



# **CONSTRUCTION MATERIALS**

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## **TECHNOLOGIES**

### **WIND RESISTANCE EVALUATION OF STUCCO FINISH APPLIED TO PAPERBACKED STUCCO LATH ON A WOOD FRAMED WALL (PROJECT NO. KCCI-005-02-01)**

For

**KONING CONSTRUCTION CONSULTANTS**  
8301 JOLIET STREET  
HUDSON, FL 34667

**OCTOBER 20, 2016**

**Purpose:** Evaluate the exterior finish assembly described herein for wind resistance in accordance with **ASTM E 330: *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.***

**Test Methods:** Testing 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.* Specimens were tested in accordance with Procedure A. The selected test load was  $\pm 50$  psf, which equates to a  $\pm 75$  psf proof load when the typical 1.5 factor of safety is applied to the test result. The following sequence was used to evaluate the specimen:

1. +25 psf was applied for 10 seconds
2. Specimen was recovered for 1-5 minutes
3. +50 psf was applied for 10 seconds
4. Specimen was recovered for 1-5 minutes
5. -25 psf was applied for 10 seconds
6. Specimen was recovered for 1-5 minutes
7. -50 psf was applied for 10 seconds
8. Specimen was recovered for 1-5 minutes
9. +37.5 psf was applied for 10 seconds
10. Specimen was recovered for 1-5 minutes
11. +75 psf was applied for 10 seconds
12. Specimen was recovered for 1-5 minutes
13. -37.5 psf was applied for 10 seconds
14. Specimen was recovered for 1-5 minutes
15. -75 psf was applied for 10 seconds
16. Specimen was recovered for 1-5 minutes

Steps 17-23 were used to take the specimens to failure.

17. +56 psf was applied for 10 seconds
18. Specimen was recovered for 1-5 minutes
19. +112.5 psf was applied for 10 seconds
20. Specimen was recovered for 1-5 minutes
21. -56 psf was applied for 10 seconds
22. Specimen was recovered for 1-5 minutes
23. -112.5 psf was applied for 10 seconds

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

<u>Product Identification</u>	<u>Manufacturer</u>
ClarkDietrich™ Expanded Diamond Mesh Metal Lath with Grade-D, Style 2 paper-backing water resistive barrier	ClarkDietrich™ Building Systems
Vinyl control joint	Not provided
Florida Super Stucco	Argos Cement LLC

**Specimen:** Specimen #1: A 4-ft x 8-ft mock-up was constructed from No.2 2x6 dimensional lumber with studs located 16-inch o.c. ClarkDietrich™ Expanded Diamond Mesh Metal Lath with Grade-D, Style 2 paper-backing water resistive barrier was installed over the studs with 16 ga., 1" crown x 1" leg galvanized staples spaced

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7-inch o.c. The stucco finish was prepared by mixing Florida Super Stucco and sand at a 1:3 to 1:4 ratio and applied in a scratch coat, brown coat, and finish coat to a total thickness of 5/8-inch.

**Specimen #2:** A 4-ft x 8-ft mock-up was constructed from No.2 2x6 dimensional lumber with studs located 16-inch o.c. ClarkDietrich™ Expanded Diamond Mesh Metal Lath with Grade-D, Style 2 paper-backing water resistive barrier was installed over the studs with 16 ga., 1" crown x 1" leg galvanized staples spaced 7-inch o.c. A 5/8" vinyl control joint was secured to the lath by wire tying each flange 6-inch o.c. The stucco finish was prepared by mixing Florida Super Stucco and sand at a 1:3 to 1:4 ratio and applied in a scratch coat, brown coat, and finish coat to a total thickness of 5/8-inch.

**Results:** The specimen was tested October 18, 2016. Results of testing are shown below.

**Table 1. Results from ASTM E 330, Procedure A for ±50 psf Test Load & ± 75 psf (1.5 Factor of Safety)**

Pressure (psf)	Duration (s)	Result (Pass/Fail)	
		Specimen #1	Specimen #2
+25	10	Pass	Pass
0	60	Pass	Pass
+50	10	Pass	Pass
0	60	Pass	Pass
-25	10	Pass	Pass
0	60	Pass	Pass
-50	10	Pass	Pass
0	60	Pass	Pass
+37.5	10	Pass	Pass
0	60	Pass	Pass
+75	10	Pass	Pass
0	60	Pass	Pass
-37.5	10	Pass	Pass
0	60	Pass	Pass
-75	10	Pass	Pass
0	60	Pass	Pass

Note(s): Deflection measurements were not evaluated.

