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**RENCo MINERAL COMPOSITE FIBER REINFORCED (MCFR) BUILDING SYSTEM**

**CSI Section:**  
**06 71 00 Structural Composite Shapes and Plates**

**1.0 RECOGNITION**

RENCo Mineral Composite Fiber Reinforced (MCFR) Building System has been evaluated for structural performance for compliance with the following Standards:

- Testing Application Standard (TAS) No. 114-11 Appendix J (TAS 114-95) Test Procedure for 12-foot by 24-foot Simulated Uplift Pressure Resistance of Roof System Assemblies
- Testing Application Standard (TAS) No. 201-94 – Impact Test Procedures -Large Missile
- Testing Application Standard (TAS) No. 202-94 – Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Static Air Pressure
- Testing Application Standard (TAS) No. 203-94 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

**2.0 FINDINGS**

**2.1 TAS 114-11 Appendix J:** The tested assembly was 12 feet (3657 mm) by 24 feet (7315 mm). The assembly included use of 2<sup>3</sup>/<sub>8</sub>-inch-wide (60.3 mm) by 1<sup>3</sup>/<sub>4</sub>-inch-high (349.3 mm) by 1/4-inch-thick (6.4 mm) wall with single web RENCo Purlins/beams spanning the 12-foot (3657 mm) direction, spaced at 24 inches (610 mm) on-center and fastened at each end of the test frame using three (3) 5/16-inch (4.8 mm) No.18 x 3 -inch-long (76.2 mm) hex head bolts with 1-inch-diameter (25.4 mm) washers and nuts. The 20<sup>1</sup>/<sub>2</sub>-inch-wide (520.7 mm) by 1<sup>5</sup>/<sub>8</sub>-inch-thick (41.3 mm) by 98<sup>1</sup>/<sub>2</sub>-inch-long (2502 mm) RENCo deck is attached using 1/4-inch (6.35 mm) No.14 x 3-inch-long (76.2 mm) self-drilling pancake head screws spaced at 5 inches (127 mm) on-center through the deck and into the purlins. A 1/2-inch-thick (12.7) glass mat gypsum thermal barrier (ASTM C1177) is laid over the full face of the deck. A 1-inch-thick (25.4 mm) polyisocyanurate insulation (ASTM C1289 Type II Class I) is installed over the gypsum board in a staggered orientation. The insulation is installed using 4-inch (101.6 mm) OMG XHD No.15 roofing fasteners with 3-inch (76.2 mm) Sarnadisc Rhino

Bond Plates. The fasteners are installed through the insulation, thermal barrier, and deck to each purlin and spaced at 16 inches (406.4 mm) on-center. The assembly used a 60 mil Sikaplan Single Ply PVC membrane. The assembly was tested to a maximum uplift pressure of 150 psf (7.2 kPa).

**2.2 TAS 201-94:** The tested assembly consisted of 16-inch (406.4 mm) and 48-inch (1219.2 mm) standard RENCo MCFR units adhered with RENCo Adhesive (Plexus MA530 Adhesive manufactured by ITW polymers). The assembly complies with the large missile impact requirements of TAS 201.

**2.3 TAS 202-94:** The tested assembly consisted of 16-inch (406.4 mm) and 48-inch (1219.2 mm) standard RENCo MCFR units adhered with RENCo Adhesive (Plexus MA530 Adhesive manufactured by ITW polymers) and was 4 feet (1219.2 mm) wide by 10 feet (3048 mm) tall. The system complies with TAS 202 testing requirements for uniform static air pressure with a negative and positive design pressure of 143 psf (6.8 kPa). The maximum recorded deflection of the assembly when tested to 142 psf (6.8 kPa) is 0.56 inch (14 mm) with a permanent set of 0.06 inch (1.5 mm).

**2.4 TAS 203-94:** The tested assembly consisted of 16-inch (406.4 mm) and 48-inch (1219.2 mm) standard RENCo MCFR units adhered with RENCo Adhesive (Plexus MA530 Adhesive manufactured by ITW polymers) and was 4 feet (1219.2 mm) wide by 10 feet (3048 mm) tall. The system complies to the TAS 203 testing requirements for cyclic wind pressure loading resistance with a negative and positive design pressure of 55 psf (2.63 kPa). The maximum average recorded deflections and permanent set of the assembly when tested to the 55 psf (2.63 kPa) design pressure is 0.28 inch (7 mm) and 0.02 inch (0.5 mm), respectively, meeting the 90 percent recovery requirements of the standard.

