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Product Evaluation

RC160 | 0522

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-160

Effective Date: May 1, 2022
Re-evaluation Date: May 2026

Product Name: 5V-Crimp Steel Roofing Panels installed Over a Plywood or OSB Roof Deck

Manufacturer: Metal Sales Manufacturing Corporation
3838 North General Bruce Dr.
Temple, TX 76501
(254) 791-6550

General Description:
5V-Crimp roof panels are minimum 26-gauge (0.019" thick) aluminum-zinc alloy-coated steel with a Galvalume or painted finish. The nominal panel width is 2′-0" and covers 24". Ribs are 1/2" high and spaced approximately 12" on center.

Limitations:
Roof Framing: The metal roofing panels must be installed over nominal 15/32" plywood, nominal 7/16" OSB, or nominal 5/8" plywood. Roof framing (rafters or trusses) must not exceed 24" on center.

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

Design Wind Pressure: For installation to minimum nominal 7/16" OSB roof decks, design pressure limitations are specified in Table 1. For installation to minimum nominal 15/32" plywood roof decks, design pressure limitations are specified in Table 2. For installation to minimum nominal 5/8" plywood roof decks, design pressure limitations are specified in Table 3.

Roof Slope: The metal roof panel must not be installed on roofs with a roof slope greater than 3:12, unless minimum No. 30 (Type II) asphalt felt underlayment is installed under the panels. The metal roof panel must not be installed on roofs with a roof slope less than 3:12 and greater than or equal to 1/2:12 unless Metal Sales Hi-Temp (MS-HT) underlayment is installed under the panels. The metal roof panel must not be installed on roofs with a roof slope less than 1/2:12. The metal roofing panels may be installed on roofs with a roof slope as low as 1/2:12 if sealant is used on the side laps. If sealant is not used on the panel side laps, the minimum roof slope is 3:12. Application of the sealant must be in accordance with the manufacturer's installation instructions and the 5V-Crimp Metal Roof Panel Details.

Installation Over an Existing Roof Covering: Not permitted

Table 1
Attachment of Minimum 26-gauge 5V-Crimp Roofing Panels to Minimum Nominal 7/16" OSB Deck

Design Wind Pressure (psf)	Attachment of Roof Panels to OSB Deck
-30.0	Screw Pattern #1 @ 3'-0" on center
-58.5	Screw Pattern #1 @ 2'-6" on center
-87.0	Screw Pattern #1 @ 2'-0" on center
-115.5	Screw Pattern #1 @ 1'-6" on center
-144.0	Screw Pattern #1 @ 1'-0" on center
-172.5	Screw Pattern #1 @ 0'-6" on center

Table 2
Attachment of Minimum 26-gauge 5V-Crimp Roofing Panels to Minimum Nominal 15/32" Plywood Deck

Design Wind Pressure (psf)	Attachment of Roof Panels to Plywood Deck
-60.0	Screw Pattern #1 @ 2'-0" on center
-68.9	Screw Pattern #1 @ 1'-9" on center
-76.0	Screw Pattern #1 @ 1'-6" on center
-84.0	Screw Pattern #1 @ 1'-3" on center

Table 3
Attachment of Minimum 26-gauge 5V-Crimp Roofing Panels to Minimum Nominal 5/8" Plywood Deck

Design Wind Pressure	Attachment of Roof Panels to Plywood Deck
-41.0	Screw Pattern #1 @ 3'-0" on center
-53.0	Screw Pattern #1 @ 2'-6" on center
-65.0	Screw Pattern #1 @ 2'-0" on center
-77.0	Screw Pattern #1 @ 1'-6" on center
-88.0	Screw Pattern #1 @ 1'-0" on center
-100.0	Screw Pattern #1 @ 0'-6" on center

Installation:
General: The metal roofing panels must be installed in accordance with the manufacturer's recommended installation instructions, this evaluation report, and the Metal Sales 5V-Crimp Roof Panel Details.

Underlayment: A minimum of one layer of No. 30 (Type II) asphalt felt underlayment must be used. The underlayment must comply with one or more of the following: ASTM D 226 or ASTM D 4869 if used over the field or perimeter of the roof, or ASTM D 1970 if Metal Sales Hi-Temp (MS-HT) underlayment is used. The felt must be installed with 6" side laps and 3" end laps. The nailable felt must be fastened to the roof deck with corrosion resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners must be applied along the overlaps not farther apart than 36" on center.

Attachment of Metal Roofing Panels to Wood Deck: The 5V-Crimp metal roof panels must be secured to the wood deck as follows:

Tables 1 and 2 Installation:

Anchorage: The panels must be fastened in accordance with Tables 1 and 2 with No. 10-14 x 2", HWH sharp point hex washer head wood screws (No. 10-14 x 2" wood screws) to nominal (minimum) 7/16" OSB or minimum 15/32" plywood roof decking. Refer to Figure 1. The panels must be fastened at the panel ends in accordance with Screw Pattern No. 2 with the No. 10-14 x 2" wood screws as shown in Figure 1. The panels must be fastened along the rake at 6" on center with the No. 10-14 x 2" wood screws. The wood screws must be corrosion resistant, with a painted or plated finish, and must be properly driven, so that the sealing material is slightly visible at the edge of the washer.

Ridge Cap and Rake Trim: The ridge cap and the rake trim must be attached to the panels with the No. 10-14 x 2" wood screws as indicated in the 5V-Crimp Metal Roof Panel Details. Elastic butyl tape sealant is required at the panel end laps and trim, and in addition, an inside closure is required where the panel end lap is fastened to a flat surface.

Table 3 Installation:

Anchorage: The panels must be fastened in accordance with Table 3 with No. 9-15 x 1-1/2", woodgrip HWH sharp point 1/4" hex washer head screws (No. 9-15 x 1-1/2" woodgrip screws) to plywood roof decking. Refer to Figure 2. The panels must be fastened at the panel ends in accordance with Screw Pattern No. 2 with the No. 9-15 x 1-1/2" woodgrip screws as shown in Figure 2. The panels must be fastened along the rake at 6" on center with the No. 9-15 x 1-1/2" woodgrip screws. Panel woodgrip screws must be corrosion resistant, with a painted or plated finish, and must be properly driven, so that the sealing material is slightly visible at the edge of the washer.

Ridge Cap and Rake Trim: The ridge cap and the rake trim must be attached to the panels with the No. 9-15 x 1-1/2" Woodgrip screws as indicated in the 5V-Crimp Metal Roof Panel Details. Elastic butyl tape sealant is required at the panel end laps and trim, and in addition, an inside closure is required where the panel end lap is fastened to a flat surface.

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