



## **PRI Construction Materials Technologies LLC**

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### **Laboratory Test Report**

# **WATER RESISTANCE EVALUATION OF SEALED CLADDING SYSTEM OVER OSB SHEATHING IN ACCORDANCE WITH ASTM E 331 AND SECTION R703.1.1, EXCEPTION 2 OF THE FLORIDA BUILDING CODE, 6<sup>TH</sup> EDITION (2017), RESIDENTIAL (PROJECT NO. 1809T0002)**

For

#### **KONING CONSTRUCTION CONSULTANTS**

8301 JOLIET STREET

HUDSON, FL 34667

**OCTOBER 9, 2019**

**Purpose:** Evaluate the exterior finish assembly described herein for water resistance in accordance with **Section R703.1.1, Exception 2 of the Florida Building Code, 6<sup>th</sup> Edition (2017), Residential** and **ASTM E 331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference**. In addition, this testing conforms with Section 1403.2, Exception 2 of the Florida Building Code, 6<sup>th</sup> Edition (2017), Building, and the 2012 and 2015 International Building Code (IBC).

**Test Methods:** Testing was conducted in accordance with ASTM E 331-09(2009): *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*. Testing was modified in accordance with Section R703.1.1 as follows:

The tested assembly was tested in a 4 feet by 8 feet exterior wall format containing at least one opening, one control joint, one wall/eave interface and one wall sill. The wall assembly was tested at a minimal differential pressure of 6.24 pounds per square foot (299 Pa) for a minimum 2 hours.

The “passing” criteria for this test is that the exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that the water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings penetrations or intersections with dissimilar materials.

**Sampling:** All products applied to the assembly were provided by Koning Construction Consultants. Below is an itemized list of products that are used in the Sealed Cladding System.

<u>Product Identification</u>	<u>Manufacturer</u>
TYPAR® BuildingWrap	Fiberweb, Inc.
TYPAR® Construction Tape	Fiberweb, Inc.
TYPAR® All-Temperature Flashing	Fiberweb, Inc.
StructaLath No. 17 SFRC Twin Trac 2.5	Structa Wire Corp.
DRYLOK® Extreme Masonry Waterproofer	United Gilsonite Laboratories
Vinyl Corp E-Flange Casing Beads	ClarkDietrich
MasterSeal NP150	BASF
Florida Super Stucco	Argos Cement LLC
Loxon® 1K One Component Smooth Polyurethane Sealant	Sherwin-Williams

**Specimen:** Framing: A 4-ft x 8-ft mock-up was constructed from No.2 2x6 dimensional lumber with studs located 16-inch o.c. and sheathed with CAT 7/16 PS 2-10 OSB sheathing attached 6” o.c. with #8 x 2” bugle head wood screws. The OSB was installed with a single horizontal and single vertical joint.

Building Wrap: TYPAR® BuildingWrap was installed with a T-Joint, having a minimum 6” overlap. All joints were taped with 1-7/8” wide TYPAR® Construction Tape. The building wrap was tacked in place with 3/8” crown x 1/4” leg staple placed randomly to hold in

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place.

Stucco Finish: Vinyl Corp 3/4" E-Flange Casing Beads was attached along the perimeter of the water with #8 x 1" lath screws spaced 24" o.c. The casing was sealed on the exterior to the wall with MasterSeal NP150. Structalath No. 17 SFRC Twin Trac 2.5 was installed with #8 x 1" truss-head, K-lath screws spaced maximum 16" o.c. along the horizontal dimension on the twin track. The attachment rows were spaced vertically a maximum 6" o.c. and offset 8" o.c. from the preceding row. The stucco finish was prepared by mixing Florida Super Stucco and sand at a 1:4 ratio and applied in two (2) 3/8" coats for a total thickness of 3/4". The final coat was densified with a green wet float. The walls were coated with DRYLOK® Extreme Masonry Waterproofer at a rate of 100 ft<sup>2</sup>/gal applied in two coats (13-21 wet mils per coat).

Penetrations: Four penetrations were installed in the wall assembly: (2) 4" square boxes, (1) 4" octagon-shaped box, and (1) 2" diameter PVC pipe. The TYPAR® BuildingWrap was cut at the penetrations in the sheathing and folded in the around the penetration. TYPAR® All-Temperature Flashing was applied to the penetration and the building wrap. After the stucco was applied and cured, DRYLOK® Extreme Masonry Waterproofer was applied around the perimeter of each penetration and allowed to cure. Sherwin-Williams Loxon® 1K One Component Smooth Polyurethane Sealant was then applied to the perimeter of the penetrations prior to coating the walls with DRYLOK® Extreme Masonry Waterproofer.

Opening: Prior to installing the building wrap, TYPAR® All-Temperature Flashing was applied to the OSB sheathing over the head of the opening. The TYPAR® BuildingWrap was cut and folded inside the opening and connected to the back of the stud. TYPAR® All-Temperature Flashing was applied to the of the inside of opening over the TYPAR® BuildingWrap. At each corner, a 4" x 12" piece of TYPAR® All-Temperature Flashing was placed at 45° angle extending 6" onto the face of the wall. After the stucco was applied and cured, DRYLOK® Extreme Masonry Waterproofer was applied around the perimeter of opening and allowed to cure. Sherwin-Williams Loxon® 1K One Component Smooth Polyurethane Sealant was then applied to the perimeter of the opening prior to coating the walls with DRYLOK® Extreme Masonry Waterproofer.

Eave and Sill: The eave and sill were simulated with an additional 2x header and sole plate. The interface was bridged by extending the building wrap and stucco finish over the interface.

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**Results:** The specimen was tested September 18, 2019. Results of testing are shown below.

