

Everlast Metals

DL Series Installation Guide

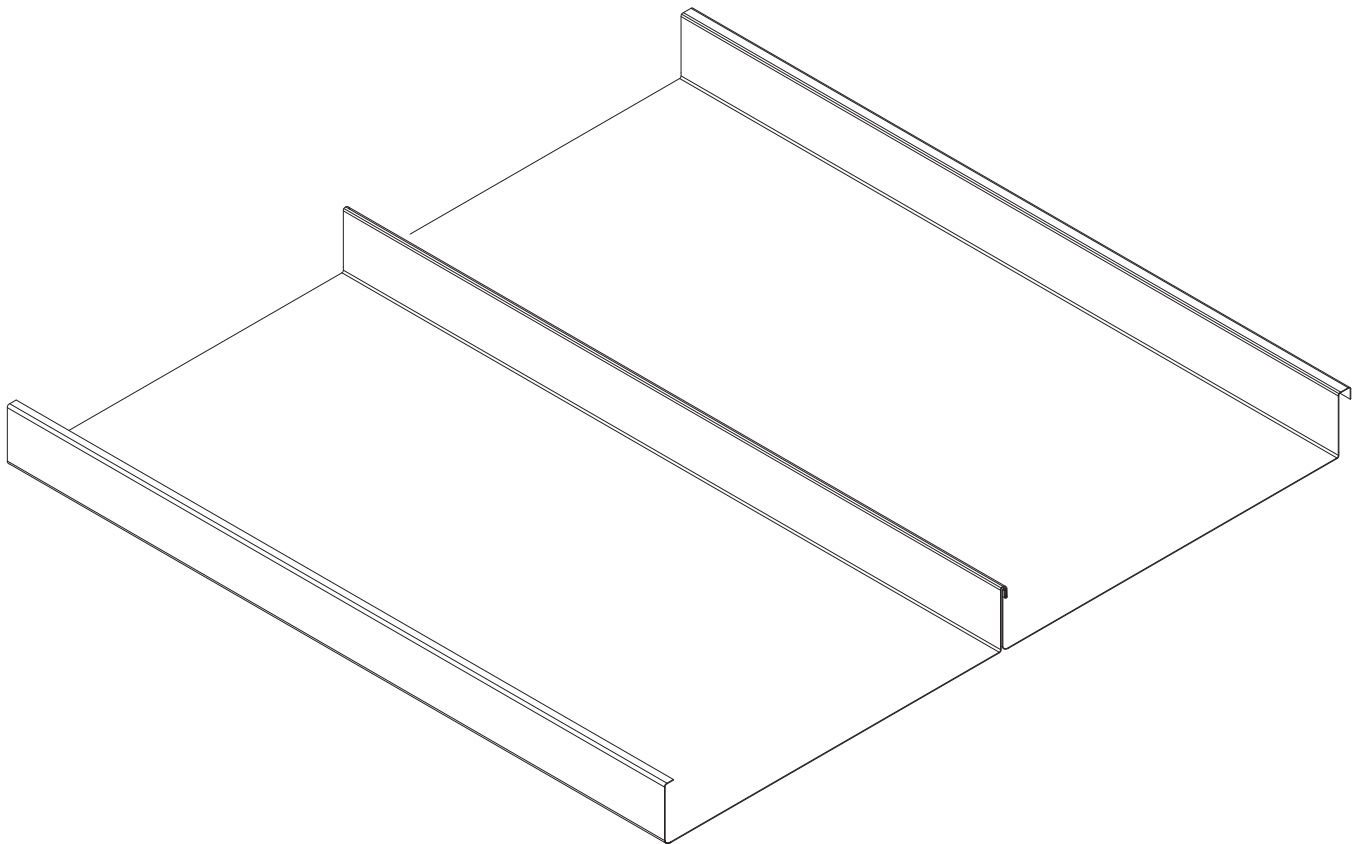




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| Ⓐ Architectural Residential Eave | Ⓔ Architectural Slim Rake |
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Purpose

This application guide is intended to assist in the application of Everlast Metals products on structures. The details and illustrations in this manual may not be applicable to all building plans or field situations. It is the buyer's responsibility to verify all applicable code requirements, check all field measurements, and determine suitability of the material for the job.



Application Guidelines

Safety

Always work safely when installing metal products. Use extreme caution on a roof at all times, and wear gloves and safety glasses to avoid injury. Hearing protection should be used when power-cutting metal panels. Do not walk on panels until all fasteners are installed. Metal panels are slippery when wet, dusty, frosty, or oily. Do not attempt to walk on a metal roof under these conditions. Always use OSHA recommended safety harness or equipment when working on a roof. Wear soft-soled shoes to improve traction and to minimize damage to the paint finish. Always be aware of your position on the roof relative to any roof openings, roof edges, co-workers, and penetrations. Installing metal panels on a windy day can be dangerous and should be avoided. Consult OSHA guidelines for more comprehensive safety requirements.

Applications

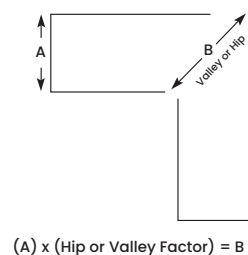
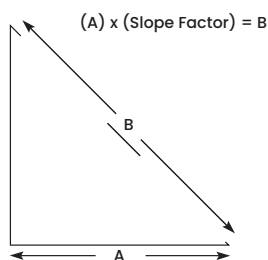
The DL panel is an architectural panel that is ideal for residential and light commercial applications. It can be used for roofing, mansards, or fascias. DL should be applied over a solid substrate; however, in certain applications can be applied over open framing 18" on center. There are certain minimum, live, snow, dead, collateral, and wind loads that a roof must generally be designed to support. Consult local building officials to determine the appropriate building design load requirements. A professional engineer should be consulted for all roof system designs. It is the buyer's responsibility to verify all applicable code requirements, check all measurements, and determine suitability of product for the job. To avoid panel distortion, use a properly aligned and uniform substructure.

Note: Oil canning in the flat area of the panels is common to the industry and does not affect the integrity of the panel. Therefore, oil canning is not a reason for rejection.

Minimum Slope

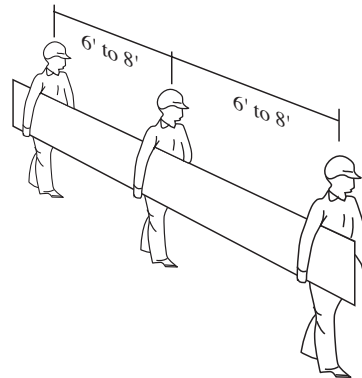
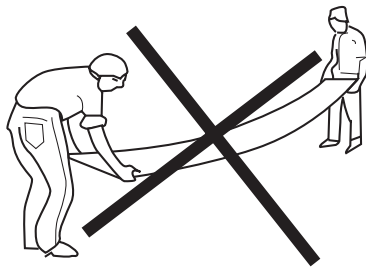
The minimum recommended slope for the DL-100 panel is 3:12. The minimum recommended slope for the DL-150 and DL-200 panel is 1:12. DL is designed to be utilized over solid substrate. Plywood (5/8" min.), applied with a Hi Temp moisture barrier (or an Ice and Water Shield when required by Local Building Codes) between the substrate and the DL panel is ideal.

Pitch of Roof	1:12	2:12	3:12	4:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
Slope Factor	1.0035	1.0138	1.0308	1.0541	1.0833	1.1180	1.1577	1.2019	1.2500	1.3017	1.3566	1.4142
Valley & Hip Factor	1.4167	1.4240	1.4362	1.4530	1.4743	1.5000	1.5298	1.5635	1.6008	1.6415	1.6853	1.7320

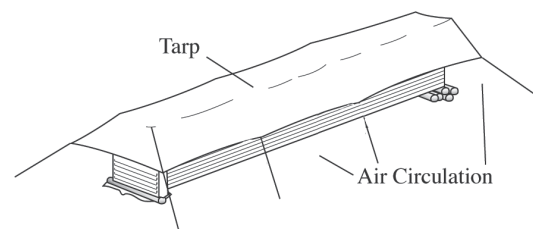
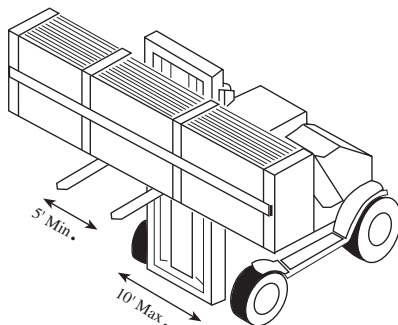


Handling

- A. Do not lift panels from ends while flat. Lift the panels on edge when moving individual panels or when moving panels onto the roof.



