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GAMCO CORPORATION
TEST REPORT

SCOPE OF WORK
AAMA/WDMA/CSA 101/I.S.2/A440 (MODIFIED - DOWNSIZED UNIT) TESTING ON FG451IS, FIXED STOREFRONT

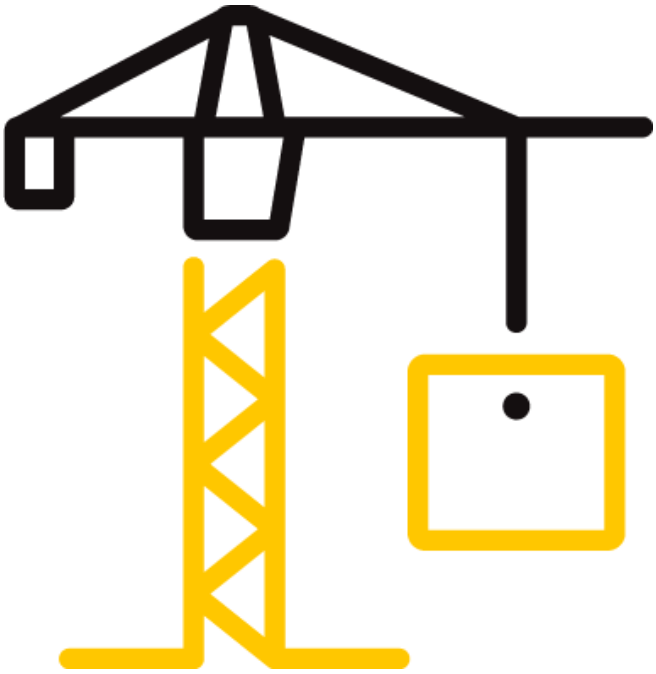
REPORT NUMBER
Q4654.01-525-32 R0

TEST DATE(S)
11/16/23 - 11/17/23

ISSUE DATE
04/11/24

PAGES
12

DOCUMENT CONTROL NUMBER
RT-R-AMER-Test-2804 (03/31/23)



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TEST REPORT FOR GAMCO CORPORATION

Report No.: Q4654.01-525-32 R0
Date: 04/11/24

REPORT ISSUED TO

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, NY 11355

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Gamco Corporation to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440(MODIFIED - DOWNSIZED UNIT) on their Fixed storefront/FG451IS. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek's test facility in Farmingdale, NY.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

COMPLETED BY:	Brett Brown	**REVIEWED BY:**	Steve Shank, FMPC
TITLE:	Project Coordinator	**TITLE:**	Regional Manager Laboratory & Field Testing
SIGNATURE:	Brett Brown Digitally Signed by: Brett Brown	**SIGNATURE:**	Stephen Shank Digitally Signed by: Stephen Shank
DATE:	04/11/24	**DATE:**	04/11/24

BB/SS:krs

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SECTION 2
SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Met general requirements of a CW Rating
Design Pressure	±1197 Pa (±30.00 psf)
Negative Design Pressure	-1197 Pa (-30.00 psf)
Air Infiltration	0.0 L/s/m^2 (<0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	574.56 Pa (12.00 psf)

Reference must be made to Intertek B&C Report No. Q4654.01-525-32, dated 04/09/24 for complete test specimen description and detailed test results.

SECTION 3
TEST SPECIFICATION(S)/METHOD(S)

The specimens were evaluated in general accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440:22 modified downsized unit - (see note below), *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Note: Unit was tested as an assembly, and no one fixed unit met the gateway size

The following test methods were used during testing:

ASTM E283/E283M-19, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E330/E330M-14(2021), *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

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SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. The specimen was witnessed during production and tagged prior to shipment on 11/15/23, (Reference Intertek B&C Test Specimen Selection Report No. Q4654.01-525-32, dated 02/02/24). Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 3/8" shim space and the exterior perimeter of the specimen was sealed to the test buck. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
Frame	12 - 1" pan head screws	5 1/2" from wood buck

SECTION 5
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Davidson Chen	Gamco Corporation
Ronald Chow	Gamco Corporation
Brett Brown	Intertek B&C
Steve Shank	Intertek B&C

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TEST REPORT FOR GAMCO CORPORATION

Report No.: Q4654.01-525-32 R0
Date: 04/11/24

SECTION 6
TEST SPECIMEN DESCRIPTION

Product Type: Fixed Storefront
Series/Model: FG451IS

Product Size(s):

Test Specimen #1

OVERALL AREA:	WIDTH		HEIGHT	
8.15 m² (87.75 ft²)	millimeters	inches	millimeters	inches
Overall size	2749.55	117"	2971.80	108-1/8"

