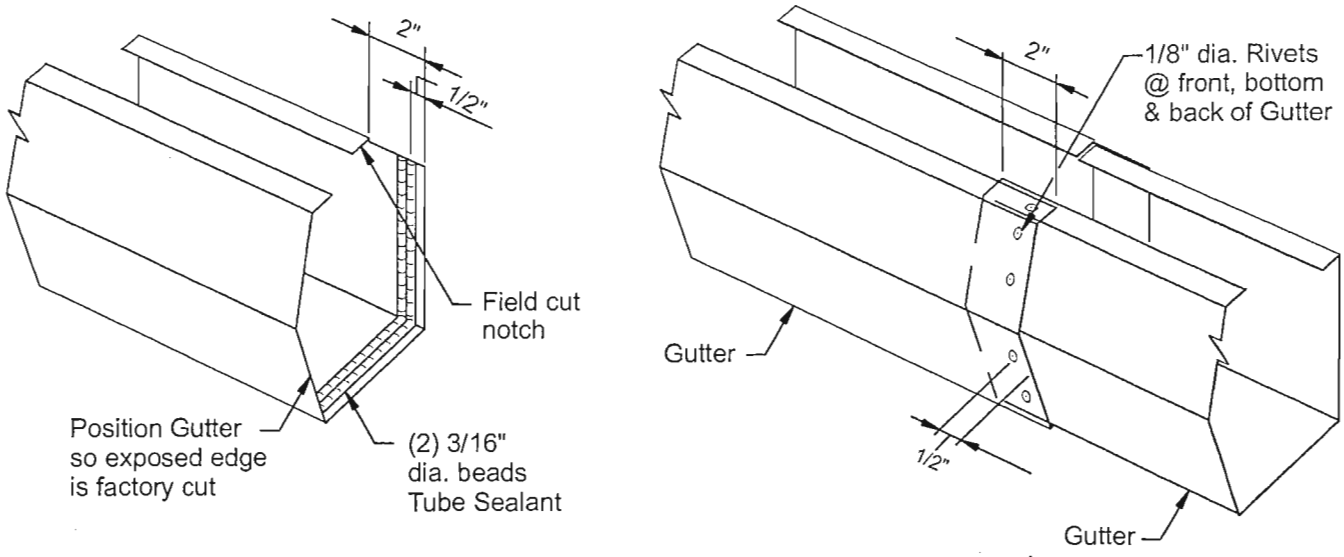
The details in this section show assembly and installation of eave gutter.

Assembly of the gutter should be accomplished with care given to the final appearance. The appearance of the gutter will have a critical effect on the appearance of the project.

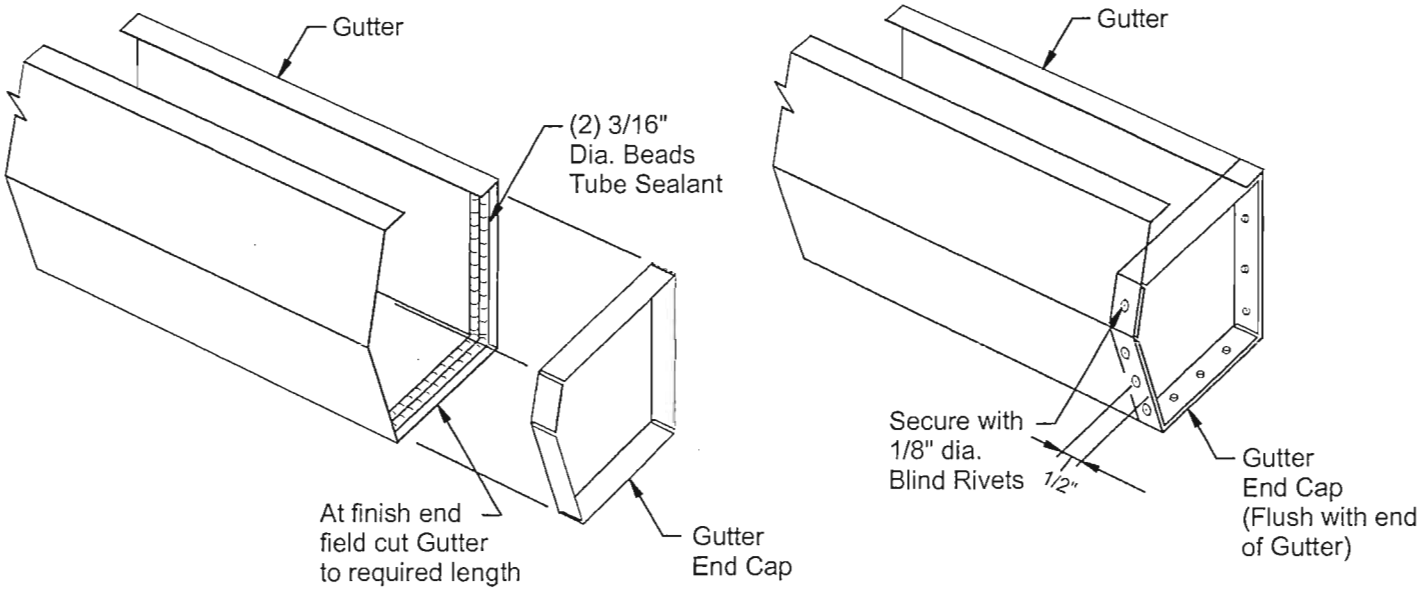
Determine which direction the building is most often viewed from. Install gutter laps facing away from the most often viewed direction.