**3.0 LIMITATIONS**

Use of the RENCo MCFR Building System recognized in this report is subject to the following limitations:

**3.1** The manufacturer’s published installation instructions, a copy of ER-508, and this report shall be available at all times at the jobsite during construction. Where there is a conflict, the more restrictive shall govern.

**3.2** RENCo MCFR components recognized in this report are produced in Saruhanli, Manisa, Turkey.

**4.0 PRODUCT USE**

**4.1 General:** The RENCo MCFR Building System recognized in this report consists of RENCo MCFR wall

*The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.*





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units, floor and roof joists, bridging and decking installed and erected with RENCo Adhesives and fasteners to construct structural walls, floors, and roofs for interior and exterior, unreinforced load-bearing or nonload-bearing walls and shear walls, floors, and roofs.

**4.2 Installation and Design:** RENCo MCFR Building System structures shall be designed and installed in accordance with ER-508 and Section 2.0 of this report for specific evaluated assembly performance as related to the standards found in this listing.

## 5.0 PRODUCT DESCRIPTION

### 5.1 RENCo Mineral Composite Fiber Reinforced Wall

**Units:** RENCo MCFR wall units are proprietary building units, factory-manufactured in a Sheet Molding Compound compression molding process involving mineral calcite, glass fiber reinforcement, and additives. The wall units are designed to interlock vertically when stacked on top of each other by incorporating a protrusion on the top surface into a recess on the bottom surface of the next block and including male to female channel type connections on the sides of components to allow for mechanical interconnection. The components typically include starter units, line units, caps, plugs, and fenestration opening channel.

### 5.2 RENCo Mineral Composite Fiber Reinforced Joists,

**Bridging, and Decking:** RENCo MCFR joists, bridging, and decking are proprietary structural shapes, factory-manufactured in a pultrusion process involving mineral calcite, glass fiber reinforcement, and additives. The joists are designed to be adhesively joined into wall assemblies. The bridging and decking are designed to be mechanically fastened to the joists and surrounding wall assemblies. Bridging shall be located such that the joist span between bridging or surrounding wall assembly is no greater than 5 feet on-center.

**5.3 RENCo Adhesive:** RENCo Adhesive [Plexus MA530 Adhesive manufactured by ITW Polymers] consists of a two-part proprietary methacrylate adhesive available in tubes, 5-gallon (18.9 L) buckets, 50-gallon (189 L) barrels or totes, with a proprietary mixing nozzle and application equipment available from RENCo, USA to control mix ratio and application. RENCo Adhesive shall be used with RENCo MCFR wall units as recognized in this report. The RENCo Adhesive, when stored in unopened containers and protected from moisture, has a 6-month shelf life from the date of manufacture and can be applied when the temperature is between 40°F and 100°F.

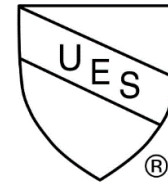
## 6.0 IDENTIFICATION

RENCo Mineral Composite Fiber Reinforced (MCFR) wall units, joists, bridging, and decking are identified by labels which shall include the manufacturer's name (RENCo), the IAPMO Uniform ES Listing Report Number (UEL-5051)

and a numeric code indicating the production plant and date of production. Labels may be located on pallets.

RENCo Adhesive is identified by labeling which shall include the manufacturer's name (ITW Polymers' Plexus MA530 Adhesive) and mixing and application instructions.

The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:



IAPMO UES UEL-5051

## 7.0 REFERENCE CODE SECTIONS

The code references apply to the standards referenced in this listing and provided in this report but may not include every code section related to the use of this product.

### 2020 Florida Building Code

- Section 104.11 Alternative materials, design and methods of construction and equipment.
- Section 1626 High-Velocity Hurricane Zones Impact Tests for Wind-Borne Debris
- Section 1515 High-Velocity Hurricane Zones Performance Requirements

## 8.0 SUBSTANTIATING DATA

Test reports in accordance with Section 1.0 of this report are from laboratories in compliance with ISO/IEC 17025.

## 9.0 STATEMENT OF RECOGNITION

This evaluation listing describes the results of research completed by IAPMO Uniform Evaluation Service on RENCo Mineral Composite Fiber Reinforced components to assess their conformance to the standards shown in Section 1.0 of this report and serves as documentation of the product's certification. Products are manufactured at locations noted in Section 3.2 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation listing please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)