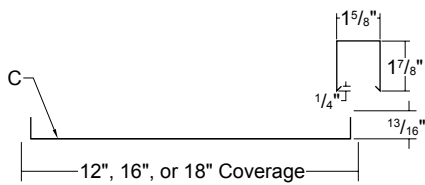
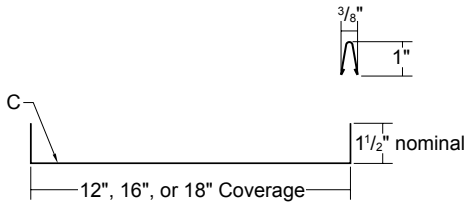
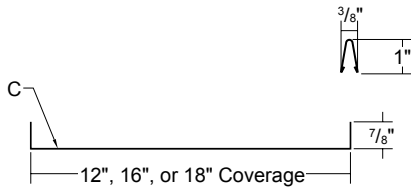


Product	Page No.	Product	Page No.
Panel Information		Detail Conditions	
Mini/Maxi-Batten Panel Profiles.....	PMB-2	Eave with Offset Cleat Detail.....	PMB-10
Panel Overview	PMB-2	Extended Eave Detail.....	PMB-11
Flashing Profiles		Gutter with Offset Cleat Detail	PMB-11
Eave	PMB-3	Valley with Offset Cleat Detail	PMB-12
Extended Eave	PMB-3	Slope Change Detail.....	PMB-13
Cleat	PMB-3	Transition Detail.....	PMB-13
Offset Cleat.....	PMB-3	Rake Detail.....	PMB-14
Starter.....	PMB-3	Rake Parapet Counter Detail.....	PMB-15
Box Gutter	PMB-3	Rake Parapet Reglet Detail.....	PMB-15
Box Gutter End.....	PMB-3	High Side Eave at Parapet Counter Detail	PMB-16
Universal Gutter/Downspout Strap.....	PMB-3	High Side Eave at Parapet Reglet Detail.....	PMB-16
4" x 3 1/2" Downspout.....	PMB-3	Peak Detail	PMB-17
4" x 3 1/2" 95° Elbow.....	PMB-3	Vented Ridge Detail.....	PMB-17
Downspout Bracket	PMB-3	11" Ridge/Hip Detail.....	PMB-18
Valley	PMB-3		
Rake	PMB-3		
Rakewall.....	PMB-3		
Counter Flashing	PMB-3		
Reglet Flashing.....	PMB-4		
11" Ridge/Hip Cover	PMB-4		
Vented Ridge Cover	PMB-4		
Vent Drip.....	PMB-4		
Peak	PMB-4		
Pitch Break	PMB-4		
Outside Corner	PMB-4		
Inside Corner.....	PMB-4		
Gravel Stop.....	PMB-4		
Coping.....	PMB-4		
1.5" Sill/Head.....	PMB-4		
2.25" Sill/Head.....	PMB-4		
1.5" Sill to Soffit.....	PMB-4		
2.25" Sill to Soffit	PMB-4		
1" Z-Closure	PMB-4		
1.5" Z-Closure	PMB-5		
Accessory Profiles			
Curved Mini-Batten 5/8" Clip.....	PMB-5		
Mini-Batten (1") Clip	PMB-5		
Mini-Batten (1.5") Clip	PMB-5		
Maxi-Batten Clip	PMB-5		
Bearing Plate.....	PMB-5		
Tube Sealant.....	PMB-5		
Tape Sealant.....	PMB-5		
Rubber Roof Jack.....	PMB-5		
Touch-Up Paint.....	PMB-5		
Metal Panel Hemming Tool.....	PMB-5		
Vent Material.....	PMB-5		
Testing Information			
UL 580 Wind Uplift Information.....	PMB-6		
UL 263 Fire Resistance Ratings	PMB-7		
Design/Installation Considerations			
Fastener Installation Technique.....	PMB-8		
Condition of Substructure.....	PMB-8		
Ventilation.....	PMB-9		
Panel Applications	PMB-9		

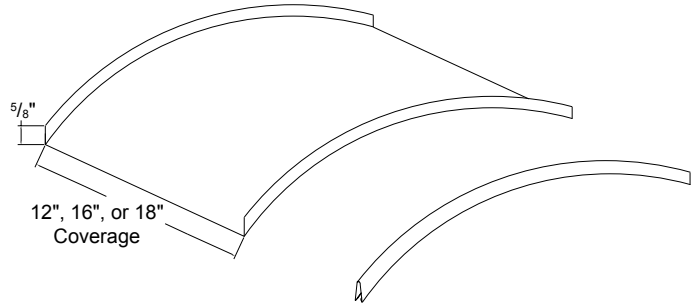
MINI/MAXI-BATTEN PANEL OVERVIEW

PANEL PROFILES



CURVING SPECS.

1" Mini-Batten: 12", 16", 18"
Minimum Radius : 4'-0" Pan & Batten
For panel lengths over 25'-0", please inquire.
24 gauge only.



SLOPE

The minimum recommended slope for any Mini/Maxi-Batten roofing panel is 3:12.

SUBSTRATE

The recommended substrate is 5/8" plywood with a 30 pound felt moisture barrier. To avoid panel distortion, use a properly aligned and uniform substructure. **Please note that Mini/Maxi-Batten panels are not recommended for use over open framing.**

COVERAGE

Mini-Batten panels have a coverage of 12", 16", and 18" widths either with 1" or 1.5" in heights.
Maxi-Batten panels have a coverage of 12", 16", and 18" widths in 1 7/8" height.

LENGTH

Lengths under 5'-0" are available with some cutting restrictions. Maximum recommended panel length is 45'-0". Longer panels require additional consideration in packaging, shipping, and erection. Please consult your Metal Sales branch for recommendations (see PGI-2 and 3 for locations). Minimum curve of batten panels is 4'-0" radius. For Curved panel lengths over 25'-0", please inquire.

AVAILABILITY

Mini/Maxi-Batten panels are available in 26 and 24 gauge.

APPLICATION

Architectural and Residential panel.

PERFORMANCE TEST

UL 580, ASTM E-1592 (1" Mini-Batten only), UL 2218, UL 790, UL 263,
Miami-Dade County (1" Mini-Batten only)

FASTENING SYSTEM

Concealed Clip System.

FASTENERS

The fastener selection guide should be consulted for choosing proper fasteners for specific applications. Quantity and type of fastener must meet necessary loading and code requirements (see PGI-12-13).

MATERIALS

Steel grade 50, per ASTM A-792

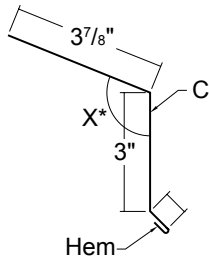
FINISH

- ▶ *Acrylic Coated Galvalume® (ACG) / ASTM A-792 - AZ55
- ▶ Prepainted Galvalume / ASTM A-792 - AZ50
- ▶ **Fluorocarbon (PVDF)

* Differential appearance of Acrylic Coated Galvalume roofing materials is not a cause for rejection.

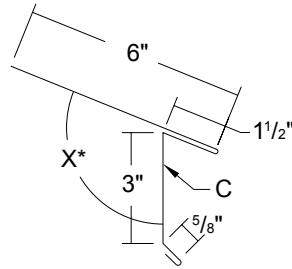
** Meets both Kynar 500 and Hylar 5000 specifications.

EAVE



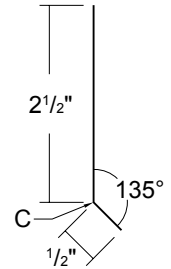
Length 10'-2" - *Specify Slope Angle

EXTENDED EAVE



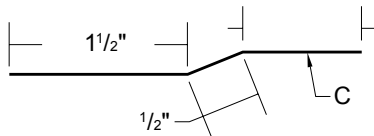
Length 10'-2"

CLEAT



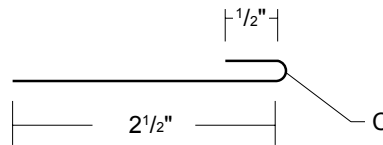
Length 10'-2"

OFFSET CLEAT



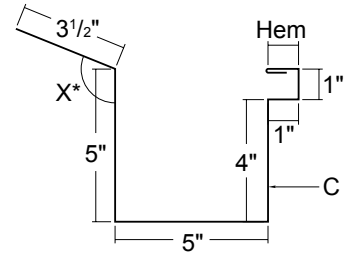
Length 10'-2"

STARTER



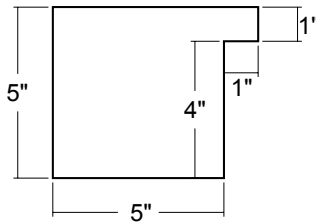
Length 10'-2"

BOX GUTTER

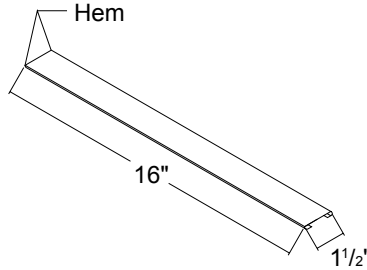


Length 10'-2", 20'-3" - *Specify Slope Angle

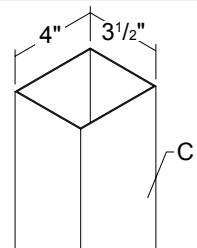
BOX GUTTER END



**UNIVERSAL GUTTER/
DOWNSPOUT STRAP**

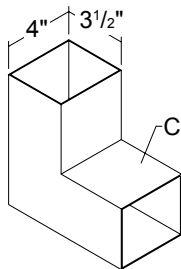


DOWNSPOUT 4" x 3 1/2"



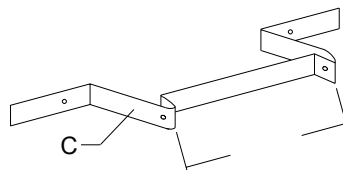
Length 10'-2", 20'-3"
(Also available 6" x 4")

95° ELBOW 4" x 3 1/2"



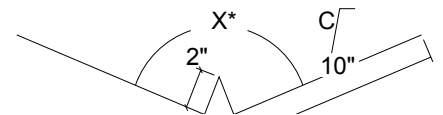
(Also available 6" x 4")
(Also available in 45°)

DOWNSPOUT BRACKET



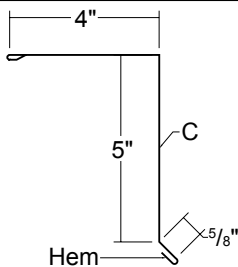
(Also available 4")

VALLEY



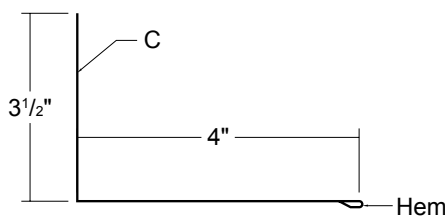
Length 10'-2", 20'-3" - *Specify Slope Angle

RAKE



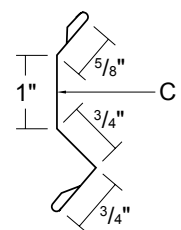
Length 10'-2", 20'-3"

RAKEWALL



Length 10'-2"

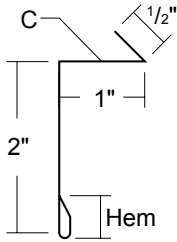
COUNTER FLASHING



Length 10'-2"

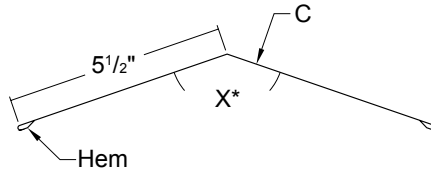
MINI/MAXI-BATTEN FLASHING PROFILES (CONT.)

