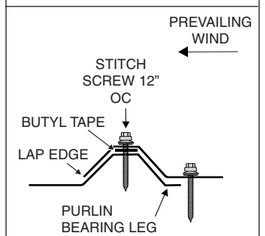
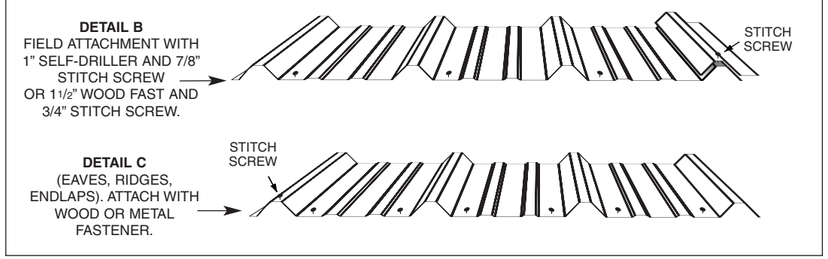
PBR PANEL INSTALLATION GUIDE

SIDE LAP DETAIL



DETAIL A

PBR PANEL FASTENING RECOMMENDATIONS



PBR Panel can be used for a variety of different applications. Due to its design, it is a roofing and siding profile. When being used as a siding application, please refer to detail C for fastening. As the height on the sidewall may change the on-center attachment recommended, please consult load chart on page 1.

Special residential note: In residential applications, Millennium Metals recommends the use of a solid deck and 30# felt. This recommendation is made to help eliminate condensation issues. 1" x 3" yellow pine batten strips are optional and must be attached 12" on center with a #8 x 3" screw 8" on center. Attaching the batten strips with a nail will substantially reduce the pullout or uplift value. The minimum pitch allowed with this panel is 1/12. The vertical attachment should be 16".

Commercial and Agricultural applications designed over open framing can span up to 4' purlins, depending on the engineering of the framing. Please refer to the load chart on page 1. PBR, though structural, is not sound to walk over open purlins. Please use extreme caution and provide fall protection.

ROOF APPLICATION:

Step 1: Make sure the deck is level and square.

Step 2: Install Eave Drips/Roof Edge and Valleys according to details. Remember to use inside closure strips between Eave and Panel to eliminate water infiltration. Trim should be fastened 9" on center.

Step 3: Panel placement should begin on the Gable End opposite of the Prevailing Wind. Starter Edge should be the Lap Edge. (Opposite of Purlin Bearing Leg) after lying first panel check for squareness panel 2 should be lapped over Purlin Bearing Leg of panel 1 with the Lap Edge. A minimum 1" overhang is recommended at the Eave. Alternative method of panel placement may begin in the center of the roof. Often this method is used when the area covered is not divisible by 3' or traditional placement allows for a Pipe Flashing to occur at a Side Lap. Endlaps must be a minimum of 12" and two strips of Butyl Sealant is recommended 8" on uphill side of lap to keep watertight.

Step 4: Fasten panel according to Detail C or D depending on the area of application. Detail D shows additional screws to be spaced on each side of major Ribs for all Eaves, Ridges and Endlaps. When used as a siding panel, attach per detail C.

Step 5: Any field cutting must be done with metal nibblers, metal snips or blades designed for metal cutting. No cutting should be done on the roof, as it will cause iron shavings to be spread and adhere to roof panels. Proper cutting should be done exposed panel finished side down.

Step 7: Install the remaining accessories such as Pipe Boots, PBR Profile Vent, Ridge Cap and Gable Flashing. Butyl Sealant, Caulking and Closures are necessary to maintain watertight seals as is the Butyl Tape on all seams. Inspect screw fasteners to insure that they are installed properly. (See Detail D)

Step 8: Field clean the roof surface with broom to be sure any iron shavings are removed.

PITCH ALERT!!! PBR PANEL REQUIRES A MINIMUM 1/12 PITCH TO MAINTAIN WATER DRAINAGE. THIS PRODUCT IS CONSIDERED STRUCTURAL, HOWEVER IT IS NOT SAFE TO WALK ON OVER OPEN PURLINS OR BATTENS.

ATTENTION INSTALLER!!! WHEN USING FASTENERS TO PENETRATE STEEL SHEETS THE IRON PARTICLES TEND TO GO AIRBORNE AND SETTLE ON THE SHEET. IT IS NECESSARY TO REMOVE THESE PARTICLES TO PREVENT EMBEDMENT AND RUST MARKS.