- B. If the material is not to be used immediately, it should be stored in a dry place. Moisture trapped between sheets may cause damage to the paint system. The paint system may become soft or water stains may appear which can detract from the appearance and affect the service life of the material. To avoid problems, store the materials in a well-ventilated dry area. Stack the materials in an incline position. **DO NOT USE PLASTIC TO COVER MATERIALS. THIS CAN CAUSE SWEATING OR CONDENSATION.**
- C. While unloading, all bundles must be lifted from the center. Do not unload in a jerking or bouncing fashion. Panels greater than 25'0" long should be unloaded using a spreader bar to prevent panels from bending.
- D. Although the paint coating is tough, dragging panels across the surface of one another will almost certainly mar the finish.

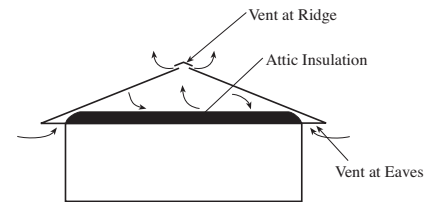




Installation Recommendations

Ventilation / Insulation

Proper design and installation of vapor barriers and ventilation systems are important to prevent condensation and the resulting problems of moisture damage and loss of insulation efficiency. Condensation occurs when moisture-laden air comes in contact with a surface temperature equal to or below the dew point of the air. This phenomenon creates problems that are not unique with metal buildings; these problems are common to all types of construction. In addition to providing resistance to heat transfer, insulation can also protect against condensation forming on cold surfaces, either inside the building or within the wall/roof system cavity. The arrangement of the buildings insulation system and vapor retarder is the responsibility of the building designer. These are some basic guidelines to help control condensation:



- A. The insulation should have a vapor retarder face on the “warm” side of the insulation. For most buildings, this means that the vapor retarder is on the inside surface (toward the buildings interior).
- B. The thickness of the insulation must be designed to maintain the temperature of the vapor retarder above the interior dew point, using the worst-case expected outside temperature.
- C. All perimeter conditions, seams, and penetrations of the vapor retarder must be adequately sealed in order to provide a continuous membrane to resist the passage of water vapor.
- D. Building ventilation, whether by gravity ridge vent, power operated fans, or other means, contributes significantly to reduced condensation. The movement of air to the outside of the building reduces the interior level of vapor pressure. On the buildings that have an attic space or are being retrofitted with a metal roofing system, vents should be placed at both the eave and peak of the roof in order to prevent a buildup of moisture (humidity) in the attic space. Contact your local building code officials or an engineer on proper ventilation practices for your area.

Cutting Steel Panels

Steel panels may be cut with straight-cut snips, electric or pneumatic shears, a portable profile shear, or an electric nibbler. Some installers prefer using a circular saw with a metal cutting abrasive blade. This method may be faster, but it has some drawbacks:

- A. Saw cut edges are jagged and unsightly and tend to rust more quickly than sheared edges.
- B. Saw cutting produces hot metal filings that can embed in the paint and cause rust marks on the face of the panel.
- C. Panels to be saw cut must be turned face down and cut in a location down-wind and well away from the building and other panels to avoid embedment of metal filings on other panels.
- D. Saw cut panels must be thoroughly wiped to ensure the removal of all metal filings.
- E. Saw cutting burns the paint and galvanizing at the cut edge, leading to the onset of edge rust.

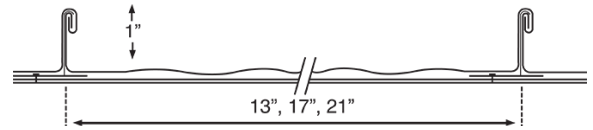
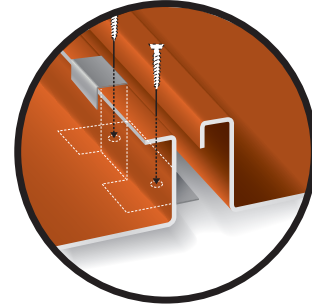
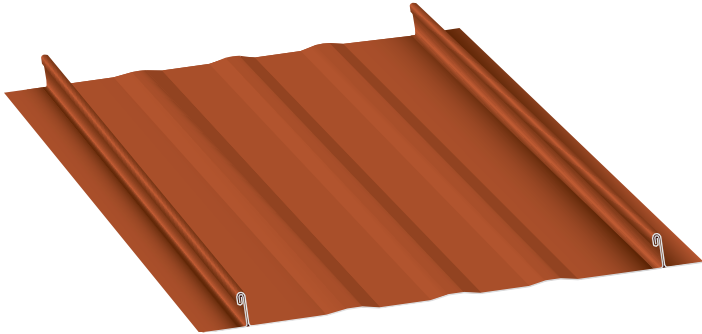
Touch Up Paint

Touch-up paint is used to cover and protect unexpected scratches on the paint finish that may occur during installation of the panel. Touch-up paint will not weather as well or at the same rate as the original coating or finish. When applying, use in small inconspicuous and separate areas. Test in an area that will not be noticeable.

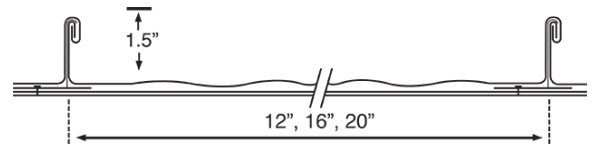
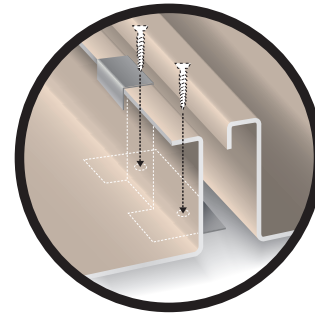
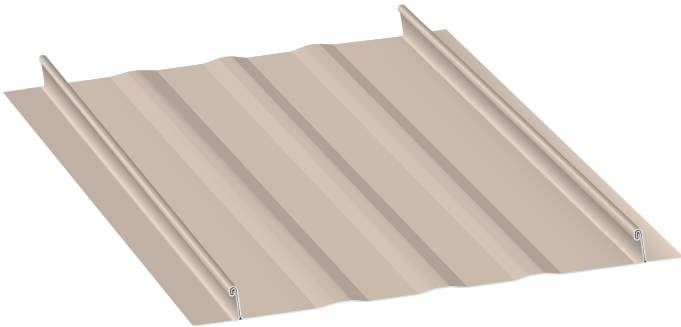


DL Series Coverage

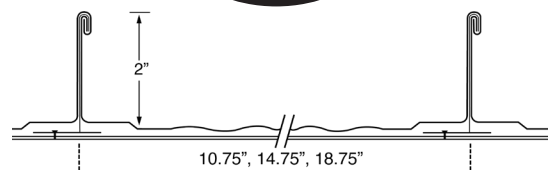
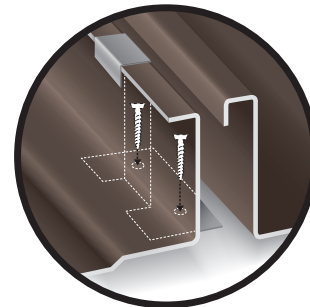
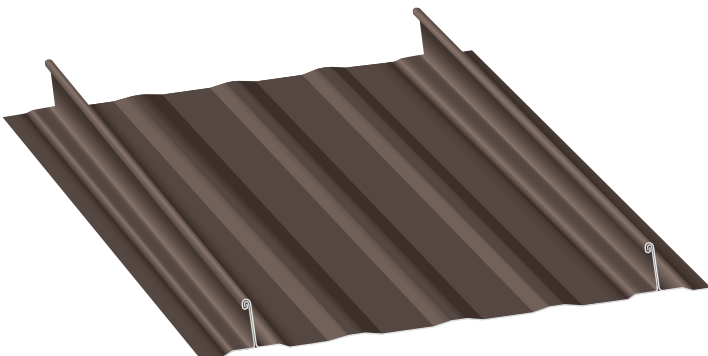
DL - 100



DL - 150



DL - 200





Standing Seam Installation General Practice Guidelines

Pre-Install Recommendations

- Wear rubber soled footwear.
- Only walk on metal panels when needed.
- Make sure bottom of footwear is free of debris.
- Remove all waste materials immediately. Do not let them sit on panels.
- Use caution when using tools or placing them on metal materials.

