

Product Evaluation

RC412 | 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-412

Effective Date: May 1, 2022

Re-evaluation Date: May 2026

Product Name: 24-Gauge and 26-Gauge Steel Vertical Seam Roofing Panels Installed Over a Plywood Roof Deck

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

General Description:

The Vertical Seam metal roof panels have 16" or 18" maximum coverage. The metal roof panels have ribs 1-3/4" high and spaced 16" or 18" on center. The steel roof panels are manufactured from minimum 26-gauge (0.0171" thick) or 24-gauge (0.0223" thick) steel with a minimum yield strength of 50 ksi and a Galvalume or galvanized coating. The steel roof panels conform to ASTM A 792 or ASTM A 653 and may be pre-painted.

Limitations:

Roof Framing: The metal roofing panels must be installed over a minimum 15/32" thick plywood deck. Thicker wood sheathing may be used; however, the design pressure rating for the metal roof panels must be as specified in this evaluation report. 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 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 1-3.

Roof Slope: 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 Vertical Seam Metal Roof Panel Details.

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 of minimum 15/32" OSB. 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 metal roofing panels before the metal roofing panel installation proceeds. Note: Underlayment is required to be installed.

Table 1

Attachment of 16", Minimum 26-gauge Vertical Seam Roofing Panels to Minimum 15/32" Plywood Deck

| Design Wind Pressure (psf) | Attachment of Roof Panel to Plywood Deck |
|----------------------------|--|
| -35.9 | Clips @ 48" on center |
| -48.4 | Clips @ 36" on center |
| -60.9 | Clips @ 24" on center |
| -73.5 | Clips @ 12" on center |
| -86.0 | Clips @ 6" on center |

Table 2

Attachment of 16", Minimum 24-gauge Vertical Seam Roofing Panels to Minimum 15/32" Plywood Deck

| Design Wind Pressure (psf) | Attachment of Roof Panel to Plywood Deck |
|----------------------------|--|
| -80.5 | Clips @ 24" on center |
| -88.9 | Clips @ 20" on center |
| -97.4 | Clips @ 16" on center |
| -105.8 | Clips @ 12" on center |
| -114.3 | Clips @ 8" on center |

Table 3

Attachment of 18", Minimum 24-gauge Vertical Seam Roofing Panels to Minimum 15/32" Plywood Deck

| Design Wind Pressure (psf) | Attachment of Roof Panel to Plywood Deck |
|----------------------------|--|
| -30.0 | Clips @ 48" on center |
| -47.5 | Clips @ 36" on center |
| -65.0 | Clips @ 24" on center |
| -82.5 | Clips @ 12" 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 Vertical Seam Roof Panel Details.

Underlayment: For installations over a solid deck. If used, then a minimum of one layer of No. 30 (Type II) asphalt felt must be used. The underlayment used must comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The underlayment must be installed with 6" side laps and 3" end laps. The underlayment must be applied with corrosion-resistant roofing nails spaced a maximum of 36" on center along the side laps.

Attachment of Metal Roof Panels to Wood Deck: The panel clips (UL-90, 3-1/2" x 1-7/8" x 18-gauge steel) must be installed along the underlap edge of the panels, spaced in accordance with Tables 1-3. Each clip must be attached with two No. 10-12 x 1" Pancake Head wood screws. The panel must be fastened along the rake at 6" on center with No. 10-14 x 1-1/2" wood screws. The panel must be fastened along the ends with four No. 10-14 x 1-1/2" wood screws. The fasteners 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.

Trims, Closures, and Accessories: Components, such as the eave trim, rake trim, ridge trim, hip trim, and valley trim must be installed as required by the manufacturer and as shown in the Metal Sales Vertical Seam Metal Roof Panel Details.

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.