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GAMCO CORPORATION
ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ASTM E90 SOUND TRANSMISSION LOSS TESTING ON AN FG451IS, STOREFRONT

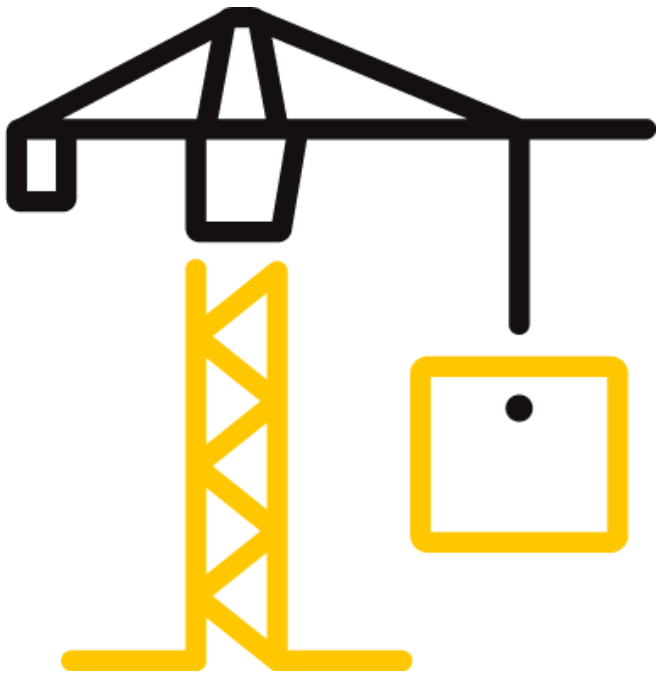
REPORT NUMBER
P9397.01-113-11-R0

TEST DATE
11/30/23

ISSUE DATE
01/08/24

PAGES
10

DOCUMENT CONTROL NUMBER
RT-R-AMER-Test-2761 (09/09/22)



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TEST REPORT FOR GAMCO CORPORATION

Report No.: P9397.01-113-11-R0
Date: 01/08/24

REPORT ISSUED TO

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

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Gamco Corporation to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test methods. The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in York, Pennsylvania.

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:	Cody L. French	**REVIEWED BY:**	Kurt A. Golden
TITLE:	Technician Acoustical Testing	**TITLE:**	Manager Acoustical Testing
SIGNATURE:	Digitally Signed by: Cody French	**SIGNATURE:**	Digitally Signed by: Kurt A. Golden
DATE:	01/08/24	**DATE:**	01/08/24

CLF:jmcs

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SECTION 2
SUMMARY OF TEST RESULTS

SERIES/MODEL	FG451IS
TYPE	Storefront

GLAZING (Nominal Dimensions)	1-1/16" IG (1/4" tempered exterior, 7/16" air space, 3/8" laminated interior), Glass temperature 75°F
DATA FILE NO.	P9397.01B1
STC	38
OITC	31

SECTION 3
TEST METHODS

The specimens were evaluated in accordance with the following:

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E413-22, *Classification for Rating Sound Insulation*

ASTM E1332-22, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*

ASTM E2235-04 (2020), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

SECTION 4
SPECIMEN INSTALLATION

A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. The specimen was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.

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SECTION 5
EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02572	06/23
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02574	06/23
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02575	06/23
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02576	06/23
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02577	06/23
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02578	06/23
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02427	02/23
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02912	02/23
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	07/23
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT02256	01/23
Source Room Microphone	PCB piezotronics	378B20	Microphone and Preamplifier	65906	03/23
Receive Room Microphone	PBC Piezotronics	378C20	Microphone and Preamplifier	65969	03/23
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/23
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT03436	04/23
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64907	01/23
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63745	07/23
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64914	03/23
Source Room Environmental Indicator	Comet	T7510	Source Room	64915	02/23
Microphone Calibrator	Norsonic	Nor 1255	Acoustical Calibrator	INT03566	06/23

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m^3	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m^3	Stationary diffusers only Temperature and humidity controlled

	MAXIMUM SIZE	DESCRIPTION
TL TEST OPENING	4.27 m wide by 3.05 m high	Vibration break between source and receive rooms

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SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Cody L. French	Intertek B&C

SECTION 7
TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement.

Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure level measurements were made simultaneously in receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

Intertek B&C will store samples of test specimens for four years.

SECTION 8
ACOUSTICAL TEST CALCULATIONS

Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating
To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve must not exceed 32. The maximum deficiency at any one frequency must not exceed 8.

OITC Rating
The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

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SECTION 9
SPECIMEN DESCRIPTION

	FRAME
SIZE	78-3/4" by 78-3/4"
THICKNESS	4-1/2"
CORNERS	Butted
FASTENERS	Screws
SEAL METHOD	Sealant
MATERIAL	Aluminum
REINFORCEMENT	N/A
THERMAL BREAK MATERIAL	Insulbar
DAYLIGHT OPENING SIZE (X2)	35-3/8" by 73"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.062"
SPACER TYPE	Aluminum

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.223"	0.439"	0.185", 0.030", 0.185"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Laminated
LAMINATE MATERIAL	N/A	N/A	PVB

GLAZING METHOD	Pocket
GLAZING MATERIAL	EPDM/Silicone
GLAZING BEAD MATERIAL	Aluminum

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	No weatherstrip		
HARDWARE	No hardware		
DRAINAGE	1/4" Diameter weep hole	3	Sill face

TOTAL WEIGHT (lbs)	**AVERAGE WEIGHT** (lbs/ft^2)
403	9.36

** - Stated per Client/Manufacturer, N/A-Not Applicable*

Photographs are included in Section 11.

