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DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Section: 07 41 13 – Metal Roof Panels

REPORT HOLDER:
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REPORT SUBJECT:
Performance Panel Steel Roofing

1.0 SCOPE OF EVALUATION

1.1. This research report addresses compliance with the following codes:

- 2015 *International Building Code*® (IBC)
- 2015 *International Residential Code*® (IRC)
- 2017 Florida Building Code (FBC) excluding High-Velocity Hurricane Zone. See Section 9.0.

1.2. *Performance Panel* has been evaluated for the following properties:

- Fire Classification
- Weather Resistance
- Wind Resistance
- Impact Classification

1.3. *Performance Panel* is a metal roof panel, complying with the requirements of Section 1507.4 of the IBC and FBC, and IRC Section R905.10. The *Performance Panel* shall be installed on roof slopes of 2:12 or greater, and limited to the code occupancies as identified in Table 1.

2.0 STATEMENT OF COMPLIANCE

Performance Panel Steel Roofing complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.

3.0 DESCRIPTION

3.1. The *Performance Panel* metal roof coverings and accessories (hip and ridge caps, and flashing) are fabricated from 28 ga. (0.015" min. thick) steel conforming to ASTM A924. The steel has a minimum protective coating conforming to Specification ASTM A792-AZ50, and painted with a silicone-modified polyester finish in various colors. Panels are provided in lengths up to 60 feet, with cross-sectional profile as shown in Figure 1.

4.0 PERFORMANCE CHARACTERISTICS

4.1. Wind Uplift Resistance – Maximum allowable design pressures are shown in Table 2 for the *Performance Panels* when tested in accordance with UL 580 and UL 1897. Values are based on allowable stress design (ASD) and include safety factors as specified in ICC-ES AC166 and FBC Section 1504.9.

4.2. Live Load – *Performance Panels* described in this report have an allowable live load of 102 psf when installed on flat 2x4 wood supports spaced 24" on center and supported by roof framing at 24" on center. When installed over solid sheathing, the sheathing must be designed to resist the required design loads in accordance with the applicable code.

4.3. Fire Classification – See Table 1 for recognized fire classifications and code occupancies.

4.4. In addition to the codes recognized in Section 1.0, *Performance Panels* have met the roof impact classification requirements for Class 4 when tested in accordance with FM 4473 and UL 2218.

5.0 INSTALLATION

The *Performance Panel* must be installed in accordance with the this report, the Section 1507.4 of the IBC and FBC or Section R905.10 of the IRC and FBC-R (as applicable), and the manufacturer's published installation instructions, The manufacturer's published installation instructions and this



Research Report must be strictly adhered to, and a copy of the instructions must be available on the jobsite during installation.

5.1. The *Performance Panel* utilizes galvanized *Wood Binder* screws for attachment of the metal panels to solid decking or spaced supports. See Table 2 for fastening schedule.

5.1.1. Wood solid decking must be a minimum 15/32" plywood, 32/16 rated sheathing complying with Section 2304.8.2 of the IBC and FBC or Section R803 of the IRC and FBC-R, as applicable.

5.1.2. Wood spaced supports must be a minimum 2x4, spaced a maximum of 24" on center. Spaced supports shall be positively fastened to the framing of the roof structure at no greater than 24" on center.

5.2. Underlayment shall comply with Section 1507.4.5 of the IBC and FBC, or Section R905.10.5 of the IRC and FBC-R, as applicable.

5.3. Flashing shall be in accordance with Section 1503.2 of the IBC and FBC or Section R903.2 of the IRC and FBC-R, as applicable.

5.4. The *Performance Panels* shall be installed on roof of slopes of 2:12 or greater. Lap sealants shall be applied to seams for roof slopes less than 3:12.

6.0 CONDITIONS OF USE

The *Performance Panel* described in this Research Report complies with, or is a suitable alternative to, what is specified in those Codes listed in Sections 1.0 and 2.0 of this report, subject to the following conditions:

6.1. Installation must comply with this Research Report, the manufacturer's published installation instructions and the applicable Code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

6.2. The allowable wind uplift resistance listed in Table 2 is for the metal panels only. The roof deck and framing to which the metal panels are attached must be designed for components and cladding in accordance with Section 1609

of the IBC and FBC, and Section R301.2.1 of the IRC and FBC-R.

6.3. The *Performance Panel* metal roof coverings are manufactured by Higgins Construction & Supply Company in Hillsboro, OH and Jackson, OH in accordance with an approved quality control system and inspections by Intertek (IAS AA-676).

7.0 SUPPORTING EVIDENCE

7.1. Manufacturer's drawings and installation instructions

7.2. Reports of wind uplift resistance in accordance with UL 580-2006, Test for Uplift Resistance of Roof Assemblies.

7.3. Reports of wind uplift resistance in accordance with UL 1897-12, Uplift Tests for Roof Covering Systems.

7.4. Reports of testing in accordance with ICC-ES AC166, Acceptance Criteria for Metal roof Coverings, revised June 2015.

