

STERGIS WINDOWS AND DOORS, INC. ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON AN 1100 SERIES, PATIO DOOR

REPORT NUMBER

J8223.01-113-11-R0

TEST DATES

06/14/19; 06/17/19

ISSUE DATE

07/18/19

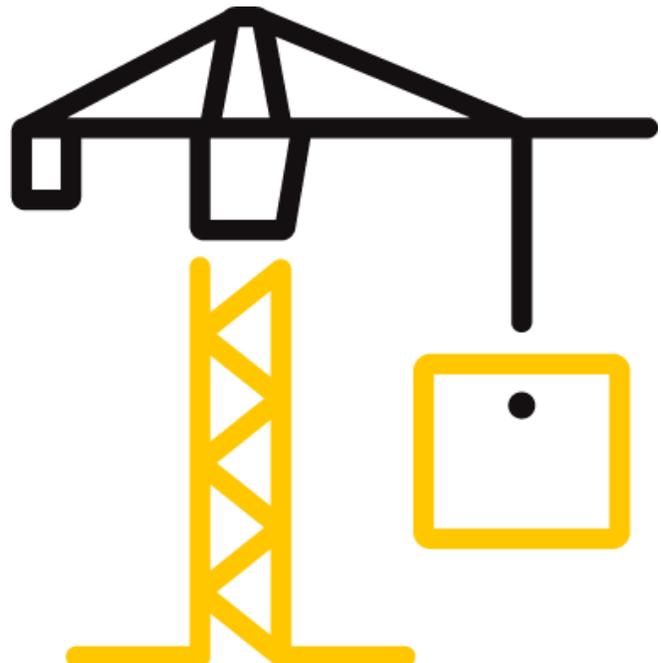
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TEST REPORT FOR STERGIS WINDOWS AND DOORS, INC.

Report No.: J8223.01-113-11-R0

Date: 07/18/19

REPORT ISSUED TO

STERGIS WINDOWS AND DOORS, INC.

79 Walton Street

Attleboro, Massachusetts 02703

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Stergis Windows and Doors,+ Inc. 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:	Zachary P. Golden	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Team Leader Acoustical Testing	TITLE:	Project Lead Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	07/18/19	DATE:	07/18/19

ZPG:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	1100 Series
TYPE	Patio door

GLAZING (Nominal Dimensions)	1" IG (1/8" tempered exterior, 9/16" air space, 5/16" laminated interior), Glass temperature 75°F
DATA FILE NO.	J8223.01A
STC	33
OITC	29

GLAZING (Nominal Dimensions)	1" IG (5/16" laminated, 3/8" air space, 5/16" laminated), Glass temperature 75°F
DATA FILE NO.	J8223.01B5
STC	34
OITC	30

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	12/18
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	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	12/18
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/19
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	01/19
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/19
Microphone Calibrator	Larson Davis	CAL200	Acoustical Calibrator	INT00852	09/18

*- 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
Zachary P. Golden	Intertek B&C
Andrew M. Johnston	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.

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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.

SECTION 9

SPECIMEN DESCRIPTION

	FRAME	FIXED SASH	OPERABLE SASH
SIZE	71-3/8" by 79-5/8"	36-1/8" by 76-7/8"	36-1/4" by 76-3/4"
THICKNESS	5-1/8"	1-3/4"	2-1/16"
CORNERS	Mitered	Mitered	Mitered
FASTENERS	Welds	Welds	Welds
SEAL METHOD	N/A	N/A	N/A
MATERIAL	Vinyl	Vinyl	Vinyl
REINFORCEMENT	Aluminum located in all members	Aluminum located in all meeting stile	Aluminum located in all stiles
THERMAL BREAK MATERIAL	N/A	N/A	N/A
DAYLIGHT OPENING SIZE	N/A	28-3/16" by 68-3/4"	28-3/16" by 68-3/4"

OPTION A

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.026"
SPACER TYPE	Polycarbonate butyl composite

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.121"	0.581"	0.118", 0.088", 0.118"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Laminated
LAMINATE MATERIAL	N/A	N/A	PVB

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

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OPTION B5

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.001"
SPACER TYPE	Polycarbonate butyl composite

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.115", 0.090", 0.116"	0.357"	0.117", 0.088", 0.118"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Air*	Laminated
LAMINATE MATERIAL	PVB	N/A	PVB

GLAZING METHOD	Exterior
GLAZING MATERIAL	Foam tape
GLAZING BEAD MATERIAL	Vinyl

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	0.270" by 0.210" Polypile with center fin	1 Row	Meeting stile and frame perimeter
	0.270" by 0.210" Polypile with center fin	2 Rows	Perimeter of frame
HARDWARE	Lock assembly	1 Set	Lock stile
	Keeper	1	Keeper jamb
	Roller wheel assembly	1 Set	Bottom rail
DRAINAGE	Sloped sill	1	Sill
	1" by 3/16" Weep slot	8	Sill track and face

OPTION	TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft²)
A	238	6.02
B5	321	8.12

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

Photographs are included in Section 11.

