IMPORTANT NOTICE

READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE Curved Battenlok® ROOFING SYSTEM. MBCI DETAILS MUST BE FOLLOWED AS A MINIMUM TO INSURE APPROPRIATE WARRANTIES WILL BE ISSUED.

ALWAYS INSPECT EACH AND EVERY PANEL AND ALL ACCESSORIES BEFORE INSTALLATION. NEVER INSTALL ANY PRODUCT IF ITS QUALITY IS IN QUESTION. NOTIFY MBCI IMMEDIATELY IF ANY PRODUCT IS BELIEVED TO BE OUT OF TOLERANCE, SPECIFICATION OR HAS BEEN DAMAGED DURING SHIPMENT.

IF THERE IS A CONFLICT BETWEEN PROJECT ERECTION DRAWINGS PROVIDED OR APPROVED BY MBCI AND DETAILS IN THIS MANUAL, PROJECT ERECTION DRAWINGS WILL TAKE PRECEDENCE.

Ice Dam Disclaimer

MBCI designs its standing seam roofs to meet the load requirements dictated by governing codes and project specifications, including applicable snow loads. However, NCI expressly disclaims responsibility for weathertightness or roof point loading issues or other hazards resulting from ice dam situations. Any time ice and snow can melt on the main body of the roof and refreeze at the eave or in the shadow of an adjacent wall, an ice dam situation may develop. In addition to local climate, ice dam formation is affected by many other factors, including but not limited to, roof insulation R value, roof panel color, interior temperature of building, heater location in building, eave overhangs, parapet walls, shading of building roof areas from adjacent trees, parapets, buildings, etc. These factors are design and maintenance issues and are outside the control of NCI. NCI specifically disclaims any liability for damage due to ice dam formation, although the following issues should be taken into consideration concerning standing seam roofs installed in freezing climates:

- Always use field seamed panels. These machine-folded seams are more durable when subjected to occasional icing.
- Eliminate "cold" eave overhangs and parapet walls from the building design. Roof overhangs outside the heated envelope of the building will tend to be colder than the roof areas over the heated envelope. Simple roof designs are preferred. Parapet walls at the eave allow ice and snow to collect due to shading effects and the lower roof temperatures caused thereby.
- Make sure the interior of the building is adequately insulated and the heating is properly distributed. Inadequate insulation in the roof and/or improper heat distribution causes heat flow through the main body of the roof. On days when the temperature is below freezing, this heat gain can cause ice and snow to melt and refreeze at the eave where the roof is colder.
- Lay out the building to prevent the eaves and other roof areas from being shaded during the winter. This may mean eliminating adjacent trees or reconsidering roof geometries.
- Consider using self-regulating heating cables at the eaves to mitigate the effects of ice dams.
- On building designs using attics, over-insulate the attic floor and provide adequate ventilation in the attic. This will reduce heat transfer through the roof resulting in more consistent roof temperatures between eave and field of roof.
- Increase the degree of diligence with respect to underlayment materials at roof areas prone to icing. This may include valleys, eaves, dormers and roof areas near dormers, parapets and the like where shading may occur.

For more information on this subject, please refer to the MCA's Metal Roof Design For Cold Climates manual.

The Engineering data contained herein is for the expressed use of customers and design professionals. Along with this data, it is recommended that the design professional have a copy of the most current version of the North American Specification for the Design of Cold-Formed Steel Structural Members published by the American Iron and Steel Institute to facilitate design. This Specification contains the design criteria for cold-formed steel components. Along with the Specification, the designer should reference the most current building code applicable to the project jobsite in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.

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Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. In a continuing effort to refine and improve products, MBCI reserves the right to discontinue products at any time or change specifications and/or designs without incurring obligation. To ensure you have the latest information available, please inquire or visit our website at www.mbci.com. Application details are for illustration purposes only and may not be appropriate for all environmental conditions, building designs or panel profiles. Projects should be designed to conform to applicable building codes, regulations and accepted industry practices. If there is a conflict between this manual and project erection drawings, the erection drawings will take precedence.
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Curved BattenLok®

PRODUCT INFORMATION

GENERAL DESCRIPTION

Coverage Widths - 16"
Minimum Radius - 20'-0"
Panel Attachment - Low, High (fixed or floating), or Utility (no insulation clearance)
Panel Substrate - Galvalume® (standard)
Gauge - 24 (Standard); 22 (Optional)
Finishes - Smooth Striated (standard)*
Coatings - Signature® 200, Signature® 300, Signature® 300 Metallic

PRODUCT SELECTION CHART

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>Signature® 300 Metallic</th>
<th>Signature® 300</th>
<th>Signature® 200</th>
<th>Galvalume Plus®</th>
</tr>
</thead>
<tbody>
<tr>
<td>16&quot; Wide</td>
<td>■</td>
<td>□</td>
<td>□</td>
<td>■</td>
</tr>
</tbody>
</table>

Signature® is a registered trademark of NCI Group, Inc. Galvalume Plus® is a registered trademark of BIEC International.

■ — Available in any quantity.
● — Minimum quantity may be required.

* Striated panels are standard to reduce "oil canning".
Curved BattenLok®

PRODUCT INFORMATION

ARCHITECT/ENGINEER INFORMATION

1. **Curved BattenLok®** is a mechanically seamed roof system. Panels are available in 16" width and 24 gauge only. Panels may be installed on roofs with radii of 20’ or greater.

2. Roofs with chord lengths too large for single panel applications may be sheeted with multiple panels. Please see ordering information on Page CB-3 for proper panel designations.

3. Panels do not have factory applied mastic. ⅛” x ⅜” tape mastic must be field applied to the male leg of the panels during roof installation.

4. **Curved BattenLok®** is a structural roofing panel and may be installed directly over purlins or joists. It may also be installed over wood decks and metal deck with rigid insulation.

5. The substructure must be true. Any deviations in the substructure will telegraph through to the panels which may cause oil canning and other distortions. Panels cannot be installed over segmented decks.

6. The information in this manual is believed to be correct and accurate. It should not be used for any specific application without being reviewed by a registered professional engineer.

7. **Curved BattenLok®** panels are not designed to be work platforms. Avoid any unnecessary foot traffic on Curved BattenLok® panels. If foot traffic is required, protect the roof panels by using soft soled shoes and roof pads or temporary deck.

8. A vapor retarder may be necessary to protect roofing components when high interior humidity is a factor. The need for a vapor retarder, as well as the type, placement and location should be determined by an architect or engineer. The following are examples of conditions that may require a vapor retarder: (A) Projects where outside winter temperatures below 40 degrees Fahrenheit are anticipated and where average winter interior relative humidity of 45% or greater is expected. (B) Buildings with high humidity interiors, such as swimming pools, textile manufacturing operations, food, paper, or other wet-process industrial plants. (C) Construction elements that may release moisture after the roof is installed, such as interior concrete and masonry, plaster finishes and fuel burning heaters.

9. Typically, when wood decks are used, they are temporarily protected by the installation of a moisture barrier over the wood deck. If utility clips are to be used, the **Curved BattenLok®** panel will lay tight to the wood deck. If tin tabs are used to attach the moisture barrier to the wood deck, they must be covered with duct tape or some other material to prevent them from rusting the back side of the panels. Also, plastic washers may telegraph through the panels.

WARNING

As with all standing seam roof systems, sound attenuation (example: blanket insulation) should be installed between the panels and open framing, such as purlins or joists, to prevent “roof rumble” during windy conditions.

Applications over solid deck such as rigid insulation over a metal deck or a wood deck may require additional acoustical consideration to ensure that thermal vibration noises are isolated from the building interior. This is especially important if the bottom of the deck is left open to the interior, in cathedral ceiling applications or when the attic space is used as a return air plenum.

A vapor retarder may be necessary to protect roofing components when high humidity is a factor. The need for a vapor retarder, as well as the type, placement and location should be determined by an architect or engineer. The following are examples of conditions that may require a vapor retarder: (A) a project where outside winter temperatures below 40 degrees F. are anticipated and where average winter interior relative humidity of 45% or greater is expected. (B) building usages with high humidity interiors such as indoor swimming pools, textile manufacturing operations, food, paper, or other wet-process industrial plants. (C) Construction elements that may release moisture after the roof is installed, such as interior concrete and masonry, plaster finishes and fuel burning heaters.

