



Architectural Testing

MOCK-UP PERFORMANCE TEST REPORT

Rendered to:

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, New York 11355

Report No.: 64333.01-120-32

Project: Generic Curtain Wall System (250CW Series)

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Gamco Corporation to conduct performance testing on a mock-up for the referenced project. All testing was performed in accordance with the attached "Curtain Wall Performance Test Procedure" dated April 18, 2006. The mock-up met all of the performance criteria outlined in the aforementioned test procedure. This report includes comprehensive written and photographic documentation of testing performed and a copy of "As-Built" mock-up drawings.

Drawing Reference: Gamco Corporation "As-Built" drawings for the Generic Curtain Wall System (250CW Series) Test Drawing numbered A-1, D-1 through D-5, last revision dated 05/30/06. A copy of these drawings is attached to this report and represents "As-Built" mock-up drawings.

Mock-up Description:

General: The mock-up was comprised of a single elevation wall system three bays wide by three lites high. The referenced drawings delineate the mock-up configuration and construction.

Overall Size: 15' 0" wide by 30' 0" high

Test Methods:

Air Infiltration: ASTM E 283-04, *Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*. Testing was conducted at 6.24 psf positive static air pressure difference.

Static Pressure Water Resistance: ASTM E 331-00, *Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference*. Testing was conducted at a 15.0 psf positive static air pressure difference for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft²/hr.

Dynamic Pressure Water Resistance: AAMA 501.1-05, *Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water Penetration Using Dynamic Pressure*. Testing was conducted with a dynamic pressure equivalent of 15.0 psf for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft²/hr.

Structural Performance: ASTM E 330-02, *Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference*. Testing was conducted at positive and negative loads as listed in the test results. Structural overloads were conducted at 1.5 times design pressures. Design loads and overloads were held for ten seconds.

Interstory Differential Movement (Horizontal Cycling): Three complete cycles shall be performed in the horizontal direction at the 17' 8-1.2" floor simulation. Horizontal movement will be 1.2" to the left, then back to zero, 1.2" to the right, and then back to zero (one cycle).

Test Witnesses: The following representatives witnessed all or part of the performance testing:

Charlie Chan	Gamco Corporation
Philip Snow	Gamco Corporation
John Chang	Gamco Corporation
Ron Wang	Gamco Corporation
Hsing Wang Chao	Gamco Corporation
Scott Kramer	Architectural Testing, Inc.
Shane Haring	Architectural Testing, Inc.

FINAL TEST RESULTS
June 1, 2006

<u>Title of test</u>	<u>Measured</u>	<u>Allowed</u>
Preload at 50% Design Pressure (± 30.0 psf)	---	---
Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft ²	0.06 cfm/ft ² max.
Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Dynamic Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage

June 2, 2006

Uniform Load Deflection @ Design Loads (+30.0 psf & -60.0 psf)	PASSED Reference Table #1 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #1 for all other allowables
Repeat Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft ²	0.06 cfm/ft ² max.
Repeat Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Interstory Horizontal Displacement @ 1.200"	PASSED No visible damage	No visible damage
Repeat Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft ²	0.06 cfm/ft ² max.

FINAL TEST RESULTS

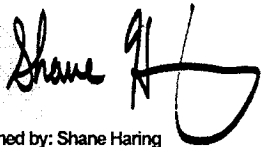
June 2, 2006

(Continued)

<u>Title of test</u>	<u>Measured</u>	<u>Allowed</u>
Repeat Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Additional Uniform Load Deflection @ Design Loads (±40.0 psf)	PASSED Reference Table #2 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #2 for all other allowables
Additional Uniform Load Deflection @ Design Loads (±60.0 psf)	PASSED Reference Table #3 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #3 for all other allowables
Uniform Structural Overloads @ 150% Design Loads (±60.0 psf)	PASSED Reference Table #4 for results Reference Sketch #1 for indicator locations	0.2% Span Reference Table #4
Additional Uniform Structural Overloads @ 150% Design Loads (±90.0 psf)	PASSED Reference Table #5 for results Reference Sketch #1 for indicator locations	0.2% Span Reference Table #5

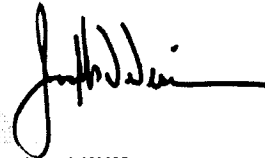
The "As-built" mock-up drawings and a copy of this report will be retained by ATI for a period of four years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:



Digitally Signed by: Shane Haring

Shane M. Haring
Project Engineer



Digitally Signed by: Joseph W. Wise

Joseph W. Wise
Director - Project/Curtain Wall Testing

SMH:jld

Attachments (pages)

- Appendix A: Test Procedure (3)
- Appendix B: Sketch (1)
- Appendix C: Tables (3)
- Appendix D: Photographs (4)
- Appendix E: Drawings (6)

