PBR & PBU Panels
Technical/Installation Information
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For the most current information on our products and erection procedures, please check the MBCI web site at www.mbci.com

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 insure you have the latest information available, please inquire or visit our Web Site 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 engineered to conform to applicable building codes, regulations, and accepted industry practices. Insulation is not shown in these details for clarity. If there is a conflict between this manual and the erection drawings, the erection drawings will take precedence.
**GENERAL DESCRIPTION**

PBR PANEL

Coverage Width - 36"
Minimum Slope - ¼:12
Panel Attachment - See page 8
Panel Substrate - Galvalume®
Gauge - 26 standard - 29, 24 and 22 also available
Coatings - Galvalume Plus®, Signature® 200* and Signature® 300*

**ARCHITECT/ENGINEER INFORMATION**

1. PBR panel is a structural roof and wall panel. This panel can be installed directly over purlins or joists. Several different UL 90 construction numbers are available for this panel.
2. PBR panel is recommended for ½:12 or greater roof slopes.
3. Field applied tape sealant is required at panel sidelaps and endlaps.
4. PBR panel is a through-fastened panel. For proper fastener application, see page 3 and page 8.
5. 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.
6. Galvalume material must not come in contact with concrete or pressure treated lumber.

**PRODUCT SELECTION CHART**

<table>
<thead>
<tr>
<th>GAUGE</th>
<th>GALVALUME PLUS®</th>
<th>SIGNATURE® 200*</th>
<th>SIGNATURE® 300*</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 gauge</td>
<td>●</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>24 gauge</td>
<td>●</td>
<td>■</td>
<td>■</td>
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<tr>
<td>26 gauge</td>
<td>●</td>
<td>●</td>
<td>■</td>
</tr>
<tr>
<td>29 gauge</td>
<td>●</td>
<td>●</td>
<td>■</td>
</tr>
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</table>

● - Available in any quantity.
■ - Minimum quantity may be required.
*See Commercial/Industrial color chart for available colors.

**FACTORY MUTUAL APPROVALS**

<table>
<thead>
<tr>
<th>RATING</th>
<th>PROFILE</th>
<th>WIDTH (IN)</th>
<th>GAUGE</th>
<th>PURLIN SPACING</th>
<th>PURLIN GA.</th>
<th>FASTENER TYPE</th>
<th>NUMBER OF FASTENERS</th>
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<td>24</td>
<td>5'-3 1/4&quot;</td>
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<td>1/4-14 X 1/4 ZAC1</td>
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<td>1/4-14 X 1/8 ZAC11</td>
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<td>1/4-14 X 1/8 ZAC11</td>
<td>20&quot; o.c.</td>
</tr>
</tbody>
</table>

Notes:
1 All roofs are Class 4471.
3 Fastener #1E.
11 Fastener #4.

State of Florida Approval Numbers: FL1904.2 (roof), FL4191.3 (wall), FL5222 (light transmitting panels).
Miami Dade County NOA: 02.1016.04 (roof), 01.0417.12 (wall), see special installation instructions, www.miamidade.gov.

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PBR PANEL PRODUCT INFORMATION

SECTION PROPERTIES

<table>
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<tr>
<th>PANEL END</th>
<th>INTERIOR OF PANEL</th>
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<tbody>
<tr>
<td>PANEL ENDS</td>
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NOTES:

1. The PBR panel has an unsymmetrical purlin bearing side lap leg. Panel side lap with extended foot to bear on frame. However, where possible, the panel should be lapped against prevailing wind.

2. The above are typical fastener spacings. However, they may not be appropriate for all applications. Consult a professional engineer for use on any specific application.

3. Minimum ½" x ¾" tape sealer required at panel side laps when used as roof panels.

4. Side lap fasteners are required. Typical spacing is 20° O.C. However, this spacing may not be appropriate for all applications. Consult a professional engineer for use on any specific application.