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Head/Jambs	Aluminium	Extruded aluminum
Sill	Aluminium	Extruded aluminum
Sub Sil	Aluminium	Extruded aluminum
	JOINERY TYPE	DETAIL
All corners	Square cut	Butt jointed

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Rubber Gasket	2	Interior & Exterior

Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

GLASS TYPE	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
1" IG	Aluminium	1/4"	1/4"	Dry Glazed

Drainage:

METHOD	SIZE	QUANTITY	LOCATION
Weep Holes	5/16"	6	11" from each jamb and 17-3/4" on center across the sill

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SECTION 7
TEST RESULTS

The temperature during testing was 20.56°C (69°F). The results are tabulated as follows:

Test Specimen #1:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per ASTM E283 at 75.17 Pa (1.57 psf)	 <0.01 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	
Air Leakage, Exfiltration per ASTM E283 At 75.17 Pa (1.57 psf)	 <0.01 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	
Water Penetration, per ASTM E547	 N/A	 N/A	 1
Uniform Load Deflection, per ASTM E330 Deflections taken at meeting rail +1436.41 Pa (+30.00 psf) -1436.41 Pa (-30.00 psf)	Pass 7.62 mm (0.30") 1.02 mm (0.04")	L/175 15.75 mm (0.62") max. 5.33 mm (0.21") max.	
Uniform Load Structural, per ASTM E330 Permanent set taken at meeting rail +2154.61 Pa (+45.00 psf) -2154.61 Pa (-45.00 psf)	Pass 0.25 mm (0.01") 0.25 mm (0.01")	.3% 8.13 mm (0.32") max. 2.80 mm (0.11") max.	

Test Specimen #1:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
OPTIONAL PERFORMANCE			
Air Leakage, Infiltration per ASTM E283 at 298.77 Pa (6.24 psf)	 <0.01 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	
Air Leakage, Exfiltration per ASTM E283 At 298.77 Pa (6.24 psf)	 <0.01 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	
Water Penetration, per ASTM E547 at 576.48 Pa (12.00 psf)	 Pass	 No leakage	

Note 1: *The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.*

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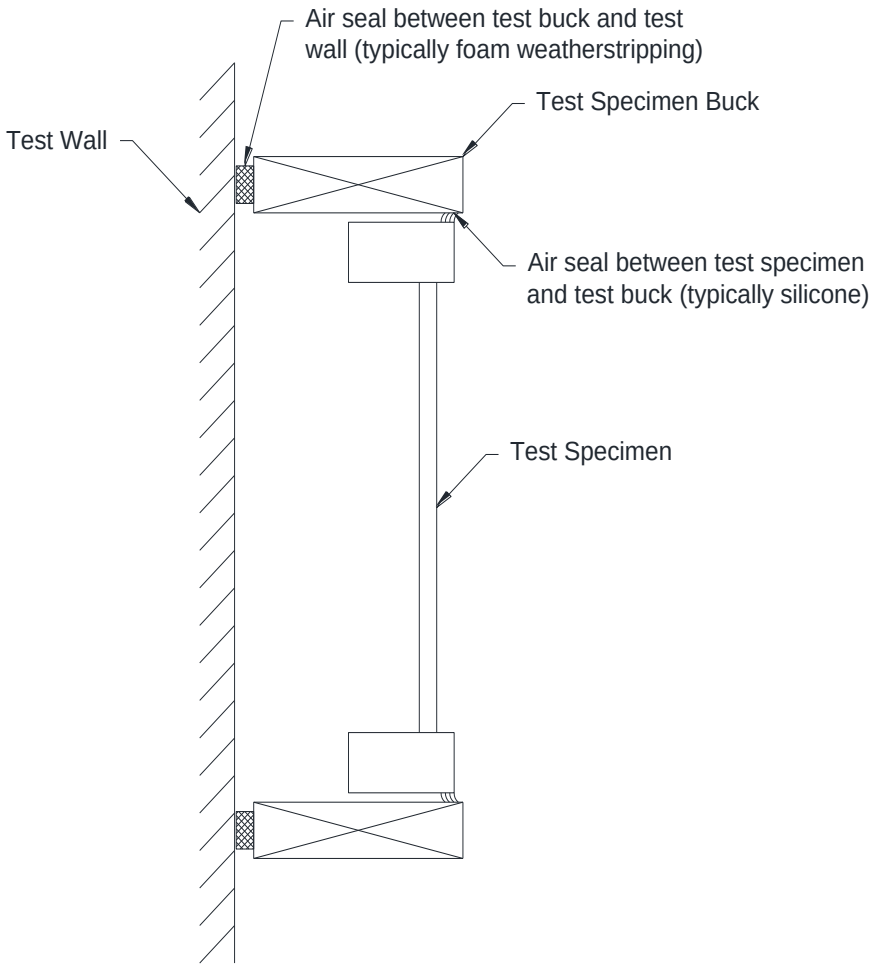
SECTION 8
ALTERATIONS

No alterations were required.

