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CR LAURENCE CO., INC.
ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
AAMA 1801 TESTING ON A NFD FRAME WITH ABS RIGICORE EX DOOR

REPORT NUMBER
H5843.02-303-11 R0

TEST DATE
09/22/17

ISSUE DATE
10/31/17

RECORD RETENTION END DATE
09/22/21

PAGES
13

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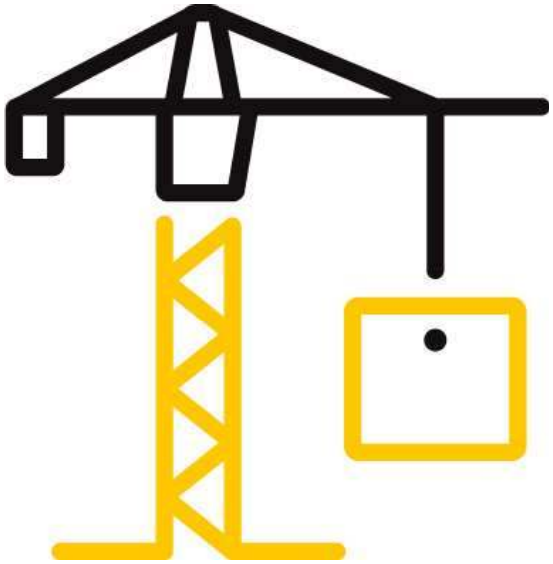

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TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: H5843.02-303-11 R0
Date: 10/31/17

REPORT ISSUED TO
CR LAURENCE CO, INC.
2503 E. Vernon Avenue
Los Angeles California, 90058

SECTION 1
SCOPE

Intertek Building & Construction (B&C) was contracted by CR Laurence Co, Inc. to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test method(s). 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 Lake Forest, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2
SUMMARY OF TEST RESULTS

TYPE	Side Hinged Door
DESCRIPTION	NFD Frame with ABS RigiCore EX Door
TEST CONDITION	Operable
DATA FILE NO.	H5843.01B
STC	35
OITC	34
AIR INFILTRATION AT 1.57 PSF	0.01 cfm/ft^2

For INTERTEK B&C:

COMPLETED BY:	Leeland S. Hoover	**REVIEWED BY:**	Bradlay D. Hunt
TITLE:	Technician I	**TITLE:**	Laboratory Manager
SIGNATURE:	Digitally Signed by: Leeland Hoover	**SIGNATURE:**	Digitally Signed by: Bradlay Hunt
DATE:	10/31/17	**DATE:**	10/31/17

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SECTION 3
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

AAMA 1801-13, *Voluntary Specification for the Acoustical Rating of Exterior Windows, Doors, Skylights and Glazed Wall Sections*

ASTM E1425-14, *Standard Practice for Determining the Acoustical Performance of Windows, Doors, Skylight, and Glazed Wall Systems*

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*

ASTM E283-04 (2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

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.

SECTION 5
EQUIPMENT

The equipment listed meets the requirements of the test methods stated in Section 3 of this report.

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INSTRUMENTATION

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXI-4462	Input Card	INT00627	10/16 *
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00395	10/16
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00396	10/16
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	INT00397	10/16
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	INT00239	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00240	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00241	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00242	04/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	INT00243	04/17
Receive Room Microphone	PBC Piezotronics	378C20	Microphone and Preamplifier	INT00244	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00245	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00246	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00247	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00228	04/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00299	10/17
Source Room Environmental Indicator	Comet	T7510	Source Room	INT00300	10/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	INT00288	06/17

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	231 m^3	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	196 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
Garrett Osterode	CR Laurence Co., Inc.
Bradlay D. Hunt	Intertek B&C
Ryan R. Lau	Intertek B&C

SECTION 7
TEST PROCEDURE

Air Infiltration
The perimeter of a pressure chamber was placed over the test specimen and sealed to the receive room face of the filler wall with duct tape. The chamber was connected to a centrifugal blower/vacuum pump, air flow meter, and a pressure sensing device that was designed to maintain a constant air pressure differential across the assembly. Pressure was applied, and the total air infiltration was measured. The specimen exterior was sealed with plastic sheet and duct tape. The extraneous air infiltration was measured. Environmental corrections were applied to the both airflow results. The airflow rate was calculated by subtracting the extraneous airflow from the total air flow and dividing the difference by the specimen area.

Acoustical Tests
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 at each of five microphone positions in the receive and source rooms. 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 returned 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.

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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.