Drawings of the test specimen are included in Section 12.

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SECTION 10

TEST RESULTS

J8223.01A DATA

SPECIMEN AREA	3.67 m ²	RECEIVE TEMP.	20.8 °C	SOURCE TEMP	21.8 °C
TECHNICIAN	Zachary Gol	RECEIVE HUMIDITY	49%	SOURCE HUMIDIT	50%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	43.1	4.9	103	80	23	2.42	-
100	36.9	6.2	104	75	28	1.76	-
125	38.6	6.0	105	76	27	1.15	0
160	43.2	5.6	107	81	25	0.74	0
200	40.2	5.0	106	85	20	0.89	3
250	36.4	5.6	103	79	22	0.66	4
315	31.2	5.9	103	75	26	0.50	3
400	25.7	6.2	101	70	29	0.31	3
500	21.8	6.5	102	69	31	0.68	2
630	19.6	6.1	101	66	32	0.32	2
800	17.8	6.3	99	66	31	0.26	4
1000	14.7	6.7	101	64	34	0.21	2
1250	14.9	7.1	100	62	35	0.22	2
1600	13.9	7.5	99	60	36	0.26	1
2000	12.7	7.9	100	59	37	0.17	0
2500	10.0	9.0	100	58	39	0.28	0
3150	8.6	10.6	99	55	39	0.18	0
4000	8.8	13.1	97	58	33	0.13	4
5000	9.8	17.0	97	54	37	0.30	-
STC RATING	33 (Sound Transmission Class)						
DEFICIENCIES	30 (Sum of Deficiencies)						
OITC RATING	29 (Outdoor-Indoor Transmission Class)						

Notes:

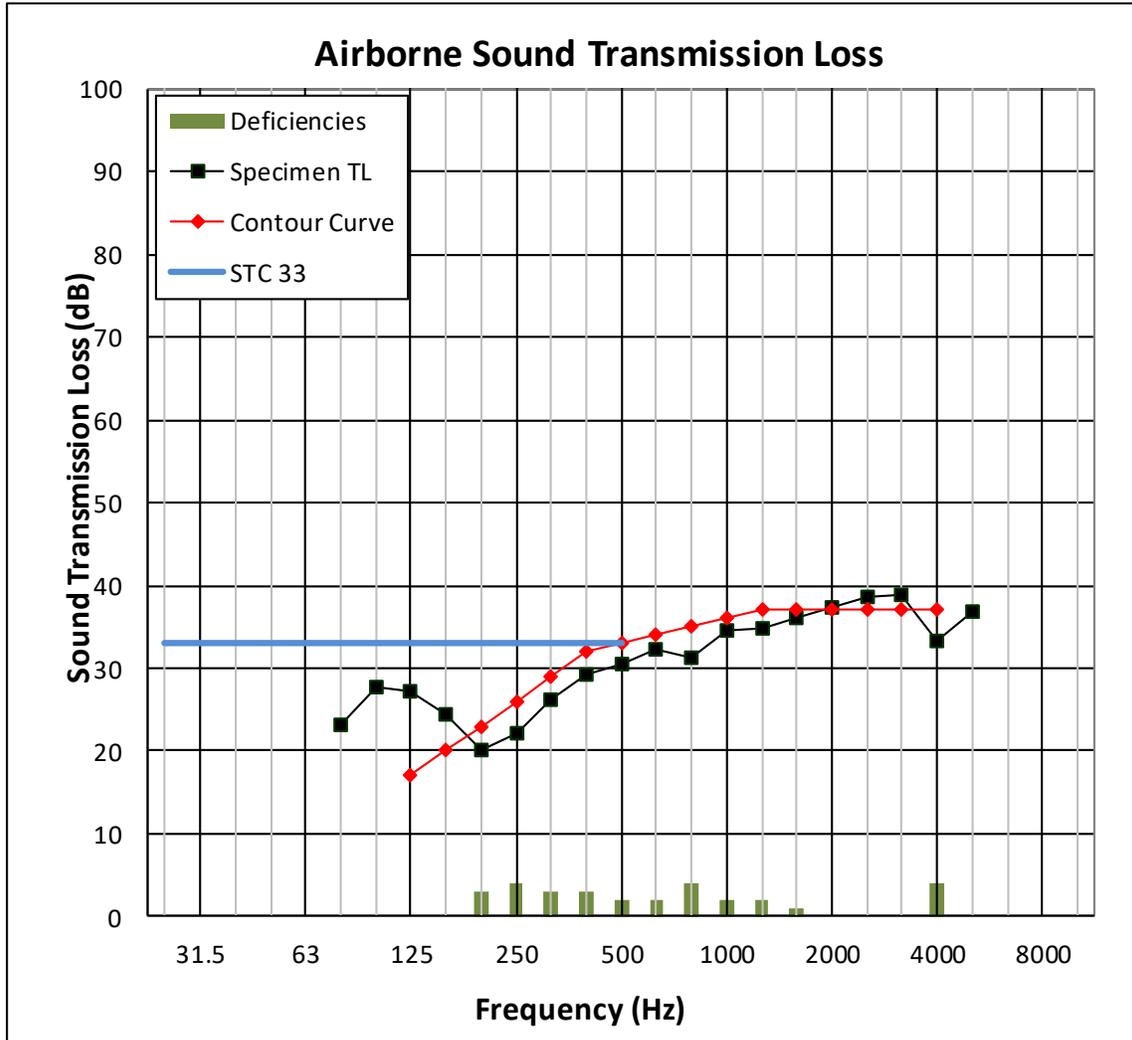
- 1) Receive Room levels less than 5 dB above the Background levels are red.
- 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
- 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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J8223.01A GRAPH



