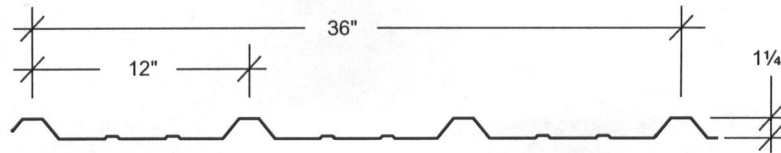


## GENERAL DESCRIPTION



## PBR PANEL

Coverage Width - 36"

Minimum Slope - 1/2:12

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 1/2:12 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

GAUGE	GALVALUME PLUS®	SIGNATURE® 200*	SIGNATURE® 300*
22 gauge	●	■	■
24 gauge	●	■	■
26 gauge	●	●	●
29 gauge	●	●	■

● - Available in any quantity.

■ - Minimum quantity may be required.

\*See Commercial/Industrial color chart for available colors.

## FACTORY MUTUAL APPROVALS

RATING	PROFILE	WIDTH (IN)	GAUGE	PURLIN SPACING	PURLIN GA.	FASTENER TYPE	NUMBER OF FASTENERS	STITCH FASTENER	STITCH FASTENER SPACING
1-135	PBR <sup>1</sup>	36	24	5'-3 1/4"	16	1/4-14 X 1 1/4 ZAC <sup>3</sup>	3	1/4-14 X 7/8 ZAC <sup>11</sup>	20" o.c.
1-165	PBR <sup>1</sup>	36	24	5'-3 1/4"	16	1/4-14 X 1 1/4 ZAC <sup>3</sup>	6	1/4-14 X 7/8 ZAC <sup>11</sup>	20" o.c.

### Notes:

<sup>1</sup> All roofs are Class 4471.

<sup>3</sup> Fastener #1E.

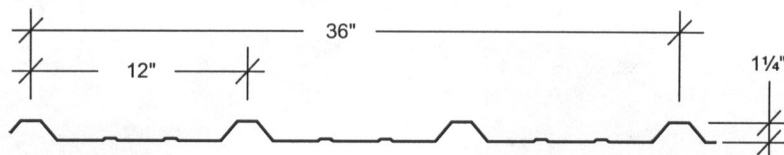
<sup>11</sup> Fastener #4.

**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](http://www.miamidade.gov).

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

## PBR PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL GAUGE	F <sub>y</sub> (KSI)	WEIGHT (PSF)	I <sub>xe</sub> (IN.4/FT.)	S <sub>xe</sub> (IN.3/FT.)	Maxo (KIP-IN.)	I <sub>xe</sub> (IN.4/FT.)	S <sub>xe</sub> (IN.3/FT.)	Maxo (KIP-IN.)
29	60 *	0.75	0.0219	0.0357	1.2835	0.0242	0.0234	0.8423
26	60 *	0.94	0.0302	0.0511	1.8366	0.0369	0.0372	1.3373
24	50	1.14	0.0404	0.0733	2.1953	0.0506	0.0521	1.5594
22	50	1.44	0.0544	0.1042	3.1201	0.0709	0.0749	2.2427

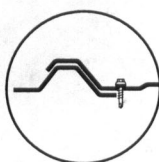
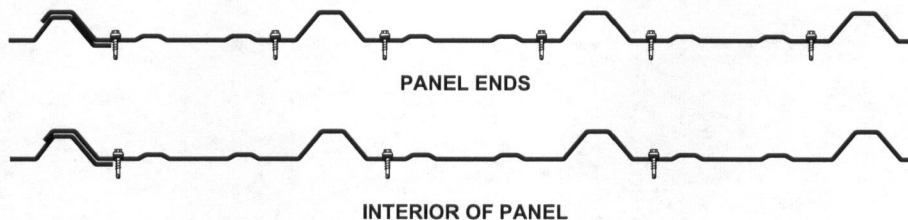
\* F<sub>y</sub> is 80-ksi reduced to 60-ksi in accordance with the 2001 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members - A2.3.2.

### NOTES:

1. All calculations for the properties of PBR panels are calculated in accordance with the 2001 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members.
2. I<sub>xe</sub> is for deflection determination.
3. S<sub>xe</sub> is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.

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 FASTENER LOCATIONS



APPLICATION →  
PREVAILING WIND ←

### 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 1/2" x 3/32" 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.

## PBR PANEL

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

29 Gauge (Fy = 60 KSI)

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	95.1	53.5	34.2	23.8	17.5	13.4	10.6
	LIVE LOAD/DEFLECTION	60.3	33.1	16.9	9.8	6.2	4.1	2.9
2-SPAN	NEGATIVE WIND LOAD	62.4	35.1	22.5	15.6	11.5	8.8	6.9
	LIVE LOAD/DEFLECTION	51.6	33.8	21.9	15.3	11.3	8.7	6.9
3-SPAN	NEGATIVE WIND LOAD	78.0	43.9	28.1	19.5	14.3	11.0	8.7
	LIVE LOAD/DEFLECTION	58.6	41.6	27.1	18.5	11.6	7.8	5.5
4-SPAN	NEGATIVE WIND LOAD	72.8	41.0	26.2	18.2	13.4	10.2	8.1
	LIVE LOAD/DEFLECTION	56.4	39.0	25.4	17.8	12.4	8.3	5.8

26 Gauge (Fy = 60 KSI)

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	136.0	76.5	49.0	34.0	25.0	19.1	15.1
	LIVE LOAD/DEFLECTION	99.1	50.4	25.8	14.9	9.4	6.3	4.4
2-SPAN	NEGATIVE WIND LOAD	99.1	55.7	35.7	24.8	18.2	13.9	11.0
	LIVE LOAD/DEFLECTION	87.3	54.6	35.2	24.5	18.1	13.9	10.7
3-SPAN	NEGATIVE WIND LOAD	123.8	69.7	44.6	31.0	22.7	17.4	13.8
	LIVE LOAD/DEFLECTION	99.2	67.7	43.8	28.2	17.7	11.9	8.3
4-SPAN	NEGATIVE WIND LOAD	115.6	65.0	41.6	28.9	21.2	16.3	12.8
	LIVE LOAD/DEFLECTION	95.5	63.4	40.9	28.6	18.8	12.6	8.9

24 Gauge (Fy = 50 KSI)

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	162.6	91.5	58.5	40.7	29.9	22.9	18.1
	LIVE LOAD/DEFLECTION	115.5	65.0	35.4	20.5	12.9	8.6	6.1
2-SPAN	NEGATIVE WIND LOAD	115.5	65.0	41.6	28.9	21.2	16.2	12.8
	LIVE LOAD/DEFLECTION	109.4	64.2	41.3	28.7	21.1	16.2	12.8
3-SPAN	NEGATIVE WIND LOAD	144.4	81.2	52.0	36.1	26.5	20.3	16.0
	LIVE LOAD/DEFLECTION	124.3	79.8	51.4	35.8	26.4	16.3	11.4
4-SPAN	NEGATIVE WIND LOAD	134.8	75.8	48.5	33.7	24.8	19.0	15.0
	LIVE LOAD/DEFLECTION	119.6	74.7	48.1	33.5	24.6	17.3	12.2

22 Gauge (Fy = 50 KSI)

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	231.1	130.0	83.2	57.8	42.5	32.5	25.7
	LIVE LOAD/DEFLECTION	166.1	93.4	49.6	28.7	18.1	12.1	8.5
2-SPAN	NEGATIVE WIND LOAD	166.1	93.4	59.8	41.5	30.5	23.4	18.5
	LIVE LOAD/DEFLECTION	163.1	92.5	59.4	41.3	30.4	23.3	18.4
3-SPAN	NEGATIVE WIND LOAD	207.7	116.8	74.8	51.9	38.1	29.2	23.1
	LIVE LOAD/DEFLECTION	200.6	115.1	74.1	51.6	34.1	22.8	16.0
4-SPAN	NEGATIVE WIND LOAD	193.9	109.1	69.8	48.5	35.6	27.3	21.5
	LIVE LOAD/DEFLECTION	189.5	107.6	69.2	48.2	35.5	24.2	17.0

#### 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.

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 1/4" O.C.

1. **For Class 90** - Panel to purlin connections to be #14 Hex Head with a 5/8" 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 1/4" O.C.

1. **Panel Fasteners** - Panel to purlin connections to be #14 Hex Head with a 5/8" 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 1/4" O.C.

1. **Panel Fasteners** - Panel to purlin connections to be 12-14 x 1" self-drilling Hex Head with a 5/8" 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 3/16" O.C.

1. **Panel Fasteners** - Panel to purlin connections to be 12-14x1" self-drilling Hex Head with a 5/8" 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.

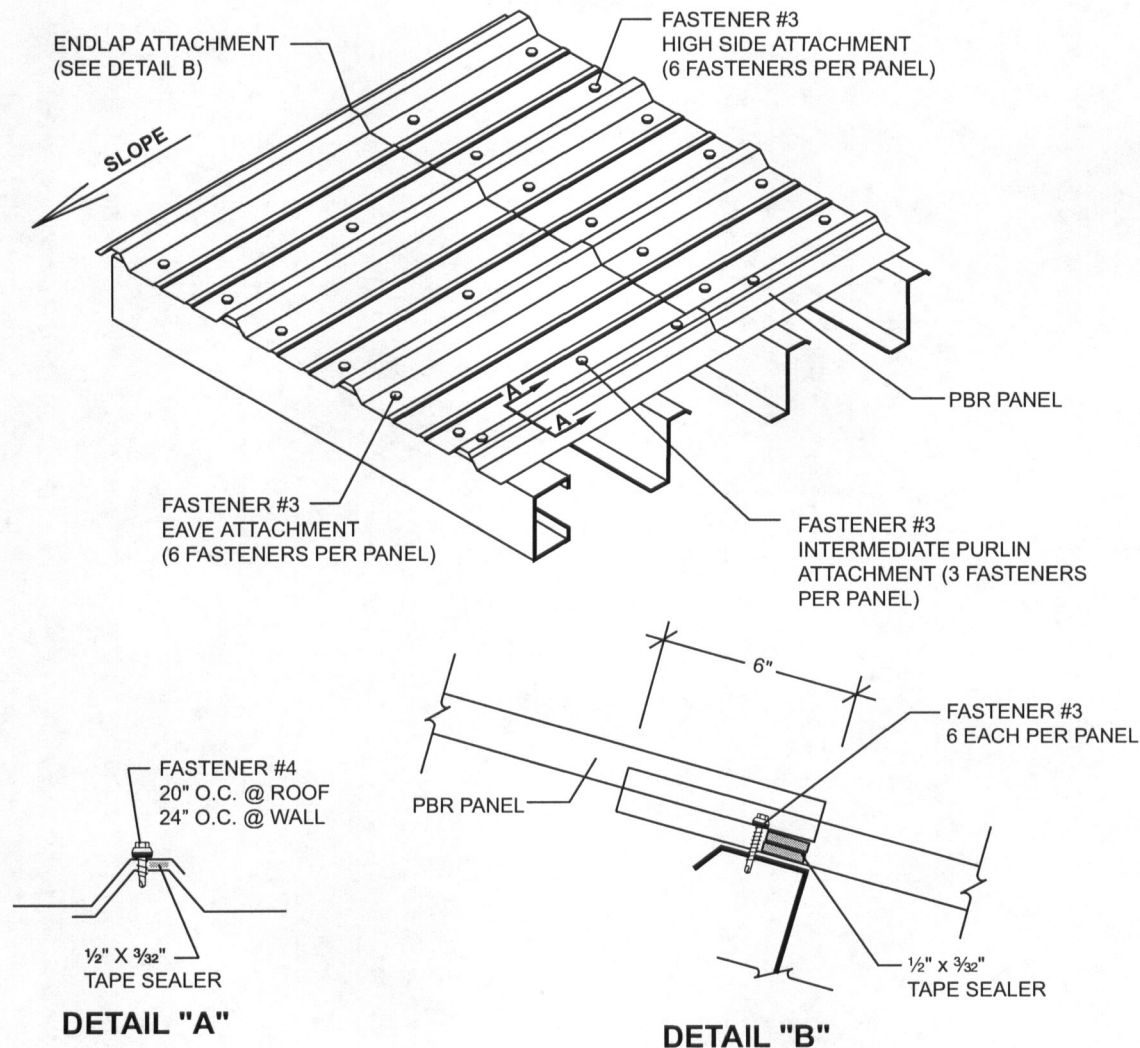
**Look for classification marking on product.**