SECTION 9
SPECIMEN DESCRIPTION

	FRAME	LEAF
SIZE	38-15/16" by 83-7/8"	35-13/16" by 81-1/4"
THICKNESS	5-11/16"	1-3/4"
CORNERS	Mitered	N/A
FASTENERS	Clip and screws	N/A
MATERIAL	Aluminum	Wood with proprietary core

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	CRL NP600 Gasket	1 Row	Stop face jambs and head
	Pemko S88 Gasket	1 Row	Jambs and head
	Zero #368 Automatic Door Bottom	1	Bottom rail
	487 Series Threshold	1	Sill
HARDWARE	Butt hinge	3	Hinge stile
	Cylindrical lockset	1	Lock stile
DRAINAGE	No Drainage		

TOTAL WEIGHT (lbs)	**AVERAGE WEIGHT** (lbs / ft^2)
184	8.14

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

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SECTION 10
TEST RESULTS

ASTM E90
AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	09/22/17				
DATA FILE NO.	H5843.01B				
CLIENT	CR Laurence Co., Inc.				
DESCRIPTION	Series/Model: NFD Frame with ABS RigiCore EX Door				
SPECIMEN AREA	2.10 m²	RECEIVE TEMP.	19.4 °C	SOURCE TEMP	18.2 °C
TECHNICIAN	Leeland S. Ho	RECEIVE HUMIDITY	52%	SOURCE HUMIDIT	54%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	44.3	4.4	103	72	29	1.37	-
100	34.1	4.8	104	73	29	1.67	-
125	37.4	5.2	106	73	30	1.39	0
160	42.5	4.9	104	69	33	0.47	0
200	35.4	6.3	106	70	31	0.50	0
250	21.9	7.2	106	68	32	0.59	0
315	18.7	6.8	106	69	32	0.50	0
400	19.1	5.8	105	68	33	0.46	1
500	18.3	5.3	106	67	35	0.17	0
630	18.9	5.6	106	67	35	0.32	1
800	20.3	5.7	106	66	36	0.36	1
1000	10.9	5.9	107	68	35	0.20	3
1250	10.6	6.1	105	66	34	0.13	5
1600	9.6	6.7	104	65	34	0.29	5
2000	7.2	7.8	101	60	35	0.20	4
2500	5.5	8.7	101	59	36	0.13	3
3150	5.5	9.9	101	56	38	0.35	1
4000	5.5	12.1	99	51	40	0.36	0
5000	5.7	15.2	99	50	40	0.42	-
STC RATING	35	*(Sound Transmission Class)*					
DEFICIENCIES	24	*(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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SECTION 11
RESULTS GRAPH

ASTM E90
AIRBORNE SOUND TRANSMISSION LOSS

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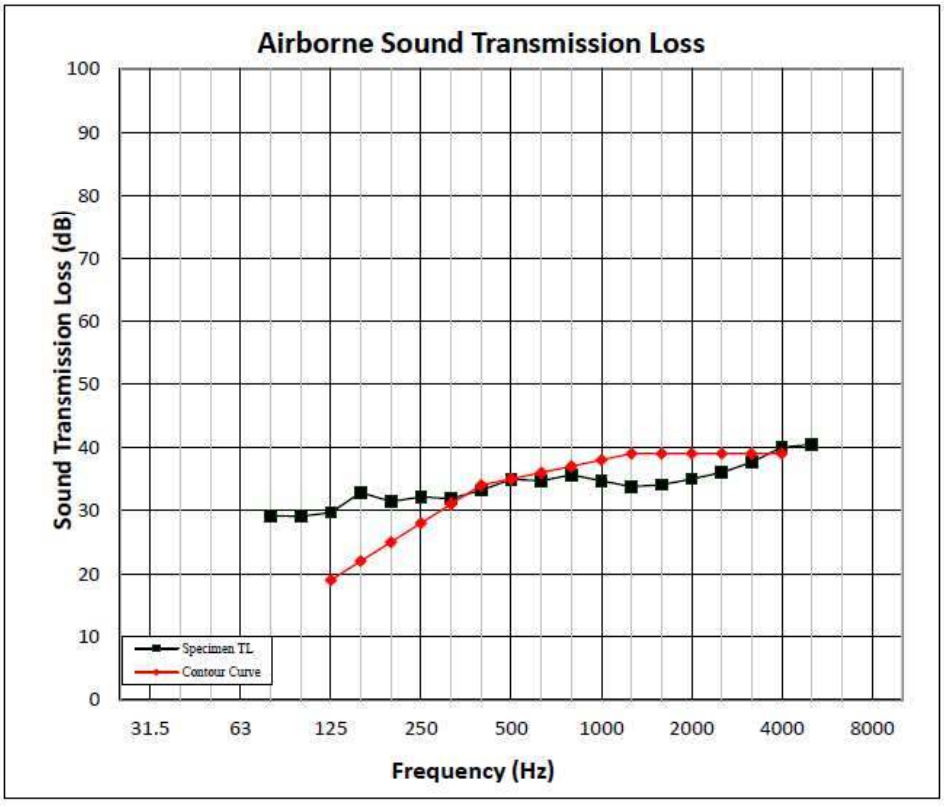

