

GAMCO CORPORATION

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A
D350 SERIES, SIDE-HINGED DOUBLE DOOR SYSTEM

REPORT NUMBER

K4568.02-113-11-R0

TEST DATE

01/21/20

ISSUE DATE

02/03/20

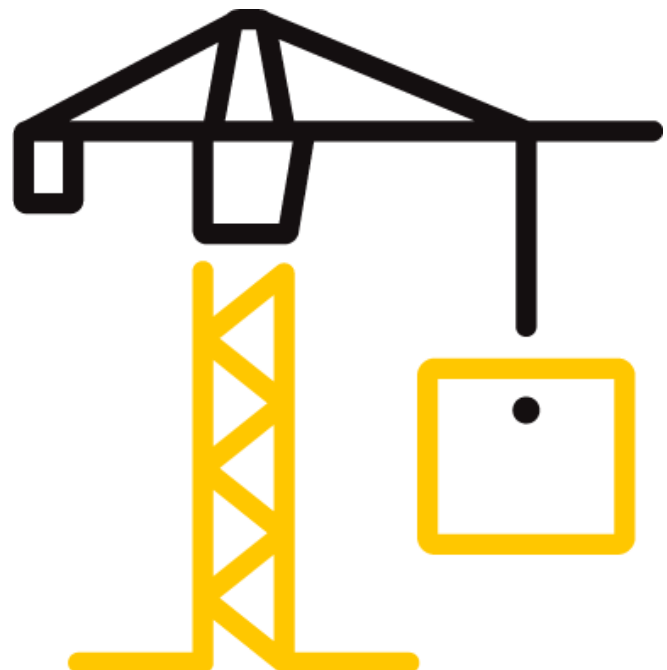
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TEST REPORT FOR GAMCO CORPORATION

Report No.: K4568.02-113-11-R0

Date: 02/03/20

REPORT ISSUED TO

GAMCO CORPORATION

131-10 Maple Avenue
Flushing, New York 11355

SECTION 1

SCOPE

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.

For INTERTEK B&C:

COMPLETED BY:	Andrew M. Johnston	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Acoustical Testing	TITLE:	Project Lead Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	02/03/20	DATE:	02/03/20

AMJ:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	D350 Series
TYPE	Side-hinged double door system
DESCRIPTION	1" IG (5/16" laminated exterior 7/16" air space, 1/4" tempered interior), Glass temperature 75°F
TEST CONDITION	Operable
DATA FILE NO.	K4568.02
STC	31
OITC	28

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 E413-16, *Classification for Rating Sound Insulation*

ASTM E1332-16, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*

ASTM E2235-04 (2012), *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
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125*	05/18
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/18
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	63763-3*	04/18
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	10/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65969	04/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	03/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	03/19
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	03/19
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	10/19
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00603	03/19
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/19
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/19

*- 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
Andrew M. Johnston	Intertek B&C
Kurt A. Golden	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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SPECIMEN DESCRIPTION

	FRAME	LEAF (X2)
SIZE	72-1/4" by 97-3/4"	34" by 95-1/4"
THICKNESS	4-1/2"	1-3/4"
CORNERS	Butted	Butted
FASTENERS	Screws	Screws
SEAL METHOD	N/A	N/A
MATERIAL	Aluminum	Aluminum
REINFORCEMENT	N/A	N/A
THERMAL BREAK MATERIAL	N/A	N/A
DAYLIGHT OPENING SIZE	N/A	25-1/4" by 85-1/4"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	0.930"
SPACER TYPE	Aluminum

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.125", 0.060", 0.131"	0.390"	0.224"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Air*	Tempered
LAMINATE MATERIAL	PVB	N/A	N/A

GLAZING METHOD	Exterior
GLAZING MATERIAL	1/4" Diameter hollow bulb gasket
GLAZING BEAD MATERIAL	Aluminum

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	3/8" Woven polypile	1 Rows	Meeting stile
	Surface mounted 3/8" Sweep	2 Rows	Both sides of both bottom rails
	1/4" Diameter hollow bulb gasket	1 Row	Head and jambs
HARDWARE	Pinch resistant continuous hinge	2	Jambs
	Lock assembly set	1	Lock stile
	C - Pull handles	4	Lock rails
DRAINAGE	No drainage		

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft ²)
352	7.18

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

Photographs are included in Section 11. A drawing of the test specimen is included in Section 12.

