

DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
 Level 1: 07 46 33 – Plastic Siding

REPORT HOLDER:



RISE COMPOSITE TECHNOLOGIES
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EVALUATION SUBJECT:

RISE Siding

1.0 EVALUATION SCOPE:

Compliance with the following codes:

- **Manufactured Home Construction Safety Standards 24 CFR 3280 (HUD Code)**
 - § 3280.305 Structural design requirements.

Properties Evaluated:

- Structural (wind load resistance)
- Durability
- Surface-burning characteristics

This Product Evaluation Report (PER) is being used in accordance with the requirements of the HUD Code 24 CFR 3280.305 Structural design requirements. The product noted on this report has been tested and/or evaluated as summarized herein.

2.0 DESCRIPTION:

RISE siding is a polymer-based and recycled synthetic fibers and polymer waste siding composed of a blended mixture of carpet fibers, polymer, and MDI adhesive with phenolic paper facers. The siding is produced in a nominal thickness of 3/8 inch (9.53 mm) and nominal widths of 5/4 inches (133.35 mm) and 8/4 inches (209.55 mm), up to a length of 20 feet. The siding has a flame-spread index of no greater than 200 when tested in accordance with ASTM E84.



3.0 USES

RISE siding is intended for use as an exterior wall cladding in Type V-B and non-fire-resistance-rated conventional construction. RISE siding can be used in HUD manufactured home construction as exterior coverings.

4.0 PRODUCT INSTALLATION

The products listed in this report shall be installed in compliance with this PER and manufacturer's submitted product specifications. The product components shall be of the material specified in the manufacturer's submitted product specification. All fasteners must be installed in accordance with the requirements of this PER and manufacturer's technical installation instructions.

RISE siding must be installed over a substrate capable of withstanding the imposed positive and negative design loads. The siding must be fastened to the wall sheathing and/or wall framing in accordance with the applicable code taking into account the transverse wind loads it will be subjected to in use. The substrate must be covered with an approved water-resistant barrier where required by code.

RISE siding shall be fastened with nails meeting the requirements from Table 1 for the wind zone desired and the corresponding nail shank diameter and minimum embedment length into the structural

framing or wood structural panels and structural framing. The maximum nail spacing shall be 16 inches (406 mm) on center. All siding courses must be lapped a minimum of 1 inch (25.4 mm). Fasteners must be placed a minimum 3/4 inch (19.1 mm) below the top of the siding and 3/8 inch (9.53 mm) from both ends of the siding. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails.

This evaluation is valid for RISE siding for use and installation on HUD manufactured homes.

5.0 LIMITATIONS AND CONDITION OF USE:

The use of this product shall be in accordance with this PER. The manufactured home shall be designed to resist all imposed loads as specified by the HUD code. No evaluation is offered for the manufactured home using this document beside other than the subject product. This evaluation does not consider large or small missile debris impact requirements or hurricane/tornado strength wind loads.

The RISE siding described in this report comply with, or are suitable alternatives to what is specified in, those code(s) listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published installation instructions and applicable code. If there is a conflict between the manufacturer's published installation instructions and this report, this report shall govern.
- 5.2 All windows, doors, and other exterior openings must be flashed in accordance with the applicable code. Horizontal joints between siding must be flashed and sealed in accordance with the manufacturer's instructions.
- 5.3 RISE siding must be installed over a water-resistive barrier in accordance with the applicable code.
- 5.4 RISE siding must be installed only on exterior walls covered by wood structural panel sheathing capable of supporting imposed loads including but not limited to positive and negative transverse wind loads.
- 5.5 RISE siding must be installed on exterior walls braced in accordance with the applicable code.
- 5.6 RISE siding has not been evaluated for use in areas subject to Formosan termite attack.
- 5.7 RISE siding is manufactured in Mankato, Minnesota under a quality control program with inspections by an approved third-party inspection service.

6.0 SUPPORTING EVIDENCE SUBMITTED AND REVIEWED:

- Report of accelerated weathering tests in accordance with ASTM G155, Cycle 1.
- Report of testing of flexural strength and fastener pull-through in accordance with ASTM D1037.
- Report of salt spray resistance in accordance with ASTM B117.
- Report of water resistance in accordance with ASTM D2247.
- Report of self-ignition temperature in accordance with ASTM D1929.
- Report of surface burning testing in accordance with ASTM E84.
- Report of transverse load tests in accordance with ASTM E330.
- ICC-ES Acceptance Criteria for Polymer-Based and Polymer-Modified Exterior and Interior Wall Cladding, AC92.

