

## Product Evaluation

RC196 | 0321

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-196

**Effective Date:** March 1, 2021

**Re-evaluation Date:** March 2025

**Product Name:** U-Panel and PBU-Panel Steel Roof Panels Installed over a Plywood Deck

**Manufacturer:** Metal Sales Manufacturing Corporation  
3838 North General Bruce Drive  
Temple, TX 76501-6505  
(254) 791-6550

**General Description:**

U-Panel and PBU-Panel 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 3'-0" and covers 36". Major ribs are 3/4" high and are spaced approximately 6" on center.

**Limitations:**

**Roof Framing:** The roof panels must be installed over a nominal 15/32" plywood roof deck. Roof framing (rafters or trusses) must not exceed 24 inches 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:** For installation to minimum nominal 15/32" plywood roof decks, design wind pressure limitations are specified in Table 1.

**Table 1.** Attachment of Minimum 26-gauge U-Panel and PBU-Panel Roof Panels to Minimum 15/32" Plywood Deck

Design Wind Pressure (psf)	Attachment of Roof Panel to Plywood Deck
-35.9	Screw Pattern #1 @ 4'-0" on center
-49.2	Screw Pattern #1 @ 3'-6" on center
-62.6	Screw Pattern #1 @ 3'-0" on center
-75.9	Screw Pattern #1 @ 2'-6" on center
-89.3	Screw Pattern #1 @ 2'-0" on center
-102.6	Screw Pattern #1 @ 1'-6" on center
-116.0	Screw Pattern #1 @ 1'-0" on center

**Roof Slope:** The 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 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 roof panel must not be installed on roofs with a roof slope less than 1/2:12. The roof 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. Tape sealant in the sidelap is required for all roof slopes in accordance with the Metal Sales U-Panel Metal Roof Panel Details.

**Installation Over an Existing Roof Covering:** Not permitted.

**Installation:**

**General:** The roof 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:** 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 and the IRC and the IBC. Fasteners must be applied along the overlaps not farther apart than 36" on center.

**Attachment of Metal Roof Panels to Wood Deck:** The roof panels must be secured to the wood deck in accordance with Table 1 with Atlas No. 10-14 x 1-1/2" hex head wood screws with 7/16" diameter seal washer (No. 10-14 x 1-1/2" wood screws) to minimum nominal 15/32" plywood roof decks. Refer to Figure 1. The panels must be fastened at the panel ends in accordance with Screw Pattern No. 1 with the No. 10-14 x 1-1/2" 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 1-1/2" wood screws. The panel side laps must be fastened with 1/4"-14 x 7/8" hex head self-driller screws with 9/16" diameter integral washer (1/4"-14 x 7/8" stitch screws) spaced 12" on center. 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.

**Ridge Cap and Rake Trim:** The ridge cap must be attached to the panels with the 1/4"-14 x 7/8" stitch screws at 6" on center as indicated in the Metal Sales U-Panel Metal Roof Panel Details. The rake trim must be attached to the panels with the 1/4"-14 x 7/8" stitch screws at 12" on center as indicated in the Metal Sales U-Panel 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 low end of a panel run is fastened to a flat surface. An outside closure is required where the high end of a panel run is fastened to a flat surface.

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

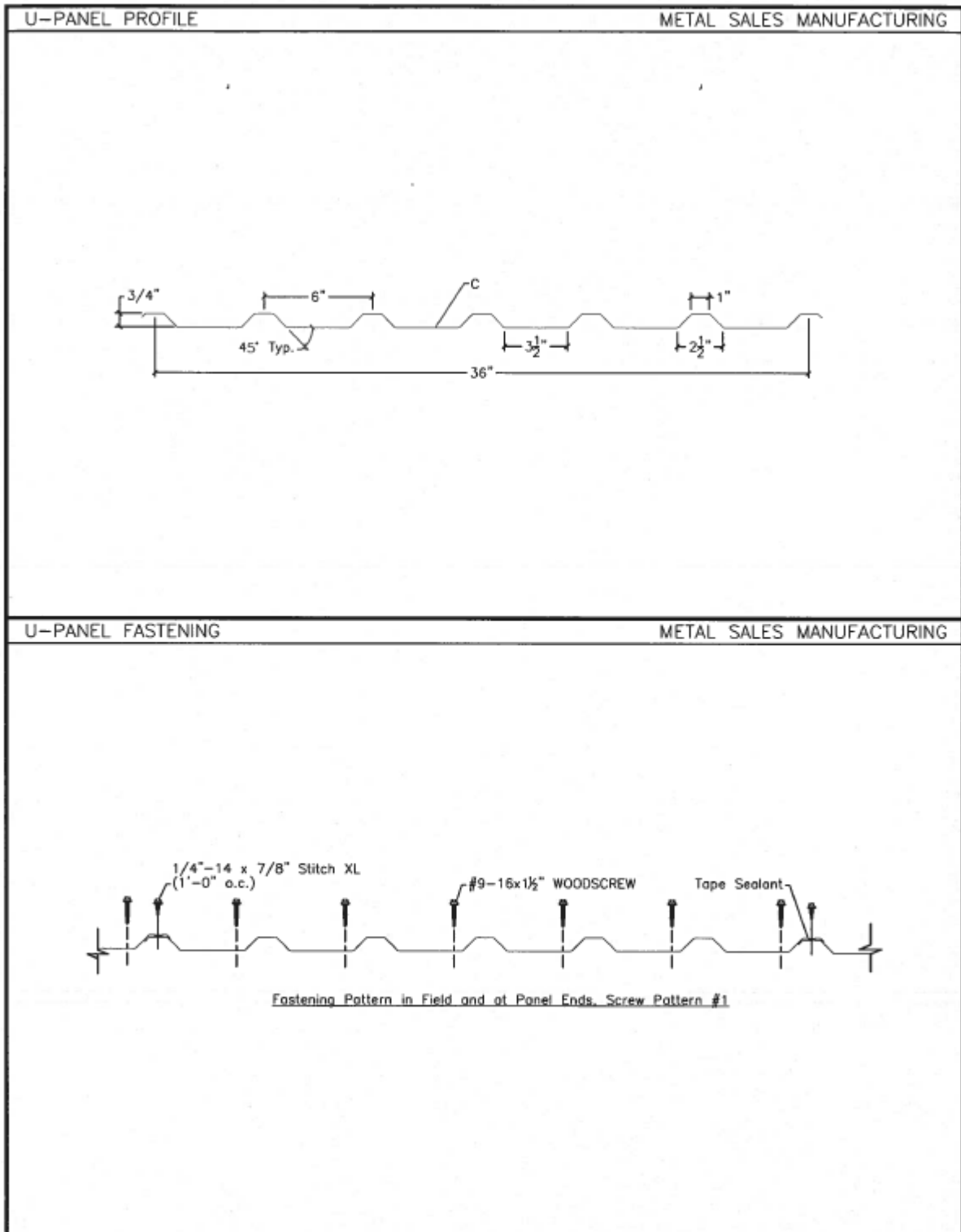


Figure 1. U-Panel and PBU-Panel Screw Pattern for Table 1