Proper downspouts are necessary to prevent gutter overflow and roof flooding. Refer to the erection drawings to determine the required downspout size and spacing.

9.10 EAVE GUTTER INSTALLATION



EAVE GUTTER SPLICE



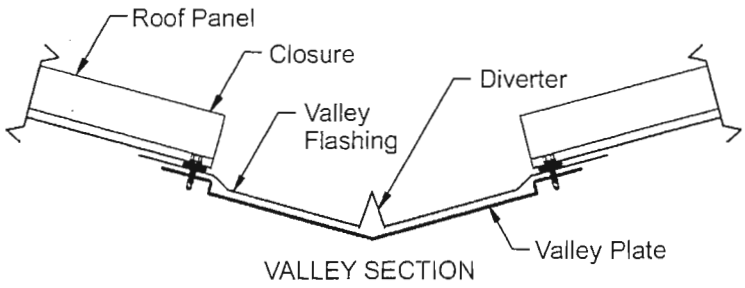
EAVE GUTTER END CAP

An erection tip is to layout the gutter assemblies in managable lengths (30'-40') before raising to the roof.

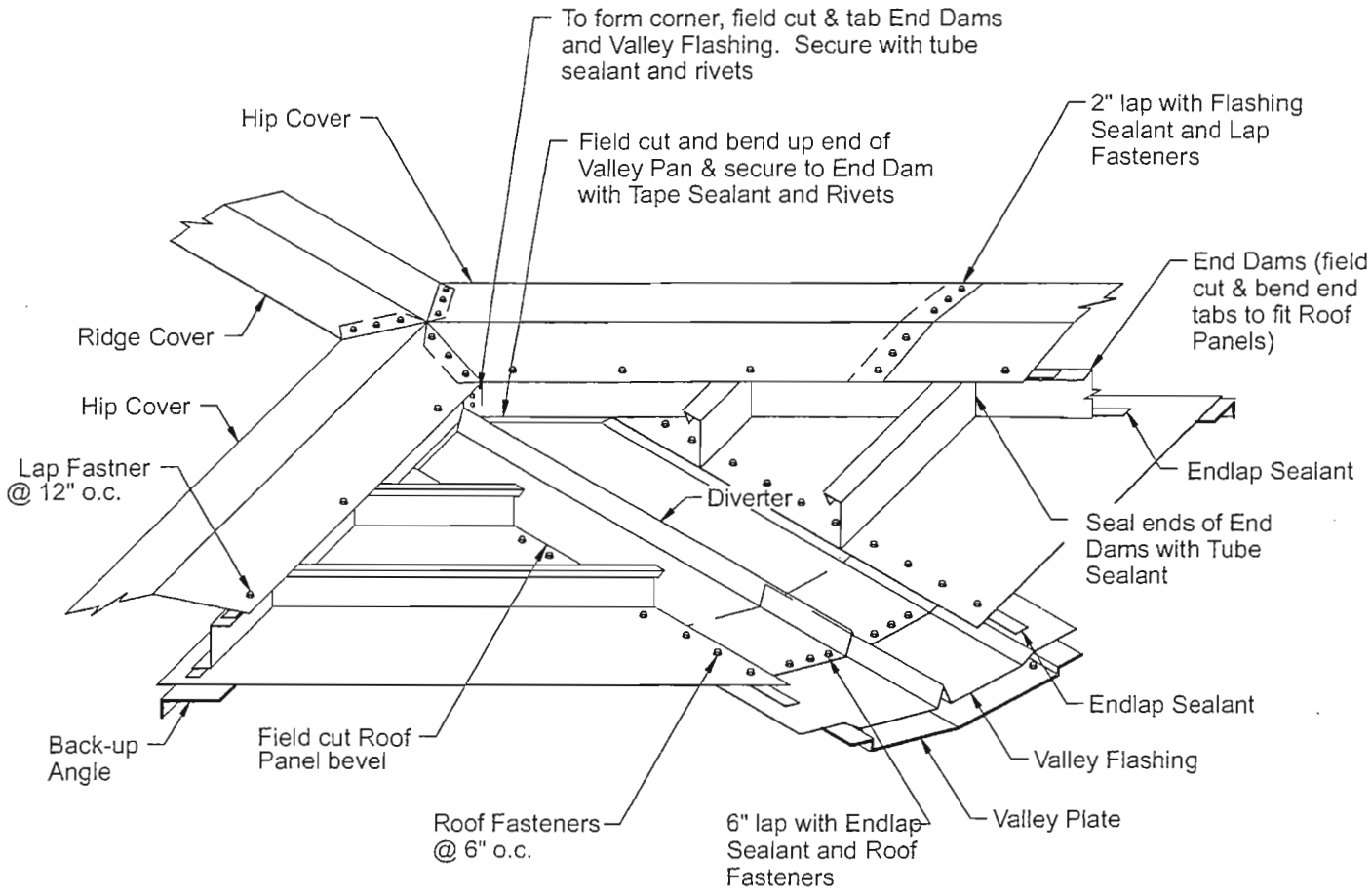
Start and finish the gutter ends flush with the exterior face of the rake walls.

Assemble the gutter end caps and splices with tube sealant and rivets as shown in the above details on the ground, then temporarily clamp sections to the edge of the roof panel. Use prepunched holes in the roof panels for final attatchment.

9.11 HIP AND VALLEY INSTALLATION



VALLEY SECTION



The above details show typical hip and valley details. Refer to the erection drawings for specific hip and valley details.

Hip conditions are similar to ridge conditions, except special end dams and back-up angles are required to accommodate the beveled roof panel ends.

Valley conditions require beveled corrugation closures to accommodate the beveled roof panel ends.

QUALITY ROOF SEAMERS

Contract # _____

Date : _____

Seamer # _____

DBA SEAMERTOOLS Inc.
8265 Highway 178
Olive Branch, MS. 38654
662-895-1222 FAX 662-890-4775 Email: rent@qualityroofseamers.com
www.qualityroofseamers.com

Bill to:

Company name

Mailing address

City State Zip

Contact name Phone #

Email:

Ship to:

Jobsite name

Shipping address

City State Zip

Contact name Phone #

Check here for return Label: ☐

Customer P.O. # _____

Requested ship date:_____

Expected return date:_____

_____

QRS pays Std return freight, Continental U.S. only
Renter pays any special arrangements.

IMPORTANT NOTES:

Rental charges are calculated from the date the machine is shipped from Quality Roof Seamers Inc. until the date it is received back at Quality Roof Seamers.

Renter is responsible for shipping charges from Quality Roof Seamers to the ship to address. Quality Roof Seamers is responsible for return ground shipping charges.

MISSISSIPPI Sales tax will be applied to every rental.

