

Product Evaluation

RC284 | 0823

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-284

Effective Date: August 1, 2023

Re-evaluation Date: August 2027

Product Name: PBR-Panel Steel Roof Panels Installed Over Steel Purlins

Manufacturer: McElroy Metal, Inc.
P.O Box 1148
Shreveport, LA 71163
(318) 747-8000

Distributed By: McElroy Metal, Inc.
Metal Mart

General Description:

This evaluation report is for PBR-Panel metal roofing panels installed over steel purlins. The metal roofing panels are minimum 26-gauge galvalume steel with an optional paint finish. The panels have a coverage of 36". Each panel has four major ribs, two at each edge, and two spaced at 12" on center across the panel. The ribs are 1.25" deep. The panels have a purlin bearing leg on the underlap leg of the panel. The panels conform to ASTM A792, with an 80,000 psi yield point for 26-gauge and 50,000 psi yield point for 24-gauge or heavier. The panels have an AZ 55 hot-dip aluminum zinc alloy coating when bare, and AZ 50 when painted. The panels are available in lengths up to 40'.

Limitations:

Roof Framing: The PBR-Panel metal roof panels must be installed open steel purlins.

New Roof Decking Attachment: The roof decking must meet or exceed the uplift requirements of the IRC or IBC and must be installed as required for resistance to wind loads.

Design Wind Pressures: The design pressure uplift load resistance must be as specified in Table 1.

Roof Slope: The metal roof panels may be installed on roofs with a roof slope as low as 1/2:12 if sealant is used on the panel side laps. McElroy Metal recommends that sealant be used on the panel side laps for roof slopes less than 3:12. If sealant is not used on the panel side laps, then the minimum roof slope is 3:12.

Table 1: Attachment of minimum 26-gauge PBR-Panel steel roofing panels to steel purlins

Design Wind Pressure	Purlins	Attachment of Panels to Steel Purlins
-175.0 psf	Minimum 16 Ga. 2'-0" on center	12" on center
-155.4 psf	Minimum 16 Ga. 2'-6" on center	12" on center
-135.8 psf	Minimum 16 Ga. 3'-0" on center	12" on center
-116.25 psf	Minimum 16 Ga. 3'-6" on center	12" on center
-96.7 psf	Minimum 16 Ga. 4'-0" on center	12" on center
-77.1 psf	Minimum 16 Ga. 4'-6" on center	12" on center
-57.5 psf	Minimum 16 Ga. 5'-0" on center	12" on center

Installation Over an Existing Roof Covering: Not permitted.

Installation:

General: Install the PBR-Panel metal roofing panels in accordance with the manufacturer's recommended installation instructions and this evaluation report.

Panels: Panels must be secured to the steel purlins in accordance with Table 1. Refer to Figure 1 in this evaluation report for installation details.

Underlayment: N/A

Anchorage of Panels to Steel Purlins:

Fastener Type: The panels must be fastened to the purlins with No. 12-14 x 1-1/4" long, HWH self-drilling screws, with a separate EPDM rubber washer.

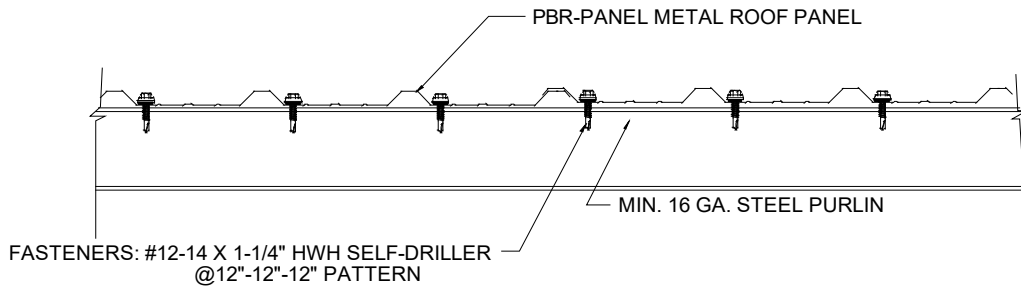
Fastener Spacing: A line of fasteners are to be installed beginning 2" from the center line of the first major rib at the side lap in a 12"-12"-12" pattern for a total of three (3) fasteners across the width of the panel. The fastener spacing along the length of the panel must be per Table 1.

Panel Side Laps: The panels are stitched together with minimum 1/4-14 x 7/8" Lap Tek screws with a separate EPDM rubber washer. The fasteners must be spaced at 20" on center along the length of the side lap.

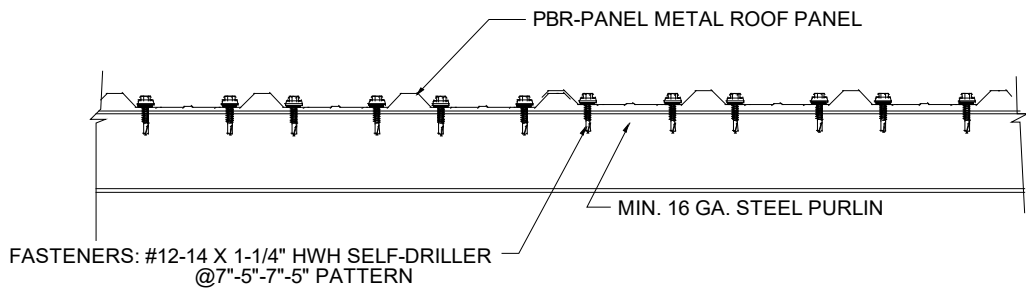
Panel Ends and End Laps to the Steel Purlins: Minimum No. 12-14 x 1-1/4" long HWH self-driller screws with a separate EPDM rubber washer. A line of fasteners in a 5"-7"-5"-7" pattern must be located along the steel purlin. Refer to Figure 1 for an illustration of the required fastener pattern.

Trims, Closures, and Accessories: Components, such as the eave trim, rake trim, rake tie-in, ridge flashing, high-side trim, high-side tie-in, hip flashing, and valley flashing must be installed as required by the manufacturer.

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.



Typical Screw Pattern for Interior Supports



Typical Screw Pattern for Panel Ends and End Laps

Figure 1. Illustration of the required fastener pattern