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SECTION 10

TEST RESULTS

K4568.02 DATA

SPECIMEN AREA	4.56 m ²	RECEIVE TEMP.	22.8 °C	SOURCE TEMP	23.2 °C
TECHNICIAN	Andrew M Jo	RECEIVE HUMIDITY	48%	SOURCE HUMIDIT	48%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	41.8	5.4	103	79	24	2.08	-
100	38.5	5.4	105	81	24	1.99	-
125	38.1	5.8	105	81	23	1.63	0
160	40.2	5.7	107	86	20	0.97	0
200	37.2	5.5	106	85	21	1.01	0
250	32.3	5.6	102	75	26	0.69	0
315	25.8	6.1	103	73	29	0.39	0
400	22.7	6.3	102	70	31	0.40	0
500	19.6	6.5	102	69	32	0.46	0
630	19.1	6.2	102	68	33	0.31	0
800	16.4	6.3	101	64	35	0.37	0
1000	13.6	6.6	102	64	36	0.43	0
1250	15.3	7.2	101	63	36	0.27	0
1600	15.3	7.5	99	65	32	0.11	3
2000	12.8	8.2	100	69	29	0.27	6
2500	11.2	9.1	101	70	28	0.15	7
3150	12.9	10.5	100	67	29	0.24	6
4000	15.6	13.1	97	63	29	0.21	6
5000	17.0	16.7	98	61	31	0.31	-
STC RATING	31 (Sound Transmission Class)						
DEFICIENCIES	28 (Sum of Deficiencies)						
OITC RATING	28 (Outdoor-Indoor Transmission Class)						

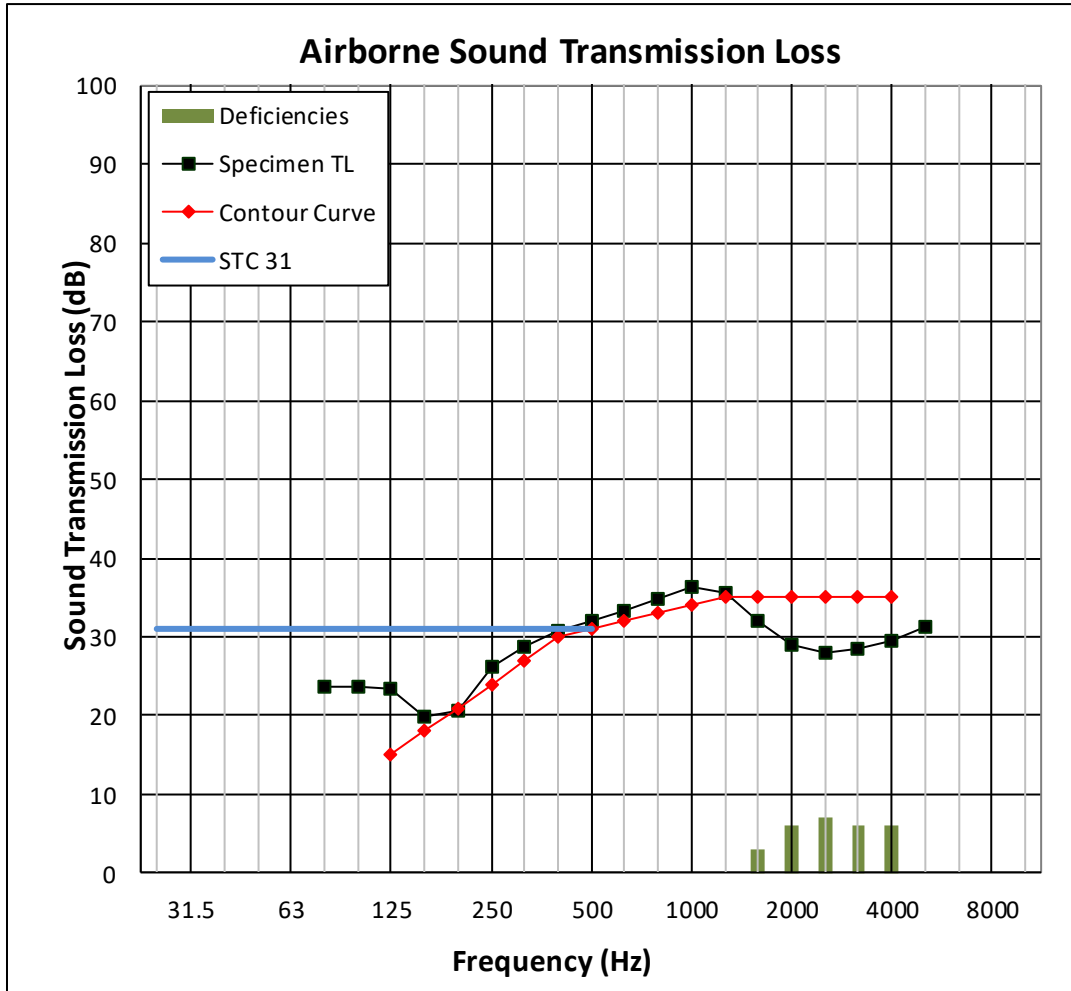
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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K4568.02 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