7.0 WIND RESISTANCE:

RISE siding referenced in this PER are limited to the following design limitations. The allowable wind loads for the RISE siding given in Table 1 and the wind load capacity of the underlying wall or substrate, must equal or exceed the design uniform transverse wind loads for the structure and siding determined in accordance with § 3280.305 Structural design requirements of the HUD code. Calculation summary for this PER is provided in the schedule table. Analytic and comparative analysis calculations programmed into software such as Microsoft Excel has been used to derive numeric calculations and results contained in this report.

7.1 Structural Engineering Calculations

Structural engineering calculations have been prepared which evaluates this product based on comparative and/or rational analysis to qualify the following design criteria:

APPROVED WIND ZONE RATING:

Wind Zones I, II, and III

ANSI/ASCE 7-88, "Minimum Design Loads for Building and Other Structures", was used to calculate and verify the wind load design pressures for use with this product as per the HUD code. The American Wood Council National Design Specification (NDS) for Wood Construction 2018 Edition has been used to calculate the allowable resistance for mechanical connectors for nails given in Table 1.

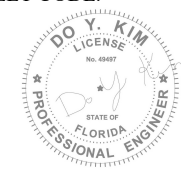
APPROVED SOURCE:

HUD Code § 3280.305 (c)(1)(ii): Siding materials designed by a Professional Engineer.

DIGITAL SEAL OR ORIGINAL SIGNATURE & RAISED SEAL
 REQUIRED TO BE ACCEPTED BY AHJ TO MEET CODE.

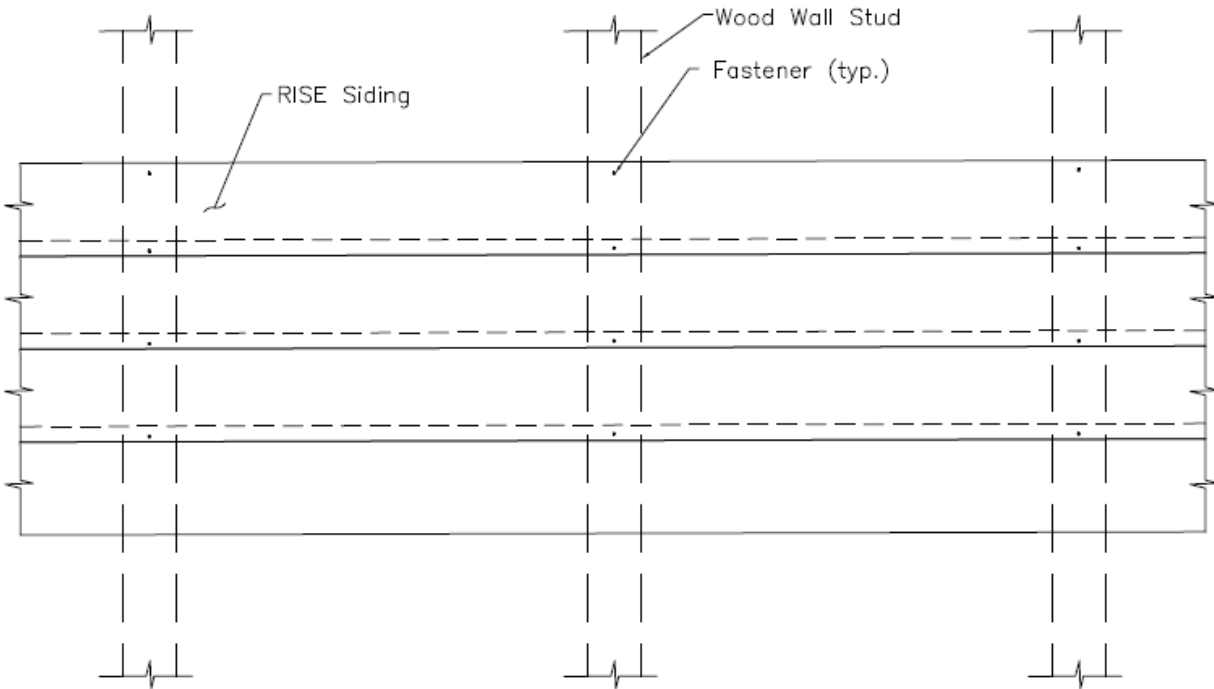
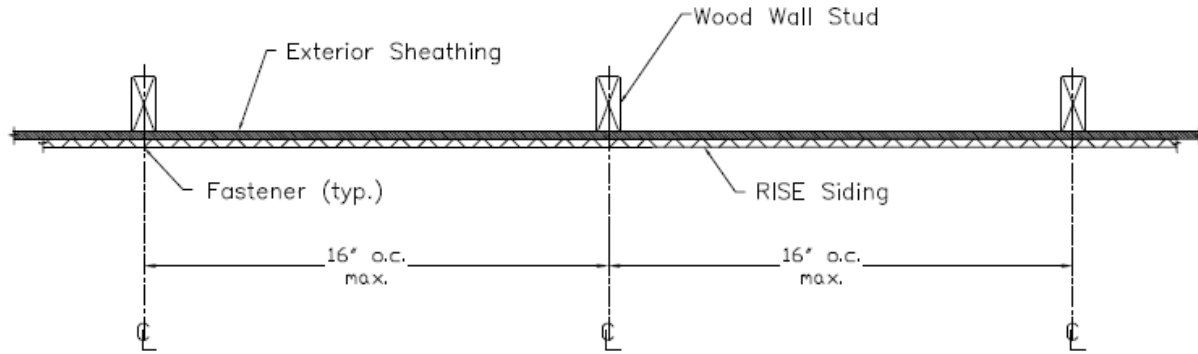
SIGNATURE: _____
 DATE: _____

