H4452.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E90

Rendered to:

WINDLOCH, LLC

SERIES/MODEL: DS75

TYPE: Door

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
H4452.01A	1-5/16" (1/4" tempered exterior, 3/4" air space, 5/16" tempered interior)	38	34
H4452.01B2	1-9/16" (1/4" tempered exterior, 3/4" air space, 9/16" laminated interior), Glass temperature 75°F	40	36

Reference should be made to Intertek-ATI Report No. H4452.01-113-11 for complete test specimen description. This page alone is not a complete report. Flanking limit tests and reference specimen tests are available upon request.

Acoustical Performance Test Report

WINDLOCH, LLC
467 Brook Avenue, Unit C
Deer Park, New York 11729

Report No	H4452.01-113-11
Test Date	08/08/17
Report Date	08/23/17

Project Scope
Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted to conduct a sound transmission loss test. The complete test data is included as Appendix B of this report. The client provided the test specimen.

Test Methods
Testing for this project was conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

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*

Test Procedure
All measurements were conducted in the HT test chambers at Intertek-ATI located in York, Pennsylvania. 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 the receive and source rooms at each of five microphone positions.

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

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.

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.

Specimen Descriptions

		Frame	Leaf
Size		40" by 86"	36-7/16" by 83-3/4"
Thickness		3"	3"
	Bottom Corners	Butted	Mitered
	Top Corners	Mitered	Mitered
	Bottom Fasteners	Screws	Keyed and staked
	Top fasteners	Keyed and staked	Keyed and staked
	Seal Method	Sealant	Sealant
Material		Aluminum	Aluminum
	Reinforcement	N/A	N/A
	Thermal Break Material	Insulbar	Insulbar
Daylight Opening Size		N/A	27-5/8" by 74-7/8"

Glazing Option A

Measured Overall Insulation Glass Unit Thickness	1.289"
Spacer Type	Aluminum

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.217"	0.762"	0.310"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	N/A

Glazing Method	Interior
Glazing Material	EPDM
Glazing Bead Material	Aluminum

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

Specimen Descriptions (Continued)

Glazing Option B2

Measured Overall Insulation Glass Unit Thickness	1.498"
Spacer Type	Aluminum

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.222"	0.768"	0.508"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Laminated
Laminate Material	N/A	N/A	PVB

Glazing Method	Interior
Glazing Material	EPDM
Glazing Bead Material	Aluminum

Components

	Type	**Quantity**	**Location**
Weatherstrip			
	3/16" Leaf gasket	1 Row	Jambs and head
	1/4" Leaf gasket	1 Row	Jambs and head
	1/4" Diameter hollow bulb gasket	1 Row	Stiles and top rail
	1/4" Leaf gasket	1 Row	Bottom rail
Hardware			
	Multi-point lock system	1	Lock stile
	Adjustable hinge	3	Hinge stile
	Keeper	6	Head and lock jamb
Drainage			
	Sloped sill	1	Sill

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

Specimen Descriptions (Continued)

Option	**Total Weight** (lbs)	**Average Weight** (lbs/ft^2)
A	187	7.83
B2	221	9.25

Comments

A drawing of the test specimen is included in Appendix D. The specimen was returned per the client's request.

Intertek-ATI will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

For INTERTEK-ATI:

Digitally Signed by: Zachary Golden

Zachary P. Golden
Technician - Acoustical Testing

Digitally Signed by: Kurt A. Golden

Kurt A. Golden
Project Lead – Acoustical Testing

ZPG:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.

- Appendix A: Equipment description (1)
- Appendix B: Complete test results (4)
- Appendix C: Photographs (1)
- Appendix D: Drawing (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
R0	08/23/17	N/A	Original Report Issue

INSTRUMENTATION

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	1643A62	04/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126	05/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	065125	05/16 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00652	12/16
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64903	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	02/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	02/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	02/17
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	03/17
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	Y002919	04/17

