TEXAS DEPARTMENT OF INSURANCE

Engineering Services / MC 103-3A 333 Guadalupe Street P.O. Box 149104 Austin, Texas 78714-9104
Phone No. (512) 322-2212 Fax No. (512) 463-6693

PRODUCT EVALUATION Effective October 1, 2011
RC-119

*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 shall be subject to reevaluation **September 2015**.*

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.

5V Metal Roofing Panels manufactured by

Union Corrugating Company
701 South King Street
Fayetteville, North Carolina 28301
Telephone: (502) 645-2480
www.unioncorrugating.com

will be accepted for use in areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The 5V metal roof panels are minimum 26 gauge metal roof panels. The metal roof panels are manufactured from steel with an aluminum, zinc, and silicon anti-corrosion coating (Galvalume®). The metal roof panels are available with a painted finish in a variety of colors. The metal roof panels are 26" in width. The metal roof panel has 5 V-shaped ribs, 1" wide and $\frac{1}{2}$" in height.

LIMITATIONS

Roof Decking Thickness: The metal roof panels shall be installed over minimum $\frac{19}{32}$" plywood decking.

New Roof Deck Attachment: The roof deck shall be installed to meet or exceed the uplift requirements of the International Residential Code or the International Building Code and shall be installed as required for resistance to lateral wind loads.

Installation Over an Existing Roof Covering: Installation over an existing roof covering is limited to a maximum of one existing layer of composition shingles, wood shingles or shakes, built-up roofing, or roll roofing applied over an existing, solid roof deck. The minimum thickness of the roof deck shall be as required for a new metal roof installation. Note: Inspection of the existing roof deck must be made prior to the installation of the roof panels. The condition of the existing roof deck must be acceptable to receive the roof panels before the roof panel installation proceeds. A layer of underlayment over the existing roof covering is not required.

Roof Slope: The metal roof panels shall not be installed on roofs with a roof slope less than 3:12.

Design Wind Pressures: The design pressure uplift load resistance for the metal roof panels shall be as specified in Table 1

Table 1

Attachment of minimum 26 gauge 5V metal roof panels to roof decking

System	Minimum Plywood Thickness	Panel Fastener Spacing Along Rib	Fastener Pattern	Design Wind Pressure
1	19/32"	24 inches on center	Pattern 1	91.9 psf
2	19/32"	12 inches on center	Pattern 1	113.1 psf
3	19/32"	24 inches on center	Pattern 2	121.8 psf

INSTALLATION INSTRUCTIONS

General: The 5V metal roof panels shall be installed in accordance with the manufacturer's recommended installation instructions and this evaluation report.

Underlayment: A minimum of one layer of No. 30 (Type II) asphalt felt shall be used. The underlayment used shall comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The felt shall be installed with 6-inch side laps and 3-inch end laps. The underlayment shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners shall be applied along the overlaps not farther apart the 36 inches on center.

Attachment of Metal Roof Panels to Roof Deck: The 5V metal roof panels shall be secured to the roof deck as follows:

Roof Panels:

Systems 1 and 2: Minimum No. 9-15 x 2" long, hex head screws with a self sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) A line of fasteners are to be installed on the overlap ribs and the center rib across the width of the panel. The spacing of the line of fasteners along the length of the panel shall be as specified in Table 1. Refer to Figure 1 of this evaluation report.

System 3: Minimum No. 9-15 x 1½" long, hex head screws with a self sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) A line of fasteners are to be installed on each side of the overlap ribs and adjacent to the center rib across the width of the panel. The spacing of the line of fasteners along the length of the panel shall be as specified in Table 1. Refer to Figure 2 of this evaluation report.

Panel Ends:

Systems 1 and 2: Minimum No. 9-15 x 2" long, hex head screws with a self sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) A line of fasteners are to be installed on the overlap ribs, the center rib, and one fastener centered between the ribs, across the width of the panel. The spacing of the

line of fasteners along the length of the panel shall be as specified in Table 1. Refer to Figure 1 (Fastener Pattern at Eave, Ridge, and Valley) of this evaluation report.

System 3: Minimum No. 9-15 x 1½" long, hex head screws with a self sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) A line of fasteners are to be installed on each side of the overlap ribs, adjacent to the center rib, and one fastener centered between the ribs, across the width of the panel. The spacing of the line of fasteners along the length of the panel shall be as specified in Table 1. Refer to Figure 2 (Fastener Pattern at Eave, Ridge, and Valley) of this evaluation report.