### 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.



## ATTACHMENT PBR PANEL



### NOTES:

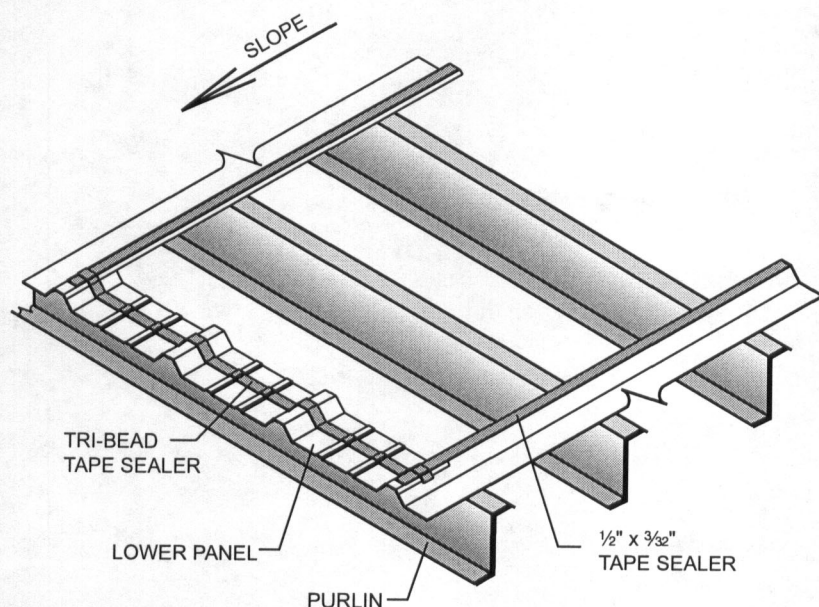
#### Sidelap

1.  $\frac{1}{2}$ " X  $\frac{3}{32}$ " tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 ( $\frac{1}{4}$ "-14 X  $\frac{7}{8}$ " 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 X  $\frac{7}{8}$ " Lap Tek) are available as an alternate when long life fasteners are not desired.

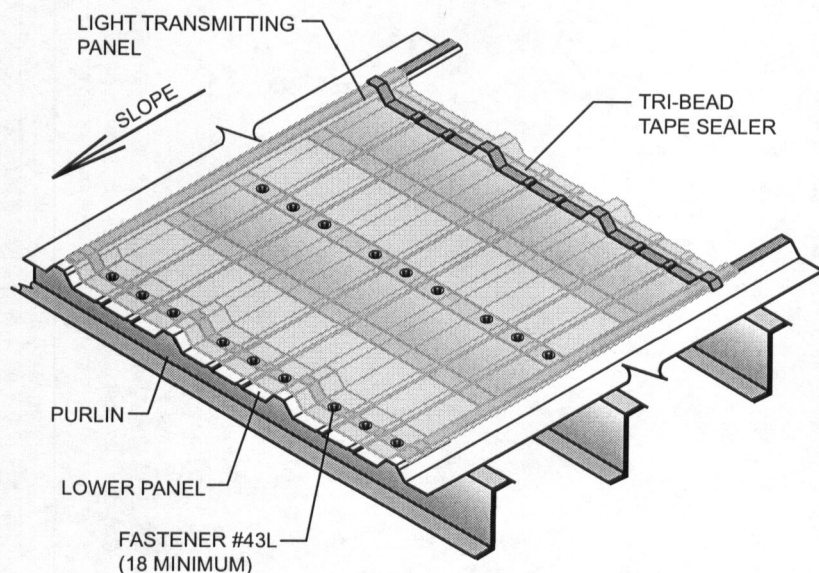
#### Endlap

1. Stack 2 continuous layers of  $\frac{1}{2}$ " x  $\frac{3}{32}$ " 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 drill) on each side of major ribs of panel (two fasteners per foot).
3. Fastener #17A (12-14 X  $\frac{1}{4}$ " drill) are available as an alternate when long life fasteners are not desired.

## CONSTRUCTION NO. 542 UL 90 LIGHT TRANSMITTING PANEL INSTALLATION



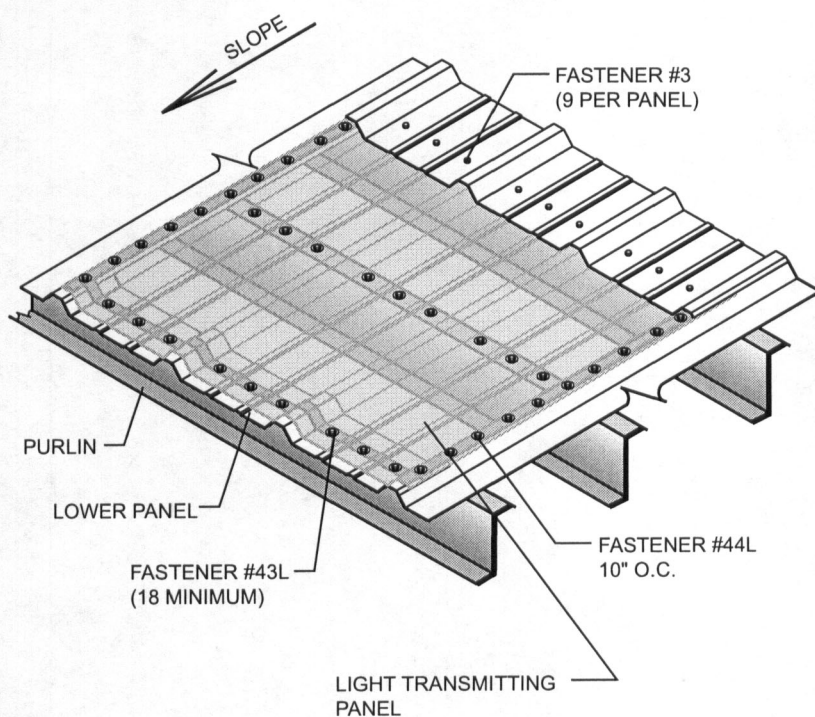
Install roof panels, leaving the light transmitting panel run open, except for lower light transmitting panel run panel. Install tape sealer to panel sidelaps and across panel width as normal.



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 1/8" O.D. washer) per connection.

### CONSTRUCTION NO. 542 UL 90 LIGHT TRANSMITTING PANEL INSTALLATION (Continued)

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 PBR panel. See Page 8 for lap detail.

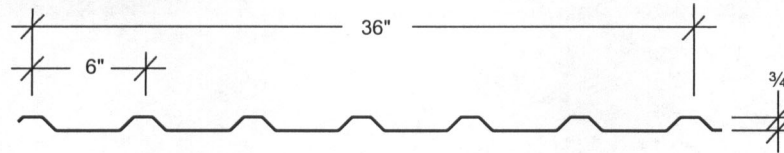


Fasten light transmitting panel with Fastener #44L ( $\frac{1}{4}$ " - 14 x  $\frac{7}{8}$ " Long Life Lap Tek with  $\frac{1}{8}$ " O.D. washer) at 10" O.C. down each side lap.

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



## GENERAL DESCRIPTION



**PBU Panel**

Coverage Width - 36"

Minimum Slope - 1:12

Panel Attachment - See page 17

Panel Substrate - Galvalume®

Gauge - 26 standard - 29, 24 and 22 also available

Coatings - Galvalume Plus®, Signature® 200\* and Signature® 300\*

## 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

GAUGE	GALVALUME PLUS®	SIGNATURE® 200*	SIGNATURE® 300*
22 gauge	●	■	■
24 gauge	●	■	■
26 gauge	●	●	●
29 gauge	●	●	■

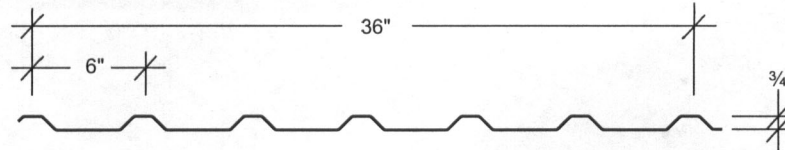
● - Available in any quantity.

■ - 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.

## PBU PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	F <sub>y</sub>	WEIGHT	I <sub>xe</sub>	S <sub>xe</sub>	Maxo	I <sub>xe</sub>	S <sub>xe</sub>	Maxo
GAUGE	(KSI)	(PSF)	(IN.4/FT.)	(IN.3/FT.)	(KIP-IN.)	(IN.4/FT.)	(IN.3/FT.)	(KIP-IN.)
29	60 *	0.75	0.0112	0.0239	0.8579	0.016	0.0270	0.9714
26	60 *	0.94	0.0304	0.0514	1.848	0.0371	0.0374	1.3456
24	50	1.14	0.0214	0.0494	1.4796	0.031	0.0555	1.6618
22	50	1.44	0.0301	0.0731	2.1897	0.0419	0.0754	2.2565

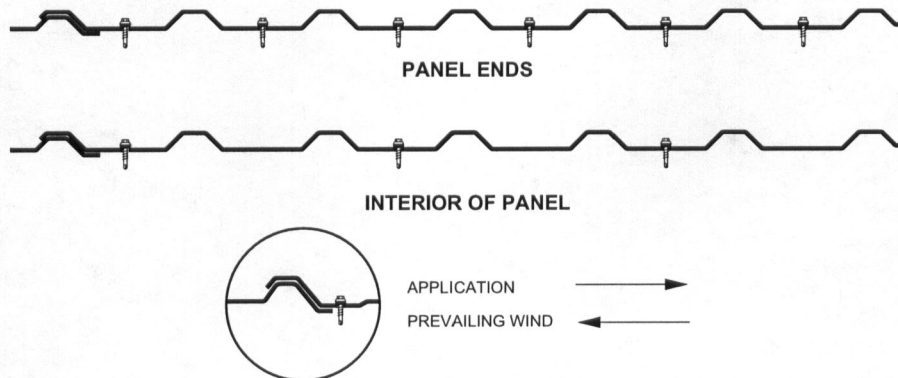
\* F<sub>y</sub> is 80-ksi reduced to 60-ksi in accordance with the 2001 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members - A2.3.2.

### NOTES:

1. All calculations for the properties of PBU panels are calculated in accordance with the 2001 edition of the North American Specification For Design Of Cold-Formed Steel Structural Members.
2. I<sub>xe</sub> is for deflection determination.
3. S<sub>xe</sub> is for bending.
4. Maxo is allowable bending moment.
5. All values are for one foot of panel width.

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.

## 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 1/2" x 3/32" 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.