CORRECT	TOO LOOSE	TOO TIGHT
		
EDPM MATERIAL VISIBLE AT WASHER. FASTENER IS PROPERTY INSTALLED.	EDPM NOT AT VISIBLE JOINT. NOT ENOUGH COMPRESSION TO MAKE A SEAL.	EDPM IS PANNED AND IS PROTRUDING BEYOND EDGE OF FASTENER.

DETAIL D

ENGINEERING CONSIDERATIONS

Code requirements vary from area to area and job type as well as roof configuration. Job specific engineering is available for a nominal fee by a structural engineer. The engineering is not a service provided by Millennium Metals and we accept no liability as to contracted work between parties. Please consult your local building code for proper procedures so we may assist you with your application.

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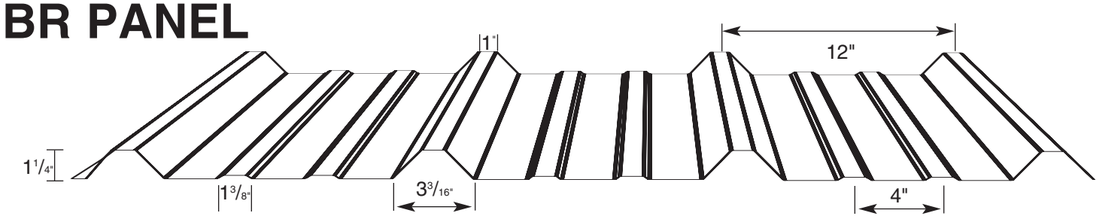
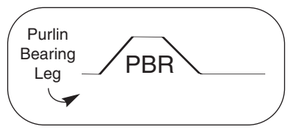
PBR PANEL





PBR Panel is recommended for Roofing and Siding Application

SECTION PROPERTIES												ALLOWABLE LOADS (PSF)																	
Panel	Panel Gauge	Fy KSI	Thickness (In.)	Fb KSI		Weight (PSF)	Girth (In.)	Ix In.	Sx In.	Ix In.	Sx In.	WIND LOAD						LIVE LOAD (STRESS)						LIVE LOAD (DEFLECTION)					
				Pos.	Neg.			Positive Bending		Negative Bending																			
PBR Panel	26	50	.0187	38.0	16.5	91	42	.0335	.0360	.0300	.0395	3	4	5	6	7	8	3	4	5	6	7	8	3	4	5	6	7	8
												172	95	62	42	32	20	130	72	45	32	24	15	130	75	45	26	16	12

FOOTNOTES:
1. Loads in tables are based on continuous beam over three equal spans.
2. Deflection loads are based on limiting deflection of span divided by 180 (L/180).
3. Wind loads are based on unit stress increased 1.33% over the live load.
4. Metal thickness is based on minimum AISI specifications for galvanized sheets.

Specifications:

PBR PANEL is recommended for siding and roofing. Roof pitch requirement is 1/12 or greater.

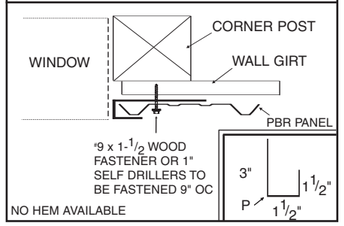
Gauge	Finishes	Thickness	ASTM & Grade Specifications
26	** PTD Galvalume	.0185	ASTM A-792 AZ50 Grade 80 Structural Steel
26	Acrylic Galvalume	.0185	ASTM A-792 AZ50 Grade 80 Structural Steel

** HUNTER GREEN and REFLECTIVE WHITE

MILLENNIUM METALS OFFERS A LIMITED 25 YEAR WARRANTY ON PAINTED GALVALUME PANELS AND A LIMITED 20 YEAR WARRANTY ON MILL FINISHED GALVALUME PANELS. CONSULT YOUR DISTRIBUTOR ON REQUESTING WARRANTY.

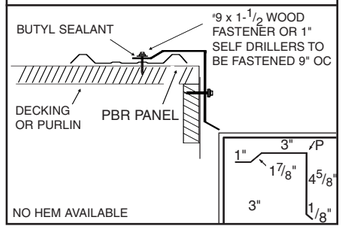
A.