REGLET FLASHING



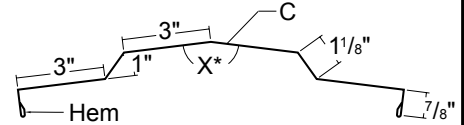
Length 10'-2"

11" RIDGE/HIP COVER



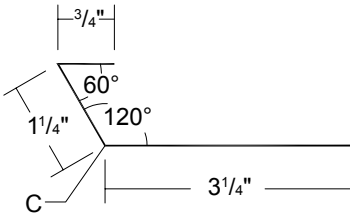
Length 10'-2", 20'-3" - *Specify Slope Angle

VENTED RIDGE COVER



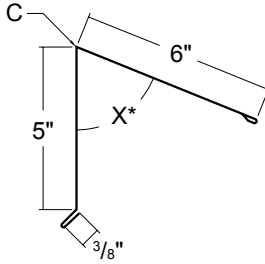
Length 10'-2", 20'-3" - *Specify Slope Angle

VENT DRIP



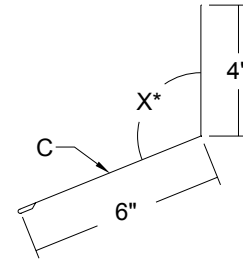
Length 10'-2"

PEAK



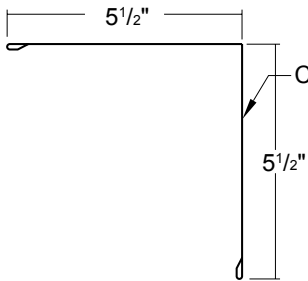
Length 10'-2", 20'-3" - *Specify Slope Angle

PITCH BREAK



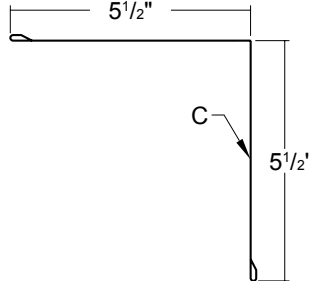
Length 10'-2" - *Specify Slope Angle

OUTSIDE CORNER



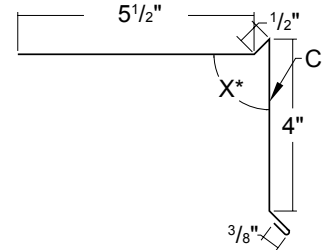
Length 10'-2", 20'-3"

INSIDE CORNER



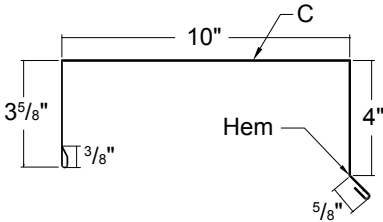
Length 10'-2", 20'-3"

GRAVEL STOP



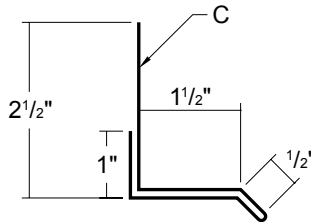
Length 10'-2", 20'-3" - *Specify Slope Angle

COPING



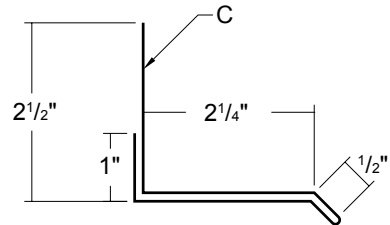
Length 10'-2", 20'-3"

1.5" SILL/HEAD



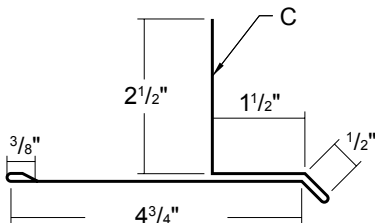
Length 10'-2"

2.25" SILL/HEAD



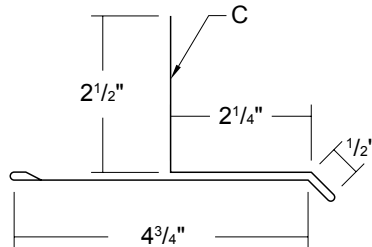
Length 10'-2"

1.5" SILL TO SOFFIT



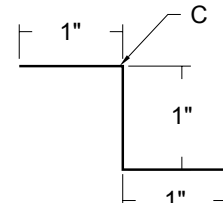
Length 10'-2"

2.25" SILL TO SOFFIT



Length 10'-2"

1" Z-CLOSURE

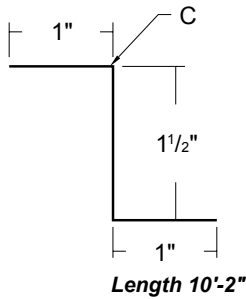


Length 10'-2"

MINI/MAXI-BATTEN

FLASHING PROFILES (CONT.)

1.5" Z-CLOSURE

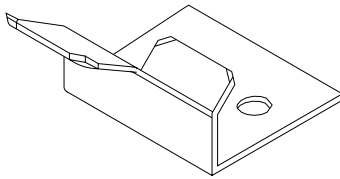


C- Indicates color side of flashing.

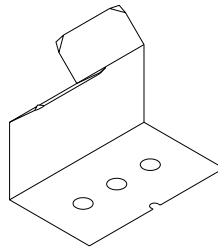
MINI/MAXI-BATTEN

ACCESSORY PROFILES

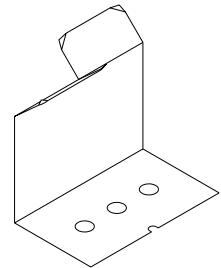
CURVED MINI-BATTEN 5/8" CLIP



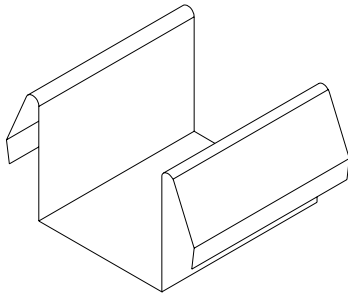
MINI-BATTEN (1") CLIP



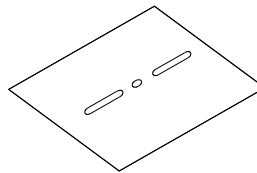
MINI-BATTEN (1.5") CLIP



MAXI-BATTEN CLIP

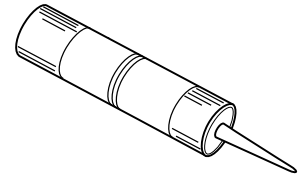


BEARING PLATE



4" X 5"

TUBE SEALANT



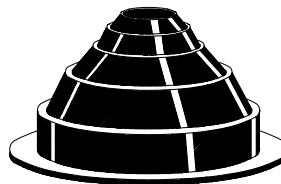
10.3 oz. Cartridge
Urethane

TAPE SEALANT



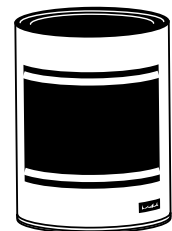
7/8" X 3/16" X 25'
Double Bead
Butyl - Gray

RUBBER ROOF JACK



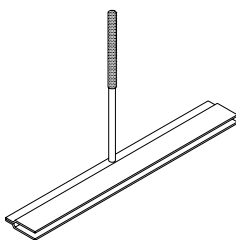
MINI (1/4" to 1/8" O.D. Pipe)
#2 (1 3/4" to 3" O.D. Pipe)
#4 (3" to 6" O.D. Pipe)
#6 (6" to 9" O.D. Pipe)
#8 (7" to 13" O.D. Pipe)

TOUCH-UP PAINT

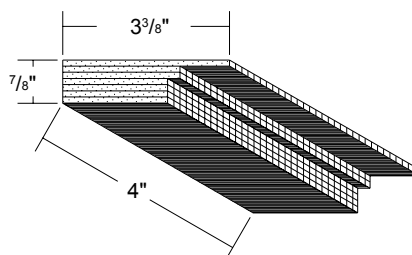


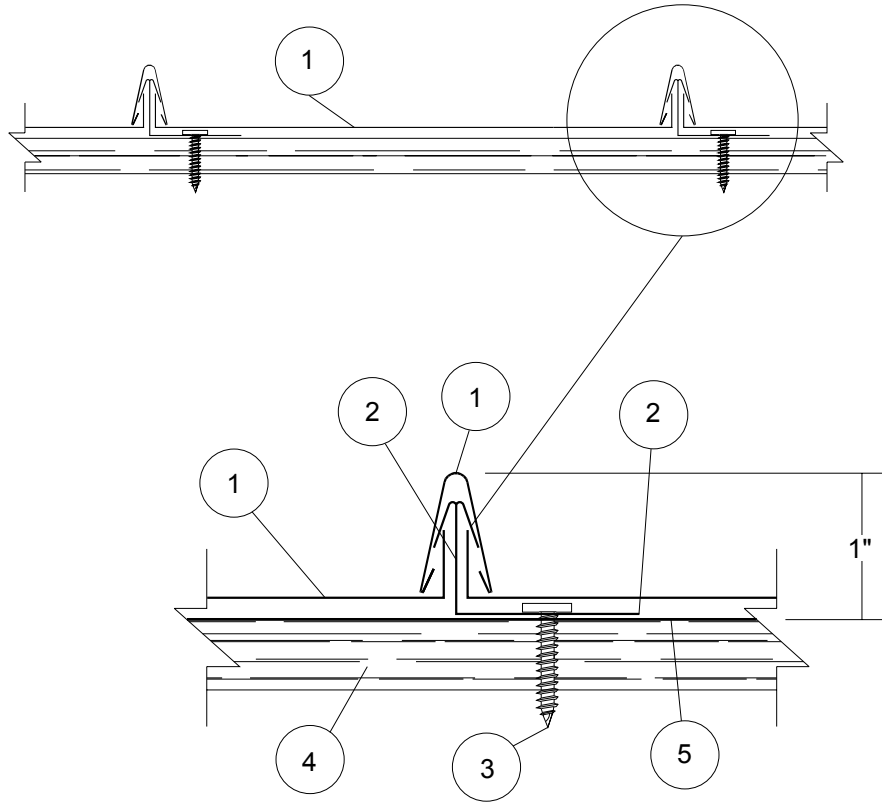
Available in pints
PVDF / MS Colorfast45