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.
### PBR PANEL

**ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT.**

#### 29 Gauge (F_y = 60 KSI)

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<tr>
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<th>LOAD TYPE</th>
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<td>NEGATIVE WIND LOAD</td>
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#### 26 Gauge (F_y = 60 KSI)

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<tr>
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<td>LIVE LOAD/DEFLECTION</td>
<td>189.5</td>
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**NOTES:**

1) Allowable loads are based on uniform span lengths and F_y = 50 and 60ksi.
2) LIVE LOAD is limited by bending, shear, combined shear & bending and web crippling.
3) NEGATIVE WIND LOAD does not contain a 33.33% increase and does not consider fastener pullout or pullover.
4) Above loads consider a maximum deflection ratio of L/180.
5) The weight of the panel has not been deducted from the allowable loads.
6) The use of any accessories other than those 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 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.
UL 90 REQUIREMENTS

PBR PANEL

Construction #30
26 MSG Min. Gauge PBR Panel Over Purlins at 5'- 0 ¼" O.C.

1. For Class 90 - Panel to purlin connections to be #14 Hex Head with a ¾" O.D. washer in a 4-8-4-8 in. pattern. Panel to panel connection to be 20" O.C. with fastener located over each purlin.

2. Purlins - No. 14 MSG min. gauge steel, (55,000 psi min. yield strength.)

Construction #79
26 MSG Min. Gauge PBR Panel Over Purlins at 5'- 0 ¼" O.C.

1. Panel Fasteners - Panel to purlin connections to be #14 Hex Head with a ¾" O.D. washer, 6" O.C. in 5-7-5-7 in. pattern. Endlap spacing to be 6 in. O.C. Spacing for panel to panel connection to be 20" O.C.

2. Purlins - No. 16 MSG min. gauge steel. (55,000 psi min. yield strength); or min. H series open web steel joists.

Construction #161
26 MSG Min. Gauge PBR Panel Over Purlins at 5'- 0 ¼" O.C.

1. Panel Fasteners - Panel to purlin connections to be 12-14 x 1" self-drilling Hex Head with a ¾" O.D. washer, 12" O.C. Spacing at endlap to be in a 5-7-5-7 in. patterns. Spacing for panel to panel connection to be 20" O.C. with a fastener located over each purlin.

2. Purlins - No. 16 MSG min. gauge steel. (55,000 psi min. yield strength).

Construction #542
26 MSG Min. Gauge PBR Panel Over Purlins at 5'- 0 ¾" O.C.

1. Panel Fasteners - Panel to purlin connections to be 12-14x1" self-drilling Hex Head with a ¾" O.D. washer,12" O.C. Spacing at endlap to be in a 5-7-5-7 in. pattern. Spacing for panel to panel connection to be 20" O.C. with a fastener located over each purlin.

2. Building Units - Translucent Panels.

3. Translucent Panel Rib and Purlin Reinforcement - See UL 90 light transmitting panel installation instructions.

4. Purlins - No. 16 MSG min. gauge steel. (55,000 psi min. yield strength).

IMPACT RESISTANCE

PBR panels carry a Class 4 rating under UL-2218 "Test Standard For Impact Resistance"

FIRE RESISTANCE RATING

1. Deck: NC
   Class A
   Incline: Unlimited
   The panel qualifies for a Class A Fire Rating in compliance with Underwriters Laboratories Standard UL-263 when installed over a non-combustible substrate. A Class C Fire Rating will be qualified for over combustible substrate.

Look for classification marking on product.

