



**ASTM E 90 SOUND TRANSMISSION LOSS
TEST REPORT**

Rendered to:

C.R. LAURENCE CO., INC.

SERIES/MODEL: 7500

TYPE: Concealed Vent Window

Summary of Test Results			
Data File No.	Glazing (Nominal Dimensions)	STC	OITC
E2736.01	1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)	33	26

Reference should be made to Architectural Testing, Inc. Report No. E2736.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.



ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

C.R. LAURENCE CO., INC.
2100 East 38th Street
Vernon, California 90058

Report No: E2736.01-113-11
Test Date: 12/31/14
Report Date: 01/30/15

Test Sample Identification:

Series/Model: 7500

Type: Concealed Vent Window

Overall Size: 59" by 23-5/8"

Glazing (Nominal Dimensions): 1" IG (1/4" Tempered, 1/2" Air Space, 1/4" Tempered)

Project Scope: Architectural Testing, Inc. was contracted by C.R. Laurence Co., Inc. to conduct a sound transmission loss test on a Series/Model 7500, Concealed vent window. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical test was conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-10, *Classification for Rating Sound Insulation.*

ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*

ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct this test meets the requirements of ASTM E 90. The microphones were calibrated before conducting the sound transmission loss test. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: A double stud filler wall was constructed with 2-1/2" steel studs and 3-1/2" steel studs spaced 24" on center. Five layers of 5/8" Type "X" gypsum board were fastened to the receive side of the filler wall. Three layers of 1/2" cement board were fastened to the source side of the filler wall. The cavity was filled with two layers of R-13 fiberglass insulation. The perimeter and seams were sealed with acoustical sealant. A sound transmission loss test was then conducted on the filler wall. The filler wall achieved an STC rating of 71. The 60-1/2" by 48-1/2" filler wall plug was removed.

A filler wall-reducing element was built to adjust the test opening size to accommodate the test specimen. The reducing element consisted of a double 2x4 wood stud wall construction with three layers of 5/8" drywall on both sides. The stud cavities in the wall were insulated with two layers of R-13 fiberglass insulation. The window system was placed on isolation pads in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. The interior side of the test specimen, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The vent was opened and closed at least five times prior to testing.

Test Procedure: The window was closed and locked for this test. The sound transmission loss tests were conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

		Frame
Size		59" by 23-5/8"
Thickness		3"
Corners		Coped
	Fasteners	Screws
	Seal Method	Sealant
Material		Aluminum
	Reinforcement	None
	Thermal Break Material	Weatherstrip

Sample Descriptions: (Continued)

Vent Construction:

		Vent
Size		58-5/8" by 23-3/8"
Thickness		2-5/8"
Corners		Mitered
	Fasteners	Keyed and staked
	Seal Method	None
Material		Aluminum
	Reinforcement	None
	Thermal Break Material	Urethane
Daylight Opening Size		55-1/2" by 20"

Vent Glazing:

Measured Overall Insulation Glass Unit Thickness		0.948"	
Spacer Type		Aluminum	
	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.222"	0.504"	0.222"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	N/A
Glazing Method		Exterior and structural glazed	
Glazing Material		Silicone	
Glazing Bead Material		N/A	

* - Stated per Client/Manufacturer, N/A-Non Applicable

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
1/4" Foam-filled bulb gasket	1 Row	Perimeter of vent
1/4" Foam-filled bulb gasket	1 Row	Perimeter of frame
1/4" Leaf gasket	1 Row	Perimeter of vent
Hardware		
Sweep lock	2	Lock rail
Keeper	2	Head
Hinge	2	Hinge jamb
Drainage		
No drainage		

Comments: The total weight of the sample was 78 lbs. The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model 7500, Concealed vent window. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The window was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix D.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model 7500, Concealed vent window is listed below.

Summary of Test Results			
Data File No.	Glazing (Nominal Dimensions)	STC	OITC
E2736.01	1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)	33	26

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.



Architectural Testing 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 Architectural Testing 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 may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Zachary Golden
Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

ZPG:jmc

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

- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Design drawings (3)
- Appendix-D: Photographs (1)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/30/15	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition card	65127	04/14 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	12/14
Source Room Microphone	PCB Electronics	378B20	Microphone and Preamplifier	65103	05/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64906	12/14
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/14
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature Humidity Sensor	64286	06/14
Source Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	06/14
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	04/14

*- 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 (8291.3 ft ³)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m ³ (7296.3 ft ³)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable



E2736.01-113-11

Appendix B

Complete Test Results



AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/31/14						
Data File No.	E2736.01						
Client	C.R. Laurence Co., Inc.						
Description	Series/Model: 7500, Concelaed vent window with 1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)						
Specimen Area	0.90 m ²	Receive Temp.	21.4 °C		Source Temp.	21.5 °C	
Technician	Zach Golden	Receive Humidity	47%		Source Humidity	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	33.7	4.2	108	74	28.1	1.63	-
100	33.1	4.3	108	71	31.1	1.84	-
125	33.2	4.4	108	78	22.9	1.30	0
160	38.1	4.8	107	82	17.2	0.65	3
200	34.7	4.8	108	85	15.0	0.83	8
250	28.9	5.1	108	72	27.9	0.73	0
315	26.5	6.0	103	69	25.8	0.53	3
400	26.3	6.3	102	66	28.1	0.47	4
500	22.2	6.5	102	59	34.5	0.29	0
630	18.3	6.2	103	58	36.8	0.28	0
800	15.3	6.4	103	56	38.0	0.21	0
1000	10.5	6.5	102	52	41.2	0.24	0
1250	10.4	7.2	100	51	40.2	0.27	0
1600	7.6	7.5	103	55	38.6	0.32	0
2000	4.2	8.1	101	57	34.4	0.23	3
2500	4.1	9.1	100	57	33.0	0.19	4
3150	4.3	10.7	100	51	38.3	0.18	0
4000	5.1	13.0	99	45	42.9	0.21	0
5000	5.6	16.4	97	37	48.0	0.30	-

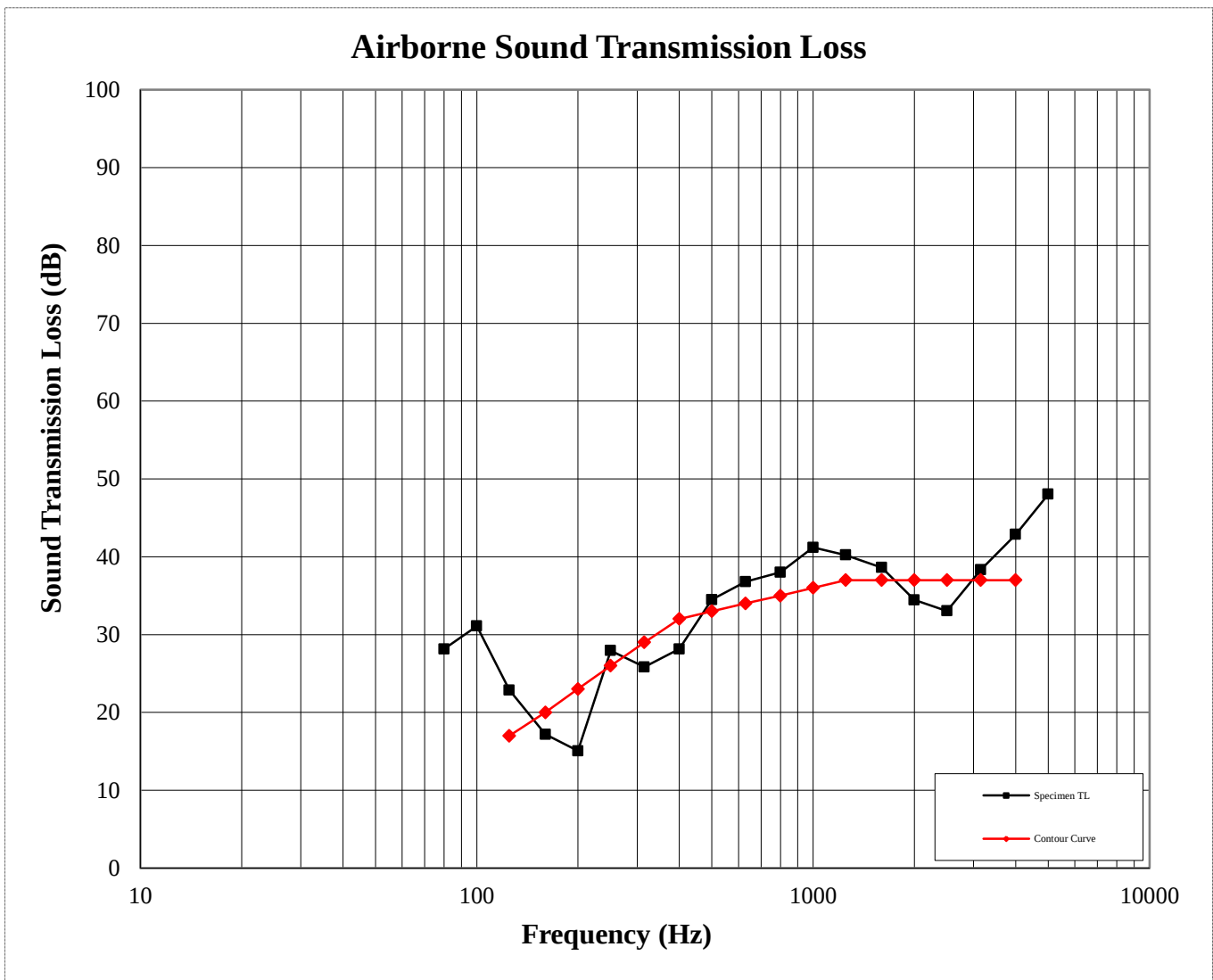
STC Rating **33** *(Sound Transmission Class)*
Deficiencies **25** *(Sum of Deficiencies)*
OITC Rating **26** *(Outdoor-Indoor Transmission Class)*