METAL PANEL HEMMING TOOL



VENT MATERIAL





MINI-BATTEN 1"

Construction No. 430
 March 24, 1998
 Uplift - Class 90
 Fire Not Investigated

1. Metal Roof Deck Panels* No. 24 MSG min coated steel. Max panel width 22-3/4 in. and rib height 7/8 in. Panels continuous over two or more spans. End laps to occur adjacent to supports with panels overlapped min 4 in. A line of sealant may be used at panel ends and side laps.
 METAL SALES MANUFACTURING CORPORATION - "Mini-Batten 1 Inch Panel"

1A. Panel Cap* Cap covering panel ribs and clips to be 3/8 in. wide and 1 in. high formed from the same type and thickness material as that used to fabricate metal panels (Item 1).
 METAL SALES MANUFACTURING CORPORATION - "Mini-Batten 1 Inch Panel Cap"

2. Roof Deck Fasteners* - (Panel Clips) One piece clip, 7/8 in. high and 2-3/16 in. wide, before field forming, around panel corrugations and 2 in. long. Clips are spaced max 24 in. OC, located at the panel sides with guide holes in bottom to accommodate screw fasteners (Item 3).
 METAL SALES MANUFACTURING CORPORATION - "Low Mini-Batten Panel Clip"

3. Fasteners - (Screws) Screws used to attach the panel clips to plywood to be No. 10-12 by 1 in. long Pancake head wood screw with a No. 2 Phillips Drive and A-Point. Min one screw per clip. Screws used to attach plywood substructure (Item 4) to wood trusses or joists (Item 6) to be No. 8 by 2 in. Bugle head screws with No. 2 Phillips Drive and S-Point. As an optional fastener, 2-1/2 in. long 8d common deformed shank nails may be used. Spacing of screws or nails to be 6 in. O.C. at plywood ends and 12 in. O.C. at interior connections.

4. Substructure - (Plywood) Plywood decking to be nom 5/8 in. thick, exposure sheathing span C-D, 40/20 plywood. (All joints to be sealed against leakage by using tape and/or caulk.

5. Felt Paper (Optional) - One or two ply, 30 lb organic felt.

6. Joists - (Wood) (Not shown) - Wood joists to support plywood spaced at 2 ft 0 in. O.C. may be one of the following:
 A. Nom 2 by 6 in. wood joists No. 2 or better.
 B. Nom 2 by 4 in. wood when used on a top cord of a wood truss, No. 2 or better.
 C. Light gauge structural steel framing with the member against the plywood to be a min No. 22 MSG coated steel, or Steel joists, purlins or hot rolled beams to support steel deck to run perpendicular to the direction of deck at max 6 ft 0 in. O.C., min thickness 22 MSG, sized by manufacturer to support loads.

7. Insulation (Optional) (Not shown) - Any compressible blanket insulation, 3 in. max thickness before compression. Insulation to be sandwiched between substructure (Item 4) and its support (Item 6). Refer to General Information, Roof Deck Construction (Roofing Materials and Systems Directory) for Items Not Evaluated.

*Bearing the UL Classification Marking



Underwriters Laboratories Inc. ®

LISTED

Metal Roof Deck Panels

Metal Sales Manufacturing Corporation has obtained fire resistance ratings for various products conducted according to test criteria set forth by 'Underwriters Laboratories' "Standard Fire Tests of Building Construction and Material" (ANSI/UL 263). This test procedure is identical to ASTM E-119 and NFPA 251.

The fire resistance rating is for the total assembly and not just the external metal panel. Ratings are expressed in hours and vary depending upon the assemblies. In general, the test criteria is to evaluate the assembly's ability to continue to support the superimposed loads and resist the passage of flame, high temperatures, or hot gases which will ignite combustible materials. The test assemblies are identified by an alpha-numeric design number.

For detail information on specific assemblies and hourly ratings see UL Fire Resistance Directory.

METAL SALES MANUFACTURING CORPORATION

R9697

Mechanically attached metal roof panels - Type "Low Mini-Batten Panel and Cap" secured by steel anchor clips. Anchor clips are attached to a hat shaped member* (minimum depth 1 in.) or a bearing plate**.

For use in Design Nos. P224 , P225 , P227 , P230 , P237 , P508 , P510 , P512 , P701 , P711 , P712 , P713 , P715 , P717 , P720 , P722 , P723 , P724 , P726 , P731 , P734 , P736 , P803 , P814 , P815 , P818 , P819 , P821 , P823 , P824 .

*Hat shaped member to be a minimum of 16 gauge. The member will be fastened through the roof insulation to the steel roof deck with min. No. 14 self-drilling and/or self-tapping fasteners. Spacing to be determined by the structural loading requirements. In addition any compressible UL Classified glass fiber blanket insulation with or without a vapor retarder facing may be used between the specified roof insulation and the metal roof panels.

**Bearing plate to be a minimum of 16 gauge. Member will be fastened through the roof insulation to the steel deck with min. No. 14 self-drilling and/or self-tapping fasteners.

See the UL Fire Resistance Directory for explanation of each design number listed above.



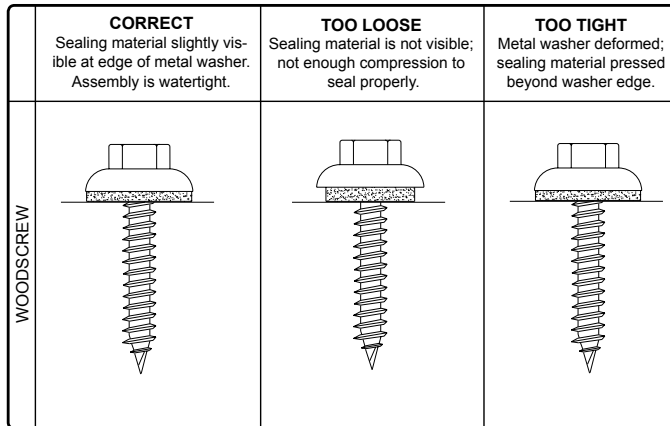
Underwriters Laboratories Inc. ®

LISTED

FASTENER INSTALLATION TECHNIQUE

Recommended Tool Type - Use depth locating nose or adjustable clutch on screw gun to prevent overdrilling and strip out. **Do not use impact tools or runners.**

Seating the washer - Apply sufficient torque to seat the washer - do not overdrive the fastener.



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

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

Drilling through sheet and insulation - Ease up on pressure when drilling through insulation to avoid striking the purlin or girt with the point - apply more pressure after drill point contacts purlin or girt.

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

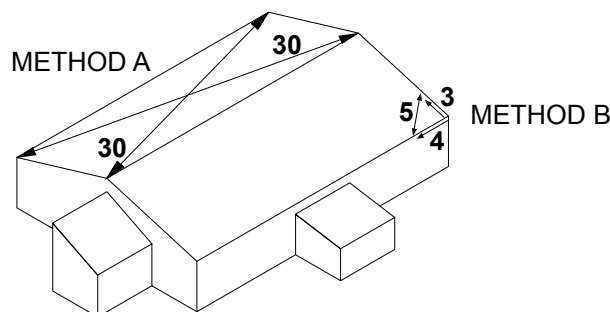
CONDITION OF SUBSTRUCTURE

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

The installer should check the roof deck for squareness before installing Mini/Maxi-Batten panels. Several methods can be used to verify squareness of the structure for proper installation of the panels.

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

METHOD "B" - The 3-4-5 triangle system may also be used. To use this system measure a point from the corner along the edge of the roof at a module of three (3). Measure a point from the same corner along another edge at a module of four (4). Then by measuring diagonally between the two points established, the dimension should be exactly a module of five (5) to have a square corner. Multiple uses of this system may be required to determine building squareness. If the endwall cannot be made square, the roof system cannot be installed as shown in these instructions.

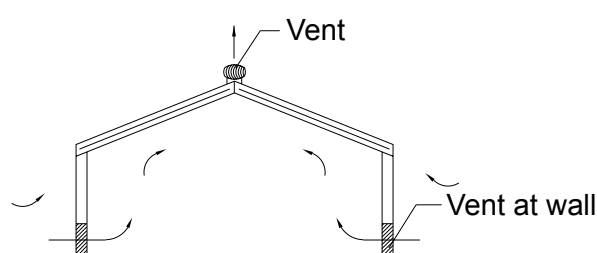


VENTILATION

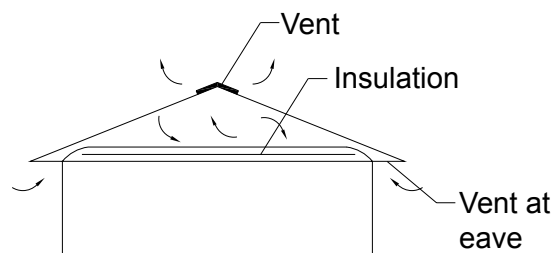
Proper design and installation of vapor barriers and ventilation systems are important to prevent condensation and the resulting problems of moisture damage and loss of insulation efficiency.

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

The underside of the metal roof on a typical Architectural building should be protected from condensation by installing panels directly over a minimum 30 lb moisture barrier and uniform solid substrate. This reduces airspace and the potential of condensation forming on the underside of the panels.



Typical metal building (no attic)



Building with attic or retrofitted

PANEL APPLICATIONS

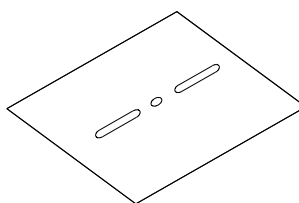
The following chart highlights UL 580 Class 90 for clip installation on the selected applications (see Fastener Selection Guide page PGI-12-14 for other fasteners available). For more information on UL Construction numbers, refer to UL Roofing Materials and System Directories.