29 Gauge (Fy = 60 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	63.5	35.7	22.9	15.9	11.7	8.9	7.1
	LIVE LOAD/DEFLECTION	51.8	21.9	11.2	6.5	4.1	2.7	1.9
2-SPAN	NEGATIVE WIND LOAD	72.0	40.5	25.9	18.0	13.2	10.1	8.0
	LIVE LOAD/DEFLECTION	63.5	35.7	22.9	15.6	9.8	6.6	4.6
3-SPAN	NEGATIVE WIND LOAD	89.9	50.6	32.4	22.5	16.5	12.6	10.0
	LIVE LOAD/DEFLECTION	79.4	41.2	21.1	12.2	7.7	5.2	3.6
4-SPAN	NEGATIVE WIND LOAD	84.0	47.2	30.2	21.0	15.4	11.8	9.3
	LIVE LOAD/DEFLECTION	74.2	41.7	22.4	13.0	8.2	5.5	3.8

26 Gauge (Fy = 60 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	92.5	52.0	33.3	23.1	17.0	13.0	10.3
	LIVE LOAD/DEFLECTION	75.8	32.0	16.4	9.5	6.0	4.0	2.8
2-SPAN	NEGATIVE WIND LOAD	108.6	61.1	39.1	27.2	20.0	15.3	12.1
	LIVE LOAD/DEFLECTION	92.5	52.0	33.3	22.8	14.4	9.6	6.8
3-SPAN	NEGATIVE WIND LOAD	135.8	76.4	48.9	33.9	24.9	19.1	15.1
	LIVE LOAD/DEFLECTION	115.6	60.3	30.9	17.9	11.3	7.5	5.3
4-SPAN	NEGATIVE WIND LOAD	126.8	71.3	45.6	31.7	23.3	17.8	14.1
	LIVE LOAD/DEFLECTION	108.0	60.7	32.8	19.0	11.9	8.0	5.6

24 Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	109.6	61.7	39.5	27.4	20.1	15.4	12.2
	LIVE LOAD/DEFLECTION	100.4	42.3	21.7	12.5	7.9	5.3	3.7
2-SPAN	NEGATIVE WIND LOAD	123.1	69.2	44.3	30.8	22.6	17.3	13.7
	LIVE LOAD/DEFLECTION	109.6	61.7	39.5	27.4	19.0	12.7	9.0
3-SPAN	NEGATIVE WIND LOAD	153.9	86.6	55.4	38.5	28.3	21.6	17.1
	LIVE LOAD/DEFLECTION	137.0	77.1	40.9	23.7	14.9	10.0	7.0
4-SPAN	NEGATIVE WIND LOAD	143.7	80.8	51.7	35.9	26.4	20.2	16.0
	LIVE LOAD/DEFLECTION	127.9	72.0	43.4	25.1	15.8	10.6	7.4

22 Gauge (Fy = 50 KSI)								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
SINGLE	NEGATIVE WIND LOAD	162.2	91.2	58.4	40.6	29.8	22.8	18.0
	LIVE LOAD/DEFLECTION	135.6	57.2	29.3	17.0	10.7	7.2	5.0
2-SPAN	NEGATIVE WIND LOAD	167.1	94.0	60.2	41.8	30.7	23.5	18.6
	LIVE LOAD/DEFLECTION	160.5	91.2	58.4	40.6	25.7	17.2	12.1
3-SPAN	NEGATIVE WIND LOAD	208.9	117.5	75.2	52.2	38.4	29.4	23.2
	LIVE LOAD/DEFLECTION	197.2	108.0	55.3	32.0	20.1	13.5	9.5
4-SPAN	NEGATIVE WIND LOAD	195.1	109.7	70.2	48.8	35.8	27.4	21.7
	LIVE LOAD/DEFLECTION	185.2	106.5	58.7	34.0	21.4	14.3	10.1

### 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 33.33% 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 MCCI 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 PBU PANEL

### Construction #39

#### 26 MSG Min. Gauge PBU Panel over Purlins at 5'- 0 1/4" O.C.

1. **Panel Fasteners** - Panel to purlin connections to be #14 self-drilling, Hex Head with a 5/8" 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.

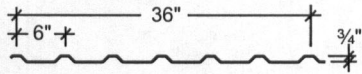
**Look for classification marking on product.**

### 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.

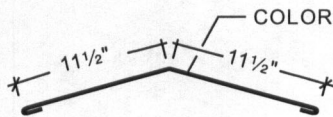
## PRODUCT CHECKLIST

PBU Panel



PBU Panel ☐

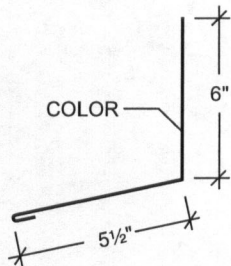
Flat Ridge/Hip Flashing



Specify Roof Slope

FL-38 ☐

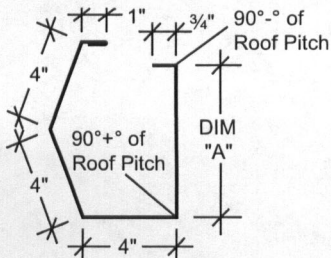
Parapet High Eave



Specify Roof Slope

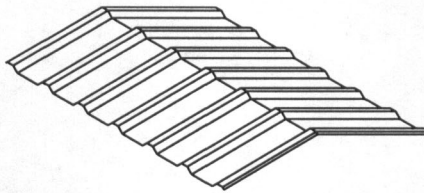
FL-874 ☐

Sculptured Hang-On Gutter



FL-512B ☐

Ridge Cap

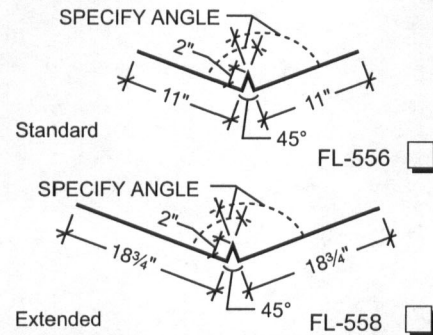


Maximum Roof Pitch 6:12  
Specify Pitch

FL - 50 2'-6" ☐

FL - 52 3'-0" ☐

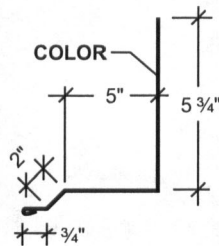
Valley Flashing



Extended

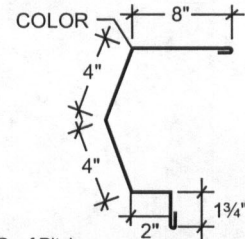
FL-558 ☐

Parapet Rake



FL-954 ☐

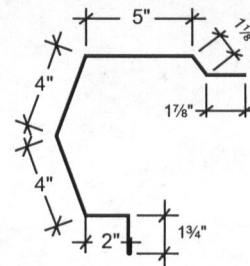
Sculptured High Side Eave



Specify Roof Pitch  
High Eave part at corner to be  
mitered  
Specify Left or Right

FL-17 ☐

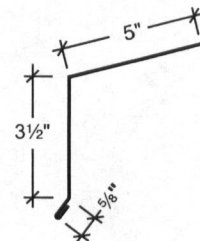
Sculptured Rake



Rake part at corner to be  
mitered.  
Specify Left or Right

FL-15 ☐

Eave Trim



Specify Roof Slope

FL-19 ☐

Gutter Strap



FL-893 ☐

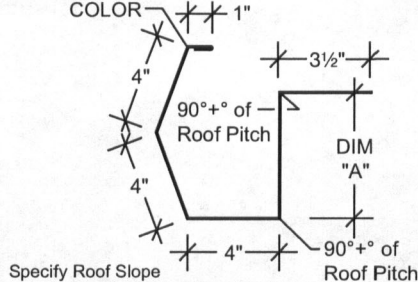
Gutter End



Specify Left or Right  
Specify Gutter Part No.

FL-18A ☐

Sculptured Eave Gutter

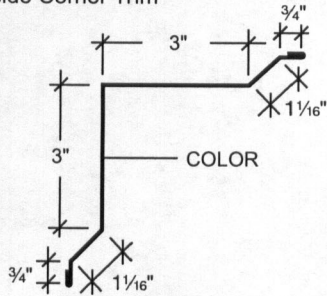


Specify Roof Slope  
Gutter part at corner to be mitred.  
Specify Left or Right.

FL-512 ☐

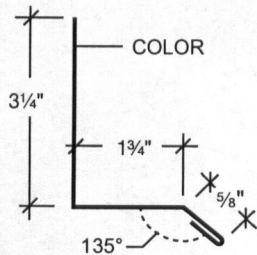
## PRODUCT CHECKLIST

### Inside Corner Trim



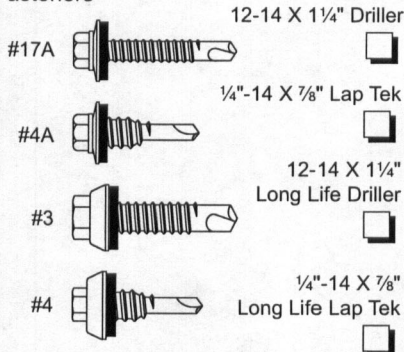
FL-810 ☐

### Base Trim (With Sheeting Notch)

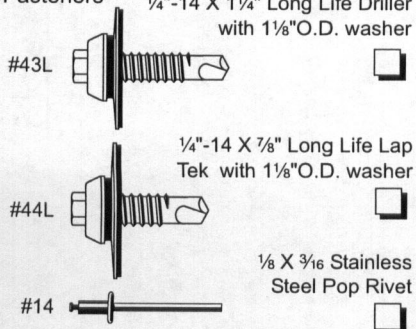


FL-72 ☐

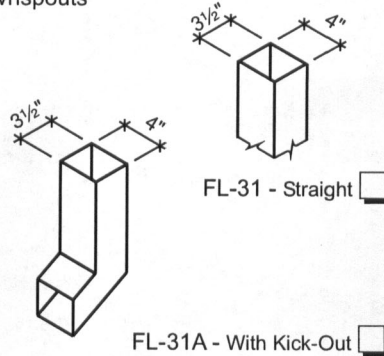
### Fasteners



### Fasteners



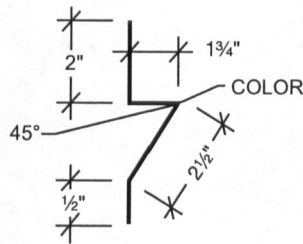
### Downspouts



FL-31 - Straight ☐

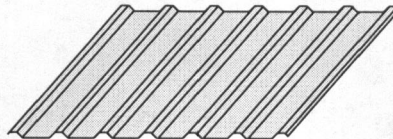
FL-31A - With Kick-Out ☐

### Base Trim (Without Sheeting Notch)



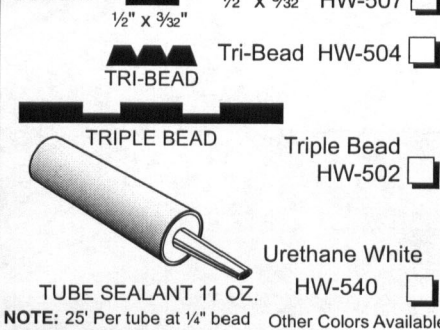
FL-530 ☐

### LTP



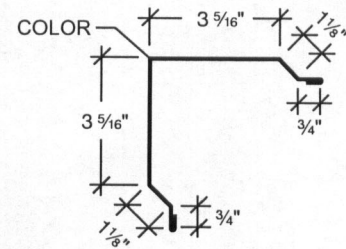
Non-Reinforced Fiberglass ☐  
 High Strength Fiberglass ☐  
 High Strength AcryLit/U.V. Resistant ☐

### Sealant



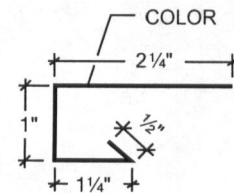
NOTE: 25' Per tube at 1/4" bead Other Colors Available

