



# PBR & PBU PANELS

Technical/Installation Information

# IMPORTANT NOTICE

**READ THIS MANUAL COMPLETELY PRIOR TO BEGINNING THE INSTALLATION OF THE Retro-R® PANELS. THE MANUFACTURER 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 INSTALLATION DRAWINGS PROVIDED OR APPROVED BY THE MANUFACTURER AND DETAILS IN THIS MANUAL, PROJECT INSTALLATION DRAWINGS WILL TAKE PRECEDENCE.**

©Copyright NCI Group, Inc. 2016 All Rights Reserved

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.

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 obligations. To ensure you have the latest information available, please inquire or visit our website at [www.mbc.com](http://www.mbc.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.

For complete performance specifications, product limitations, and disclaimers, please consult MBCI's Paint and Galvalume Plus® warranties. Upon receipt of payment in full, these warranties are available upon request for all painted or Galvalume Plus® prime products. Sample copies can be found at [www.mbc.com](http://www.mbc.com) or contact your local MBCI Sales Representative.

# TABLE OF CONTENTS

## PBR PANEL

Architect/Engineer Information . . . . .	PB-2
PBR Panel UL 90 Requirements . . . . .	PB-3

### PRODUCT INFORMATION

General Discription . . . . .	PB-4
Product Selection Chart . . . . .	PB-4
PBR Panel Section Properties . . . . .	PB-5
PBR Panel Allowable Uniform Roof Loads . . . . .	PB-6
PBR Panel Allowable Uniform Wall Loads . . . . .	PB-7
PBR Panel Product Checklist . . . . .	PB-8 - PB-9
PBR Panel Fastener Locations . . . . .	PB-10
PBR Panel Attachment . . . . .	PB-11
PBR Panel UL 90 Light Transmitting Panel Installation . . . . .	PB-12 - PB-13

## PBU PANEL

Architect/Engineer Information . . . . .	PB-14
PBU Panel UL 90 Requirements . . . . .	PB-15

### PRODUCT INFORMATION

General Discription . . . . .	PB-16
Product Selection Chart . . . . .	PB-16
PBR Panel Section Properties . . . . .	PB-17
PBR Panel Allowable Uniform Roof Loads . . . . .	PB-18
PBR Panel Allowable Uniform Wall Loads . . . . .	PB-19
PBR Panel Product Checklist . . . . .	PB-20 - PB-21
PBU Panel Fastener Locations . . . . .	PB-22
PBR Panel Attachment . . . . .	PB-23
PBR Panel UL 90 Light Transmitting Panel Installation . . . . .	PB-24 - PB-25

### DETAILS

Installation Guidelines . . . . .	PB-26
Ridge . . . . .	PB-27
High Side Eave . . . . .	PB-28
Hip . . . . .	PB-29
Valley . . . . .	PB-30
Gutter . . . . .	PB-31
Eave Trim . . . . .	PB-32
Rake . . . . .	PB-33
Parapet High Side Eave . . . . .	PB-34
Parapet Rake . . . . .	PB-35
Corner . . . . .	PB-36
Corner Box . . . . .	PB-37
Base . . . . .	PB-38
Head Jamb . . . . .	PB-39



## PRODUCT INFORMATION

### 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 9 and page 10.
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.

### FACTORY MUTUAL APPROVALS

RATING	PROFILE	WIDTH (IN)	GAUGE	PURLIN SPACING	PURLIN GA.	FASTENER TYPE	NUMBER OF FASTENERS	STITCH FASTENER	STITCH FASTENER SPACING
1-135	PBR1	36	24	5'-3 1/4"	16	1/4-14 X 1 1/4 ZAC3	3	1/4-14 X 7/8 ZAC11	20" o.c.
1-165	PBR1	36	24	5'-3 1/4"	16	1/4-14 X 1 1/4 ZAC3	6	1/4-14 X 7/8 ZAC11	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)

## PRODUCT INFORMATION

### 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. 14 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

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.

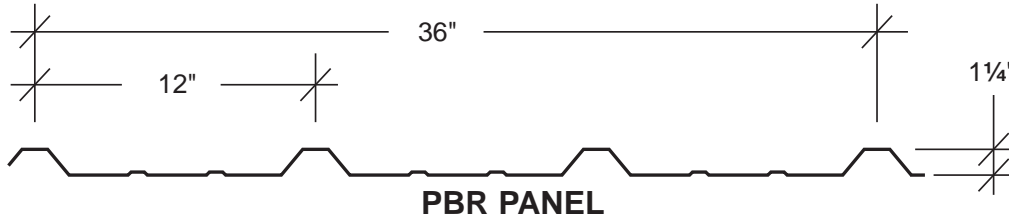
**Look for classification marking on product.**

### 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 INFORMATION

### GENERAL DESCRIPTION



**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\*

### 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.

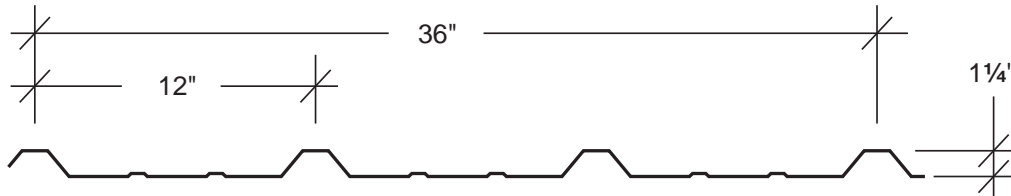
\*See Commercial/Industrial color chart for available colors.

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

❖ The Galvalume Plus® coating is subject to variances in spangle from coil to coil which may result in noticeable shade variation in installed panels. The Galvalume Plus® coating is also subject to differential weathering after panel installation. Panels may appear to be different shades due to this weathering characteristic. If a consistent appearance is required, MBCI recommends that pre-painted panels be used in lieu of Galvalume Plus®. Shade variation in panels manufactured from Galvalume Plus® coated material do not diminish the structural integrity of the product. These shade variations should be anticipated and are not a cause for rejection.

## PRODUCT INFORMATION

### PBR PANEL



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	Fy	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	0.0215	0.0325	1.2656	0.0238	0.0230	0.9859
26	60*	0.94	0.0309	0.0449	1.8019	0.0382	0.0381	1.6759
24	50	1.14	0.0420	0.0570	1.7060	0.0551	0.0567	1.6968
22	50	1.44	0.0567	0.0739	2.2119	0.0754	0.0787	2.3553

\* Fy is 80-ksi reduced to 60-ksi in accordance with the 2012 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 Roof panels are calculated in accordance with the 2012 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.



## PRODUCT INFORMATION

### PBR ROOF PANEL ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

**29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi**

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	93.75	52.73	33.75	23.44	17.22	13.18	10.42
	LIVE LOAD/DEFLECTION	67.01	32.53	16.66	9.64	6.07	4.07	2.86
2-span	NEGATIVE WIND LOAD	61.91	37.19	24.61	17.42	12.96	10.00	7.94
	LIVE LOAD/DEFLECTION	70.40	45.18	30.41	21.75	16.28	12.62	9.40
3-span	NEGATIVE WIND LOAD	73.01	44.74	29.96	21.37	15.96	12.36	9.84
	LIVE LOAD/DEFLECTION	80.00	53.43	36.52	22.73	14.32	9.59	6.74
4-span	NEGATIVE WIND LOAD	69.51	42.31	28.22	20.08	14.97	11.58	9.21
	LIVE LOAD/DEFLECTION	77.00	50.82	34.56	24.74	15.58	10.44	7.33

**26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi**

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	133.48	75.08	48.05	33.37	24.52	18.77	14.83
	LIVE LOAD/DEFLECTION	119.08	52.22	26.74	15.47	9.74	6.53	4.58
2-span	NEGATIVE WIND LOAD	114.41	66.59	43.33	30.37	22.44	17.24	13.66
	LIVE LOAD/DEFLECTION	105.60	71.09	46.37	32.55	24.07	18.51	13.88
3-span	NEGATIVE WIND LOAD	138.49	81.62	53.46	37.61	27.86	21.44	17.00
	LIVE LOAD/DEFLECTION	120.00	86.91	57.11	34.86	21.95	14.71	10.33
4-span	NEGATIVE WIND LOAD	130.70	76.70	50.12	35.22	26.06	20.05	15.89
	LIVE LOAD/DEFLECTION	115.50	81.75	53.58	37.71	23.77	15.93	11.18

**24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi**

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	126.37	71.08	45.49	31.59	23.21	17.77	14.04
	LIVE LOAD/DEFLECTION	125.69	70.70	38.51	22.28	14.03	9.40	6.60
2-span	NEGATIVE WIND LOAD	120.59	69.04	44.56	31.09	22.91	17.57	13.90
	LIVE LOAD/DEFLECTION	117.33	69.40	44.80	31.25	23.03	17.66	13.97
3-span	NEGATIVE WIND LOAD	148.17	85.44	55.34	38.68	28.53	21.90	17.34
	LIVE LOAD/DEFLECTION	133.33	85.87	55.62	38.89	28.68	19.34	13.58
4-span	NEGATIVE WIND LOAD	139.13	80.03	51.77	36.16	26.66	20.46	16.19
	LIVE LOAD/DEFLECTION	128.33	80.43	52.04	36.35	26.81	20.57	14.45

**22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi**

SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	163.85	92.16	58.98	40.96	30.09	23.04	18.21
	LIVE LOAD/DEFLECTION	174.46	98.14	52.70	30.50	19.21	12.87	9.04
2-span	NEGATIVE WIND LOAD	168.30	96.14	61.98	43.21	31.83	24.41	19.31
	LIVE LOAD/DEFLECTION	158.71	90.50	58.30	40.63	29.91	22.94	18.14
3-span	NEGATIVE WIND LOAD	207.24	119.12	77.03	53.80	39.67	30.44	24.09
	LIVE LOAD/DEFLECTION	195.75	112.25	72.50	50.61	37.24	24.95	17.52
4-span	NEGATIVE WIND LOAD	194.44	111.53	72.04	50.29	37.06	28.43	22.50
	LIVE LOAD/DEFLECTION	183.56	105.06	67.79	47.29	34.84	26.54	18.64

**Notes:**

1. Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members.
2. Allowable loads are applicable for uniform loading and spans without overhangs
3. LIVE LOAD/DEFLECTION 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
4. NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading
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. Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
7. The use of any accessories other than those provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
8. 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.



## PRODUCT INFORMATION

### PBR WALL PANEL ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	93.75	52.73	33.75	23.44	17.22	13.18	10.42
	LIVE LOAD/DEFLECTION	67.01	41.08	26.29	18.26	13.41	10.27	8.11
2-span	NEGATIVE WIND LOAD	61.91	37.19	24.61	17.42	12.96	10.00	7.94
	LIVE LOAD/DEFLECTION	70.40	45.18	30.41	21.75	16.28	12.62	10.06
3-span	NEGATIVE WIND LOAD	73.01	44.74	29.96	21.37	15.96	12.36	9.84
	LIVE LOAD/DEFLECTION	80.00	53.43	36.52	26.39	19.89	15.50	12.40
4-span	NEGATIVE WIND LOAD	69.51	42.31	28.22	20.08	14.97	11.58	9.21
	LIVE LOAD/DEFLECTION	77.00	50.82	34.56	24.89	18.72	14.56	11.63

26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	133.48	75.08	48.05	33.37	24.52	18.77	14.83
	LIVE LOAD/DEFLECTION	119.08	69.83	44.69	31.04	22.80	17.46	13.79
2-span	NEGATIVE WIND LOAD	114.41	66.59	43.33	30.37	22.44	17.24	13.66
	LIVE LOAD/DEFLECTION	105.60	71.09	46.37	32.55	24.07	18.51	14.66
3-span	NEGATIVE WIND LOAD	138.49	81.62	53.46	37.61	27.86	21.44	17.00
	LIVE LOAD/DEFLECTION	120.00	86.91	57.11	40.25	29.85	22.99	18.24
4-span	NEGATIVE WIND LOAD	130.70	76.70	50.12	35.22	26.06	20.05	15.89
	LIVE LOAD/DEFLECTION	115.50	81.75	53.58	37.71	27.93	21.50	17.05

24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	126.37	71.08	45.49	31.59	23.21	17.77	14.04
	LIVE LOAD/DEFLECTION	125.69	70.70	45.25	31.42	23.09	17.68	13.97
2-span	NEGATIVE WIND LOAD	120.59	69.04	44.56	31.09	22.91	17.57	13.90
	LIVE LOAD/DEFLECTION	117.33	69.40	44.80	31.25	23.03	17.66	13.97
3-span	NEGATIVE WIND LOAD	148.17	85.44	55.34	38.68	28.53	21.90	17.34
	LIVE LOAD/DEFLECTION	133.33	85.87	55.62	38.89	28.68	22.02	17.43
4-span	NEGATIVE WIND LOAD	139.13	80.03	51.77	36.16	26.66	20.46	16.19
	LIVE LOAD/DEFLECTION	128.33	80.43	52.04	36.35	26.81	20.57	16.28

22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	163.85	92.16	58.98	40.96	30.09	23.04	18.21
	LIVE LOAD/DEFLECTION	174.46	98.14	62.81	43.62	32.04	24.53	19.38
2-span	NEGATIVE WIND LOAD	168.30	96.14	61.98	43.21	31.83	24.41	19.31
	LIVE LOAD/DEFLECTION	158.71	90.50	58.30	40.63	29.91	22.94	18.14
3-span	NEGATIVE WIND LOAD	207.24	119.12	77.03	53.80	39.67	30.44	24.09
	LIVE LOAD/DEFLECTION	195.75	112.25	72.50	50.61	37.29	28.61	22.64
4-span	NEGATIVE WIND LOAD	194.44	111.53	72.04	50.29	37.06	28.43	22.50
	LIVE LOAD/DEFLECTION	183.56	105.06	67.79	47.29	34.84	26.72	21.14