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**Table 2. Results from ASTM E 330, Procedure A – Loading to Failure**

Pressure (psf)	Duration (s)	Result (Pass/Fail)	
		Specimen #1	Specimen #2
+56	10	Pass	Pass
0	60	Pass	Pass
+112.5	10	Pass	Pass
0	60	Pass	Pass
-56	10	Pass	Pass
0	60	Pass	Pass
-112.5	0	Fail	Fail

Note(s): Deflection measurements were not evaluated.

Specimen failure was determined by the presence of visible cracks in the stucco finish.

**Statement of Attestation:**

The performance evaluation of Koning Exterior Finish Assembly 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	10/20/2016	10	NA

**APPENDIX FOLLOWS**

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Specimen #1 Construction Photos



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Specimen #2 Construction Photos



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## Product Submittal Sheet

Tech Support: 888-437-3244  
Engineering Services: 877-832-3206

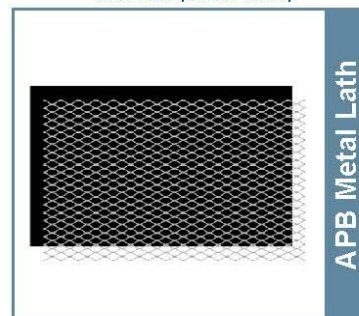
Sales: 800-543-7140  
clarkdietrich.com

### 09.22.36 (Metal Lath)

## Paper-Backed Diamond Mesh Lath

A Galvanized Expanded Steel Plaster/Stucco Base

A superior diamond mesh multi-purpose expanded steel base with an approved Grade-D Breather sheet spot attached. Application of asphalt paper-backed (APB) metal lath is used behind stone, traditional stucco and tile installations as a certified breather sheet and also aids in preventing loss of plaster when applying. It is an excellent base for spray on structural fireproofing, ornamental work, and under ceramic tile. It provides protection against wet areas during stucco curing. The asphalt paper-backed breather sheet meets Federal Specification UUB790A; Type 1, Grade D, Style 2 and is printed on the face of the paper for easy identification. APB is also available with Dimple and V-Groove self furring metal lath.



### Product Data & Ordering Information:

Material: G-60 Galvanized Steel

Packaged: 25 bundles or 250 pieces per pallet

Finish	Wt. per Sq Yd.	Sheet Size	Pcs./Bdl.	Yds./Bdl.	Yds./Pallet
Galv.	2.5 lbs.	27" x 97"	10	20	500
Galv.	3.4 lbs.	27" x 97"	10	20	500

### ASTM & Code Standards:

- ASTM C1063, C841, C847, CE 240.01 and ML/SFA-920
- All Expanded Metal Lath is fabricated from prime galvanized steel, G60 zinc coating by the hot dipped method, conforming to Specification ASTM A-653/A-653M.
- Asphalt paper-backed breather sheet meets Federal Specification UUB790A; Type 1, Grade D, Style 2.
- MSDS & Product Certification Information is available @ clarkdietrich.com
- For installation and placement instructions refer to ASTM C1063, C841 and C926.

### Storage:

All stored materials shall be kept dry. Materials shall be stacked off the ground, supported on a level platform, and protected from the weather and surface contamination. Per ASTM C-1063

### Limitations:

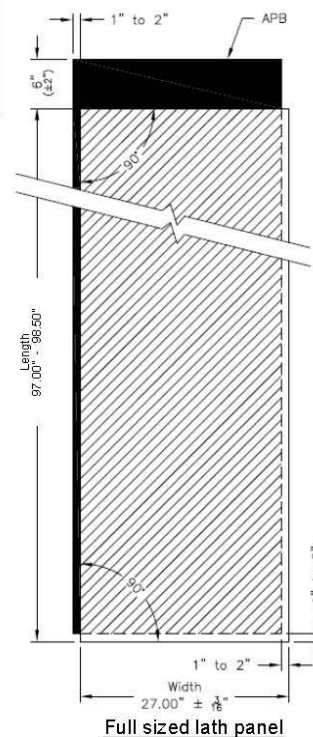
Galvanized steel products should not be used with magnesium oxychloride cement stucco or Portland cement stucco containing calcium chloride additives.