Recommended tools

- Metal snips
- Hemming Tool
- Tape Measure
- Chalk Line
- Marking pens
- Caulk Gun
- Rivet Gun
- Rubber Mallet
- Mechanical Seamer and/or 90 degree & 180 degree Hand Crimper

Roof Preparation

- Tear off existing roof
- Check the decking - address any decking concerns

Underlayment

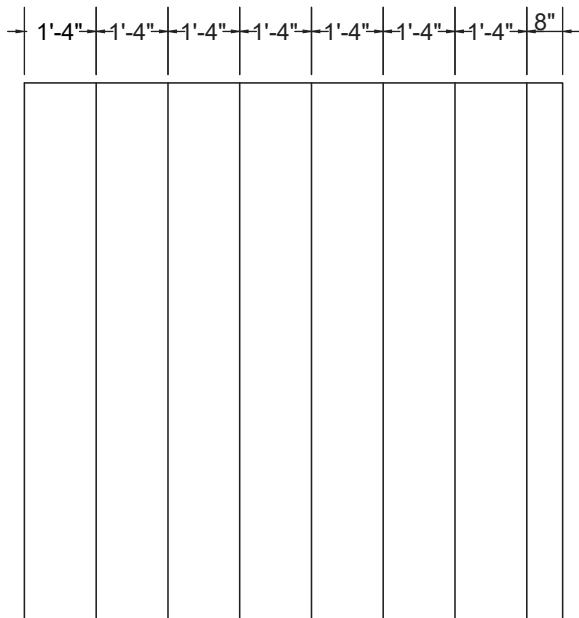
- Substrate should be as flat and even as possible. No protrusions, gaps, nails etc.
- Ice shield should be used for eave and gable edges and should fold over and cover the rake and eave fascia area.
- Solid plywood substrate with proper underlayment must be used with DL-100 and DL-150.
- DL 200 does not need solid substrate. It can be used over open framing at a maximum spacing of 48"
- Valleys are placed first.
- Overlap the underlayment for best waterproofing.
- Underlayment should be Hi Temp and have foil to help with movement of metal. If #15 or 30" felt is being used as underlayment, then slip paper should be installed.



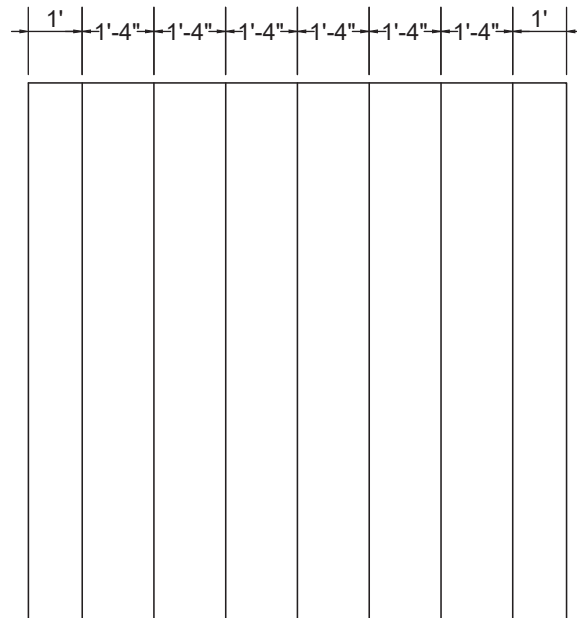
Standing Seam Installation General Practice Guidelines

Planning for Install - Based on a 16" pan

- Measure roof to make sure the area is in a square.
- Plan before installing panels to make sure ends will be the same width. Panels that align at the ridge from both sides of the roof make for a good look and install.



INCORRECT PANEL PLANNING



CORRECT PANEL PLANNING

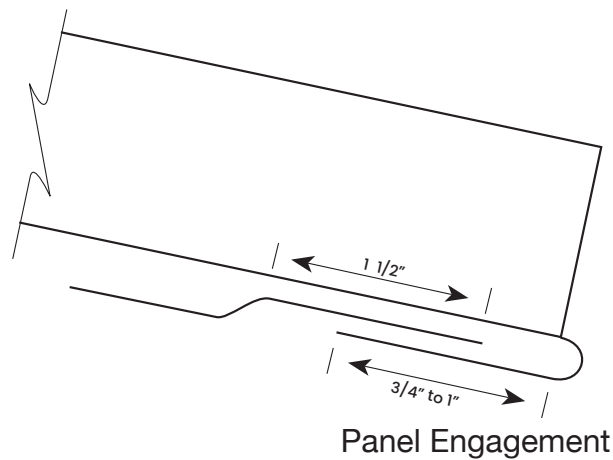
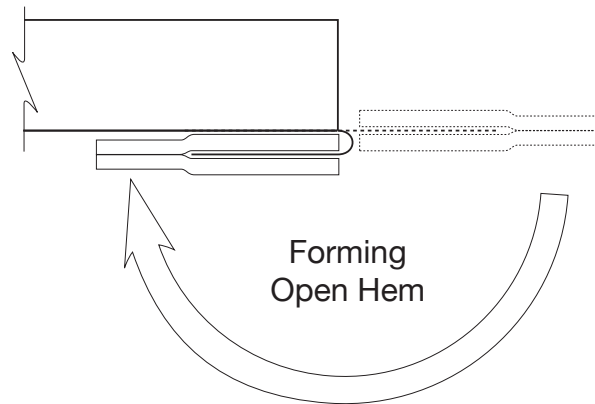
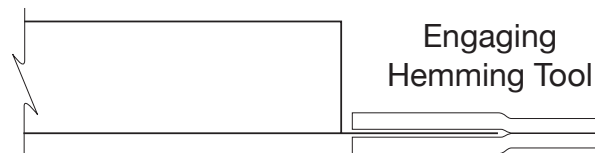
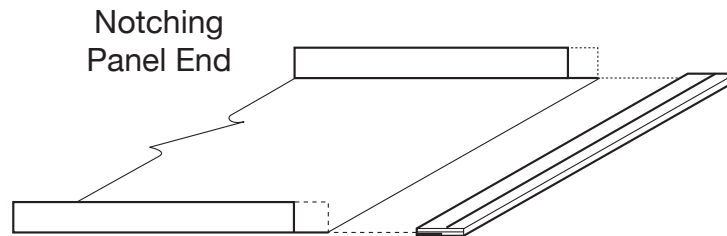
- Do not overlap panels for length. Panels should be one continuous piece from ridge to eave.
- Recommend that panels should be made on site if over 40' long.
- Penetrations in roof could change how panels are cut or interact so a good layout is important.
- Soil stacks and vent stacks are best places in a center of a panel if possible, so good measurements and layout is pertinent to a good-looking roof (See diagram).
- Some panels may need to be cut to allow for proper alignment at the ridge.
- Make sure to account for hems when sizing and aligning panels - 1" for hem.

Steps

- Install Chimney Curb if necessary.
- Do Chimney, pipes and other roof penetration flashing before roofing.
- Install perimeter trim is done next.
- Continue on to eave and rake trims / cleats.

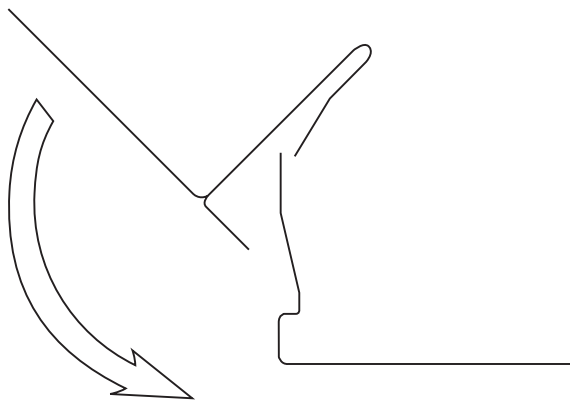
Notched Panel Preparation

- To be completed on ground
- The first panel is usually the hardest and most important panel in a roof install.
- Start at one corner of roof.
- First panel placed even with rake and just below bottom corner of eave to allow for hemming of panel.