CAUTION

Diaphragm capabilities and purlin stability are not provided by MBCI’s **Curved BattenLok®** roof system. Therefore, other bracing may be required to conform to A.I.S.C. or A.I.S.I. specifications.
## PRODUCT INFORMATION

### UNDERWRITERS LABORATORIES APPROVAL

**Curved BattenLok®**

![Diagram of Curved BattenLok®](image)

<table>
<thead>
<tr>
<th>Construction Number</th>
<th>Panel Width (in.)</th>
<th>Gauge</th>
<th>Clip Type</th>
<th>Clip Spacing</th>
<th>Substrate</th>
<th>UL-2218 Impact Resistance</th>
<th>UL-263 Fire Rating</th>
<th>UL-580 Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>576</td>
<td>16&quot;</td>
<td>24 min.</td>
<td>Fixed or Floating High or Low</td>
<td>5'-0&quot;</td>
<td>Plywood / OSB</td>
<td>Class 4</td>
<td>Class A</td>
<td>Class 90</td>
</tr>
<tr>
<td>577</td>
<td>16&quot;</td>
<td>24 min.</td>
<td>Fixed or Floating High or Low</td>
<td>5'-0&quot;</td>
<td>Metal Deck</td>
<td>Class 4</td>
<td>Class A</td>
<td>Class 90</td>
</tr>
<tr>
<td>583</td>
<td>16&quot;</td>
<td>24 min.</td>
<td>Fixed or Floating High or Low</td>
<td>5'-0&quot;</td>
<td>Open Framing</td>
<td>Class 4</td>
<td>Class A</td>
<td>Class 90</td>
</tr>
</tbody>
</table>

### NOTES

1. Tests procedures are in accordance with Underwriters Laboratories Standard UL-580 under “Tests for Uplift Resistance of Roof Assemblies”.
2. A detailed installation method is available for each Construction Number above and can be found in the UL Roofing Materials and Systems Directory. The panels must be installed in a certain manner to achieve the published results.
3. The panel qualifies for a Class A fire rating in compliance with Underwriters Laboratories Standard UL-263.
5. Curved BattenLok® panels carry a Class 4 rating under UL-2218 "test Standard For Impact Resistance".
## Curved BattenLok® PANEL

**SECTION PROPERTIES**

<table>
<thead>
<tr>
<th>GAUGE</th>
<th>Fy (KSI)</th>
<th>WEIGHT (PSF)</th>
<th>Ixe (IN. 4/FT)</th>
<th>Sxe (IN. 3/FT)</th>
<th>Maxo (KIP-IN)</th>
<th>Ixe (IN. 4/FT)</th>
<th>Sxe (IN. 3/FT)</th>
<th>Maxo (KIP-IN)</th>
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</thead>
<tbody>
<tr>
<td>24</td>
<td>50</td>
<td>1.29</td>
<td>0.0551</td>
<td>0.0545</td>
<td>1.633</td>
<td>0.1072</td>
<td>0.0618</td>
<td>1.8524</td>
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<tr>
<td>22</td>
<td>50</td>
<td>1.65</td>
<td>0.0766</td>
<td>0.0804</td>
<td>1.4066</td>
<td>0.1517</td>
<td>0.0892</td>
<td>2.6712</td>
</tr>
</tbody>
</table>

### NOTES

1. All calculations for the properties of Curved BattenLok® panels are calculated in accordance with the 2012 edition of the North American Specification for Design of Cold-Formed Steel Structural Members.
2. Ixe is for deflection determination.
3. Sxe is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.
### ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

#### 24- Gauge (Fy = 50 KSI)

<table>
<thead>
<tr>
<th>SPAN TYPE</th>
<th>LOAD TYPE</th>
<th>SPAN IN FEET</th>
<th>2.5</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
<th>5.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE</td>
<td>LIVE LOAD</td>
<td></td>
<td>162.0</td>
<td>135.0</td>
<td>100.8</td>
<td>77.2</td>
<td>61.0</td>
<td>49.4</td>
<td>40.8</td>
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<tr>
<td>2-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>162.0</td>
<td>121.0</td>
<td>88.9</td>
<td>68.0</td>
<td>53.8</td>
<td>43.5</td>
<td>36.0</td>
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<tr>
<td>3-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>162.0</td>
<td>135.0</td>
<td>111.1</td>
<td>85.1</td>
<td>67.2</td>
<td>54.4</td>
<td>45.0</td>
</tr>
<tr>
<td>4-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>162.0</td>
<td>135.0</td>
<td>103.7</td>
<td>79.4</td>
<td>62.7</td>
<td>50.08</td>
<td>42.0</td>
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</table>

#### 22- Gauge (Fy = 50 KSI)

<table>
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<th>SPAN TYPE</th>
<th>LOAD TYPE</th>
<th>SPAN IN FEET</th>
<th>2.5</th>
<th>3.0</th>
<th>3.5</th>
<th>4.0</th>
<th>4.5</th>
<th>5.0</th>
<th>5.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE</td>
<td>LIVE LOAD</td>
<td></td>
<td>233.4</td>
<td>194.5</td>
<td>145.4</td>
<td>111.3</td>
<td>87.9</td>
<td>71.2</td>
<td>58.9</td>
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<tr>
<td>2-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>233.4</td>
<td>178.3</td>
<td>131.0</td>
<td>100.3</td>
<td>79.2</td>
<td>64.2</td>
<td>53.0</td>
</tr>
<tr>
<td>3-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>233.4</td>
<td>194.5</td>
<td>163.7</td>
<td>125.3</td>
<td>99.0</td>
<td>80.2</td>
<td>66.3</td>
</tr>
<tr>
<td>4-SPAN</td>
<td>LIVE LOAD</td>
<td></td>
<td>233.4</td>
<td>194.5</td>
<td>152.9</td>
<td>117.0</td>
<td>92.5</td>
<td>74.9</td>
<td>61.9</td>
</tr>
</tbody>
</table>

**NOTES:**

1. **THE ABOVE LOADS ARE NOT FOR USE WHEN DESIGNING PANELS TO RESIST WIND UPLIFT.**
2. Strength calculations based on the 2012 AISI Standard North American Specification for the Design of Cold-Formed Steel Structural Members.
3. Allowable loads are applicable for uniform loading and spans without overhangs.
4. LIVE load capacities are for those loads that push the panel against its supports. The applicable limit states are flexure, shear, combined shear and flexure, web crippling at end and interior supports, and a deflection limit of L/180 under strength-level loads.
5. Panel pullover and screw pullout capacity must be checked separately using the screws employed for each particular application when utilizing this load chart.
6. The use of any field seaming equipment or accessories including but not limited to clips, fasteners, and support plates (eave, backup, rake, etc.) other than that provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
7. This material is subject to change without notice. Please contact MBCI for the most current data.

The engineering data contained herein is for the expressed use of customers and design professionals. Along with this data, it is recommended that the design professional have a copy of the most current version of the North American Specification for the Design of Cold-Formed Steel Structural Members published by the American Iron and Steel Institute to facilitate design. This Specification contains the design criteria for cold-formed steel components. Along with the Specification, the designer should reference the most current building code applicable to the project jobsite in order to determine environmental loads. If further information or guidance regarding cold-formed design practices is desired, please contact the manufacturer.
Curved BattenLok®

SPECIFICATIONS

Section 07610
Metal Roofing

Specifier: Notation [#] means that text following is a specifier’s note or sample.

PART 1 - GENERAL

1.01 DESCRIPTION

# Specifier: Do not alter paragraph "A" except by adding section title in brackets.

A. General:
1. Furnish all labor, material, tools, equipment and services for all preformed [# choose one: roof, fascia, mansards, canopies, equipment screens] as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:
1. Structural steel: Section 05100.
2. Steel joists: Section 05200 or 05400.
3. Flashing and sheet metal: Section 07600.