**- 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

N/A-Not Applicable

Appendix B

Complete Test Results

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

ASTM E90
AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	08/08/17				
DATA FILE NO.	H4452.01A				
CLIENT	Windloch, LLC				
DESCRIPTION	Series/Model: DS75, door with 1-5/16" (1/4" tempered exterior, 3/4" air space, 5/16" tempered interior)				
SPECIMEN AREA	2.22 m²	**RECEIVE TEMP.**	21.5 °C	**SOURCE TEMP**	21.2 °C
TECHNICIAN	Zachary Gold	**RECEIVE HUMIDITY**	48%	**SOURCE HUMIDIT**	52%

FREQ (Hz)	**BACKGROUND SPL** (dB)	**ABSORPTION** (m²)	**SOURCE SPL** (dB)	**RECEIVE SPL** (dB)	**SPECIMEN TL** (dB)	**95% CONFIDENCE LIMIT**	**NUMBER OF DEFICIENCIES**
80	42.7	5.5	107	79	25	1.75	-
100	37.7	5.4	106	78	26	1.68	-
125	42.3	5.9	106	75	26	1.78	0
160	40.4	4.6	107	77	27	1.23	0
200	37.3	4.7	107	70	34	1.28	0
250	34.8	5.3	107	69	34	0.63	0
315	29.5	5.7	100	65	31	0.89	3
400	26.8	5.8	97	57	36	0.56	1
500	22.3	6.0	97	56	37	0.26	1
630	21.3	5.6	102	60	38	0.33	1
800	18.6	5.9	101	58	39	0.39	1
1000	15.9	6.1	98	53	41	0.38	0
1250	14.5	6.6	99	52	42	0.27	0
1600	12.1	7.0	103	59	38	0.24	4
2000	8.7	7.4	96	56	35	0.31	7
2500	7.0	8.3	95	54	35	0.21	7
3150	6.3	9.9	98	50	41	0.27	1
4000	6.4	12.3	96	45	44	0.25	0
5000	7.5	16.4	96	42	45	0.23	-
STC RATING	38	*(Sound Transmission Class)*					
DEFICIENCIES	26	*(Sum of Deficiencies)*					
OITC RATING	34	*(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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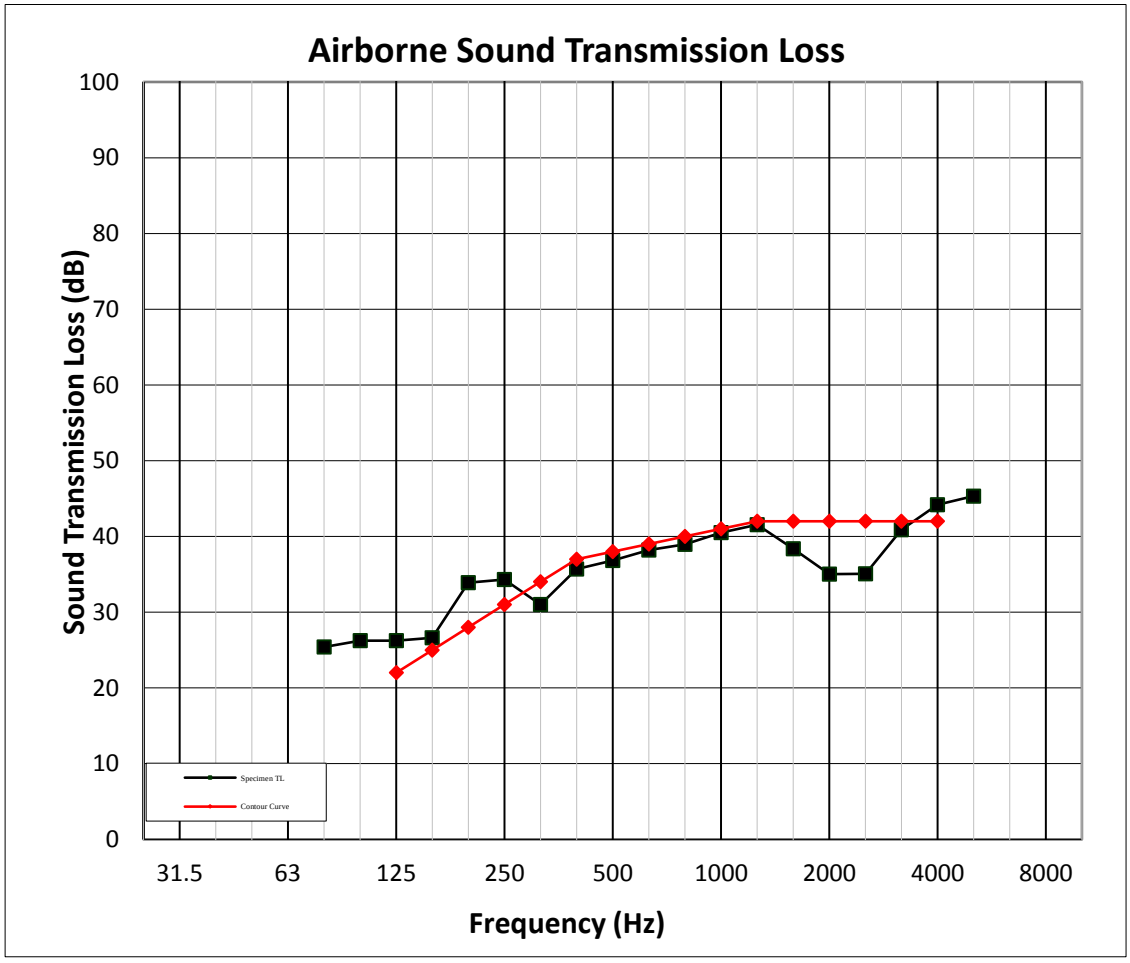