### Corner Trim - Outside



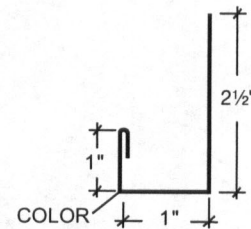
FL-840 ☐

### Jamb Trim



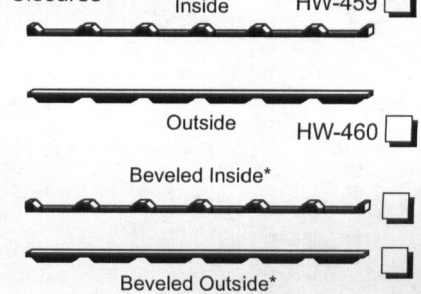
FL-21 ☐

### Head Trim



FL-514A ☐

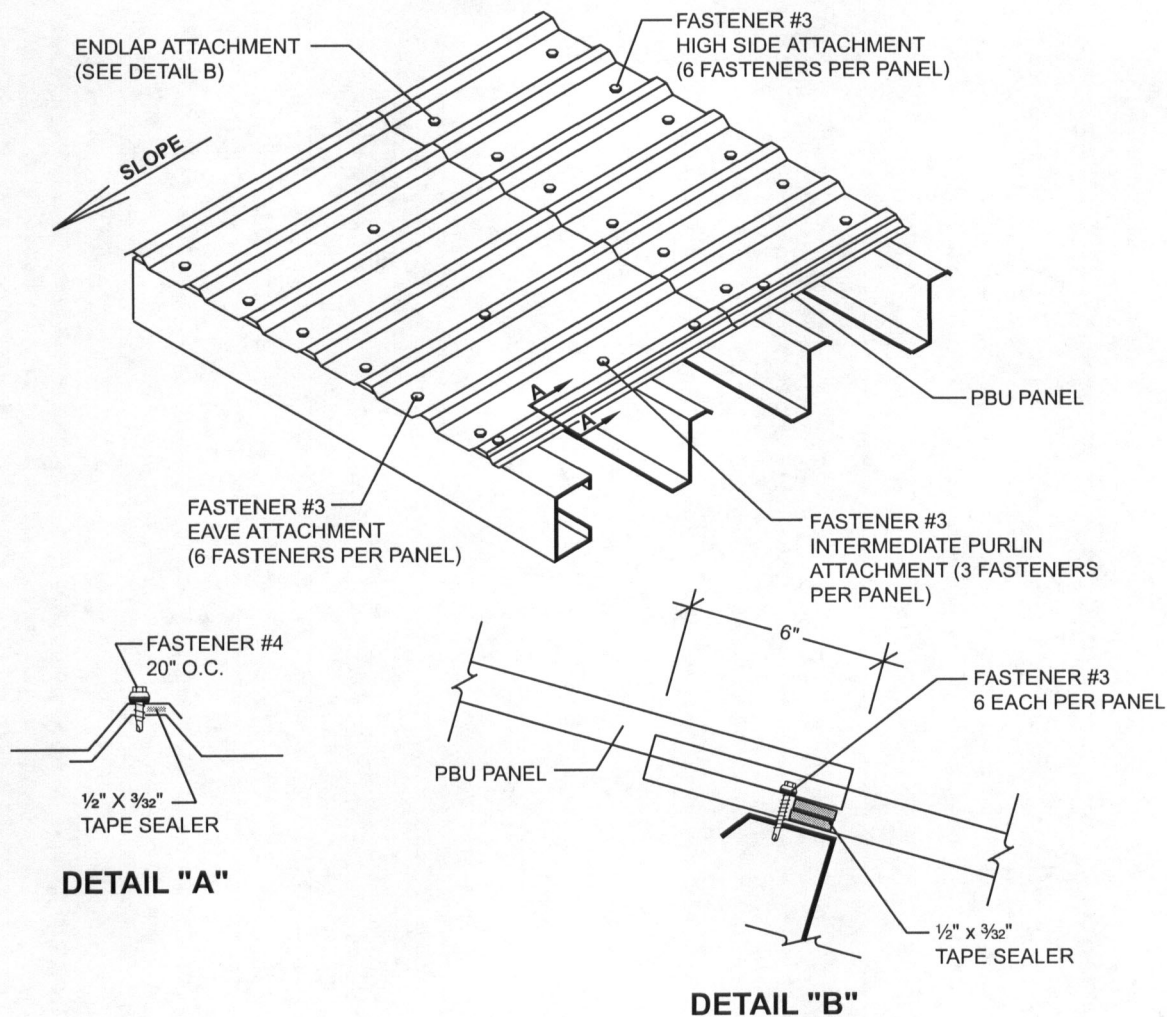
### Closures



\*Special order - requires two-week lead time



## ATTACHMENT PBU PANEL



### NOTES:

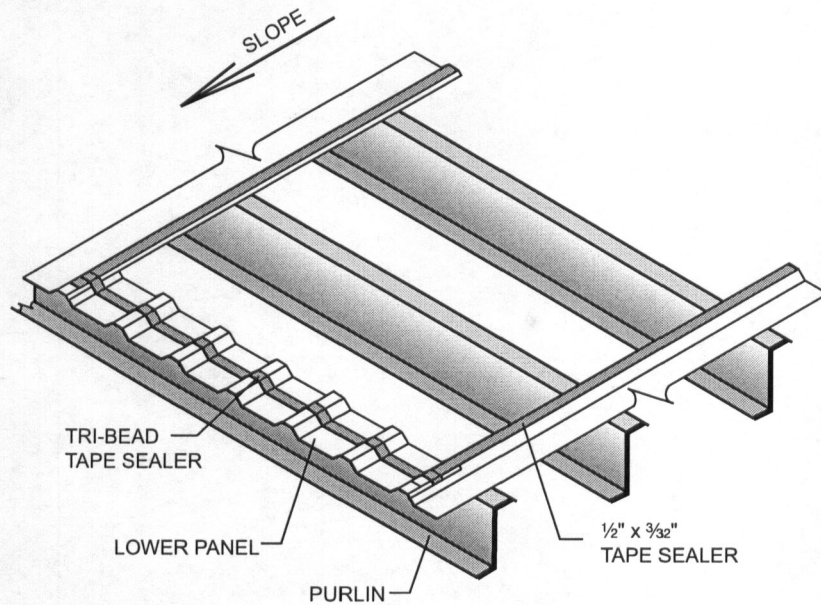
#### Sidelap

1. 1/2" X 3/32" tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 (1/4"-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 (1/4"-14 X 7/8" Lap Tek) are available as an alternate when long life fasteners are not desired.

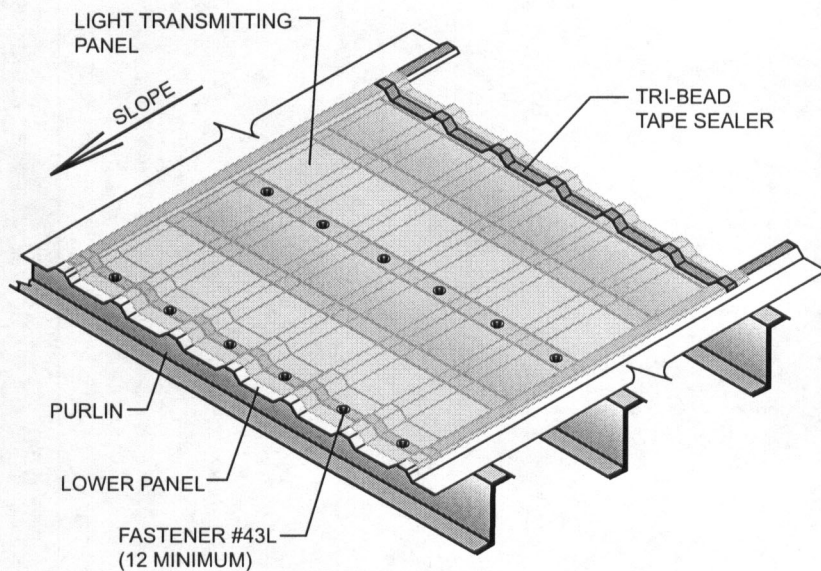
#### Endlap

1. Stack 2 continuous layers of 1/2" x 3/32" tape sealer on top of each other and must be installed between weather infiltration point and fastener.
2. Install Fastener #3 (12-14 X 1 1/4" Long Life drill) on each side of major ribs of panel (two fasteners per foot).
3. Fastener #17A (12-14 X 1 1/4" self-driller) are available as an alternate when long life fasteners are not desired.

### LIGHT TRANSMITTING PANEL INSTALLATION



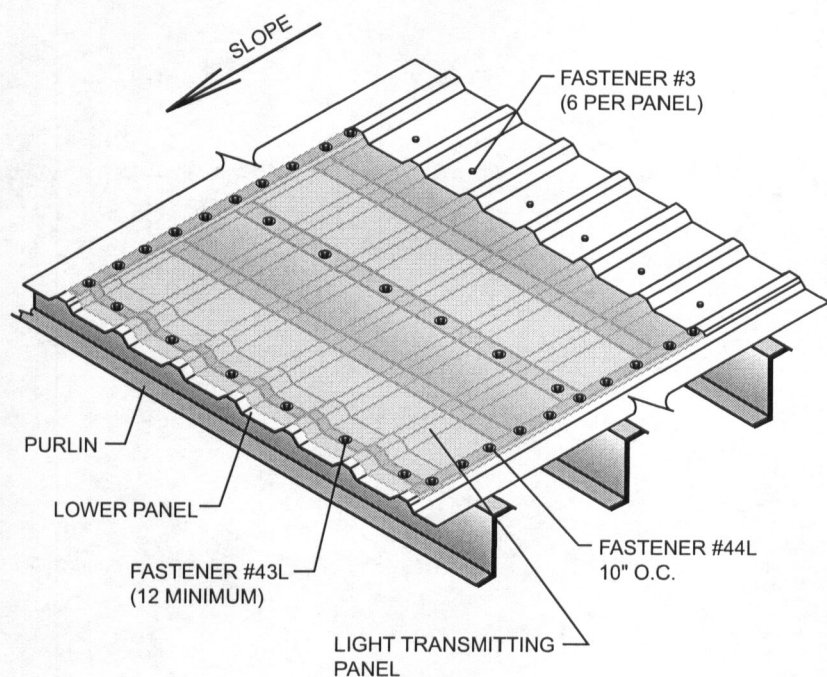
Install roof panels, leaving the light transmitting panel run open, except for lower light transmitting panel run panel. Install tape sealer to panel sidelaps and across panel width as normal.



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 1/8" O.D. washer) per connection.

## LIGHT TRANSMITTING PANEL INSTALLATION (Continued)

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.