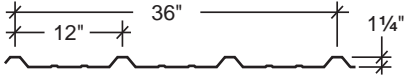
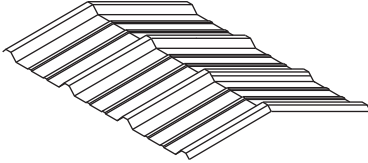
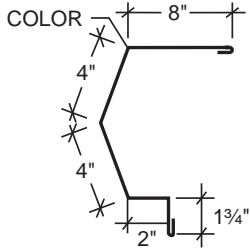
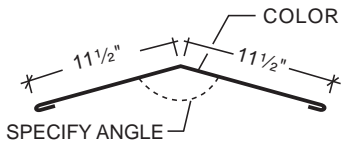
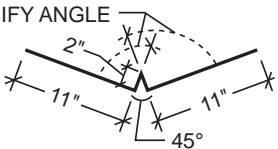
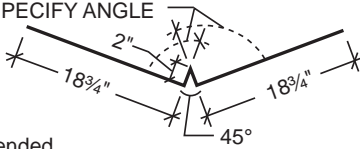
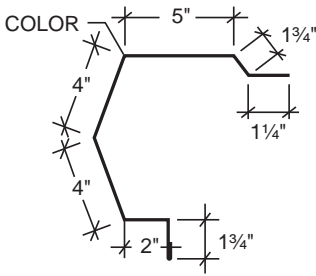
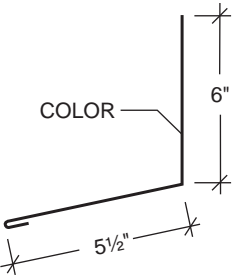
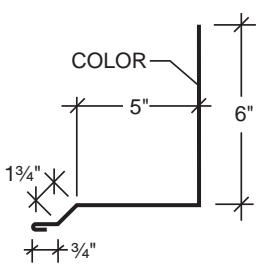
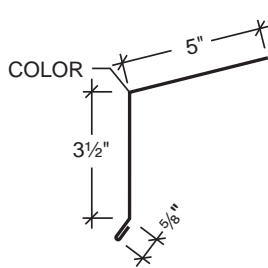
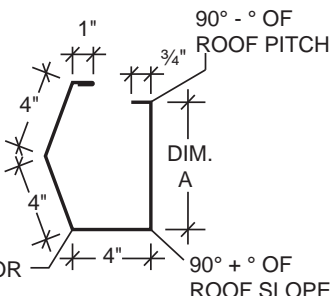
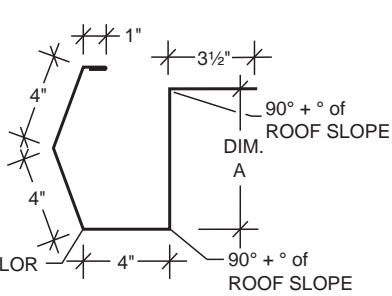

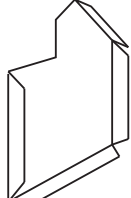
#### Notes:

- Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members.
- Allowable loads are applicable for uniform loading and spans without overhangs
- LIVE LOAD/DEFLECTION 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/60 under 10-year wind loading
- NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading
- Panel pullover and Screw pullout capacity must be checked separately using the screws employed for each particular application when utilizing this load chart.
- Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
- The use of any accessories other than those provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
- 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.

## PRODUCT INFORMATION

### PRODUCT CHECKLIST

<p><b>PBR Panel</b></p>  <p>PBR Panel <input type="checkbox"/></p>	<p><b>Ridge Cap</b></p>  <p>Maximum Roof Pitch 5:12 Specify Pitch</p> <p>FL-49 2'-6" <input type="checkbox"/> FL-51 3'-0" <input type="checkbox"/></p>	<p><b>Sculptured High Side Eave</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-17 <input type="checkbox"/></p>
<p><b>Flat Ridge/Hip Flashing</b></p>  <p>FL-38A <input type="checkbox"/></p>	<p><b>Valley Flashing</b></p> <p>SPECIFY ANGLE</p>  <p>Standard</p> <p>FL-556 <input type="checkbox"/></p> <p>SPECIFY ANGLE</p>  <p>Extended</p> <p>FL-558 <input type="checkbox"/></p>	<p><b>Sculptured Rake</b></p>  <p>COLOR</p> <p>FL-16 <input type="checkbox"/></p>
<p><b>Parapet High Eave</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-874 <input type="checkbox"/></p>	<p><b>Parapet Rake</b></p>  <p>COLOR</p> <p>FL-952 <input type="checkbox"/></p>	<p><b>Eave Trim</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-19 <input type="checkbox"/></p>
<p><b>Sculptured Hang-On Gutter</b></p>  <p>90° - ° OF ROOF PITCH</p> <p>DIM. A</p> <p>90° + ° OF ROOF SLOPE</p> <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-18C <input type="checkbox"/></p>	<p><b>Sculptured Eave Gutter</b></p>  <p>90° + ° of ROOF SLOPE</p> <p>DIM. A</p> <p>90° + ° of ROOF SLOPE</p> <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-18 <input type="checkbox"/></p>	<p><b>Gutter Strap</b></p>  <p>FL-893 <input type="checkbox"/></p> <p><b>Gutter End</b></p>  <p>Specify Left or Right Specify Gutter part no.</p> <p>FL-18A <input type="checkbox"/></p>

## PRODUCT INFORMATION

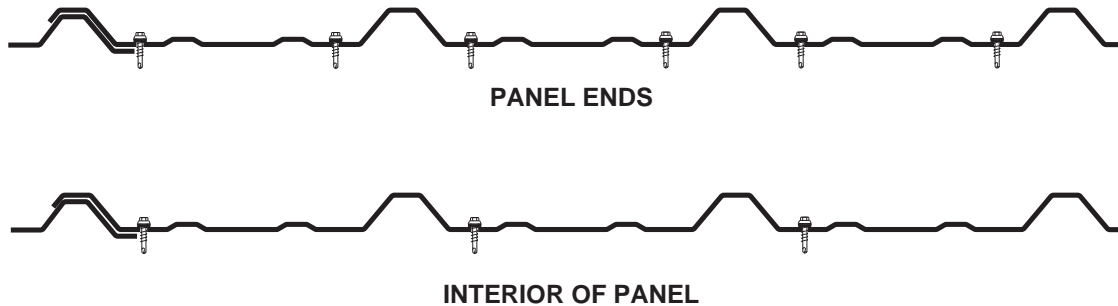
### PRODUCT CHECKLIST

<b>Inside Corner Trim</b>  COLOR FL-800 <input type="checkbox"/>	<b>Downspouts</b>  FL-31 - Straight <input type="checkbox"/> FL-31A - With Kick-Out <input type="checkbox"/>	<b>Corner Trim - Outside</b>  COLOR FL-830 <input type="checkbox"/>
<b>Base Trim (With Sheeting Notch)</b>  COLOR FL-72 <input type="checkbox"/>	<b>Base Trim (Without Sheeting Notch)</b>  COLOR FL-530 <input type="checkbox"/>	<b>Jamb Trim</b>  COLOR FL-23 <input type="checkbox"/>
<b>Fasteners</b> #17A  12-14 X 1 1/4" Driller <input type="checkbox"/> #12A  12-14 x 1" Pancake Head Driller <input type="checkbox"/> #3  12-14 X 1 1/4" Long Life Driller <input type="checkbox"/> #4  1/4"-14 X 7/8" Long Life Lap Tek <input type="checkbox"/> #43L  1/4"-14 X 1 1/4" Long Life Driller with 1 1/8" O.D. washer <input type="checkbox"/> #44L  1/4"-14 X 7/8" Long Life Lap Tek with 1 1/8" O.D. Washer <input type="checkbox"/> #14  1/8 X 3/16" Stainless Steel Pop Rivet <input type="checkbox"/>	<b>LTP</b>  High Strength Fiberglass <input type="checkbox"/> High Strength Fiberglass <input type="checkbox"/> U.V. Resistant <b>Sealant</b>  1/2" X 3/32" HW-507 <input type="checkbox"/> 1" X 3/32" HW-506 <input type="checkbox"/> Triple Bead HW-502 <input type="checkbox"/>  URETHANE SEALANT 11 OZ. Color Part No. White HW-540 <input type="checkbox"/> Gray HW-540 <input type="checkbox"/> Almond HW-540 <input type="checkbox"/> Bronze HW-540 <input type="checkbox"/> <b>NOTE:</b> 25' Per tube at 1/4" bead	<b>Head Trim</b>  COLOR FL-26 <input type="checkbox"/> <b>Closures</b>  Inside HW-455 <input type="checkbox"/> Outside HW-456 <input type="checkbox"/> Beveled Inside* <input type="checkbox"/> Beveled Outside* <input type="checkbox"/> *Special order - requires two-week lead time

Note: It is the users responsibility to ensure that the installation and use of all light transmitting panels comply with State, Federal and OSHA regulations and laws, including, but not limited to, guarding all light transmitting panels with screens, fixed standard railings, or other acceptable safety controls that prevent fall-through.

## PRODUCT INFORMATION

### PBR PANEL FASTENER LOCATIONS

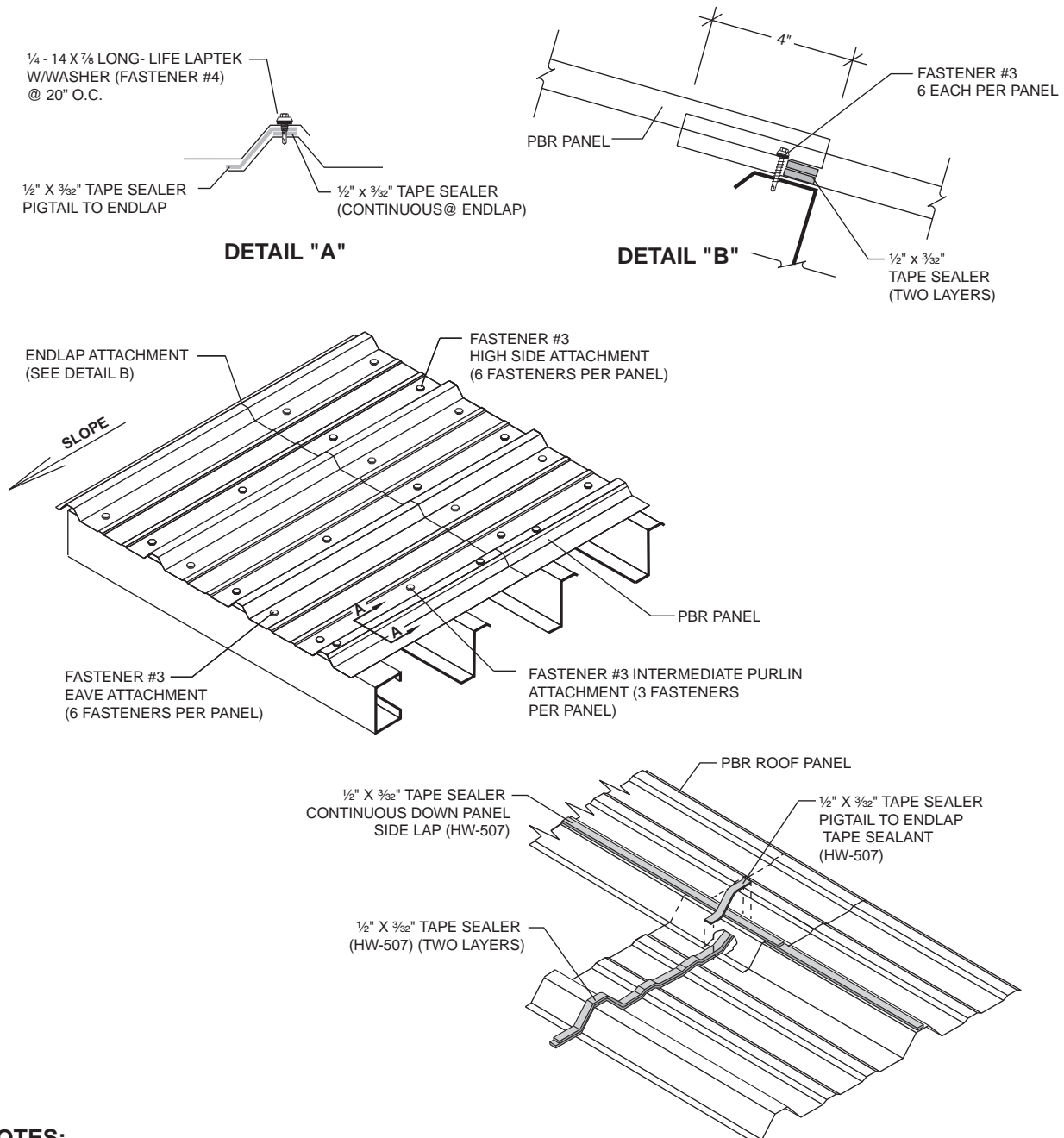


#### NOTES:

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  $\frac{1}{2}$ " x  $\frac{3}{32}$ " 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.

## PRODUCT INFORMATION

### PBR PANEL ATTACHMENT



#### NOTES:

##### Sidelap

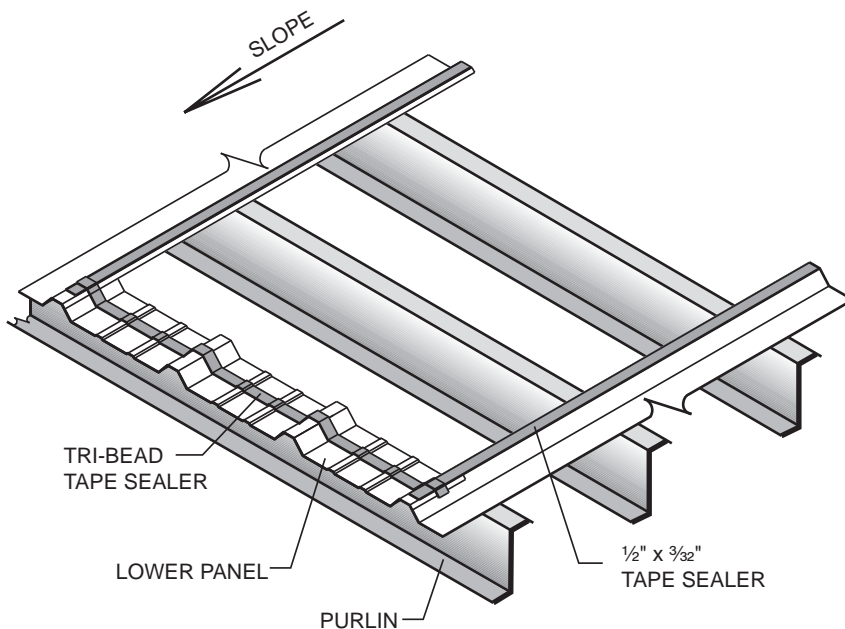
1. 1/2" X 3/32" tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 (1/4"-14 X 7/8" Long Life Lap Tek) at 20" O.C. at roof panel side laps and 24" O.C. at wall panel side laps.
3. When possible, install panels such that sidelaps are nested away from prevailing winds.
4. Fastener #4A (1/4"-14 X 7/8" Lap Tek) are available as an alternate when long life fasteners are not desired.