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AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	08/08/17				
DATA FILE NO.	H4452.01B2				
CLIENT	Windloch, LLC				
DESCRIPTION	Series/Model: DS75, door with 1-9/16" (1/4" tempered exterior, 3/4" air space, 9/16" laminated interior), Glass temperature 75°F				
SPECIMEN AREA	2.22 m²	**RECEIVE TEMP.**	22.5 °C	**SOURCE TEMP**	22.0 °C
TECHNICIAN	Zachary Gold	**RECEIVE HUMIDITY**	47%	**SOURCE HUMIDIT**	50%

ACCREDITED
Testing Laboratory

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	44.5	4.6	106	79	25	1.83	-
100	34.6	5.3	106	74	30	1.37	-
125	37.9	5.4	105	73	29	1.50	0
160	39.6	4.6	106	73	31	1.07	0
200	37.4	4.7	107	68	36	1.06	0
250	31.1	5.5	107	70	33	0.73	0
315	25.2	5.7	100	63	32	0.96	4
400	22.2	5.8	97	56	37	0.53	2
500	19.0	5.9	97	54	39	0.23	1
630	18.0	5.6	102	56	41	0.35	0
800	14.8	6.0	101	56	41	0.31	1
1000	11.0	6.1	98	52	41	0.30	2
1250	8.8	6.6	98	51	43	0.17	1
1600	6.5	7.0	102	56	41	0.27	3
2000	4.8	7.5	96	52	38	0.27	6
2500	4.7	8.3	94	51	38	0.15	6
3150	4.9	9.9	97	47	44	0.19	0
4000	5.6	12.2	96	40	48	0.19	0
5000	6.3	16.2	95	35	52	0.21	-
STC RATING	40	*(Sound Transmission Class)*					
DEFICIENCIES	26	*(Sum of Deficiencies)*					
OITC RATING	36	*(Outdoor-Indoor Transmission Class)*					