# Specifier: Delete references to sections not used and add any references that become pertinent.

1.02 QUALITY ASSURANCE

A. Applicable standards:
2. LGSI: "Light Gage Structural Institute"
6. UL2218: Class 4 Impact Resistance Rating

B. Manufacturer’s qualifications:
1. Manufacturer has a minimum of five years experience in manufacturing metal roof systems of this nature. Panels specified in this section shall be produced in a factory environment (not with a portable roll former) with fixed-base roll forming equipment and in line leveling, assuring the highest level of quality control.
A letter from the manufacturer certifying compliance will accompany the product material submittals.

C. Installation contractor’s qualifications:
1. Installation contractor shall be an approved installer, certified by the manufacturer before the beginning of installation of the metal roof system, specifically for MBCI’s Curved BattenLok® metal roof system, Certification by manufacturer must include the following:
   a. Maintain $250,000 minimum general liability insurance coverage.
   b. Maintain statutory limits of worker’s compensation coverage as mandated by law
   c. Have no viable claims pending regarding negligent acts or defective workmanship on previously performed or current projects.
   d. Has not filed for protection from creditors under any state or federal insolvency or debtor relief statutes or codes.
   e. Project foreman is the person having received certification by the manufacturer specific training in the proper installation of the selected metal roof system and will be present to supervise whenever material is being installed. Specific certified installer program shall include the following:

NOTICE
Contact MBCI for the proper combination of panel gauge, clip type, clip spacing and substructure to achieve a UL-90 rated system.
Section 07610
Metal Roofing

1. The instructor must have a minimum of 10 years’ experience in the application of metal roof systems.
2. A formal syllabus for the classroom and hands-on training.
3. Classroom instruction with review and thorough understanding of the specific product's technical manual.
4. Hands-on mock-up instruction with a review and thorough understanding of the specific product's details.
5. The installation contractor must pass a written and oral exam.
f. Provide five references from five different architects or building owners for projects that have been in service for a minimum of two years, stating satisfactory performance by the installation contractor.
g. Provide certification letter that installation contractor has a minimum of three years' of metal product installation experience immediately preceding the date upon which work is to commence.

D. Pre-installation Conference:
1. Prior to installation of roofing system, conduct a pre-installation conference at the project site
2. Attendance: Owner, Architect, Contractor, Project Superintendent, and Certified Installer
3. Agenda:
   a. Roofing details and agenda
   b. Critical work sequencing and review of phasing plan
   c. Inspection sequencing

1.03 SYSTEM PERFORMANCE REQUIREMENTS
A. Performance Testing:
1. Metal roof system must be tested in accordance with Underwriters Laboratories, Inc. (UL) Test Method 580 "Tests for Uplift Resistance of Roof Assemblies".
2. Metal roof system must be installed in accordance with UL Construction # (choose one):
   - #576 - (24 gauge panels) ¾" plywood or OSB is required
   - #577 - (24 gauge panels) 22 gauge metal deck is required. Rigid insulation, plywood, or OSB is optional.
   - #583 - (24 gauge panels) Blanket insulation, up to 6" thick, is optional.
3. Metal roof system must be tested in accordance with ASTM E 1592-95 for negative loading. Determine panel bending and clip-to-panel strength by testing in accordance with ASTM E 1592-95 procedures. Capacity for gauge, span or loading other than those tested may be determined by interpolating between test values only.
4. Roof Panels shall be high reflectance and high emittance in accordance with Energy Star®. Initial Reflectance shall be at least 0.68 when tested with ASTM E- 903. The three year aged reflectance shall be at least 0.57, when tested in accordance with ASTM E-1918 (Measured As Solar Reflectivity, Not Visible Reflectance).

1.04 DESIGN REQUIREMENTS
A. Roof Design Loads:
1. Design criteria shall be in accordance with [# choose one: MBMA, SBCCI, UBC, BOCA, ASCE or an applicable national or local building code].
2. Dead Loads
   a. The dead load shall be the weight of the SSMR system. Collateral loads, such as sprinklers, mechanical and electrical systems, and ceilings shall not be attached to the panels.
3. Live Loads
   a. The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load of 20 psf.
4. Roof Snow Loads
   a. The design roof snow loads shall be as shown on the contract drawings.
5. Wind Loads
   a. The design wind uplift pressure for the roof system shall be as shown on the contract drawings. The design uplift force for each connection assembly in accordance with ASTM E 1592 shall be that pressure given for the area under consideration, multiplied by the tributary load area of the connection assembly. The safety factor listed below shall be applied to the design force and compared against the ultimate capacity. Prying shall be considered when calculating fastener design loads.
      aa. Single fastener in each connection: 3.00
      bb. Two or more fasteners in each connection: 2.25
6. Thermal Loads
   a. Roof panels shall be free to move in response to the expansion and contraction forces resulting from a total temperature range of ___ degrees F during the life of the structure. [# Choose temperature differential based on Max. and Min. for specific area IAW MBMA Climatological Data]

B. Framing Members Supporting the SSSMR System
1. Any additions/ revisions to framing members supporting the SSSMR system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility and shall be submitted for review and approval. New or revised framing members and their connections shall be designed in accordance with [-AISC-] [-AISI-] [-SJI-] [-LGSI-] design specifications. Maximum deflection under applied live load, snow or wind load shall not exceed [# choose one: L/180, L/240] of the span length.

I.05 SUBMITTALS
A. Shop drawings
1. Submit complete shop drawings and erection details, approved by the metal roofing manufacturer, to the architect (owner) for review. Do not proceed with manufacture of roofing materials prior to review of shop drawings and field verification of all dimensions. Do not use drawings prepared by the architect (owner) for shop or erection drawings.
2. Shop drawings show methods of erection, roof and wall panel layout, sections and details, anticipated loads, flashings, sealants, interfaces with all materials not supplied and proposed identification of component parts and their finishes.

B. Performance Tests:
1. Submit certified test results by a recognized testing laboratory or manufacturer's lab (witnessed by a professional engineer) in accordance with specified test methods for each panel system.

C. Calculations:
1. Submit engineering calculations defining all cladding loads for all roof areas based on design criteria listed in Para 1.04 Design Requirements, allowable clip loads and required number of fasteners to secure the panel clips to the designated substructure.
2. Compute uplift loads on clip fasteners with full recognition of prying forces and eccentric clip loading.
3. Calculate holding strength of fasteners in accordance with submitted test data provided by the fastener manufacturer based on length of embedment and properties of materials.
4. Submit thermal calculations and details of floating clip, flashing attachments, and accessories certifying the free movement in response to the expansion/contraction forces resulting from a total temperature differential of 110 degrees F.

D. Samples:
1. Submit samples and color chips for all proposed finishes.
   a. Submit one 8-inch long sample of panel, including clips.
   b. Submit two 3 inches x 5 inch color chip samples in color selected by the architect (owner).

E. Warranties:
1. Metal roof system manufacturer shall submit a specimen copy of the warranty upon final acceptance of the project. Provide one of the following warranties.
   1) Finish Warranty:
      a. Covering bare metal against rupture, structural failure and perforation due to normal atmospheric corrosion exposure for a period of 20 years.
      b. Covering panel finish against cracking, checking, blistering, peeling, flaking, chipping, chalking and fading for a period of twenty (20) years.
   2) Weathertightness Warranty:
      Roofing contractor shall submit a specimen copy of manufacturer's Weathertightness Warranty, including evidence of application for warranty and manufacturer's acceptance of the applicator and warranty conditions. (Choose one noted below.)
      a. Single Source Warranty
      b. Standard Warranty

F. Test Reports:
1. Submit Test Reports showing that metal panels have been tested in accordance with the Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference of ASTM E 1592-95.
2. Submit Test Reports showing that metal panels meet the air infiltration requirements of ASTM E 1680-95 when tested with a 6.24 PSF pressure differential with resulting air infiltration of 0.019 cfm/ sq. ft.
3. Submit Test Reports showing that metal panels meet the water penetration requirements of ASTM E 1646-95 when tested with a 12.00 PSF pressure differential with no uncontrollable water leakage when five gallons per hour of water is sprayed per square foot of roof area.

