



**Table of Contents**

<b>Section</b>	<b>Page</b>
Notes to Designer/User . . . . .	2
Map of Typical Roof Conditions . . . . .	3
Fastener Placement . . . . .	4
Fastener Selection . . . . .	5
<b>Box-Rib®, Reversed Box Rib®, HR-36®, Reversed HR-36®, Mini-V-Beam®, PBR, and Super-Span® Details</b>	
Ridge/Hip Flashing . . . . .	6
Valley Flashing . . . . .	7
Eave Flashings . . . . .	8
Gutter Flashings . . . . .	9
Gable Flashings. . . . .	10
Peak Flashing . . . . .	11
Sidewall Flashings. . . . .	12
Endwall Flashing . . . . .	13
Panel End Lap. . . . .	14
Window/Door Trim. . . . .	15
Drip Edge/Wall Step, Panel Top. . . . .	16
Inside Corner . . . . .	17
Outside Corner . . . . .	18
<b>Nu-Wave® Corrugated &amp; U-Panel Details</b>	
Ridge/Hip Flashing . . . . .	19
Valley Flashing . . . . .	20
Eave Flashing . . . . .	21
Gutter Flashing . . . . .	22
Gable Flashing . . . . .	23
Peak Flashing . . . . .	24
Sidewall Flashing. . . . .	25
Endwall Flashing . . . . .	26
Base Trim Detail . . . . .	27
“C” Trim Detail . . . . .	28
Inside Corner . . . . .	29
Outside Corner . . . . .	30
Custom Flashing Worksheet. . . . .	31
Quadrille Workspace. . . . .	32

## Notes to the Designer/User

The details contained in this packet are intended to be a design aid and do not depict all situations. Modifications are the responsibility of the designer/user and should take into account climate conditions such as wind and snow, governing code requirements, and the actual usage and maintenance of the structure. Where possible, roof panel side laps and flashings should be lapped away from prevailing winds. Certain flashings should be supported if it is likely that a ladder will be used against them or if foot traffic is anticipated. Check with AEP Span any time you intend to specify a prefinished flashing in a gauge different than the panels. It is good practice to specify that all flashings be of the same material as the panels (gauge, color, finish) to ensure long-term durability. Field-painted flashings rarely equal the durability and color fastness of factory baked-on paint systems. Where possible, we have hemmed the edges of flashings to strengthen them and to minimize the exposure of cut edges.

### Framing

The details contained in this guide are shown with panels attached to spaced support members.

### Slope requirements

It is suggested that all panels in this booklet be used on slopes of 1:12 or greater, except Nu-Wave® Corrugated and U-Panel which have a 3:12 minimum slope requirement.

### Condensation, Insulation & Ventilation

It is the designer's responsibility to determine the need and composition of condensation control materials including insulation and vapor retarders, as well as ventilation requirements. Metal roofing is susceptible to condensation and its control should be carefully considered.

### Valleys

Valley dimensions must be the proper width to account for slope, snow, ice, and rain conditions. If valleys are not kept free of debris, water can back up and intrusion may occur under the panels.

### Snow Design

If possible, valleys, gutters, roof elevation changes and penetrations should be minimized or eliminated in snow areas. Roof penetrations should be located as close to the ridge or peak of the roof as possible to minimize accumulations of ice and snow.

### Curved Roofs

Box Rib, HR-36®, Super-Span®, U-Panel, and Nu-Wave® Corrugated panels are suitable for installation over curved surfaces. Box Rib, HR-36, U-Panel and Super Span panels are factory crimp curved. Nu-Wave Corrugated panels are factory smooth curved. Mini-V-Beam and PBR panels are not currently available curved.

### Oil-Canning

Flat metal surfaces will display waviness commonly referred to as "oil-canning". This is caused by steel mill tolerances, variations in the substrate and roofing underlayments. Oil canning is a characteristic, not a defect, of panels manufactured from light-gauge metal. Coils are factory "corrective-levelled" prior to rollforming to minimize oil canning. Oil canning is not a cause for panel rejection. Additional information is available upon request.

### References

The Sheet Metal and Air Conditioning Contractors' National Association Inc. (SMACNA) manual is an excellent reference for sheet metal contractors. Its guidelines for underlayments, gutter and downspout size requirements, and expansion/contraction of metals and flashings joints should be followed.

### Technical Assistance

Call your AEP Span Sales or Technical Representative for additional information on any of these subjects.

### Definitions

**Sealant:** Gunnable-grade single-component polyurethane

**Mastic:** Butyl mastic tape or butyl sealant



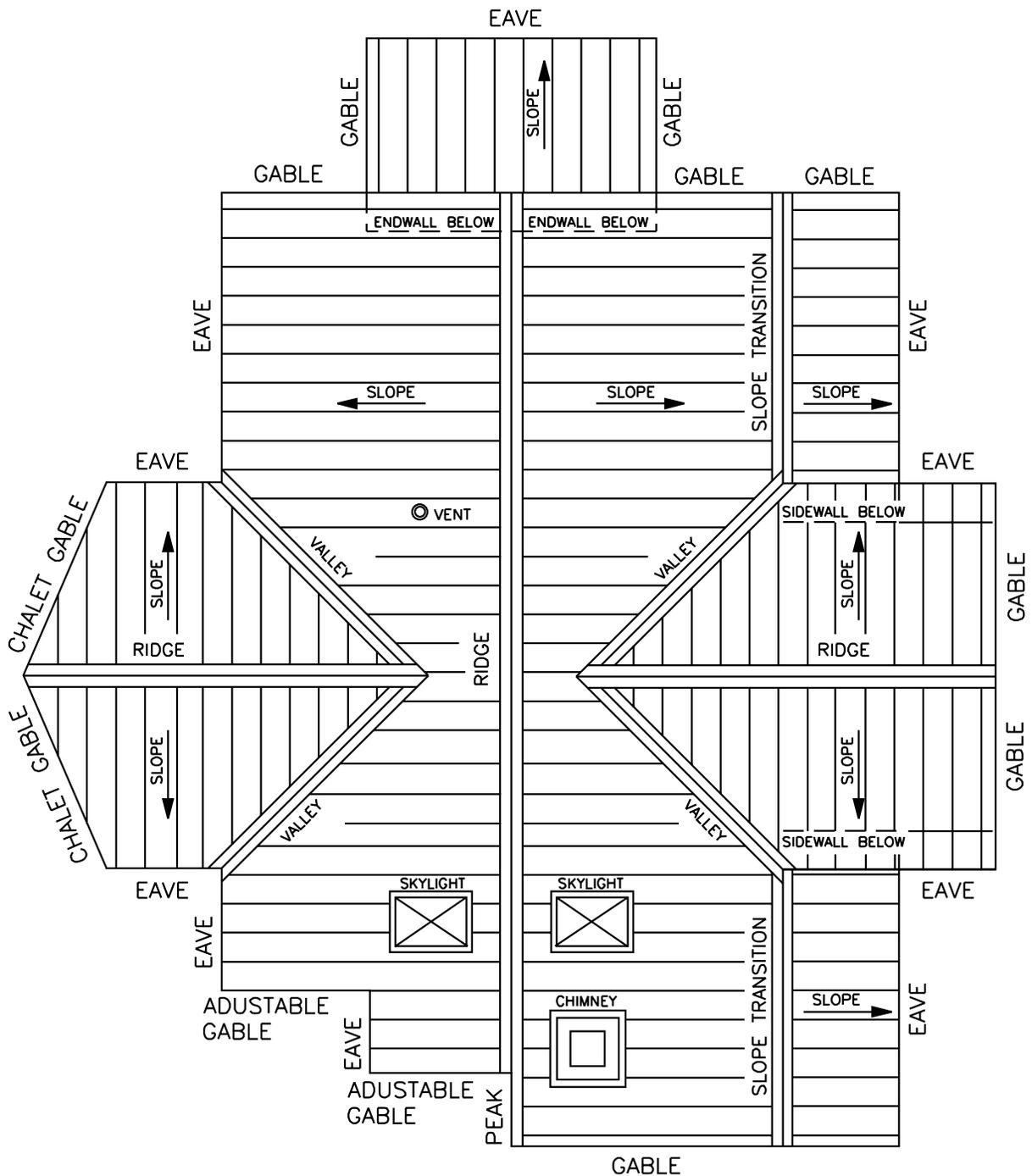
**Hem:** A 180° bend that is closed (or as closed as the formability of the metal will allow) to provide a uniform, attractive edge. High tensile strength (Grade 80) steel must be formed with a "teardrop hem" as shown to avoid cracking the steel at the bend. Lower tensile steels can be flattened close.



**Hook:** (also called an "open hem") A 180° bend on a piece of sheet metal that is left open to allow insertion of another piece of sheet metal. For example, the hook shown is used to hold the trim piece to a cleat below the trim.

**Note:** Each flashing part in this guide has been assigned a part number. Each part number contains one or two letters followed by one or two numbers, for example: (EW6). These part numbers have been provided to the user to make ordering these flashing parts quick and easy.

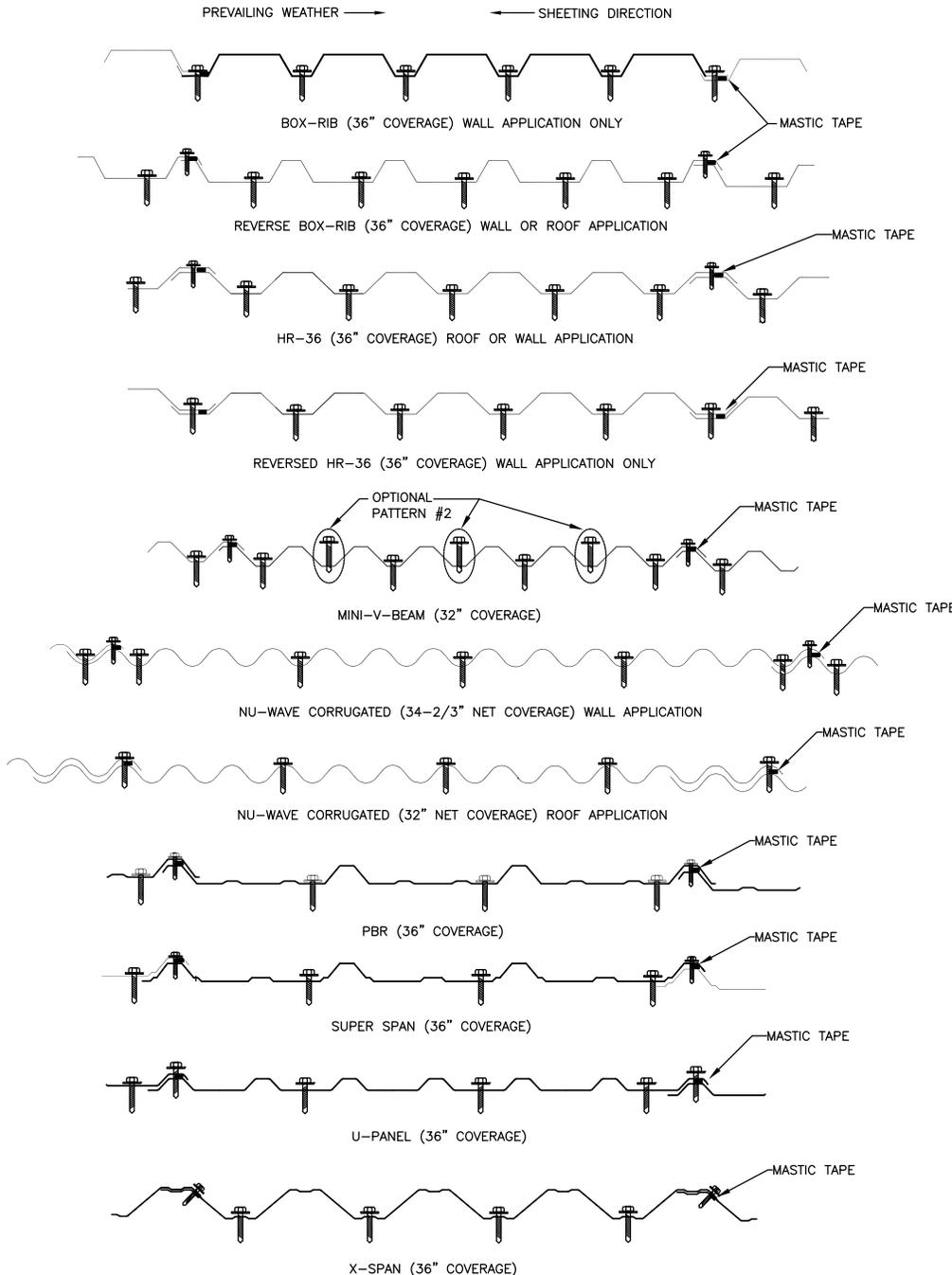
## Map of Typical Roof Conditions



For suggestions on how to trim flashings in the different areas, please refer to the following pages:

Flashing	Page(s)	Flashing	Page(s)
Eave.....	8, 21	Peak.....	11, 24
Endwall.....	13, 26	Ridge/Hip.....	6, 19
Gable.....	10, 23	Sidewall.....	12, 25
Gutter.....	9, 22	Valley.....	7, 20
Panel Endlap.....	14		

## Fastener Placement



**Box Rib**  
 (36" Coverage)  
 Wall application only

**Reverse Box Rib**  
 (36" Coverage)  
 Roof or Wall application

**HR-36®**  
 (36" Coverage)  
 Roof or Wall application

**Reversed HR-36**  
 Wall application only

**Mini-V-Beam**  
 (32" Coverage)  
 Roof or Wall application

**Nu-Wave® Corrugated**  
 (34 2/3" coverage) Wall application

**Nu-Wave Corrugated**  
 (32" Coverage) Roof Application

**PBR**  
 (36" Coverage)

**Super-Span®**  
 (36" Coverage)

**U-Panel**  
 (36" Coverage)

**X-Span®**  
 (36" Coverage)

**Note:** Lap panels away from prevailing weather. Use only those accessories specifically designed for use with this product. Use only galvanized or Zinalume®-coated fasteners. Isolate roofing and flashings from contact with dissimilar metals. Fastener selection will vary based upon substrate. The use of butyl mastic tape along the sidelaps, as shown above, is always recommended for roof panels. Space lap screws @ 18" o.c. maximum.

