## MINI/MAXI-BATTEN

### Table of Contents

<table>
<thead>
<tr>
<th>Product</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel Information</strong></td>
<td></td>
</tr>
<tr>
<td>Mini/Maxi-Batten Panel Profiles</td>
<td>PMB-2</td>
</tr>
<tr>
<td>Panel Overview</td>
<td>PMB-2</td>
</tr>
<tr>
<td><strong>Flashing Profiles</strong></td>
<td></td>
</tr>
<tr>
<td>Eave</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Extended Eave</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Cleat</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Offset Cleat</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Starter</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Box Gutter</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Box Gutter End</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Universal Gutter/Downspout Strap</td>
<td>PMB-3</td>
</tr>
<tr>
<td>4&quot; x 3½&quot; Downspout</td>
<td>PMB-3</td>
</tr>
<tr>
<td>4&quot; x 3½&quot; 95° Elbow</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Downspout Bracket</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Valley</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Rake</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Rakewall</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Counter Flashing</td>
<td>PMB-3</td>
</tr>
<tr>
<td>Reglet Flashing</td>
<td>PMB-4</td>
</tr>
<tr>
<td>11&quot; Ridge/Hip Cover</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Vented Ridge Cover</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Vent Drip</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Peak</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Pitch Break</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Outside Corner</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Inside Corner</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Gravel Stop</td>
<td>PMB-4</td>
</tr>
<tr>
<td>Coping</td>
<td>PMB-4</td>
</tr>
<tr>
<td>1.5&quot; Sill/Head</td>
<td>PMB-4</td>
</tr>
<tr>
<td>2.25&quot; Sill/Head</td>
<td>PMB-4</td>
</tr>
<tr>
<td>1.5&quot; Sill to Soffit</td>
<td>PMB-4</td>
</tr>
<tr>
<td>2.25&quot; Sill to Soffit</td>
<td>PMB-4</td>
</tr>
<tr>
<td>1&quot; Z-Closure</td>
<td>PMB-4</td>
</tr>
<tr>
<td>1.5&quot; Z-Closure</td>
<td>PMB-5</td>
</tr>
<tr>
<td><strong>Accessory Profiles</strong></td>
<td></td>
</tr>
<tr>
<td>Curved Mini-Batten ⅜&quot; Clip</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Mini-Batten (1&quot;) Clip</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Mini-Batten (1.5&quot;) Clip</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Maxi-Batten Clip</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Bearing Plate</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Tube Sealant</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Tape Sealant</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Rubber Roof Jack</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Touch-Up Paint</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Metal Panel Hemming Tool</td>
<td>PMB-5</td>
</tr>
<tr>
<td>Vent Material</td>
<td>PMB-5</td>
</tr>
<tr>
<td><strong>Testing Information</strong></td>
<td></td>
</tr>
<tr>
<td>UL 580 Wind Uplift Information</td>
<td>PMB-6</td>
</tr>
<tr>
<td>UL 263 Fire Resistance Ratings</td>
<td>PMB-7</td>
</tr>
<tr>
<td><strong>Design/Installation Considerations</strong></td>
<td></td>
</tr>
<tr>
<td>Fastener Installation Technique</td>
<td>PMB-8</td>
</tr>
<tr>
<td>Condition of Substructure</td>
<td>PMB-8</td>
</tr>
<tr>
<td>Ventilation</td>
<td>PMB-9</td>
</tr>
<tr>
<td>Panel Applications</td>
<td>PMB-9</td>
</tr>
</tbody>
</table>

### Detail Conditions

<table>
<thead>
<tr>
<th>Product</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eave with Offset Cleat Detail</td>
<td>PMB-10</td>
</tr>
<tr>
<td>Extended Eave Detail</td>
<td>PMB-11</td>
</tr>
<tr>
<td>Gutter with Offset Cleat Detail</td>
<td>PMB-11</td>
</tr>
<tr>
<td>Valley with Offset Cleat Detail</td>
<td>PMB-12</td>
</tr>
<tr>
<td>Slope Change Detail</td>
<td>PMB-13</td>
</tr>
<tr>
<td>Transition Detail</td>
<td>PMB-13</td>
</tr>
<tr>
<td>Rake Detail</td>
<td>PMB-14</td>
</tr>
<tr>
<td>Rake Parapet Counter Detail</td>
<td>PMB-15</td>
</tr>
<tr>
<td>Rake Parapet Reglet Detail</td>
<td>PMB-15</td>
</tr>
<tr>
<td>High Side Eave at Parapet Counter Detail</td>
<td>PMB-16</td>
</tr>
<tr>
<td>High Side Eave at Parapet Reglet Detail</td>
<td>PMB-16</td>
</tr>
<tr>
<td>Peak Detail</td>
<td>PMB-17</td>
</tr>
<tr>
<td>Vented Ridge Detail</td>
<td>PMB-17</td>
</tr>
<tr>
<td>11&quot; Ridge/Hip Detail</td>
<td>PMB-18</td>
</tr>
</tbody>
</table>
## MINI/MAXI-BATTEN PANEL OVERVIEW

### PANEL PROFILES

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;, 16&quot;, or 18&quot;</td>
<td>3/16&quot;</td>
</tr>
</tbody>
</table>

### 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.*
**MINI/MAXI-BATTEN FLASHING PROFILES (CONT.)**

### 1.5” Z-CLOSURE

![Diagram of 1.5” Z-Closure](image)

- **C** Indicates color side of flashing.

