CONSTRUCTION MATERIALS

TECHNOLOGIES

STRUCTURAL EVALUATION OF THE KONING EXTERIOR FINISH ASSEMBLY IN ACCORDANCE WITH ASTM E 72 FOR TRANSVERSE LOADS AND RACKING LOADS

(PROJECT NO. KCCI-004-02-01)

For

KONING CONSTRUCTION CONSULTANTS
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DECEMBER 20, 2016

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Purpose: Evaluate the Koning Exterior Finish Assembly for transverse load and racking load resistance in accordance with **ASTM E 72: *Standard Test Method for Conducting Strength Test of Panels for Building Construction*.** In addition, this testing was conducted to ensure the Koning Exterior Finish Assembly could withstand the L/360 allowable wind deflection criteria stated under Section 1604.3 for Exterior walls with stucco finishes of the Florida Building Code, 5th Edition (2014), Building, and 2012 and 2015 International Building Code (IBC).

Test Methods: Testing was conducted in accordance ASTM E 72-05: *Standard Test Method for Conducting Strength Test of Panels for Building Construction* with modifications to load the panel only to the deflection limit. One specimen was tested to both transverse and racking loads. Transverse loads were applied to a net deflection of 0.25-inches for the 7.5-ft wall span. Transverse loads were applied by loading and unloading in the positive and negative load directions a total of 10 times. Subsequent to applying the transverse loads, a single racking load was applied to a net deflection of 0.125-inches.

The Koning Exterior Finish Assembly shall be considered to resist the load deflection if no visible cracks are observed on the exterior of the test specimen.

Sampling: All products applied to the exterior sheathing were provided by Koning Construction Consultants. Below is an itemized list of products that are used in the Koning Exterior Finish Assembly.

Product Identification	Manufacturer
Tyvek® HomeWrap	DuPont
Tyvek® Tape	DuPont
Structalath Twin Trac	Structa Wire Corporation
Florida Super Stucco	Argos Cement LLC
Loxon XP™ Masonry Coating	Sherwin-Williams

Specimen: A 8-ft x 8-ft framed wall was constructed from No.1 SYP 2x4 dimensional lumber as prescribed in ASTM E 72, and sheathed with 7/16" OSB. The OSB sheathing was installed with one (1) vertical joint in the center of the specimen and was fastened to the framing with 8d ring shank nails spaced 6" o.c. along the edges and 12" o.c along intermediate supports. DuPont Tyvek® HomeWrap was placed over the OSB and secured with 1" EG Round Plastic Cap Roofing Nails (12 ga. x 1" shank) spaced 16" o.c. at the 4" wide lap and one row in the field at 24" o.c. The lap was sealed with Tyvek® Tape. Structalath Twin Trac was secured through to the sheathing with #8 x 3/4" PH screws spaced 12" o.c. horizontally and 5" o.c vertically in a staggered pattern. Structalath Twin Trac was installed with a 2.5" wide lap and secured 12" o.c. along the lap. The stucco finish was prepared by mixing Florida Super Stucco and sand at a 1:3 to 1:4 ratio and applied to a total depth of 5/8" using a scratch coat, brown coat, and finish coat process. After curing for at least 7 days, Loxon XPTM Masonry Coating was applied in two (2) 14 mil coats to the stucco finish.

Results: The specimen was tested October 25, 2016. Results of testing are shown below. A photograph of the specimen after testing is presented in Appendix B.

Test Method	Result (Pass/Fail)	Requirement
Traverse Loading: ASTM E 72; 10 cycles; Positive and Negative loads applied to achieve mid-span net deflection of 0.25"	Pass	There shall be no cracking of the exterior as determined by visual examination
Racking Loading: ASTM E 72; Load applied to achieve 1/8" net deflection with hold-downs	Pass	There shall be no cracking of the exterior as determined by visual examination

Statement of Attestation:

The performance evaluation of Koning Exterior Finish Assembly was conducted in accordance with transverse load and racking load resistance in accordance with ASTM E 72: *Standard Test Method for Conducting Strength Test of Panels for Building Construction* with modifications as described herein.

In addition, this testing has demonstrated that the Koning Exterior Finish Assembly can withstand the L/360 allowable wind deflection criteria stated under Section 1604.3 for Exterior walls with stucco finishes of the Florida Building Code, 5th Edition (2014), Building, and 2012 and 2015 International Building Code (IBC).