## Fastener Selection

Fastener #	Description	Use
1	 #9 x 1", 1 1/2", 2", 2 1/2", 3" Wood Screw 1/4" Hex Head	Panel to Dimensional Lumber
2	 #14 x 1", 2" Wood Screw 5/16" Hex Head	Panel to Plywood Minimum 1/2" thick, structural grade
3	 #12 x 3/4" Stitch Screw 1/4" Hex Head (compatible with #9 wood screw)	Trim and side lap attachments
4	 #14 x 7/8" Lap Self Driller 5/16" Hex Head (compatible with #14 wood screw)	Trim and side lap attachments. Attach panels to 18, 20, 22 gauge supports.
5	 STST-42 Stainless Steel Rivet 1/8 x 1/8 *Requires sealant over rivet head.	Trim-to-trim or trim-to-wall panel attachments
6	 #12 x 1", 1 1/2", 2", 1 1/2" Self Driller 5/16" Hex Head	Panel to purlin attachments

### Notes:

The table above shows the metal buildings panel fasteners provided by AEP Span. Refer to the panel flashing details and fastener placement pages of this manual for specific usage.

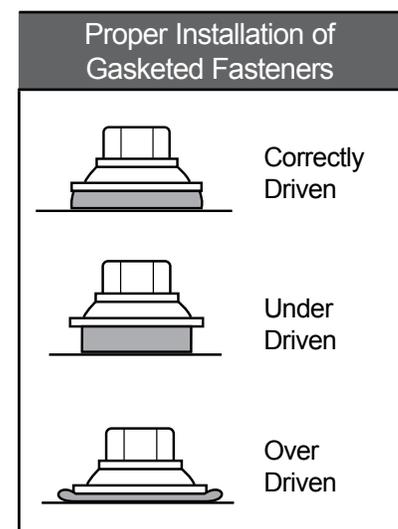
Panel attachment screws must be long enough to fully penetrate through the roof decking, or penetrate solid lumber at least one inch.

All screws must be coated to provide protection against corrosion.

Exposed fasteners should have sealing washers and be the same color as the parts they attach.

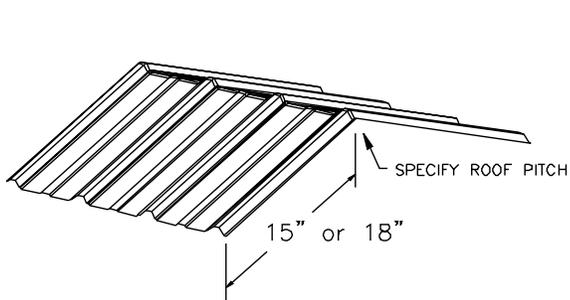
Roofing nails will also be required, but not furnished by AEP Span. They are typically used to temporarily hold a flashing in place that needs to be installed prior to panels.

Screws must be properly driven to ensure proper seal and holding strength. Do not underdrive or overdrive the screws. Recommended drill speed is 2000 rpm. Use of a depth-sensing nosepiece will aid in properly driving screws.

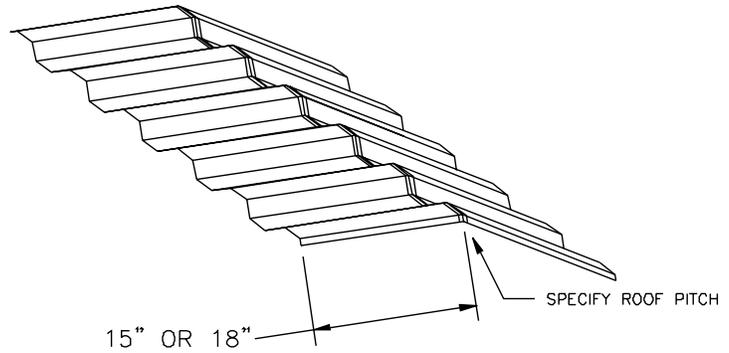


## Ridge/Hip Flashing

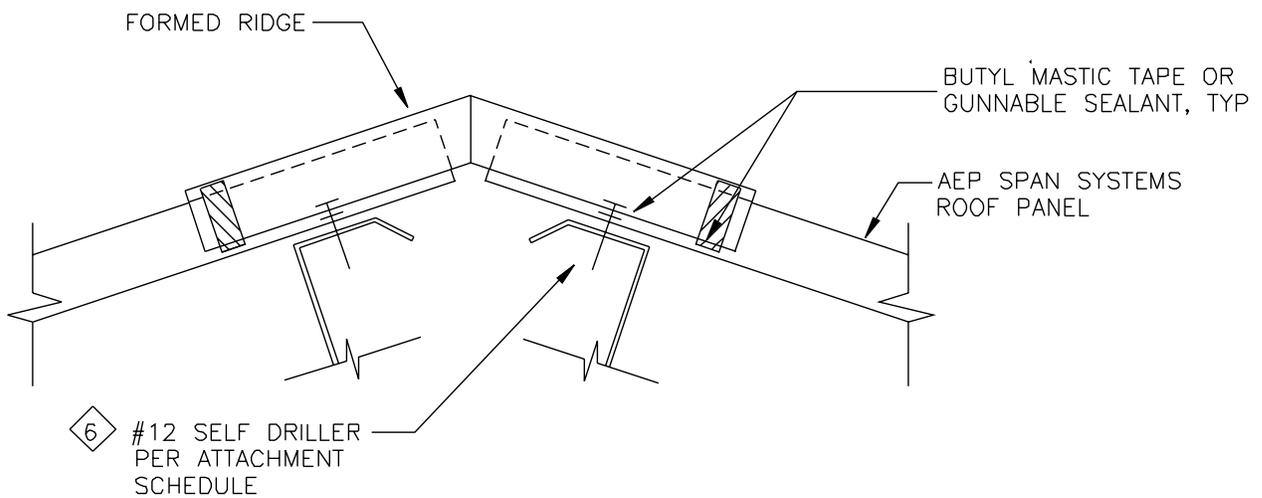
Box Rib, HR-36, and Super-Span



**Formed Ridge (R6)**  
**Super-Span**



**Formed Ridge**  
**HR-36 (R11)**  
**Box Rib (R43)**

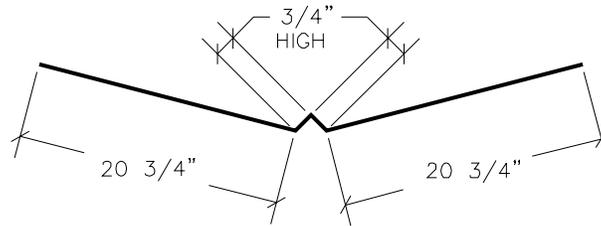


**Note:**

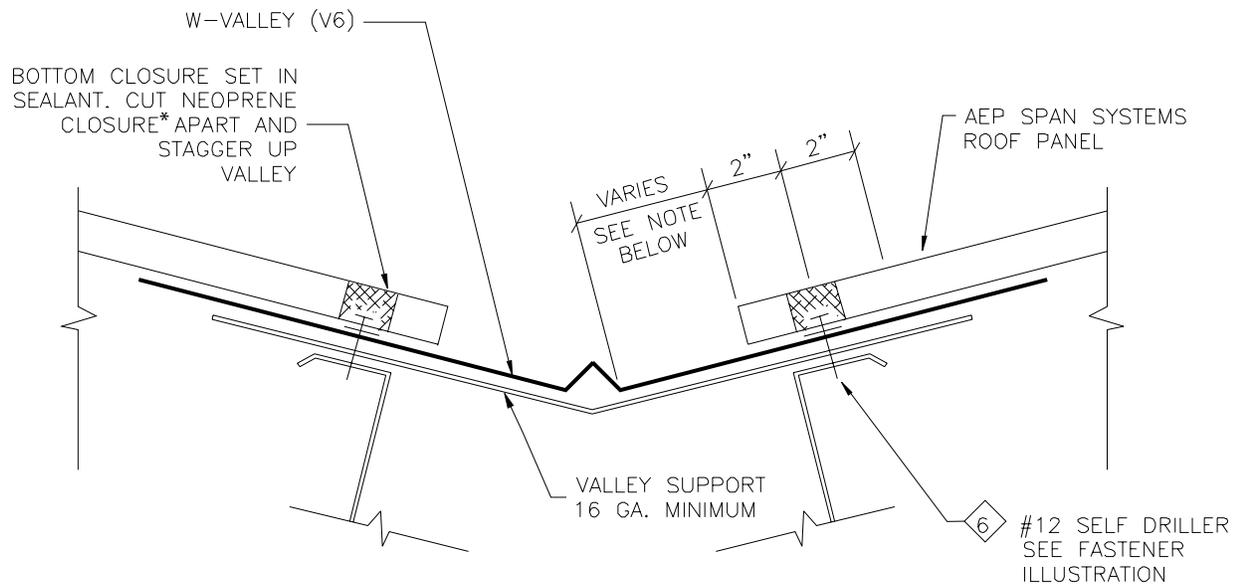
Maximum pitch with formed ridge 3:12.

## Valley Flashing

Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



**W-Valley (V6)**



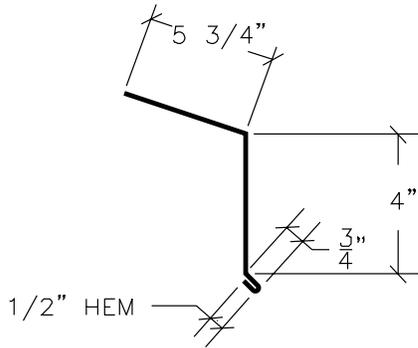
**Note:**

Valley dimensions must be the proper width to account for slope, snow, ice and heavy rain conditions. An underlayment such as a rubberized cold-applied membrane is recommended extending a minimum of 3'-0" up from the center of the valley on each side.

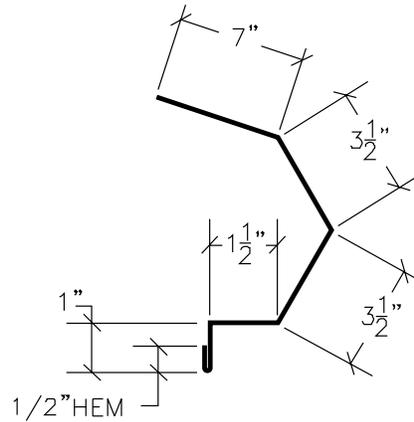
\*Special ordered beveled closures available for a specific pitch/slope.