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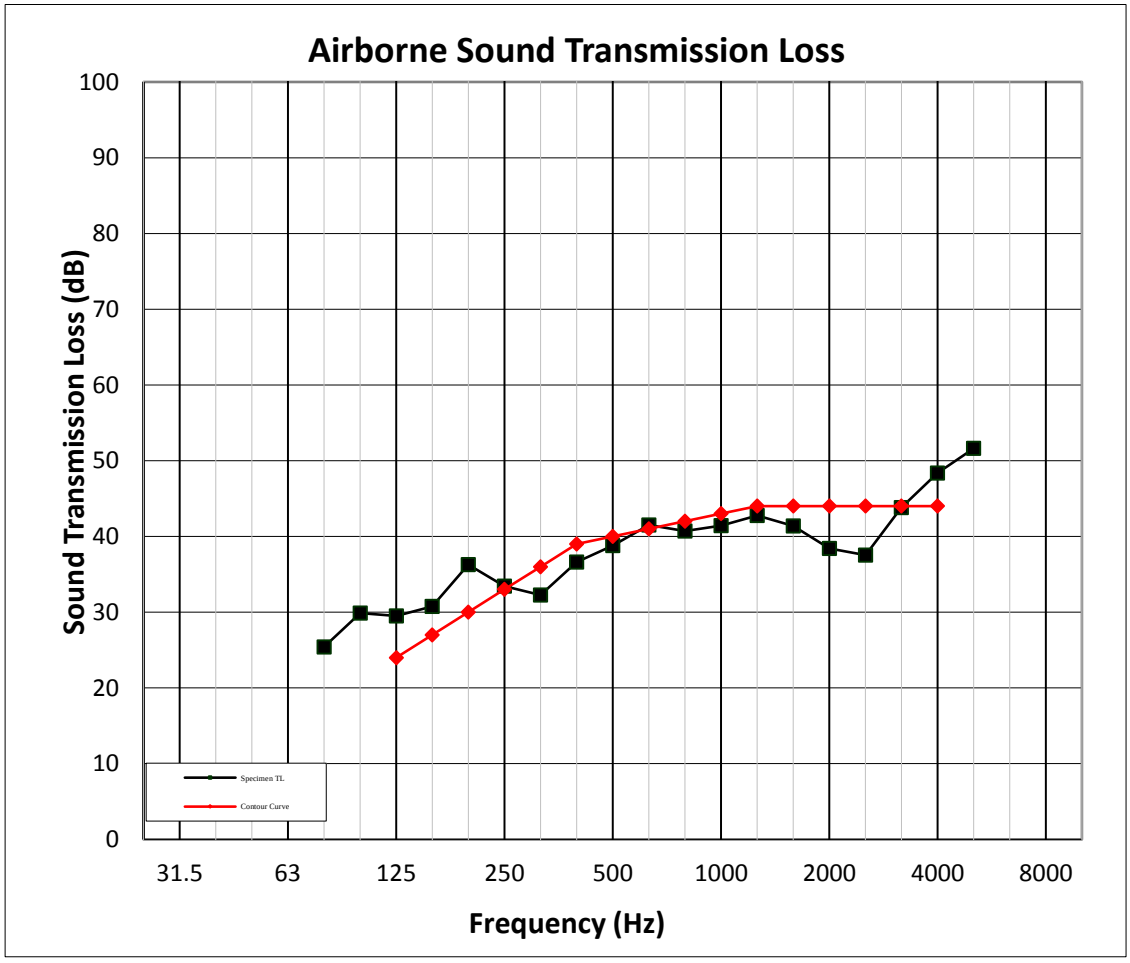