##### Endlap

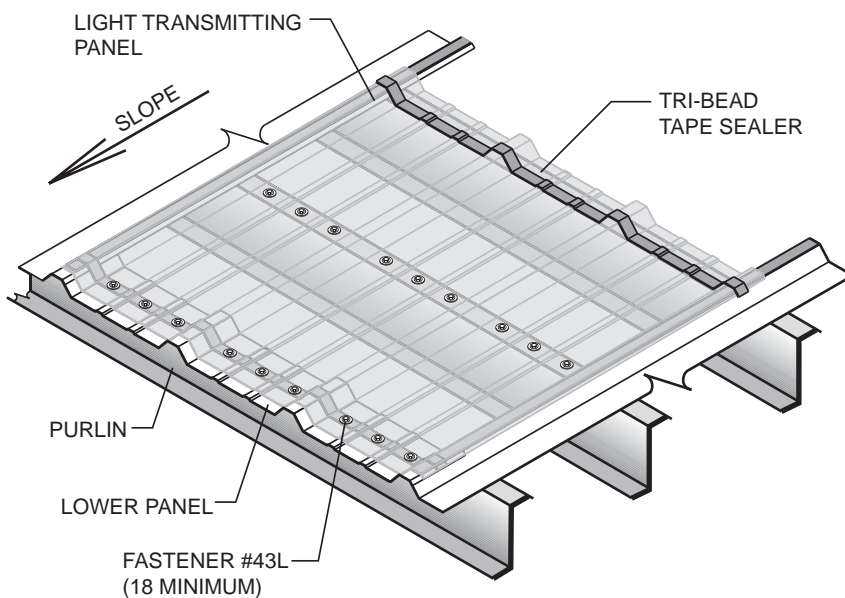
1. Stack 2 continuous layers of 1/2" X 3/32" tape sealer on top of each other and must be installed between weather infiltration point and fastener.
2. Install a 1/2" X 3/32" tape sealer pigtail to complete the seal between the side lap tape sealant and the end lap tape sealant.
3. Install Fastener #3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

## PRODUCT INFORMATION

### 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 metal 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.

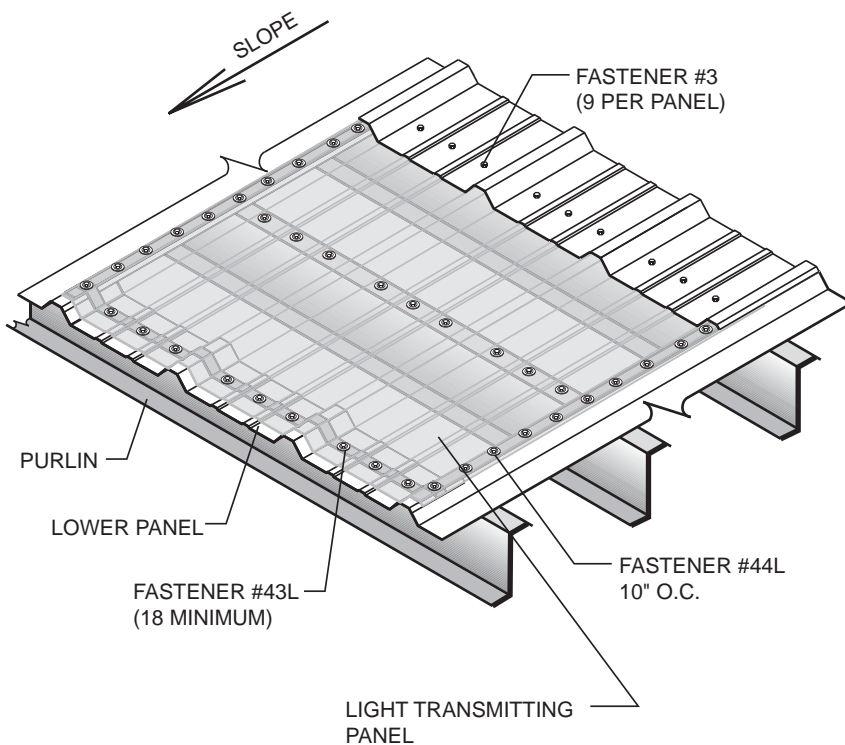
## PRODUCT INFORMATION

### 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 9 for side 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 nine Fastener #3 (12 - 14 X  $1\frac{1}{4}$ " Long Life drillers).





## PRODUCT INFORMATION

### 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 tape sealant is required at panel sidelaps and endlaps.
4. PBU panel is a through-fastened panel. For proper fastener application, see page 21 and page 22.
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 INFORMATION

### UL 90 REQUIREMENTS PBU PANEL

#### Construction #39

**26 MSG Min. Gauge PBU Panel over Purlins at 5'- 0 ¼" 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.

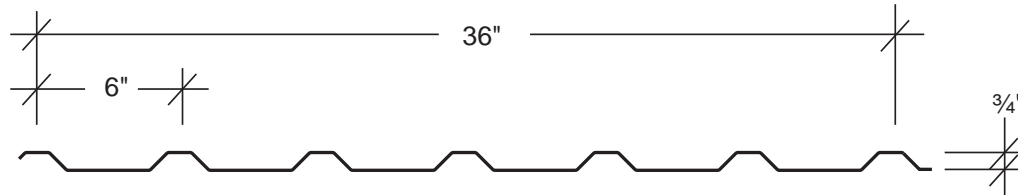
**Look for classification marking on product.**

### 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 INFORMATION

### 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\*

### PRODUCT SELECTION CHART

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

● - Available in any quantity.

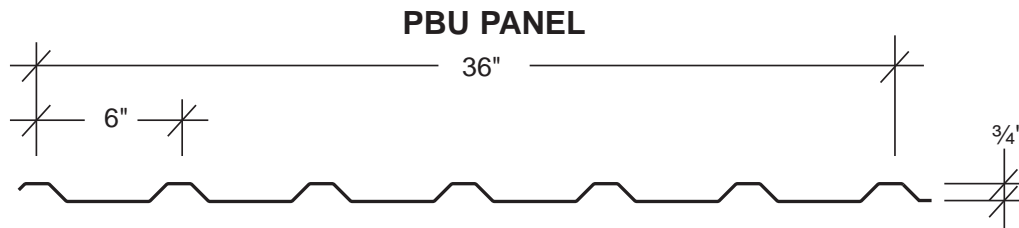
■ - Minimum quantity may be required.

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

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

❖ The Galvalume Plus® coating is subject to variances in spangle from coil to coil which may result in noticeable shade variation in installed panels. The Galvalume Plus® coating is also subject to differential weathering after panel installation. Panels may appear to be different shades due to this weathering characteristic. If a consistent appearance is required, MBCI recommends that pre-painted panels be used in lieu of Galvalume Plus®. Shade variation in panels manufactured from Galvalume Plus® coated material do not diminish the structural integrity of the product. These shade variations should be anticipated and are not a cause for rejection.

## PRODUCT INFORMATION



SECTION PROPERTIES								
			NEGATIVE BENDING			POSITIVE BENDING		
PANEL	Fy	WEIGHT	Ixe	Sxe	Maxo	Ixe	Sxe	Maxo
GAUGE	(KSI)	(PSF)	(IN.4/FT.)	(IN.3/FT.)	(KIP-IN.)	(IN.4/FT.)	(IN.3/FT.)	(KIP-IN.)
29	60*	0.75	0.011	0.024	0.911	0.015	0.025	1.091
26	60*	0.94	0.016	0.037	1.432	0.023	0.041	1.807
24	50	1.14	0.022	0.053	1.574	0.032	0.057	1.718
22	50	1.44	0.031	0.070	2.105	0.042	0.077	2.310

\* Fy is 80-ksi reduced to 60-ksi in accordance with the 2012 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 Roof 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.

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.

## PRODUCT INFORMATION

### PBU ROOF PANEL ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	67.49	37.96	24.30	16.87	11.91	7.98	5.60
	LIVE LOAD/DEFLECTION	48.81	20.59	10.54	6.10	3.84	2.57	1.81
2-span	NEGATIVE WIND LOAD	78.35	44.67	28.77	20.05	14.76	11.32	8.95
	LIVE LOAD/DEFLECTION	66.02	37.49	24.10	16.78	11.80	7.91	5.55
3-span	NEGATIVE WIND LOAD	96.65	55.41	35.78	24.97	18.40	14.12	11.17
	LIVE LOAD/DEFLECTION	81.75	46.61	24.37	14.10	8.88	5.95	4.18
4-span	NEGATIVE WIND LOAD	90.63	51.85	33.46	23.34	17.19	13.19	10.43
	LIVE LOAD/DEFLECTION	76.56	43.59	26.23	15.18	9.56	6.40	4.50

26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	106.10	59.68	38.20	26.52	17.48	11.71	8.22
	LIVE LOAD/DEFLECTION	75.46	31.84	16.30	9.43	5.94	3.98	2.79
2-span	NEGATIVE WIND LOAD	130.50	74.21	47.74	33.24	24.46	18.75	14.83
	LIVE LOAD/DEFLECTION	104.42	59.14	37.97	26.19	16.49	11.05	7.76
3-span	NEGATIVE WIND LOAD	161.40	92.19	59.43	41.44	30.45	23.31	17.07
	LIVE LOAD/DEFLECTION	129.63	68.21	34.92	20.21	12.73	8.53	5.99
4-span	NEGATIVE WIND LOAD	151.20	86.23	55.55	38.71	28.50	21.85	17.28
	LIVE LOAD/DEFLECTION	121.28	68.83	37.30	21.58	13.59	9.11	6.40

24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	116.62	65.60	41.98	29.15	21.42	15.90	11.17
	LIVE LOAD/DEFLECTION	102.37	43.19	22.11	12.80	8.06	5.40	3.79
2-span	NEGATIVE WIND LOAD	124.52	70.69	45.44	31.63	23.27	17.84	14.10
	LIVE LOAD/DEFLECTION	114.52	64.93	41.71	29.02	20.38	13.65	9.59
3-span	NEGATIVE WIND LOAD	154.22	87.90	56.61	39.45	29.04	22.26	17.61
	LIVE LOAD/DEFLECTION	142.04	80.80	43.73	25.31	15.94	10.68	7.50
4-span	NEGATIVE WIND LOAD	144.41	82.20	52.90	36.85	27.12	20.79	16.44
	LIVE LOAD/DEFLECTION	132.94	75.53	46.46	26.89	16.93	11.34	7.97

22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	155.91	87.70	56.13	38.98	28.64	21.93	15.67
	LIVE LOAD/DEFLECTION	136.57	57.62	29.50	17.07	10.75	7.20	5.06
2-span	NEGATIVE WIND LOAD	167.07	94.95	61.06	42.51	31.28	23.98	18.96
	LIVE LOAD/DEFLECTION	152.86	86.72	55.73	38.78	26.14	17.51	12.30
3-span	NEGATIVE WIND LOAD	206.75	117.99	76.04	53.00	39.03	29.93	23.67
	LIVE LOAD/DEFLECTION	189.46	107.88	56.18	32.51	20.47	13.72	9.63
4-span	NEGATIVE WIND LOAD	193.65	110.35	71.06	49.52	36.45	27.95	22.10
	LIVE LOAD/DEFLECTION	177.36	100.86	59.64	34.52	21.74	14.56	10.23

#### Notes:

1. Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members."
2. Allowable loads are applicable for uniform loading and spans without overhangs.
3. LIVE LOAD/DEFLECTION 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.
4. NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure, shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading.
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. Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
7. The use of any accessories other than those provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
8. 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.

## PRODUCT INFORMATION

### PBU WALL PANEL ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	67.49	37.96	24.30	16.87	11.91	7.98	5.60
	LIVE LOAD/DEFLECTION	80.84	45.47	29.10	20.21	14.85	11.03	7.75
2-span	NEGATIVE WIND LOAD	78.35	44.67	28.77	20.05	14.76	11.32	8.95
	LIVE LOAD/DEFLECTION	66.02	37.49	24.10	16.78	12.34	9.46	7.48
3-span	NEGATIVE WIND LOAD	96.65	55.41	35.78	24.97	18.40	14.12	11.17
	LIVE LOAD/DEFLECTION	81.75	46.61	30.02	20.92	15.40	11.81	9.34
4-span	NEGATIVE WIND LOAD	90.63	51.85	33.46	23.34	17.19	13.19	10.43
	LIVE LOAD/DEFLECTION	76.56	43.59	28.05	19.54	14.39	11.03	8.72

26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	106.10	59.68	38.20	26.52	17.48	11.71	8.22
	LIVE LOAD/DEFLECTION	133.83	75.28	48.18	33.46	24.58	17.05	11.98
2-span	NEGATIVE WIND LOAD	130.50	74.21	47.74	33.24	24.46	18.75	14.83
	LIVE LOAD/DEFLECTION	104.42	59.14	37.97	26.42	19.43	14.89	11.77
3-span	NEGATIVE WIND LOAD	161.40	92.19	59.43	41.44	30.45	23.31	17.07
	LIVE LOAD/DEFLECTION	129.63	73.64	47.35	32.96	24.26	18.59	14.70
4-span	NEGATIVE WIND LOAD	151.20	86.23	55.55	38.71	28.50	21.85	17.28
	LIVE LOAD/DEFLECTION	121.28	68.83	44.23	30.79	22.65	17.36	13.72

24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	116.62	65.60	41.98	29.15	21.42	15.90	11.17
	LIVE LOAD/DEFLECTION	127.22	71.56	45.80	31.81	23.37	17.89	14.14
2-span	NEGATIVE WIND LOAD	124.52	70.69	45.44	31.63	23.27	17.84	14.10
	LIVE LOAD/DEFLECTION	114.52	64.93	41.71	29.02	21.35	16.36	12.93
3-span	NEGATIVE WIND LOAD	154.22	87.90	56.61	39.45	29.04	22.26	17.61
	LIVE LOAD/DEFLECTION	142.04	80.80	51.98	36.20	26.64	20.42	16.15
4-span	NEGATIVE WIND LOAD	144.41	82.20	52.90	36.85	27.12	20.79	16.44
	LIVE LOAD/DEFLECTION	132.94	75.53	48.57	33.81	24.88	19.07	15.08