Do Y. Kim, P.E.
 Do Kim & Associates, LLC
 FL PE #49497 FL CA #26887



This item has been digitally signed and sealed by Do Y. Kim on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed unless the signature must be verified on any electronic copies.

PRODUCT INSTALLATION:



LAP SIDING INSTALLATION

TABLE 1 – MINIMUM NAIL FASTENER EMBEDMENT LENGTH (INCHES) FOR LAP SIDING INSTALLED HORIZONTALLY

Siding Thickness (in.)	Maximum Stud Spacing (in.)	Siding Width (in.)	Nail Shank Diameter (in.)	WIND ZONE FOR MANUFACTURED HOUSING		
				I Minimum Design Pressure (± 15 PSF) ¹	II (100 mph) ⁵ Minimum Design Pressure (± 48 PSF) ¹	III (110 mph) ⁵ Minimum Design Pressure (± 58 PSF) ¹
3/8	16	5.25	0.099	0.28	0.89	1.07
			0.113	0.25	0.79	0.95
			0.120	0.23	0.75	0.90
3/8	16	8.25	0.099	0.47	1.51	1.82
			0.113	0.42	1.34	1.62
			0.120	0.40	1.27	1.54

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa (N/m²), 1 mph = 1.6 kph.

¹Wind load requirements from Table of Design Wind Pressures in § 3280.305(c)(ii)(B) Structural design requirements of the HUD code for exterior coverings within 3'-0" from each corner of a sidewall and endwall.

²One fastener per stud location 3/4 inch from the top edge of the siding. Each successive course of lap siding must overlap a minimum of 1 inch. Fasteners shall be hot dipped galvanized plain (smooth) shank, carbon steel nails, with a minimum shank diameter and long enough to penetrate structural framing or wood structural panels plus structural framing a minimum as specified in Table 1. Lap siding shall not be used for structural bracing.

³Wall studs and sheathing material must have a minimum specific gravity, G, of 0.42.

⁴Tabulated values for embedment length assumes full penetration of the fastener into wall studs. Fastener penetration = fastener length – siding thickness.

⁵Fastest-mile basic wind speeds at 33 ft (10m) above ground for exposure category C for a 50 year recurrence interval as specified in ANSI/ASCE 7-88, "Minimum Design Loads for Building and Other Structures".

General Notes:

1. This product or system has **NOT** been tested or approved for any missile impact resistance.
2. The system and its product components shall be installed in strict compliance with this Product Evaluation Report (PER) and manufacturer's specifications and recommended installation instructions.
3. Products and components shall be of specified items in this PER. Substitutions shall be only allowed if reviewed and approved by a licensed engineer or architect. Approved equivalent anchors and products shall be the responsibility of the approving entity.