7.5. Reports of impact resistance testing in accordance with FM 4473 (2011), Specification Test Standard for Impact Resistance Testing of Rigid Roofing Materials by Impacting with Freezer Ice Balls, and UL 2218 (1996), Standard for Safety for Impact Resistance of Prepared Roof Covering Materials.

7.6. Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

8.0 IDENTIFICATION

The *Performance Panel* described in this Research Report are identified by a marking bearing the product name, report holder's name (Higgins Roofing), and the Code Compliance Research Report mark and number (CCRR-0253).





9.0 FLORIDA BUILDING CODE

9.1. Scope of Evaluation:

The *Performance Panel* metal roof coverings were evaluated for compliance with the *Florida Building Code – Building* and *Florida Building Code – Residential*.

9.2. Conclusion:

The *Performance Panel* metal roof coverings, described in Sections 2.0 through 7.0 of this Research Report, comply with the *Florida Building Code – Building* and *Florida Building Code – Residential*, subject to the following conditions:

- Use of the *Performance Panel* metal roof coverings for compliance with the High-Velocity Hurricane Zone

provisions of the *Florida Building Code – Building* and the *Florida Building Code – Residential* has not been evaluated, and is outside the scope of this Research Report.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

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10.3. Reference to the Intertek website address: whdirectory.intertek.com is recommended to ascertain the current version and status of this report.

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Table 1 – Fire Classifications

Roof Construction	Code Occupancy	Fire Classification
Combustible and noncombustible roof decks or framing.	IBC / FBC Groups R-3 and U, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof	Nonclassified
Noncombustible decks or noncombustible framing without a roof deck.	IBC / FBC all use groups and dwellings constructed in accordance with the IRC / FBC-R	Class A

Table 2 – Uplift Resistance and Construction Details

Deck ⁽¹⁾	Fastener Attachment	Allowable Design Loads ⁽²⁾
SPF (specific gravity, G=0.42) wood purlins spaced 24" on center. Purlins must be of minimum thickness to allow full penetration of the screws.	Installed on the flat with 1" long, galvanized ZXL <i>Wood Binder</i> screws spaced 9" on center along the width of the panel, spaced 24" on center along the length of the panel.	-75.0 psf
SPF (specific gravity, G=0.42) wood purlins spaced 24" on center. Purlins must be of minimum thickness to allow full penetration of the screws.	Installed on the high corrugation with 2" long, galvanized <i>Wood Binder</i> screws spaced 9" on center along the width of the panel, spaced 24" on center along the length of the panel.	-67.5 psf
15/32" plywood sheathing (32/16 rated sheathing) secured supported by SYP (specific gravity, G=0.55) wood framing spaced 24" on center.	Installed on the flat with 1" long, galvanized ZXL <i>Wood Binder</i> screws spaced 9" on center along the width of the panel, spaced 24" on center along the length of the panel.	-90.0 psf
15/32" plywood sheathing (32/16 rated sheathing) secured supported by SYP (specific gravity, G=0.55) wood framing spaced 24" on center.	Installed on the high corrugation with 2" long, galvanized <i>Wood Binder</i> screws spaced 9" on center along the width of the panel, spaced 24" on center along the length of the panel.	-82.5 psf

⁽¹⁾ Wood supports (sheathing and framing) must be equivalent or greater in specific gravity. Installation on wood substrates with a lesser specific gravity may result in lower allowable design loads.

⁽²⁾ Allowable uplift resistance values are based on allowable stress design (ASD) and include safety factors as specified in ICC-ES AC166 and FBC Section 1504.9.

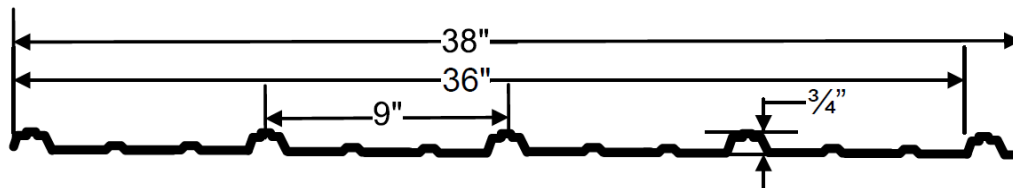


Figure 1 – Performance Panel Profile



Figure 2 – ZXL Wood Binder



Figure 3 – Wood Binder

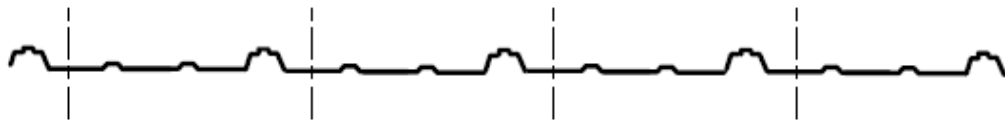
Installation on the flatInstallation on the high corrugation

Figure 4 – Fastener Application Details