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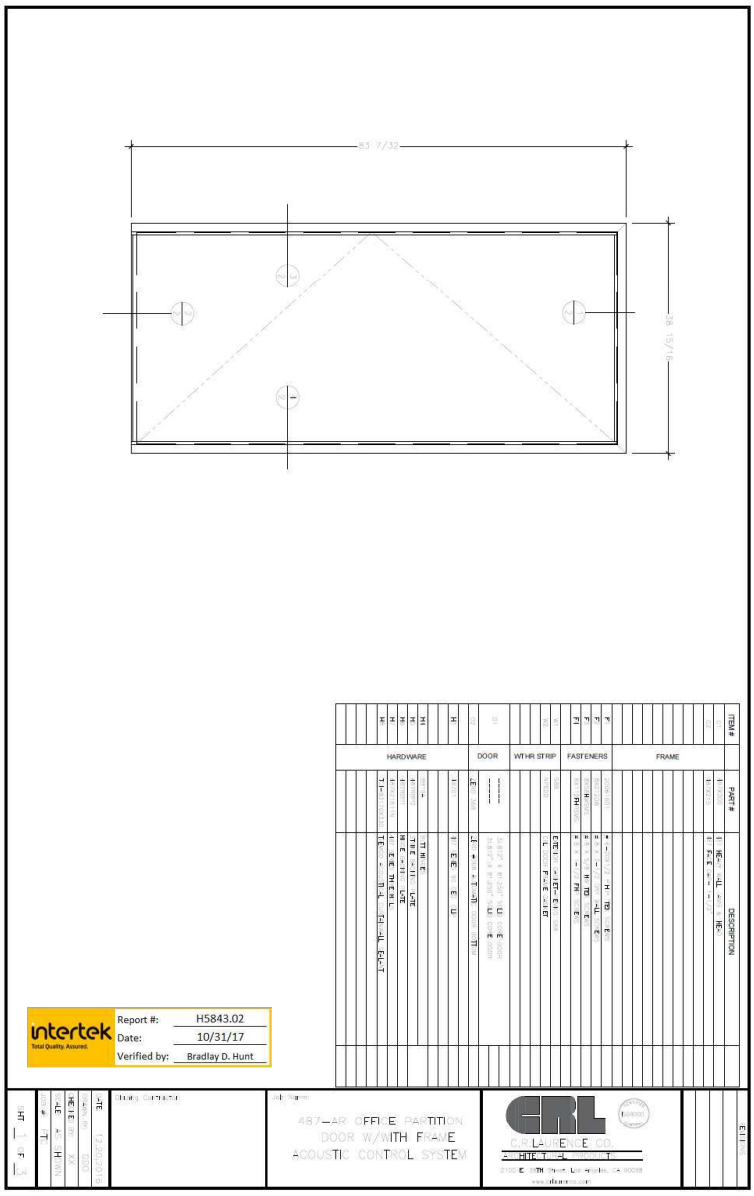
SECTION 12
DRAWINGS



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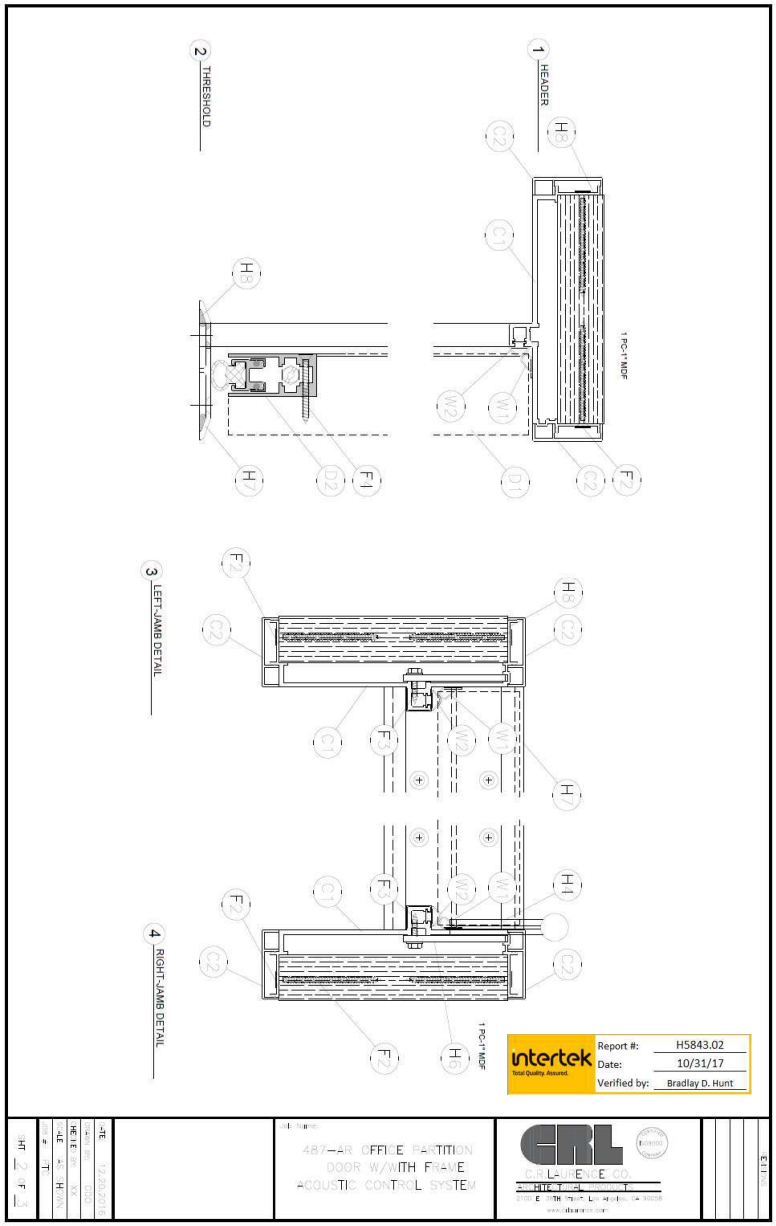