## Eave Flashing

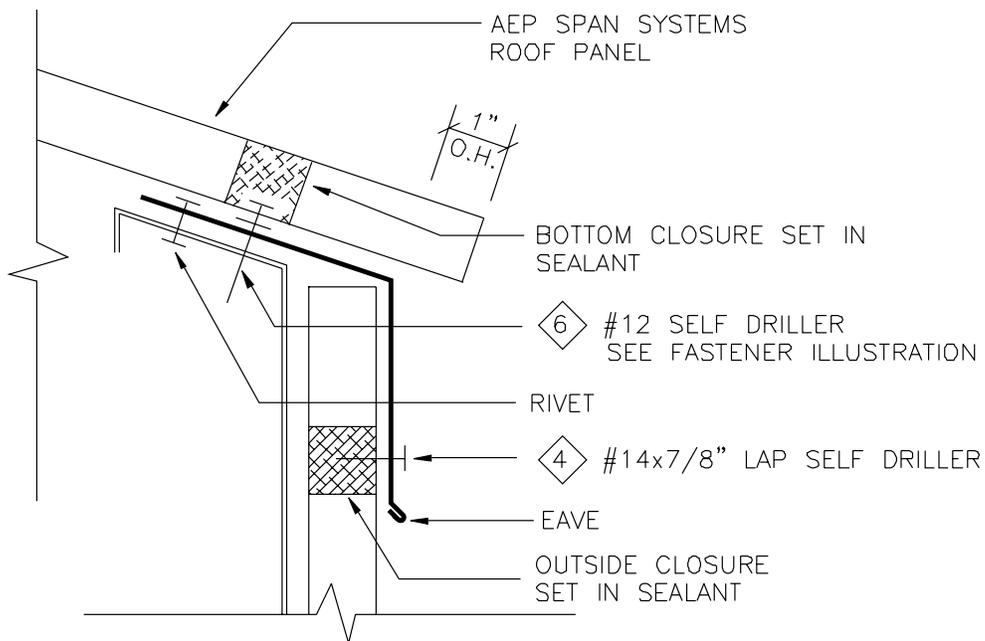
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



**Eave (E6)**

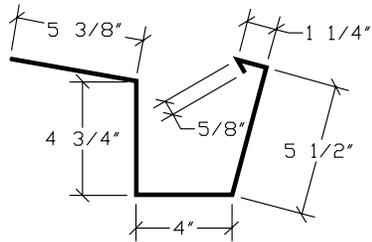


**Sculptured Eave (E7)**  
*optional*

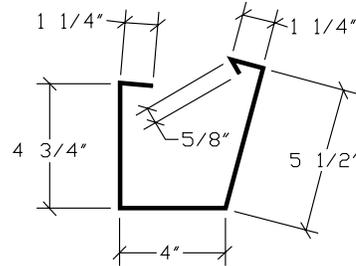


## Gutter Flashings

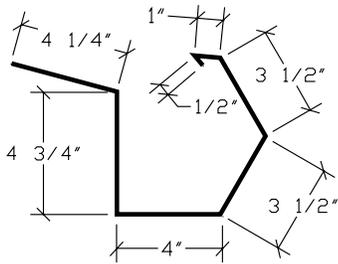
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



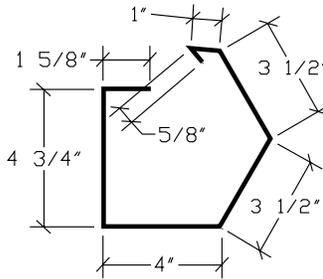
**Box Gutter (GU6)**  
*pre-hung*



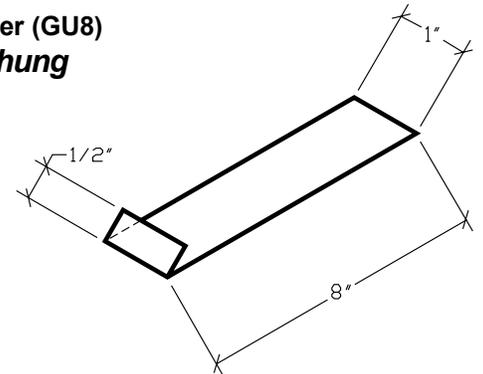
**Box Gutter (GU8)**  
*post-hung*



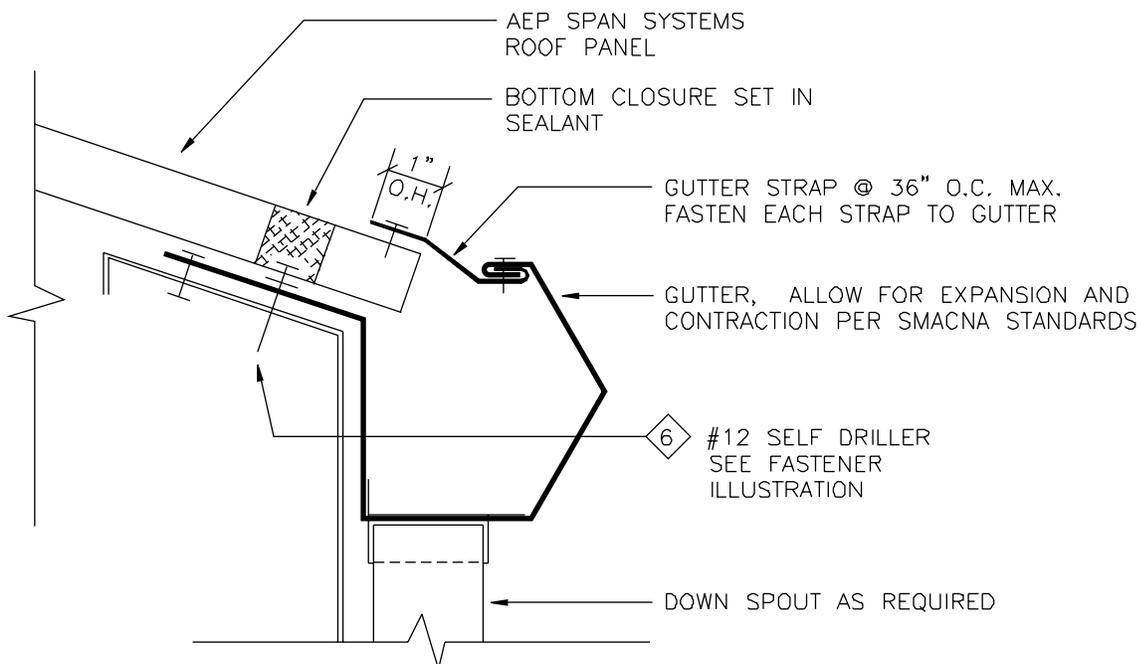
**Sculptured Gutter (GU7)**  
*pre-hung*



**Sculptured Gutter (GU9)**  
*post-hung*

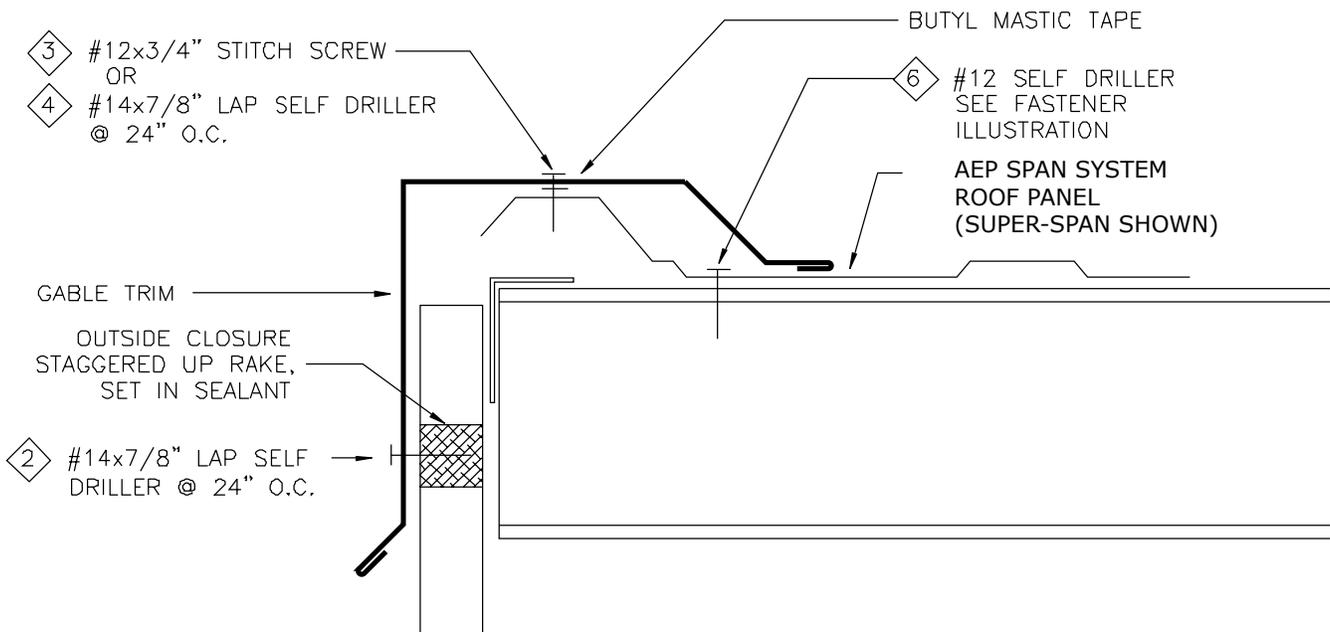
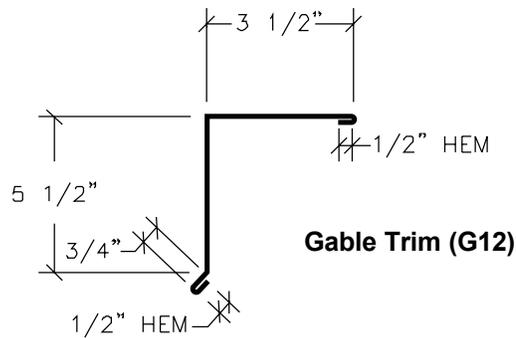
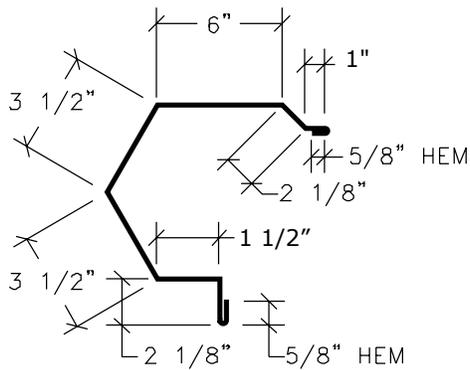
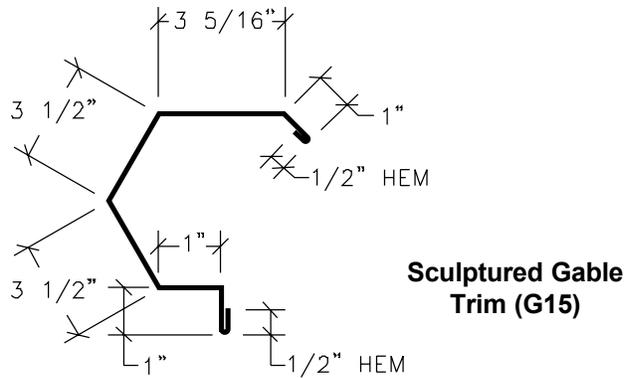
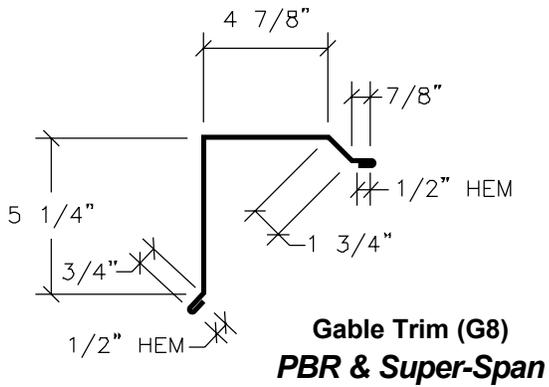


**Gutter Strap (GS6)**



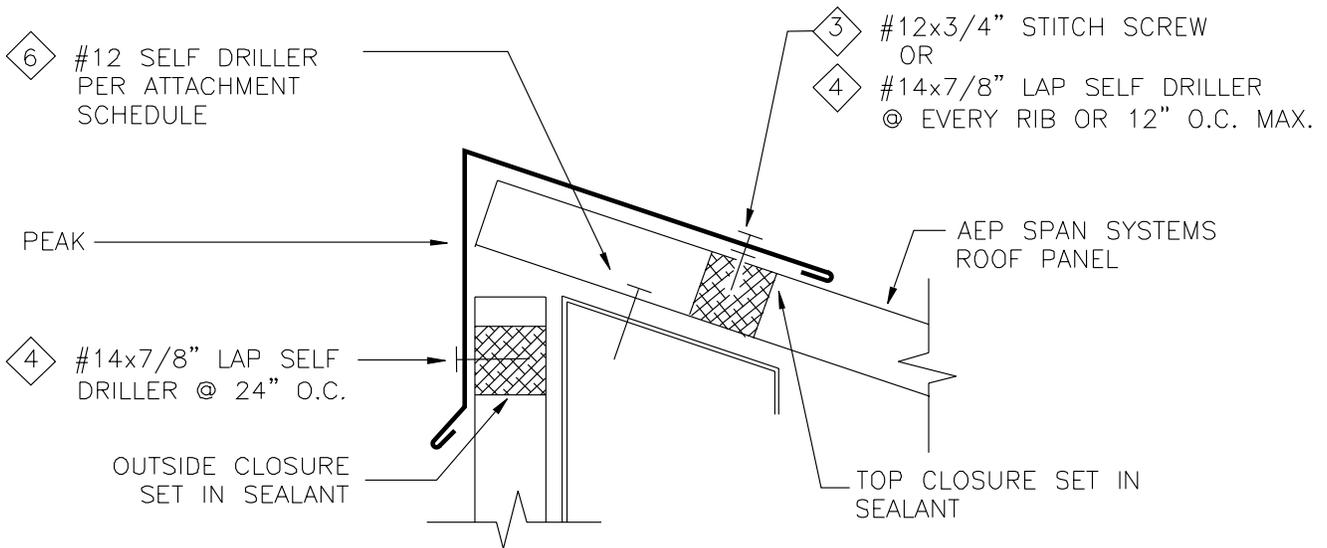
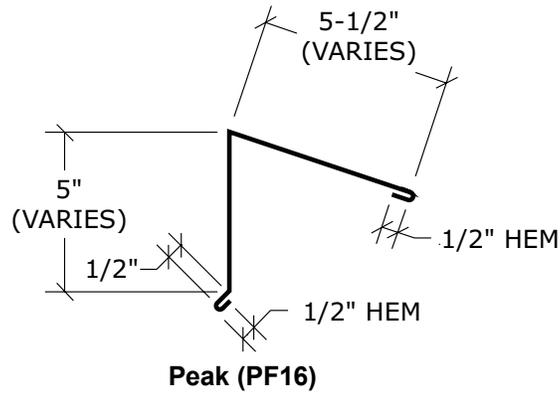
## Gable Flashings

Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



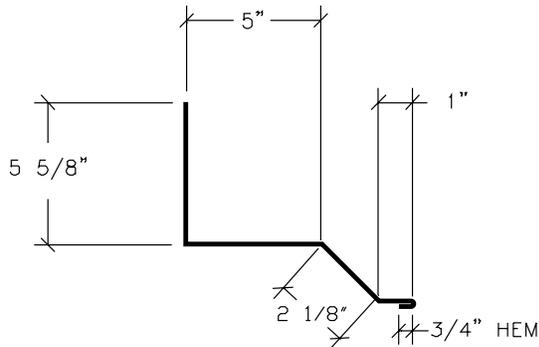
## Peak Flashings

Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span

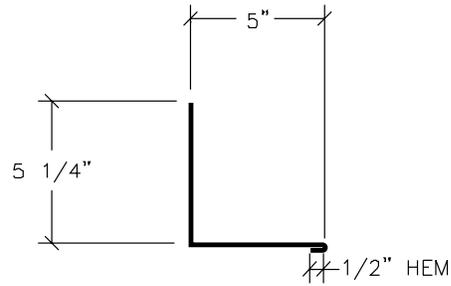


## Sidewall Flashings

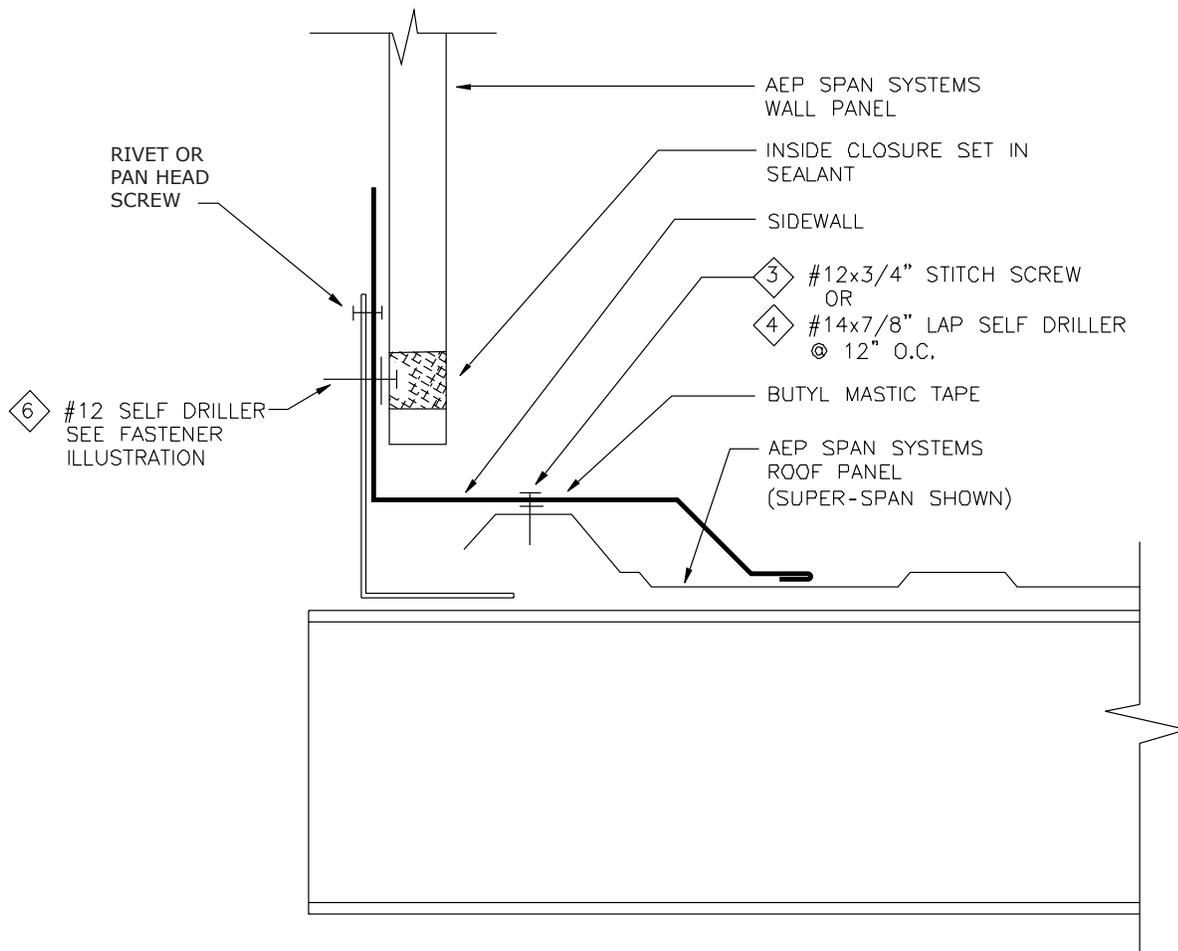
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



**Sidewall (SW7)**  
**PBR & Super-Span**

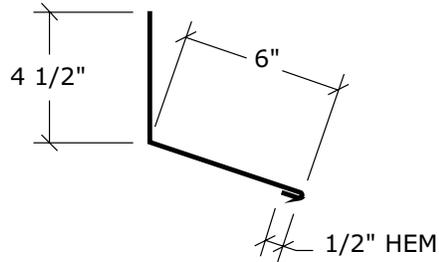


**Sidewall (SW8)**

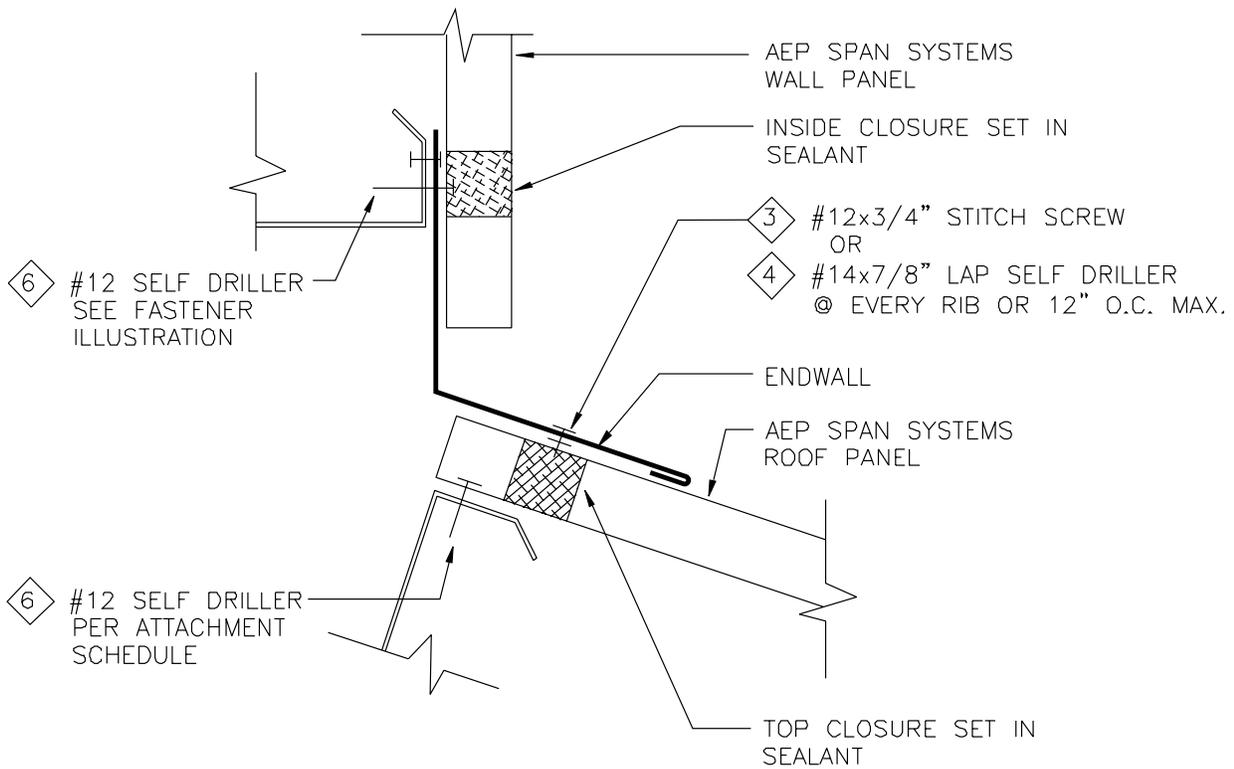


# Endwall Flashing

Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span

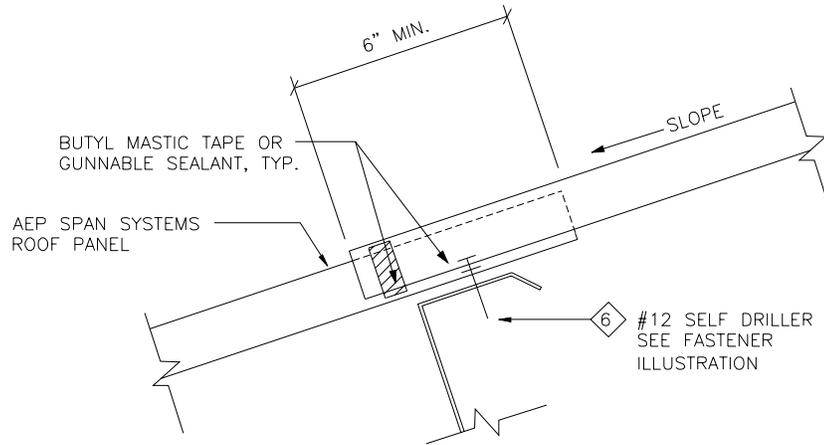


**Endwall (EW6)**

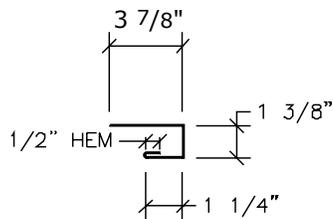


## Panel Endlap

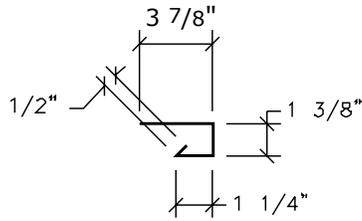
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



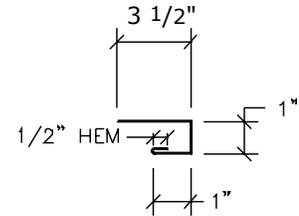
## Wall Details Window/Door Trim



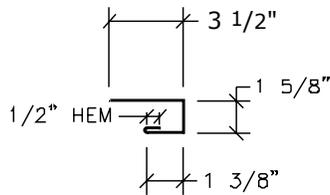
**C-Metal (C-6)**  
**PBR & Super-Span**



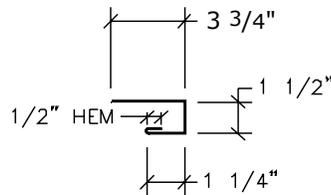
**Jamb Trim (J6)**  
**PBR & Super-Span**



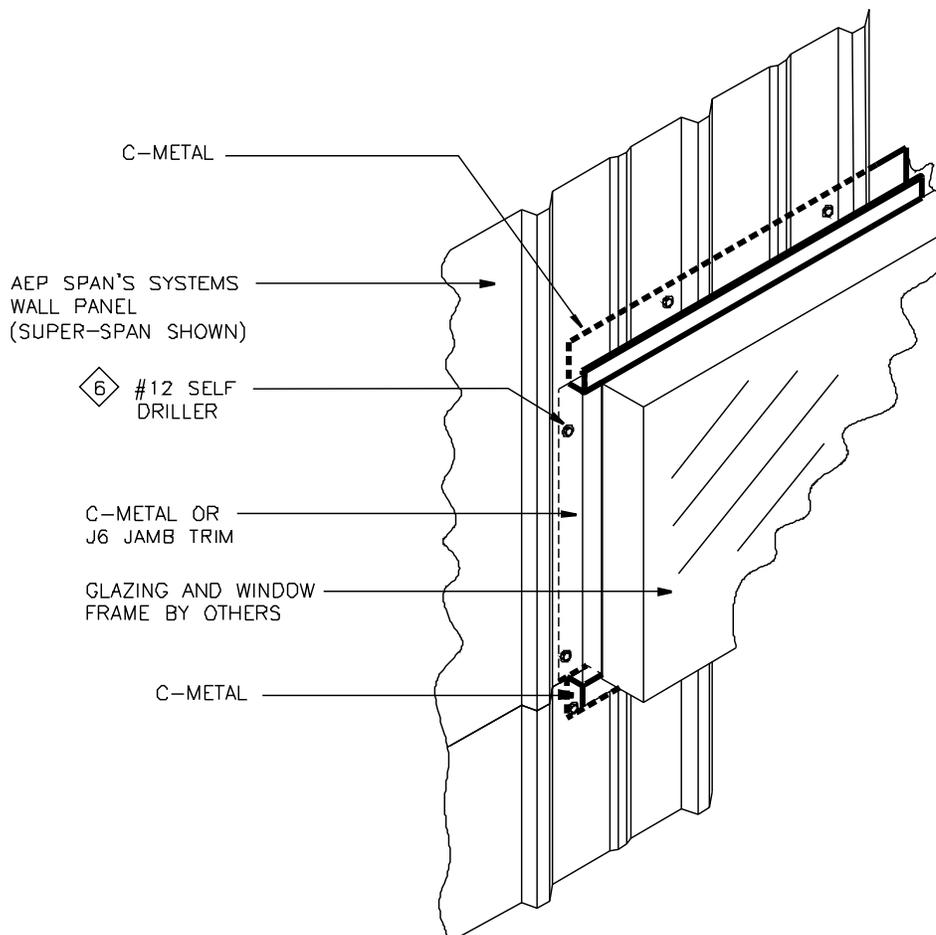
**C-Metal (C-13)**  
**Nu-Wave & U-Panel**



