

ALUMINTECHNO, JLLC

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A W62, CASEMENT WINDOW

REPORT NUMBER

I4204.02-113-11-R0

TEST DATE

05/25/18

ISSUE DATE

11/01/18

RECORD RETENTION END DATE

05/25/22

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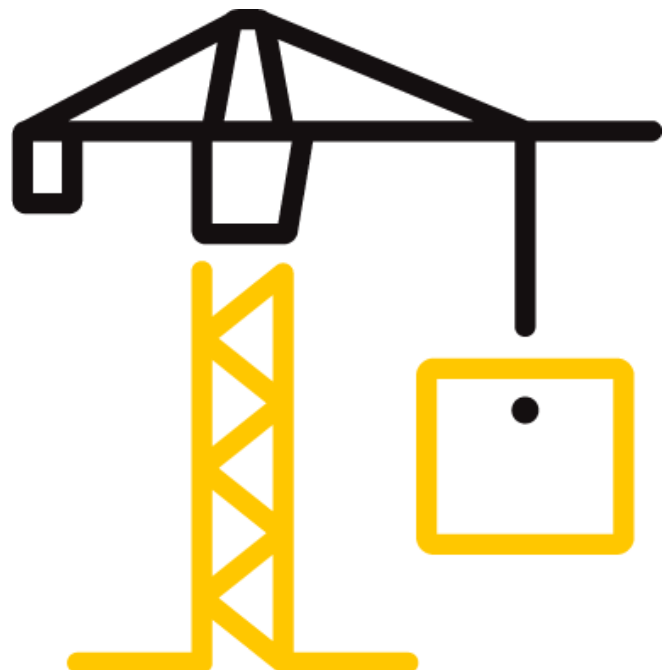
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TEST REPORT FOR ALUMINTECHNO, JLLC

Report No.: I4204.02-113-11-R0

Date: 11/01/18

REPORT REISSUED TO

AluminTechno, JLLC
12 Selitskogo Street, Office 211
Minsk, 220075
BELARUS

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by the original client to conduct a sound transmission loss test. This report is a reissue of the original Report No. I4204.01-113-11. This report is reissued in the name of AluminTechno, JLLC through written authorization of the original client. Results obtained are tested values and were secured by using the designated test method(s). The complete test data is included herein. The original 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.

SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	W62
TYPE	Casement window
GLAZING (Nominal Dimensions)	1-7/16" IG (5/16" laminated exterior, 7/8" argon, 1/4" annealed interior), Glass temperature 75°F
DATA FILE NO.	I4204.01A
STC	39
OITC	32

For INTERTEK B&C:

COMPLETED BY:	Jear N. Mutunda	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician II - Acoustical Testing	TITLE:	Project Lead - Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	11/01/18	DATE:	11/01/18

JNM:jmcs

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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. A filler wall-reducing element, consisting of two separate 2x6 wood frames filled with concrete, was used to adjust the test opening size to accommodate the test specimen. A dense neoprene gasket was placed between the two wood and concrete frames. The specimen was placed on an isolation pad in the custom 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	04/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65320	08/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65106	03/18
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	03/18
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	03/18
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	12/17
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/18
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	03/18
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	03/18
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	Y002919	04/18

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

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Dmitry Avramenko	AluminTechno, JLLC
Jear N. Mutunda	Intertek B&C
Sean G. Close	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.

The specimen was saved for further testing per the client's request.

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	Vent
SIZE	47-1/4" by 59-1/16"	43-3/4" by 55-1/2"
THICKNESS	2-1/2"	2-7/8"
CORNERS	Mitered	Mitered
FASTENERS	Screwed/Keyed	Screwed/Keyed
SEAL METHOD	Sealant	Sealant
MATERIAL	Aluminum	Aluminum
THERMAL BREAK MATERIAL	Insulbar	Insulbar
DAYLIGHT OPENING SIZE	N/A	37-5/8" by 49-1/2"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.450"
SPACER TYPE	Plastic

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.328"	0.883"	0.239"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Argon*	Annealed
LAMINATE MATERIAL	PVB	N/A	N/A

GLAZING METHOD	Interior
GLAZING MATERIAL	Rubber gasket
GLAZING BEAD MATERIAL	Aluminum

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

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	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	1" EPDM gasket	1 Row	Frame perimeter
	1/16" EPDM gasket	1 Row	Frame perimeter
	1/4" EPDM gasket	1 Row	Sash perimeter
HARDWARE	Multi-point lock system	1	Top and bottom rail, lock stile
	Keeper	5	Top and bottom rail, lock stile
DRAINAGE	1" by 1/4" Weep slot with cover	2	Sill

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft ²)
147	7.59

Drawings of the test specimen are included in Section 12.