CAUTION

The above listings are summaries of Construction Numbers. For UL 90 rated roof requirements and complete design information, see the Underwriters Laboratories Building Materials Directory. If you have any questions, call MBCI before proceeding.
PRODUCT CHECKLIST

Inside Corner Trim

[Diagram of Inside Corner Trim]

Base Trim (With Sheeting Notch)

[Diagram of Base Trim (With Sheeting Notch)]

Base Trim (Without Sheeting Notch)

Corner Trim - Outside

[Diagram of Corner Trim - Outside]

Downspouts

[Diagram of Downspouts]

Jamb Trim

[Diagram of Jamb Trim]

Fasteners

- #17A
- #4A
- #3
- #4

- 12-14 X 1 ¼" Driller
- 3⁄8”-14 X ¾” Lap Tek
- 12-14 X 1 ¼” Long Life Driller
- 3⁄8”-14 X ¾” Long Life Lap Tek

LTP

- Non-Reinforced Fiberglass
- High Strength Fiberglass
- High Strength AcryLit/U.V. Resistant

Non-Reinforced Fiberglass

High Strength Fiberglass

High Strength AcryLit/U.V. Resistant

Sealant

- ¼” x ¾” TUBE SEALANT 11 OZ.

- Urethane White
- Other Colors Available

Closures

- 1⁄4” x 3⁄8” TRIPLE BEAD
- 3⁄8”-14 X ¾” Long Life Lap Tek with 1 ¼” O.D. washer

- 1⁄4”-14 X ¾” Tri-Bead
- 3⁄8”-14 X ¾” Triple Bead

- 3⁄8”-14 X ¾” TRIP-BEAD
- 3⁄8”-14 X ¾” TRIPLE BEAD

- 3⁄8”-14 X ¾” Long Life Lap Tek with 1 ¼” O.D. washer

- ¼” Stainless Steel Pop Rivet

NOTE: 25’ Per tube at 1⁄4” bead

SUBJECT TO CHANGE WITHOUT NOTICE

SEE www.mbci.com FOR CURRENT INFORMATION

EFFECTIVE JANUARY 25, 2010
NOTES:

Sidelap

1. \( \frac{1}{2} " \times \frac{3}{16} " \) tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 (\( \frac{1}{4} "-14 \times \frac{7}{8} " \) Long Life Lap Tek) at 20" O.C. at roof panel side laps and 24" O.C. at wall panel side laps.
3. When possible, install panels such that sidelaps are nested away from prevailing winds.
4. Fastener #4A (\( \frac{1}{4} "-14 \times \frac{7}{8} " \) Lap Tek) are available as an alternate when long life fasteners are not desired.

Endlap

1. Stack 2 continuous layers of \( \frac{1}{2} " \times \frac{3}{16} " \) tape sealer on top of each other and must be installed between weather infiltration point and fastener.
2. Install Fastener #3 (12-14 X \( \frac{1}{4} " \) Long Life driller) on each side of major ribs of panel (two fasteners per foot).
3. Fastener #17A (12-14 X \( \frac{1}{4} " \) driller) are available as an alternate when long life fasteners are not desired.
CONSTRUCTION NO. 542
UL 90 LIGHT TRANSMITTING PANEL INSTALLATION

Install roof panels, leaving the light transmitting panel run open, except for lower light transmitting panel run panel. Install tape sealer to panel sidelaps and across panel width as normal.

Attach light transmitting panels at the low and mid-slope connection to the purlin with nine Fastener #43L (1/4 - 14 x 1 1/4" Long Life Driller with 1/8" O.D. washer) per connection.
Be sure the light transmitting panel sidelaps have complete run of \( \frac{1}{2} \times \frac{3}{32} \)" tape sealer between the light transmitting panel and the PBR panel. See Page 8 for lap detail.

Fasten light transmitting panel with Fastener #44L (\( \frac{1}{4} \)" - 14 x \( \frac{7}{8} \)" Long Life Lap Tek with \( \frac{1}{8} \)" O.D. washer) at 10" O.C. down each side lap.

Install upper metal panel in light transmitting panel run and fasten as at a normal endlap with nine Fastener #3 (12 - 14 X \( \frac{3}{4} \)" Long Life driller).
ARCHITECT/ENGINEER INFORMATION

1. PBU panel is a structural roof and wall panel. This panel can be installed directly over purlins or joists. PBU panel is UL 90 rated per construction number 39.