22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	155.91	87.70	56.13	38.98	28.64	21.93	15.67
	LIVE LOAD/DEFLECTION	171.09	96.24	61.59	42.77	31.42	24.06	19.01
2-span	NEGATIVE WIND LOAD	167.07	94.95	61.06	42.51	31.28	23.98	18.96
	LIVE LOAD/DEFLECTION	152.86	86.72	55.73	38.78	28.53	21.86	17.29
3-span	NEGATIVE WIND LOAD	206.75	117.99	76.04	53.00	39.03	29.93	23.67
	LIVE LOAD/DEFLECTION	189.46	107.88	69.44	48.37	35.61	27.30	21.59
4-span	NEGATIVE WIND LOAD	193.65	110.35	71.06	49.52	36.45	27.95	22.10
	LIVE LOAD/DEFLECTION	177.36	100.86	64.88	45.18	33.25	25.49	20.15

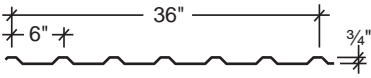
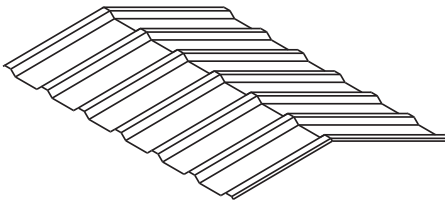
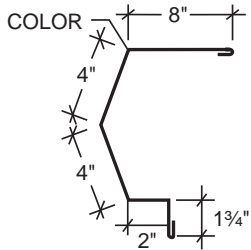
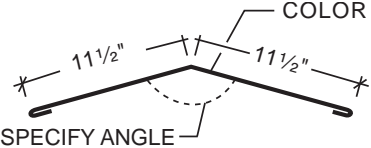
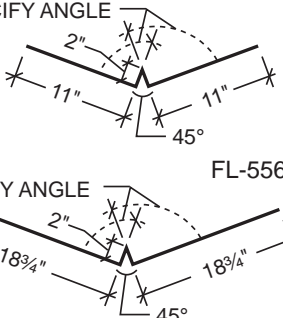
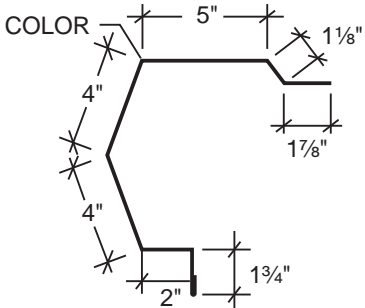
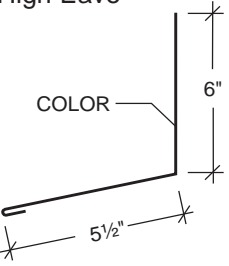
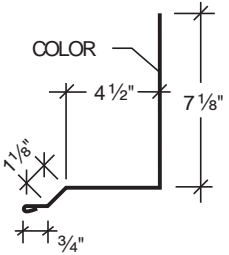
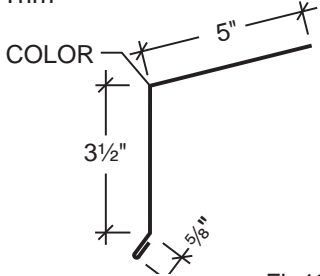
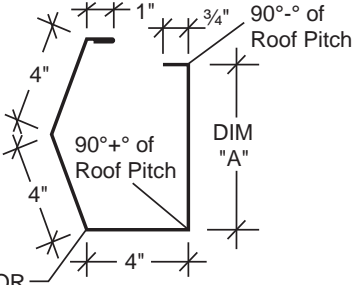
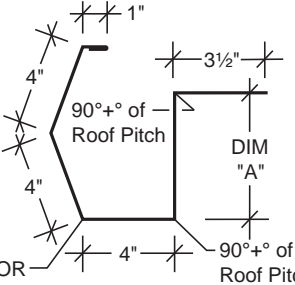

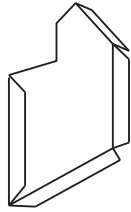
#### Notes:

1. Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members."
2. Allowable loads are applicable for uniform loading and spans without overhangs.
3. LIVE LOAD/DEFLECTION 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/60 under strength-level loads.
4. NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure, shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading.
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. Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
7. The use of any accessories other than those provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
8. 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.

## PRODUCT INFORMATION

### PRODUCT CHECKLIST

<p><b>PBU Panel</b></p>  <p>PBU Panel <input type="checkbox"/></p>	<p><b>Ridge Cap</b></p>  <p>Maximum Roof Pitch 5:12 Specify Pitch</p> <p>FL-50 2'-6" <input type="checkbox"/> FL-52 3'-0" <input type="checkbox"/></p>	<p><b>Sculptured High Side Eave</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-17 <input type="checkbox"/></p>
<p><b>Flat Ridge/Hip Flashing</b></p>  <p>COLOR</p> <p>SPECIFY ANGLE</p> <p>FL-38 <input type="checkbox"/></p>	<p><b>Valley Flashing</b></p> <p>SPECIFY ANGLE</p>  <p>Standard</p> <p>FL-556 <input type="checkbox"/></p> <p>Extended</p> <p>FL-558 <input type="checkbox"/></p>	<p><b>Sculptured Rake</b></p>  <p>COLOR</p> <p>FL-15 <input type="checkbox"/></p>
<p><b>Parapet High Eave</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-874 <input type="checkbox"/></p>	<p><b>Parapet Rake</b></p>  <p>COLOR</p> <p>FL-954 <input type="checkbox"/></p>	<p><b>Eave Trim</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-19 <input type="checkbox"/></p>
<p><b>Sculptured Hang-On Gutter</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-512B <input type="checkbox"/></p>	<p><b>Sculptured Eave Gutter</b></p>  <p>COLOR</p> <p>Specify Roof Slope</p> <p>FL-512 <input type="checkbox"/></p>	<p><b>Gutter Strap</b></p>  <p>FL-893 <input type="checkbox"/></p> <p><b>Gutter End</b></p>  <p>Specify Left or Right Specify Gutter part no.</p> <p>FL-18A <input type="checkbox"/></p>

## PRODUCT INFORMATION

### PRODUCT CHECKLIST

<p><b>Inside Corner Trim</b></p> <p>FL-810 <input type="checkbox"/></p>	<p><b>Downspouts</b></p> <p>FL-31 - Straight <input type="checkbox"/> FL-31A - With Kick-Out <input type="checkbox"/></p>	<p><b>Corner Trim - Outside</b></p> <p>FL-840 <input type="checkbox"/></p>
<p><b>Base Trim (With Sheeting Notch)</b></p> <p>FL-72 <input type="checkbox"/></p>	<p><b>Base Trim (Without Sheeting Notch)</b></p> <p>FL-530 <input type="checkbox"/></p>	<p><b>Jamb Trim</b></p> <p>FL-21 <input type="checkbox"/></p>
<p><b>Fasteners</b></p> <p>#17A  12-14 X 1 1/4" Driller <input type="checkbox"/></p> <p>#12A  12-14 x 1" Pancake Head Driller <input type="checkbox"/></p> <p>#3  12-14 X 1 1/4" Long Life Driller <input type="checkbox"/></p> <p>#4  1/4"-14 X 7/8" Long Life Lap Tek <input type="checkbox"/></p> <p>#43L  1/4"-14 X 1 1/4" Long Life Driller with 1 1/8" O.D. washer <input type="checkbox"/></p> <p>#44L  1/4"-14 X 7/8" Long Life Lap Tek with 1 1/8" O.D. Washer <input type="checkbox"/></p> <p>#14  1/8 X 3/16" Stainless Steel Pop Rivet <input type="checkbox"/></p>	<p><b>LTP</b></p> <p>High Strength Fiberglass <input type="checkbox"/> High Strength Fiberglass <input type="checkbox"/> U.V. Resistant</p> <p><b>Sealant</b></p> <p> 1/2" X 3/32" HW-507 <input type="checkbox"/></p> <p> 1" X 3/32" HW-506 <input type="checkbox"/></p> <p> Triple Bead HW-502 <input type="checkbox"/></p> <p> URETHANE</p> <p>Color    Part No. White    HW-540 <input type="checkbox"/> Gray     HW-540 <input type="checkbox"/> Almond   HW-540 <input type="checkbox"/> Bronze   HW-540 <input type="checkbox"/></p> <p><b>NOTE:</b> 25' Per tube at 1/4" bead</p>	<p><b>Head Trim</b></p> <p>FL-514A <input type="checkbox"/></p> <p><b>Closures</b></p> <p> Inside HW-459 <input type="checkbox"/></p> <p> Outside HW-460 <input type="checkbox"/></p> <p> Beveled Inside* <input type="checkbox"/></p> <p> Beveled Outside* <input type="checkbox"/></p> <p><small>*Special order - requires two-week lead time</small></p>

Note: It is the users responsibility to ensure that the installation and use of all light transmitting panels comply with State, Federal and OSHA regulations and laws, including, but not limited to, guarding all light transmitting panels with screens, fixed standard railings, or other acceptable safety controls that prevent fall-through.

SUBJECT TO CHANGE WITHOUT NOTICE

SEE [www.mbc.com](http://www.mbc.com) FOR CURRENT INFORMATION

REV 00.00

PB-21

## PRODUCT INFORMATION

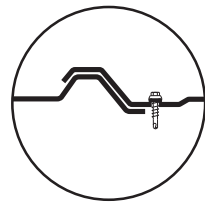
### PBU PANEL FASTENER LOCATIONS



PANEL ENDS



INTERIOR OF PANEL



APPLICATION

PREVAILING WIND

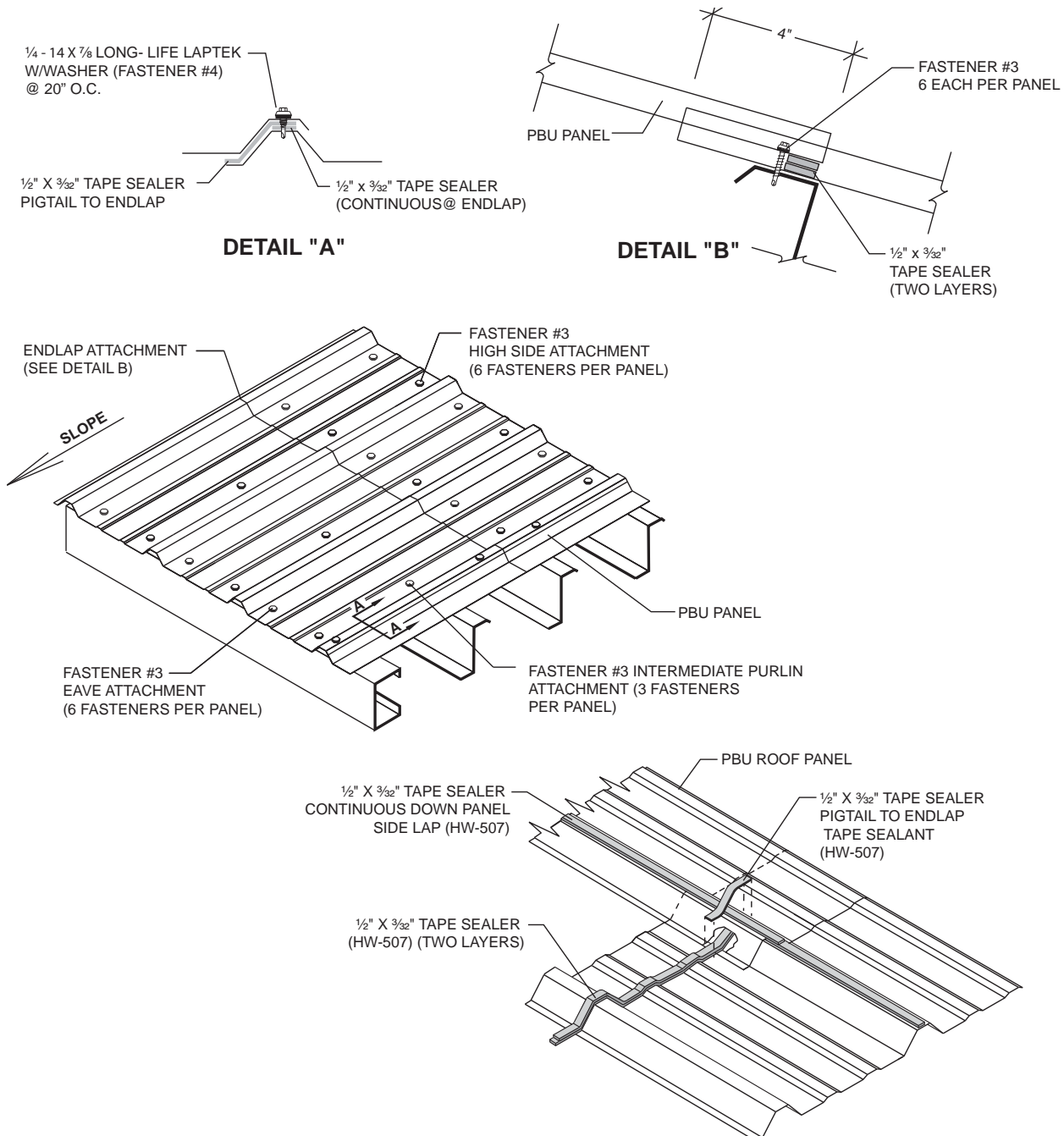
#### NOTES:

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  $\frac{1}{2}$ " X  $\frac{3}{32}$ " 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.



## PRODUCT INFORMATION

### PBU PANEL ATTACHMENT



### NOTES:

#### Sidelap

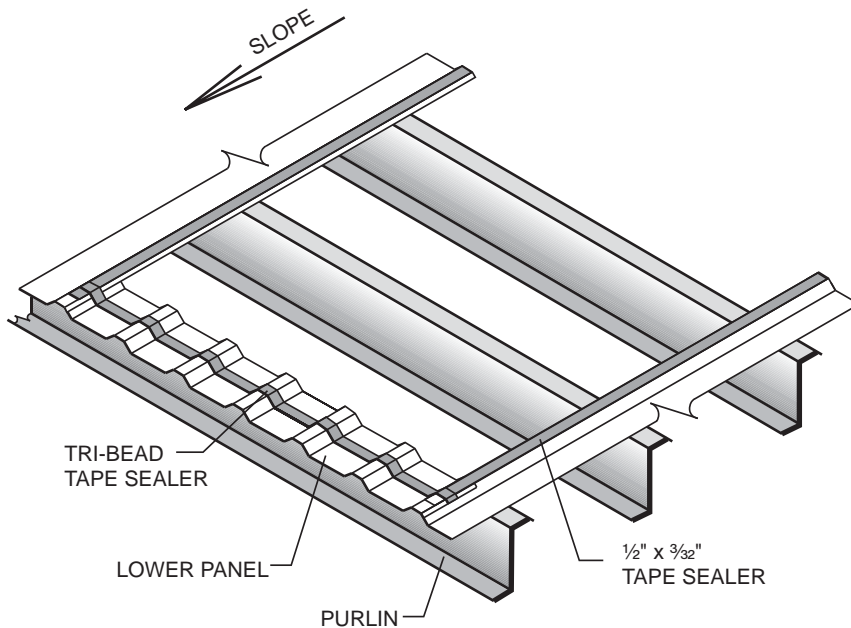
1. 1/2" X 3/32" tape sealer must be installed between weather infiltration point and fastener.
2. Install Fastener #4 (1/4"-14 X 7/8" Long Life Lap Tek) at 20" on center.
3. When possible, install panels such that sidelaps are nested away from prevailing winds.
4. Fastener #4A (1/4"-14 X 7/8" Lap Tek) are available as an alternate when long life fasteners are not desired.