G. Metal roof system fabrication certification:
1. Submit a letter from the metal roof system manufacturer certifying the Curved BattenLok® panels have been produced in a factory environment (not job site roll formed) with fixed-base roll forming equipment and in line leveling.
H. Certified Installers qualifications:
1. Submit certificate from manufacturer certifying that installer of the metal roof system has met all of the criteria outlined in "1.02 C. Installer's qualifications" and is an authorized installer certified by the manufacturer.
2. Submit the formal syllabus for the classroom and hands-on training.
3. Submit five references from five different architects or building owners for projects that have been in service for a minimum of two years, stating satisfactory performance by the installation contractor.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING
A. Delivery:
1. Deliver metal roof system to job site properly packaged to provide protection against transportation damage.

B. Handling:
1. Exercise extreme care in unloading, storing and erecting metal roof system to prevent bending, warping, twisting and surface damage.

C. Storage:
1. Store bundled sheets off the ground sufficiently high enough to allow air circulation beneath bundle and to prevent rising water from entering bundle. Slightly elevate one end of bundle. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground. Prolonged Storage of sheets in a bundle is not recommended. If conditions do not permit immediate erection, extra care should be taken to protect sheets from staining or water marks.

1.07 WEATHERTIGHTNESS WARRANTY
A. The Contractor shall provide to the Owner, a single source or Standard warranty signed by the roofing manufacturer of the Standing Seam Roof System as outlined below: (# Choose Single Source or Standard Entire Section)

B. Single Source Warranty:
1. For a period of [#choose one: twenty (20), fifteen (15), ten (10), or five (5)] years from the date of substantial completion, the roofing manufacturer WARRANTS to the Building Owner ("Owner"): to furnish roof panels, flashing and related items used to fasten the roof panels and flashing including roof jack and curb attachments to the roof structure, will not allow intrusion of water from the exterior of the roofing manufacturer's Roof System into the building envelope when exposed to ordinary weather conditions and ordinary wear and usage. The Date of substantial completion is the date that is certified by the Architect, Owner, or Owner's Representative, when the roofing manufacturer's Roofing System is completed and accepted by or on behalf of the Owner.
2. Manufacturer's Field Service:
   a. During installation, provide for two on-site inspections of roof application by qualified technical representative of the manufacturer.
   b. Upon completion of installation, provide final inspection by a technical representative of roofing manufacturer to confirm that roofing system has been installed in accordance with manufacturer's requirements.

3. The roofing manufacturer shall have the SOLE AND EXCLUSIVE obligation for all warranty work commencing on the date of substantial completion and under all circumstances terminates on the [# insert appropriate number of years] year anniversary of the date certified as Substantial Completion of the roofing manufacturer's Roof System. During the period in which the roofing manufacturer has any warranty obligation, the roofing manufacturer shall take appropriate actions necessary to cause the non-performing portions of the Roof System to perform their proper functions.

ROOFING MANUFACTURER'S LIABILITY:
4. The total liability of the roofing manufacturer under Single Source warranty is (# choose one),
   a. Single Source I, limited solely to two (2) times the cost of the roofing manufacturer's Roof System as invoiced to the roofing manufacturer's customer.
   b. Single Source II, limited solely to four (4) times the cost of the roofing manufacturer's Roof System as invoiced to the roofing manufacturer's customer.
   c. Single Source III, a no dollar limit of the manufacturers Roof System as invoiced to the roofing manufacturer's customer.

C. Standard Warranty:
1. For a period of [#choose one: twenty (20), fifteen (15), ten (10), or five (5)] years from the date of substantial completion, the roofing manufacturer WARRANTS to the Building Owner ("Owner"): that the roofing manufacturer's furnished roof panels, flashing, and related items used to fasten the roof panels and flashing to the roof structure ("Roof System") will not allow intrusion of water from the exterior of the roofing manufacturer's Roof System into the building envelope, when exposed to ordinary weather conditions and ordinary wear
and usage. The Date of substantial completion is the date that is certified by the Architect, Owner, or Owner’s Representative, when the roofing manufacturer’s Roofing System is completed and accepted by or on behalf of the Owner.

2. The Roofing Installer shall have the sole and exclusive obligation for all warranty work commencing on the date of substantial completion up to and until the roof system has performed leak free for (24) consecutive months. The sole and exclusive obligation for all warranty work commencing on the date the roof has been leak free for (24) consecutive months and under all circumstances terminates on the [# insert # of years]. anniversary of the date certified as substantial completion of the roofing manufacturers roof system.

ROOFING MANUFACTURER’S LIABILITY:
3. The total liability of the roofing manufacturer under Standard warranty is [# choose one:]
   a. Standard I, Limited solely to $.20 sq. ft. of the actual roof area
   b. Standard II, limited solely to the Invoice Amount for the roof system (panels, fasteners, trim and accessories) to its customer. (No structural material, freight or taxes included)
   c. Standard III, a no dollar limit of the manufacturers Roof System as invoiced to the roofing manufacturers customer. Standard III is the only standard warranty that requires a certified installer on the job site at all times.

PART 2 - PRODUCTS
Curved BattenLok® architectural structural standing seam metal roof system.

2.01 MATERIALS
   A. Metal roof system profile:
      1. 2 inch high x 3/4” inch wide rib x 16 inch wide, striated panel with 2 pencil ribs, 1 1/2” from each vertical leg of panel.
   B. Metal roof system style:
      1. Vertical leg, concealed fastener, standing seam, utilizing male and female rib configurations, continuously locked together by an electrically powered mechanical seaming device during installation.
   C. Gauge:
      1. 24 gauge (UL 90 rated).
   D. Substrate:
      1. Galvalume® steel sheet, minimum yield of 50,000 PSI.
   E. Clip: [# choose one]
Section 07610
Metal Roofing

b. All tape seal is to be a pressure sensitive, 100 percent solids, polyisobutylene compound sealing tape with a release paper backing. Provide permanently elastic, non-sagging, non-toxic, non-staining tape seal approved by the metal roof system manufacturer.
c. All tube sealant is to be a one-part elastomeric polyurethane sealant approved by the metal roof system manufacturer.

2.03 FABRICATION
A. Material shall be in-line leveled prior to roll forming the panel profile.
B. Where possible, roll form panels in continuous lengths, full length of detailed runs.
C. Standard panel length shall be no more than 50 feet long (for longer length availability, contact manufacturer).
D. Fabricate trim/flashing and accessories to detailed profiles.
E. Fabricate trim/flashing from same material as panel.
F. Panels may be curved at the plant location or in the field.

2.04 PREFABRICATED ROOF JACKS
A. Pipe flashings shall be a one piece [choose one: EPDM (ethylene propylene diene monomer) molded rubber boot having a serviceable temperature range of -65°F to 212°F (for standard applications) or silicone molded rubber boot having a serviceable temperature range of -100°F to 437°F (for high temperature applications)] and shall be resistant to ozone and ultraviolet rays. Units shall have an aluminum flanged base ring. Do not install pipe flashings through any panel seams - install ONLY in the flat portion of the panel.

3.02 FABRICATION
A. Install metal roof system so that it is weathertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.
B. Install metal roof system in accordance with manufacturer's instructions and shop drawings.
C. Provide concealed anchors at all panel attachment locations.
D. Install panels plumb, level and straight with seams and rive parallel, conforming to design as indicated.

3.05 CLEANING, PROTECTION
A. Dispose of excess materials and remove debris from site.
B. Clean work in accordance with manufacturer's recommendations.
C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the architect (owner), any work that becomes damaged prior to final acceptance.
D. Touch up minor scratches and abrasions with touch up paint supplied by the metal roof system manufacturer.
E. Do not allow panels or trim to come in contact with dissimilar metals such as copper, lead or graphite. Water run-off from these materials is also prohibited. This specifically includes condensate from roof top units. A/C units.