2. PBU panel is recommended for 1:12 or greater roof slopes.

3. Field applied sealant is required at panel sidelaps and endlaps.

4. PBU panel is a through-fastened panel. For proper fastener application, see page 12 and page 17.

5. 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.

PRODUCT SELECTION CHART

<table>
<thead>
<tr>
<th>GAUGE</th>
<th>GALVALUME PLUS®</th>
<th>SIGNATURE® 200*</th>
<th>SIGNATURE® 300*</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 gauge</td>
<td>●</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>24 gauge</td>
<td>●</td>
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<td>■</td>
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<tr>
<td>26 gauge</td>
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<td>●</td>
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</tr>
<tr>
<td>29 gauge</td>
<td>●</td>
<td>●</td>
<td>■</td>
</tr>
</tbody>
</table>

● - Available in any quantity.
■ - Minimum quantity may be required.
*See Commercial/Industrial color chart for available colors.

Signature is a registered trademark of Metal Building Components, L.P. Galvalume and Galvalume Plus are registered and protected trademarks of BIEC International, Inc.
**PRODUCT INFORMATION**

**PBU PANEL**

---

**SECTION PROPERTIES**

<table>
<thead>
<tr>
<th>PANEL GAUGE</th>
<th>Fy (KSI)</th>
<th>WEIGHT (PSF)</th>
<th>Ixe (IN./FT.)</th>
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<th>Maxo (KIP-IN.)</th>
<th>Ixe (IN./FT.)</th>
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* Fy is 80-ksi reduced to 60-ksi in accordance with the 2007 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members - A2.3.2.

**NOTES:**

1. All calculations for the properties of PBU panels are calculated in accordance with the 2007 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.

---

**PBU PANEL FASTENER LOCATIONS**

**NOTES:**

1. The PBU panel has an unsymmetrical purlin bearing side lap leg. Panel side lap with extended foot to bear on frame. However, where possible, the panel should be lapped against prevailing wind.
2. The above are typical fastener spacings. However, they may not be appropriate for all applications. Consult a professional engineer for use on any specific application.
3. Minimum ½" x ½" tape sealer required at panel side laps when used as roof panels.
4. Side lap fasteners are required. Typical spacing is 20° O.C. However, this spacing may not be appropriate for all applications. Consult a professional engineer for use on any specific application.
### PBU PANEL

#### ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT.

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<th>SPAN TYPE</th>
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<tbody>
<tr>
<td>29 G</td>
<td>SINGLE</td>
<td>NEGATIVE WIND LOAD</td>
<td>63.5</td>
<td>35.7</td>
<td>22.9</td>
<td>15.9</td>
<td>11.7</td>
<td>8.9</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>2-SPAN</td>
<td>NEGATIVE WIND LOAD</td>
<td>72.3</td>
<td>40.7</td>
<td>26.0</td>
<td>18.1</td>
<td>13.3</td>
<td>10.2</td>
<td>8.0</td>
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<tr>
<td></td>
<td>3-SPAN</td>
<td>NEGATIVE WIND LOAD</td>
<td>90.3</td>
<td>50.8</td>
<td>32.5</td>
<td>22.6</td>
<td>16.6</td>
<td>12.7</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>4-SPAN</td>
<td>NEGATIVE WIND LOAD</td>
<td>84.3</td>
<td>47.4</td>
<td>30.4</td>
<td>21.1</td>
<td>15.5</td>
<td>11.9</td>
<td>9.4</td>
</tr>
</tbody>
</table>

#### NOTES:
1. Allowable loads are based on uniform span lengths and Fy = 50 and 60-ksi.
2. LIVE LOAD is limited by bending, shear, combined shear & bending and web crippling.
3. NEGATIVE WIND LOAD does not contain a 33.333% increase and does not consider fastener pullout or pullover.
4. Above loads consider a maximum deflection ratio of L/180.
5. The weight of the panel has not been deducted from the allowable loads.
6. The use of any accessories other than those 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 most current data.
UL 90 REQUIREMENTS
PBU PANEL

Construction #39
26 MSG Min. Gauge PBU Panel over Purlins at 5'- 0 ¾” O.C.