#### Endlap

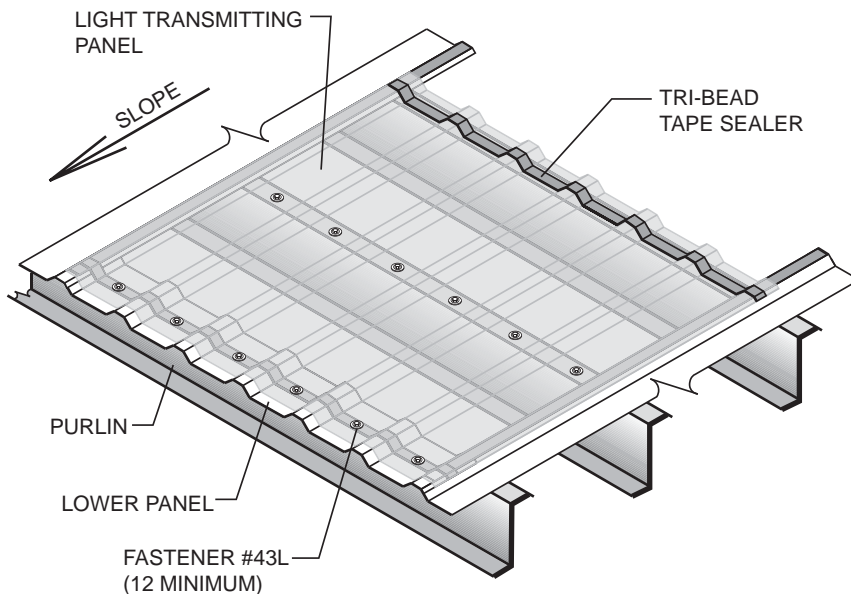
1. Stack 2 continuous layers of 1/2" X 3/32" tape sealer on top of each other and must be installed between weather infiltration point and fastener.
2. Install Fastener #3 (12-14 X 1 1/4" Long Life drill) on each side of major ribs of panel (two fasteners per foot).
3. Fastener #17A (12-14 X 1 1/4" self-driller)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

## PRODUCT INFORMATION

### LIGHT TRANSMITTING PANEL INSTALLATION



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

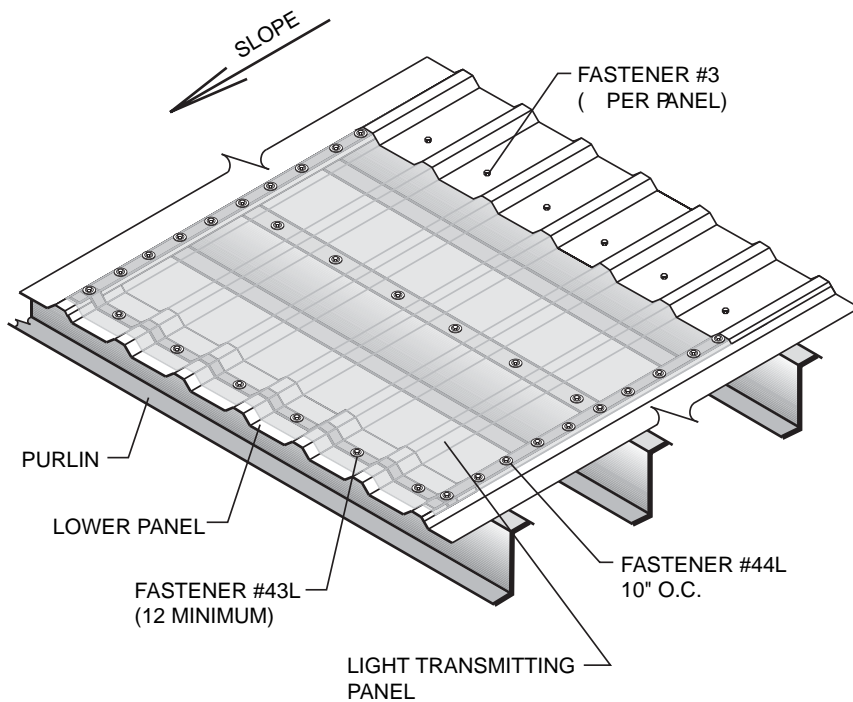


Attach light transmitting panels at the low and mid-slope connection to the purlin with six Fastener #43L (1/4 - 14 x 1 1/4" Long Life Driller with 1 1/8" O.D. washer) per connection.

## PRODUCT INFORMATION

### 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 19 for side 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 drillers).



## DETAILS

### INSTALLATION GUIDELINES

#### I. Pre-Order

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

#### II. Job Site Storage and Handling

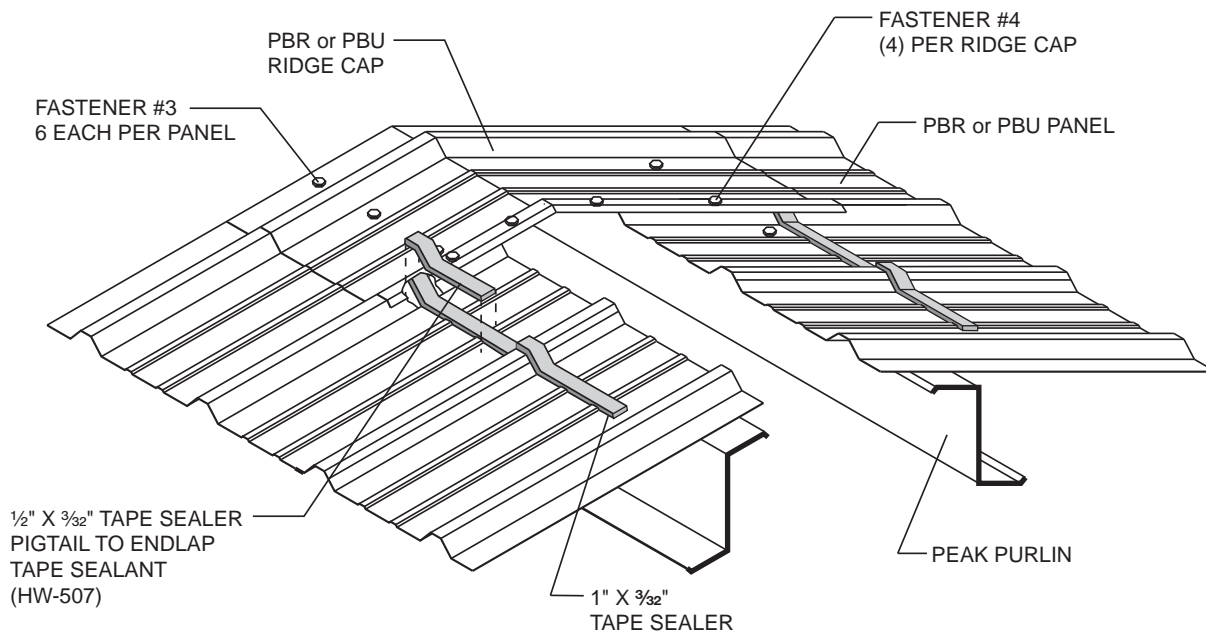
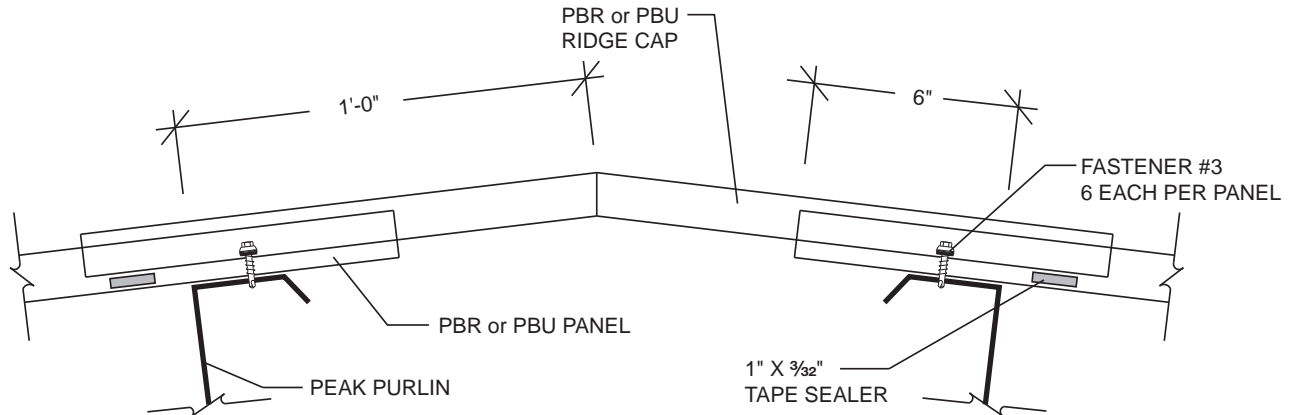
- A. Check the shipment against the shipping list.
- B. Damaged material must be noted on bill of lading.
- C. Panels should be handled carefully. A spreader bar of appropriate length is recommended for hoisting.
- D. Check to see that moisture has not formed inside the bundles during shipment. If moisture 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.

## DETAILS

### TYPICAL DETAILS Ridge

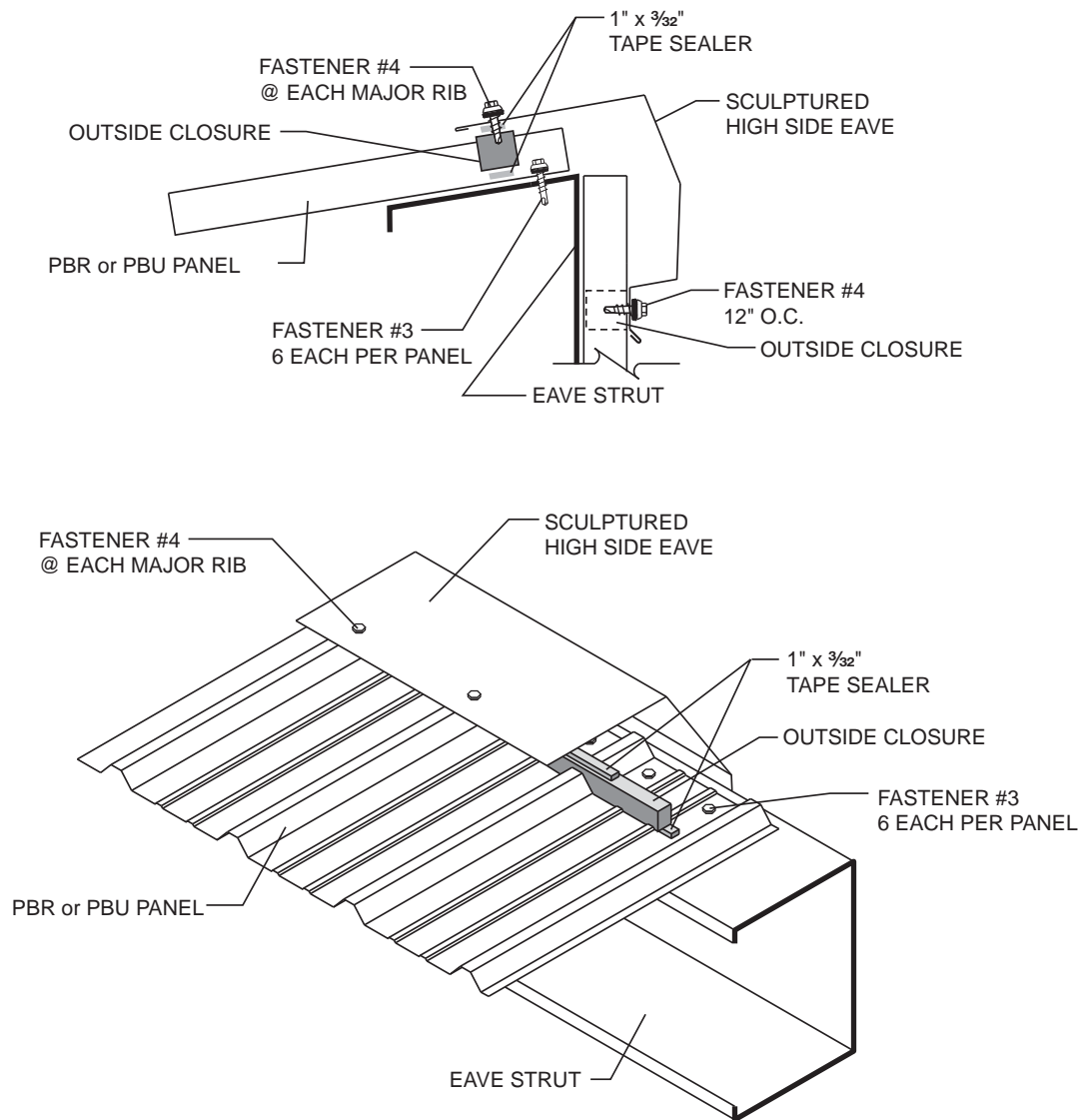


#### NOTES:

1. When ordering ridge caps, specify roof slope. Refer to MBCI price pages for maximum slope for each ridge cap.
2. Install 1" 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" 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.