END OF SECTION

DISCLAIMER: MBCI makes no warranty, express or implied, as to the merchantability or fitness for any particular purpose of any product by an optional manufacturer. If you choose to use a product not manufactured by an optional manufacturer, as defined herein, you take the product as is and at your own risk.

Descriptions and specifications contained herein were in effect at the time this publication was approved for printing. MBCI reserves the right to discontinue products at any time or change specifications and/or designs without notice and without incurring obligation.

To ensure you have the latest information available, please contact MBCI or visit our web site at www.mbci.com.
## Curved BattenLok®

### General Information

**Product Checklist**

<table>
<thead>
<tr>
<th>Curved BattenLok® 16” wide</th>
<th>Back-Up Plate, 16” wide</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Curved BattenLok® 16” wide**
  - **SuperLok® Clip, Floating**
    -Low: For use with or without 3/16” thermal spacer
    -High: For use with or without 3/8”, 5/8” or 1” thermal spacer
  - **SuperLok® Clip, Fixed**
    -Low: For use with or without 3/16” thermal spacer
    -High: For use with or without 3/8”, 5/8” or 1” thermal spacer
  - **SuperLok® Clip, Utility**
    -For applications that do not require the clearance provided by the low and high clips

- **Back-Up Plate, 16” wide**
  -For use at high eave and endlaps
  -Prepunched
  -16 gauge red oxide

<table>
<thead>
<tr>
<th>Rake Support</th>
<th>Rake Support - Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Rake Support**
  -20'-0” length
  -14 gauge red oxide
  -Factory slots
  -Field curved or kerfed

- **Rake Support - Utility**
  -20'-0” length
  -14 gauge red oxide
  -Factory slots
  -Field curved or kerfed
  -For use with utility clip

<table>
<thead>
<tr>
<th>Bearing Plate - Standard</th>
<th>Outside Closure - Standard, 16” wide</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Bearing Plate - Standard**
  -16 gauge red oxide
  -For use over rigid insulation

<table>
<thead>
<tr>
<th>HW-7766</th>
<th>HW-230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HW-7712</th>
<th>HW-234</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>HW-7722</th>
<th>HW-236</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HW-7732</th>
<th>HW-238</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>Low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HW-7740</th>
<th>HW-440</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Closure - Utility</td>
<td>HW-7732</td>
</tr>
</tbody>
</table>
### GENERAL INFORMATION

## PRODUCT CHECKLIST

<table>
<thead>
<tr>
<th>Fastener #1A</th>
<th>Fastener #1E</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Fastener #1A" /></td>
<td><img src="image2.png" alt="Fastener #1E" /></td>
</tr>
<tr>
<td>• Clip to purlin</td>
<td>• Panel to eave plate or eave strut</td>
</tr>
<tr>
<td>12-14 x 1” Self Driller</td>
<td>1/4” - 14 x 1 1/4” Long Life Driller</td>
</tr>
<tr>
<td>5/16” Hex Washer Head, with no washer</td>
<td>5/16” Hex Washer Head, with sealing washer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fastener #2A</th>
<th>Fastener #4</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Fastener #2A" /></td>
<td><img src="image4.png" alt="Fastener #4" /></td>
</tr>
<tr>
<td>• Use in place of fasteners #1E and #4 at all stripouts</td>
<td>• High eave and other flashing to outside closure</td>
</tr>
<tr>
<td>17 x 1” Long Life AB</td>
<td>• Gutter to Panel</td>
</tr>
<tr>
<td>5/16” Hex Washer Head, with sealing washer</td>
<td>• Gutter to strap</td>
</tr>
<tr>
<td></td>
<td>• Trim to trim connections</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fastener #5</th>
<th>Fastener #11</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Fastener #5" /></td>
<td><img src="image6.png" alt="Fastener #11" /></td>
</tr>
<tr>
<td>• Rake support to purlin</td>
<td>• Special application fastener</td>
</tr>
<tr>
<td>• Floating eave plate to eave strut</td>
<td>• For use on masonry</td>
</tr>
<tr>
<td>1/4” x 14 x 1 1/4” Shoulder Tek 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fastener #12</th>
<th>Fastener #13</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Fastener #12" /></td>
<td><img src="image8.png" alt="Fastener #13" /></td>
</tr>
<tr>
<td>• Utility clip to purlin</td>
<td>• Clip to wood deck</td>
</tr>
<tr>
<td>• Offset cleat to valley support plate or eave strut</td>
<td></td>
</tr>
<tr>
<td>• Rake angle to purlin</td>
<td></td>
</tr>
<tr>
<td>10 x 1” Phillips Pancake Head Self Driller</td>
<td>10 x 1” Type A #2 Phillips Pancake Head</td>
</tr>
</tbody>
</table>
### Curved BattenLok®

**GENERAL INFORMATION**

**PRODUCT CHECKLIST**

<table>
<thead>
<tr>
<th>Fastener #14</th>
<th>Fastener #15B</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Trim to trim connections&lt;br&gt;- Stainless steel</td>
<td>- For clip attachment in a composite roof assembly&lt;br&gt;- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications&lt;br&gt;- Length to be determined by insulation thickness and metal deck depth</td>
</tr>
</tbody>
</table>

**Fastener #15C**
- For clip attachment in a composite roof assembly
- Fastens clip and bearing plate to metal deck in rigid board insulation over metal deck applications
- Length to be determined by insulation thickness and metal deck depth

**Fastener #17**
- Outside closure to panel at high eave (with back-up plate)

**Fastener #18**
- Clip to plywood
- Eave plate to plywood
- Outside closure to panel at high eave (with plywood)

**Tri-Bead Tape Sealer**
- For use at trim connections

**Triple-Bead Tape Sealer**
- For use at endlaps

**Caulk, Urethane**
- Paintable

**Panel Hemming Tool**

**14 x 2½” Deck Screw Driller**
#3 Phillips Truss Head

**12 - 14 x 1” Self Driller**
½” Hex Washer Head, with ½” O.D. washer

**14 x 1¾” Diameter x 3½” Grip Range**

**14 x 4½” Deck Screw Driller**
#3 Phillips Truss Head

**½” Hex Washer Head, with ½” O.D. washer**

**Eave Plate, High**

**14 x 1” Type A**
½” Hex Head, with ½” O.D. washer

**HW-602**

**HW-504**

**HW-502**

**HW-504**

**HW-502**

**HW-502**

**HW-7500**

**HW-440**
### General Information

#### Curved BattenLok®

**Product Checklist**

<table>
<thead>
<tr>
<th>Product</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Box Gutter</strong></td>
<td>T-5271</td>
</tr>
<tr>
<td><strong>Gutter Strap</strong></td>
<td>FL-310</td>
</tr>
<tr>
<td><strong>Box High Side Eave Trim</strong></td>
<td>T-5085</td>
</tr>
<tr>
<td><strong>Eave W/Extended Drip Edge Flash</strong></td>
<td>T-5151</td>
</tr>
<tr>
<td><strong>Parapet High Side Eave Flash</strong></td>
<td>FL-275</td>
</tr>
<tr>
<td><strong>Low System Extended Valley Flash</strong></td>
<td>FL-711</td>
</tr>
<tr>
<td><strong>Counter Flash</strong></td>
<td>FL-341</td>
</tr>
<tr>
<td><strong>High System Extended Valley Flash</strong></td>
<td>FL-715</td>
</tr>
</tbody>
</table>

**Product Details**

- **Box Gutter**
  - 24 Gauge Material
  - Specify Roof Pitch

- **Box High Side Eave Trim**
  - Specify roof pitch
  - 24 Gauge material
  - Specify open hem when using with continuous cleat

- **Parapet High Side Eave Flash**
  - 24 Gauge material

- **Gutter Strap**
  - 24 Gauge Material

- **Counter Flash**
  - 24 Gauge material

- **Low System Extended Valley Flash**
  - 24 Gauge Material

- **Eave W/Extended Drip Edge Flash**
  - 24 Gauge Material

- **High System Extended Valley Flash**
  - 24 Gauge Material
## Curved BattenLok®