SECTION 9
LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



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SECTION 10
CONCLUSION

The specimen tested successfully met the performance requirements for a CW RATING other than gateway size.

Reference Intertek B&C Report No. Q4654.01-525-32, dated 04/09/24 for complete *Gateway* test specimen description and test results.

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SECTION 11
PHOTOGRAPHS

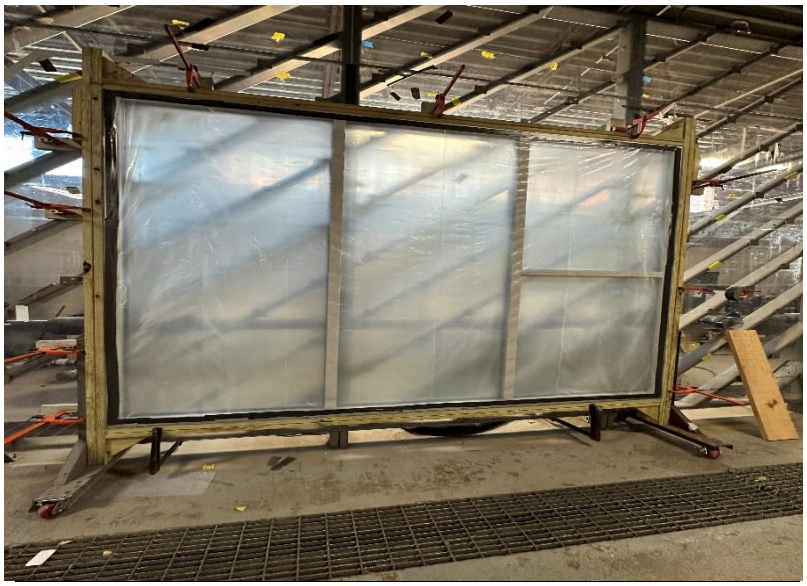

Photo No. 1
Fixed Unit with Tear Bag

Photo No. 2
Water Penetration Test

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SECTION 12
DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

***Note**: Complete drawings packet on file with Intertek B&C.*

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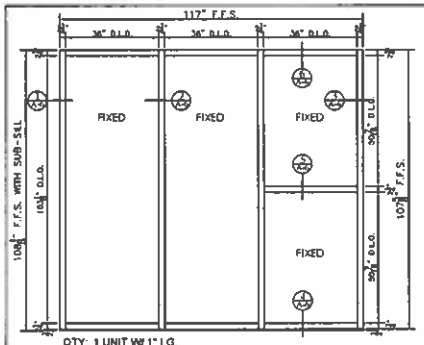
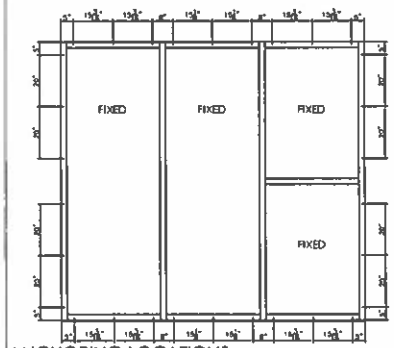
Report #: Q4654.01-525-44
Date: 04/11/2024
Verified by: Stephen Schenck



ALUMINUM STOREFRONT ELEVATIONS



ANCHORING LOCATIONS

AAMA/WDMA/CSA 101 I.S.2/A440

MODEL TESTED: FG451IS

GLAZING SET-UP FOR 1" O.A.