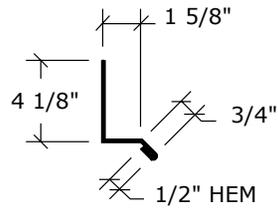
**C-Metal (C11)**  
**Box Rib & HR-36**



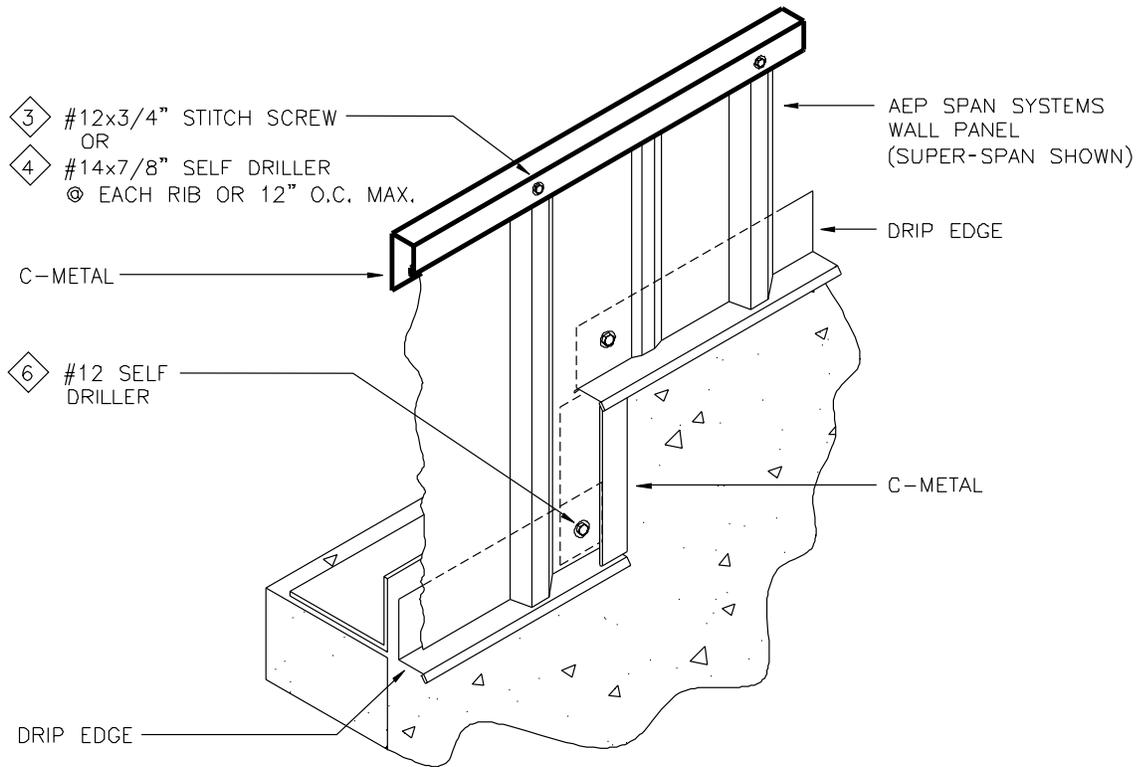
**C-Metal (C12)**  
**Mini -V-Beam**



**Wall Details • Drip Edge, Wall Step, Panel Top**  
 Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span

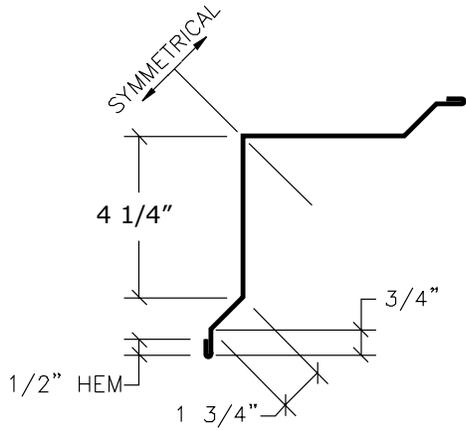


**Drip Edge (B6)**

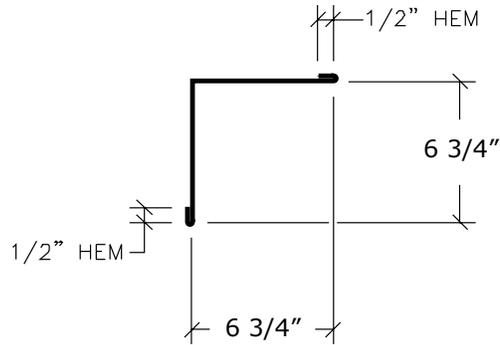


## Wall Details • Inside Corner

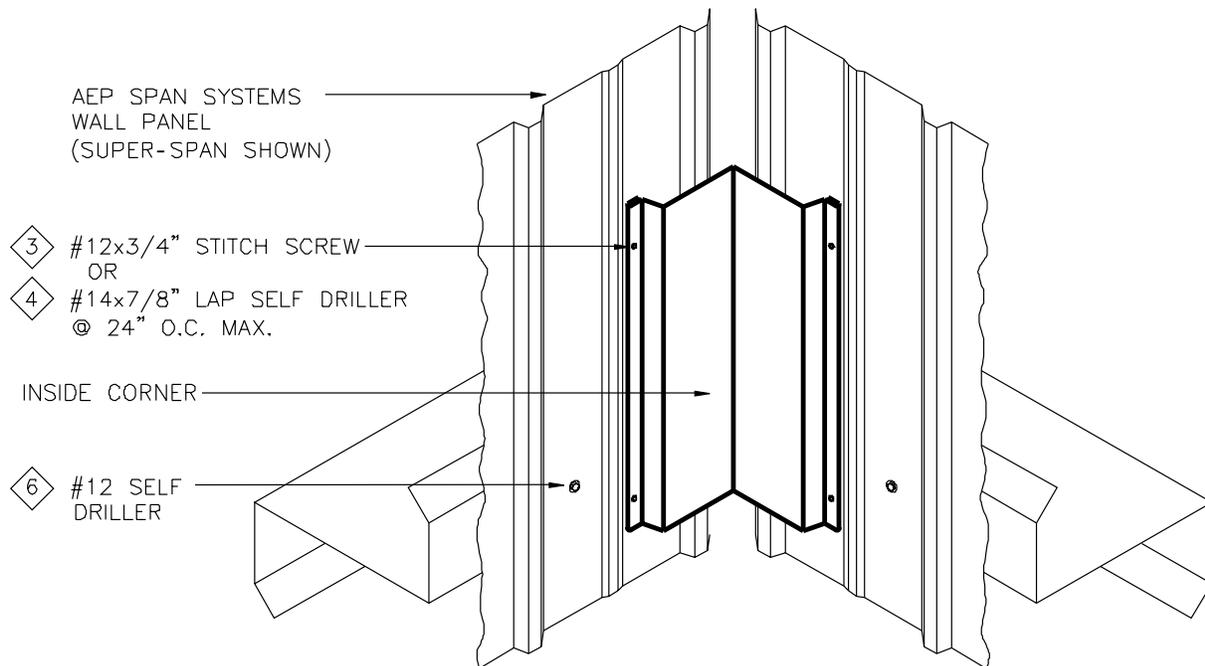
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



**Inside Corner (IC7)**

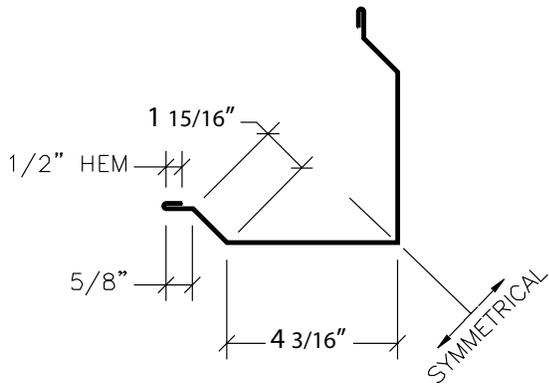


**Inside Corner (IC 11)**

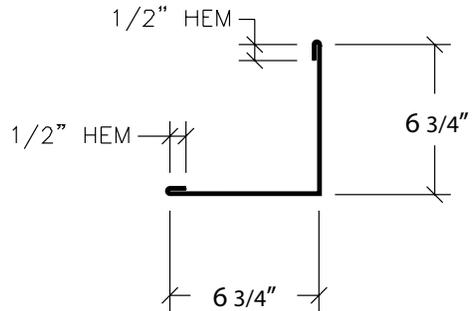


**Wall Details • Outside Corner**

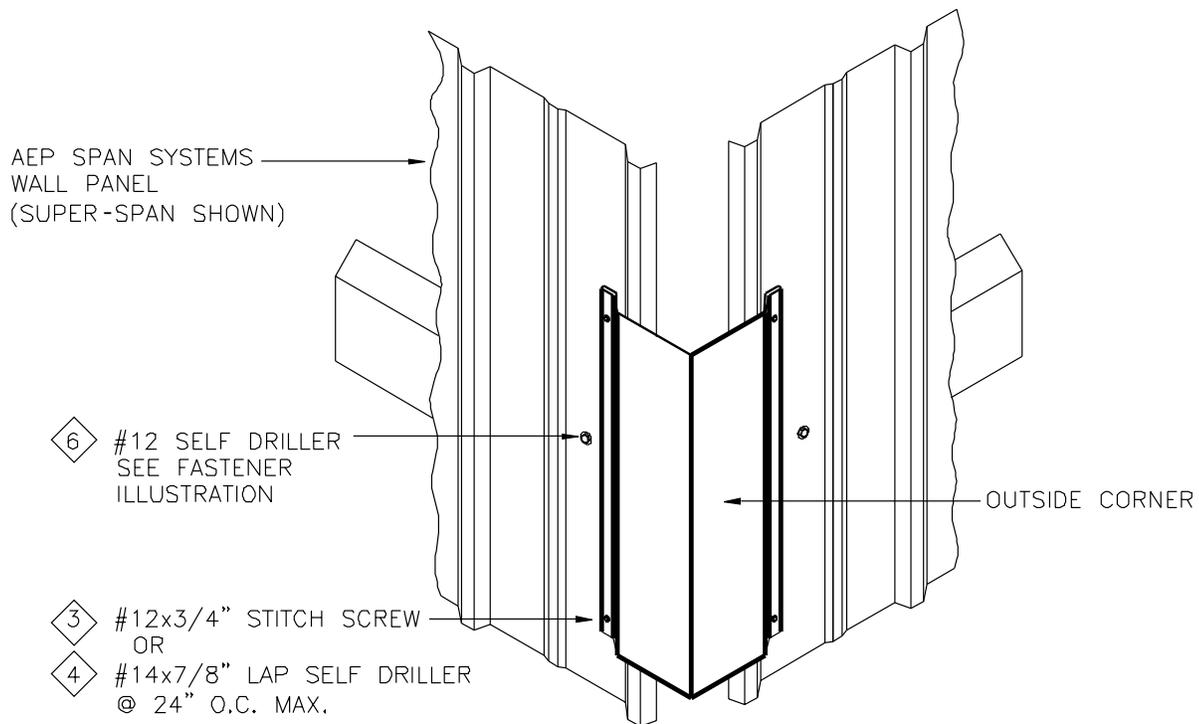
Box Rib, HR-36, Mini-V-Beam, PBR, and Super-Span