### GENERAL INFORMATION

**PRODUCT CHECKLIST**

<table>
<thead>
<tr>
<th>Curved Variable Termination Trim</th>
<th>Curved Counter Flash</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /> 6&quot;</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>(Not Pre-Curved) 24 Gauge Material</td>
<td>10'-2&quot; FL-372</td>
</tr>
<tr>
<td>20'-2&quot; FL-374 24 Gauge Material</td>
<td>24 Gauge Material Please Inquire</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curved Parapet Rake Flash</th>
<th>Curved Rake Clip</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Diagram" /> 6&quot;</td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td>24 Gauge Material Please Inquire</td>
<td>(Not Pre-Curved) 24 Gauge Material FL-378</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curved Rake Cleat</th>
<th>Curved Rake Trim</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Diagram" /> 1&quot;</td>
<td><img src="image6.png" alt="Diagram" /></td>
</tr>
<tr>
<td>24 Gauge Material Please Inquire</td>
<td>24 Gauge Material Please Inquire</td>
</tr>
</tbody>
</table>

**Note:** All trim to be 24-gauge material unless noted.
GENERAL INFORMATION

ORDERING INFORMATION

I. When ordering Curved BattenLok® panels without technical assistance from MBCI, the following must be provided:

A. Panel Length - The length of each panel should include the proper overhang at the eave, endlap, and high eave as required. Refer to specific details in this manual for the proper overhang at these locations. If the panels are to be hemmed at the eave, add 1 1/2" to the panel length for each hem.

B. Curved BattenLok® panels require the use of SuperLok® Clips. Refer to product check list.

II. If your specific detail is not in this manual or if you have questions concerning panel length, designation or product application, call your MBCI representative.

INSTALLATION GUIDELINES

I. Pre-Order
   A. Prior to ordering panels, all dimensions should be confirmed by field measurement.

II. Job site Storage and Handling
   A. Check the shipment against the shipping list.
   B. Damaged material must be noted on Bill of Lading.
   C. Panel crates should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
   D. Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.

III. Application Checklist
   A. Check substructure for proper alignment and uniformity to avoid panel distortion.
   B. Periodic check of panel alignment is crucial to proper panel alignment.
   C. If there is a conflict between this manual and the erection drawings, the erection drawings will take precedence.
Curved BattenLok®

GENERAL INFORMATION

PREPARATORY REQUIREMENTS

1. MBCI has field seaming kits available for installation of the Curved BattenLok® roof system. To reserve a kit, please complete a Curved BattenLok® Seaming Tool Rental Agreement and return it to your MBCI representative. This form should be submitted as soon as possible to ensure kit availability. Other types of field seaming machines may seam the MBCI Curved BattenLok® panels. However, MBCI cannot be held responsible for any wind uplift resistance or for damage when another type of field seamer is used.

2. When installing Curved BattenLok® over open framing, a curved angle or other member must be installed at each rake to allow the beginning and finishing panels to be fastened at 2'-0" centers max. Extreme wind conditions may require fastening at closer centers.

3. Check the radius of the substructure in several places. Installing panels curved to a radius different from the substructure may cause oil canning. Any deviations in the substructure will telegraph through to the panels which may cause oil canning or other distortions.

4. It is critical that the purlins or bar joists at the ridge and endlaps be located exactly as detailed and that they are straight from rafter to rafter. Any mislocation or bowing of these members can cause the fasteners at the ridge or endlaps to foul as the panels expand and contract.

5. Curved panels do not have factory mastic in the sidelap. The roof installer must field apply ¹⁄₂" x ³⁄₃₂" tape sealer to the male leg of each panel as they are being installed.

6. When panels are to be curved on site, the following must be provided:
   • Manpower to handle panels at the in-feed and out-feed of curving. Number of personnel required will be determined by panel length. Panels can be curved at approximately 30’ per minute if bundles are close to curving machine and adequate personnel are available.
   • 115 volt power supply within 50’ of curving operation.
   • Equipment to unload the panels and curving equipment and to hoist curved panels onto the roof.
   • A level surface or platform on which to perform the curving operation.

7. Keep panels clean and dry. Any dirt or debris must be removed from panels before curving.

8. If the curved panels are not immediately used, it is the installer’s responsibility to properly secure and store the panels to prevent damage.

9. On projects with both straight and curved panels, make sure the panels that are to be field curved are not used on a straight area of the roof. The panels to be field curved are different from panels used in straight applications. Panels that are to be field curved will have a label on the bundle identifying them as “For Curving Only”.

CAUTION
Application and design details are for illustration purposes only, and may not be appropriate for all environmental conditions or building designs. Projects should be engineered to conform to applicable building codes, regulations, and accepted industry practices.
**UNLOADING**

Upon receiving material, check shipment against shipping list for shortages and damages. The manufacturer will not be responsible for shortages or damages unless they are noted on the shipping list.

Each bundle should be lifted at its center of gravity. Where possible, bundles should remain banded until final placement on roof. If bundles must be opened, they should be retied before lifting.

When lifting bundles with a forklift, forks must be a minimum of five feet apart. Do not transport open bundles. Drive slowly when crossing rough terrain to prevent panel buckling.

On projects with both straight and curved panels, store curved panels separately. Panel bundles that are to be field curved will be marked with a blue label stating: “These Panels are for Field Curving Only”

**CAUTION**

Improper unloading and handling of bundles and crates may cause bodily injury or material damage. The manufacturer is not responsible for bodily injuries or material damages during unloading and storage.
NOTE
Protective gloves should always be used while handling panels. OSHA safety regulations must be followed at all times.

HANDLING/

PANEL STORAGE

Standing on one side of the panel, lift it by the seam. If the panel is over 10' long, lift it with two or more people on one side of the panel to prevent buckling.

Do not pick panels up by the ends.

Store bundled sheets off the ground sufficiently high to allow air circulation beneath bundle and to prevent rising water from entering bundle. Slightly elevate one end of bundle. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground.

PROLONGED STORAGE OF SHEETS IN A BUNDLE IS NOT RECOMMENDED. If conditions do not permit immediate erection, extra care should be taken to protect sheets from white rust or water marks.

Check to see that moisture has not formed inside the bundles during shipment. If moisture is present, panels should be uncrated and wiped dry, then restacked and loosely covered so that air can circulate between the panels.
Curved BattenLok®

**GENERAL INFORMATION**

**RECOMMENDED INSTALLATION TECHNIQUES**

Curved BattenLok® clips are supplied with factory applied mastic. If a clip must be removed from the panel, check factory mastic - if damaged, replace with a bead of urethane sealant.

Seal panel sidelaps by applying a piece of \( \frac{1}{2}'' \times \frac{3}{32}'' \) tape sealer along the top of the male leg for the length of the panel before the next panel is installed.

As panels are installed, hand seam at each clip with hand tool. Panels should be completely seamed with electric seamer as soon after installation as possible. Refer to pages CB-29 through CB-30 for seaming information.

Seal panel seams at eave and valleys with urethane sealant.

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**PANEL CLIP INSTALLATION**

**PANEL SIDELAP SEALANT**

**CROSS SECTION BEFORE SEAMING**

**CROSS SECTION AFTER SEAMING**

**PANEL END SEALANT DETAIL AT EAVE**
When installing clips, be sure to push them tight to the panel before installing fasteners. If you leave a gap between the clip and the panel, it will affect panel module.

Before installing clips to second and all following panels, "C" clamp the panel seam at both ends. Long panels may require one or more "C" clamps in the middle. This will help hold panel module.

