

Product Evaluation

RC630 | 1022

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-630

Effective Date: October 1, 2022

Re-evaluation Date: October 2026

Product Name: Diamond Lock ML 24-Gauge Steel Standing Seam Roofing Panel Installed Over an OSB or Plywood Deck

Manufacturer: D7, Inc.
4313 FM 2351
Suite B
Friendswood, TX 77546
(281) 480-7663

General Description:

The Diamond Lock ML standing seam panels are minimum 24-gauge galvalume steel panels. The metal roofing panels have a maximum coverage of 17". The panel has a 1-1/2" tall mechanical double lock standing seam rib. The 24-gauge steel material is ASTM A792 AZ-55, Grade 40 with a minimum 40 ksi yield point with optional painted finishes. The panels must be formed within the panel roll former specifications and tolerances.

Note: Project Specific Certificate of Manufacturing executed by an officer of D7, Inc. is required.

This product evaluation report is for residential steel roofing panels that are secured to either a nominal 7/16" OSB deck, a 15/32" plywood deck, or a 19/32" plywood deck. A thicker OSB or plywood deck may be used; however, the design pressure rating for the metal panels must be as specified in the report.

Limitations:

Roof Deck: The steel roofing panels must be installed over minimum 7/16" OSB; 15/32" plywood; or 19/32" plywood sheathing. The OSB or plywood sheathing must be attached to wood roof framing with a maximum spacing of 24" on center.

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

Roof Slope: The steel roofing panels may be installed on roofs with a roof slope as low as 1:12. Consult with the manufacturer for roof slopes less than 1:12.

Design Pressure: The design pressure uplift load resistance must be as specified in either Table 1, Table 2, or Table 3.

Table 1. Attachment of Diamond Lock ML 24-Gauge Steel Roofing Panels to Minimum 7/16" OSB Roof Deck

Design Wind Pressure	Clip Spacing
-52.5 psf	24" o.c.
-66.2 psf	18" o.c.
-79.8 psf	12" o.c.
-93.5 psf	6" o.c.

Table 2. Attachment of Diamond Lock ML 24-Gauge Steel Roofing Panels to Minimum 15/32" Plywood Roof Deck

Design Wind Pressure	Clip Spacing
-63.5 psf	36" o.c.
-72.9 psf	30" o.c.
-82.3 psf	24" o.c.
-91.6 psf	18" o.c.
-101.0 psf	12" o.c.

Table 3. Attachment of Diamond Lock ML 24-Gauge Steel Roofing Panels to Minimum 19/32" Plywood Roof Deck

Design Wind Pressure	Clip Spacing
-123.5 psf	12" o.c.

Installation over 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 7/16" OSB, 15/32" plywood, or 19/32" plywood. Note: Inspection of the existing roof deck must be made prior to the installation of the roofing panels. The condition of the existing roof deck must be acceptable to receive the steel roofing panels before roofing panel installation can begin.

Installation Instructions:

General: The steel roofing panels must be installed in accordance with the manufacturer's installation instructions and this product evaluation report.

Underlayment: A minimum of one layer of No. 30 (Type II) asphalt felt or equivalent must be used. The underlayment used must comply with one or more of the following standards: ASTM D226; ASTM D4869; or ASTM D1970. The underlayment must be installed with 6" side laps and 3" end laps. The underlayment must be applied with corrosion resistant fasteners in accordance with the manufacturer's installation instructions, the IRC, or the IBC.

Attachment of Steel Roofing Panels to the OSB or Plywood Deck: The steel roofing panels must be installed using a fixed clip with two (2) No. 10-12 x 1" long Pancake T-17 screws per clip. The fasteners must be long enough to ensure a minimum penetration of 1/4" below the roof deck sheathing or 3/4" into a solid board deck. (Note: If the steel roofing panels are installed over an existing roof covering, then the fastener length must be increased so that the fasteners are long enough to ensure a minimum penetration of 1/4" below the existing roof deck sheathing or 3/4" into a solid board deck.). The maximum allowable spacing of the clips is specified in Tables 1, 2, and 3.

Panel Clip: Fixed clip; 24-gauge galvanized steel, 1-5/8" height, 2" long.

Panel ends: As required by the manufacturer.

Panel edges: As required by the manufacturer.

Panel Seam: The panel ribs are seamed together with a mechanical seamer to a double lock, 180-degree seam.

Trims, closures, and accessories: Components such as eave, rake rim, rake trim, hip trim, and valley trim shall be as required by the manufacturer.

Alternative Fasteners: Alternative fasteners of equal or greater diameter that have equal or greater strength may be substituted.

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.