**Outside Corner (OC7)**  
**PBR & Super-Span**

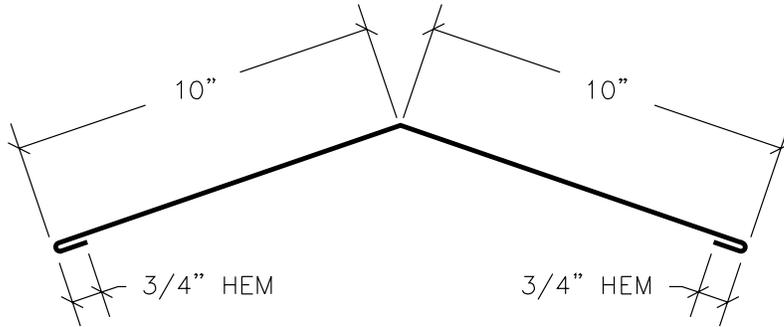


**Outside Corner (OC11)**

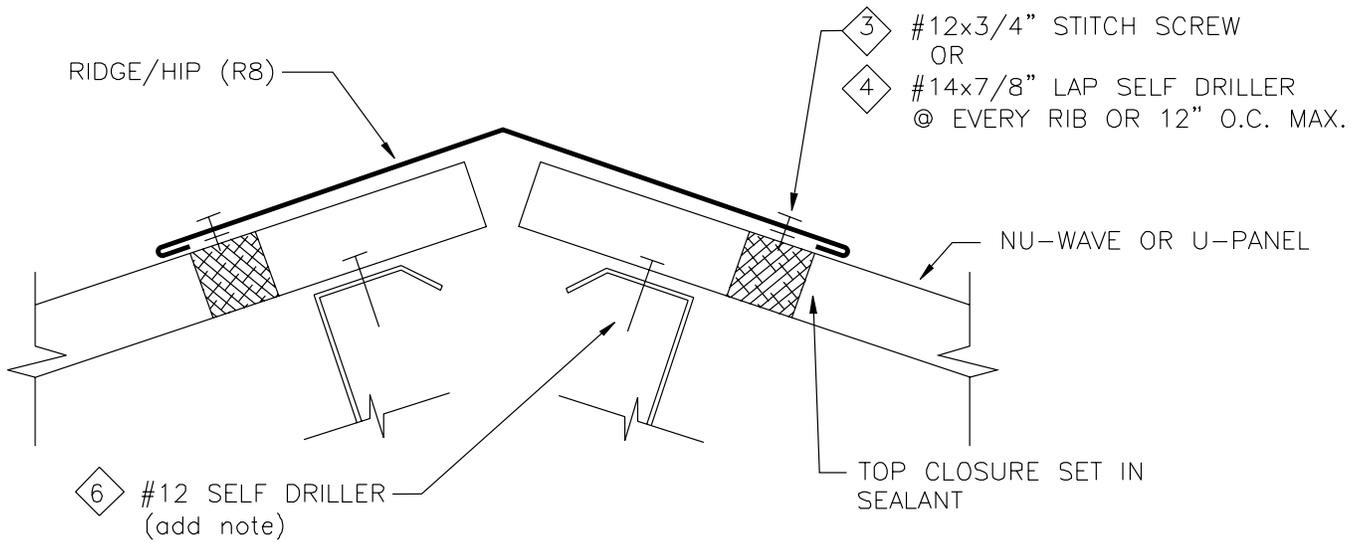


## Ridge/Hip Flashing

NuWave Corrugated & U-Panel



**Ridge/Hip (R8)**



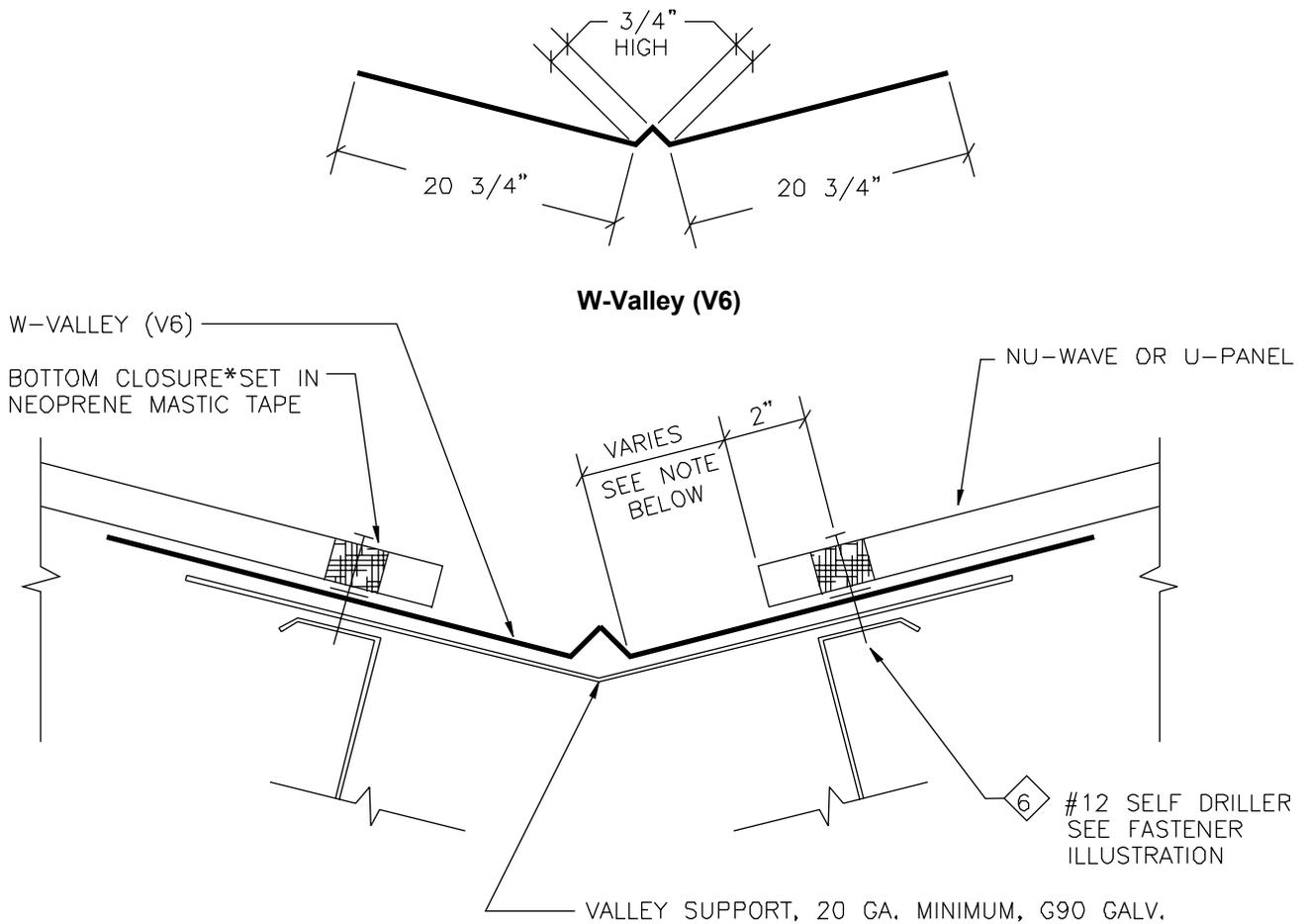
**Note:**

Fasteners (except under ridge cap) should be located on tops of corrugations.

Special ordered beveled closures available for a specific pitch/slope.

## Valley Flashing

NuWave Corrugated & U-Panel



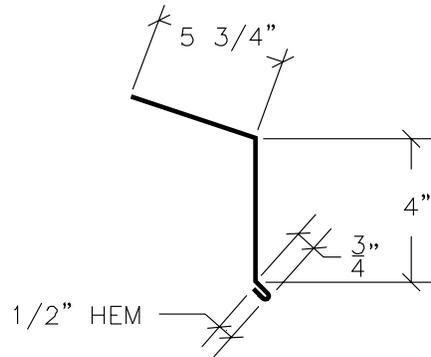
**Note:**

Valley dimensions must be the proper width to account for slope, snow, ice and heavy rain conditions. An underlayment such as a rubberized cold-applied membrane is recommended extending a minimum of 3'-0" up from the center of the valley on each side.

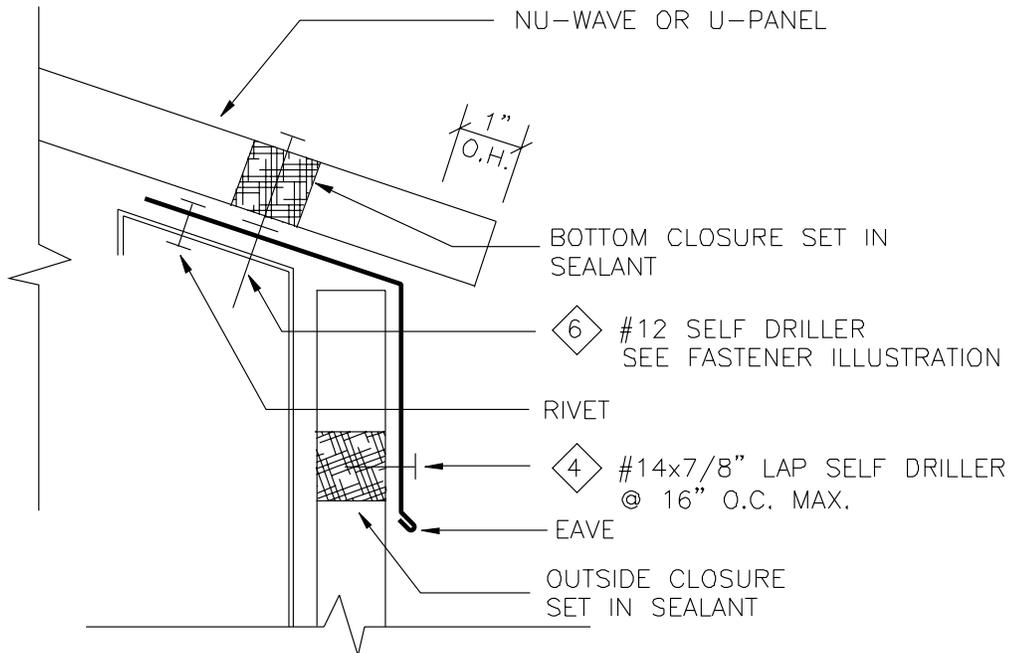
\*Special ordered beveled closures available for a specific pitch/slope.

