PRODUCT EVALUATION

RC-190

Effective April 1, 2013

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 in August 2017.

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.

Corrugated Metal Roofing Panels Installed Over 1x4 Wood Purlins manufactured by

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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

This evaluation report is for corrugated metal roofing panels that are secured to nominal 1x4 wood purlins. The wood purlins are secured to nominal 1 5/16" plywood. Thicker wood purlins and thicker plywood may be used; however, the design pressure rating for the metal roofing panels shall be as specified in this evaluation report.

The corrugated metal roofing panels are 34" in width and have a 29 1/2" coverage. The metal roof panels have a 7/8" rib height. The metal roof panels are manufactured from minimum 26 gauge coated steel that conform to ASTM A446, Grade E, with a minimum yield strength of 80,000 psi. The metal roofing panels have either an AZ 55 hot-dipped aluminum zinc alloy coating or a hot-dipped galvanized coating conforming to ASTM A525.

LIMITATIONS

Roof Framing: The metal roofing panels shall be installed over nominal 1x 4 No. 2 Southern Yellow Pine wood purlins that are secured to nominal 1 5/16" plywood. Roof framing (rafters or trusses) shall not exceed 24 inches on center.

New Roof Framing Attachment: The roof framing shall meet or exceed the uplift requirements of the International Residential Code or International Building Code and shall be installed as required for resistance to wind loads.
Design Wind Pressures: The design pressure uplift load resistance shall be as specified in Table 1.

Roof Slope: The metal roofing panels may be installed on roofs with a roof slope as low as 3:12. If the laps are sealed with a lap sealant, then the minimum roof slope shall be $\frac{1}{2}:12$.

Table 1
Attachment of minimum 26 gauge corrugated metal roofing panels to Minimum 1x4 No. 2 Southern Yellow Pine wood purlins

<table>
<thead>
<tr>
<th>Design Wind Pressure</th>
<th>Fastener Pattern</th>
<th>Fastener Spacing</th>
<th>1x4 Wood Purlin Spacing</th>
<th>1x4 Purlin Screw Spacing into Plywood</th>
</tr>
</thead>
<tbody>
<tr>
<td>-71.0 psf</td>
<td>Pattern A</td>
<td>24” o.c.</td>
<td>24”</td>
<td>12”</td>
</tr>
<tr>
<td>-108.5 psf</td>
<td>Pattern B</td>
<td>24” o.c.</td>
<td>24”</td>
<td>6”</td>
</tr>
</tbody>
</table>

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 $\frac{32}{15}$ plywood. 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 metal roofing panels before the metal roofing panel installation proceeds. NOTE: Underlayment is not required to be installed.

INSTALLATION INSTRUCTIONS

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

Underlayment: Titanium-UDL synthetic roofing underlayment or equivalent. The underlayment used shall comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The underlayment shall be installed with 2-inch side laps and with 6-inch end laps. The underlayment shall be applied as required by the manufacturer with corrosion-resistant roofing nails spaced a maximum of 36 inches on center along the side laps.

Alternative 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 underlayment shall be installed with 6-inch side laps and 3-inch end laps. The underlayment shall be applied with corrosion-resistant roofing nails spaced a maximum of 36 inches on center along the side laps.

Wood Purlins: The wood purlins shall be secured to minimum $\frac{3}{8}$ plywood using minimum No. 8 x 2 $\frac{1}{2}$" long wood screws spaced as specified in Table 1. The fasteners shall penetrate a minimum of $\frac{1}{4}$” below the plywood roof decking. Note: If the metal roofing 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 $\frac{1}{4}$” below the existing plywood roof decking.

Attachment of Metal Roofing Panels to the 1x4 Wood Purlins: Minimum No. 12-11 x 1” long, SDT screws with sealing washer, manufactured by Atlas. The required fastener pattern and spacing of the fasteners is specified in Table 1 and is shown in Figure 1.
**Trims, Closures, and Accessories:** Components, such as the eave trim, rake trim, ridge trim, hip trim, and valley trim shall be installed as required by the manufacturer.

**Alternative Fasteners:** Substitution of equivalent fasteners shall meet the following requirements:

- No. 12-11 SDT wafer head screws with sealing washer, manufactured by Atlas
  - Ultimate withdrawal (pullout) \( \geq 435 \text{ lbs. in } \frac{1}{2} " \text{ plywood} \)

**Note:** The manufacturer’s installation instructions shall be available 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.
Figure 1. Fastener Pattern A and Fastener Pattern B