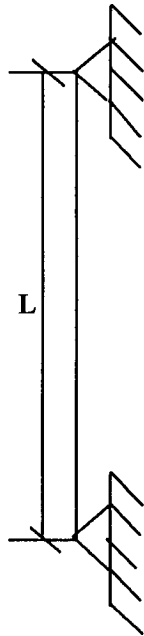
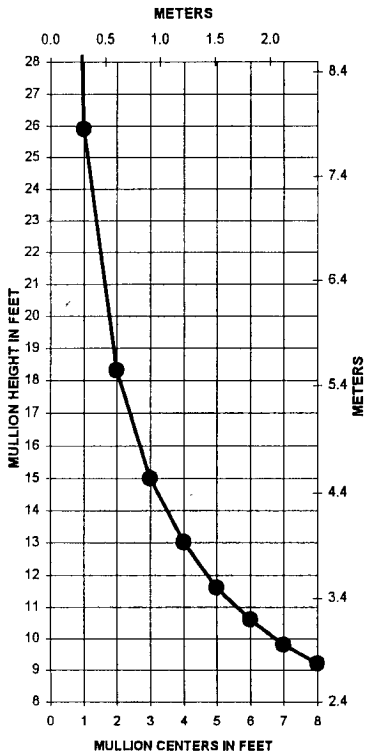
ARCHITECTURAL TESTING INC.

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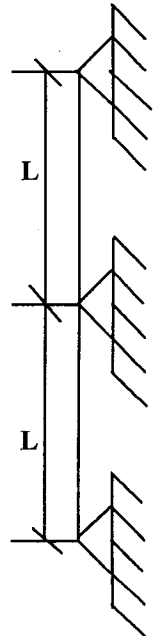
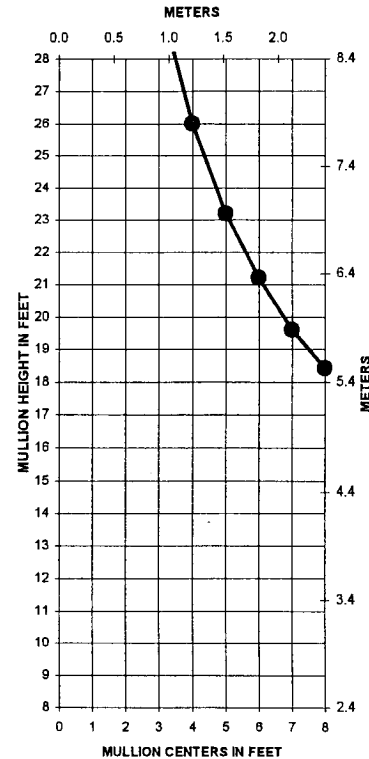
GAMCO Corporation Windload Charts

5.25

20 PSF (960 Pa) SINGLE SPAN



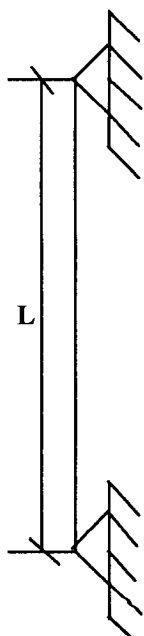
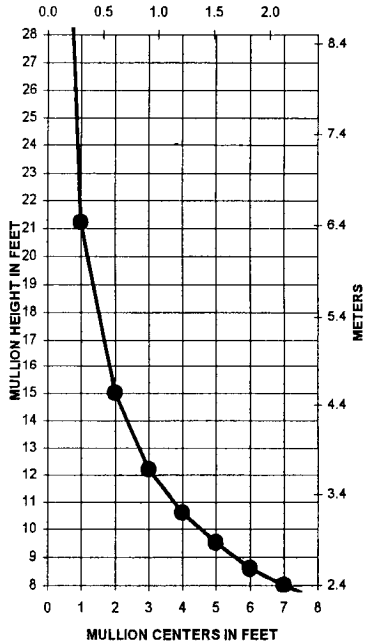
20 PSF (960 Pa) TWIN SPAN



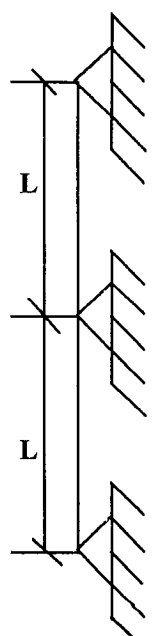
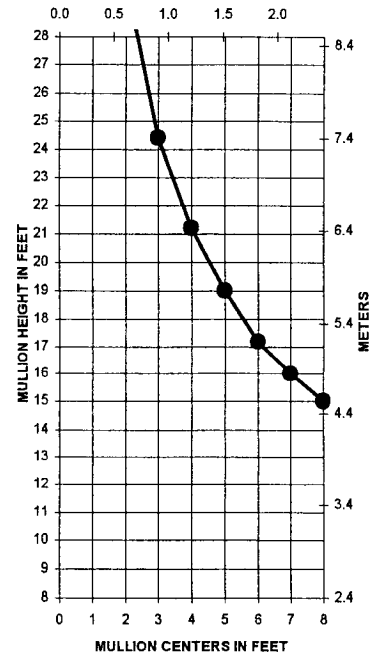
H-2762