# Eave Flashing

NuWave Corrugated & U-Panel

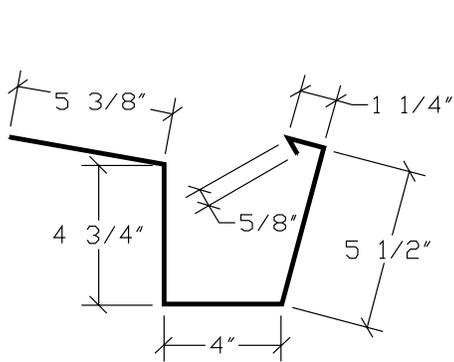


**Eave (E6)**

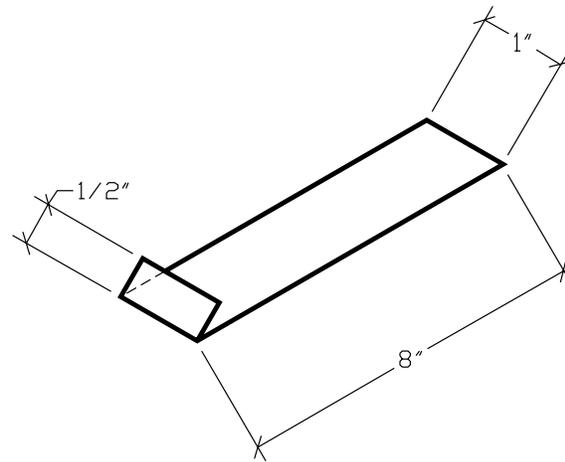


## Gutter Flashing

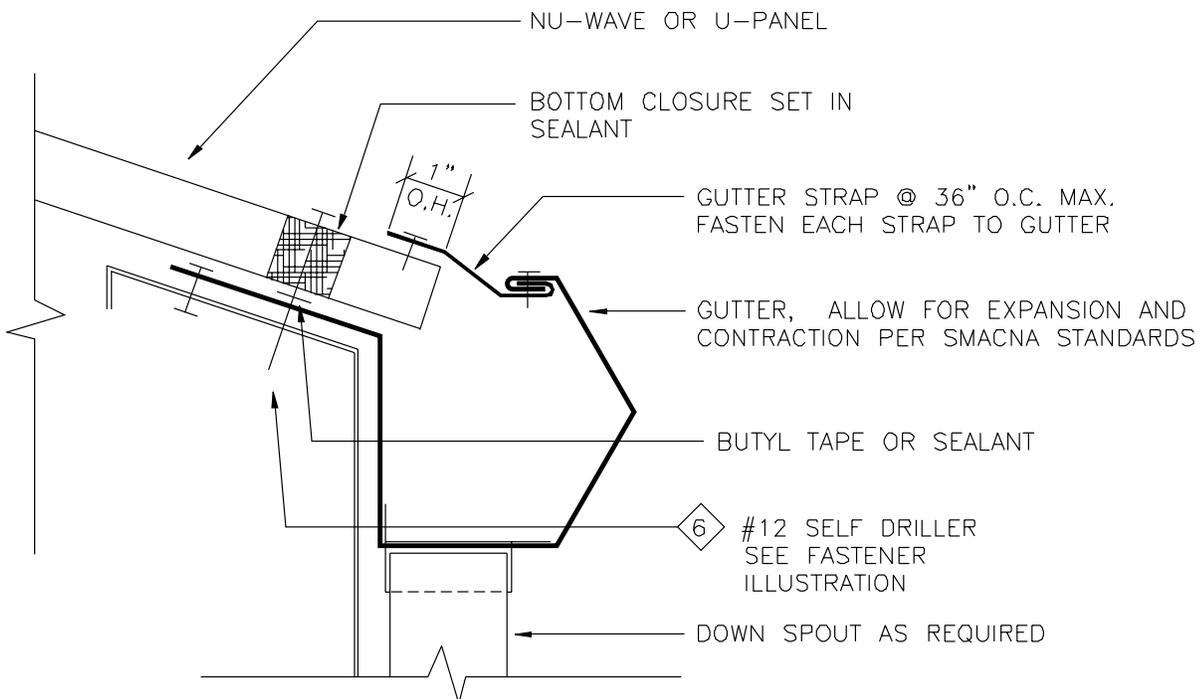
NuWave Corrugated & U-Panel



**Box Gutter (GU6)**  
**pre-hung**

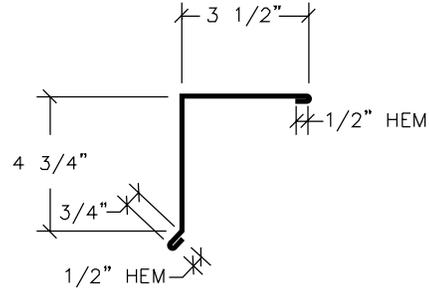


**Gutter Strap (GS6)**

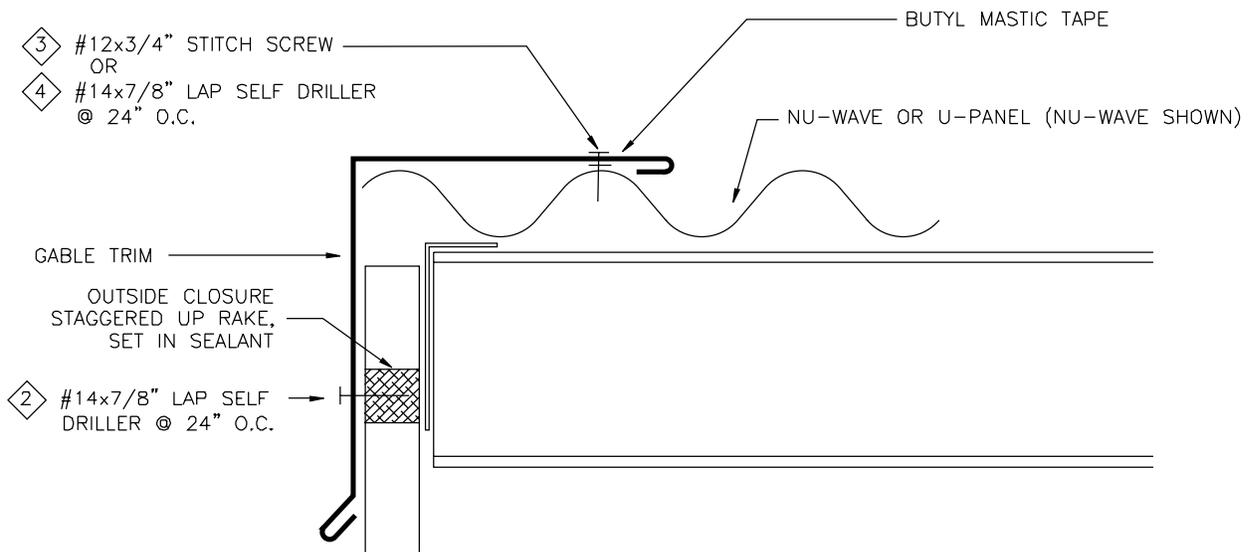


# Gable Flashing

NuWave Corrugated & U-Panel

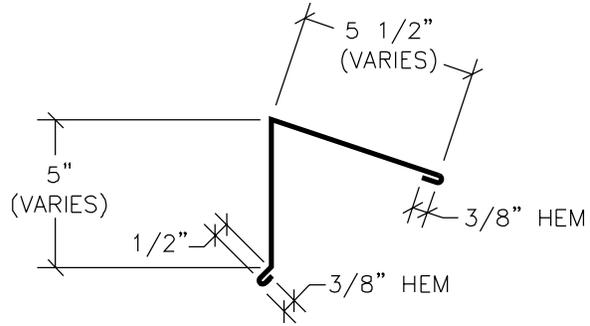


**Gable Trim (G19)**

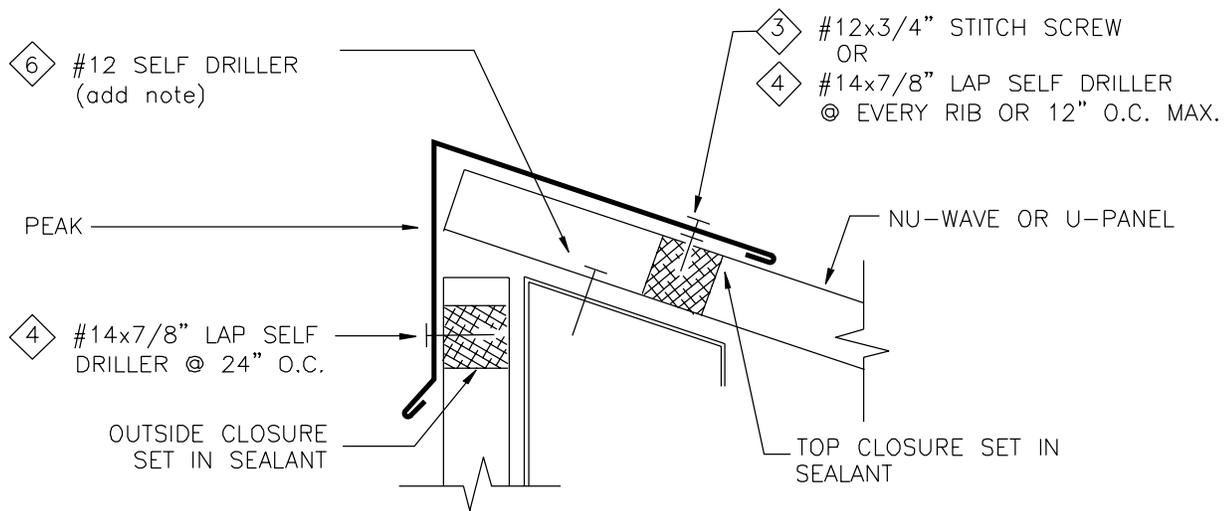


## Peak Flashing

NuWave Corrugated & U-Panel

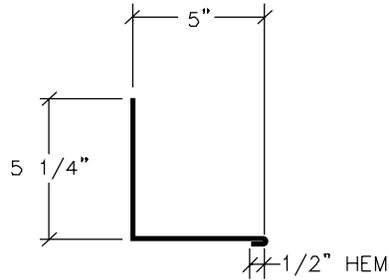


**Peak (PF16)**

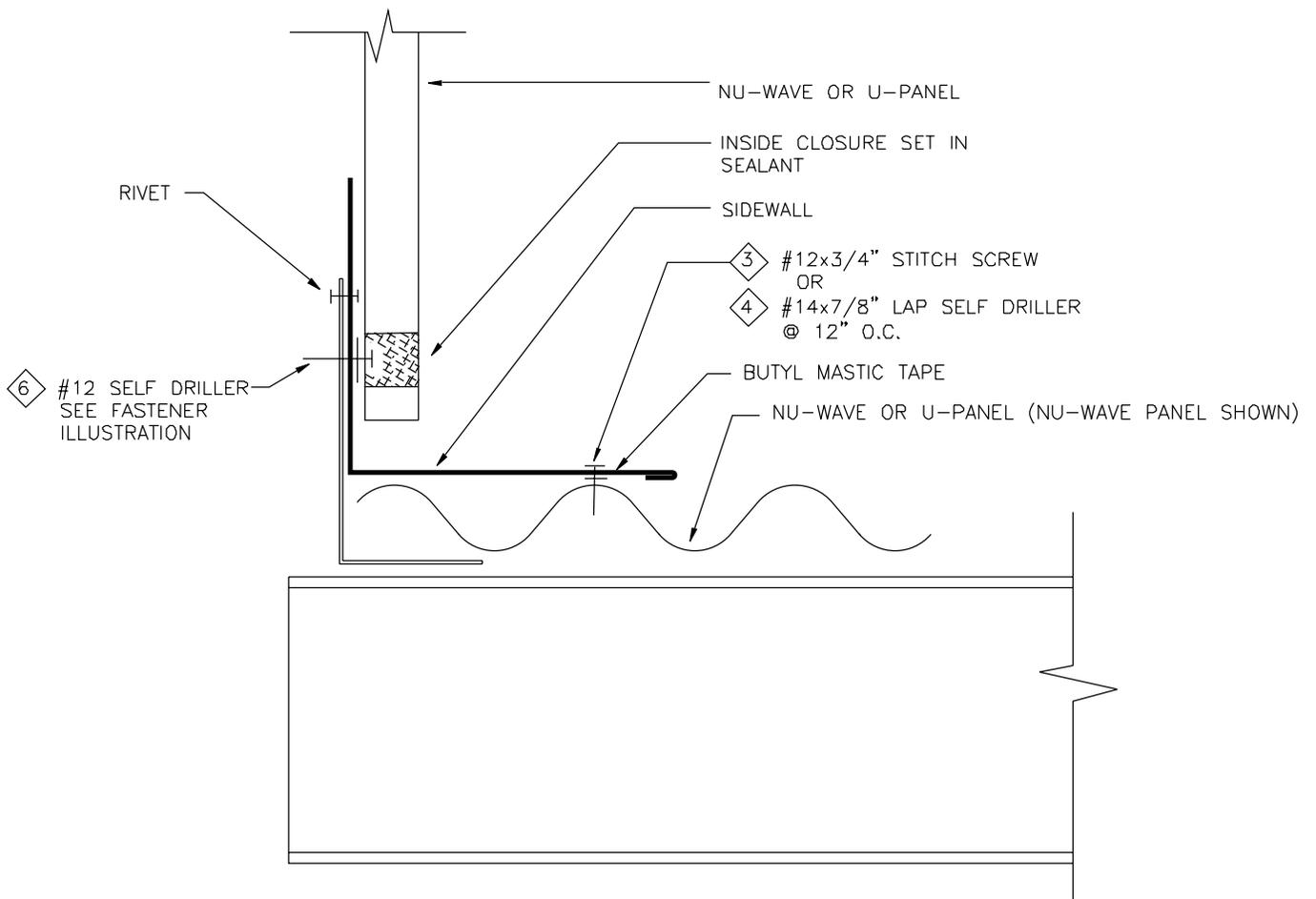


# Sidewall Flashing

NuWave Corrugated & U-Panel

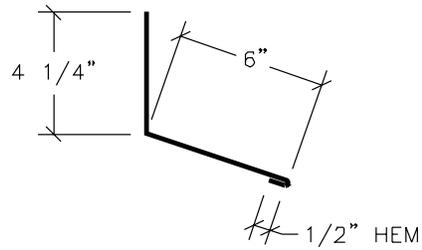


**Sidewall (SW8)**

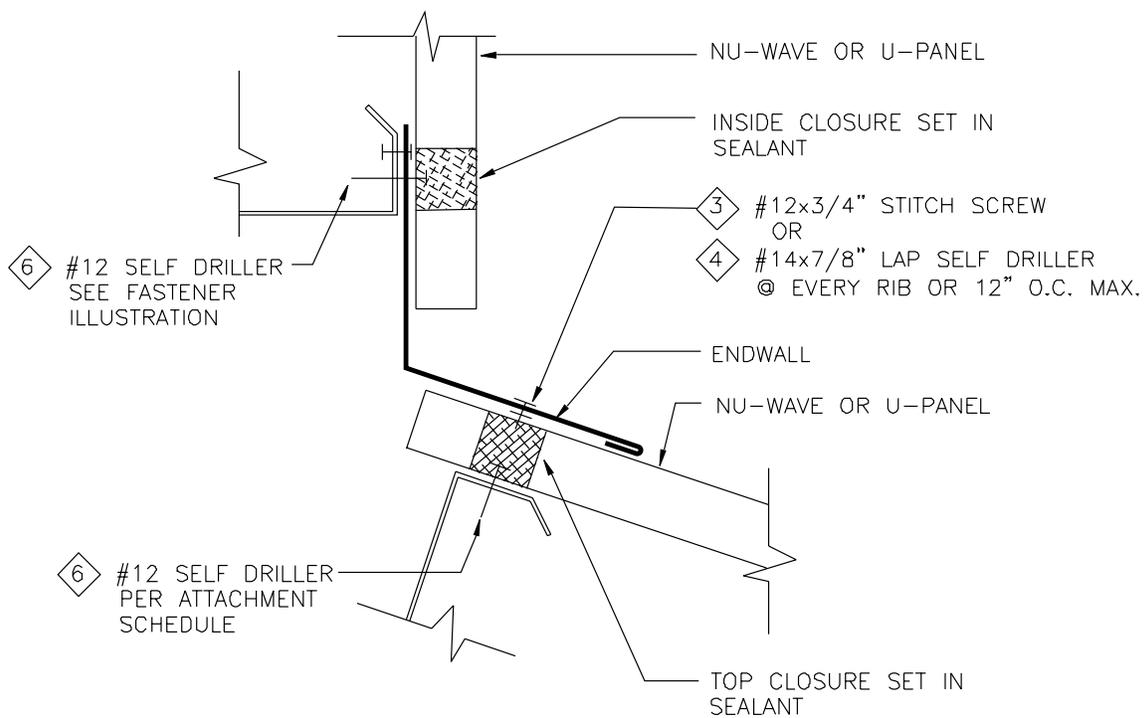


## Endwall Flashing

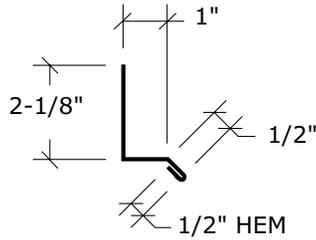
NuWave Corrugated & U-Panel



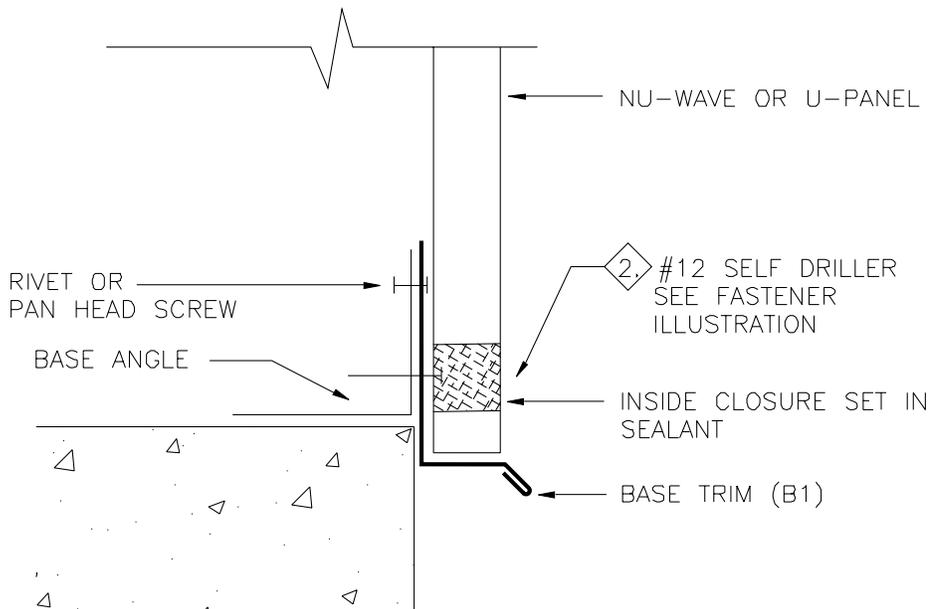
**Endwall (EW6)**



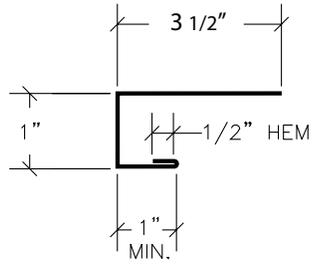
**Wall Details • Base Trim**  
NuWave Corrugated & U-Panel



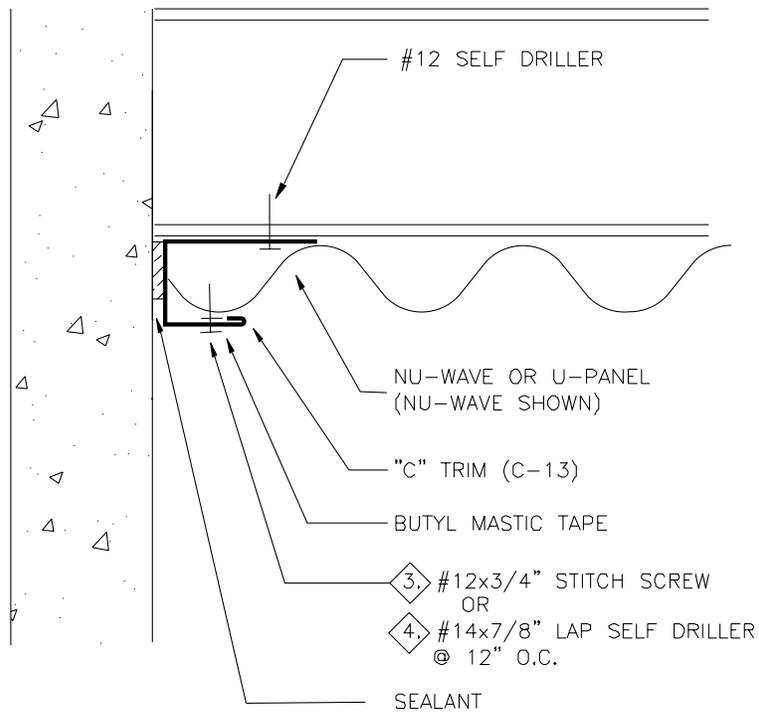