PANEL TYPE	APPLICATION	INSTALLATION REQUIREMENTS		CLIP SPACING	TYPE OF FASTENER	NUMBER REQUIRED
MINI-BATTEN ¹	CLIPS OVER 5/8" WOOD DECK CONST. #430	UL-90	24 GAUGE PANEL	2'-0" O.C.**	#10-12 x 1" PANCAKE WOODSCREW	1 FASTENER
	CLIP OVER RIGID INSULATION / METAL DECK CONST. #397A	UL-90	24 GAUGE PANEL	2'-0" O.C.**	*#14-13 x L DECK SCREWS	1 FASTENER
MAXI-BATTEN	CLIPS OVER 5/8" WOOD DECK CONST. #398	UL-90	24 GAUGE PANEL	2'-0" O.C.**	#10-12 x 1" PANCAKE WOODSCREW	1 FASTENER
	CLIP OVER RIGID INSULATION / METAL DECK CONST. #398A	UL-90	24 GAUGE PANEL	2'-0" O.C.**	*#14-13 x L DECK SCREWS	1 FASTENER

* Length of Deck Screw will vary depending on the total thickness of the rigid insulation and metal decking.

** Based on UL-580. Subject to project loading, closer clip (fastener) spacing may be required. Contact your local Metal Sales branch representative for more information (see pages 2 and 3).

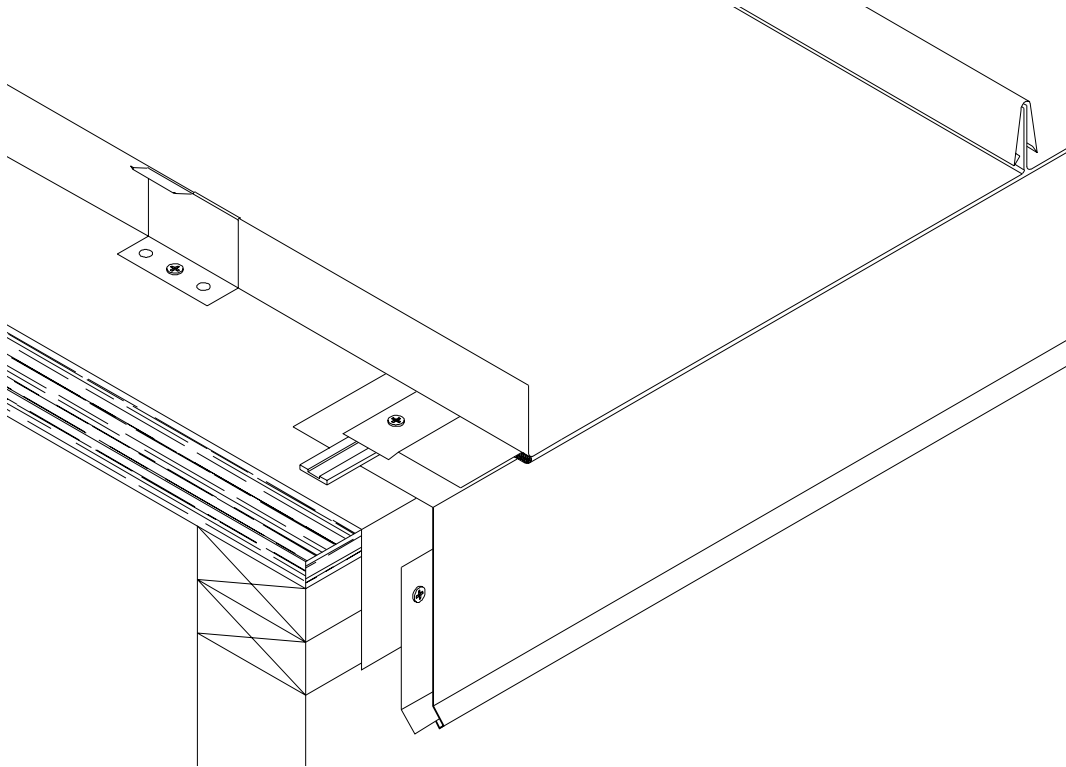
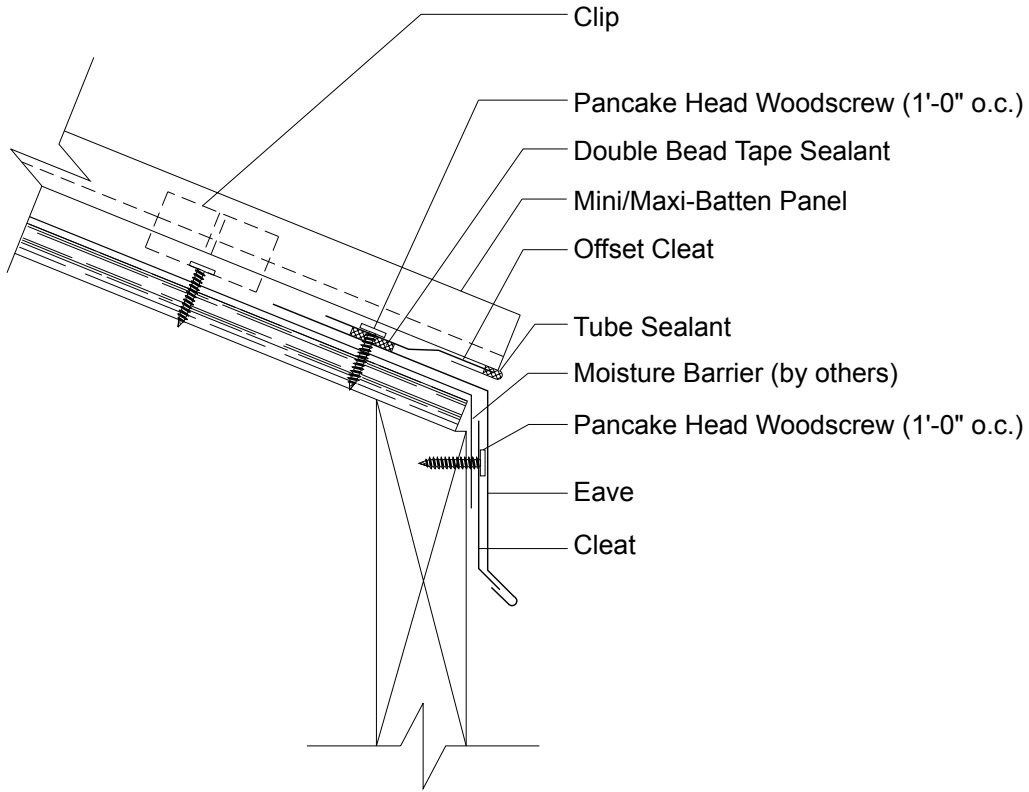
1. For 1" Mini-Batten over 5/8" plywood deck only.



BEARING PLATE

MINI/MAXI-BATTEN EAVE WITH OFFSET CLEAT DETAIL

3:12 Slope
Minimum

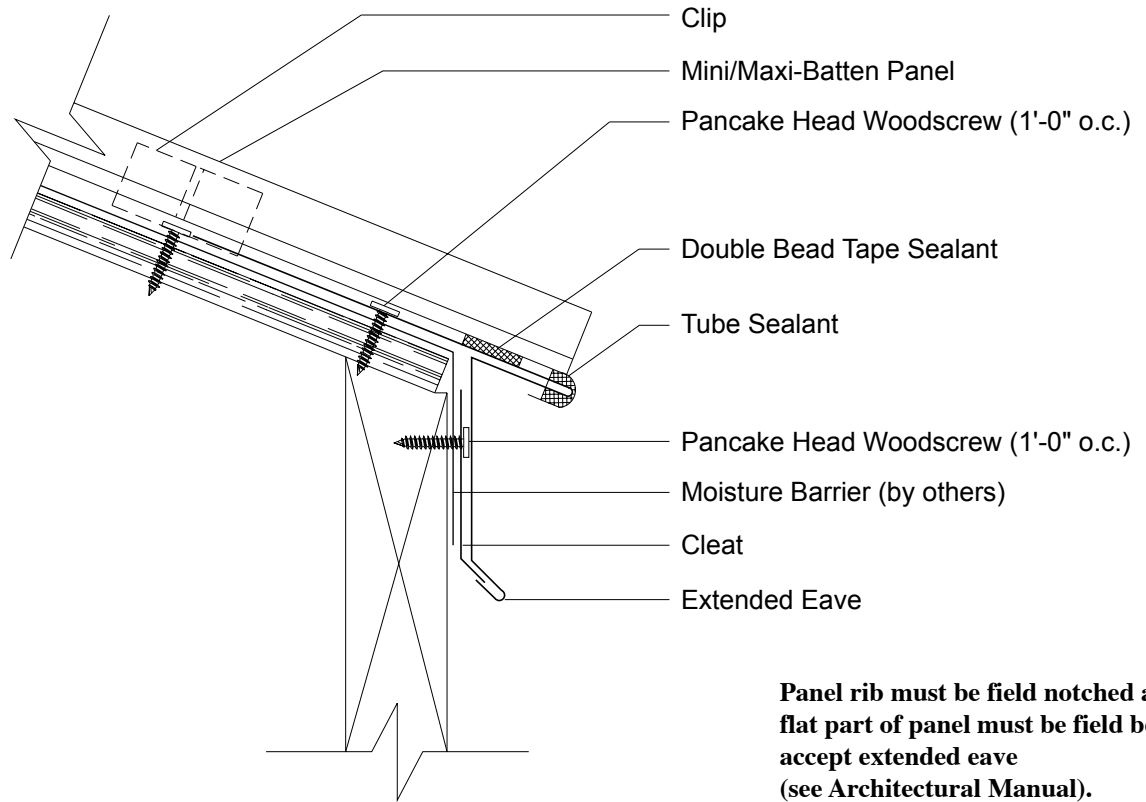


Panel rib must be field notched and flat part of panel must be field bent to accept offset cleat (see Architectural Manual).