## DETAILS

### TYPICAL DETAILS High Side Eave



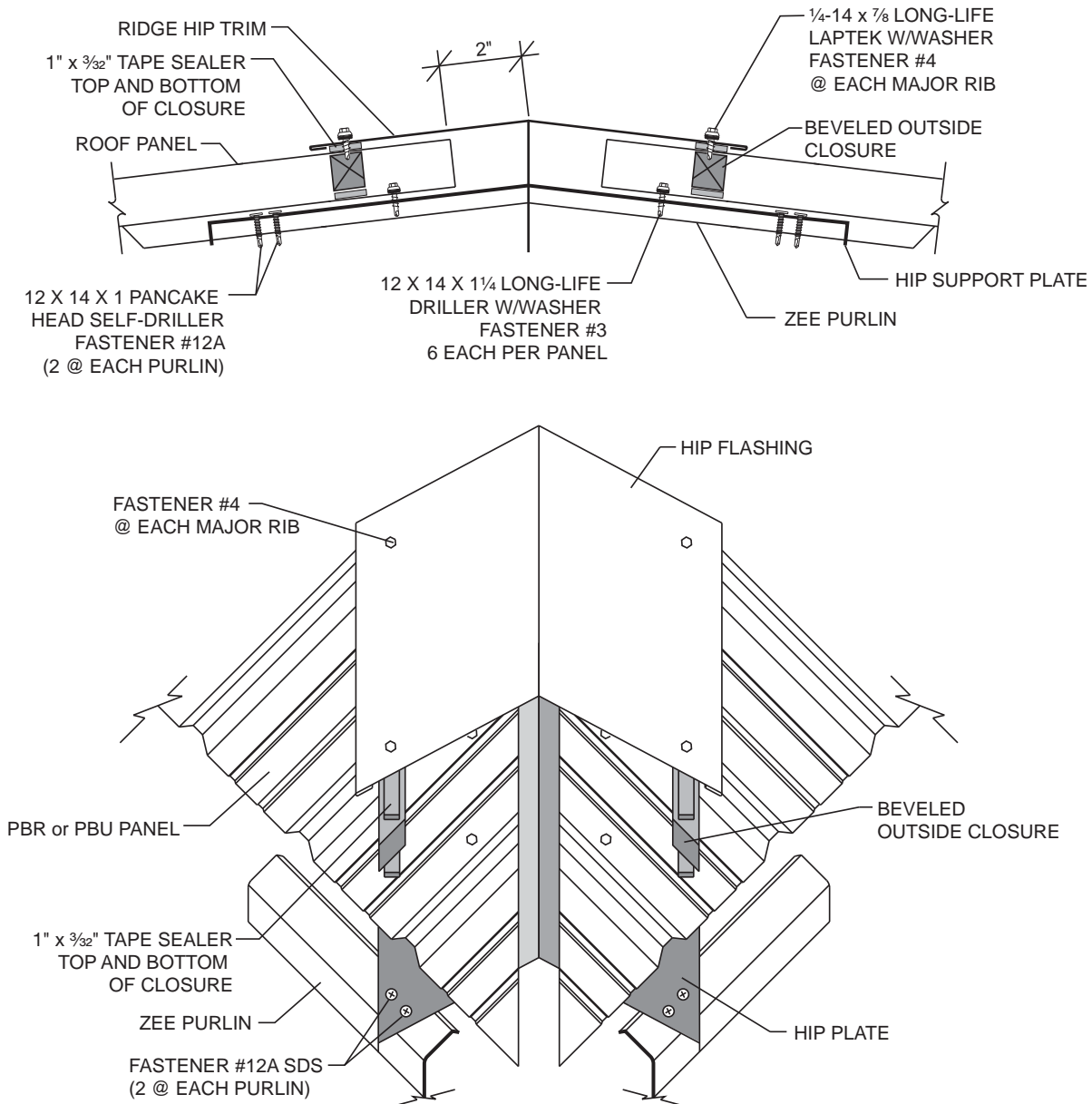
#### NOTES:

1. Install outside closure, with 1" x 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 (1/4"-14 X 7/8" Long Life Lap Tek). Sculptured high side eave trim should overhang outside closures 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together. Apply bead of urethane sealant between trim at 3" lap.

## DETAILS

### TYPICAL DETAILS

#### Hip



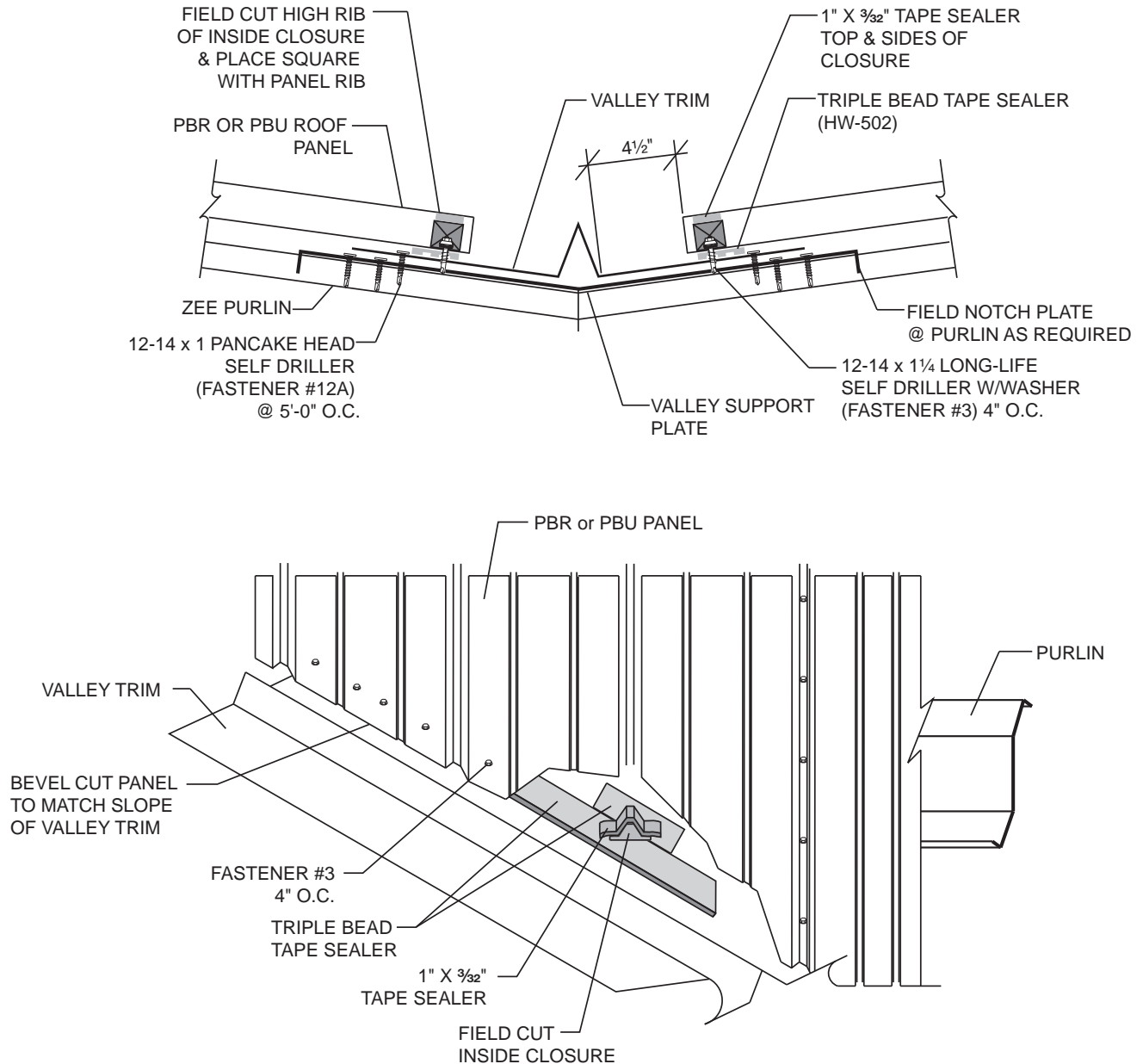
#### NOTES:

1. Bevel cut and install PBR or PBU panels to follow bevel of hip.
2. Install beveled outside closures to panels, with 1" 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.

## DETAILS

### TYPICAL DETAILS

#### Valley



#### NOTES:

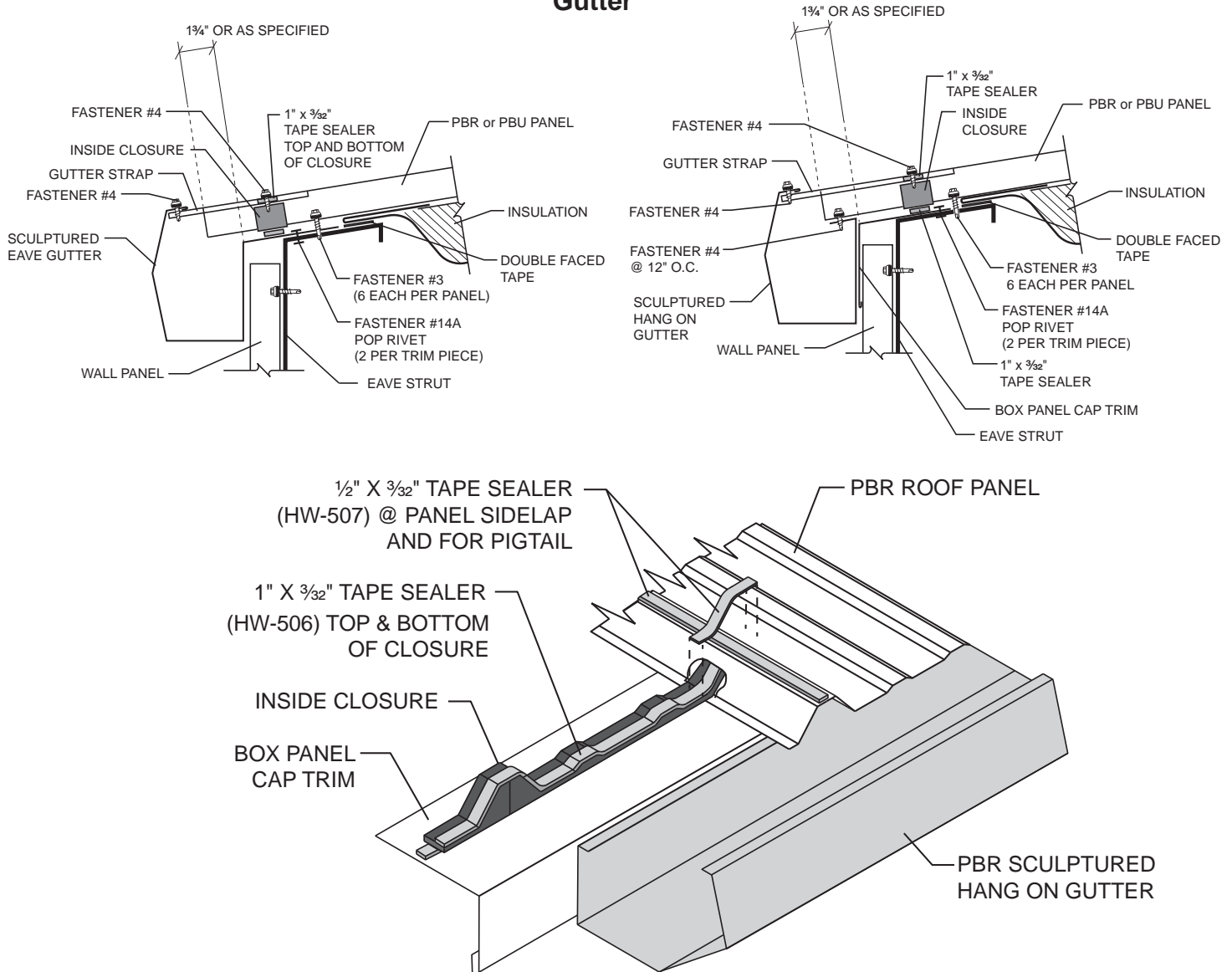
1. For valleys 30' or less in length, use standard valley trim. Valleys over 30' in length require extended valley trim.
2. Apply triple bead tape sealer to valley trim parallel to the slope of the valley. Lower edge of tape sealer should be 4 1/2" from center of valley for standard valleys and 9" from 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 1" x 3/32" 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 1/4" Long Life driller) at 4" on center. Fasteners must be installed through the 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 (1/4"-14 X 7/8" Long Life Lap Tek) into each side of water diverter while holding lap tightly together.



## DETAILS

### TYPICAL DETAILS

#### Gutter



#### NOTES:

##### Eave Gutter

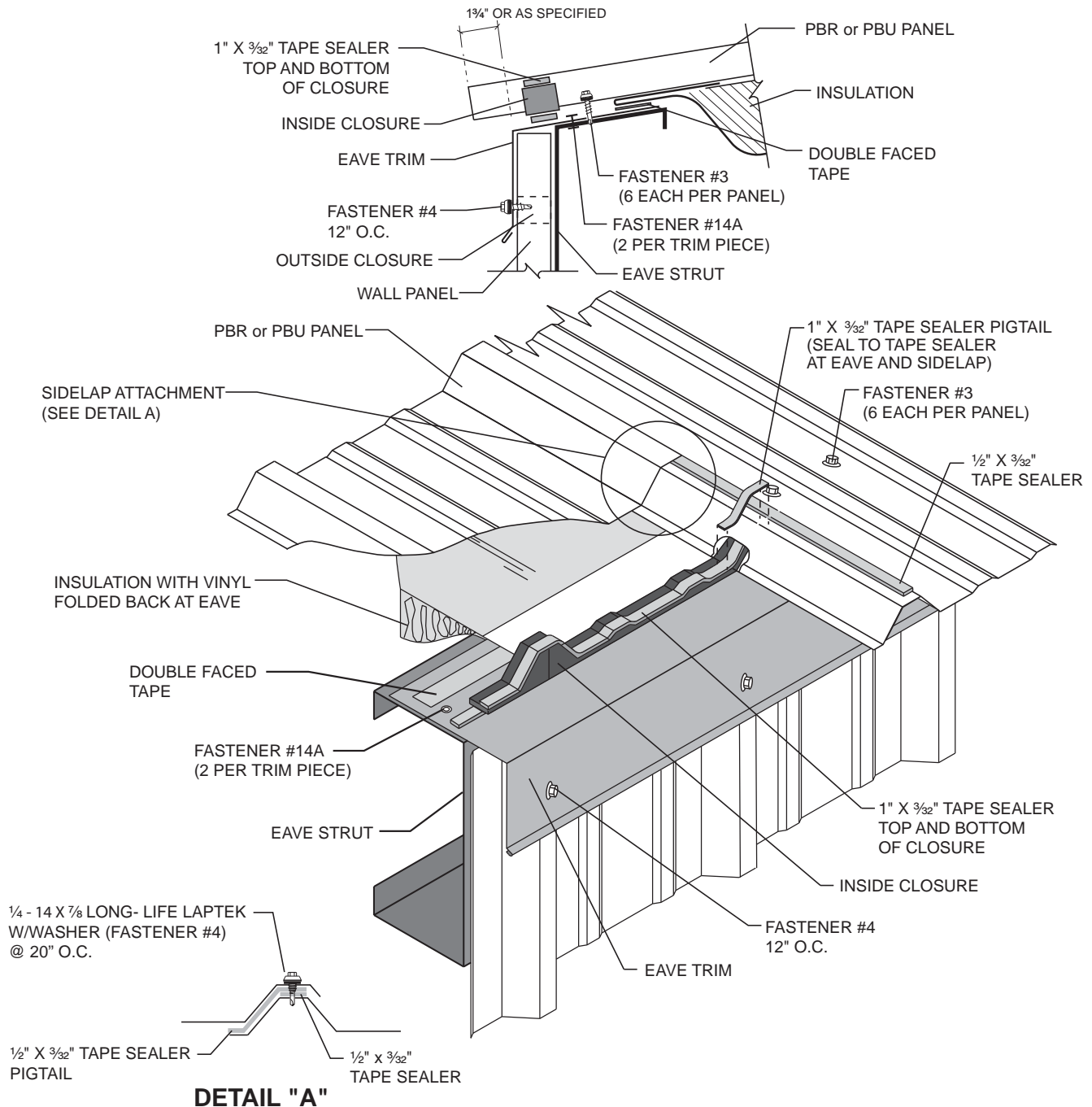
1. Attach gutter to eave strut with two Fastener #14A pop rivets per section.
2. Install inside closures to top leg of gutter with 1" x 3/32" tape sealer top and bottom.
3. Install PBR or PBU panel with Fastener #3 (12-14 X 1 1/4" Long Life driller) on each side of major ribs (two fasteners per foot). 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 #14A (two per 10'-0" section).
2. Install inside closure on top of Box Panel Cap Trim with 1" 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 12" O.C.
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.