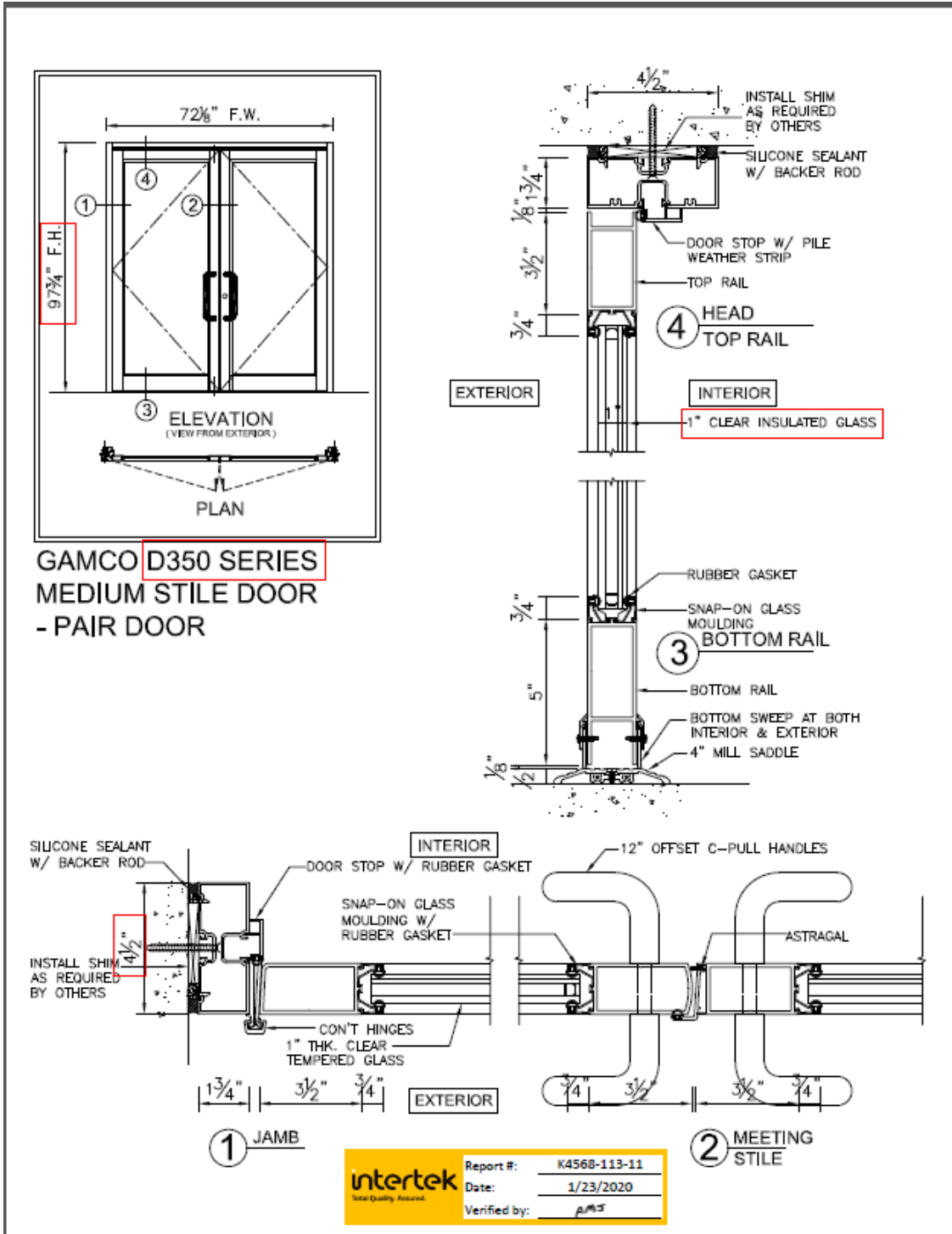
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SECTION 12

DRAWING





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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	02/03/20	N/A	Original Report Issue