1. Panel Fasteners - Panel to purlin connections to be #14 self-drilling, Hex Head with a ¾” O.D. washer, 6” O.C. Spacing at endlaps to be 6” O.C. Spacing for panel to panel connections to be 12” O.C.

2. Purlins - No. 16 MSG min gauge steel. (55,000 psi min. yield strength)

IMPACT RESISTANCE
PBU panels carry a Class 4 rating under UL-2218 "Test Standard For Impact Resistance"

FIRE RESISTANCE RATING

1. Deck: NC
   Class A
   Incline: Unlimited
   The panel qualifies for a Class A Fire Rating in compliance with Underwriters Laboratories Standard UL-263 when installed over a non-combustible substrate. A Class C Fire Rating will be qualified for over a combustible substrate.

Look for classification marking on product.

CAUTION
The above listings are summaries of Construction Numbers. For UL 90 rated roof requirements and complete design information, see the Underwriters Laboratories Building Materials Directory. If you have any questions, call MBCI before proceeding.
PRODUCT CHECKLIST

PBU Panel

\[ \begin{align*}
\text{6"} & \quad \text{36"} \\
\text{3/4"} & \quad \text{6"}
\end{align*} \]

Ridge Cap

\[ \begin{align*}
\text{FL - 50} & \quad 2'-6" \\
\text{FL - 52} & \quad 3'-0"
\end{align*} \]

Sculptured High Side Eave

\[ \begin{align*}
\text{COLOR} & \quad 8" \\
\text{4"} & \quad 4" \\
\text{2"} & \quad 1\frac{3}{4}" \\
\text{1\frac{3}{4"}} & \quad 1" \\
\text{Specify Roof Pitch} \\
\text{High Eave part at corner to be mitered.} \\
\text{Specify Left or Right}
\end{align*} \]

Flat Ridge/Hip Flashing

\[ \text{FL-38} \]

Valley Flashing

\[ \begin{align*}
\text{FL-556} & \quad \text{Specify Angle}
\end{align*} \]

\[ \begin{align*}
\text{FL-558} & \quad \text{Specify Left or Right}
\end{align*} \]

Parapet High Eave

\[ \text{FL-874} \]

Parapet Rake

\[ \begin{align*}
\text{FL-954} & \quad \text{Specify Left or Right}
\end{align*} \]

Sculptured Rake

\[ \begin{align*}
\text{FL-15} & \quad \text{Specify Left or Right}
\end{align*} \]

Eave Trim

\[ \text{FL-19} \]

Sculptured Hang-On Gutter

\[ \text{FL-512B} \]

Sculptured Eave Gutter

\[ \begin{align*}
\text{FL-512} & \quad \text{Specify Left or Right}
\end{align*} \]

Flat Ridge/Hip Flashing

\[ \text{FL - 50} \quad 2'-6" \\
\text{FL - 52} \quad 3'-0" \]

Gutter End

\[ \text{FL-893} \]

Specify Roof Slope

\[ \text{FL-874} \]

Specify Roof Slope

\[ \text{FL-954} \]

Specify Roof Slope

\[ \text{FL-19} \]

Gutter Strap

\[ \text{FL-893} \]

Specify Left or Right

\[ \text{FL-18A} \]
NOTES:

**Sidelap**
1. ¹⁄₂” x ¾” tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 (¼”-14 X ⁷⁄₈” Long Life Lap Tek) at 20” on center.
3. When possible, install panels such that sidelaps are nested away from prevailing winds.
4. Fastener #4A (¼”-14 X ⁷⁄₈” Lap Tek) are available as an alternate when long life fasteners are not desired.