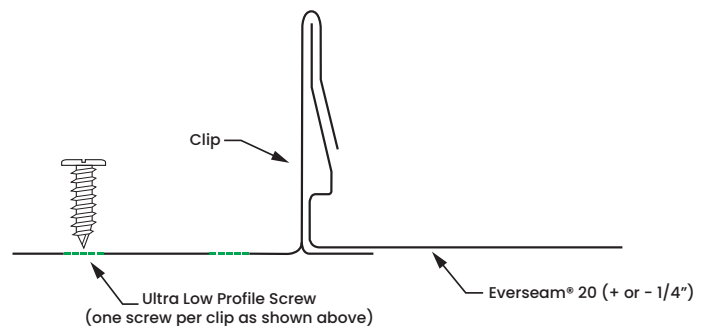


Panel Engagement

- Use proper clip spacing for first panel, then use chalk lines across the roof for a faster and easier install for the rest of the roof clips.
- Install clips along male end of panel @ approx. 18-24" apart.
- Leave some room between the end of the panel and eave to allow for expansion and contraction with weather changes.
- When panels are aligned, fasten the top or bottom to prevent panel slide.
- Install second panel by loosely placing female edge over male edge of first panel.



Panel Clip Installation
recommended every 24"

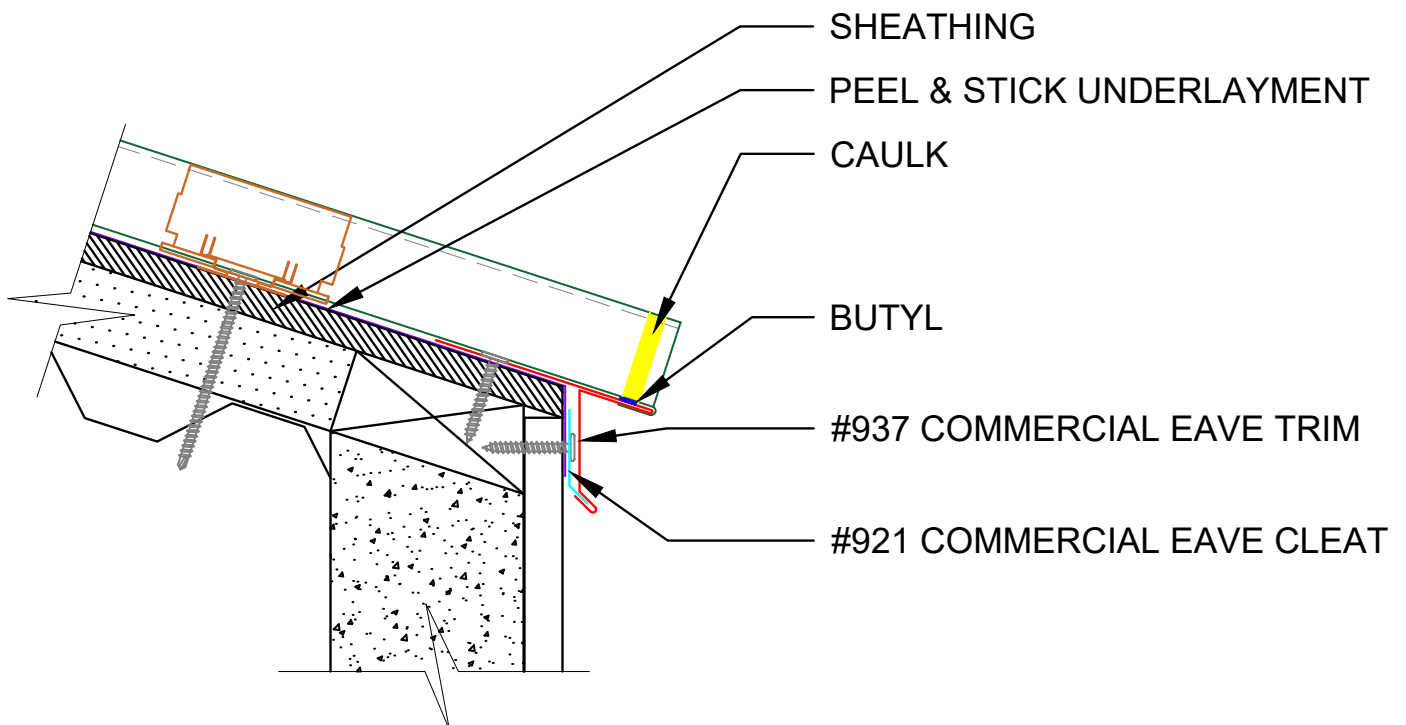
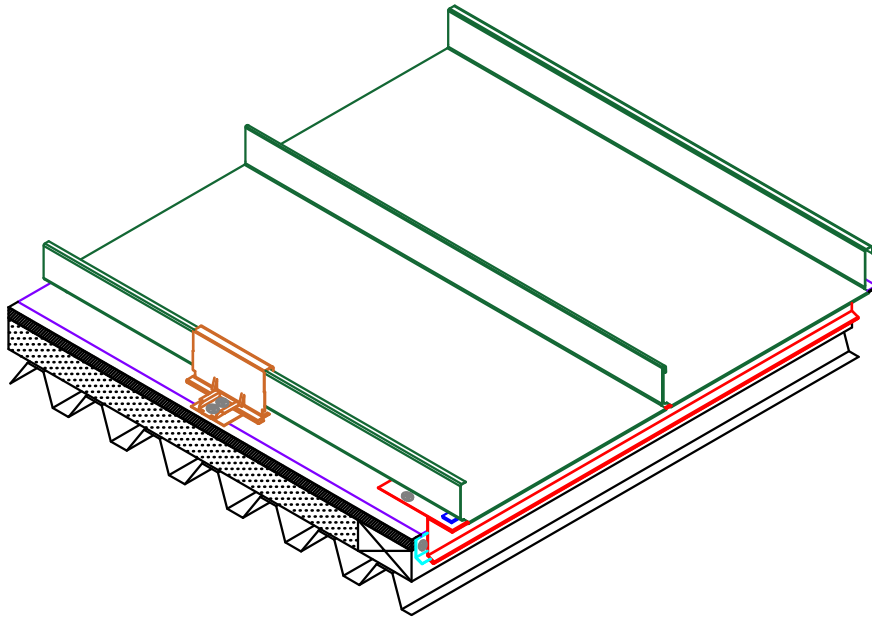


Installed Panel Cross Section

- Have edge of panel come down below the eave so hem be cut and bent but not interfere with drip edge.
- Slowly push panel toward ridge until hem meets drip edge.
- Install clips along male end of panel @ approx. 18-24" apart.
- Using your hand crimper tool, bend the first 12" -16" at the eave and the first 12" -16" inches from the ridge.
- If using a hand crimper, continue to hem the seam at 90 degrees. If 180-degree hem is desired, repeat process on seam using 180-degree seamer.
- If using a mechanical seamer, follow instructions by manufacturer. A typical seam machine will be set up in the hemmed area that has been hemmed 90-degrees by hand. Most mechanical seamers want the 4" section of the hand seamed 180-degrees before engaging machine.
- Where the clips are attached to the panels, a 90 degree hand bend is sometimes recommended.
- Position seamer on ridge keeping the levers of the seamers on the same side of seam that is going to be bent and engage levers on seamer following manufacturer recommendations.
- Engage seamer per seamer recommendation and begin process starting from ridge and continuing to the eave portion of panel. Disengage the seamer as it reaches the 180- degree hand hemmed area at the eave. Do not go to end of panel.
- Always check after the first foot or so to make sure the panel is locking correctly. If panels are moving, you may want to install c clamps to help prevent the panels movement.
- Remove seamer and return to ridge area to repeat for next panel.
- Repeat process till at end of roof.