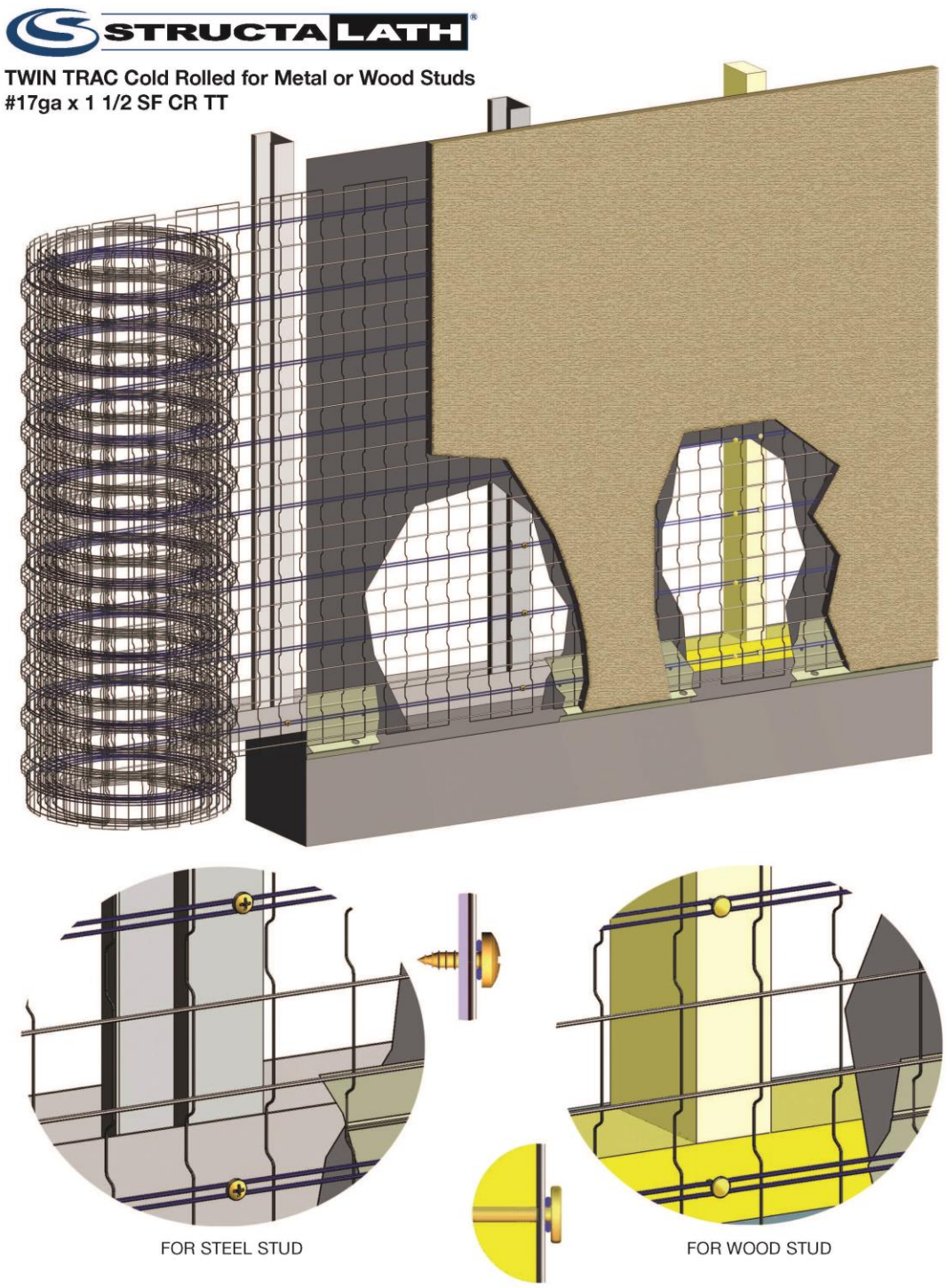
Signed: _____

Zachary Priest, P.E.
Director

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	12/20/2016	8	NA

APPENDIX FOLLOWS



DuPont™ Tyvek® HomeWrap®

PHYSICAL PROPERTIES DATA SHEET

PROPERTIES	METHOD	DUPONT™ TYVEK® HOMEWRAP®
Air Penetration Resistance	ASTM E2178 (cfm/ft²@1.57 psf)	< .004
	Gurley Hill (TAPPI T-460) (sec/100cc)	1200
	ASTM E1677	Type 1
Water Vapor Transmission	ASTM E96-05 Method A (g/m²-24 hrs) (perms)	400 56
	Method B (g/m²-24 hrs) (perms)	370 54
Water Penetration Resistance	ATTCC 127 (cm)	250
Basis Weight	TAPPI T-410 (oz/yd²)	1.8
Breaking Strength	ASTM D882 (lbs/in)	30/30
Tear Resistance (Trapezoid)	ASTM D1117 (lbs)	8/6
Surface Burning Characteristics	ASTM E84 Flame Spread Index	15 Class A
	Smoke Developed Index	15 Class A