30 PSF (1440 Pa) SINGLE SPAN



30 PSF (1440 Pa) TWIN SPAN



Note: These charts are based on a maximum stress of 11,310 psi (78 MPa)



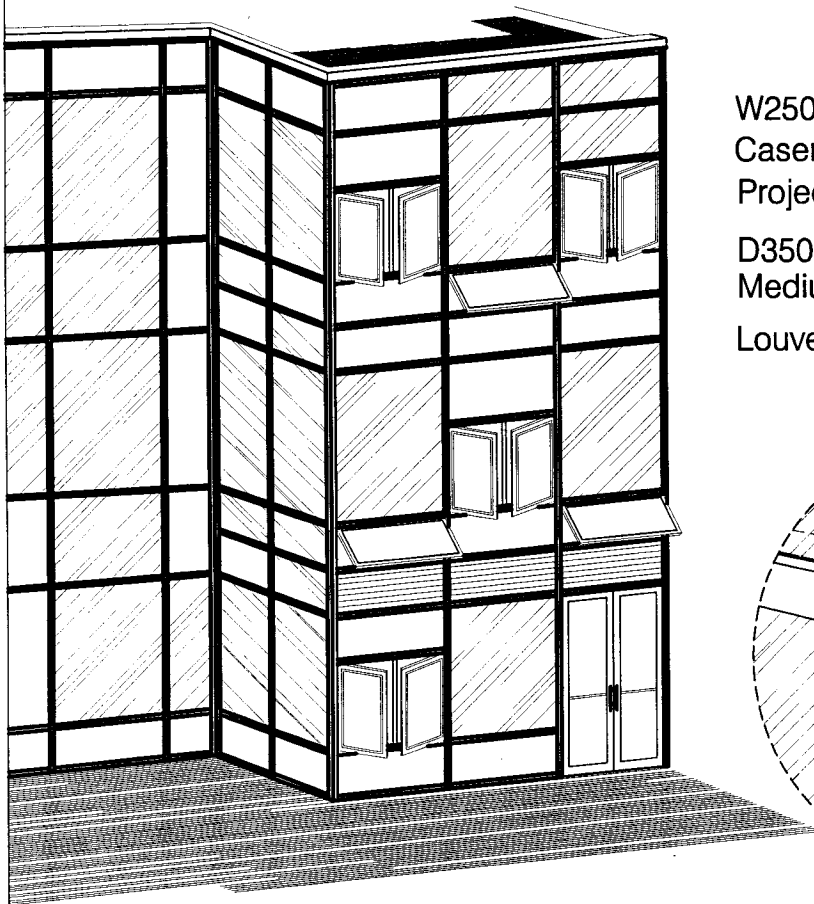
Gamco Corporation

Manufacturer of IRISION™ Products

131-10 Maple Ave. Flushing, N.Y.11355

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250 CW Alum. Curtain Wall



W250HC

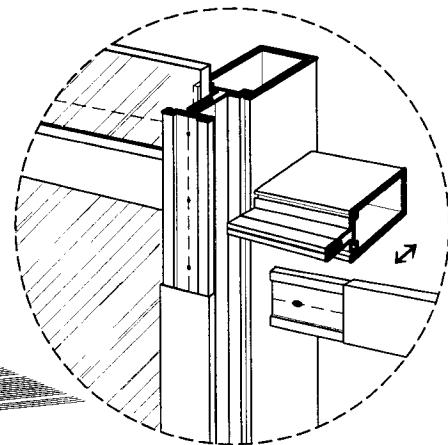
Casement Window C-HC100

Projected - in & out Window P-HC70

D350 Series

Medium Stile Door Tested

Louver



SUMMARY OF TESTING PERFORMANCE

TYPE	DESCRIPTION	CURTAIN WALL
SIZE	WIDTH X HIGH	15' X 30'
ASTM E-283-04	STATIC PRESSURE AIR INFILTRATION 6.24 psf	0.01cfm/sq.ft
ASTM E-331-00	STATIC PRESSURE WATER RESISTANCE (NO LEAKAGE)	15.0 psf
ASTM E-330-02	UNIFORM STRUCTURAL LOAD ±PRESSURE (NO DAMAGE)	60 psf
	UNIFORM STRUCTURAL OVER LOAD ±PRESSURE (NO DAMAGE)	90 psf
AAMA 501-1-05	DYNAMIC PRESSURE WATER RESISTANCE (NO LEAKAGE)	15.0 psf
INTERSTORY DIFFERENTIAL MOVEMENT(HORIZONTAL CYCLING) LEFT & RIGHT (NO DAMAGE)		1.2"



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TEL (718)359-8833 FAX (718)359-8661

CW-250 PICTORIAL VIEW

2½" SYSTEM, ¼", ½" & 1" GLAZING (SHEAR BLOCK FABRICATION)

