



Quality Accuracy Assurance

Fenestration Testing Laboratory, Inc.

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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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DESCRIPTION OF SAMPLE	
Model Designation:	Series: Crystalline Type C Glass Railing
Overall Size:	9'-10 1/2" (118 1/2") by 3'-6" (42") high
Sample A-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 1/8" thick by full length plastic shim 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 shoe bases located one at each end, one at mid span of each lite of glass and one at the glass joints.
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 5/8" by 1/8" thick by 118 1/2" long aluminum flat bar below the shoe bases.

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



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Sample: A-1		Temperature: 81°F		Barometric Reading: 30.05 inches Hg	
Title of Test		Load		Notes	
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.	
Reading#	Deflection	Permanent Set	Results	Add. Info	
1	1.250"	0.087"	Passed	Hand rail	
2	0.025"	0.002"	Passed	Shoe base	

Sample: A-1		Temperature: 81°F		Barometric Reading: 30.05 inches Hg	
Title of Test		Load		Notes	
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.	
Reading#	Deflection	Permanent Set	Results	Add. Info	
1	0.770"	0.007"	Passed	Hand rail	



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Sample: A-1		Temperature: 81°F		Barometric Reading: 30.05 inches Hg	
Title of Test		Load		Notes	
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.	
Reading#	Deflection	Permanent Set	Results	Add. Info	
1	n/a	n/a	Passed		



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Sample: A-1		Temperature: 84°F	Barometric Reading: 30.05 inches Hg
Title of Test		Notes	
Drop Test		As per FBC section 2407.1.4.1	
Drop #	Results	Add. Info	
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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Sample: A-1		Temperature: 83°F		Barometric Reading: 29.98 inches Hg	
Title of Test			Notes		
Large Missile Impact Test			As per FBC section 2407.1.4.2		
Missile Weight			Missile		
9.25 pounds			2" by 4" by 96" long		
Impact	Speed	Results	Add. Info		
1	49.9 ft/sec	Passed			
2	50.0 ft/sec	Passed			
3	49.8 ft/sec	Passed			
4	50.1 ft/sec	Passed			
5	50.1 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
<p>* designates measurements by laboratory ** as per manufacturer</p> <p>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.</p> <p>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.</p> <p>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.</p>

Remarks
<p>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.</p> <p>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.</p> <p>This product was tested in accordance with ANSI Z-97.1-09 (FBC section 2407.4.1).</p> <p>This product was tested in accordance with the ASTM E1996-09 (FBC section 2407.1.4.2).</p> <p>Testing was conducted as per instructions received from the manufacturers company representative.</p>

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

Technicians:
Mr. Harold Ancona

FENESTRATION TESTING LABORATORY, INC.

Mr. Manny Sanchez
Chief Executive Officer