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J8223.01B5 DATA

SPECIMEN AREA	3.67 m ²	RECEIVE TEMP.	20.9 °C	SOURCE TEMP	20.9 °C
TECHNICIAN	Kurt Golden	RECEIVE HUMIDITY	52%	SOURCE HUMIDITY	52%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	39.2	5.7	103	78	25	1.98	-
100	35.6	5.5	104	74	30	1.83	-
125	37.1	6.9	104	74	28	1.18	0
160	38.4	5.6	106	79	26	0.84	0
200	37.2	5.4	106	83	22	1.03	2
250	35.0	5.6	103	73	28	0.55	0
315	30.4	6.0	103	72	29	0.66	1
400	27.5	6.2	102	68	31	0.31	2
500	19.6	6.6	102	69	31	0.70	3
630	19.4	6.3	101	67	32	0.35	3
800	15.5	6.4	99	65	32	0.16	4
1000	10.8	6.6	101	65	34	0.25	3
1250	9.1	7.1	100	62	35	0.26	3
1600	7.5	7.5	99	60	36	0.35	2
2000	7.2	7.9	100	61	36	0.24	2
2500	7.3	8.9	100	59	38	0.28	0
3150	7.8	10.4	99	55	40	0.15	0
4000	8.7	13.0	97	55	37	0.17	1
5000	9.7	16.5	97	52	39	0.23	-
STC RATING	34 (Sound Transmission Class)						
DEFICIENCIES	26 (Sum of Deficiencies)						
OITC RATING	30 (Outdoor-Indoor Transmission Class)						

Notes:

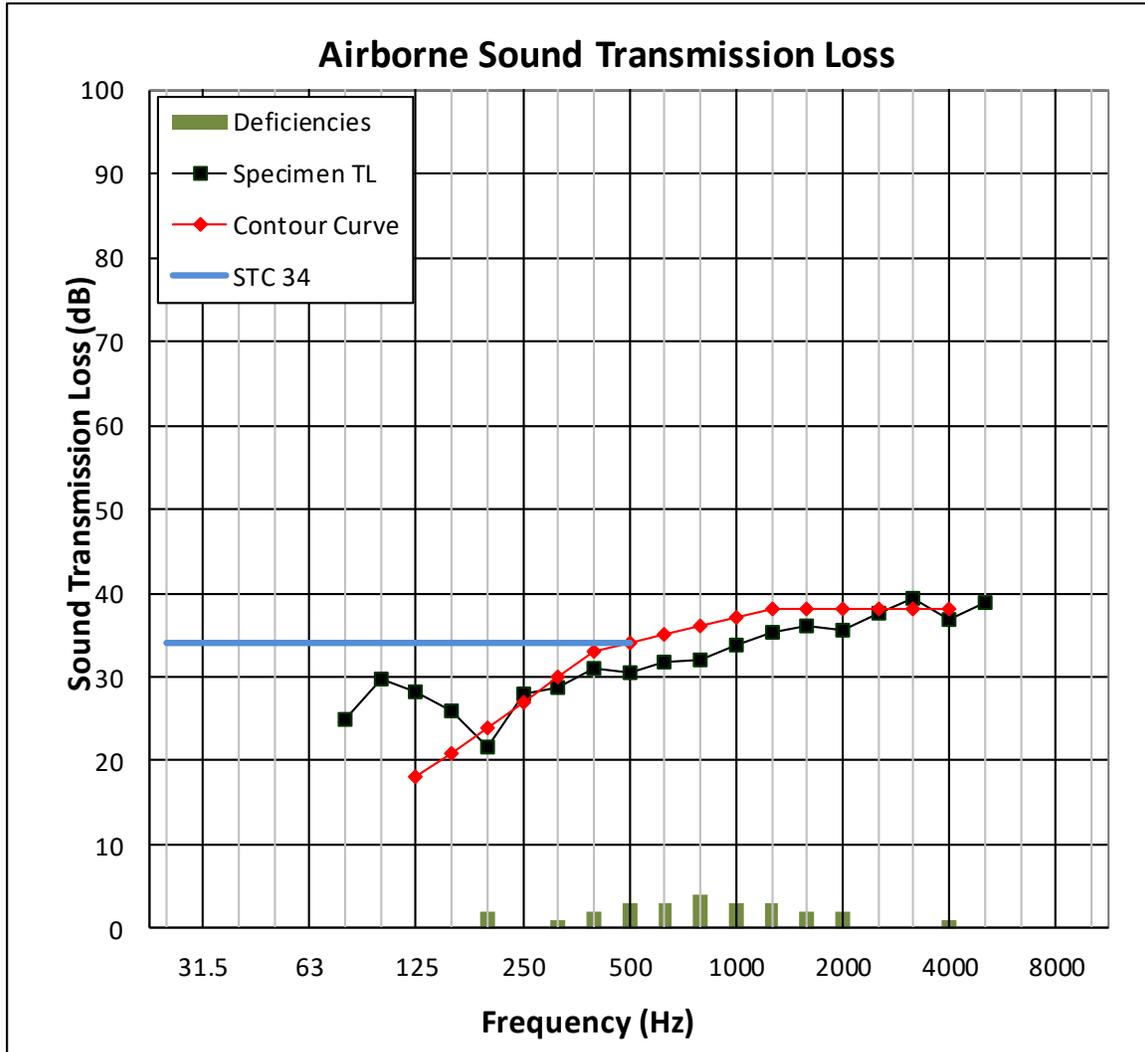
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SECTION 11