**Table 1. Results for ASTM E 331 (Modified per Section R703.1.1, Exception 2)**

Property	Test Method	Result	Requirement
<b>IBC 2015: Section 1403.2</b>			
Water-penetration of Wall Assembly [ <i>Pass/Fail</i> ] 4' x 8' wall assembly; $\Delta P=6.24$ psf for 2h; 3.4 L/m <sup>2</sup> -min water spray	ASTM E 331	Pass	Water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings penetrations or intersections with dissimilar materials.

Note(s): None

**Statement of Attestation:**

The performance evaluation of the Sealed Cladding System was conducted in accordance with ASTM E 330-02(2010): *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference* as described herein. The laboratory test results presented in this report are representative of the material supplied.

Signed:



Zachary Priest, P.E.  
 Director

**Report Issue History:**

Issue #	Date	Pages	Revision Description (if applicable)
Original	10/09/2019	8	NA
Rev 1	10/28/2019	8	Editorially revised

**APPENDIX FOLLOWS**

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Specimen #1 Construction Photos



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# STRUCTA WIRE CORP

## STRUCTALATH TWIN TRAC

### SPECIFICATION SHEET

IAPMO UES 2017 US Patent # 6,305,424, B1 7,287,356, B2



**Structalath Twin** is a self furring welded wire lath for use as an alternative to the 2.5 lb/yd<sup>2</sup> diamond mesh metal lath as specified in ASTM C 847 and for use as an alternative to the 1.14 lb/yd<sup>2</sup> welded wire lath specified in ASTM C 933. Structalath Twin Trac is similar to Structalath No. 17 ga. with an addition of eight secondary cold-rolled longitudinal wires. Excellent for commercial construction, Twin Trac has been designed to simplify the attachment of wire lath to wood and steel studs.

#### FEATURES

- Designed to simplify attachment for both steel and wood stud construction
- 17 ga. galvanized steel wire is precision welded to form 1 1/2" x 1 1/2" openings
- Eight additional secondary cold rolled longitudinal wires form a twin trac that simplifies attachment
- The 3/16" Twin Trac spacing allows the easy penetration of screws, nails, and a wide base for automatic staples
- Rolls are 38 3/8" wide by 150 ft. long (50 square yards)
- Weight of roll is 1.14 lb/yd<sup>2</sup>
- Design promotes uniform plaster thickness
- Provides superior reinforcement and crack resistance
- Each and every cross wire is securely furred
- Hat channel furr provides for superior stucco embedment
- Longitudinal wires are cold rolled (flattened) to eliminate curvature memory

- Cold rolled (CR) process increases tensile and breaking load of wire
- Rolls out flat and stays flat
- Easy to fold around corners with clean bending lines

#### DETAILS

- A. Width of furring leg 3/8"
- B. Furring height 1/4" to the underside of the cross wire
- C. Furring rows every 3" on centre
- D. Every cross wire is furred
- E. Tabs are aligned with edge wire and extend 1/4" beyond edge wires
- F. Overall width is 38 3/8". Designed for full coverage of 9' - 3" wall heights including code required overlaps
- G. Twin Trac for ease of attachment

#### PACKAGING

- 32 rolls per pallet
- Each roll is banded with poly strapping indicating manufacturer and IAPMO UES 2017
- English/Spanish Installation Instructions available

#### GREEN ATTRIBUTES

- Made from 80% recycled steel – recycling conserves natural and energy resources
- Conservation of steel without reducing strength
- Less metal with no loss of performance
- Compact packaging means further reduction in total carbon footprint

#### ALSO AVAILABLE:

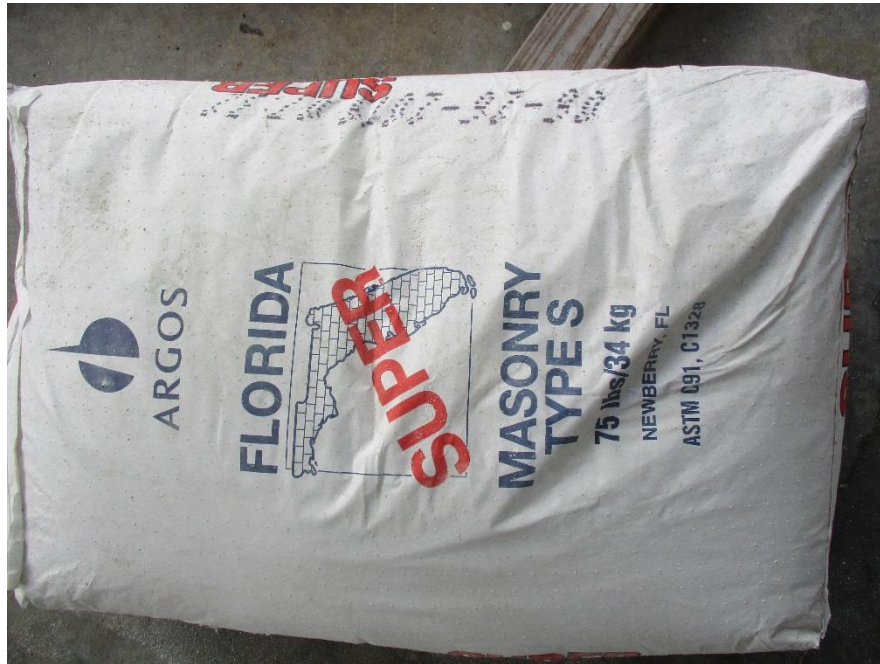
- Twin Trac - Stainless Steel T-304/ANSI Special Order Only

Fully conforms to the requirements for stucco reinforcing as defined in UBC, IBC and IRC building codes

STRUCTA WIRE CORP. 1395 NORTH GRANDVIEW HWY, VANCOUVER, BC V5N 1N2 T 604-254-9868 E INFO@STRUCTAWIRE.COM

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