

## Product Evaluation

RC89 | 0519

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-89

**Effective Date:** May 1, 2019

**Re-evaluation Date:** May 2023

**Product Name:** CF-Panel and CFS-Panel Steel Roof Panels Installed Over a Wood Structural Panel Deck

**Manufacturer:** Mueller, Inc.  
Metal Buildings, Roofing, and Components  
1913 Hutchins Avenue  
Ballinger, TX 76821  
(800) 231-1034 ext. 8155

### General Description:

The CF-Panel and CFS-Panel metal roof panels are standard 26-gauge thickness, 80,000 psi full hard steel with either a G-90 Galvanized or Galvalume substrate. The panel has a pre-punched nailstrip with pre-punched holes at 5" on center in accordance with this product evaluation report. The panels may be secured to either a plywood or OSB wood structural panel deck.

### Limitations:

**Design Wind Pressures:** For installations to nominal 7/16" OSB wood structural panel decks, design wind pressure limitations are specified in Table 1. For installations to nominal 15/32" wood structural panel decks, design wind pressure limitations are specified in Table 2. For installations to nominal 19/32" wood structural panel decks, design wind pressure limitations are specified in Table 3.

**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. If the roof panels are attached directly to the roof deck, then the existing roof deck must be nominal 7/16" OSB wood structural panels for installations specified in Table 1, nominal 15/32" plywood wood structural panels for installations specified in Table 2, and nominal 19/32" plywood wood structural panels for installations specified in Table 3. Note: Inspection of the existing roof deck must be made before installing the roof panels. The condition of the existing roof deck must be acceptable to receive the roof panels before the roof panel installation can proceed.

**Roof Slope:** The CF-Panel and CFS-Panel roof panels shall not be installed on roofs with a roof slope less than 3:12.

**Installation:**

**General Installation Requirements:** The installation of the panels must be limited to extending 2" beyond the plane of the fascia board.

**Panels:** Panels must be attached in accordance with Tables 1-3 and Figure 1.

**Table 1**

Attachment of 26-gauge CF-Panel and CFS-Panel Roof Panel to nominal 7/16" Roof Deck

Design Wind Pressure (psf)	Attachment of Panel to 7/16" thick OSB
-52.5	(1) No. 10-12 Type A Pancake Head @ 15" o.c.
-79.3	(1) No. 10-12 Type A Pancake Head @ 10" o.c.

**Table 2**

Attachment of 26-gauge CF-Panel and CFS-Panel Roof Panel to nominal 15/32" Plywood Roof Deck

Design Wind Pressure (psf)	Attachment of Panel to 15/32" thick Plywood
-52.5	(1) No. 10-12 Type A Pancake Head @ 15" o.c.
-52.5	(1) No. 10-12 Type DLP Wafer Head @ 15" o.c.
-93.5	(1) No. 10-12 Type DLP Wafer Head @ 10" o.c.

**Table 3**

Attachment of 26-gauge CF-Panel and CFS-Panel Roof Panel to nominal 19/32" Roof Decking:

Design Wind Pressure (psf)	Attachment of Panel to 19/32" thick Plywood
-78.5	(1) No. 10-12 Type DLP Wafer Head @ 25" o.c.

**Underlayment:** Synthetic roofing underlayment. 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 2" side laps and with 6" end laps. The underlayment must be applied as required

by the manufacturer with corrosion-resistant roofing nails and tin caps spaced a maximum of 12" on center in the field (one row) and 6" on center along the side laps.

**Alternative Underlayment:** 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 2" side laps and 2" end laps. The underlayment must be applied with corrosion resistant fasteners spaced a maximum of 36" n center along the overlap.

#### **Anchorage:**

**Table 1:** The fasteners must be (1) No. 10-12 x 1" Type A Pancake Head screws. If the panels are laid directly over an existing roof covering, then No. 10-12 x 2" Type A Pancake Head screws are required. The fasteners must be long enough to penetrate completely through the wood structural panels with a minimum exposure of 1/4" below the underside of the wood structural panels.

**Table 2 & 3:** The fasteners must be either (1) No. 10-12 x 1" Type A Pancake Head screws or (1) No. 10-12 x 1" Type DLP Wafer Head screws. If the panels are laid directly over an existing roof covering, then either No. 10-12 x 2" Type A Pancake Head screws or No. 10-12 x 2" Type DLP Wafer Head screws are required. The fasteners must be long enough to penetrate completely through the wood structural panels with a minimum exposure of 1/4" below the underside of the wood structural panels.

**Ridge Cap and Rake Trim:** The ridge cap and the rake trim must be attached to the panels with 1/4"-14 x 7/8" HWH self-drilling lap screws in accordance with the manufacturer's installation instructions.

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

No. 10-12 Type A Pancake Head screws.

- Ultimate withdrawal (pullout)  $\geq$  339 lbs. in 15/32" plywood

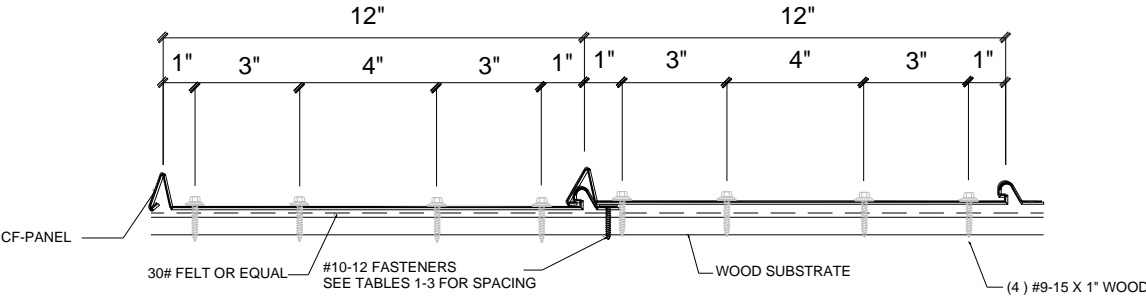
No. 10-12 Type DLP Wafer Head screws

- Ultimate withdrawal (pullout)  $\geq$  354 lbs. in 15/32" plywood

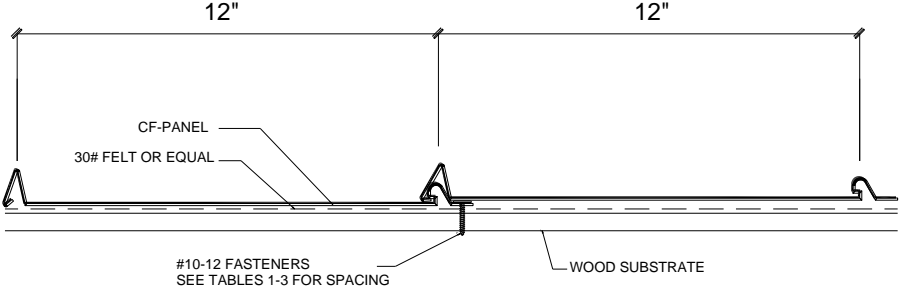
No. 10-12 Type A Pancake Head screws

- Ultimate withdrawal (pullout)  $\geq$  521 lbs. in 19/32" plywood

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



FASTENER LOCATION AT LOW EAVE AND ENDLAP



FASTENER LOCATION AT PANEL INTERIOR

Figure 1: CF-Panel/CFS-Panel Fastener Locations