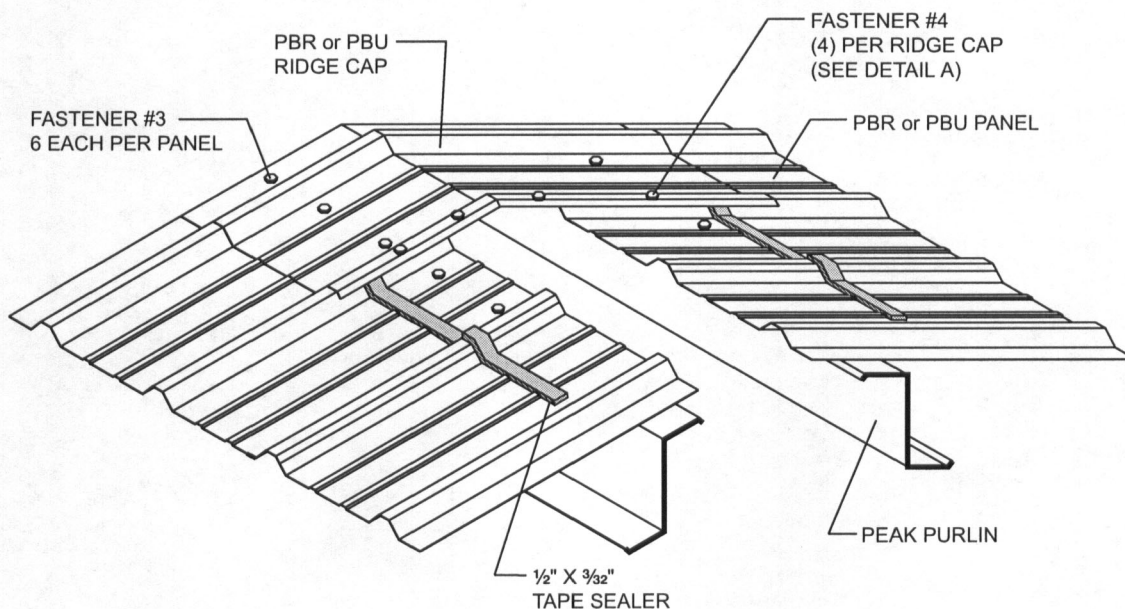
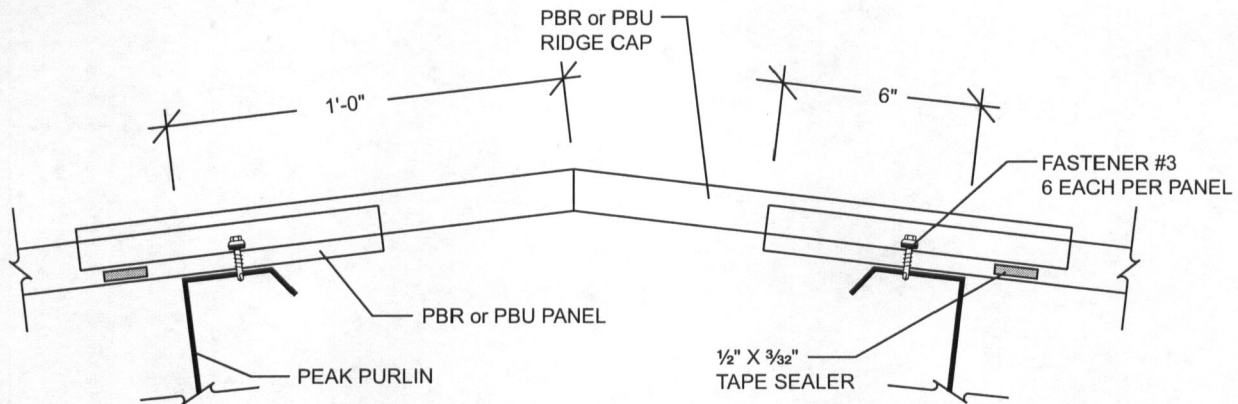


Fasten light transmitting panel with Fastener #44L ( $\frac{1}{4}$ " - 14 x  $\frac{7}{8}$ " Long Life Lap Tek with  $1\frac{1}{8}$ " O.D. washer) at 10" O.C. down each side lap.

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 drill).



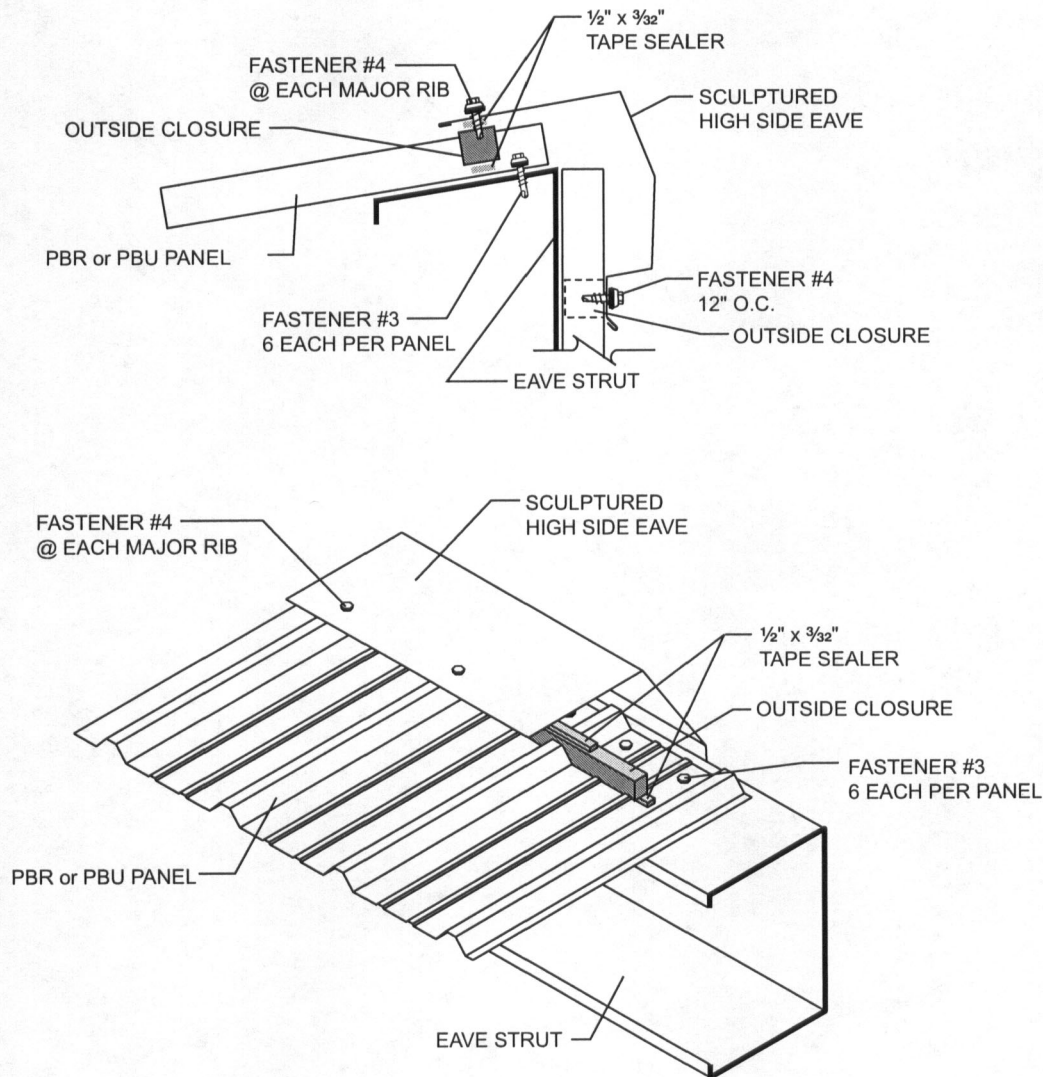
## TYPICAL DETAILS Ridge



### NOTES:

1. When ordering ridge caps, specify roof slope. Refer to MBCI price pages for maximum slope for each ridge cap.
2. Install 1/2" X 3/32" tape sealer across full width of ridge cap on both sides. Tape sealer must be installed between weather infiltration point and fasteners.
3. Install 1/2" X 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 1 1/4" Long Life drill) on both sides of major ribs (two per foot).
5. Install four Fastener #4 (1/4"-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.

## TYPICAL DETAILS High Side Eave

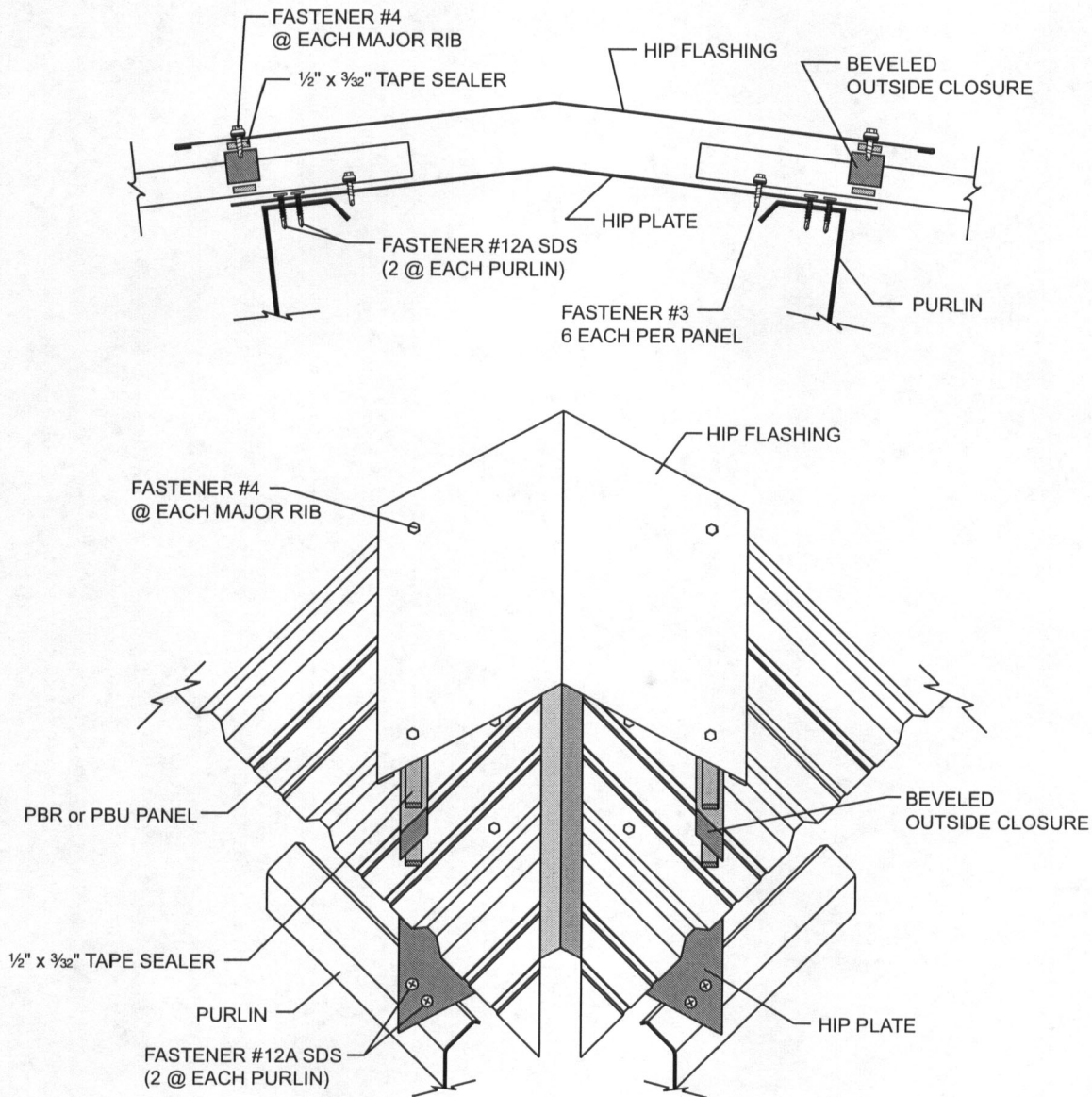


### NOTES:

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 Sculptured High Side Eave to PBR or PBU panels at each major rib with Fastener #4 ( $\frac{1}{4}''$ -14 X  $\frac{7}{8}''$  Long Life Lap Tek). Sculptured high side eave trim should overhang outside closures  $\frac{1}{2}''$  -  $1''$ .
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 ( $\frac{1}{4}''$ -14 X  $\frac{7}{8}''$  Long Life Lap Tek) to hold lap together. Apply bead of urethane sealant between trim at 3" lap.