Notes: 1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
 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

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/31/14					
Data File No.	E2736.01					
Client	C.R. Laurence Co., Inc.					
Description	Series/Model: 7500, Conceld vent window with 1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)					
Specimen Area	0.90 m ²	Receive Temp.	21.4 °C		Source Temp.	21.5 °C
Technician	Zach Golden	Receive Humidity	47%		Source Humidity	48%

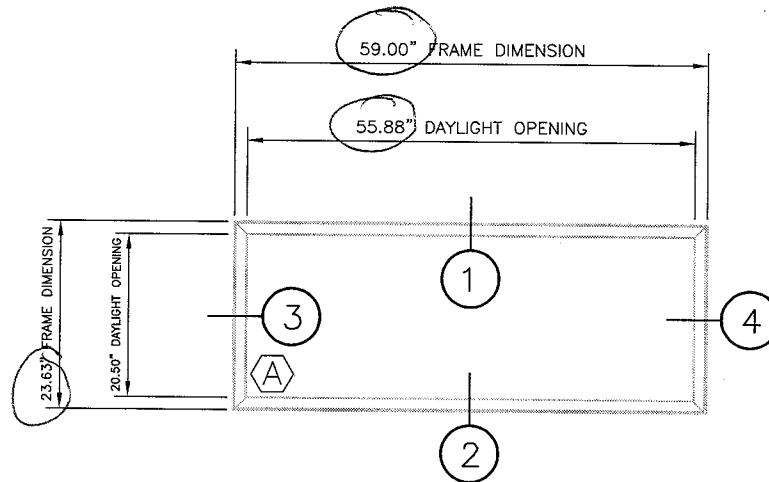




E2736.01-113-11

Appendix C

Design Drawings



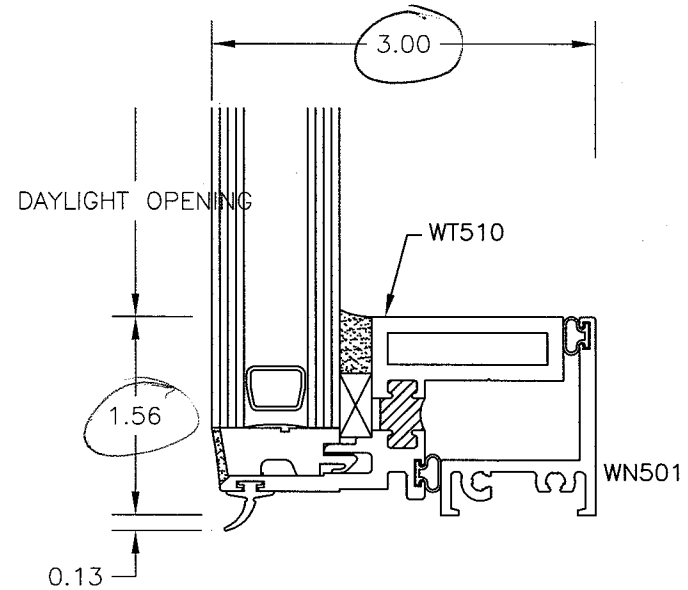
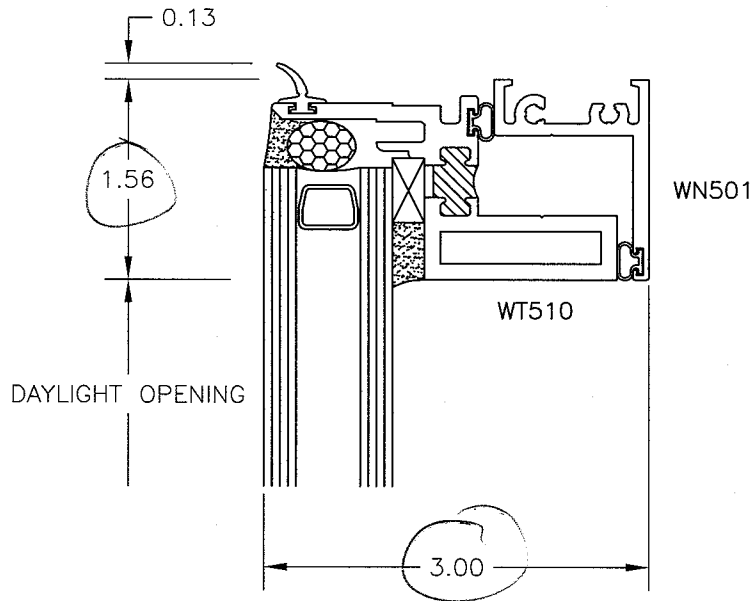
Test sample complies with these details.
Deviations are noted.