### Sustainability Credits:

For more details and LEED letters contact Technical Services at 888-437-3244 or visit [www.clarkdietrich.com/LEED](http://www.clarkdietrich.com/LEED)

**LEED v4 MR Credit** – Building Product Disclosure and Optimization: EPD (up to 2 points) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).

**LEED 2009 Credit MR2 & MR4** – ClarkDietrich's steel products are 100% recyclable and have a minimum recycled content of 34.2% (19.8% post-consumer and 14.4% pre-consumer). If seeking a higher number to meet Credit MR 5, please contact us at ([info@clarkdietrich.com](mailto:info@clarkdietrich.com) / 888-437-3244)



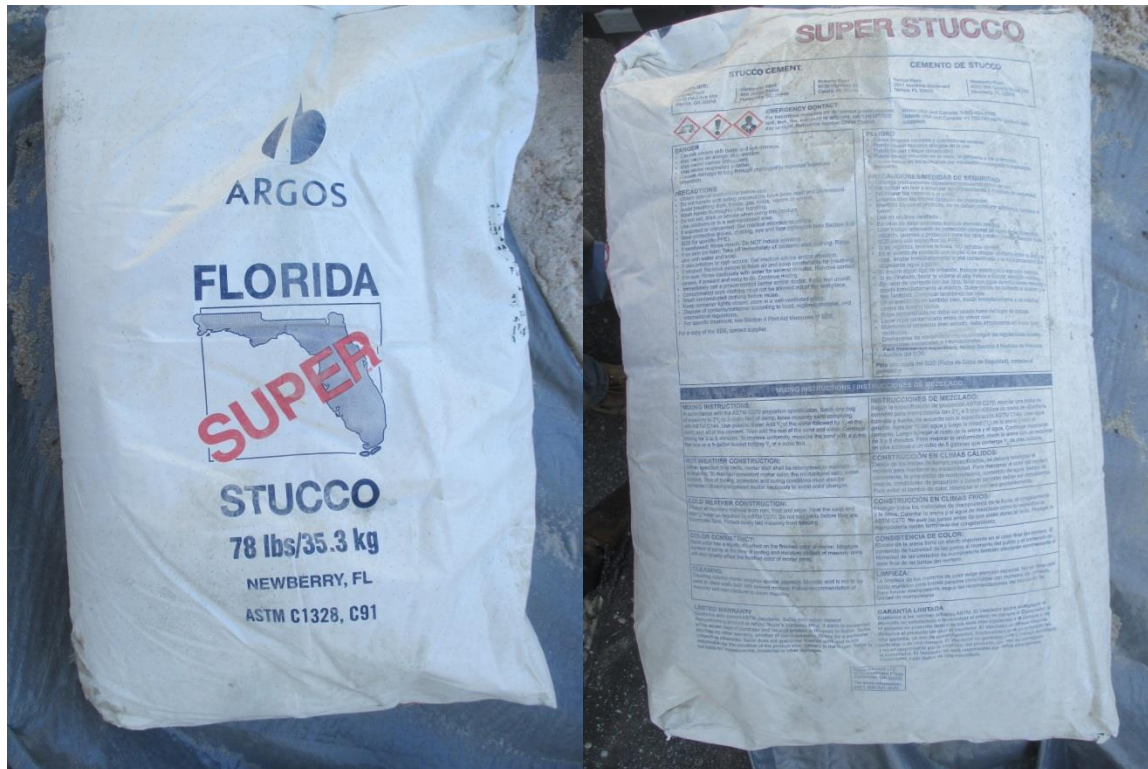
Full sized lath panel

CD-Lath-DML-APB © 04/11 ClarkDietrich Building Systems

Project Information	Contractor Information	Architect Information
Name:	Name:	Name:
Address:	Contact:	Contact:
	Phone:	Phone:
	Fax:	Fax:

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Specimen #1 Failure Photo



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Specimen #2 Failure Photo



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