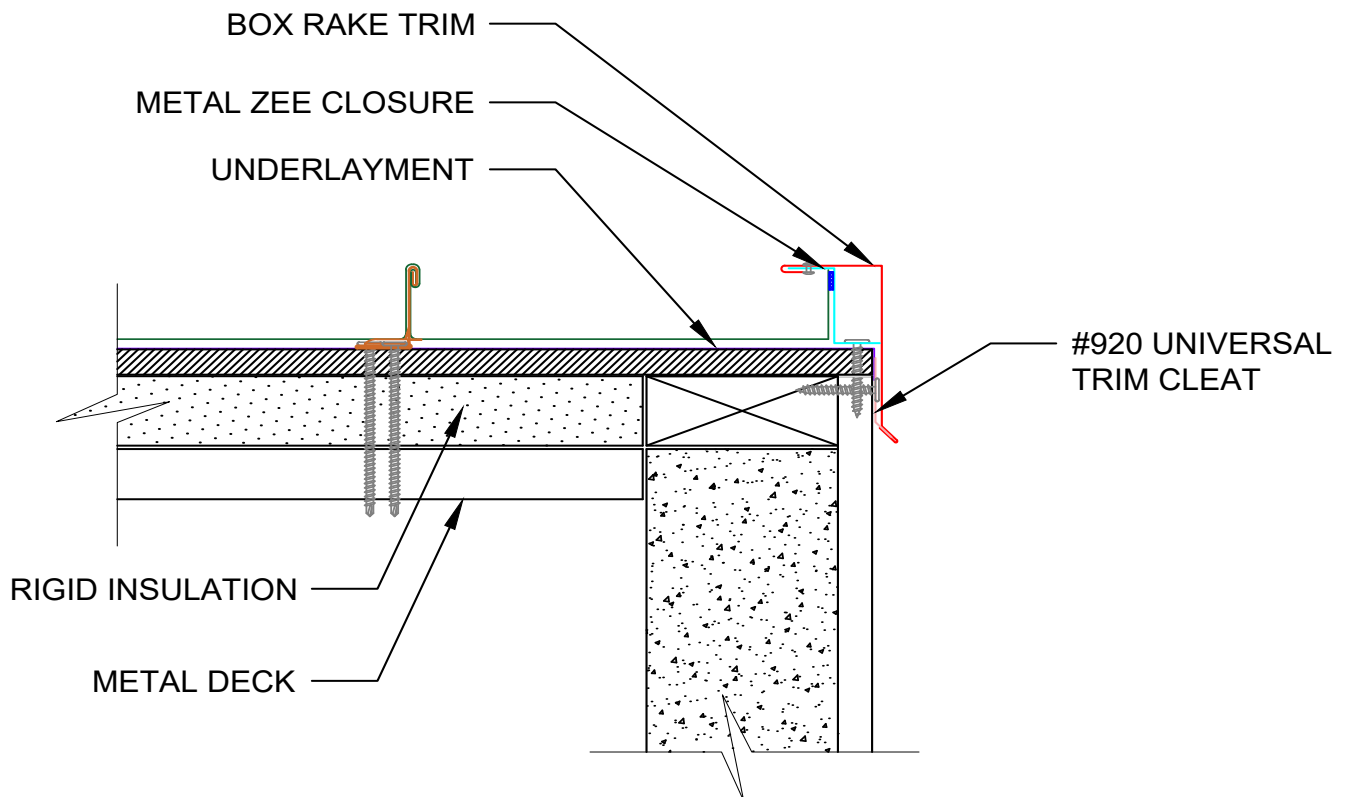
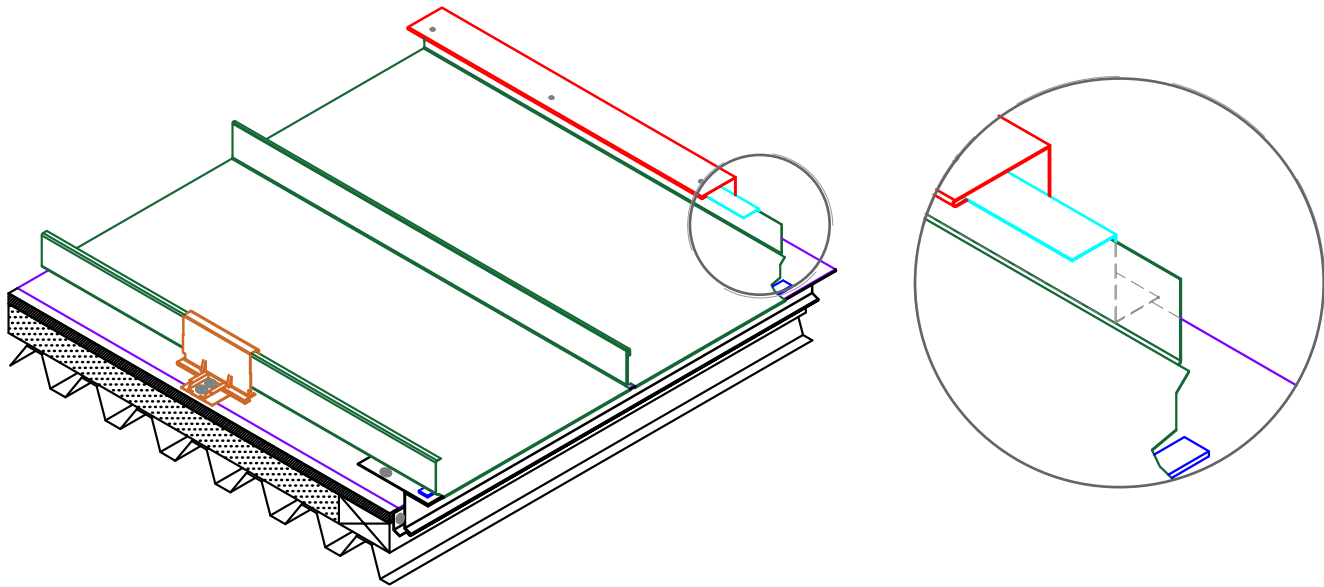
Eave

- Install drip edge flush against roof edge with underlayment covering the fascia.
- Fasten with appropriate fastener approximately 8" apart.
- Install each additional piece of drip edge with at least 4" overlap using caulking on the area.



Rake

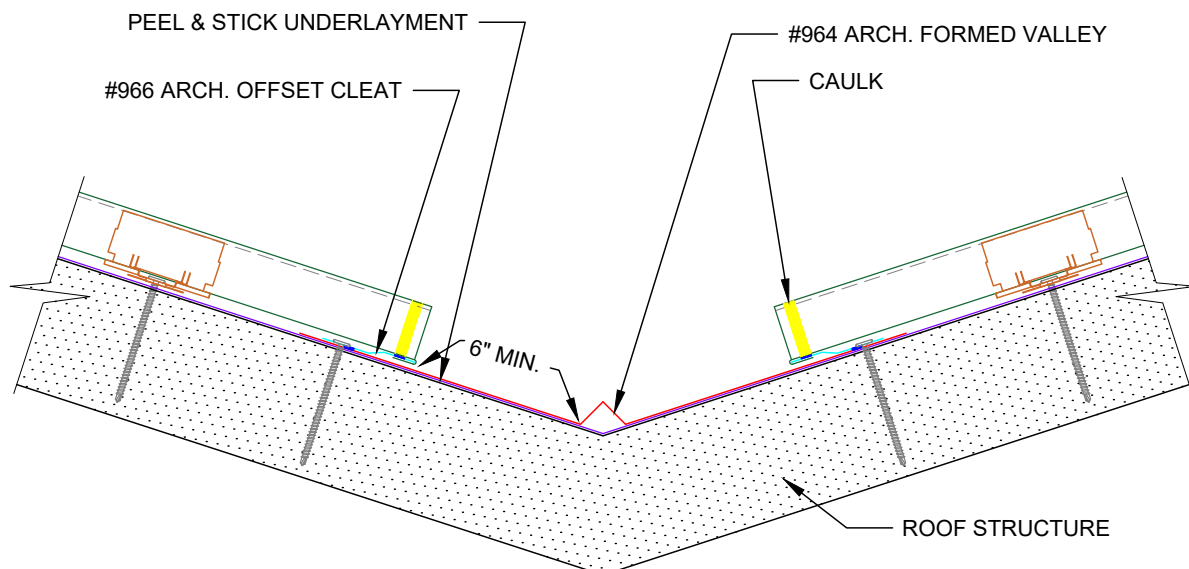
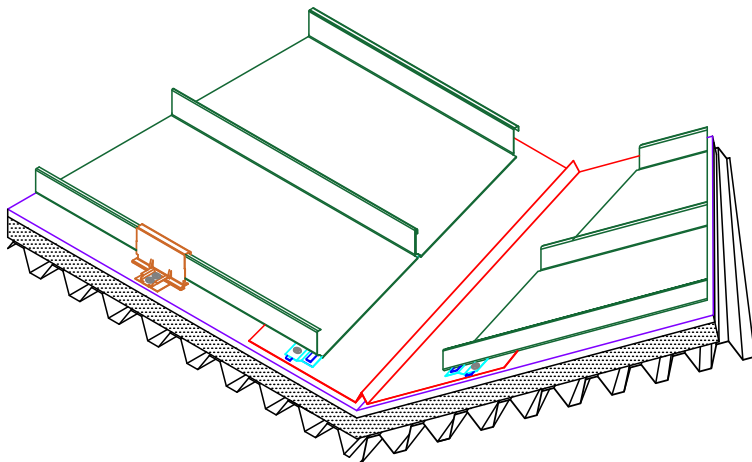
- Install drip edge flush against roof edge and rake area covered by underlayment.
- Fasten with appropriate fastener approximately 8" apart.
- Install each additional piece of drip edge with at least 4" overlap using caulking on the area.