JC5: PBR J-CHANNEL



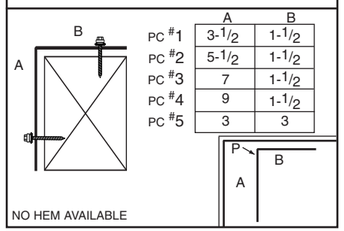
B.

GR7: PBR GABLE TRIM



C.

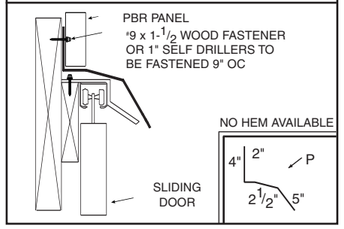
PC: PBR POST COVER



	A	B
PC #1	3-1/2	1-1/2
PC #2	5-1/2	1-1/2
PC #3	7	1-1/2
PC #4	9	1-1/2
PC #5	3	3

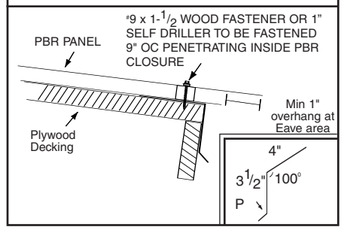
D.

TC2: PBR TRACK COVER



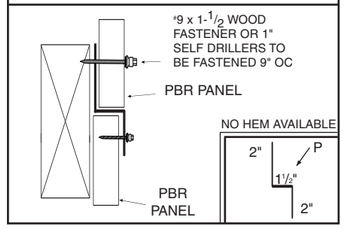
E.

EF4: PBR STD ROOF EDGE



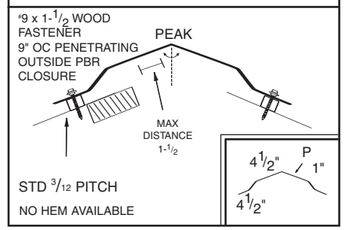
F.

DA2: PBR DOUBLE ANGLE



G.

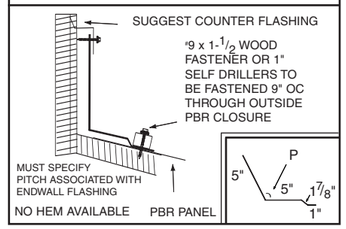
RC7: PBR FLAT RIDGE CAP



RIDGE ANGLE CONVERSION	
PITCH	ANGLE
2/12	161°
3/12	152°
4/12	143°
5/12	134°
6/12	127°

H.

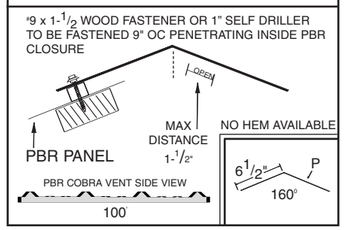
EW2: PBR ENDWALL FLASHING



TRANSITION ENDWALL ANGLE CONVERSION	
PITCH	ANGLE
2/12	99°
3/12	104°
4/12	108°
5/12	113°
6/12	117°

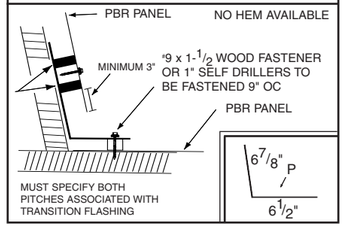
I.

RC8: PBR RESIDENTIAL CAP



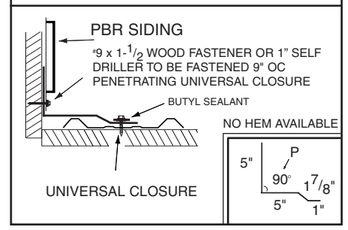
J.

TF1: PBR TRANSITION FLASHING



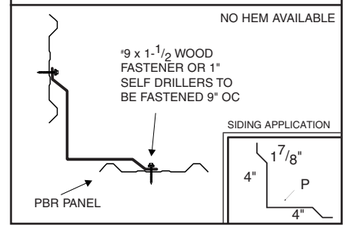
K.

SW2: PBR SIDEWALL FLASHING



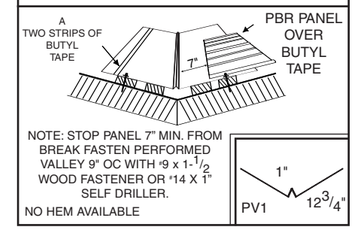
L.

