

CR LAURENCE CO. INC.

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON AN OST451, WINDOW WALL/STOREFRONT

REPORT NUMBER

K4603.01-303-11-R1

TEST DATE

11/20/19

ISSUE DATE

12/06/19

REVISION DATE

12/18/19

RETENTION DATE

11/26/23

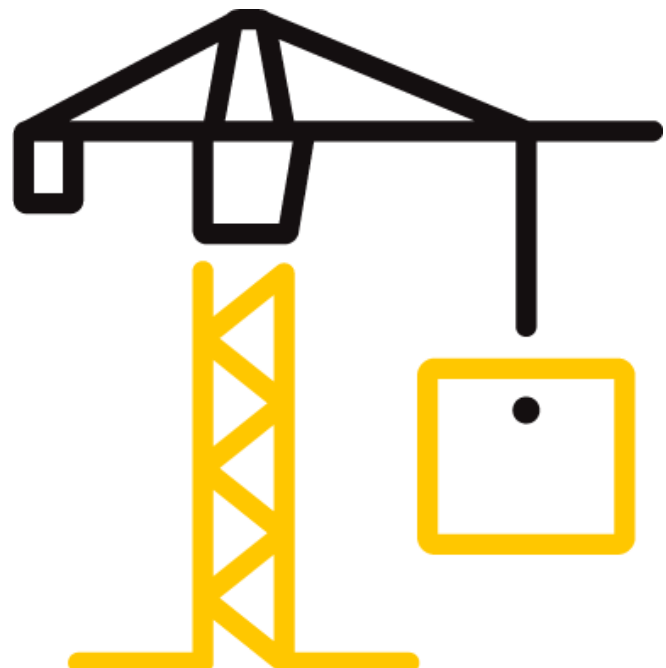
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TEST REPORT FOR CR LAURENCE CO. INC.

Report No.: K4603.01-303-11-R1

Date: 12/06/19

REPORT ISSUED TO

CR LAURENCE CO. INC.

2503 East 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 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 Lake Forest, California.

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:	Marco T Santa Rosa	REVIEWED BY:	Leeland S Hoover
TITLE:	Technician II Acoustical Testing	TITLE:	Laboratory Manager Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	12/18/19	DATE:	12/18/19

MTSR: LSH

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	OST451
TYPE	Window Wall/Storefront
GLAZING (Nominal Dimensions)	1" IG (1/4" Tempered Exterior, 1/2" Air Space, 1/4" Tempered Interior)
DATA FILE NO.	K4603.01A
STC	32
OITC	25

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.

A filler wall-reducing element was used to adjust the test opening size to accommodate the test specimen. The reducing element consisted of a double 2x6 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-19 fiberglass insulation. 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.

EQUIPMENT

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00393	10/19
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00397	10/19
Data Acquisition Card*	National Instruments	PXIe-4464	Data Acquisition Card	INT00395	10/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00234	03/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00235	03/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00236	03/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00237	03/19
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	INT00238	03/19
Receive Room Microphone	PBC Piezotronics	378C20	Microphone and Preamplifier	INT00229	04/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00230	04/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT01542	04/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00232	04/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00233	04/19
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00299	05/19
Source Room Environmental Indicator	Comet	T7510	Source Room	INT00300	05/19
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	INT00289	09/19

*- 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
Roman Aguiniga	CR Laurence
Marco T Santa Rosa	Intertek B&C
Josue H Vides	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.

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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.

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.