## DETAILS

### TYPICAL DETAILS Eave Trim

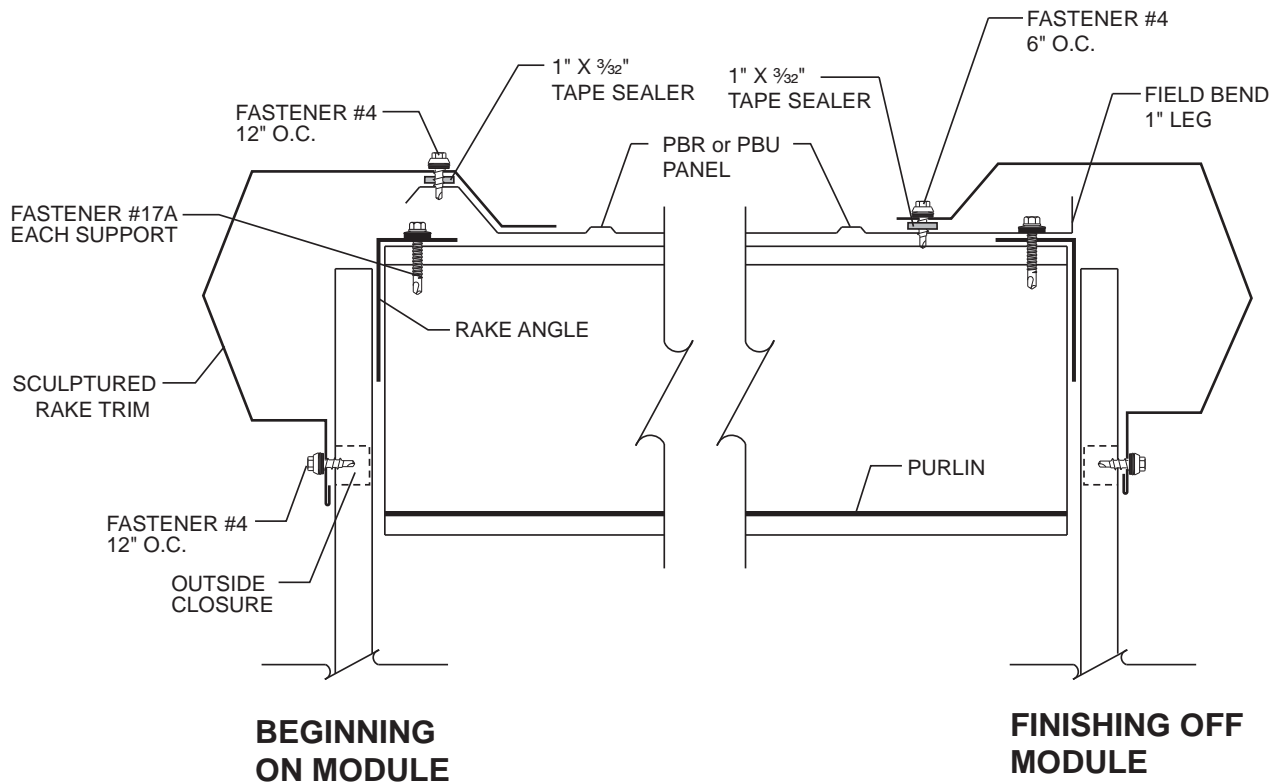


#### NOTES:

1. Install eave trim to structure with two pop rivets per section.
2. Install inside closures along top leg of eave trim with 1" 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 drillers) on each side of major ribs (2 fasteners per foot) allowing panel to overhang 1 3/4" 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together.

## DETAILS

### TYPICAL DETAILS Rake



#### NOTES:

##### Beginning on Module

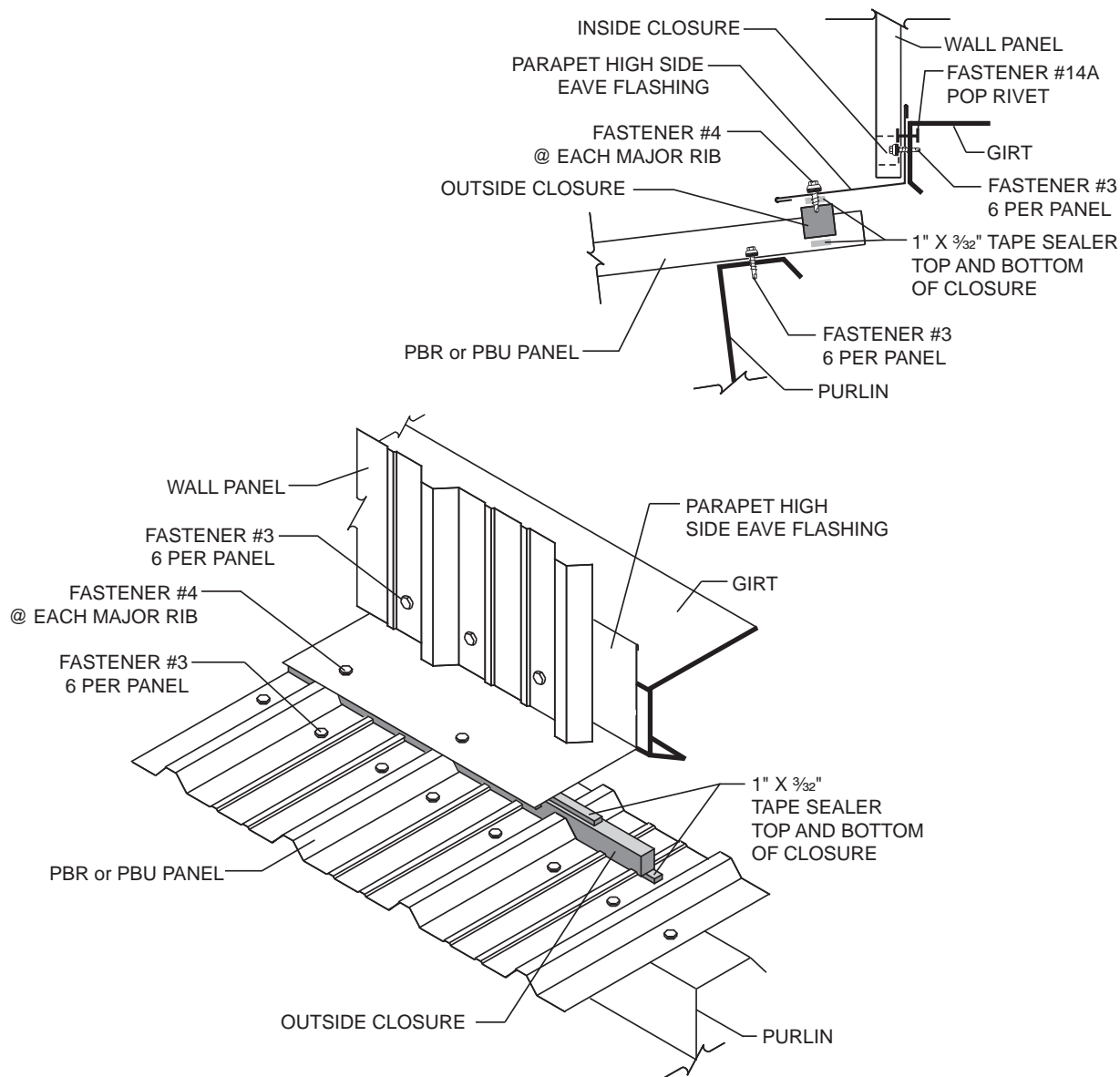
1. Install 1" x  $\frac{3}{32}$ " tape sealer to top of PBR or PBU panel rib.
2. Install rake trim to PBR or PBU panel rib with Fastener #4 ( $\frac{1}{4}$ "-14 X  $\frac{7}{8}$ " Long Life Lap Tek) at 1'-0" on center.
3. Attach front face of rake trim to wall with fasteners or cleat as required for 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 bend a 1" leg on PBR or PBU Panel.
2. Install 1" 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 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 Fastener #14 pop rivets to hold lap together.

## DETAILS

### TYPICAL DETAILS Parapet High Side Eave

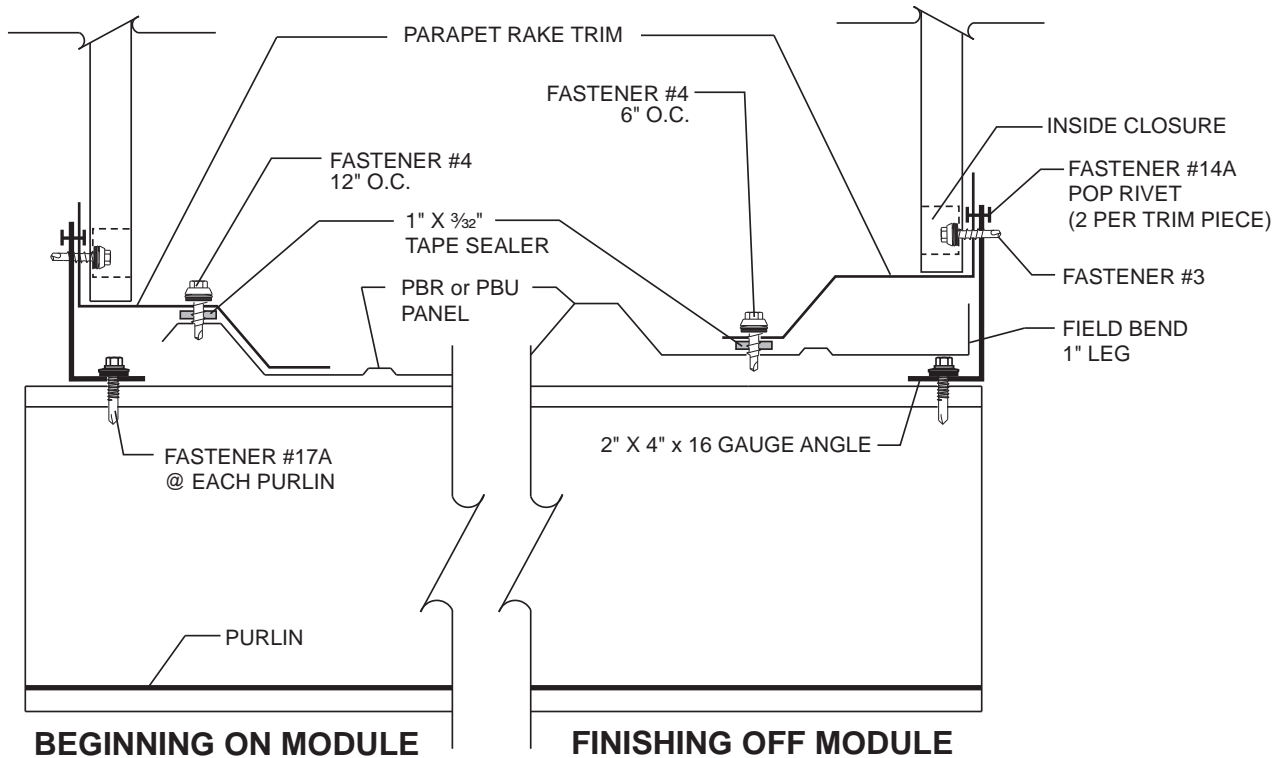


#### NOTES:

1. Install outside closure, with 1" x  $\frac{3}{32}$ " 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 Tek). 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.

## DETAILS

### TYPICAL DETAILS Parapet Rake



#### NOTES:

##### Beginning on Module

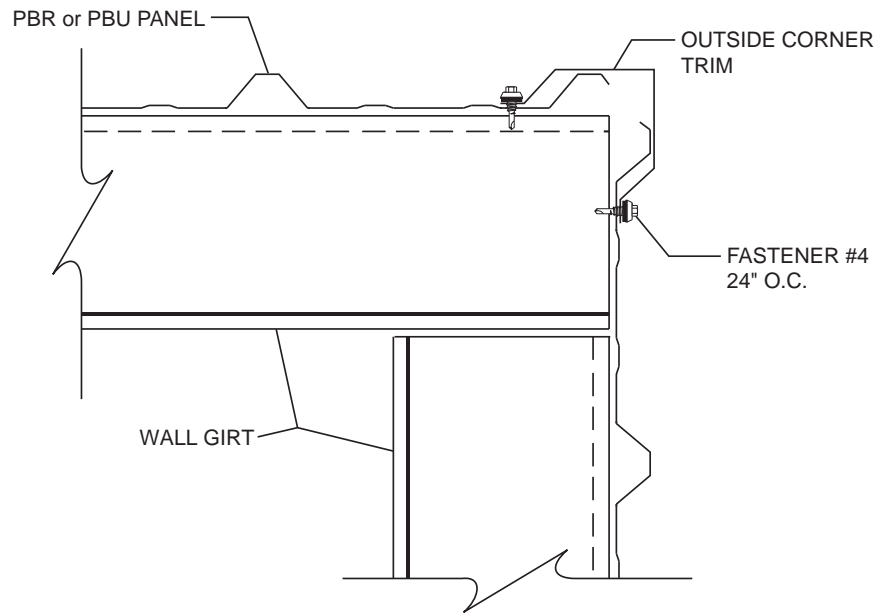
1. Install 1" x 3/32" tape sealer to top of PBR or PBU panel rib.
2. Install parapet rake trim to PBR or PBU panel rib with Fastener #4 (1/4"-14 X 7/8" Long Life Lap Tek) at 1'-0" on center.
3. Attach top leg of parapet rake trim to 2" X 4" angle with Fastener #14A pop rivet. Elevate horizontal leg of 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together.