IS2: PBR INSIDE CORNER



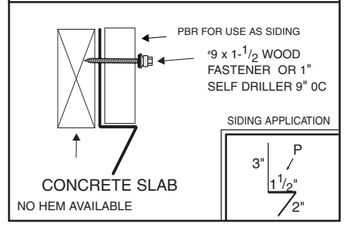
M.

PV1: PREFORMED VALLEY



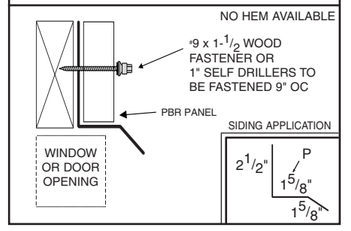
N.

BD2: PBR BASE DRIP



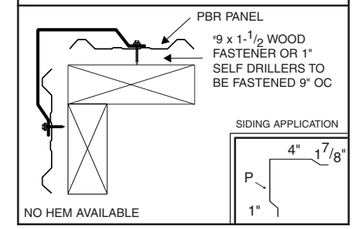
O.

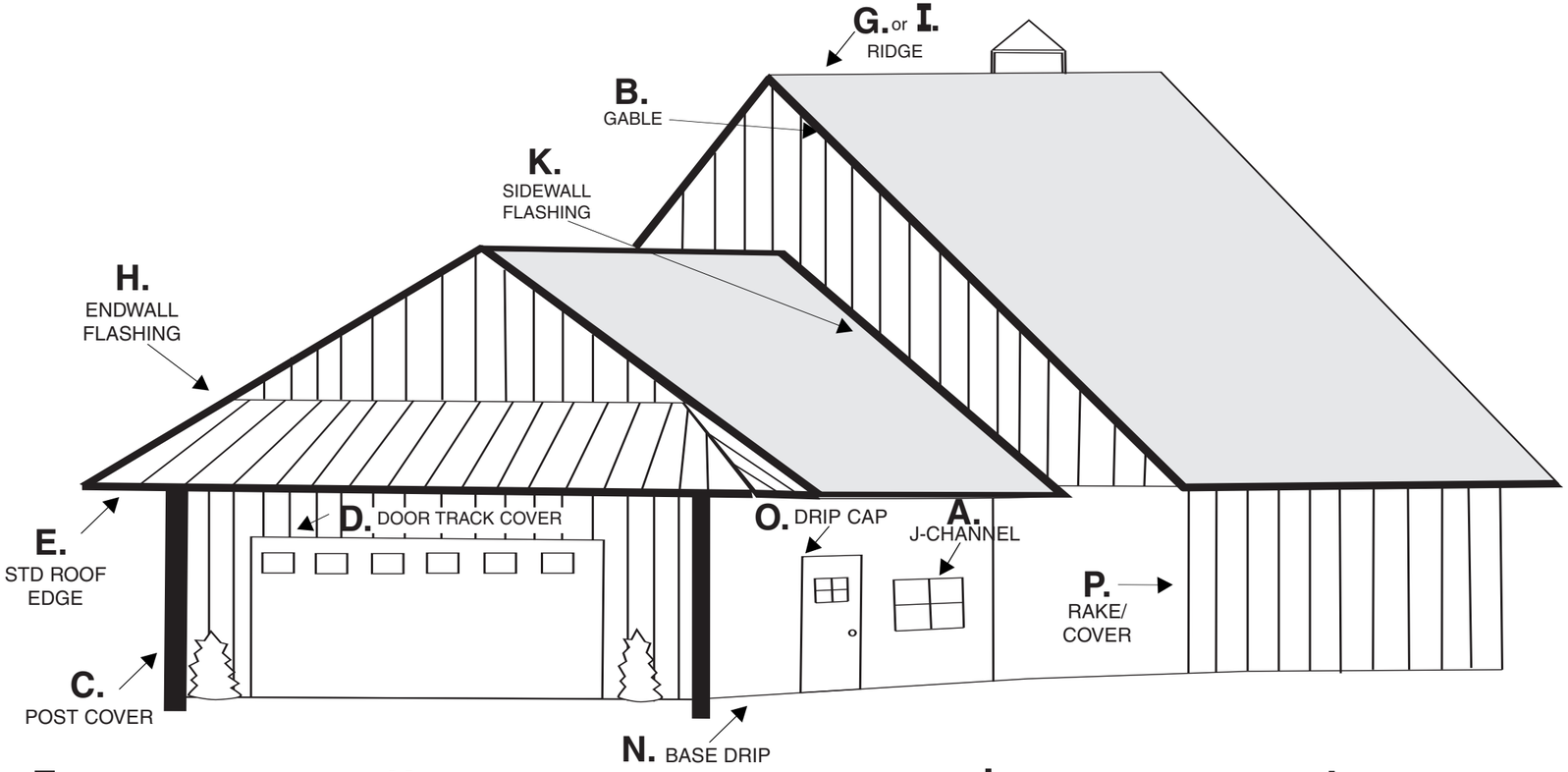
DC2: PBR DRIP CAP



P.

GR6: PBR RAKE/CORNER





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Millennium Metals Disclaimer for Acrylic Galvalume

Acrylic Coated Galvalume is quickly becoming one of the most requested metal roofing products. While it boasts a 20-year warranty there are cosmetic concerns with the coating that any potential customer should be made aware of. Many of our customers have requested a written position on these concerns to better inform their customers. To examine the concern it is necessary to examine how acrylic coated galvalume is produced.

Acrylic galvalume is made with a mixture of zinc and aluminum. The aluminum composition is referred to, as AZ 55 or 55% aluminum the remaining composition is silicone and zinc. The steel is passed through a bath of the zinc-aluminum mixture and quickly cooled. More or less aluminum can be applied to the sheet, which can result in brighter panels. The speed of the drying process determines the size of the spangle. The steel is then sent through a passavation or chem-treat coating. The chem treat coating works as a bonding agent for the acrylic that is applied later. This chem. Treat coating also contributes to the color of the roof as it begins to age.

The applied acrylic finish is necessary to keep the product from getting travel damage in coil stock or flat materials and plays an important role in providing minor protection in field storage. The acrylic is specified at a quarter of a mill but can be thicker which may be thicker which can result in a longer period to break down on the panels.

Due to it's composition the spangle and color of the product can vary from coil to coil and even within the same coil. The passavation or chem. treat will turn a distinctive color from yellow to brown depending upon the brand steel manufacturers use. Most manufacturers such as Millenium Metals have at least two suppliers of acrylic galvalume at any given time. The color of the chem. treat does not appear until after the acrylic surface begins to break down. The estimated time it takes to break the acrylic galvalume down is six to eight months with normal UV exposure. This color in no way effects