MINI/MAXI-BATTEN

EXTENDED EAVE DETAIL

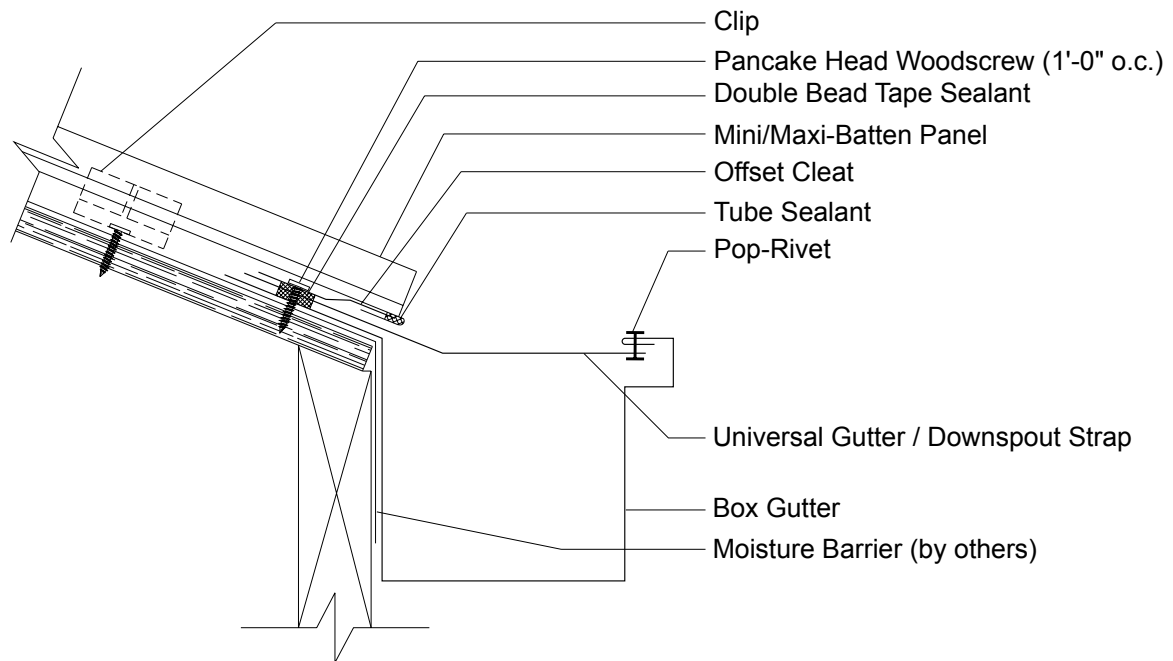
3:12 Slope
Minimum



MINI/MAXI-BATTEN

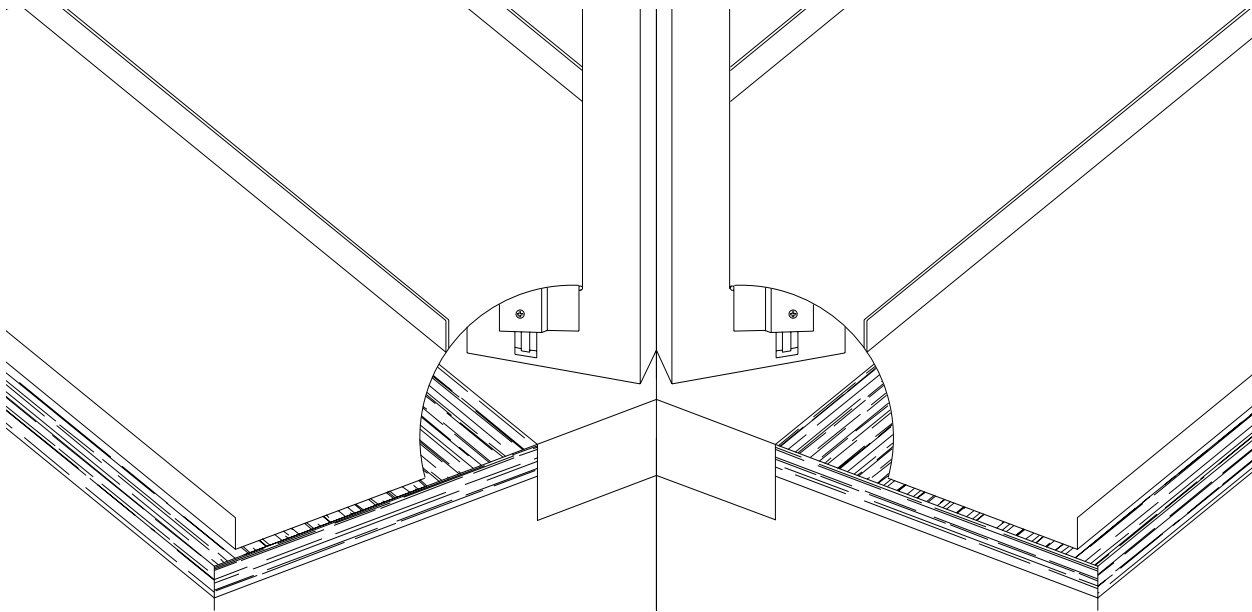
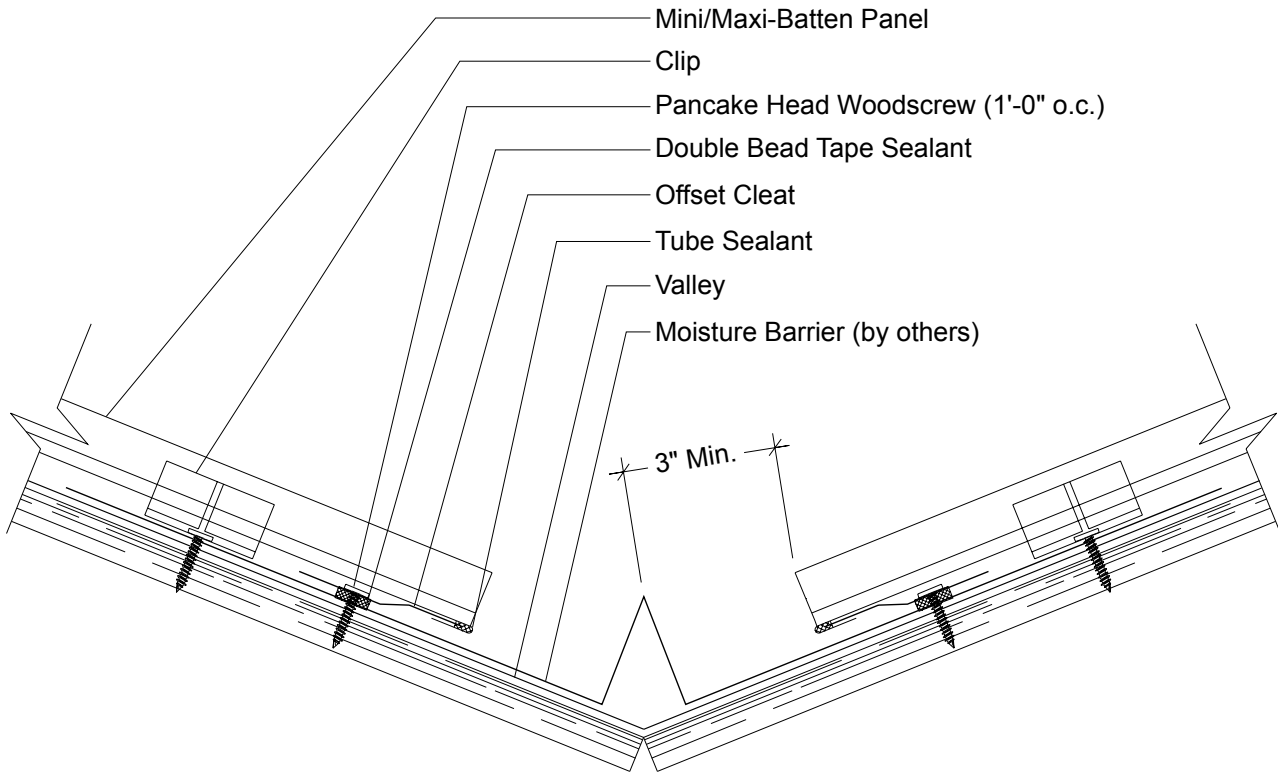
GUTTER WITH OFFSET CLEAT DETAIL

3:12 Slope
Minimum



Panel rib must be field notched and flat part of panel must be field bent to accept offset cleat (see Architectural Manual).

**3:12 Slope
Minimum**

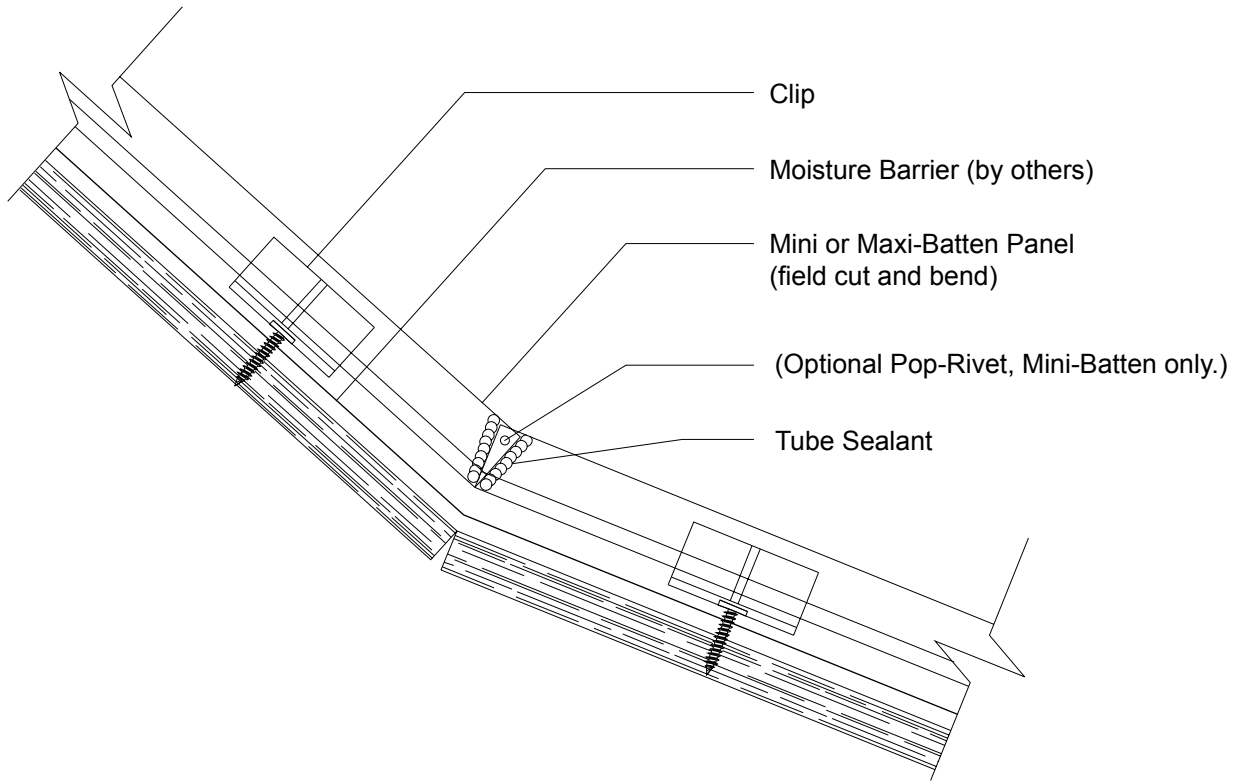


Panel rib must be field notched and flat part of panel must be field bent to accept offset cleat (see Architectural Manual).