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SECTION 10

TEST RESULTS

I4204.01A DATA

SPECIMEN AREA	1.80 m ²	RECEIVE TEMP.	21.6 °C	SOURCE TEMP	21.4 °C
TECHNICIAN	Sean G. Clos	RECEIVE HUMIDITY	55%	SOURCE HUMIDITY	53%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	42.1	4.6	104	78	23	1.44	-
100	36.2	5.7	105	72	29	1.58	-
125	38.1	4.9	105	80	20	1.44	3
160	41.0	4.4	106	75	27	0.84	0
200	39.0	4.6	107	77	26	0.89	3
250	34.9	5.1	106	69	33	0.48	0
315	29.1	5.4	99	60	34	0.42	1
400	26.7	5.7	96	54	37	0.52	1
500	23.7	5.8	97	53	40	0.60	0
630	22.7	5.6	102	56	41	0.29	0
800	20.1	6.0	101	53	43	0.51	0
1000	18.0	6.1	97	48	44	0.22	0
1250	15.4	6.6	98	50	42	0.24	1
1600	13.7	7.0	102	57	38	0.24	5
2000	11.2	7.4	96	54	35	0.25	8
2500	9.9	8.3	94	48	39	0.20	4
3150	8.7	9.9	97	45	44	0.19	0
4000	8.4	12.1	95	39	48	0.20	0
5000	9.1	15.2	95	32	54	0.20	-
STC RATING	39 (Sound Transmission Class)						
DEFICIENCIES	26 (Sum of Deficiencies)						
OITC RATING	32 (Outdoor-Indoor Transmission Class)						

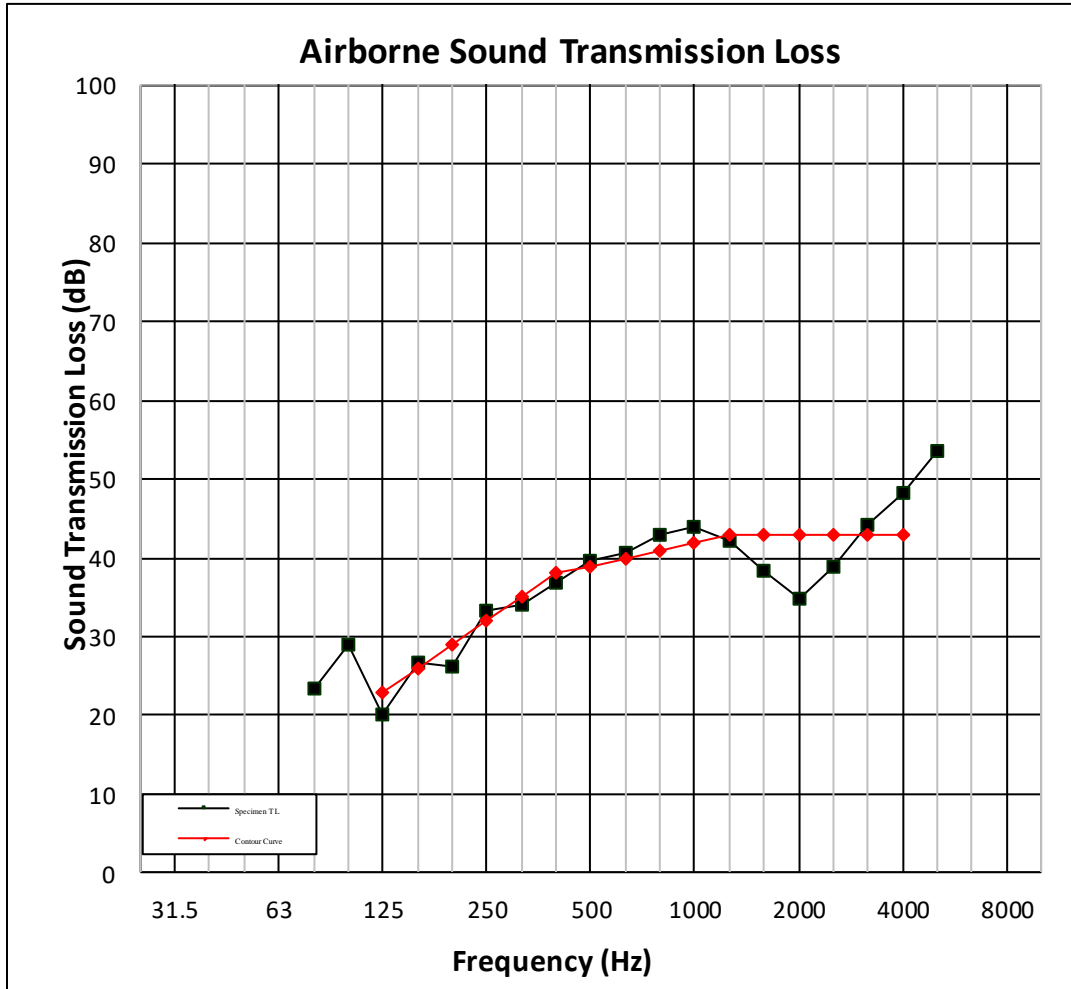
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are red.
 - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
 - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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I4204.01A GRAPH