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SECTION 9

SPECIMEN DESCRIPTION

	FRAME
SIZE	78-3/4" by 78-3/4"
THICKNESS	4-3/4"
CORNERS	Coped
FASTENERS	Screws
SEAL METHOD	N/A
MATERIAL	Aluminum
REINFORCEMENT	N/A
THERMAL BREAK MATERIAL	Insulbar
DAYLIGHT OPENING SIZE (X2)	36-1/4" by 74-1/2"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	0.967"
SPACER TYPE	Aluminum Box

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.217"	0.530"	0.220"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Tempered
LAMINATE MATERIAL	N/A	N/A	N/A

GLAZING METHOD	Exterior
GLAZING MATERIAL	Rubber Gasket
GLAZING BEAD MATERIAL	Rubber wedge gasket

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	N/A	N/A	N/A
HARDWARE	N/A	N/A	N/A
DRAINAGE	N/A	N/A	N/A

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft ²)
288	6.69

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

Photographs are included in Section 11.

Drawings are included in Section 12.

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SECTION 10

TEST RESULTS

ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	11/20/19				
DATA FILE NO.	K4603.01A				
CLIENT	CR Laurence Co. Inc.				
DESCRIPTION	Series/Model: OST451 Window Wall/Storefront with 1" IG (1/4" Tempered Exterior, 1/2" Air Space, 1/4" Tempered Interior)				
SPECIMEN AREA	4.00 m ²	RECEIVE TEMP.	20.8 °C	SOURCE TEMP	20.2 °C
TECHNICIAN	Marco T Sant	RECEIVE HUMIDITY	42%	SOURCE HUMIDIT	44%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	39.9	4.7	104	77	27	1.83	-
100	32.9	4.9	102	80	22	1.36	-
125	39.7	4.8	102	83	19	1.72	0
160	42.3	4.9	103	81	21	0.95	0
200	35.6	6.6	105	89	14	0.69	8
250	27.0	7.1	106	82	22	0.55	3
315	29.7	6.9	106	81	23	0.35	5
400	34.9	6.0	105	75	29	0.40	2
500	21.7	5.3	106	75	30	0.46	2
630	18.5	5.6	106	72	33	0.41	0
800	21.1	5.8	105	68	36	0.27	0
1000	15.3	5.9	106	68	37	0.35	0
1250	13.4	6.1	105	65	38	0.12	0
1600	5.8	6.7	103	63	38	0.27	0
2000	3.8	8.1	101	68	30	0.31	6
2500	3.8	9.0	101	66	31	0.27	5
3150	4.3	10.3	100	59	37	0.17	0
4000	4.8	12.8	97	50	42	0.25	0
5000	5.4	16.6	93	40	46	0.50	-
STC RATING	32 (Sound Transmission Class)						
DEFICIENCIES	31 (Sum of Deficiencies)						
OITC RATING	25 (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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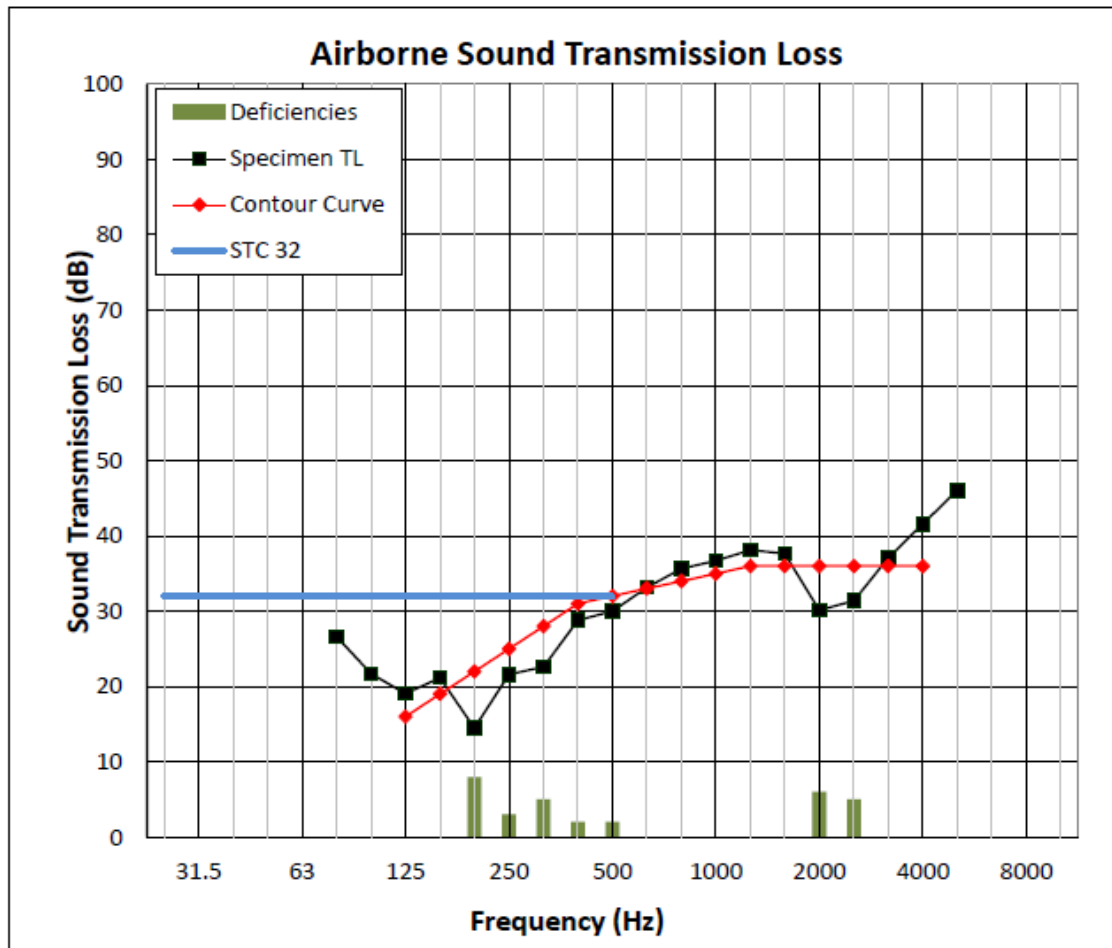
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SECTION 11 PHOTOGRAPHS