## TYPICAL DETAILS

### Hip

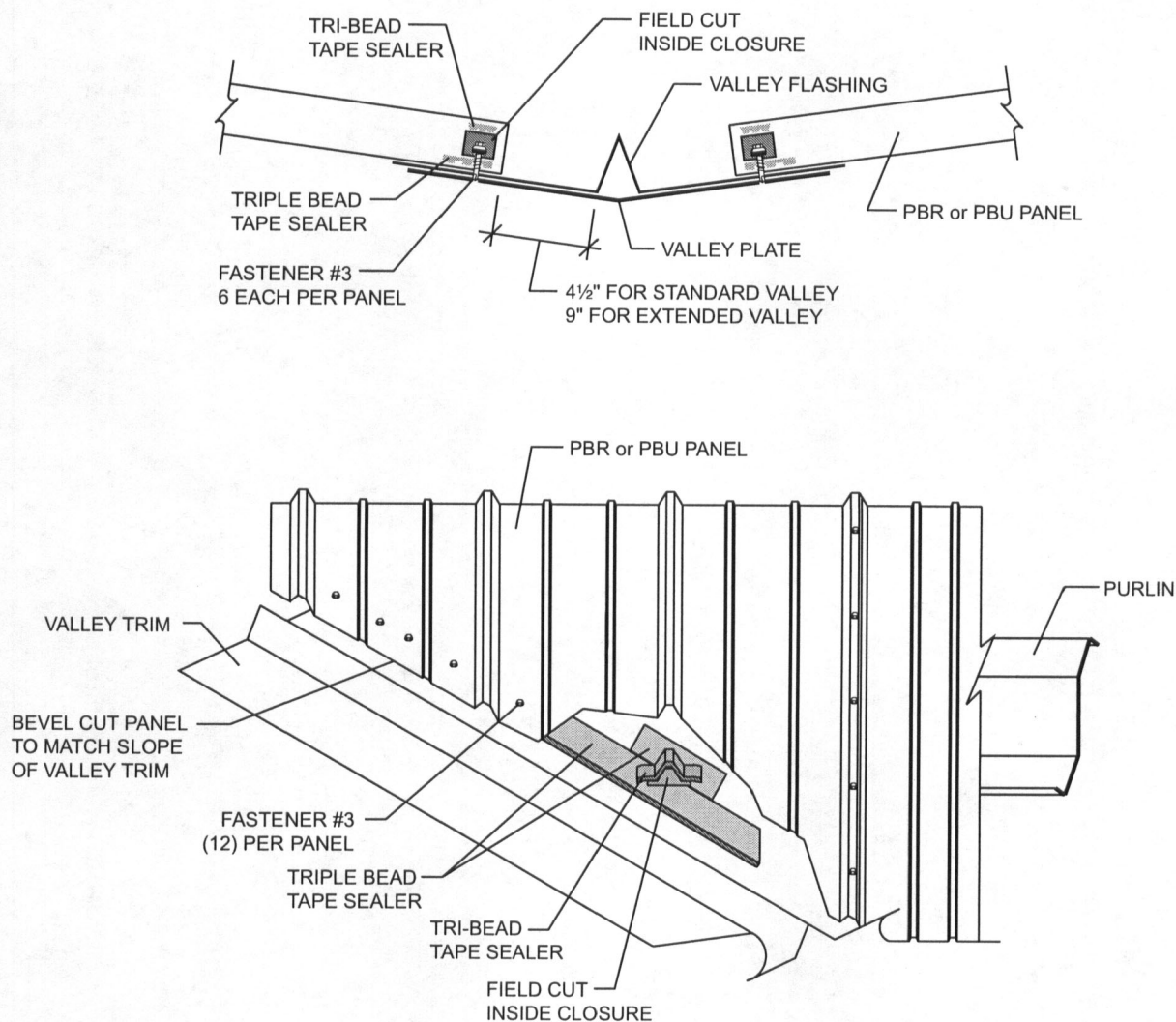


#### NOTES:

1. Bevel cut and install PBR or PBU panels to follow bevel of hip.
2. Install beveled outside closures to panels, with 1/2" x 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 (1/4"-14 X 7/8" Long Life Lap Tek). Hip flashing should overlap outside closures 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together.



## TYPICAL DETAILS Valley

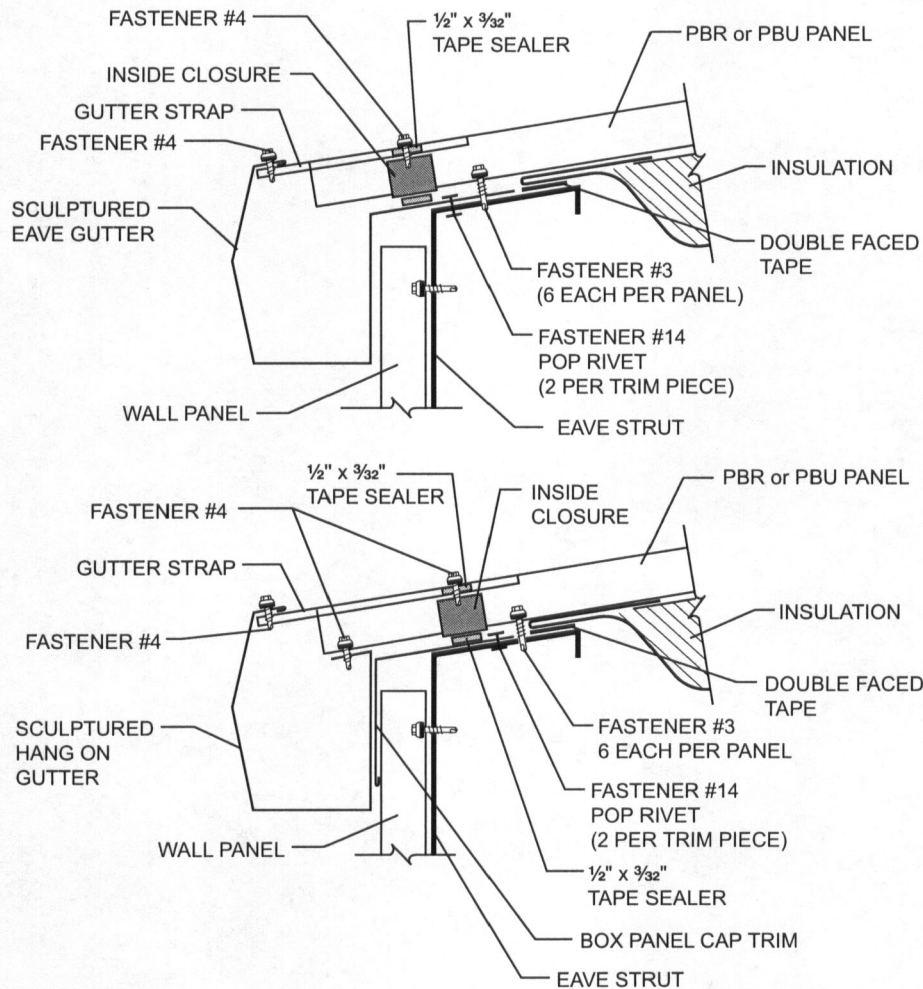


### NOTES:

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 1¼" Long Life drill) 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 7/8" Long Life Lap Tek) into each side of water diverter while holding lap tightly together.

## TYPICAL DETAILS

### Gutter



### NOTES:

#### Eave Gutter

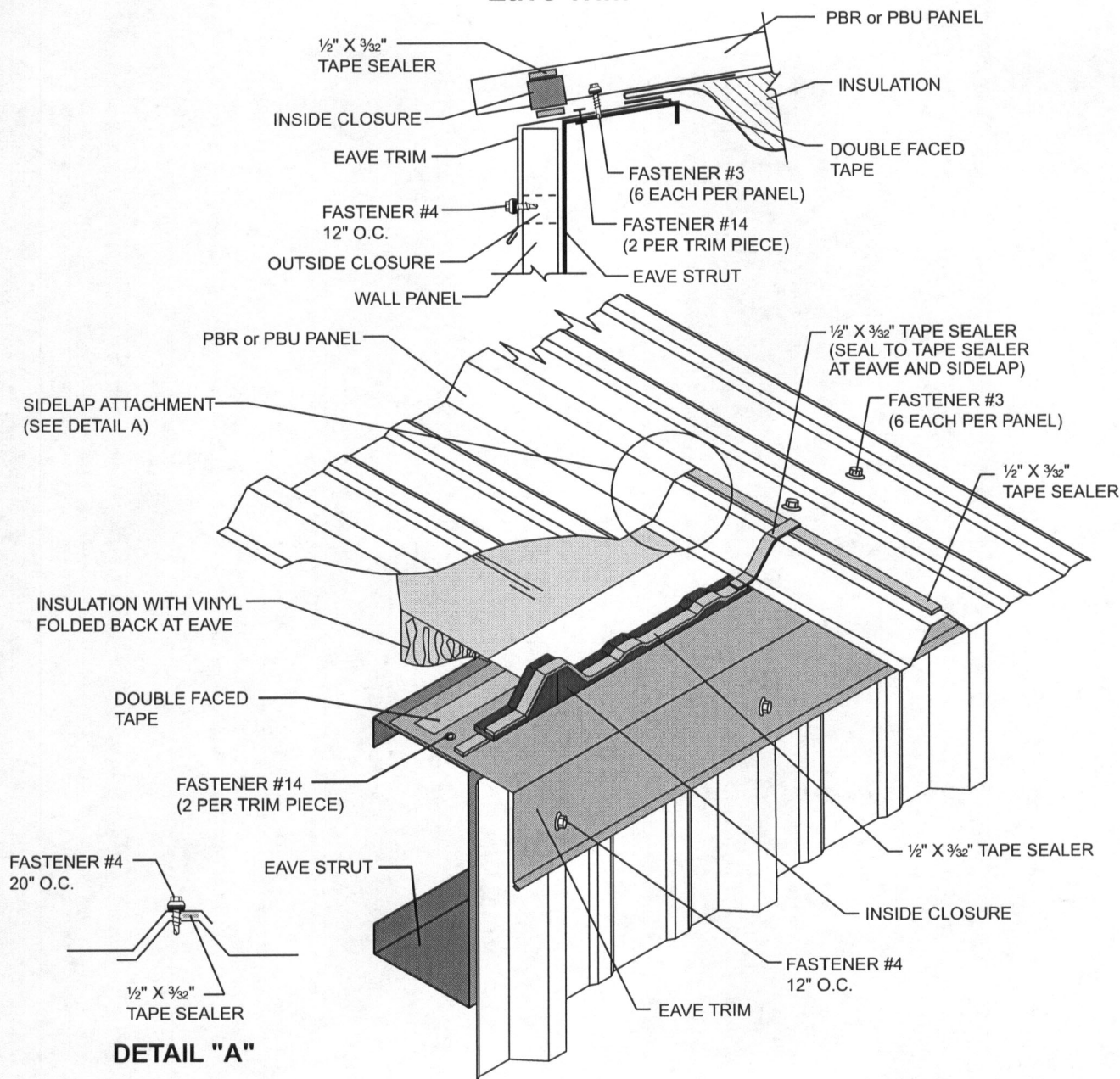
1. Attach gutter to eave strut with two Fastener #14 pop rivets per section.
2. Install inside closures to top leg of gutter with 1/2" x 3/32" tape sealer top and bottom.
3. Install PBR or PBU panel with Fastener #3 (12-14 X 1 1/4" Long Life driller) on each side of major ribs (two fasteners per foot). 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 (1/4"-14 X 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 1/2" x 3/32" tape sealer top and bottom of closure.
3. Install PBR or PBU panels with Fastener #3 (12-14 X 1 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 (1/4"-14 X 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 (1/4"-14 X 7/8" Long Life Lap Tek) at each end.