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SECTION 11

PHOTOGRAPHS



Photo No. 1
Receive Room View of Installed Specimen



Photo No. 2
Source Room View of Installed Specimen

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SECTION 12 DRAWINGS

① **HARDWARE DIAGRAM**
SCALE: 1" = 1'-0"

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date: 05/29/18
verified by: [signature]

DATE	REVISION	#

APPROVED

DATE: _____

ALL DIMENSIONS SPECIFIED UNLESS OTHERWISE NOTED.
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HARDWARE DETAILS

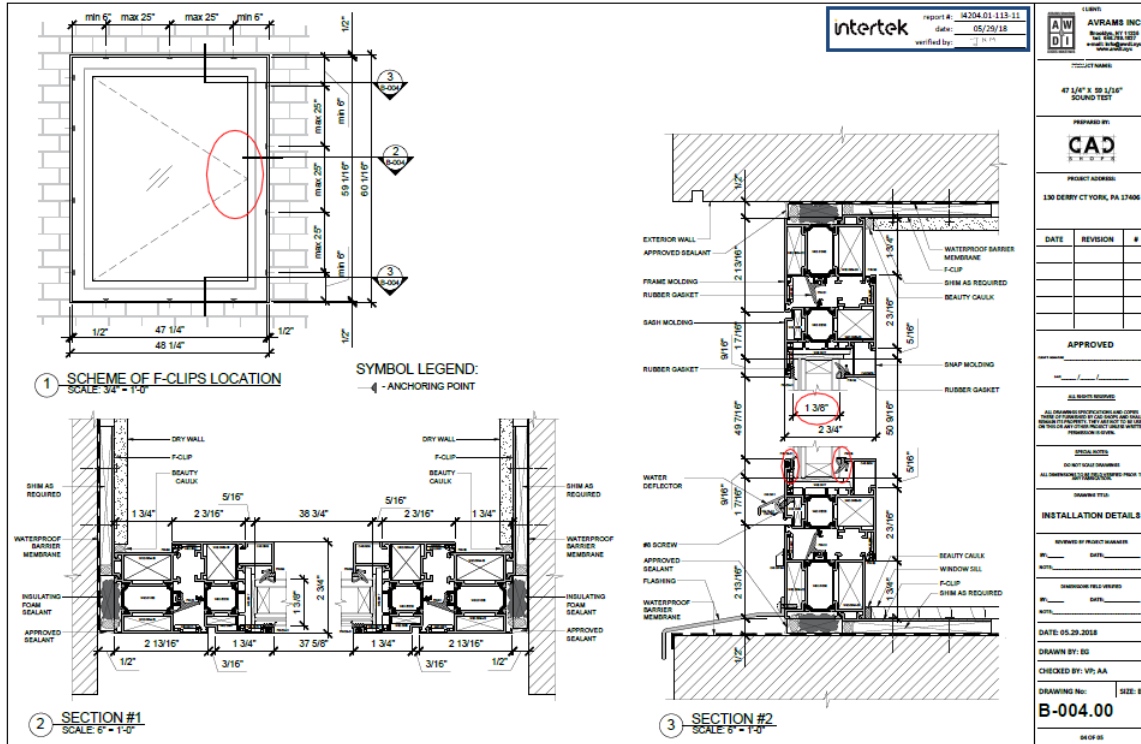
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CHECKED BY: VP, AA
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- ③ ④ ⑩ ⑪ ⑫ locking elements kit - art. 728743
- ③ strike plate - art. 728918
- ④ locking element, snap in - art. 334671
- ⑥ T-receptor - art. 334574
- ⑦ ⑧ handle bearing - art. 331937
- ⑨ handle ROTO LINE - art. 377400
- ⑩a ⑩b hinge - art. 624200
- ④1 rod profile - art. AYPC.W62.0607
- ② handle 180 degrees turn locking - art. 212008

