



Quality Accuracy Assurance

# Fenestration Testing Laboratory, Inc.

8148 N.W. 74th Avenue Medley, FL 33166 Phone: (305) 885-3328 Fax: (305) 885-3329 (888) 819-7877  
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Report Date: 6/23/2015  
Completion Date: 6/2/2015  
Expiration Date: 6/2/2019  
Page No. Page 1 of 12  
Lab. Number: 8473  
Project Number: 15-5705

## OFFICIAL TEST REPORT

**CLIENT:** Aluminco S.A.

**SPECIFICATIONS:** Florida Building Code  
Concentrated Load Test, ANSI Z-97.1,  
ASTM E1996

**ADDRESS:** Inofita, Viotia Greece, 32011

**PROJECT:** Aluminco S.A.

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## OFFICIAL TEST REPORT

DESCRIPTION OF SAMPLE	
Model Designation:	Series: Crystalline Type E Glass Railing
Overall Size:	9'-10 1/2" (118 1/2") by 3'-6" (42") high
Sample B-1	

Glazing			
Glazing Location	Glazing Material	Glazing Compound	Compound Color
All three lites of glass	*11/16" nominal laminated glass composed of (2) 5/16" heat strengthened glass	None	N/A
Interlaying Film: *0.090" **DuPont SentryGlas		Laminator: **Tecnoglass	
Glazing Method: Pocket glazed with a *4.511" glazing penetration using a full length nylon U shaped setting block on the bottom and a vinyl gasket on the interior and exterior.			
Overall size of each lite of glass:	39 3/8" by 41 1/16" high		

Additional Information
The sample was tested using a single row of 11 13/16" long extruded aluminum two piece shoe bases located one at each end, one at mid span of each lite of glass and one at the glass joints.
The two piece shoe bases were fastened together using three 5/16-20 by 2 1/2" socket head screw with nut spaced 5" on centers.
The sample was tested using one 118 1/2" long aluminum hand rail secured to glass with clear silicone.
The sample was tested using one 1/4" by 3 1/2" by 1/4" by full length by 1/16" thick metallic channel below the shoes bases.

Sample Installation
The shoe bases were installed onto a concrete test slab using three 1/2" by 4 1/2" expansion bolts with washer and nut per shoe base located 1 5/8", 5 3/8" and 10 1/4" from left of each shoe base.



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## OFFICIAL TEST REPORT

<b>Sample: B-1</b>		<b>Temperature: 81°F</b>		<b>Barometric Reading: 30.05 inches Hg</b>	
<b>Title of Test</b>		<b>Load</b>		<b>Notes</b>	
Concentrated Load Test		495.0 lbs		As per FBC section 1607.7.1 A load was applied at the center of the handrail perpendicular to the glass.	
<b>Reading#</b>	<b>Deflection</b>	<b>Permanent Set</b>	<b>Results</b>	<b>Add. Info</b>	
1	1.750"	0.187"	Passed	Hand rail	
2	0.035"	0.004"	Passed	Shoe base	

<b>Sample: B-1</b>		<b>Temperature: 81°F</b>		<b>Barometric Reading: 30.05 inches Hg</b>	
<b>Title of Test</b>		<b>Load</b>		<b>Notes</b>	
Concentrated Load Test		200.0 lbs		As per FBC section 1607.7.1.1 A load was applied at the corner of the handrail perpendicular to the glass.	
<b>Reading#</b>	<b>Deflection</b>	<b>Permanent Set</b>	<b>Results</b>	<b>Add. Info</b>	
1	1.118"	0.068"	Passed	Hand rail	



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## OFFICIAL TEST REPORT

<b>Sample: B-1</b>		<b>Temperature: 81°F</b>		<b>Barometric Reading: 30.05 inches Hg</b>	
<b>Title of Test</b>		<b>Load</b>		<b>Notes</b>	
Concentrated Load Test		50.0 lbs		As per FBC section 1607.7.1.2 A load was applied at the center of the left lite perpendicular to the glass	
<b>Reading#</b>	<b>Deflection</b>	<b>Permanent Set</b>	<b>Results</b>	<b>Add. Info</b>	
1	n/a	n/a	Passed		



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## OFFICIAL TEST REPORT

<b>Sample: B-1</b>		<b>Temperature: 84°F</b>	<b>Barometric Reading: 30.05 inches Hg</b>
<b>Title of Test</b>		<b>Notes</b>	
Drop Test		As per FBC section 2407.1.4.1	
<b>Drop #</b>	<b>Results</b>	<b>Add. Info</b>	
1	Passed	Impacted center of lite. After impact the glass did break, but remained in the place and there wasn't any apparent tear in the inter layer film.	
2	Passed	Impacted center of lite. After impact the glass did break, but remained in the place and there wasn't any apparent tear in the inter layer film.	
3	Passed	Impacted center of lite. After impact the glass did break, but remained in the place and there wasn't any apparent tear in the inter layer film.	



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## OFFICIAL TEST REPORT

<b>Sample: B-1</b>		<b>Temperature: 83°F</b>		<b>Barometric Reading: 29.98 inches Hg</b>	
<b>Title of Test</b>			<b>Notes</b>		
Large Missile Impact Test			As per FBC section 2407.1.4.2		
<b>Missile Weight</b>			<b>Missile</b>		
9.25 pounds			2" by 4" by 96" long		
<b>Impact</b>	<b>Speed</b>	<b>Results</b>	<b>Add. Info</b>		
1	50.0 ft/sec	Passed			
2	49.8 ft/sec	Passed			
3	49.9 ft/sec	Passed			
4	50.1 ft/sec	Passed			
5	49.9 ft/sec	Passed			
6	50.0 ft/sec	Passed			



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Revision	Description	Author	Effective Date
0	Initial Release	Ms. Iliana Sanchez	6/23/2015
1	Renamed the report as per manufactures instructions	Ms. Lusinda Delgado	12/15/2015

#### Notes

\* designates measurements by laboratory

\*\* as per manufacturer

Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement or certification by this laboratory.

This test report is considered the exclusive property of the client named herein and is applicable to the sample tested. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc.

At conclusion of above tests, there was no apparent damage to the concrete slab or fasteners and after the impact the glass did break, but remained in place and there wasn't any apparent tear in the inter layer film.

#### Remarks

Detailed drawings and test report will be retained by Fenestration Testing Laboratory for a period of four years from the original test date. Due to the code cycle change of four years, it is recommended that this report be evaluated during the lifespan of this document.

This product was tested and meets the requirement set forth by the Florida Building Code (2010) concentrated load test sections 1607.7.1, 1607.7.1.1 and 1607.7.1.2.

This product was tested in accordance with ANSI Z-97.1-09 (FBC section 2407.4.1).

This product was tested in accordance with the ASTM E1996-09 (FBC section 2407.1.4.2).

Testing was conducted as per instructions received from the manufacturers company representative.

Witnessed by:  
Ms. Idalmis Ortega, P.E.

Technicians:  
Mr. Harold Ancona

FENESTRATION TESTING LABORATORY, INC.

Mr. Manny Sanchez  
Chief Executive Officer