RENTER assumes all risks arising from the use of the above equipment, and understands that the machinery can cause injury or death if used improperly. In addition, RENTER agrees not to hold Quality Roof seamers, referred to herein as the RENTOR, liable for down-time or other consequential damages resulting from the equipment's use. The RENTOR makes no warranties, expressed or implied, as to the suitability or fitness of the rental property. The undersigned RENTER applies to the RENTOR for rental of the above described property, and agrees that this rental contract is not to be construed as a consumer contract. Once the RENTOR accepts this contract by signing below, The RENTER agrees to rent, from the RENTOR, the above equipment on the following terms and conditions:
In the event of a breach of contract by the Renter, the Renter will be responsible for all reasonable legal fees, expenses, and court costs. Venue for all actions shall be in DeSoto County, MS. The RENTOR agrees to provide the equipment in reasonably good and serviceable condition. However, it is the RENTER'S responsibility to inspect the equipment at the time of acceptance. RENTER further agrees that the equipment will be operated only by authorized, trained personnel employed by the RENTER. The RENTER agrees to return the above equipment in a cleaned and serviceable condition, less normal wear and tear. The RENTOR will charged $60.00 per hour plus parts costs for all repair work in the event the rented equipment is returned damaged. Overdue invoices will be charged 5% per month interest. Should the above equipment become lost, or is not returned, the RENTER will be charged $9895.00 for each Seamer, and $245.00 for each hand crimper, plus all rental charges accumulated. Any Unauthorized adjustments or alterations are subject to the $60 per hour and parts to return the Seamer to its original condition. One week notice on rentals:

The undersigned hereby applies for rental:

_____ _____ _____

Authorized signature **Title** **Date**

RENTAL CONTRACT – ROOF SEAMER

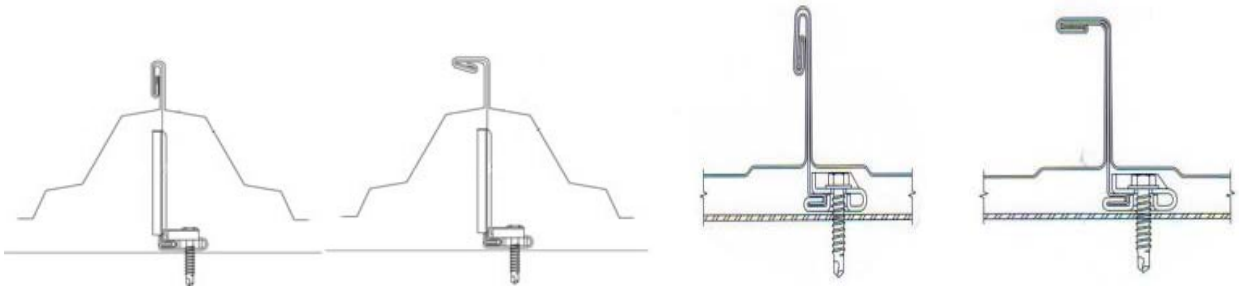
Contract #:_____

Roof Panel
Manufacturer:_____Roof Model:_____ Est. sq. ft_____

☐ Painted Color_____ ☐ Galvanized ☐ 24 gauge ☐ 22 gauge

PERIMETER CLIPS: ☐YES ☐NO END LAPS: ☐ YES ☐ NO PITCH: _____/12
END LAPS : ☐ YES ☐NO

Panel Profile : BRS
FINISHED SEAM
CHOOSE 1:



○ ○ ○ ○

SEAMER RENTAL: $51 PER BUSINESS DAY/ INCLUDES HAND CRIMPER

I understand and agree to the above additional conditions:

A VISA , AM EXPRESS or MASTER CARD credit card is required to guarantee payment prior to shipment of the roof seamer. Credit must be available on the card to a minimum of $900.00. Additional charges will be assessed for damaged or missing items. The seamer must be returned within the estimated rental time, or additional arrangements made. Rental charges will be charged to the credit card if the machine is returned within the month, or at the end of every month on extended rental times. Un-paid balances greater than 30 days will be charged to the card provided with 5% interest. Credit cards will be charged $245 for unreturned crimpers or $12 per day until returned.

I understand and agree to the above additional conditions:

EMAIL ADDRESS:_____

Company Name _____ Credit Card Signature_____

Credit Card # (do not use Debit Card) **Security CCV2 Code** **Expire Date**

_____ _____ _____
(3 digit number on back of card)