Appendix C

Photographs

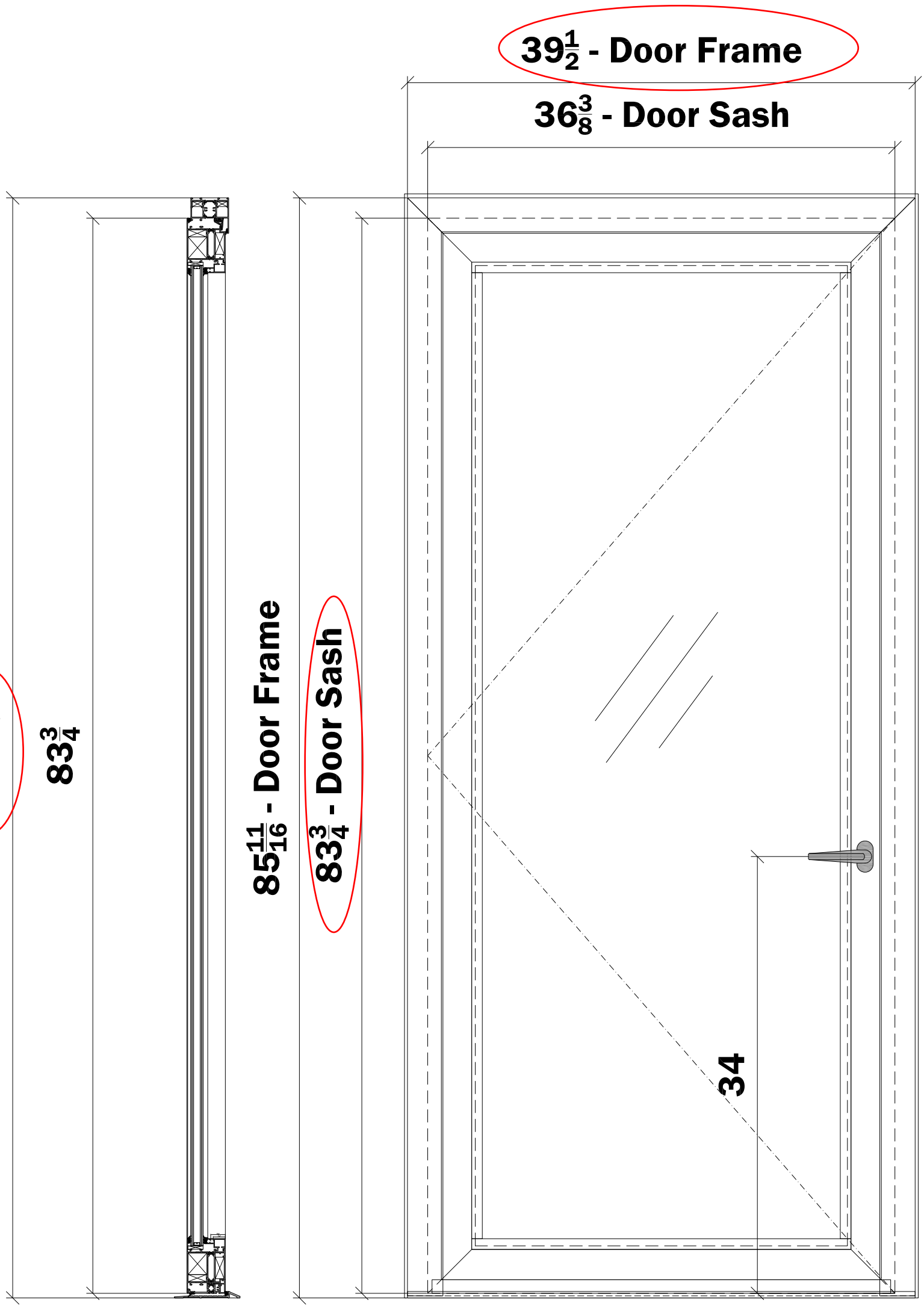
Receive Side View of Installed Specimen

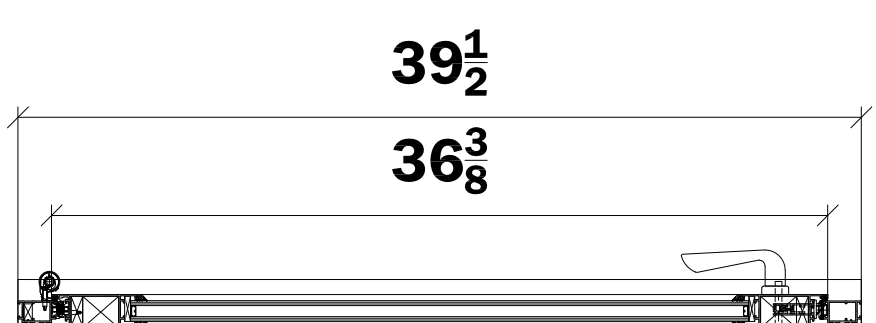
Source Side View of Installed Specimen

Appendix D

Drawings

Inside View





Report #:	H4452.01
Date:	08/15/17
Verified by:	Z P G

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467 Brook Avenue, Unit-C
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(631)-940-7745
(941)-718-4868 Fax
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WWW.WINDLOCH.COM

PROJECT NAME: 232 7th Ave		CAD FILE : 232 7th Ave.dwg
DESCRIPTION: Door - Acoustical test		DATE: 07/07/2017 / REV. 1 / SCALE:
DESIGN BY: YOAV BEN-SHIMON	SYSTEM MODEL: DS-75	DRAWING NUMBER: 2