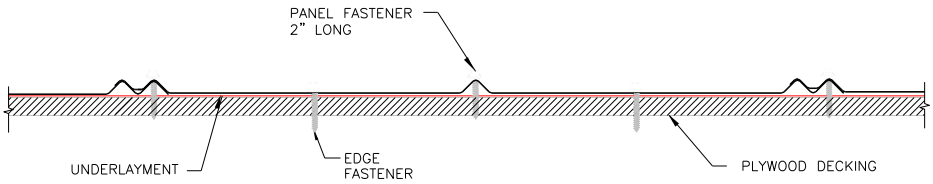
Panel Edges:

Systems 1 and 2: Minimum No. 9-15 x 2" long, hex head screws with a sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) Along the edge of a panel, a line of fasteners are to be installed 12 inches on center along the length of the panel.

System 3: Minimum No. 9-15 x 1½" long, hex head screws with a sealing washer. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) Along the edge of a panel, a line of fasteners are to be installed 12 inches on center along the length of the panel.

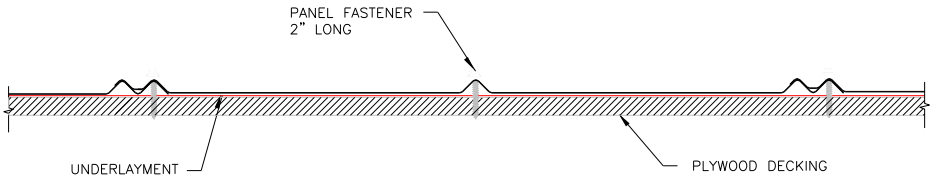
Trims, Closures, and Accessories: Component details, such as the vented ridge, high side peak, eave trim, endwall, sidewall, rake, transition, and valley shall be installed as specified in the Trim Installation Details document by Union Corrugating Company and the installation instructions available from the manufacturer.

Note: The manufacturer's installation instructions shall be on the job site during the installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC), the International Building Code (IBC), and the Texas Revisions.



FASTENER PATTERN @ EAVE, RIDGE & VALLEY

PANEL FASTENER SPACING ALONG RIB	PRESSURE (PSF)
24"	91.875
12"	113.1



FASTENER PATTERN @ INTERMEDIATE LOCATIONS

FASTENER PATTERN 1

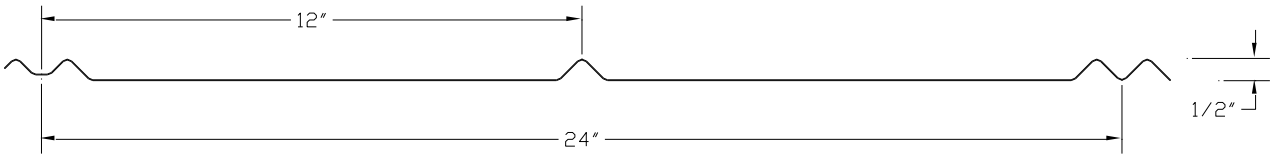
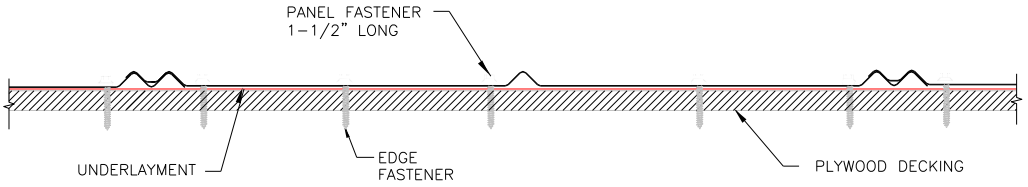
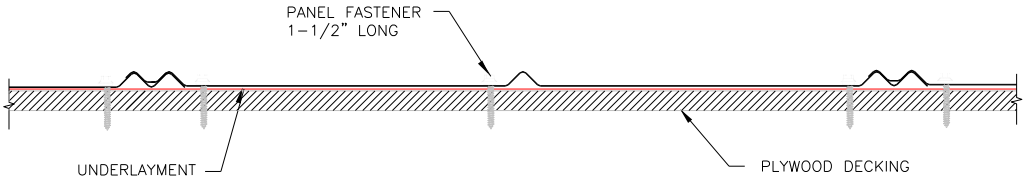


Figure 1. 5V Panel Detail – Fastener Pattern 1 (Minimum 26 Gauge)



FASTENER PATTERN @ EAVE, RIDGE & VALLEY

PANEL FASTENER SPACING ALONG RIB	PRESSURE (PSF)
24"	120.9



FASTENER PATTERN @ INTERMEDIATE LOCATIONS

FASTENER PATTERN 2

Figure 2. 5V Panel Detail – Fastener Pattern 2 (Minimum 26 Gauge)