**Endlap**
1. Stack 2 continuous layers of ¹⁄₂” x ¾” tape sealer on top of each other and must be installed between weather infiltration point and fastener.
2. Install Fastener #3 (12-14 X 1¼” Long Life driller) on each side of major ribs of panel (two fasteners per foot).
3. Fastener #17A (12-14 X 1¼” self-driller) are available as an alternate when long life fasteners are not desired.
LIGHT TRANSMITTING PANEL INSTALLATION

Install roof panels, leaving the light transmitting panel run open, except for lower light transmitting panel run panel. Install tape sealer to panel sidelaps and across panel width as normal.

Attach light transmitting panels at the low and mid-slope connection to the purlin with six Fastener #43L (1/4" - 14 x 1 1/4" Long Life Driller with 1/8" O.D. washer) per connection.
Be sure the light transmitting panel sidelaps have complete run of (\(\frac{1}{2}\)" x \(\frac{3}{32}\)"") tape sealer between the light transmitting panel and the PBU panel. See Page 17 for lap detail.

Fasten light transmitting panel with Fastener #44L (\(\frac{1}{4}\)" - 14 x \(\frac{7}{8}\)"") Long Life Lap Tek with \(\frac{1}{8}\)" O.D. washer) at 10" O.C. down each side lap.

Install upper metal panel in light transmitting panel run and fasten as at a normal endlap with six Fastener #3 (12 - 14 X 1\(\frac{1}{4}\)" Long Life driller).
NOTES:

1. When ordering ridge caps, specify roof slope. Refer to MBCI price pages for maximum slope for each ridge cap.
2. Install $\frac{1}{2}" \times \frac{3}{32}"$ tape sealer across full with of ridge cap on both sides. Tape sealer must be installed between weather infiltration point and fasteners.
3. Install $\frac{1}{2}" \times \frac{3}{32}"$ tape sealer to the sidelap of the ridge cap that will lap onto adjacent ridge cap. Tape sealer must be installed between weather infiltration point and fasteners.
4. Install Fastener #3 (12-14 X 1¼" Long Life driller) on both sides of major ribs (two per foot).
5. Install four Fastener #4 (¼"-14 X ⁷⁄₈" Long Life Lap Tek) in each ridge cap sidelap. Place (1) one Lap Tek in high rib on each side of the ridge cap centerline and one in line with purlin fastener on each side of ridge line.
NOTES:

1. Install outside closure, with ½" X ⅜" tape sealer top and bottom, across width of PBR or PBU panels.

2. Install Sculptured High Side Eave to PBR or PBU panels at each major rib with Fastener #4 (¼"-14 X ⅞" Long Life Lap Tek). Sculptured high side eave trim should overhang outside closures ½" - 1".

3. Attach front face of sculptured high side eave trim to wall with fasteners or cleat as required for wall substrate.

4. Trim laps should be approximately 3" with sufficient amount of Fastener #4 (¼"-14 X ⅞" Long Life Lap Tek) to hold lap together. Apply bead of urethane sealant between trim at 3" lap.
TYPICAL DETAILS

Hip

NOTES:

1. Bevel cut and install PBR or PBU panels to follow bevel of hip.
2. Install beveled outside closures to panels, with \( \frac{1}{2}" \times \frac{3}{32}" \) tape sealer top and bottom, following bevel of hip. Beveled closures must be special ordered and require a two week lead time.
3. Install hip flashing to panel at each major rib with Fastener #4 (\( \frac{1}{4}"-14 \times \frac{7}{8}" \) Long Life Lap Tek). Hip flashing should overlap outside closures \( \frac{1}{2}"-1" \).
4. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #4 (\( \frac{1}{4}"-14 \times \frac{7}{8}" \) Long Life Lap Tek) to hold lap together.
TYPICAL DETAILS

Valley

NOTES:

1. For valleys 30' or less in length, use standard valley trim. Valleys over 30' in length require extended valley trim.

2. Apply Triple Bead tape sealer to valley trim parallel to the slope of the valley. Lower edge of tape sealer should be 4½" from center of valley for standard valleys and 9" from the center of the valley for extended valleys.