Valley

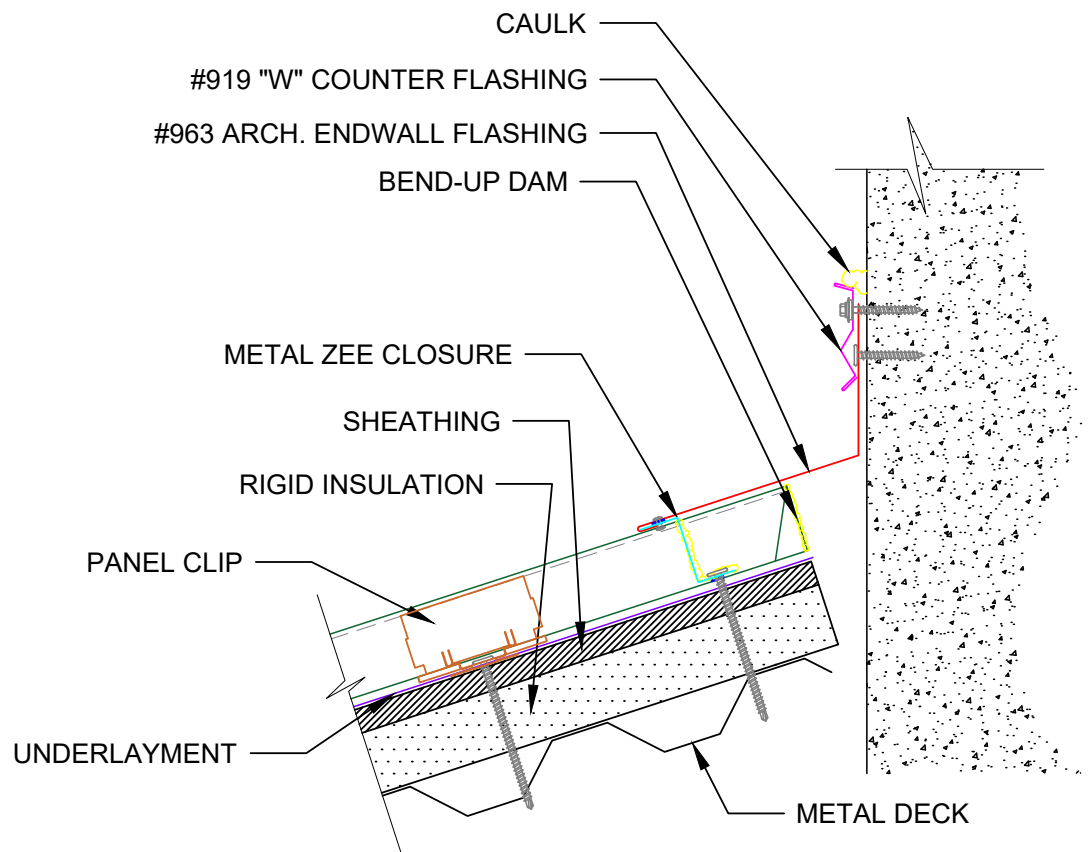
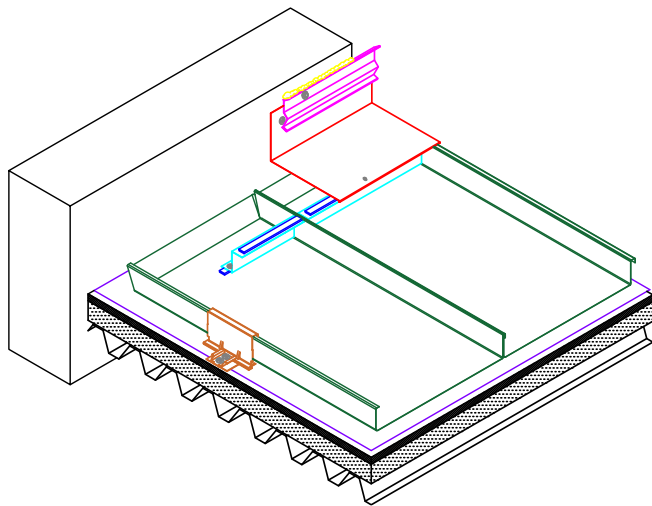
Valley trim gets installed at the same time as eave trim.

- Apply peel and stick in valley area.
- Start at lowest point and work up to ridge.
- Fasten both sides of valley.
- Work up slope continuing to overlap valley flash. Flash should be minimum 6" to 8" apart. Applying caulk at overlap.
- Apply cleats to sides of valley. Use beaded lap tape on bottom of cleat.
- Fasten cleats with appropriate fasteners.
- Be sure to keep the valley clean and free of debris
- When installing panels in valley area, slide panel hem into cleats to ensure proper fit before clips are secured.