## TYPICAL DETAILS

### Eave Trim



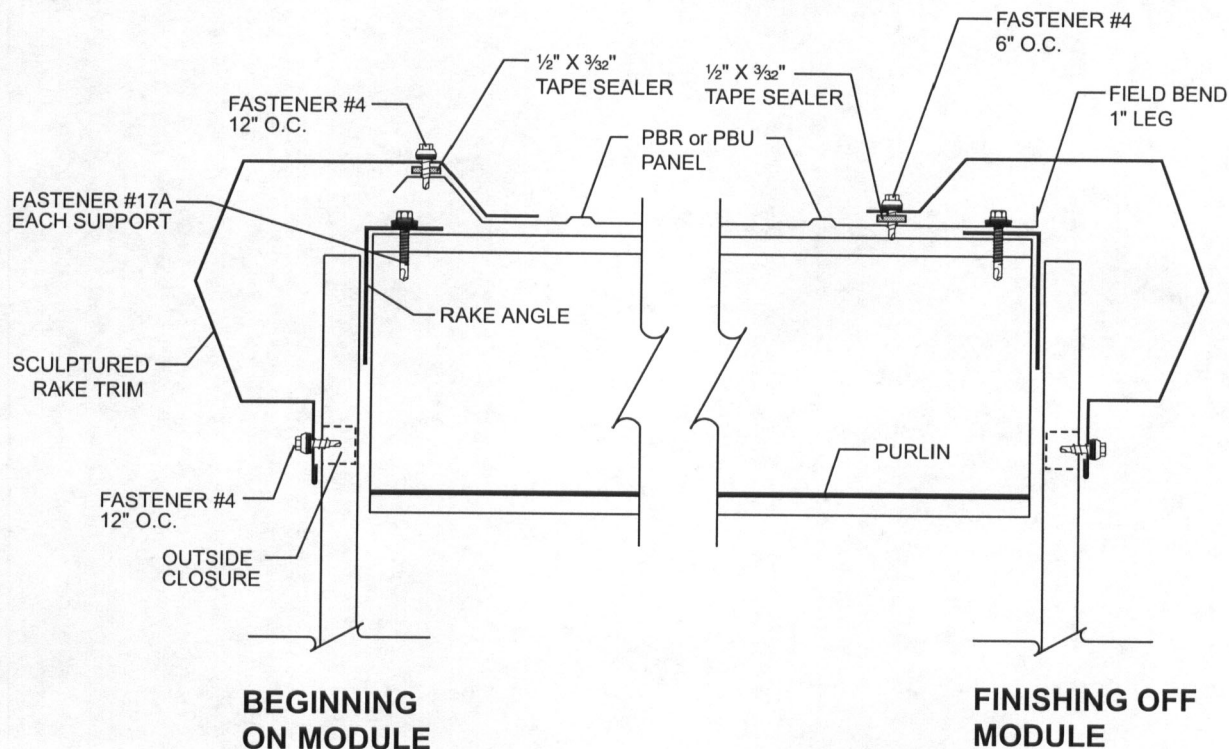
#### NOTES:

1. Install eave trim to structure with two pop rivets per section.
2. Install inside closures along top leg of eave trim with  $\frac{1}{2}$ " x  $\frac{3}{32}$ " tape sealer top and bottom.
3. Install PBR or PBU panel with Fastener #3 (12-14 X  $\frac{1}{4}$ " Long Life driller) on each side of major ribs (2 fasteners per foot) allowing panel to overhang  $\frac{1}{2}$ " 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  $\frac{7}{8}$ " Long Life Lap Tek) to hold lap together.



## TYPICAL DETAILS

### Rake



#### NOTES:

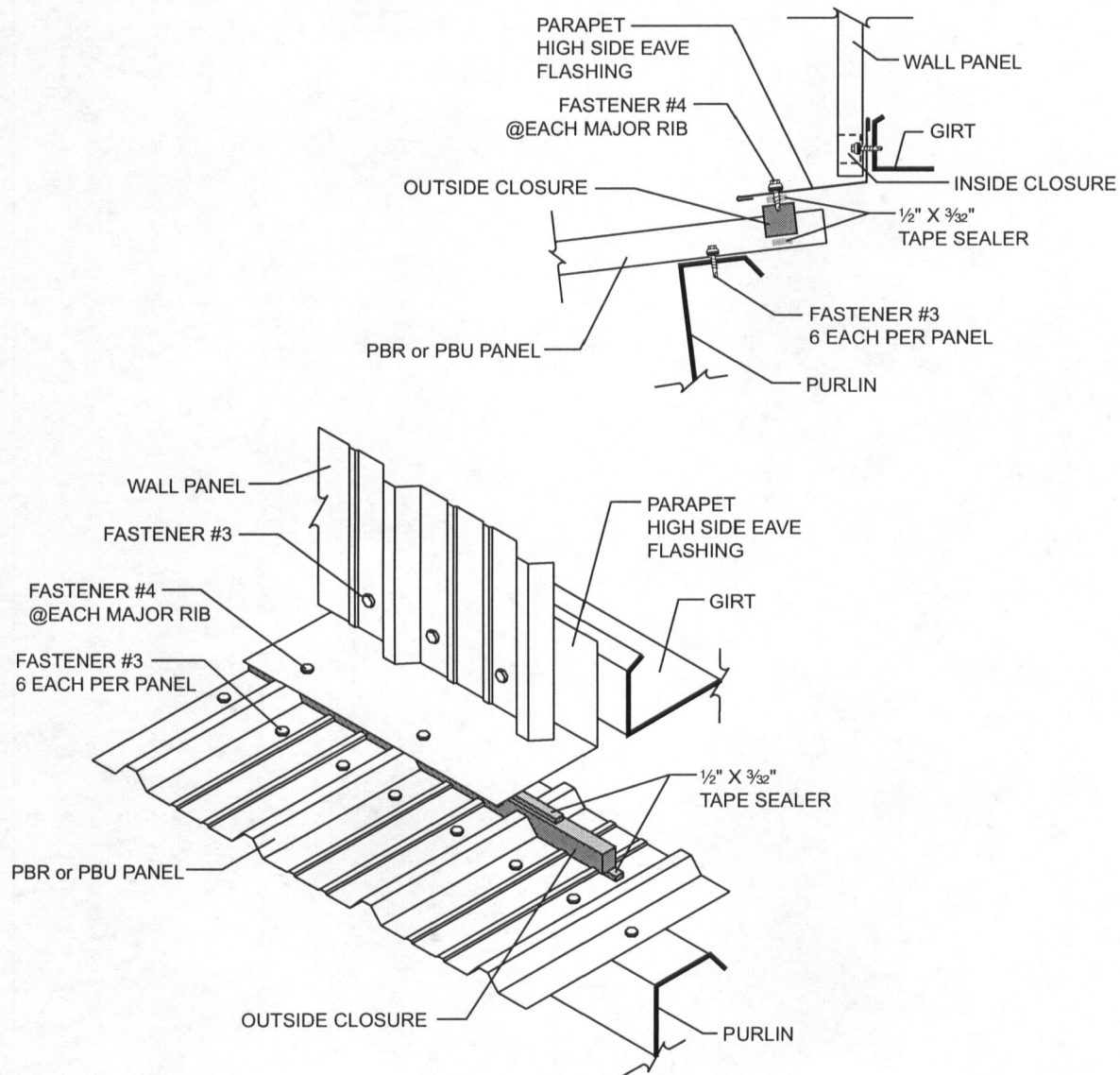
##### Beginning on Module

1. Install  $\frac{1}{2}'' \times \frac{3}{32}''$  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 Tek) 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  $\frac{1}{2}'' \times \frac{3}{32}''$  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 Tek) 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.

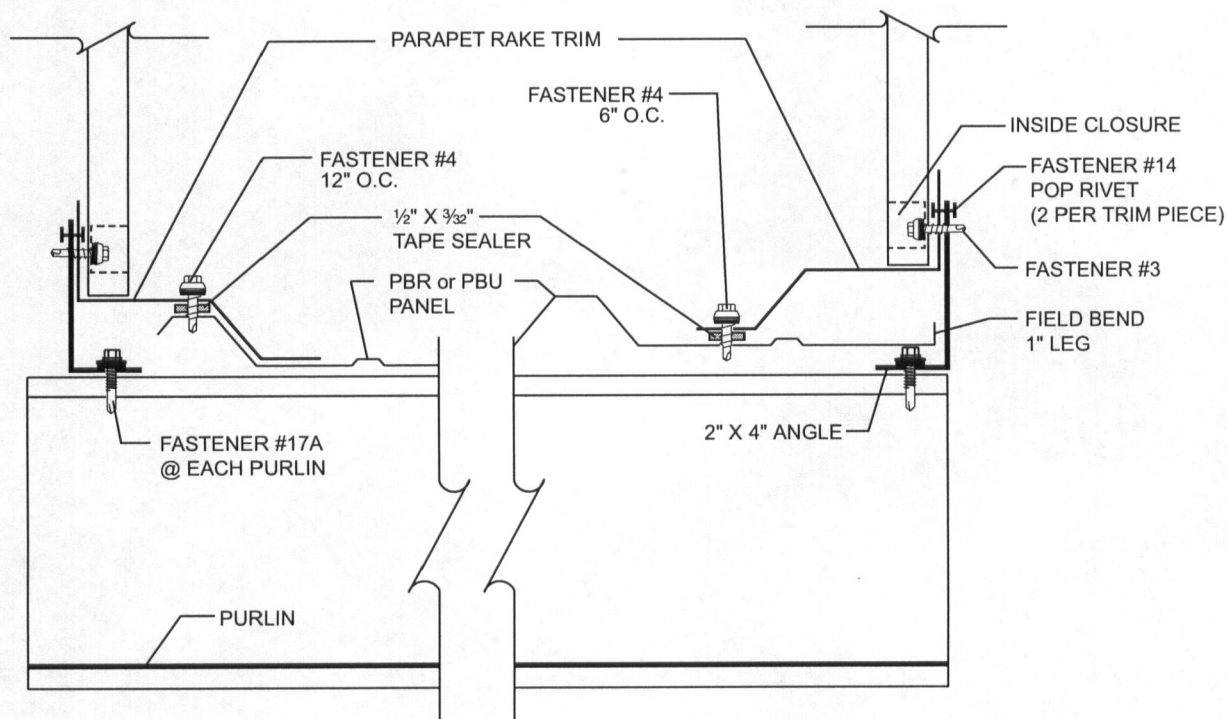
## TYPICAL DETAILS Parapet High Side Eave



### NOTES:

1. Install outside closure, with 1/2" x 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 (1/4"-14 X 7/8" Long Life Lap Tek). Trim should overhang outside closures 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together.

## TYPICAL DETAILS Parapet Rake



### 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 Tek) 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.

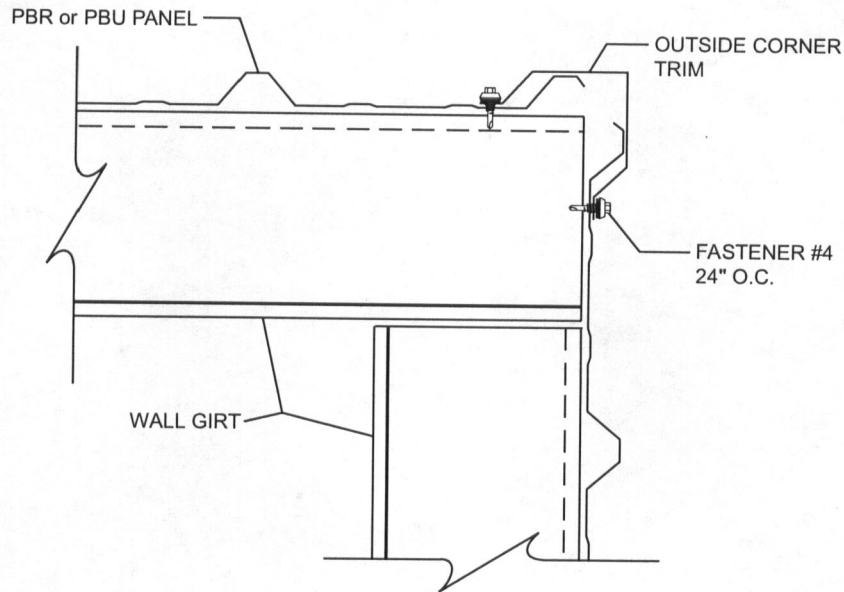
#### Finishing off Module

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 Tek) 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.