3. Install high rib section of inside closure that has been field cut from standard 3'-0" straight closure. Place the cut closure square with the rib of the panel. Install Tri-Bead tape sealer to top of inside closure prior to laying panel edge down on top of the cut closure. The Triple Bead tape with proper fastener sequence will seal the minor ribs of the panel that are between the major ribs.

4. Bevel cut PBR or PBU panels to fit slope of valley and install to valley with Fastener #3 (12-14 X 1 ¼" Long Life driller) at 4" on center. Fasteners must be installed through the closures and into Triple Bead tape sealer.

5. Trim laps should overlap approximately 6" with a bead of urethane sealant in between. Do not rivet valley laps together. If laps gap open, install Fastener #4 (¼"-14 X ⅝" Long Life Lap Tek) into each side of water diverter while holding lap tightly together.
**NOTES:**

**Eave Gutter**

1. Attach gutter to eave strut with two Fastener #14 pop rivets per section.
2. Install inside closures to top leg of gutter with $\frac{1}{16}$" x $\frac{3}{32}$" tape sealer top and bottom.
3. Install PBR or PBU panel with Fastener #3 (12-14 X 1$\frac{1}{4}$" Long Life driller) on each side of major ribs (two fasteners per foot). Fasteners must be installed up slope from inside closures.
4. Gutter laps should be approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of pop rivets to hold lap together.
5. Install gutter straps 3'-0" on center with Fastener #4 ($\frac{1}{4}$"-14 X $\frac{7}{8}$" Long Life Lap Tek) fasteners at each end.

**Hang-on Gutter**

1. Attach Box Panel Cap Trim to top of eave strut with pop rivet #14 (two per 10'-0" section).
2. Install inside closure on top of Box Panel Cap Trim with $\frac{1}{16}$" x $\frac{3}{32}$" tape sealer top and bottom of closure.
3. Install PBR or PBU panels with Fastener #3 (12-14 X 1$\frac{1}{4}$" Long Life driller) on each side of the major ribs (two fasteners per foot). Fasteners must be installed up slope from inside closures.
4. Attach gutter to roof panels with Fastener #4 ($\frac{1}{4}$"-14 X $\frac{7}{8}$" Long Life Lap Tek) at each end.
5. Gutter laps should be approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #14 (pop rivets) to hold lap together.
6. Install gutter straps 3'-0" on center with Fastener #4 ($\frac{1}{4}$"-14 X $\frac{7}{8}$" Long Life Lap Tek) at each end.
NOTES:
1. Install eave trim to structure with two pop rivets per section.
2. Install inside closures along top leg of eave trim with \( \frac{1}{16} \times \frac{3}{32} \)" tape sealer top and bottom.
3. Install PBR or PBU panel with Fastener #3 (12-14 X 1\(\frac{1}{4}\)" Long Life driller) on each side of major ribs (2 fasteners per foot) allowing panel to overhang 1\(\frac{1}{2}\)" plus wall thickness. Fasteners must be installed up slope from inside closures.
4. Attach front face of eave trim to wall with fasteners or cleat as required for wall substrate.
5. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #4 (\(\frac{1}{4}\)-14 X 7\(\frac{1}{8}\)" Long Life Lap Tek) to hold lap together.
NOTES:

Beginning on Module
1. Install \( \frac{1}{2} \) x \( \frac{3}{32} \)" tape sealer to top of PBR or PBU panel rib.
2. Install rake trim to PBR or PBU panel rib with Fastener #4 (\( \frac{1}{4} \)"-14 X \( \frac{7}{8} \)" Long Life Lap Teks) at 1'-0" on center.
3. Attach front face of rake trim to wall with fasteners or cleat as required for wall substrate.
4. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #14 pop rivets to hold lap together.