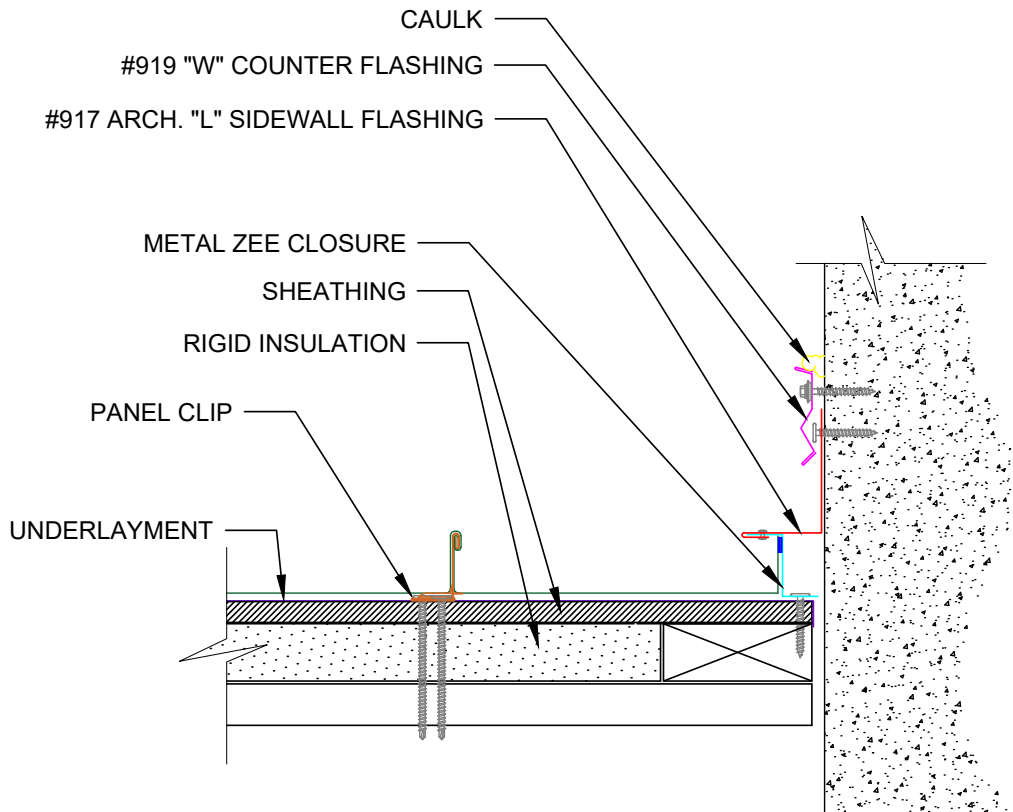
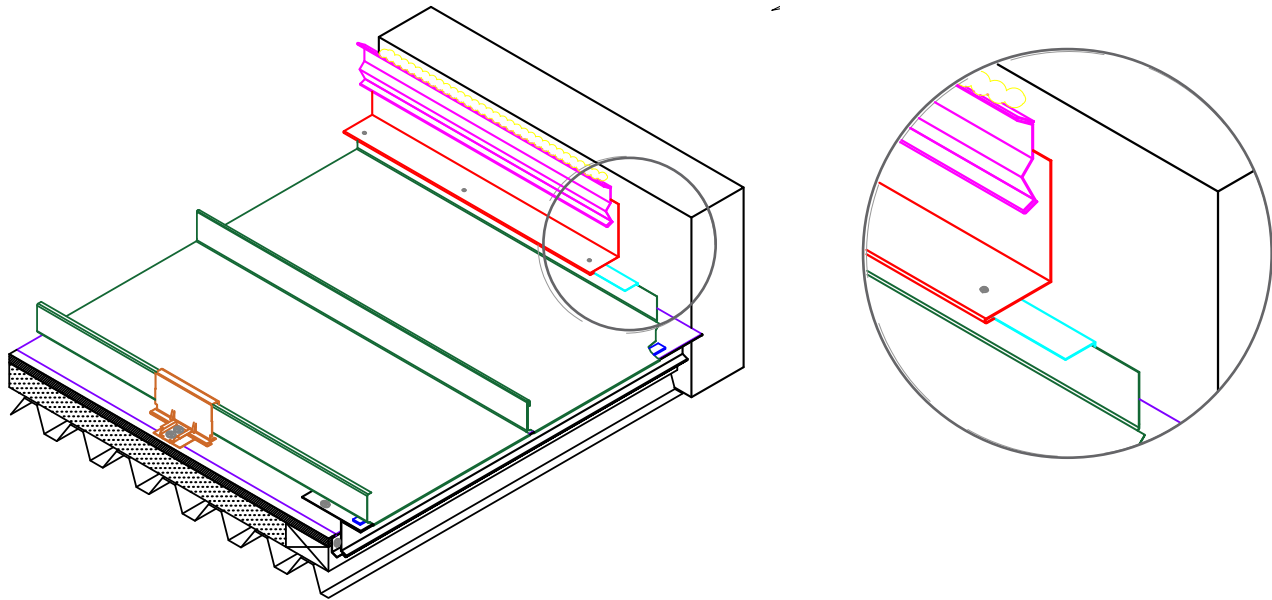
Headwall

- Install panels along headwall.
- To save time precut the zee closures so they fit in between panel seams and pre-drill prior to install for easier installation
- Use flashing depth of the headwall trim to determine placement of zee closures. Ensure straight line.
- Apply caulk to the bottom of zee closure that will rest on panel. Fasten to panel using recommended fasteners.
- Apply caulk to top of zee closure and attach headwall flashing using recommended fasteners.
- If more than 1 piece of flashing is needed, overlap at 4" and apply caulk in overlap area.



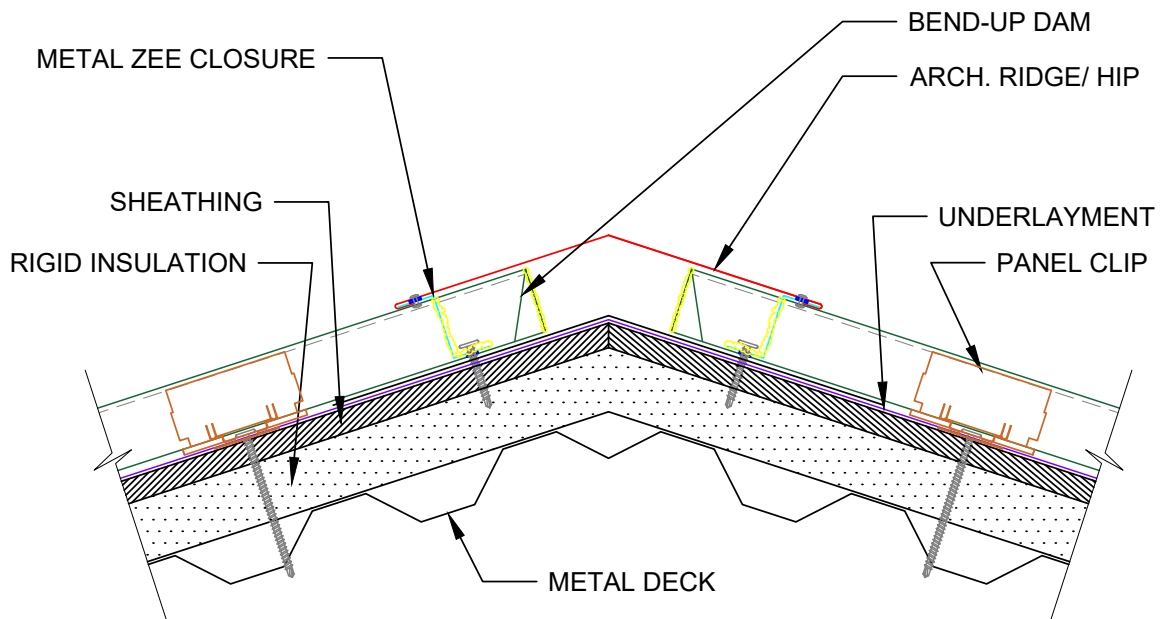
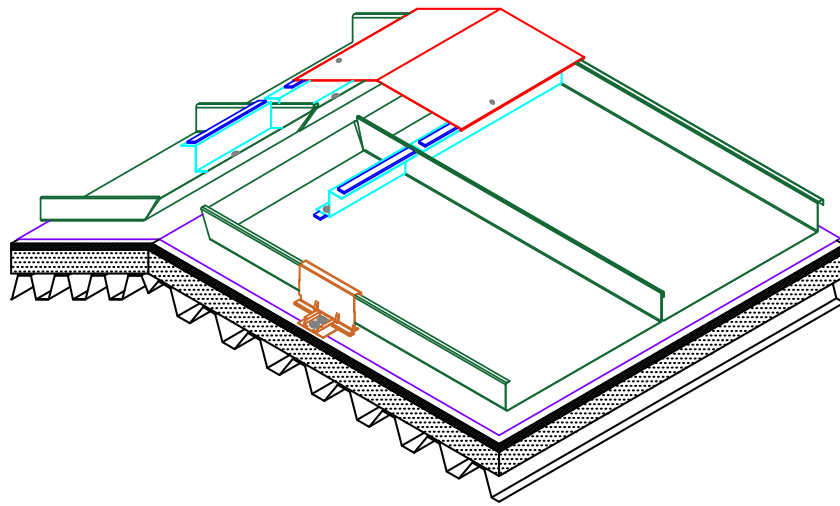
Sidewall

- Install panels along side wall.
- Use flashing depth of the sidewall trim to determine placement of zee closures. Ensure straight line.
- Cut zee closures to match length of panel. If more than one zee closure need, overlap at least 4".
- Apply butyl tape to bottom of zee closure that will rest on panel and attach with recommended fastener.
- Attach sidewall flashing to zee closure using recommended fastener. If more than 1 piece of flashing is needed, overlap at 4" and apply caulk in overlap area.



Ridge Cap

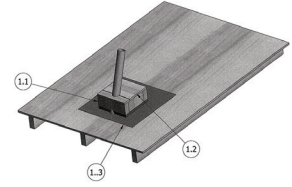
- Zee closure is installed at the top and needs to be installed as straight as possible for best fit and look of the ridge. Ensure straight line.
- To save time precut the zee closures so they fit in between panel seams and pre-drill prior to install for easier installation.
- Butyl lap tape is applied to bottom of the zee- careful to not scratch the panel.
- Caulk and seal closure for best waterproofing.