### ACCESSORY PROFILES

#### CURVED MINI-BATTEN

- **5/8” CLIP**

#### MINI-BATTEN (1”) CLIP

#### MINI-BATTEN (1.5”) CLIP

#### MAXI-BATTEN CLIP

#### BEARING PLATE

![Bearing Plate](image)

#### TUBE SEALANT

- 10.3 oz. Cartridge Urethane

#### TAPE SEALANT

- 7/8” X 3/16” X 25’
  - Double Bead
  - Butyl - Gray

#### RUBBER ROOF JACKET

![Rubber Roof Jacket](image)

- MINI (1/4” to 1 1/8” O.D. Pipe)
- #2 (1 1/4” 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

- 3/8” X 4”
  - **7/8”**
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 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
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**.


*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.
**MINI/MAXI-BATTEN DESIGN / INSTALLATION CONSIDERATIONS**

**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.

<table>
<thead>
<tr>
<th>Correct</th>
<th>Too Loose</th>
<th>Too Tight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealing material slightly visible at edge of metal washer. Assembly is watertight.</td>
<td>Sealing material is not visible; not enough compression to seal properly.</td>
<td>Metal washer deformed; sealing material pressed beyond washer edge.</td>
</tr>
</tbody>
</table>

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.
MINI/MAXI-BATTEN  DESIGN / INSTALLATION CONSIDERATIONS (CONT)

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.

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

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

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

- Clip
- Moisture Barrier (by others)
- Mini or Maxi-Batten Panel (field cut and bend)
- (Optional Pop-Rivet, Mini-Batten only.)
- Tube Sealant

MINI/MAXI-BATTEN TRANSITION DETAIL

3:12 Slope Minimum

- Clip
- Mini or Maxi-Batten Panel
- Moisture Barrier (by others)
- Pan to be field cut and bent by installer.

- Batten to be field cut and fastened with Pop-Rivets
- Pop-Rivet (1 per side)
- Tube Sealant
3:12 Slope
Minimum

- Pop-Rivet (1'-0" o.c.)
- Double Bead Tape Sealant
- Z-Closure
- Mini/Maxi-Batten Panel
- Pancake Head Woodscrew (1'-0" o.c.)
- Double Bead Tape Sealant
- Rake
- Pancake Head Woodscrew (1'-0" o.c.)
- Cleat
- Moisture Barrier (by others)
### MINI/MAXI-BATTEN RAKE PARAPET COUNTER DETAIL

**3:12 Slope**
- **Minimum**

- Tube Sealant
- Fasteners (by others)
- Counter Flashing
- Rakewall
- Moisture Barrier (by others)
- Pop-Rivet (1'-0" o.c.)
- Double Bead Tape Sealant
- Z-Closure
- Pancake Head Wood screw (1'-0" o.c.)
- Mini/Maxi-Batten Panel

---

### MINI/MAXI-BATTEN RAKE PARAPET REGLET DETAIL

**3:12 Slope**
- **Minimum**

- Tube Sealant
- Reglet Flashing
- Fastener (by others)
- Rakewall
- Moisture Barrier (by others)
- Pop-Rivet (1'-0" o.c.)
- Double Bead Tape Sealant
- Z-Closure
- Pancake Head Wood screw (1'-0" o.c.)
- Mini/Maxi-Batten Panel
MINI/MAXI-BATTEN HIGH SIDE EAVE AT PARAPET COUNTER DETAIL

3:12 Slope
Minimum

Tube Sealant
Counter Flashing
Fasteners (by others)
Pitch Break
Moisture Barrier (by others)
Double Bead Tape Sealant
Tube Sealant
Pop-Rivet (3 per panel)
Z-Closure
Pancake Head Woodscrew (4 per panel)
Clip
Mini/Maxi-Batten Panel

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

Tube Sealant
Fasteners (by others)
Reglet Flashing
Pitch Break
Moisture Barrier (by others)
Tube Sealant
Double Bead Tape Sealant
Pop-Rivet (3 per panel)
Z-Closure
Pancake Head Woodscrew (4 per panel)
Clip
Mini/Maxi-Batten Panel

Note: Z-Closures must be field cut and bent to fit between panel ribs (see Architectural Manual).
Note: Z-Closures must be field cut and bent to fit between panel ribs (see Architectural Manual).
CAUTION
Additional screws may be required for high snow loading and steep slopes.

11" RIDGE/HIP DETAIL

3:12 Slope
Minimum

- Clip
- Mini/Maxi-Batten Panel
- Pop-Rivet (3 per panel)
- Double Bead Tape Sealant
- Tube Sealant
- Z-Closure
- Pancake Head Woodscrew (4 per panel)
- Double Bead Tape Sealant
- Moisture Barrier (by others)
- 11" Ridge/Hip Cover

© Metal Sales Manufacturing Corporation/ Subject to change without notice/ Effective Date 9/11
800.406.7387 (Corporate Office) • www.metalsales.us.com