Photo No. 1
Source Room View of Test Specimen



Photo No. 2
Receive Room View of Test Specimen



Total Quality. Assured.

25800 Commercentre Drive
Lake Forest, California 92630

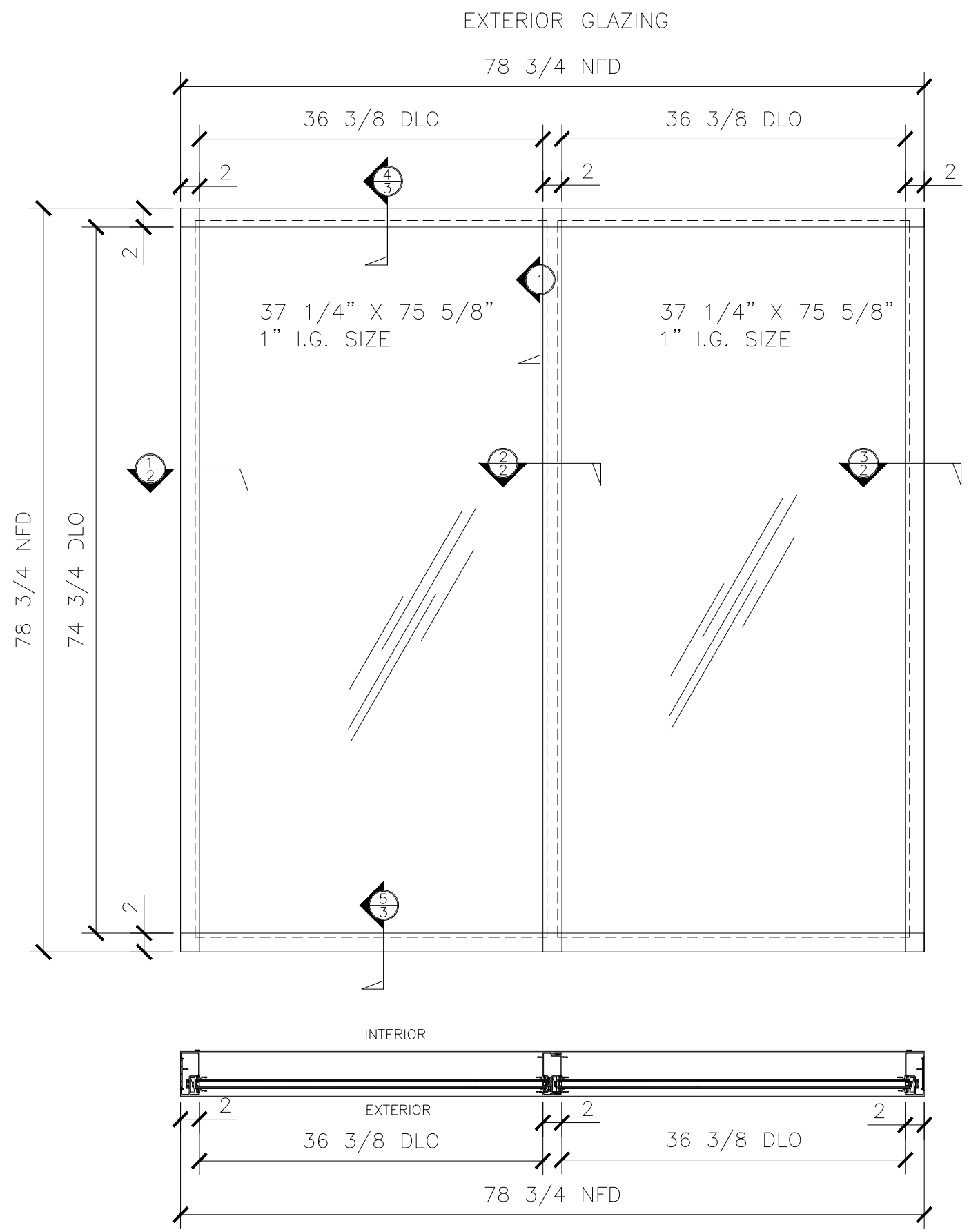
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Facsimile: 717-764-4129
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SECTION 12
DRAWINGS



REVISIONS

CRL
C.R. LAURENCE CO.
ARCHITECTURAL PRODUCTS

2100 E. 38TH Street, Los Angeles, CA 90058
www.crlaurence.com

Job Name:
**SERIES OST451
EXTERIOR GLAZED
STOREFRONT SYSTEM**

Glazing Contractor:

DATE:	12/4/2019
DRAWN BY:	RA
CHECKED BY:	XX
SCALE:	AS SHOWN
JOB #:	PTC891583



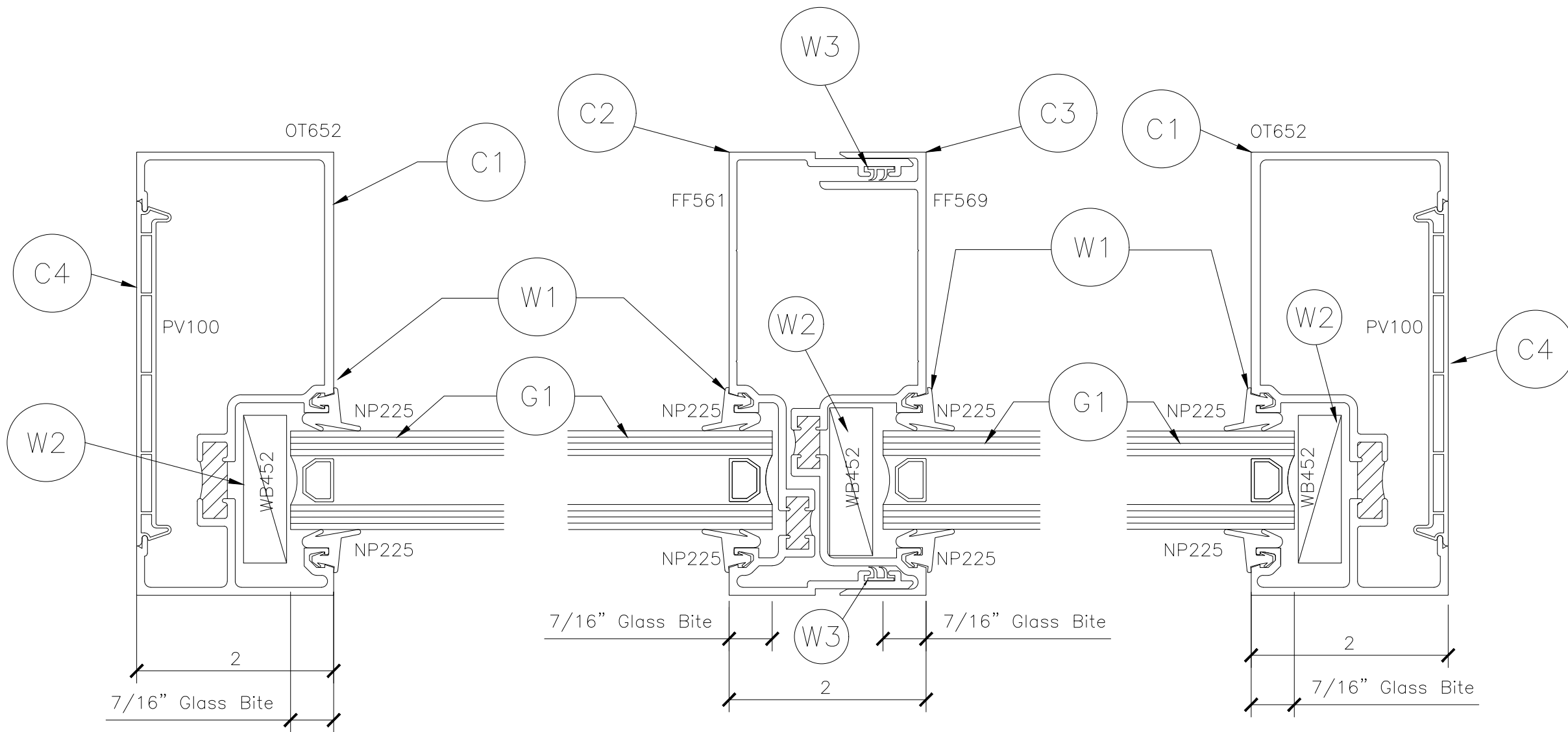
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Job Name:

Glazing Contractor:

DATE: 12/4/2019
DRAWN BY: RA
CHECKED BY: XX
SCALE: AS SHOWN
JOB #: PTC891583



① SECTION DETAIL AT JAMB

② SECTION DETAIL AT EXPANSION MULLION

③ SECTION DETAIL AT JAMB



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ARCHITECTURAL PRODUCTS
2100 E. 38TH Street, Los Angeles, CA 90058
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SERIES OST451
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STOREFRONT SYSTEM

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Glazing Contractor:

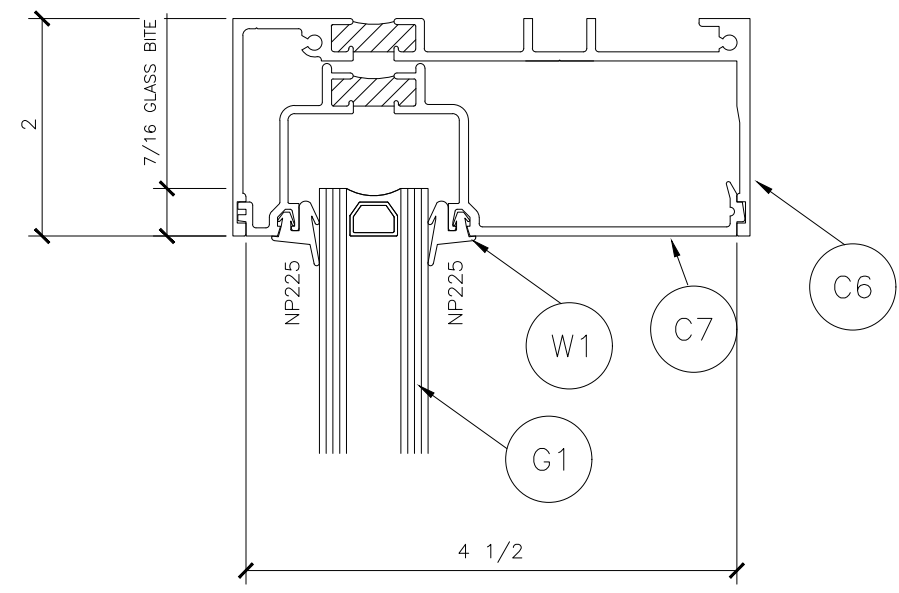
DATE: 12/4/2019

DRAWN BY: RA

CHECKED BY: XX

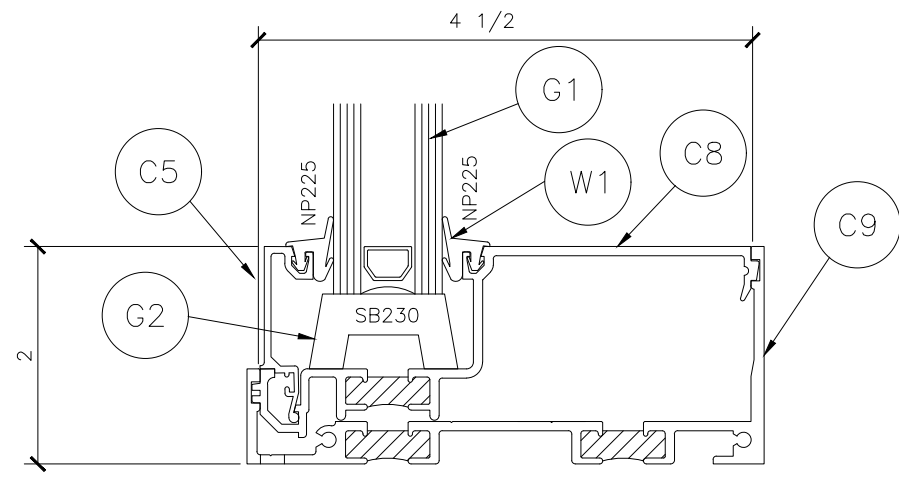
SCALE: AS SHOWN

JOB #: PTC891583



④ SECTION DETAIL AT HEAD

ITEM		PT. NO.	PART DESCRIPTION
C1	FRAME & SASH COMPONENTS	OT652	WALL JAMB
C2		FF561	MALE EXPANSION MULLION
C3		FF569	FEMALE EXPANSION MULLION
C4		PV100	PVC JAMB FILLER
C5		OG539	SILL FACE PLATE
C6		OT668	HEAD CHANNEL (EXT. GLAZE)
C7		OT666	HEAD INSERT (EXT. GLAZE)
C8		OT676	SILL INSERT (EXT. GLAZE)
C9		OT662	SILL CHANNEL (EXT. GLAZE)
	WEATHERSTRIP		
W1		NP225	GASKET
W2		WB452	"W" EDGE BLOCK
W3	VS200		
	GLAZING		
G1			1/4" TEMPERED GLASS - 1/2" AIR FILLED ALUM SPACER - 1/4" TEMPERED GLASS
G2	SB230	SETTING BLOCK SILL	



⑤ SECTION DETAIL AT SILL



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Lake Forest, California 92630

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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	12/06/19	N/A	Original Report Issue
1	12/18/19	12,13,14	Add Unit Drawings