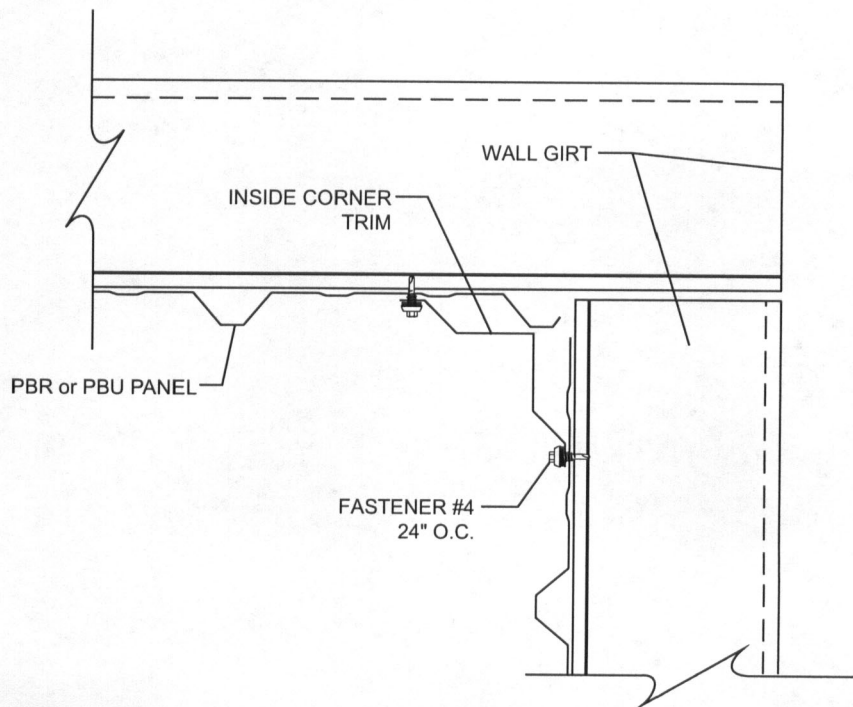


## TYPICAL DETAILS

### Corner



### OUTSIDE CORNER DETAIL



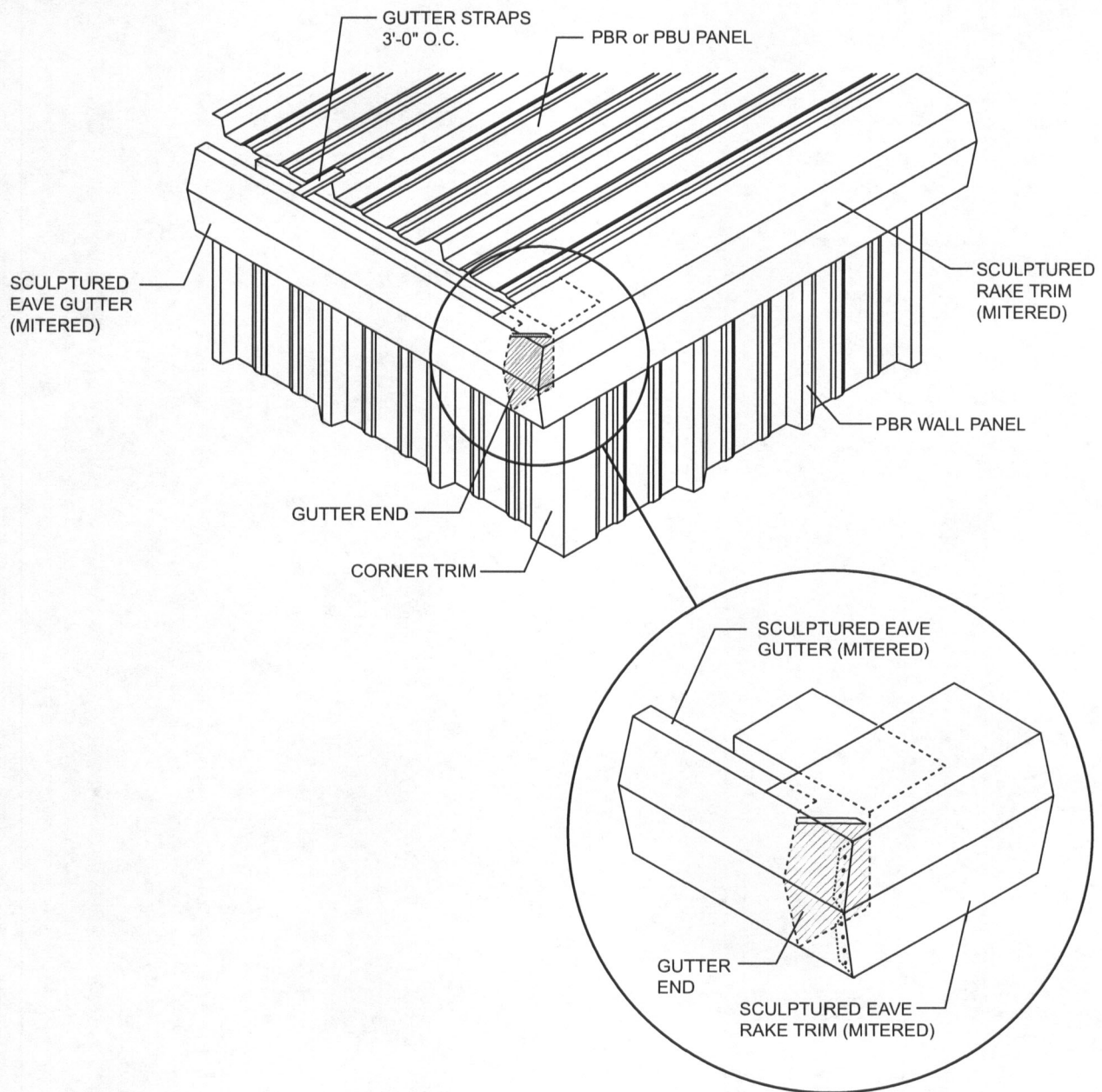
### INSIDE CORNER DETAIL

#### NOTES:

1. Install corner trim with Fastener #4 (1/4 - 14 X 7/8" Long Life Lap Tek) fastener 2'-0" O.C.

## TYPICAL DETAILS

### Corner Box

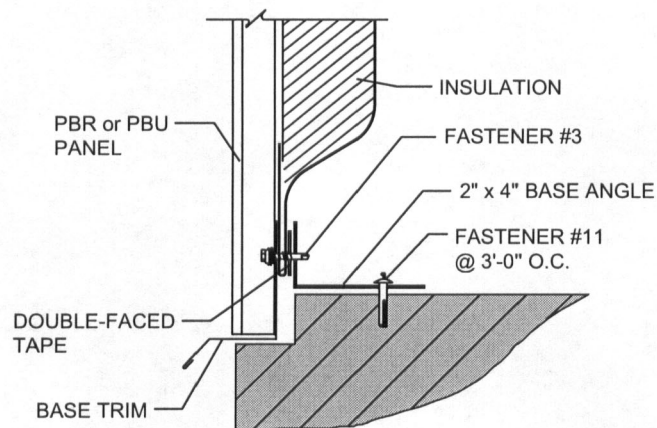
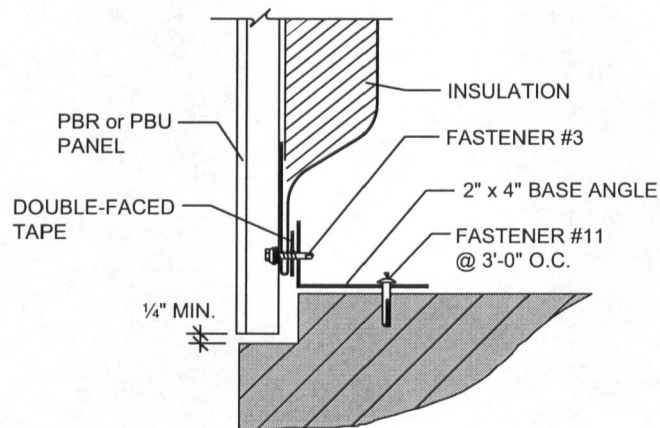


#### NOTES:

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

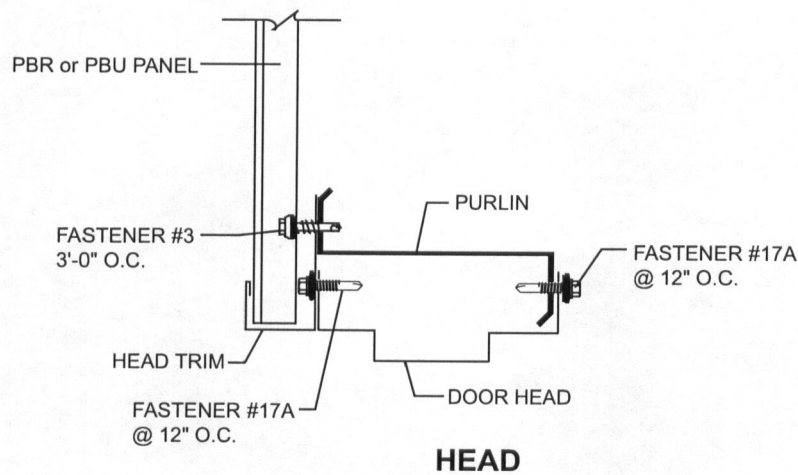
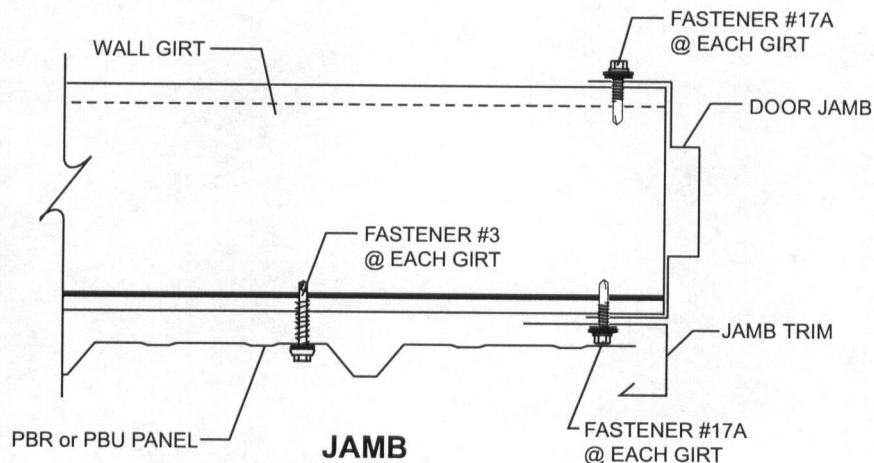


#### NOTES:

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 (1/4 - 14 x 1 1/4" 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.



## TYPICAL DETAILS Head / Jamb



### NOTES:

1. Install Jamb and Head Trim with pop rivets as required to support flashing during panel installation.

## 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. 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.