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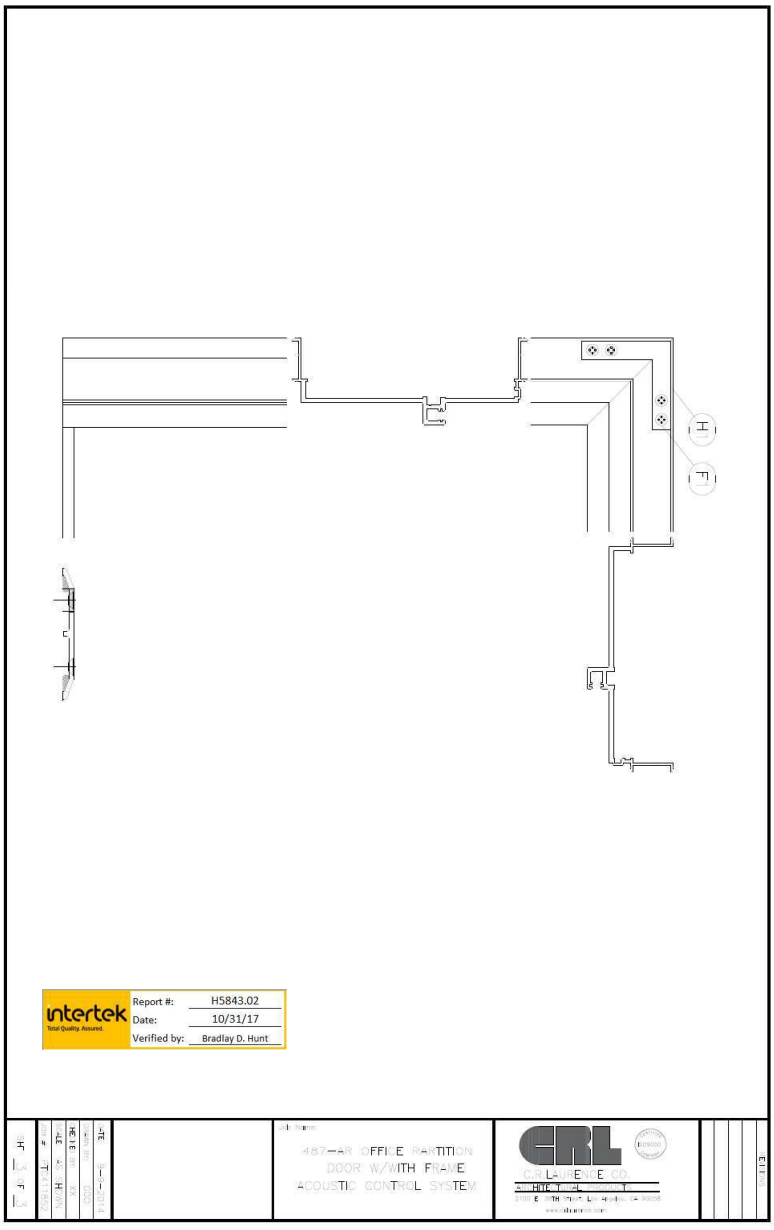

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SECTION 13
PHOTOGRAPHS

Receive Room View of Test Specimen

Source Room View of Test Specimen

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SECTION 14
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	10/31/17	N/A	Original Report Issue