

Technical Bulletin

FH 2019-01

First Release:

November 2019

Prepared by:

Julie Lowrey, FORTIFIED Engineering Director

Applicable Standards:

FORTIFIED Home™–Hurricane
 FORTIFIED Home™–High Wind

Applicable Designation Level:

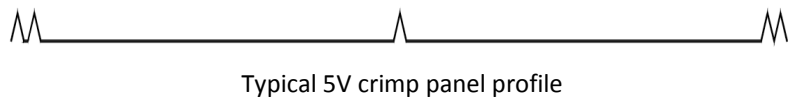
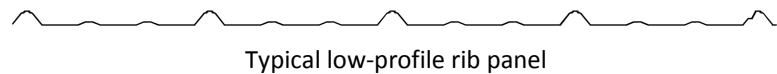


Metal Panel Roof Coverings: Guidance on Selection, Installation and Documentation

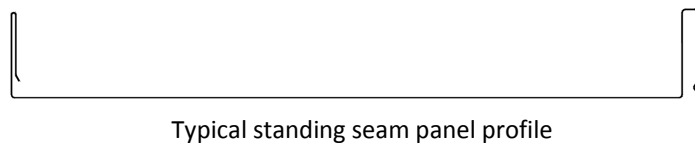
Introduction

Metal panels installed over solid wood sheathing are a common option for roof coverings. They typically fall into one of the following shape categories:

- **Rib and 5-V crimp panels fastened with exposed fasteners**
Low-profile rib shape with typical corrugations spaced at less than 12 in. apart.



- **Standing seam panels fastened with concealed fasteners or fastener/clip system**
Profile shape with major and deeper corrugations typically spaced at more than 12 in. apart where attachments are installed to resist wind uplift pressures.



This Technical Bulletin is intended to provide selection and installation guidance for residential, non-structural metal roof systems installed over wood roof decks with a roof slope 2:12 (10 degrees) or greater to comply with section R905.1 of the 2015 IRC for a FORTIFIED Roof – New Roof Designation.

SECTION R905 REQUIREMENTS FOR ROOF COVERINGS

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R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer’s installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

Note: The design pressures in the tables referenced above are per ASCE 7-10, and are not applicable for building codes that have adopted ASCE 7-16 (including 2018 IRC in regions where wind design is required).

Selecting Metal Panel Roof Covering Systems with Adequate Design Pressure Ratings

Metal panel roof cover systems are not rated by wind speed. They are rated by design pressure in units of pounds per square foot (psf). **FORTIFIED requires that design pressure (DP) ratings for metal panel roof cover systems must come from one of the approved certified test reports and/or testing standards summarized below.** Refer to FORTIFIED [Technical Bulletin FH 2020-01](#) for additional information.

“DP ratings listed in certified reports from the following organizations can be used as documentation for FORTIFIED:

- Florida Building Code Product Approval
- International Code Council Evaluation Service (ICC-ES) Report
- Miami-Dade Notice of Acceptance (NOA)
- Texas Department of Insurance (TDI) Product Evaluation

DP ratings from organizations not listed above must incorporate a 2.0 safety factor by testing in accordance with UL 580 or UL 1897 or TAS 125, be approved by the manufacturer, comply with locally adopted building code requirements, and be accepted by the local building officials

FORTIFIED will not accept engineering extrapolation of test data to achieve greater DP ratings or larger connection



Selection & Installation of Metal Roof Panels

spacings than listed in the certified report. Additionally, the installed product must match the tested assembly in the certified report.”

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The DP ratings of the metal panel roof system must meet or exceed the required design uplift pressures for roof zones 1, 2 and 3 for the site (refer to FORTIFIED [Technical Bulletin FH 2020-01](#) for an illustrative roof covering selection example). It is important to note that different connection spacings may be required in roof zones 2 and/or 3 than are required in roof zone 1 in order to meet the corresponding design uplift pressures.

Proper Installation is Key

Metal panel roof cover system products and installation must match the tested assembly and the manufacturer’s instructions, or the home will NOT receive a FORTIFIED Roof – New Roof designation.

An essential but often-overlooked fact is that DP ratings are dependent on proper attachment of the metal panels to the roof. Therefore, it is vital to understand the panel attachment requirements, such as type, size, and spacing of fasteners or clips, and comply with those requirements when installing the panels. It is important to reiterate that different connection spacings may be required in roof zones 2 and/or 3 than are required in roof zone 1 in order to meet the corresponding design uplift pressures.

Many metal panel manufacturers also provide specific installation details for metal panel attachments at different areas of the roof, for example, ridges, eaves, valleys, gutters, sidewalls, flashings, etc. These details are typically published separately from the certified report, so it is vital to ensure that all information required for proper installation of the panels is obtained and followed. If the installation does not meet these requirements, the home will NOT receive a FORTIFIED Roof – New Roof designation. If in doubt, always contact the manufacturer to obtain all installation information.

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Documentation Requirements

Prior to the installation of metal roof panels, the roof deck plywood/OSB thickness, attachment to roof framing members, and sealed-roof-deck application per FORTIFIED Standards must be verified and photo documented by the evaluator and/or the installing contractor. The metal panel system must be installed and fastened to the roof deck in compliance with manufacturer tested assembly report and flashing specifications. It is vital that the fasteners are verified with photo documentation.

The Roofing Compliance Form must indicate the roof assembly’s manufacturer and system type.

The metal panel system manufacturer’s product approval report indicating the design pressure rating for the installed system meets or exceeds the site-specific roof design pressures must be provided to the Evaluator.

Photos must be provided indicating the attachment and spacing of the panel fasteners and or clips in compliance with the roofing system approval.