##### Finishing off Module

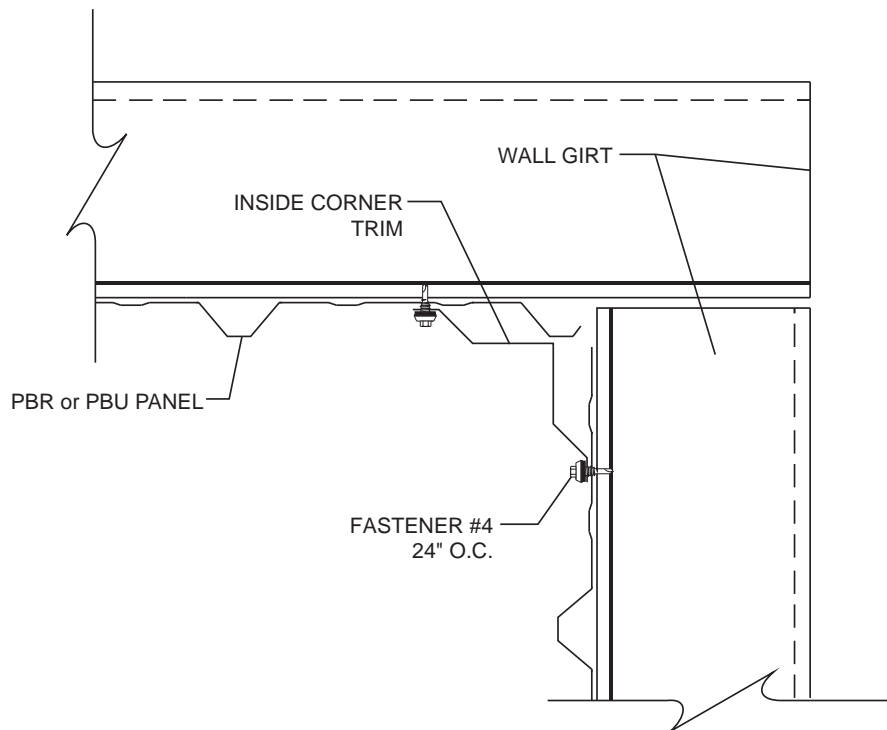
1. Cut and bend a 1" leg on PBR or PBU Panel.
2. Install 1" x 3/32" tape sealer to top of PBR or PBU panel.
3. Install parapet rake trim to PBR or PBU panel with Fastener #4 (1/4"-14 X 7/8" Long Life Lap Tek) at 6" on center.
4. Attach top leg of parapet rake trim to 2" X 4" angle with pop rivets. Elevate 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 (1/4"-14 X 7/8" Long Life Lap Tek) to hold lap together.

## DETAILS

### TYPICAL DETAILS Corner



### OUTSIDE CORNER DETAIL



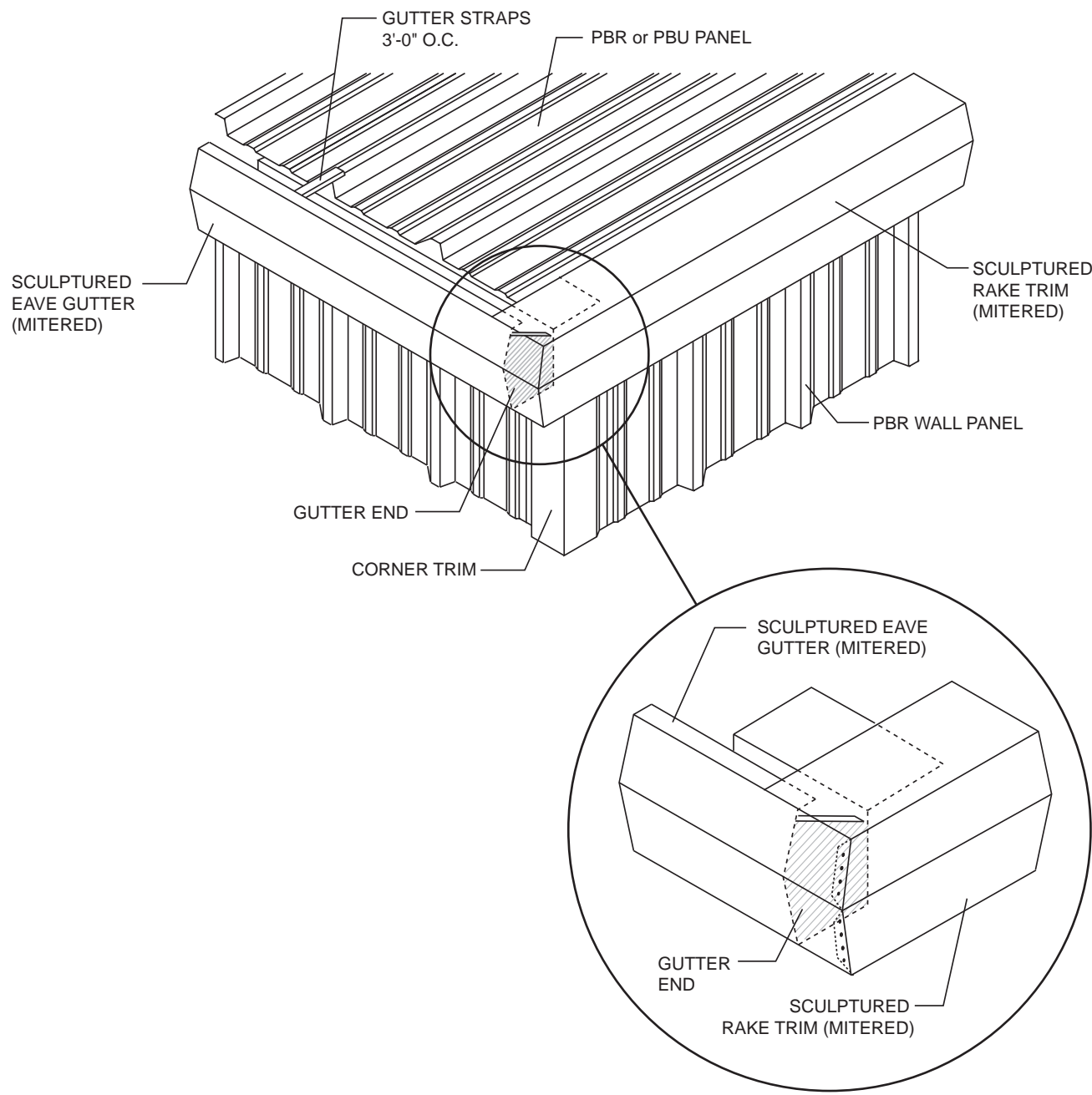
### INSIDE CORNER DETAIL

#### NOTES:

1. Install corner trim with Fastener #4 ( $\frac{1}{4}$  - 14 X  $\frac{7}{8}$ " Long Life Lap Tek) at 2'-0" O.C.

## DETAILS

### TYPICAL DETAILS Corner Box

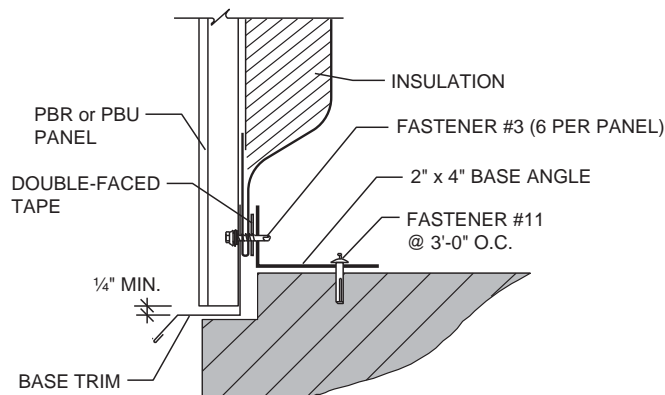
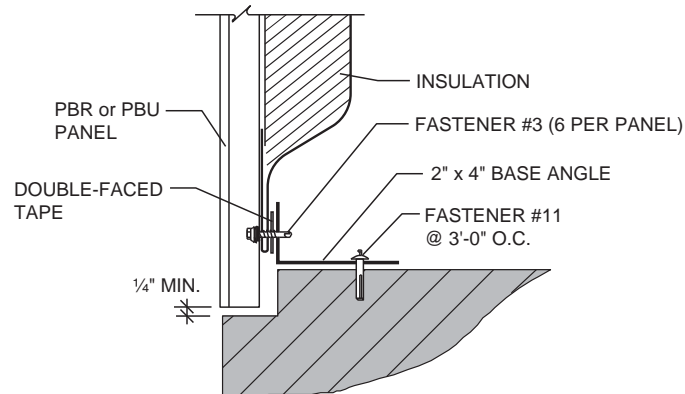


#### NOTES:

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.**

## DETAILS

### TYPICAL DETAILS Base



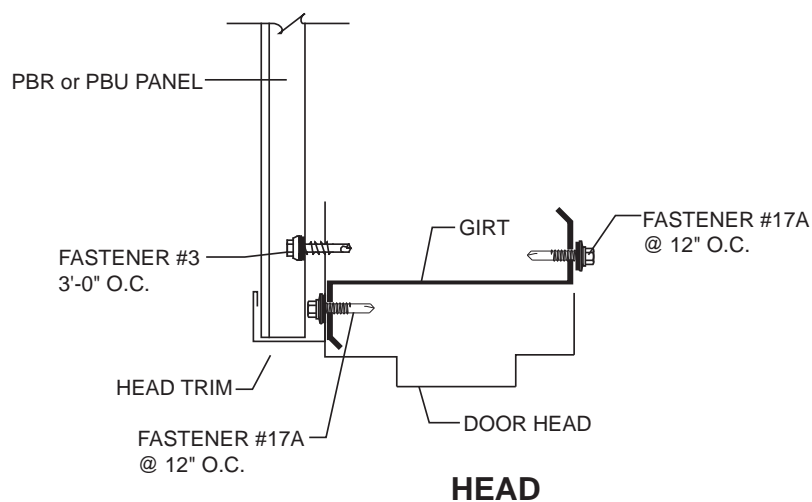
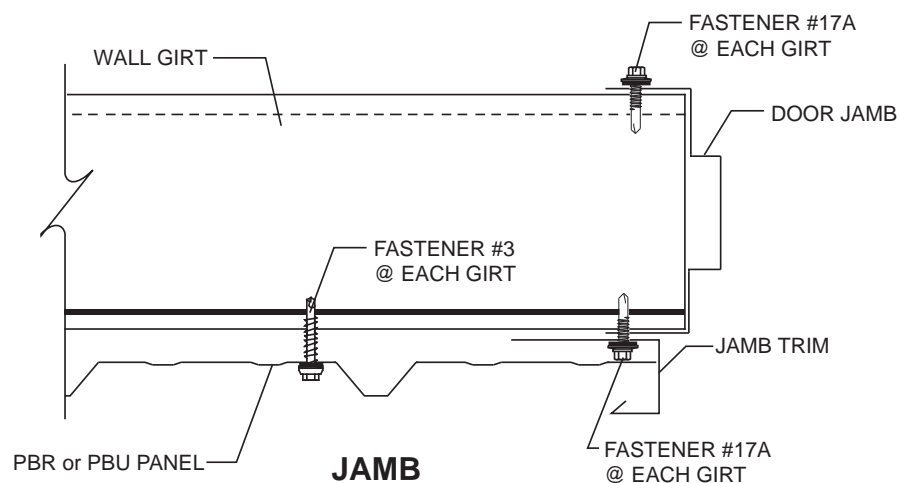
#### NOTES:

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.



## DETAILS

### TYPICAL DETAILS Head Jamb



#### NOTES:

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



**For the most current information available, visit our Web site at [www.mbc.com](http://www.mbc.com)**

**Houston, TX**  
14031 West Hardy  
P.O. Box 38217  
Houston, TX 77238  
281-407-6915

**Adel, GA**  
1601 Rogers Road  
P.O. Box 1107  
Adel, GA 31620  
888-514-6062

**Atlanta, GA**  
2280 Monier Avenue  
P.O. Box 44729  
Atlanta, GA 30336  
678-337-1619

**Atwater, CA**  
550 Industry Way  
P.O. Box 793  
Atwater, CA 95301  
209-445-3891

**Ennis TX**  
1804 Jack McKay Blvd.  
P.O. Box 1210  
Ennis, TX 75120  
469-256-8255

**Indianapolis, IN**  
1780 McCall Drive  
P.O. Box 657  
Shelbyville, IN 46176  
317-364-4329

**Lubbock, TX**  
5711 East FM-40  
P.O. Box 10133  
Lubbock, TX 79408  
806-224-2724

**Memphis, TN**  
300 Highway 51 North  
P.O. Box 366  
Hernando, MS 38632  
662-298-2337

**Oklahoma City, OK**  
7000 S. Eastern Avenue  
P.O. Box 95998  
Oklahoma City, OK 73143  
405-492-6968

**Omaha, NE**  
1011 Ellison Avenue  
Omaha, NE 68110  
402-983-8006

**Phoenix, AZ**  
660 South 91st Avenue  
P.O. Box 739  
Tolleson, AZ 85353  
480-630-3022

**Rome, NY**  
6168 State Route 233  
P.O. Box 4141  
Rome, NY 13442  
315-371-4330

**Salt Lake City, UT**  
1155 West 2300 North  
P.O. Box 16027  
Salt Lake City, UT 84116  
385-715-2952

**San Antonio, TX**  
8677 I-10 East  
P.O. Box 69  
Converse, TX 78109  
210-888-9768