PIPE PENETRATION

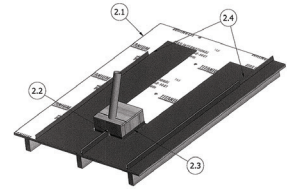
STEP #1

- Step 1.1 - Box out any pipes that will be on top of the Roof Panel Seam.
- Step 1.2 - Install plywood on top of Penetration and around pipe.
- Step 1.3 - Run Underlayment Membrane around and up the sides of Penetration.



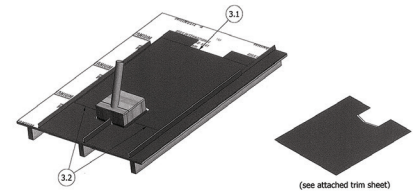
STEP #2

- Step 2.1 - Install Underlayment.
- Step 2.2 - Install panels up to and around Penetration as shown.
- Step 2.3 - Field trim and fold panels up the sides of Penetration.
- Step 2.4 - Notch both male and female portion of panels back.



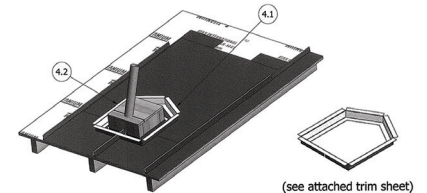
STEP #3

- Step 3.1 - Field cut and fabricate flashing pan.
- Step 3.2 - While installing flashing pan, apply two beads of appropriate sealant between pan and panels.



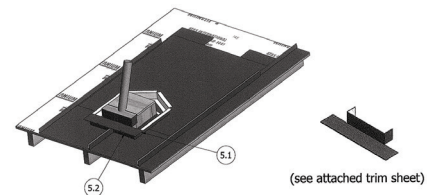
STEP #4

- Step 4.1 - Field notch and bend "Z" closures around penetration as shown.
- Step 4.2 - Install "Z" closures in continuous bead of butyl tape using appropriate fasteners.



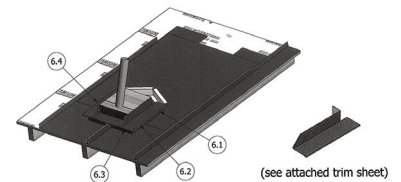
STEP #5

- Step 5.1 - Field trim and fabricate lower flashing trim.
- Step 5.2 - Install on "Z" closure with appropriate fasteners.



STEP #6

- Step 6.1 - Field trim and fabricate side flashing trim.
- Step 6.2 - Install on top of lower flashing trim and "Z" closure with appropriate fasteners.
- Step 6.3 - Use sealant where appropriate.
- Step 6.4 - Repeat for other side of penetration.



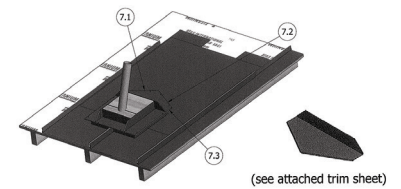
PIPE PENETRATION

STEP #7

Step 7.1 - Field trim and fabricate upper flashing trim.

Step 7.2 - Install on top of side flashing trim and “Z” closures with appropriate fasteners.

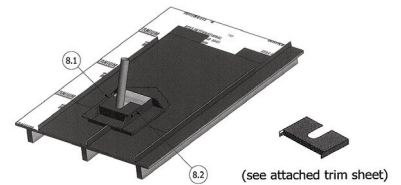
Step 7.3 - Use sealant where appropriate.



STEP #8

Step 8.1 - Field cut and fabricate bottom penetration pan.

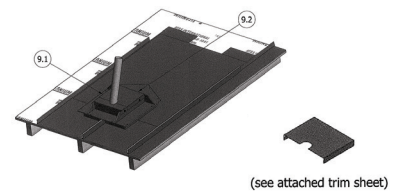
Step 8.2 - Install on lower and side trims with appropriate fasteners. (as shown)



STEP #9

Step 9.1 - Field cut and fabricate top penetration pan.

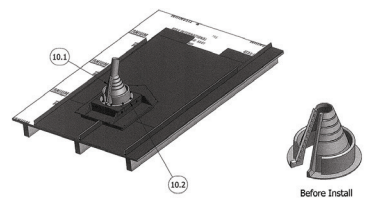
Step 9.2 - Install on upper and side trims with appropriate fasteners. (as shown)



STEP #10

Step 10.1 - Install pipe boot around pipe and secure to top and bottom penetration pan with appropriate fasteners.

Step 10.2 - Use appropriate sealant to make watertight.

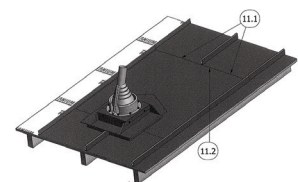


STEP #11

Step 11.1 - Field notch and bend end of panel to a 180° hem.

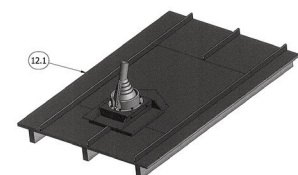
Step 11.2 - Install panels on top of joggle cleat with butyl tape sealant.

(These panels get installed on previous panels which had their locks cut off.)



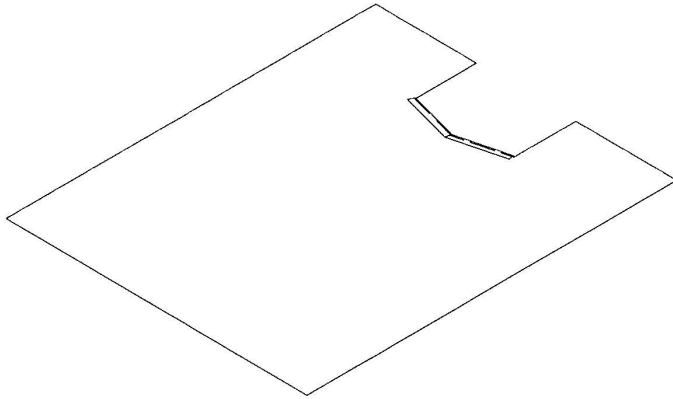
STEP #12

Step 12.1 - Install next roof panels and continue as normal.

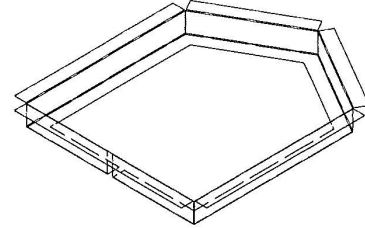


PIPE PENETRATION

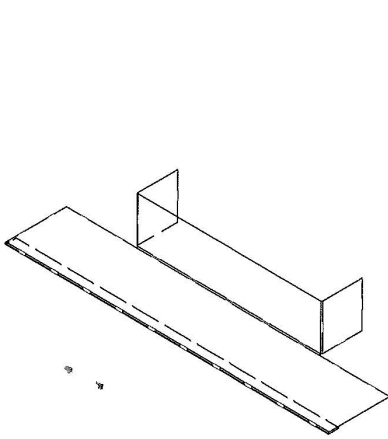
- Form panels in the field



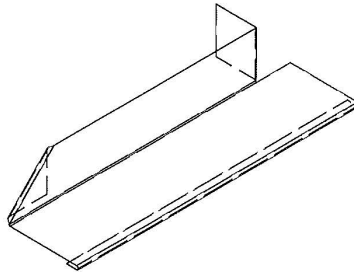
Flashing Pan



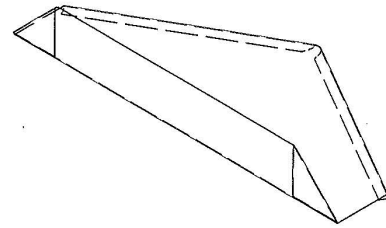
Z Closures



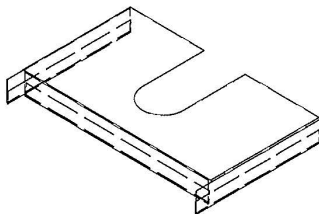
Lower Flashing Trim



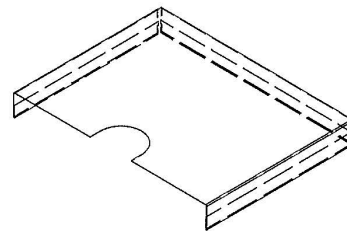
Side Flashing Trim



Upper Flashing Trim



Bottom Penetration Pan



Top Penetration Pan



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