Never install plumbing vent pipes through the panel seam. Always install in the pan of panel.
OUTSIDE CLOSURE

**STEP 1**
FILL SEAM WITH SEALANT

**STEP 2**
CRIMP SEAM WITH DUCK BILLS

**STEP 3**
FIELD CUT OUTSIDE CLOSURE BEFORE INSTALLATION (ONE END ONLY)

**STEP 4**
INSTALLATION OF TAPE SEALER AT FIRST OUTSIDE CLOSURE

**STEP 5**
INSTALLATION OF TAPE SEALER AT SUBSEQUENT OUTSIDE CLOSURE

**NOTES:**
1. Panels must be seamed before the outside closures are installed. Do not seam the first 9" of panel at the ridge with the electric seamer. This will allow the panel seams to be properly sealed as outlined in the following steps.
2. At the ridge, fill the inside cavity of the panel seam with Tri-Bead tape sealer. This should be done for the first two inches of seam only.
3. Using the hand crimper, crimp the remaining 9" of seam. If needed, "duck bills" may be used to further flatten the seam in Step 2. This will force the Tri-Bead tape sealer into all voids. Excess sealant will be forced out the below the seam.
4. Install Tri-Bead tape sealer across width of panel. Center of tape sealer should be 1½" from end of panel. Begin tape sealer at top of seam. Roll tape sealer under seam, sealing to the excess urethane sealant forced from seam in Step 3. Tape sealer will continue down seam, across width of panel, up to and across the top of the adjacent seam. Field cut the end of the outside closure that accepts the seam of the panel. Cut the top leg off even with the tab on the end of the closure. Notch and bend the vertical leg of the closure, above the tab, back to the dimple formed into the closure.
5. Install first outside closure. Attach to panel with Fastener #17 at all prepunched holes. Vertical leg of outside closure should be 2" from end of panel.
6. Install Tri-Bead tape sealer across top leg of first outside closure where it laps over seam and continue tape sealer across next panel as outlined in Step 4. Field cut and install next and all subsequent outside closures as outlined in Steps 4 and 5.
Field Hemming Panel End

Notes:
1. Field notch male and female legs of panel 1½".
2. Flatten beads with "duck bills".
3. Engage panel hemming tool onto protruding pan of panel.
4. Bend pan of panel down to form an open hem.
5. Hem may be tightened with a pair of vise grip "duck bills."
PANEL CONFIGURATION
OVER PLYWOOD

SINGLE PANEL CONFIGURATION
LOW SYSTEM ONLY

HIGH EAVE SINGLE OR MULTIPLE PANEL CONFIGURATION
LOW OR HIGH SYSTEM

MULTIPLE PANEL CONFIGURATION
HIGH SYSTEM ONLY
SEAMING OPERATION

As panels are installed, hand seam at each clip with hand crimper. Panels should be completely seamed with electric seamer as soon as possible.

Push locking arm down to lock hand crimper onto seam. If difficulty is encountered, check to make sure that hand crimper is properly aligned on seam. Do not force locking arm.

Push crimping arm down to crimp panel. Return both the crimping arm and locking arm to the up position and remove tool from seam.
SEAMING OPERATION

The electric seamer will run upslope and downslope and is controlled by a hand held forward and reverse remote switch. The seamer will form the seam in either direction. When the panels are installed from right to left, forward is up slope, and when the panels are installed left to right, forward is down slope. An orientation plate on the seamer indicates forward and reverse. When the roof has endlaps, the panels will always be installed right to left. The remote switch is designed to stop the seamer when the button is released.

On lower sloped roofs walking with the seamer is recommended. On steep sloped roofs (6:12 and greater) a 12-gauge extension cord (not by MBCI) may be installed between the remote switch and the seamer. Seaming can then be accomplished by starting the seamer at the eave from a safety lift. When using this method the seam will be formed upslope and then the seamer will be reversed down the seam to the eave, removed, and placed on the next seam. During panel installation hand crimp the end of the panels 12" down slope from the ridge or high side of the roof. Stop the seamer at this point to prevent the seamer from running into the flashings or running off the roof. Finish remainder of seam with the hand crimper. To begin seaming, set the seamer on the seam with the locking arm up and to the open side of the seam. The wheels should be even with the edge of the panel. Push the locking arm down to engage the tools and turn the seamer on.

CAUTION

- Seamer operation should be closely supervised at all times.
- A safety line should be attached to the seamer.
- Be aware of which direction the seamer will move before engaging the switch.
- Do not entangle the electrical cords in the seamer tooling while it is in operation. This could cause serious injury or death to the operator and severely damage the seamer.
- Electrical cords should be 10-gauge to provide power to the seamer and never be over 200 feet from the electrical source.
- The seamer will move approximately 6 to 8 inches after the hand switch is released.
- Bring seamer to a complete stop before changing direction.
Curved BattenLok®

DETAILS

EAVE TRIM
OVER WOOD DECK

LOW CLIP

Curved BattenLok® Panel

%\(\frac{5}{8}\)" PLYWOOD
(MINIMUM)

FASTENER #18
(2 PER CLIP)

FASTENER #13
24" O.C.

CLOSURE

EAVE TRIM
W/DRIP EDGE

WALL PANEL

NOTES:

1. A clip must be installed within 12" of the panel ends.
2. Install the eave trim with drip edge to the wood deck with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See “Panel End Sealant Detail At Eave” on page CB-24 to seal panel ends.
NOTES:
1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood deck with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See “Panel End Sealant Detail At Eave” on page CB-24 to seal panel ends.
NOTES:
1. Install a 3'-0" wide waterproof peel and stick membrane to the deck at the valley.
2. Length of valley trim segments are dependant upon roof radius. Lap valley trim segments 4" - 6". Apply two ¼" beads of urethane sealant between the valley trim pieces.
3. Mark panel line on valley trim. The curvature of this line is dependent upon roof radius. Install offset cleat segments in lengths dictated by curved line on valley trim. Tri-Bead Tape Sealer is to be installed under bottom leg of offset cleat. Attach offset cleat to deck with Fastener #13 at 6" o.c.
4. To field hem panels, see page CB-27.
5. See "panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.
NOTES:
1. This panel endlap is 6".
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the lower panel. The upslope edge of the Triple Bead Tape Sealer will be 2½" from the lower panel end.
3. Apply a 2½" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. The downslope edge of the Tri-Bead Tape Sealer will be 3½" from the end of the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.
NOTES:
1. Install field curved or kerfed rake support to wood deck with Fastener #13 at 24" o.c.
2. Apply Tri-bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see "Finishing Rake" details on Page CB-36.
RAKE
OVER WOOD DECK
FINISHING OFF MODULE

NOTES:

FINISHING DIMENSION 15¼" - 8"
1. Install field curved or kerfed rake support to wood deck with Fastener #13 at 24” o.c.
2. Field cut last panel and bend up a 1” leg. Apply Tri-Bead Tape Sealer to 1” leg.
3. Install male leg cut from a curved panel to the 1” leg of the last panel. Attach with Fastener #1E at 12” o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12” o.c.

FINISHING DIMENSION 7¾" - 5¼"
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install ¾” x 6” long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24” o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12” o.c. at the attachment to the male leg of the last panel and 6” o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.
NOTES:

LOW SYSTEM
1. To support the panel at the high eave, install a 3/8” x 6” wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM
1. To support the panel at the high eave, install a “High Eave Plate” with Fastener #18 at 12" o.c.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.
NOTES:

LOW SYSTEM
1. To support the panel at the parapet high eave, install a ¾” x 6” wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6” o.c.