Ultra Violet Light Exposure (UV)		120 days (4 months)

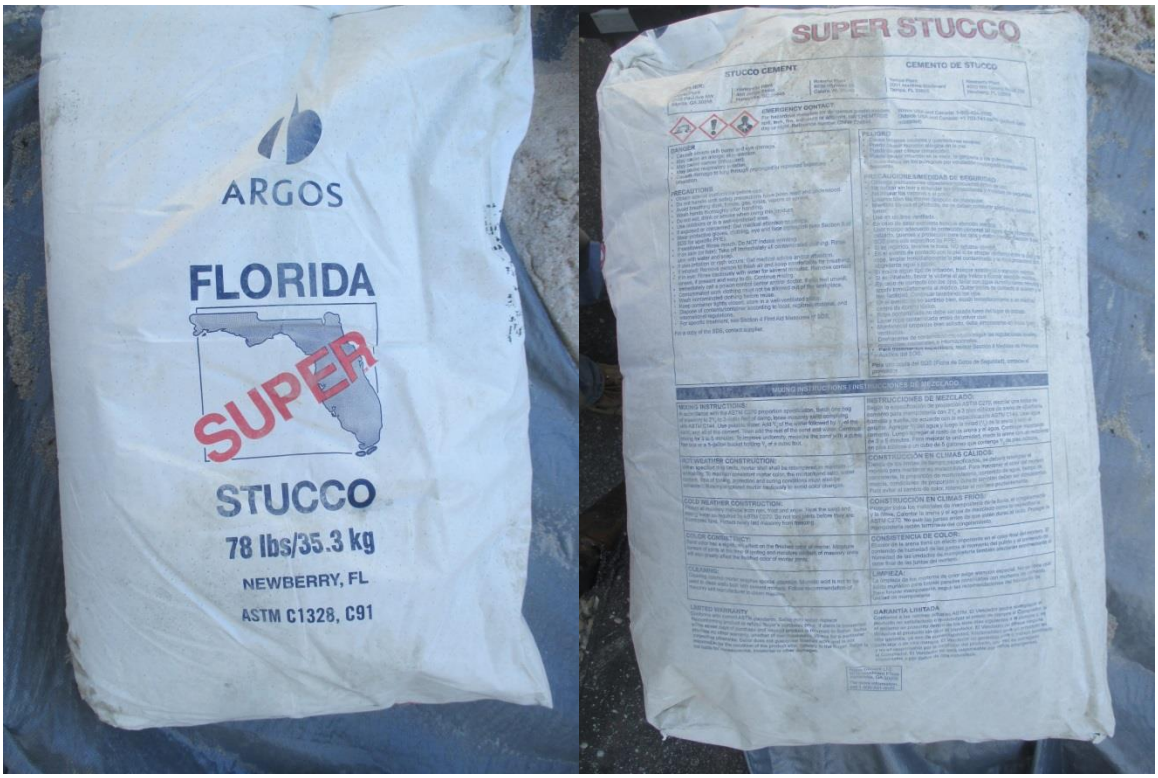
Test results shown represent roll averages. Individual results may vary either above or below averages due to normal manufacturing variations, while continuing to meet product specifications.

For more information about DuPont™ Tyvek® Weatherization Systems, please call 1-800-44-Tyvek or visit us at www.Construction.Tyvek.com

WARNING: DuPont™ Tyvek® is combustible and should be protected from an open flame and other high heat sources. If the temperature of DuPont™ Tyvek® reaches 750 °F (400 °C), it will burn and the fire may spread and fall away from the point of ignition.

DUPONT
The miracles of science™

DuPont™ Tyvek® HomeWrap®



Test specimen after Transverse and Racking Loads

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