MINI/MAXI-BATTEN

SLOPE CHANGE DETAIL

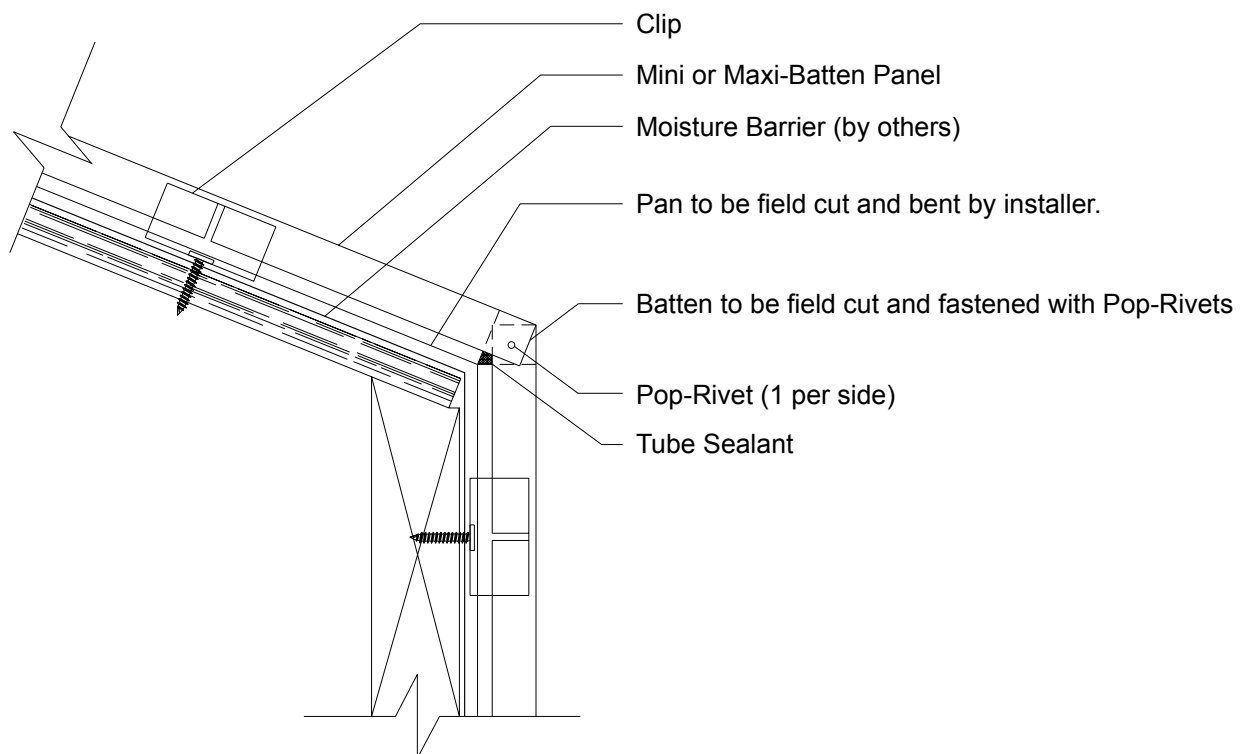
3:12 Slope
Minimum



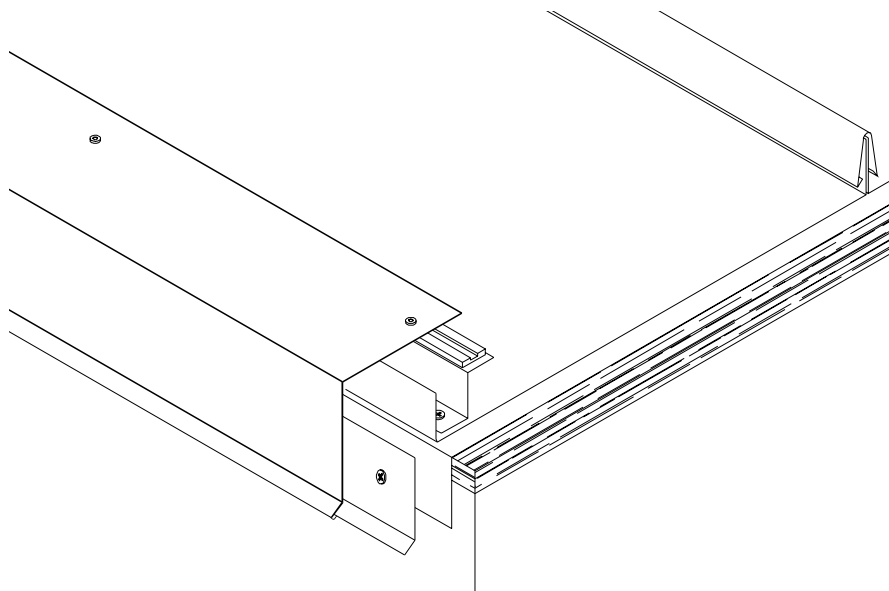
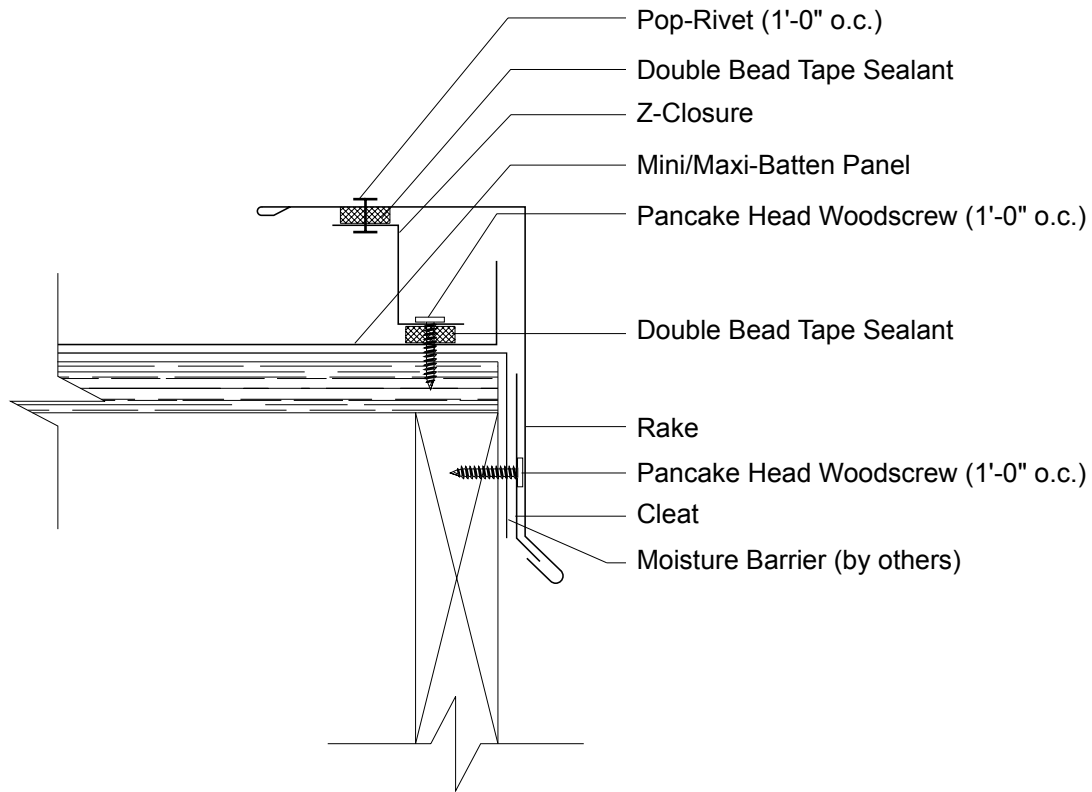
MINI/MAXI-BATTEN