GLASS SIZE (WIDTH) D.L.O. + 0.4375

GLASS SIZE (HEIGHT) D.L.O. + 0.875

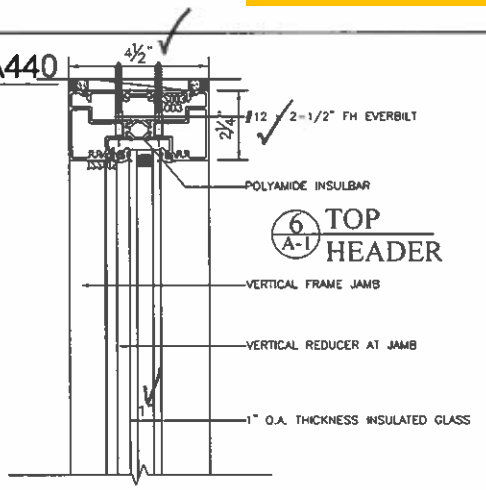
DESIGN PRESSURE:

AIR: 1.57 PSF & 6.24 PSF

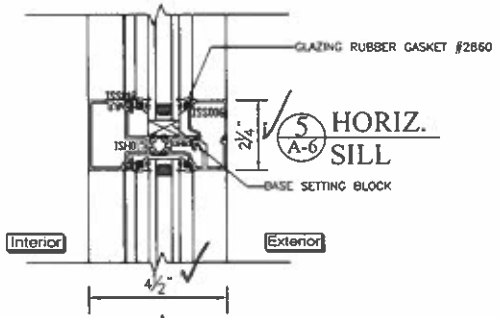
WATER: 12 PSF

DESIGN: +25 PSF / - 25 PSF

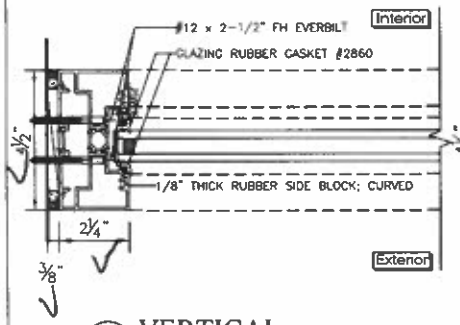
UNIFORM: 37.5 PSF



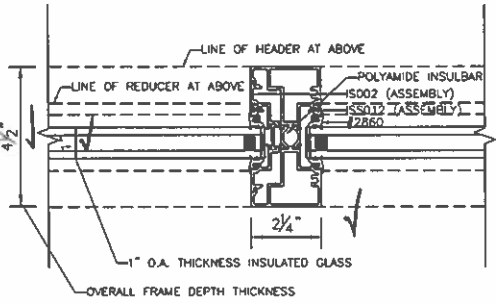
6 A-1 TOP HEADER



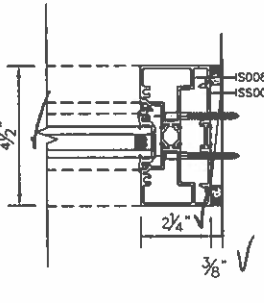
5 A-6 HORIZ. SILL



1 A-6 VERTICAL JAMB



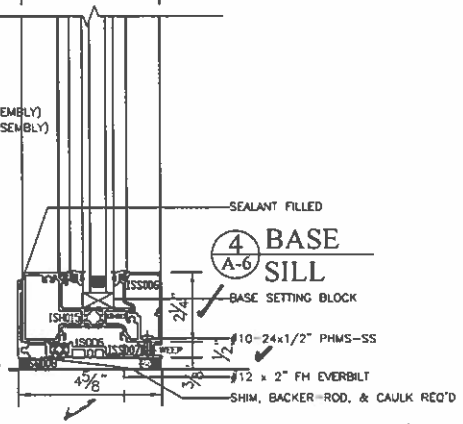
2 A-6 VERTICAL MULLION



3 A-6 VERTICAL JAMB

HORIZONTAL SECTIONAL DETAILS

SCALE : 3" = 1'-0"



4 A-6 BASE SILL

VERTICAL SECTIONAL DETAILS

SCALE : 3" = 1'-0"

GENERAL NOTES

- ALL DIMENSIONS TO BE VERIFIED IN FIELD BY CONTRACTOR.
- D.L.O. = DAYLIGHT OPENING
- R.O. = ROUGH OPENING
- F.F.S. = FINISH FRAME SIZE
- F.W.S. = FINISH WINDOW SIZE
- F.D.S. = FINISH DOOR SIZE

ARCHITECT:

CLIENT:

TEL: FAX:

No:	Date:	Description:	Approved:

REVISION

JOB NO.

DRAWN BY: D. CHEN

CHECKED BY:

DRAWING NO. A-6

DATE: 08/04/2023

SCALE: AS SHOWN

GAMCO CORPORATION
MANUFACTURERS OF PENETRATION PRODUCTS
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TEL (718)358-8833 FAX (718)358-8861
info@gamcocorp.com www.gamcocorp.com

PROJECT:
TEST PRODUCTS - STOREFRON

TITLE:
COMMERCIAL FG451IS FRAME ELEVATION & DETAILS (AWS)

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SECTION 13
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	04/11/24	N/A	Original Report Issue