**Base Trim (B1)**



**Wall Details • “C” Trim**  
NuWave Corrugated & U-Panel

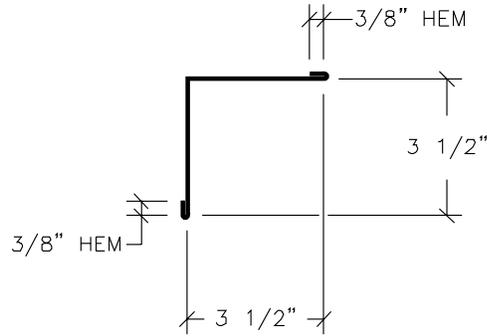


**“C” Trim (C13)**

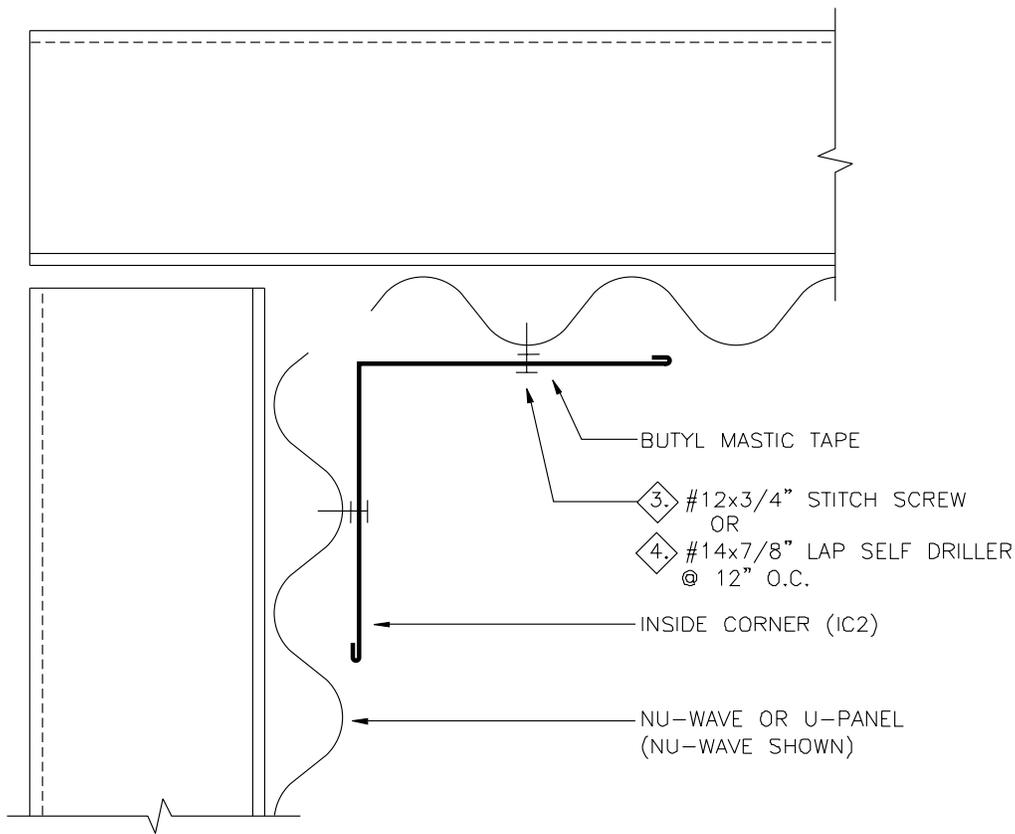


# Wall Details • Inside Corner

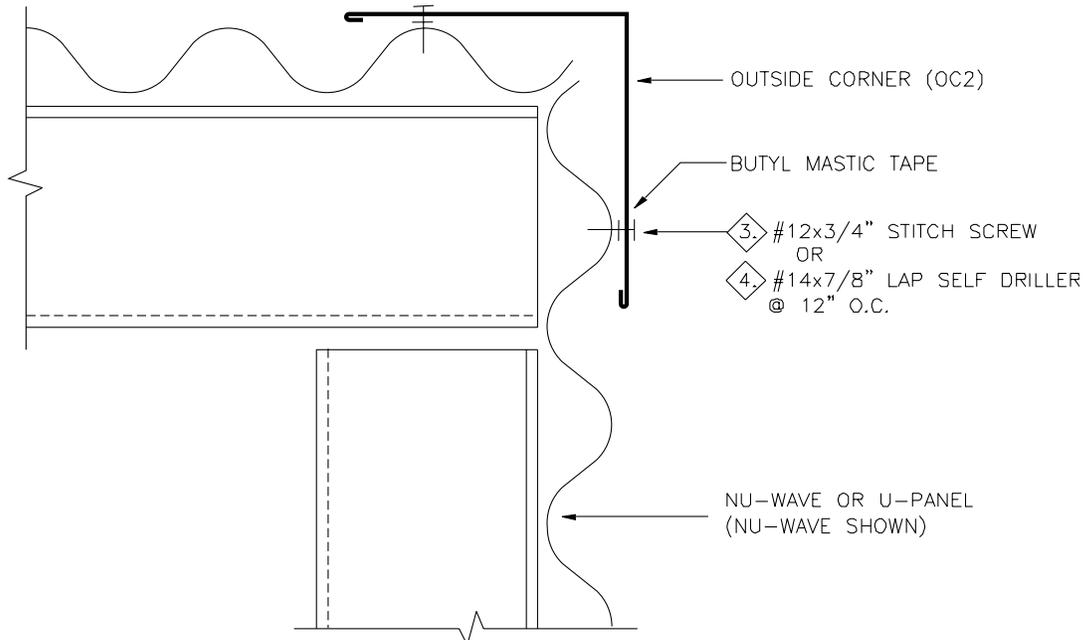
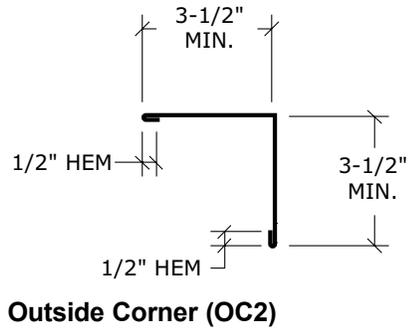
NuWave Corrugated & U-Panel



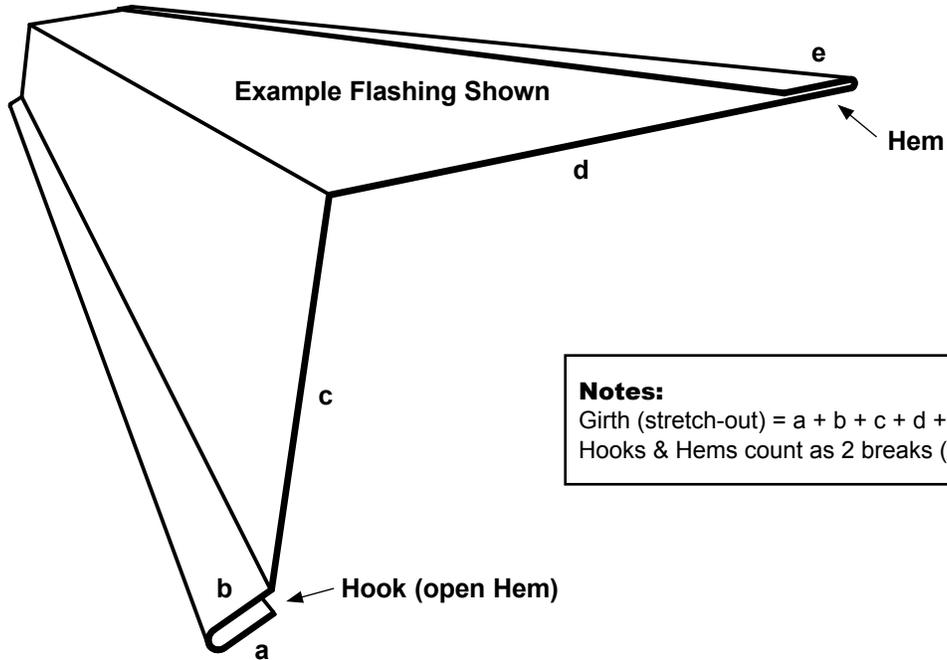
**Inside Corner (IC2)**



**Wall Details • Outside Corner**  
NuWave Corrugated & U-Panel



## Custom Flashing Worksheet



**Notes:**

Girth (stretch-out) =  $a + b + c + d + e$   
 Hooks & Hems count as 2 breaks (bends)

**Custom Flashing Pricing:**

- A) Price per inch of girth per lineal ft = \$\_\_\_\_\_ (in/ft) (provided by AEP Span Rep.)
- B) Total girth of custom flashing = \_\_\_\_\_ (in)
- C) Slitting charge (required) = \$0.13/flashing
- D) Price per break (bend) = \$0.15/break
- E) Number of breaks in custom part = \_\_\_\_\_
- F) Price per lineal ft =  $(A \times B) + C + (D \times E) =$  \_\_\_\_\_ (\$/ft)

**Custom Flashing Weight:**

Per unit weights (lb/in/ft): 20ga = 0.12 22ga = 0.10 24ga = 0.08 26ga = 0.07

Flashing weight = Total girth (B) x per unit weight (above) = \_\_\_\_\_ (lbs/ft)