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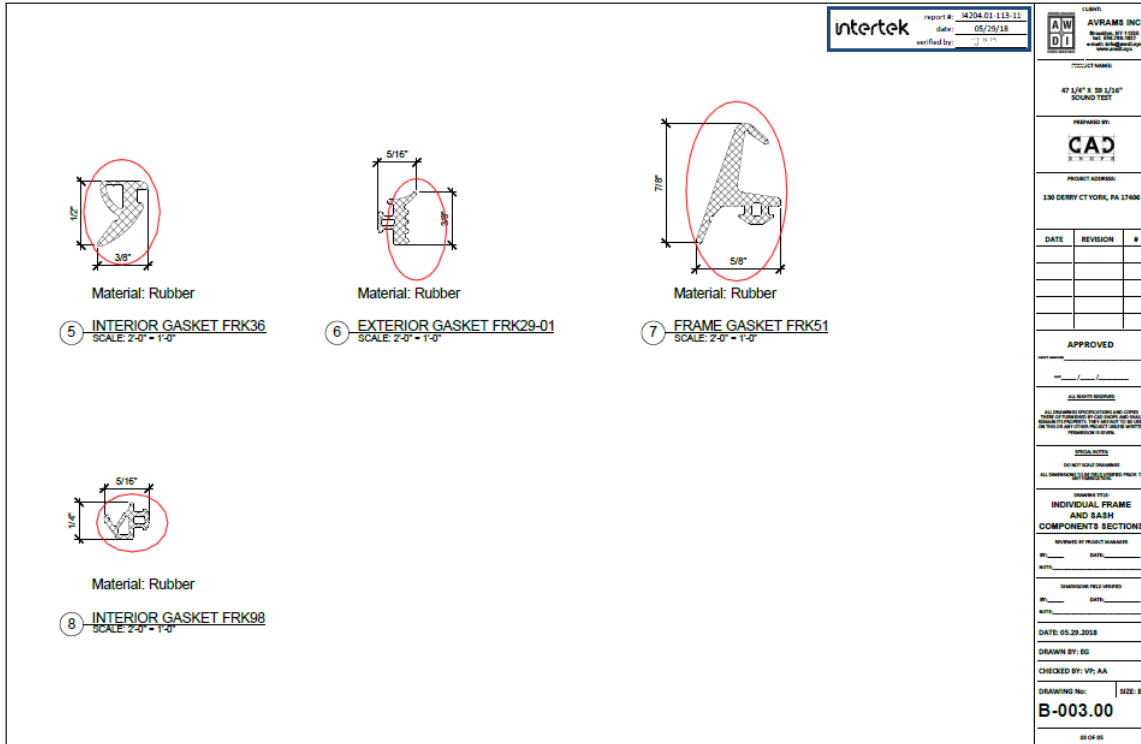
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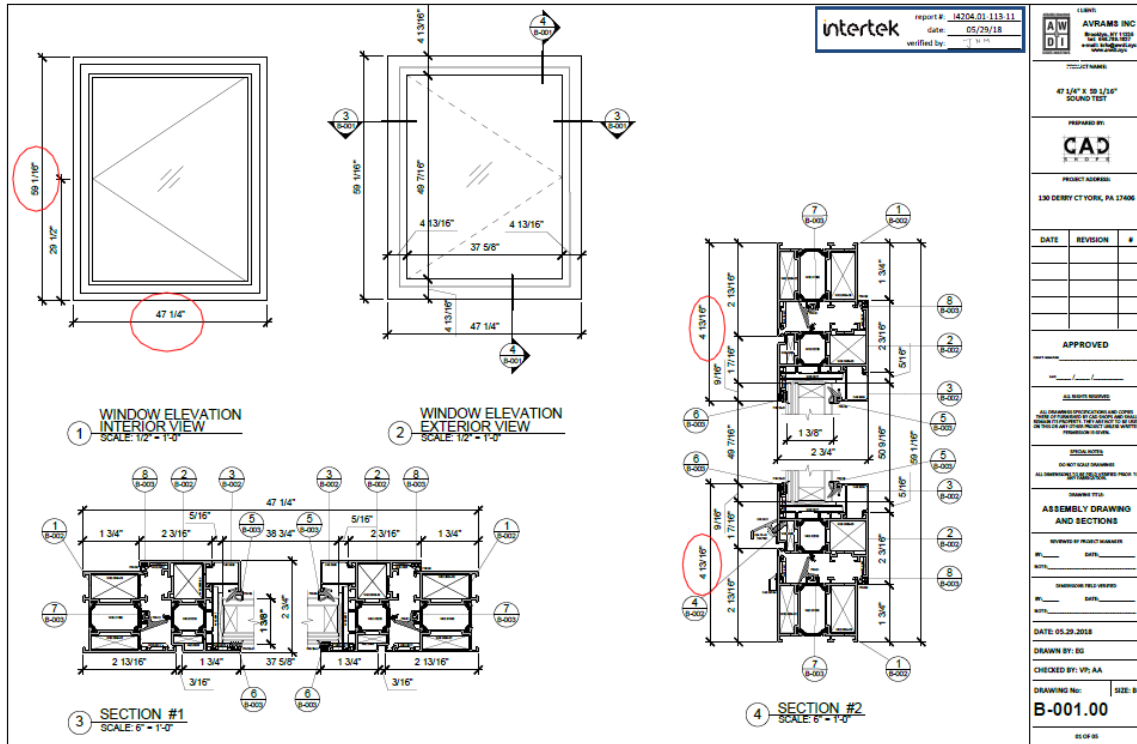
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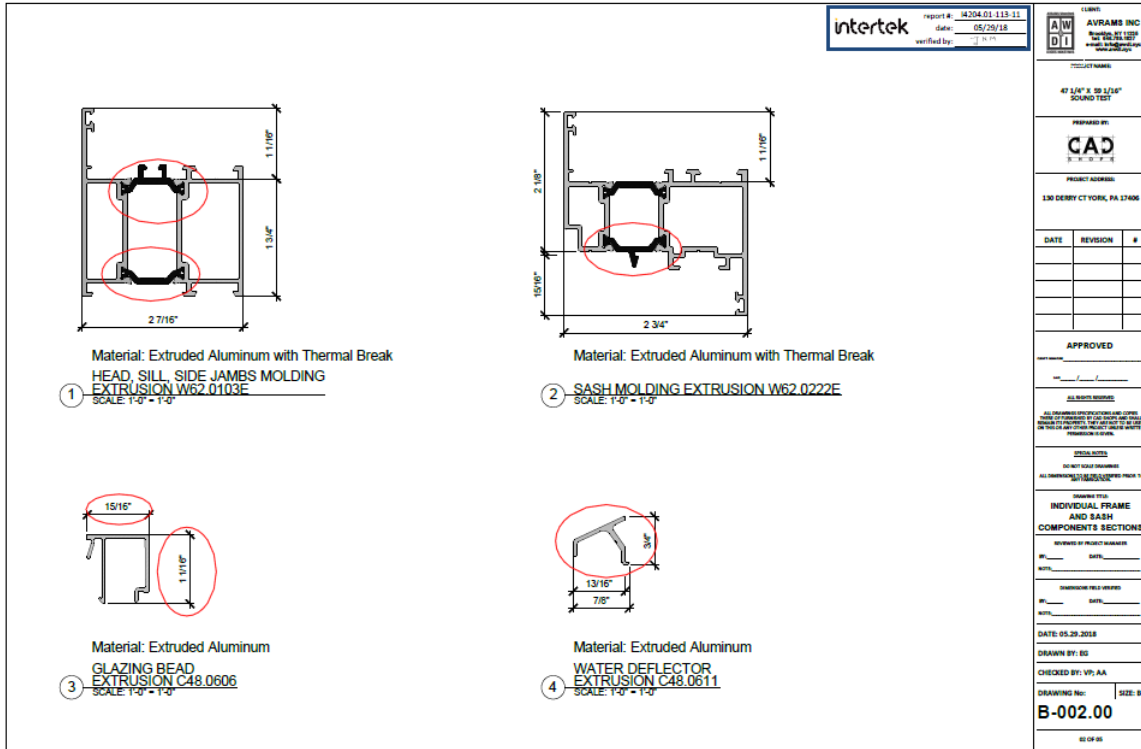
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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/01/18	N/A	Original Report Issue – Reissue of Report No. I4204.01-113-11 in the name of AluminTechno, JLLC