The client did not supply a report drawing of the test specimen.

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SECTION 10

TEST RESULTS

P9397.01B1 DATA

SPECIMEN AREA	4.00 m²	**RECEIVE TEMP.**	23.3 °C	**SOURCE TEMP.**	23.5 °C
TECHNICIAN	Cody L. Fren	**RECEIVE HUMIDITY**	51%	**SOURCE HUMIDITY**	49%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% SAMPLING LIMIT	NUMBER OF DEFICIENCIES
80	41.0	6.3	105	81	22	2.56	-
100	32.0	7.3	106	76	29	1.58	-
125	35.5	7.0	107	78	27	1.30	0
160	39.7	5.9	109	79	29	0.67	0
200	37.0	6.3	108	84	22	0.79	6
250	33.0	6.6	104	76	26	0.53	5
315	30.7	6.0	105	75	29	0.63	5
400	29.5	6.0	104	69	34	0.26	3
500	28.0	6.0	104	66	36	0.41	2
630	26.7	6.2	103	63	39	0.37	0
800	27.6	6.5	102	59	41	0.23	0
1000	26.6	6.6	104	60	42	0.15	0
1250	27.4	7.0	102	60	40	0.30	2
1600	22.9	7.5	100	58	40	0.21	2
2000	16.6	7.8	102	61	38	0.30	4
2500	13.9	8.9	103	59	40	0.43	2
3150	11.6	10.6	101	53	44	0.40	0
4000	11.6	13.0	99	43	51	0.32	0
5000	11.3	16.1	99	36	57	0.51	-
STC RATING		38	*(Sound Transmission Class)*				
DEFICIENCIES		31	*(Sum of Deficiencies)*				
OITC RATING		31	*(Outdoor-Indoor Transmission Class)*				

Notes: *1) Receive Room levels less than 5 dB above the Background levels are red.*
2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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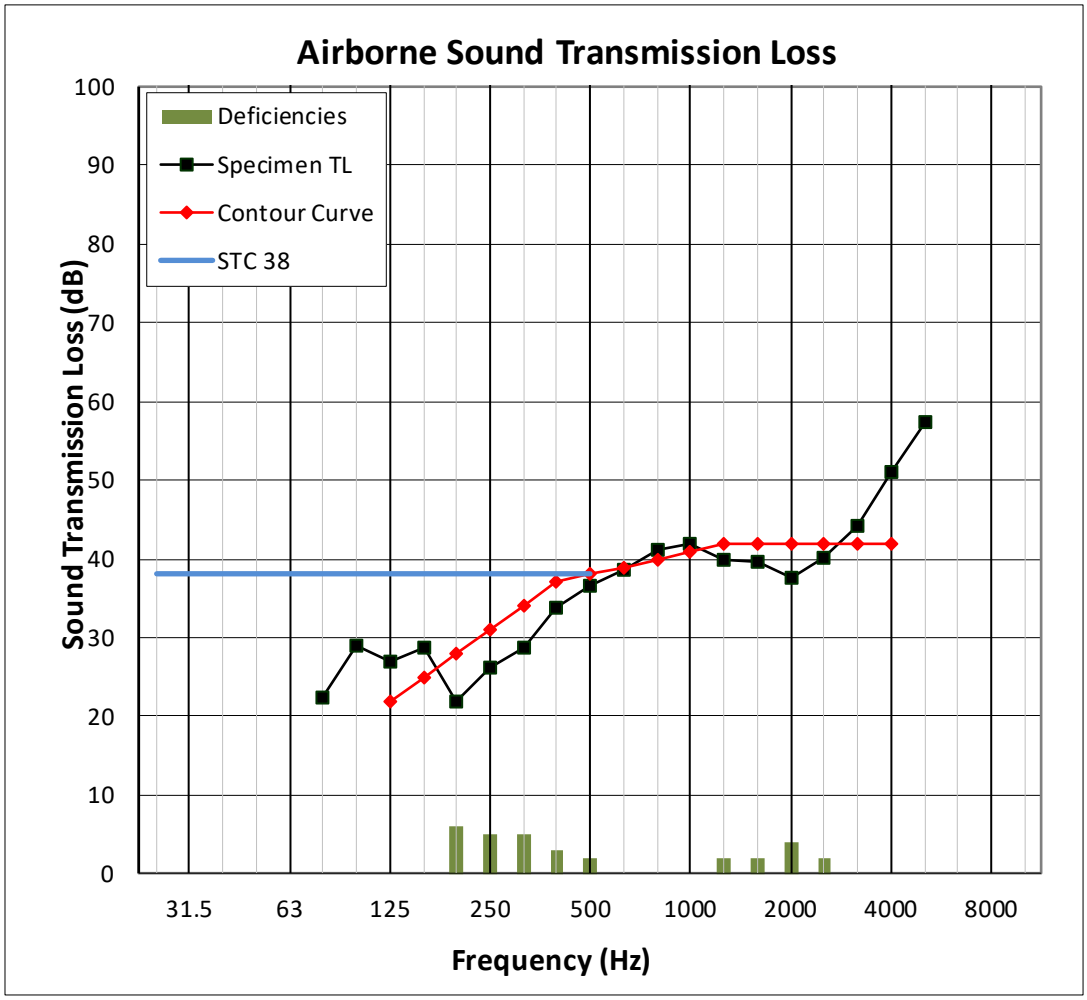
P9397.01B1 GRAPH



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SECTION 11
PHOTOGRAPHS

Photo No. 1
Receive Room View of Installed Test Specimen

Photo No. 2
Source Room View of Installed Test Specimen

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SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/08/24	N/A	Original Report Issue