Report# E 2736.01-113-11

Date 1/27/15 Tech 2P

SYMBOL KEY		
SYMBOL	DESCRIPTION	QTY.
(A)	1" INSULATED GLASS 57.625 X 22.250 .250 CLR, TEMPERED .500 MILL ALUM SPACER, AIR .250 PPG SOLARBAN 70XL, LOW-E #3 SURFACE, SILICONE	1

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						DRAWN BY: GHK	TITLE: SOUND TRANSMISSION LOSS TEST ELEVATION PRODUCT: 7500 CONCEALED VENT WINDOW	DRAWING NO. MU2014-181-01
						DATE: 06.30.14		
						SCALE: $\frac{3}{4}"=1'-0"$		
REV.	DESCRIPTION	DATE	BY					Sheet No. 1 of 3 Sheets

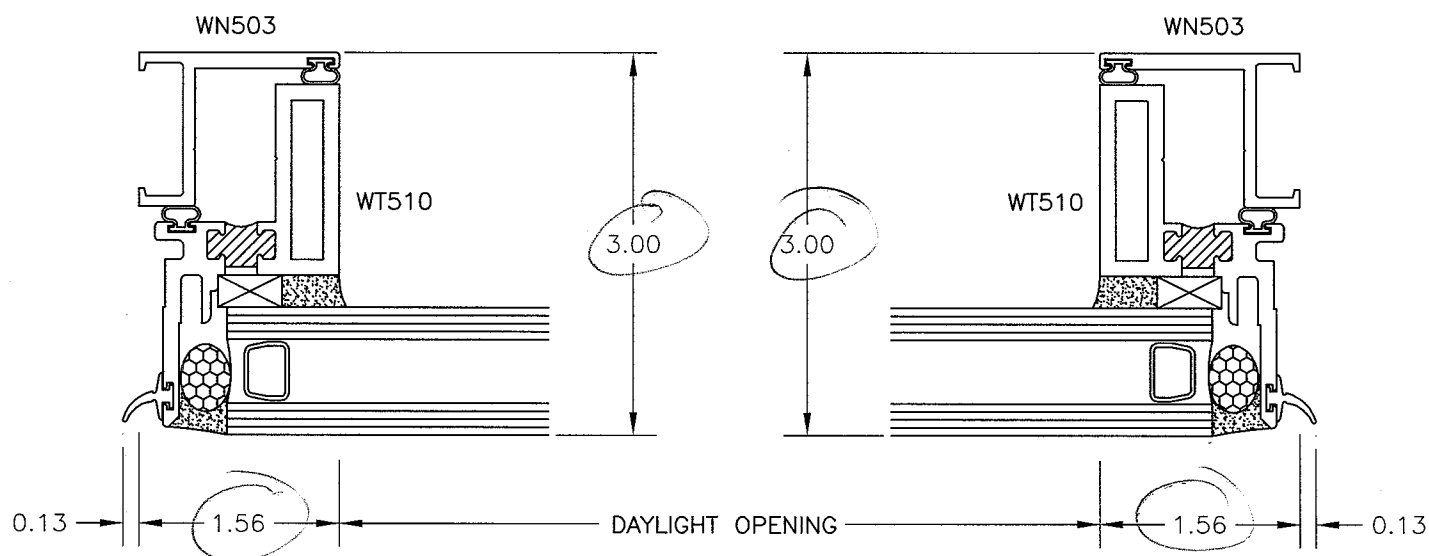


Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 62736.01-113-11
Date 1/27/15 Tech 286

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				DRAWN BY: GHK	TITLE: SOUND TRANSMISSION LOSS TEST HORIZONTAL SECTION PRODUCT: 7500 CONCEALED VENT WINDOW		DRAWING NO. MU2014-181-01
				DATE: 06.30.14			
REV.	DESCRIPTION	DATE	BY	SCALE: FULL			Sheet No. 2 of 3 Sheets



Test sample complies with these details.
Deviations are noted.

Report# E 2736,01-113-1
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					DATE: 06.30.14			
REV.	DESCRIPTION	DATE	BY	SCALE: FULL				Sheet No. 3 of 3 Sheets

Appendix D

Photographs



Receive Room View of Installed Specimen



Source Room View of Installed Specimen