TRANSITION DETAIL

3:12 Slope
Minimum



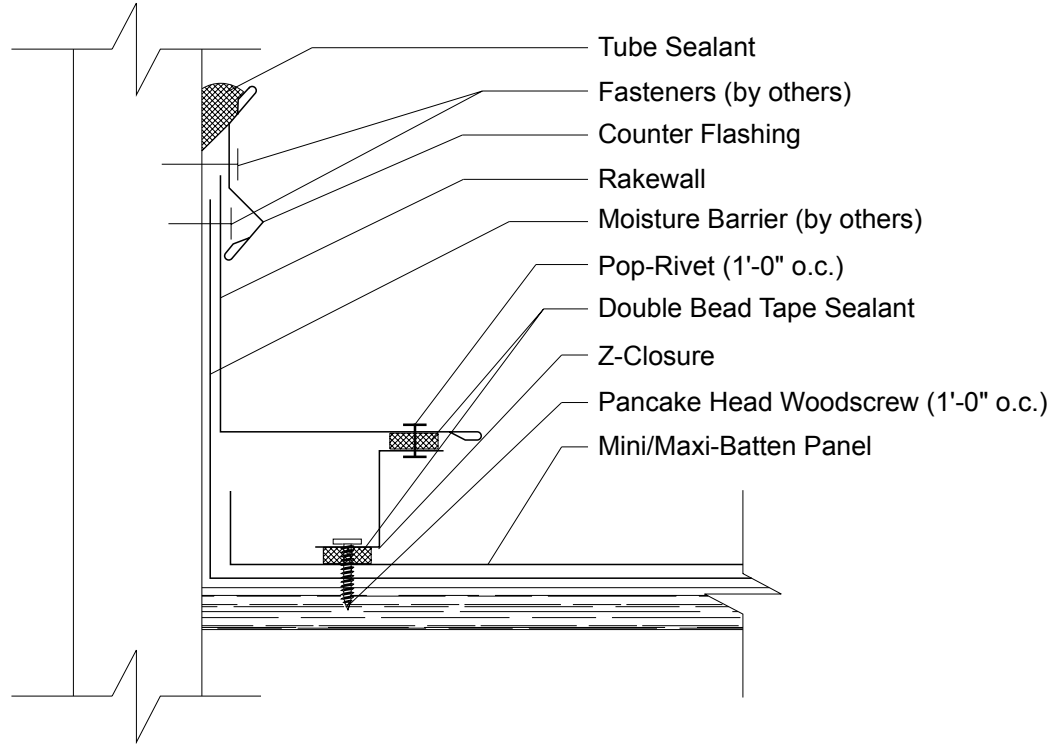
**3:12 Slope
Minimum**



MINI/MAXI-BATTEN

RAKE PARAPET COUNTER DETAIL

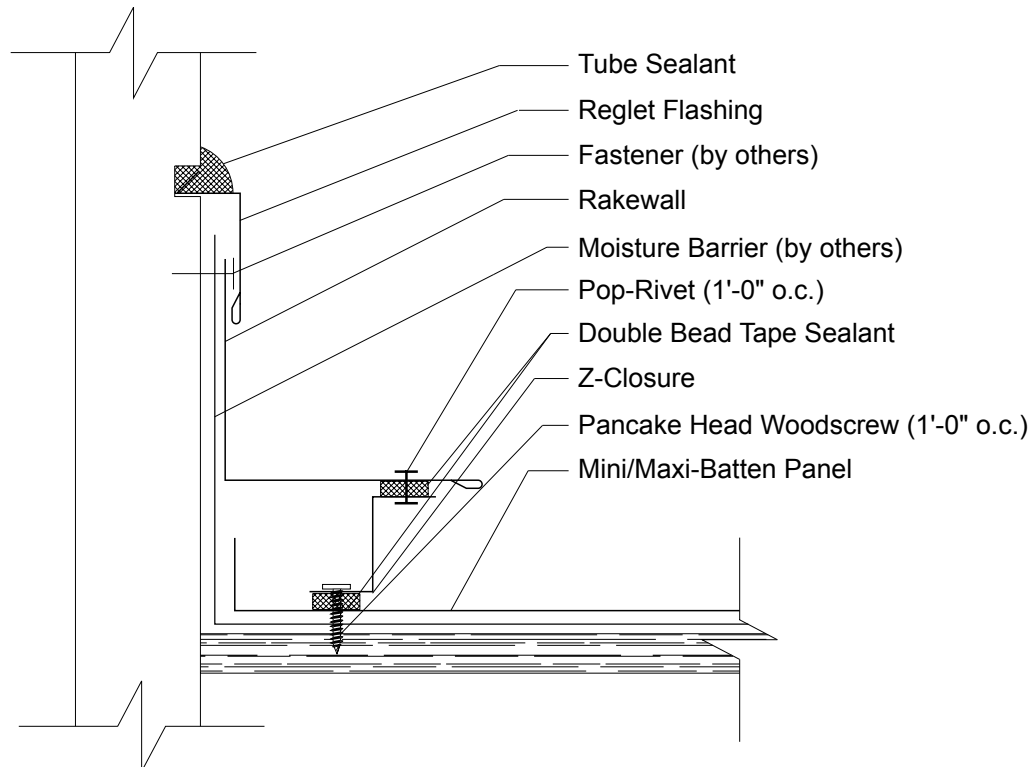
3:12 Slope
Minimum



MINI/MAXI-BATTEN

RAKE PARAPET REGLET DETAIL

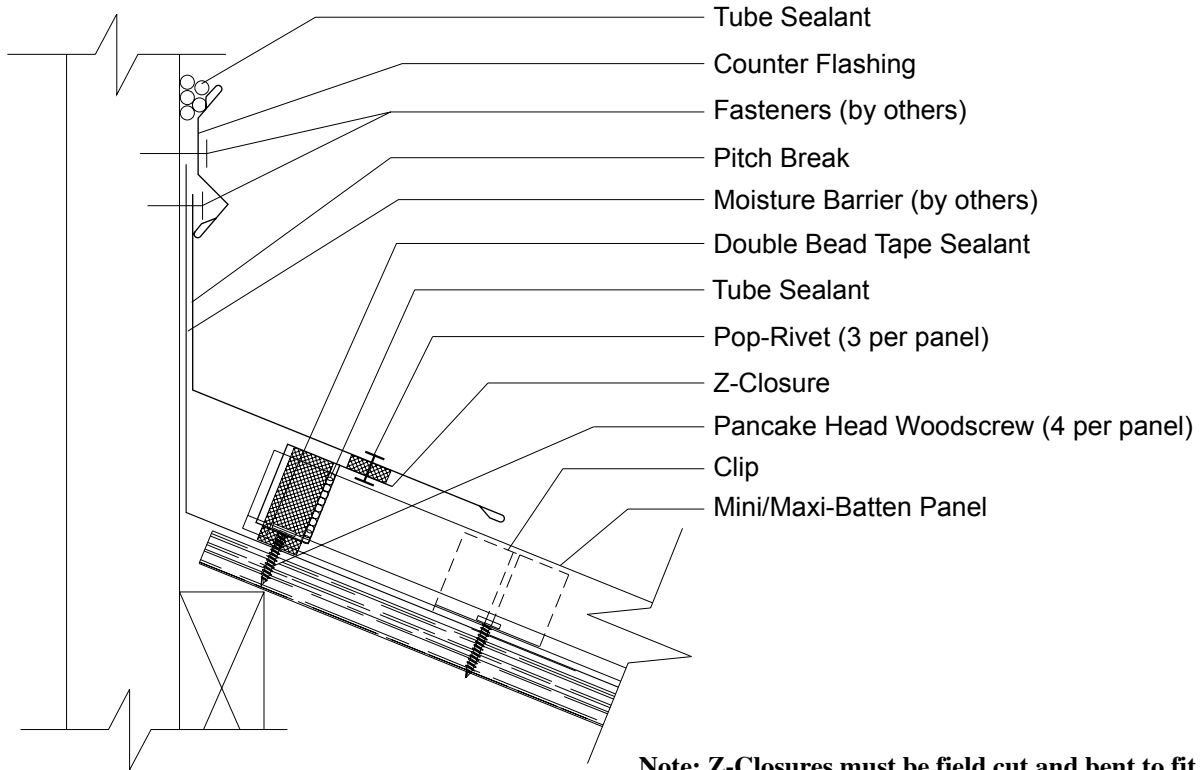
3:12 Slope
Minimum



MINI/MAXI-BATTEN

HIGH SIDE EAVE AT PARAPET COUNTER DETAIL

3:12 Slope
Minimum

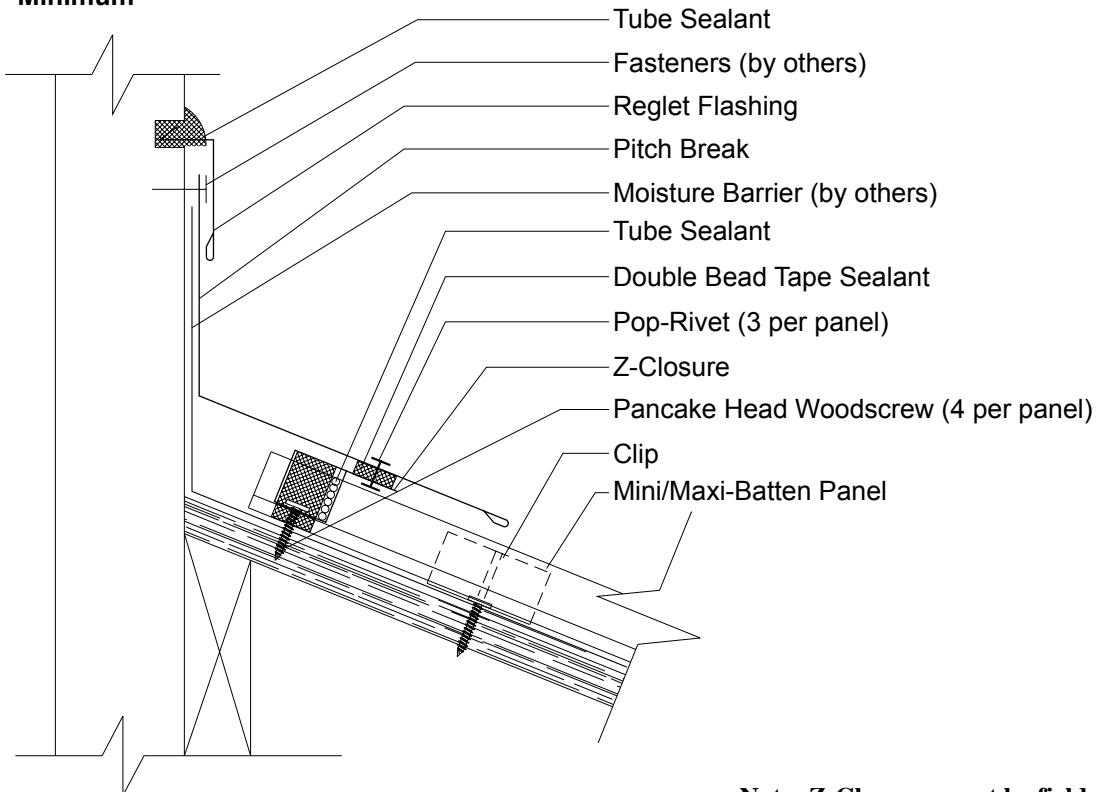


Note: Z-Closures must be field cut and bent to fit between panel ribs (see Architectural Manual).