HIGH SYSTEM
1. To support the panel at the parapet high eave, install a “High Eave Plate” with Fastener #18 at 12” o.c.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6” o.c.
NOTES:
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, Continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EDPM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the las panel with Fastener #4 at 12" o.c.
CURVED BATTENLOK®

DETAILS

PARAPET RAKE (continued)
OVER WOOD DECK

BEGINNING/FINISHING ON MODULE

NOTES:

FINISHING DIMENSION 5¼" - 7¼"

1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install ¾" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

FINISHING DIMENSION 8" - 17¾"

1. Install field curved rake support to wood deck with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #4 at 12" o.c.
NOTES:
1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood blocking with Fastener #13 at 12" o.c. (Low Systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See “Panel End Sealant Detail At Eave” on page CB-24 to seal panel ends.
NOTES:
1. A clip must be installed within 12" of the panel ends.
2. Install the gutter with drip edge to the wood blocking with Fastener #13 at 12" o.c. (Low systems) or to the High Eave Plate with Fastener #12 at 12" o.c. (High Systems).
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail at Eave" on page CB-24 to seal panel ends.
NOTES:

1. Install a 3'-0" wide waterproof peel and stick membrane to the Rigid Insulation at the valley.
2. Length of valley trim segments is dependant upon roof radius. Lap valley trim segments 4" - 6". Apply two ¼" beads of urethane sealant between the valley trim pieces.
3. Mark panel line on valley trim. The curvature of this line is dependent upon roof radius. Install offset cleat segments in lengths dictated by curved line on valley trim. Tri-Bead Tape Sealer is to be installed under bottom leg of offset cleat. Attach offset cleat to deck with Fastener #13 at 6" o.c.
4. To field hem panels, see page CB-27.
5. See “Panel End Sealant Detail At Eave” on page CB-24 to seal panel ends.
**NOTES:**

1. Panel endlap is 6" with prepunched holes in the top panel 3" from the end.
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the panel. The down slope edge of the Triple Bead Tape Sealer will be 5" from the panel end.
3. Apply a 6" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.
CURVED RAKE
OVER METAL DECK
BEGINNING/FINISHING ON MODULE

NOTES:
1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener #5 at 24" o.c.
2. Apply Tri-Bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see "Finishing Rake" details on Page CB-46.
RAKE OVER METAL DECK
FINISHING OFF MODULE

**NOTES:**

1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

**FINISHING DIMENSION 15 ¾" - 8"**

- Install clips to last panel as normal and apply Tri-Head Tape Sealer continuous to top of male leg.
- Install ¾" x 6" long plywood spacer strip along rake edge of deck.
- Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
- Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
- Apply Tri-Head Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

**FINISHING DIMENSION 7 ¾" - 5 ¼"**

1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener #13 at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.
NOTES:

LOW SYSTEM
1. To support the panel at the high eave, install a \( \frac{3}{8} \)" x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM
1. To support the panel at the high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.
NOTES:

LOW SYSTEM
1. To support the panel at the parapet high eave, install a \( \frac{3}{8} \) x 6" wide plywood spacer strip.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM
1. To support the panel at the parapet high eave, install a "High Eave Plate" with Fastener #18 at 12" o.c.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.
NOTES:
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EPDM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the last panel with Fastener #4 at 12" o.c. and to the parapet wall with Fastener #11 at 24" o.c.
Parapet Rake
Over Metal Deck
Finishing Off Module

NOTES

FINISHING DIMENSION 5 ¼" - 7 ¾"
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install ¾" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

FINISHING DIMENSION 8" - 17 ¾"
1. Install field curved or kerfed rake support over Rigid Insulation and Bearing Plate with Fastener # 15C at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #14 at 12" o.c.
NOTES:
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install eave trim to eave plate with Fastener #12 at 12" on center.
3. To field hem panels, see page CB-27.
4. See "Panel End Sealant Detail At Eave" on page CB-24 to seal panel ends.
NOTES:
1. Install eave plate to eave strut with Fastener #17 at 12” on center.
2. Install eave trim to eave plate with Fastener #12 at 12” on center.
3. To field hem panels, see page CB-27.
4. See “Panel End Sealant Detail At Eave” on page CB-24 to seal panel ends.
Curved BattenLok®

DETAILS

ENDLAP
OVER OPEN FRAMING

NOTES:

1. Panel endlap is 6" with prepunched holes in the top panel 3" from the end.
2. Install a Back-Up Plate onto the end of the lower panel. Apply Triple Bead Tape Sealer across the entire width of the panel. The down slope edge of the Triple Bead Tape Sealer will be 5" from the panel end.
3. Apply a 6" piece of Tri-Bead Tape Sealer to the top of the male leg on the upper panel. Install upper panel onto lower panel and fasten endlap together with Fastener #1E in the proper sequence.
NOTES:
1. Install field curved rake support to field curved rake angle with Fastener #5 at 24" on center.
2. Apply Tri-Bead Tape Sealer to vertical leg of panel and install Curved Parapet Rake Cleat to panel with Fastener #1E at 24" o.c.
3. Install a 2" long piece of Curved Rake Clip 12" o.c. to wall with (2) Fastener #12. Hand Tong Cleat Closer after installation.
4. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Cleat and install Curved Rake Trim with Fastener #14A at 6" o.c.
5. If last panel finishes more than 5" away from outside of wall, see “Finishing Rake” details on Page CB-55.
RAKE
OVER OPEN FRAMING
FINISHING OFF MODULE

FINISHING DIMENSION 15 3/4" - 8"
1. Install Field Curved Rake Support to wood Field Curved Rake Angle with Fastener #5 at 24" on center.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 7 3/4" - 5 3/4"
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install a Low, Fixed Clip at each purlin at the location in which the Curved Rake Trim and Curved BattenLok® Variable Trim will intersect.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

NOTES:

1. Install Field Curved Rake Support to wood Field Curved Rake Angle with Fastener #5 at 24" on center.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 15 3/4" - 8"
1. Install Field Curved Rake Support to wood Field Curved Rake Angle with Fastener #5 at 24" on center.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Rake Trim with Fastener #14A at 12" o.c.

FINISHING DIMENSION 7 3/4" - 5 3/4"
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install a Low, Fixed Clip at each purlin at the location in which the Curved Rake Trim and Curved BattenLok® Variable Trim will intersect.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #18 at 24" o.c.
4. Attach Curved Rake Trim to top of cut female leg with Fastener #14 (2 per trim piece).
5. Apply Tri-Bead Tape Sealer to top of Curved Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.
NOTES:

LOW SYSTEM
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-23 with Fastener #14A.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.

HIGH SYSTEM
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-23 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install High Eave Trim with Fastener #14A at 6" o.c.
**NOTES:**

**LOW SYSTEM**
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-26 with Fastener #18.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.

**HIGH SYSTEM**
1. Install eave plate to eave strut with Fastener #17 at 12" on center.
2. Install outside closures as shown on page CB-26 with Fastener #17.
3. Apply Tri-Bead Tape Sealer to top leg of outside closures and install Parapet High Eave Trim with Fastener #14A at 6" o.c.
NOTES:
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer, continuous, to top of male leg.
2. Install EPDM membrane over male leg and up the side of the parapet wall. Tri-Bead Tape Sealer must be applied to both sides of the EPDM membrane at both the male leg and the parapet wall.
3. Install Curved Parapet Rake Trim to the male leg of the last panel with Fastener #4 at 12" o.c. and to the parapet wall with Fastener #11 at 24" o.c.
### PARAPET RAKE
**OVER OPEN FRAMING**
**FINISHING OFF MODULE**

**NOTES:**

**FINISHING DIMENSION 5 ⅜" - 7 ¾"**
1. Install clips to last panel as normal and apply Tri-Bead Tape Sealer continuous to top of male leg.
2. Install ⅜" x 6" long plywood spacer strip along rake edge of deck.
3. Cut female leg from curved panel and install on top of plywood spacer strip with Fastener #15C at 24" o.c.
4. Attach Curved Parapet Rake Trim to top of cut female leg with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
5. Apply Tri-Bead Tape Sealer to top of Curved Parapet Rake Trim, directly in line with the female panel leg. Install Curved BattenLok® Variable Termination Trim with Fastener #4 at 12" o.c. at the attachment to the male leg of the last panel and 6" o.c. at the attachment to the Curved BattenLok® Variable Termination Trim.

**FINISHING DIMENSION 8" - 17 ¾"**
1. Install field curved rake support over Rigid Insulation and Bearing Plate with Fastener #15C at 24" o.c.
2. Field cut last panel and bend up a 1" leg. Apply Tri-Bead Tape Sealer to 1" leg.
3. Install male leg cut from a curved panel to the 1" leg of the last panel. Attach with Fastener #1E at 12" o.c. Fastener must go through tape sealer.
4. Apply Tri-Bead Tape Sealer to top of male leg and install Curved Parapet Rake Trim with Fastener #4 at 12" o.c.