PHOTOGRAPHS



Photo No. 1
Receive Room View of Installed Test Specimen



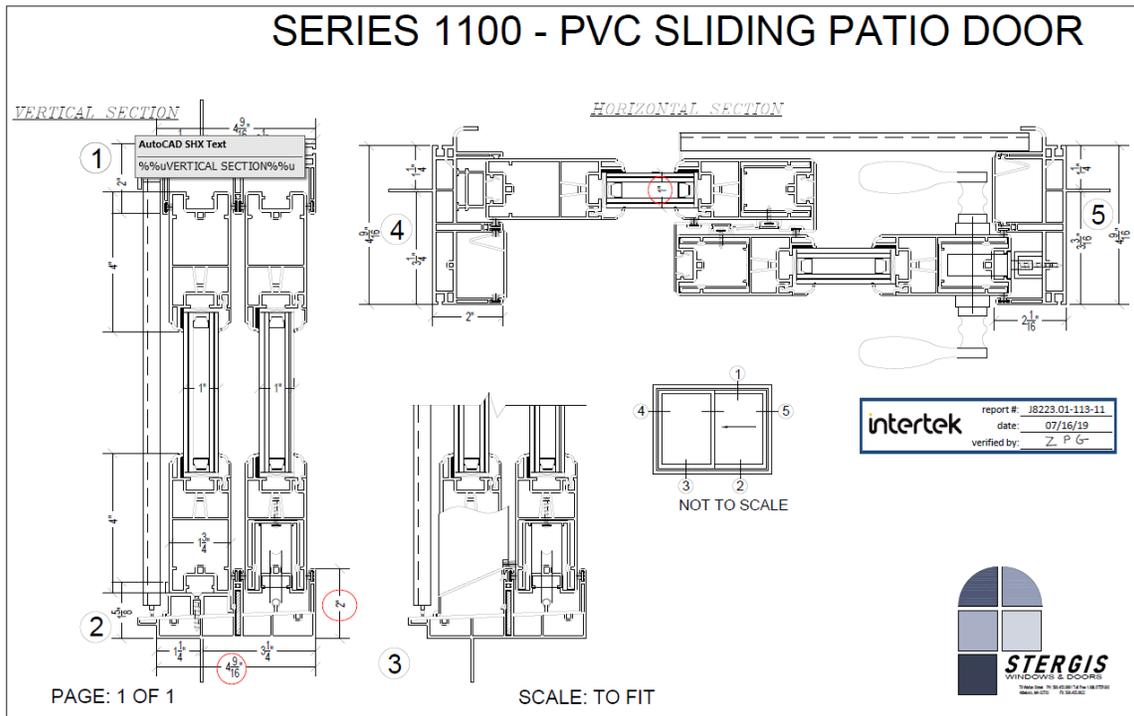
Photo No. 2
Source Room View of Installed Test Specimen

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SECTION 12 DRAWINGS





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SECTION 13

REVISION LOG

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