MINI/MAXI-BATTEN

HIGH SIDE EAVE AT PARAPET REGLET DETAIL

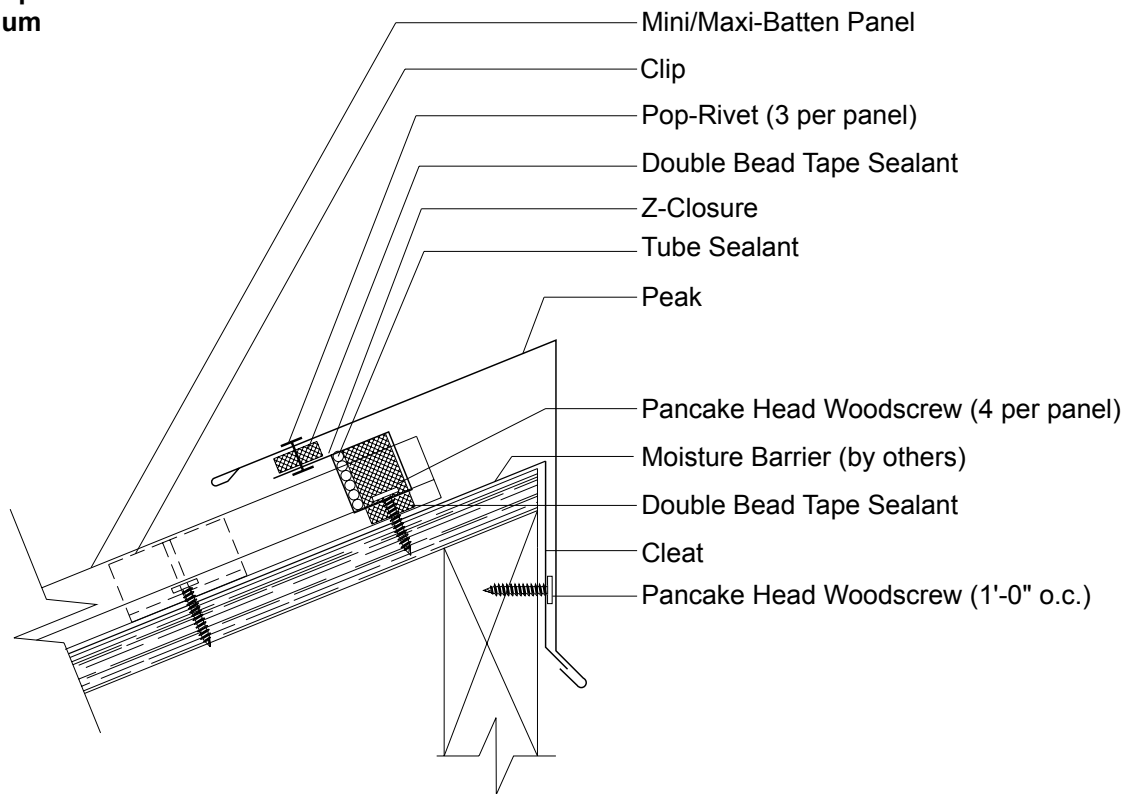
3:12 Slope
Minimum



Note: Z-Closures must be field cut and bent to fit between panel ribs (see Architectural Manual).

MINI/MAXI-BATTEN PEAK DETAIL

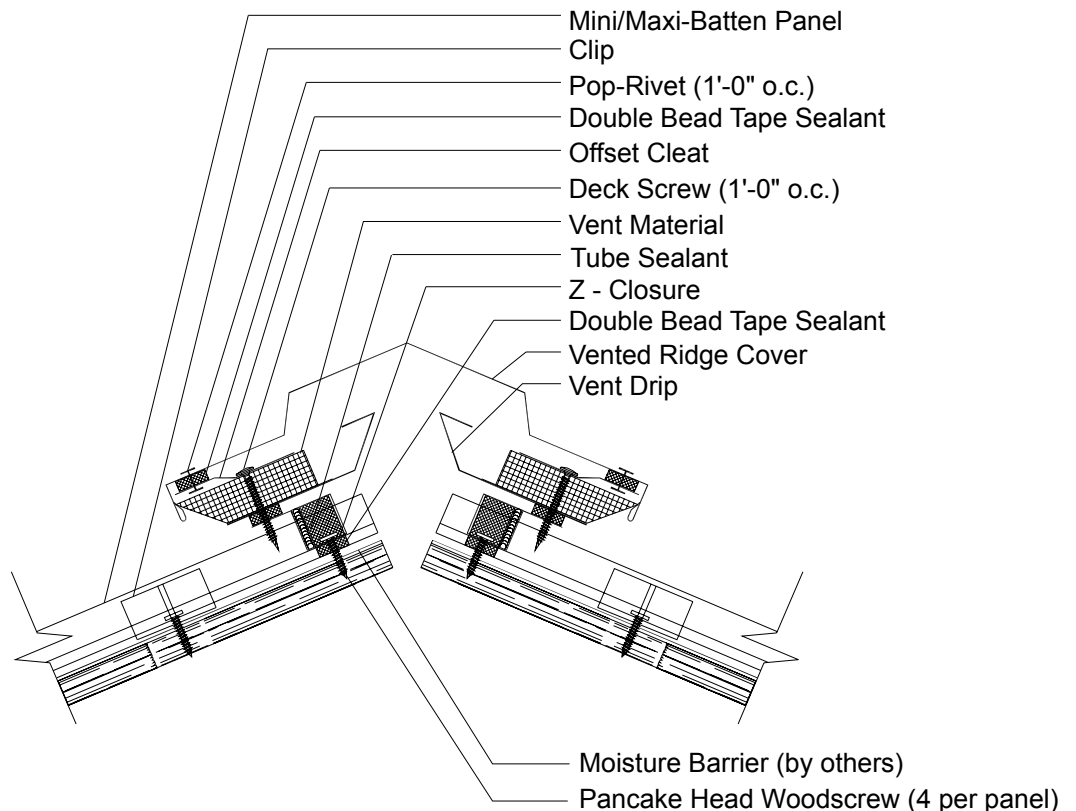
3:12 Slope
Minimum



Note: Z-Closures must be field cut and bent to fit between panel ribs (see Architectural Manual).

MINI/MAXI-BATTEN VENTED RIDGE DETAIL

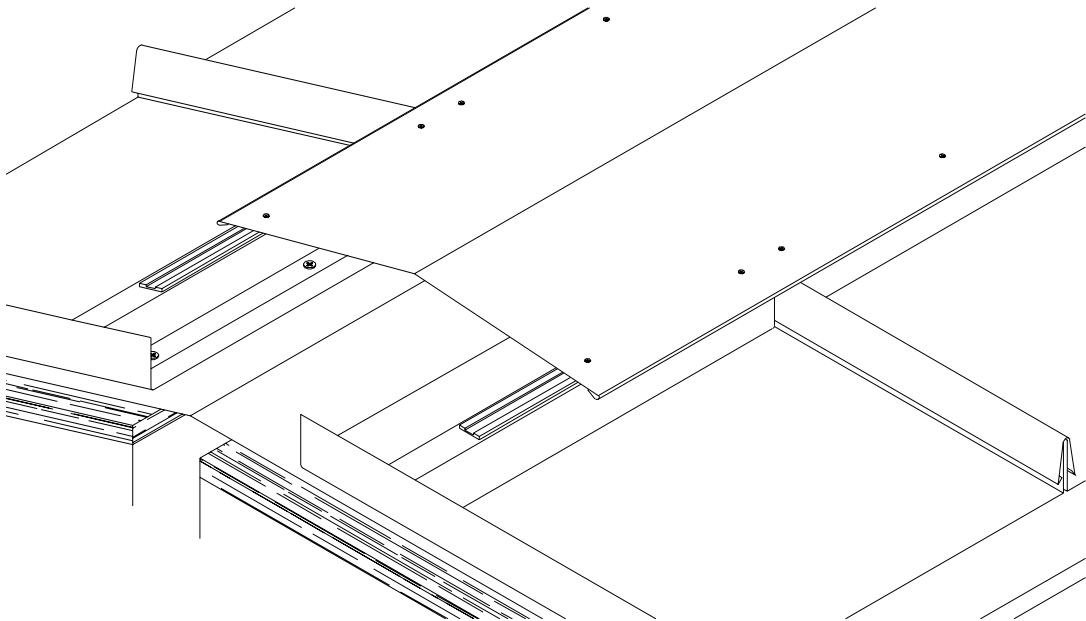
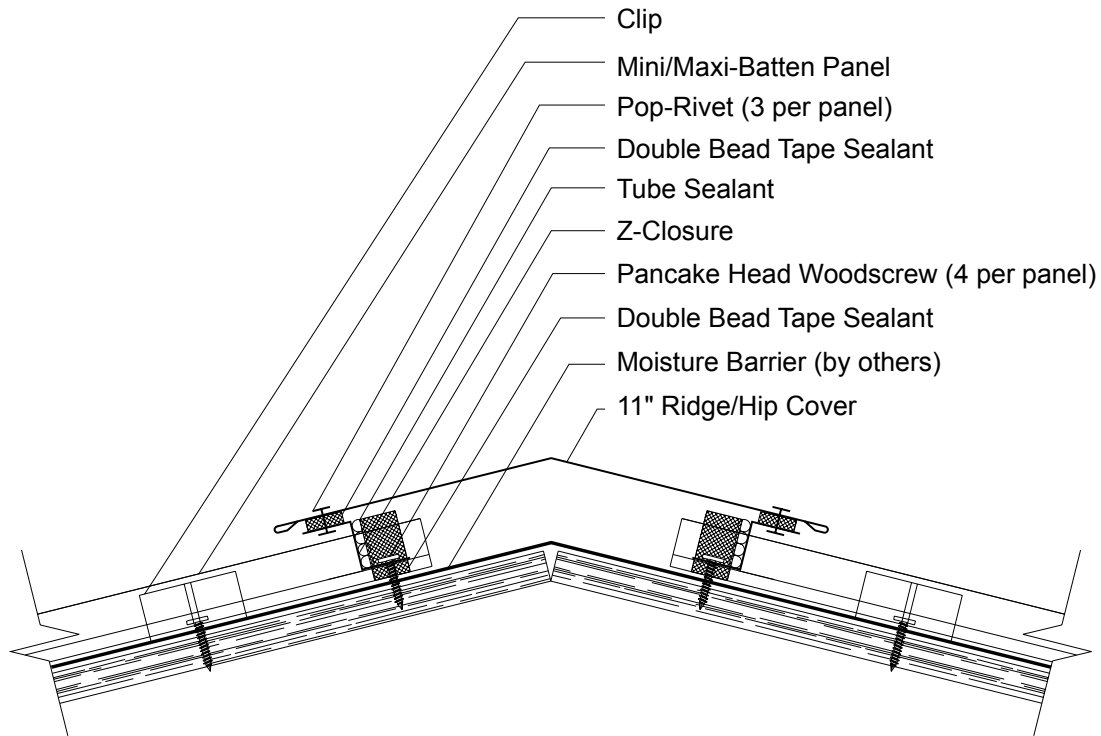
3:12 Slope
Minimum



CAUTION
Additional screws may be required for high snow loading and steep slopes.

MINI/MAXI-BATTEN 11" RIDGE/HIP DETAIL

3:12 Slope
Minimum



CAUTION

Additional screws
may be required for
high snow loading
and steep slopes.