Finishing off Module
1. Cut and field bend a 1" leg on PBR or PBU Panel.
2. Install \( \frac{1}{2} \) x \( \frac{3}{32} \)" tape sealer to top of PBR or PBU panel.
3. Install rake trim to PBR or PBU panel with Fastener #4 (\( \frac{1}{4} \)"-14 X \( \frac{7}{8} \)" Long Life Lap Teks) at 6" on center.
4. Attach front face of rake trim to wall with fasteners or cleat as required for wall substrate.
5. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of pop rivets to hold lap together.
TYPICAL DETAILS
Parapet High Side Eave

NOTES:
1. Install outside closure, with $\frac{1}{2}" \times \frac{3}{32}"$ tape sealer top and bottom, across width of PBR or PBU panels.
2. Install parapet high side trim to PBR or PBU panels at each major rib with Fastener #4 ($\frac{1}{4}$"-14 X $\frac{7}{8}$" Long Life Lap Tecks). Trim should overhang outside closures $\frac{1}{2}$" - 1".
3. Attach top leg of parapet high side trim to wall with fasteners as required for wall substrate.
4. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #4 ($\frac{1}{4}$"-14 X $\frac{7}{8}$" Long Life Lap Tek) to hold lap together.
NOTES:

**Beginning on Module**

1. Install \(\frac{1}{2}\) " x \(\frac{3}{32}\)" tape sealer to top of PBR or PBU panel rib.
2. Install parapet rake trim to PBR or PBU panel rib with Fastener #4 (\(\frac{1}{4}\"-14 X \frac{7}{8}\" Long Life Lap Teks) at 1'-0" on center.
3. Attach top leg of parapet rake trim to 2" X 4" angle with Fastener #14 pop rivet. Elevate horizontal leg of parapet trim slightly, to provide for positive drainage of water.
4. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #4 (\(\frac{1}{4}\"-14 X \frac{7}{8}\" Long Life Lap Tek) to hold lap together.

**Finishing off Module**

1. Cut and bend a 1" leg on PBR or PBU Panel.
2. Install \(\frac{1}{2}\) " x \(\frac{3}{32}\)" tape sealer to top of PBR or PBU panel.
3. Install parapet rake trim to PBR or PBU panel with Fastener #4 (\(\frac{1}{4}\"-14 X \frac{7}{8}\" Long Life Lap Teks) at 6" on center.
4. Attach top leg of parapet rake trim to 2" X 4" angle with pop rivets. Elevate horizontal leg of parapet trim slightly, to provide for positive drainage of water.
5. Trim laps should overlap approximately 3" with a bead of urethane sealant in between. Install a sufficient amount of Fastener #4 (\(\frac{1}{4}\"-14 X \frac{7}{8}\" Long Life Lap Tek) to hold lap together.
NOTES:

1. Install corner trim with Fastener #4 (¼ - 14 X ⅝" Long Life Lap Tek) fastener 2'-0" O.C.
NOTES:

1. Gutter and rake trim must be ordered with a left and right mitered end. To determine left or right, stand on ground and look toward eave. Roof slope must also be specified.
TYPICAL DETAILS

Base

NOTES:
1. Wall with vinyl insulation, pull back fiberglass approximately 4" pull over end and staple. Apply double face tape to base angle and stick insulation to it before applying panel and fastening with Fastener #3 (¼ - 14 x 1¼" Long Life Driller), six each per panel.
2. Should base trim be desired, temporarily attach trim to base angle with two Fastener #14 pop rivets until panels are installed.
PRODUCT INFORMATION

TYPICAL DETAILS
Head / Jamb

NOTES:
1. Install Jamb and Head Trim with pop rivets as required to support flashing during panel installation.
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. Panels 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 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 installation.
   C. For proper appearance, ribs should line up at hips, valleys and ridges.
   D. Panels should be cut on ground to minimize cut filings on roof. Keep panels clean during installation. Do not allow panels to come into contact with water runoff from lead, copper or graphite.