the life expectancy of the product and the cosmetic variance is not considered a reason for refusal, rejection, or claim. It is also not uncommon for the product to unevenly weather. The visual differences can be mild to severe and vary within a panel or flashing trims. The steel mills are aware of the differences and will not accept a claim for variances in color.

Millenium Metals makes every effort to produce our orders from like coils. We cannot accept responsibility for matching materials in the event of an add on or shortage due to not ordering enough material. Galvalume has been produced for over thirty years and still has basically the same cosmetic variances. While we will continue to address and record these instances we cannot be sure if your project will exhibit such concerns. If uniform visual appearance is critical, then we recommend pre-painted material. We hope that you can use the above information to help you in your disclaimers so that together we can make your customer aware of the normal variances that are associated with acrylic galvalume.

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Company/Contractor

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OIL CANNING

Oil canning is a term used to define a wavy surface appearance on metal panels. The name in itself can draw a visual of a wavy surface on a metal can. Manufactures of metal panels have dealt with the cosmetic issue of oil canning for many years and have found it to be present in all steel panels and flat sheets. Ranging in degree from severe to slight we have struggled to conceal the presence in steel. The addition of minor ribs, stiffening ribs and the like on metal panels can improve the appearance, however, even this addition cannot positively eliminate oil canning. It is typically more noticeable on panels that have a surface of 12" or more such as 5v crimp and standing seam and metallic surfaces such as galvalume. Oil canning is not considered a reason for refusal nor is it a warranty issue. As an extra precaution, Millennium Metals pays to have it's steel tensioned leveled. While we make every effort possible our steel producers have determined the sheet must contour 5/8 of an inch off a flat surface to be claimed.

Please make your customers aware of the oil canning concern. A quick drive to look closely at metal roofing projects in their area similar to the type they will be using will prove valuable.