

# CR LAURENCE CO. INC.

## ACOUSTICAL PERFORMANCE TEST REPORT

### SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A 3252, CURTAIN WALL

### REPORT NUMBER

K0598.01-303-11-R1

### TEST DATE

11/20/19

### ISSUE DATE

12/06/19

### REVISION DATE

12/18/19

### RETENTION DATE

11/26/23

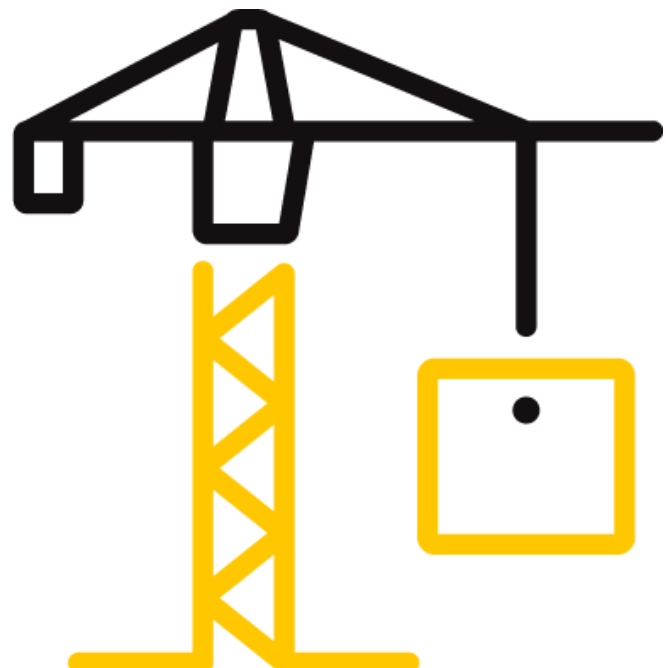
### PAGES

15

### DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2761 (01/24/19)

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## TEST REPORT FOR CR LAURENCE CO. INC.

Report No.: K0598.01-303-11-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:

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

MTRSR: LSH

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### SECTION 2

#### SUMMARY OF TEST RESULTS

<b>SERIES/MODEL</b>	3252
<b>TYPE</b>	Curtain Wall
<b>GLAZING (Nominal Dimensions)</b>	1" IG (1/4" Tempered Exterior, 1/2" Air Space, 1/4" Tempered Interior)
<b>DATA FILE NO.</b>	K0598.01A
<b>STC</b>	32
<b>OITC</b>	26

### 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 <sup>3</sup>	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	196 m <sup>3</sup>	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	7-1/4"
CORNERS	Butted
FASTENERS	Screws
SEAL METHOD	N/A
MATERIAL	Aluminum
REINFORCEMENT	N/A
THERMAL BREAK MATERIAL	Insulbar
DAYLIGHT OPENING SIZE (X2)	35-1/2" by 73-1/2"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	0.949"
SPACER TYPE	Aluminum Box

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.219"	0.510"	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 Gasket/Polyamide Pressure Bar With Aluminum Cap

	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 <sup>2</sup> )
324	7.52

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

Photographs are included in Section 11.

A drawing of the test specimen is included in Section 12.

## TEST REPORT FOR CR LAURENCE CO. INC.

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### SECTION 10

#### TEST RESULTS

#### ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS



<b>TEST DATE</b>	11/20/19				
<b>DATA FILE NO.</b>	K0598.01A				
<b>CLIENT</b>	CR Laurence Co. Inc.				
<b>DESCRIPTION</b>	Series/Model: 3252 Curtain Wall With 1" IG (1/4" Tempered Exterior, 1/2" Air Space, 1/4" Tempered Interior)				
<b>SPECIMEN AREA</b>	4.00 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	20.4 °C	<b>SOURCE TEMP</b>	20.0 °C
<b>TECHNICIAN</b>	Marco T Sant	<b>RECEIVE HUMIDITY</b>	42%	<b>SOURCE HUMIDIT</b>	43%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m <sup>2</sup> )	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	41.4	4.6	103	77	26	1.78	-
100	35.6	4.9	102	79	22	1.00	-
125	42.0	5.2	102	80	21	1.16	0
160	42.7	5.2	103	78	24	0.97	0
200	36.1	6.6	106	88	16	0.90	6
250	26.4	7.2	107	82	22	0.59	3
315	27.9	7.1	106	81	22	0.38	6
400	32.8	6.2	105	75	28	0.33	3
500	21.0	5.5	106	76	28	0.50	4
630	17.6	6.1	106	75	30	0.21	3
800	20.5	5.9	105	70	33	0.34	1
1000	13.9	5.8	106	69	36	0.20	0
1250	11.8	6.0	105	65	38	0.19	0
1600	5.5	6.7	103	64	37	0.21	0
2000	3.9	8.0	101	65	33	0.21	3
2500	3.7	9.0	101	63	35	0.31	1
3150	4.2	10.4	100	55	41	0.20	0
4000	4.8	12.9	97	47	44	0.25	0
5000	5.4	16.9	92	37	49	0.62	-
<b>STC RATING</b>	32 (Sound Transmission Class)						
<b>DEFICIENCIES</b>	30 (Sum of Deficiencies)						
<b>OITC RATING</b>	26 (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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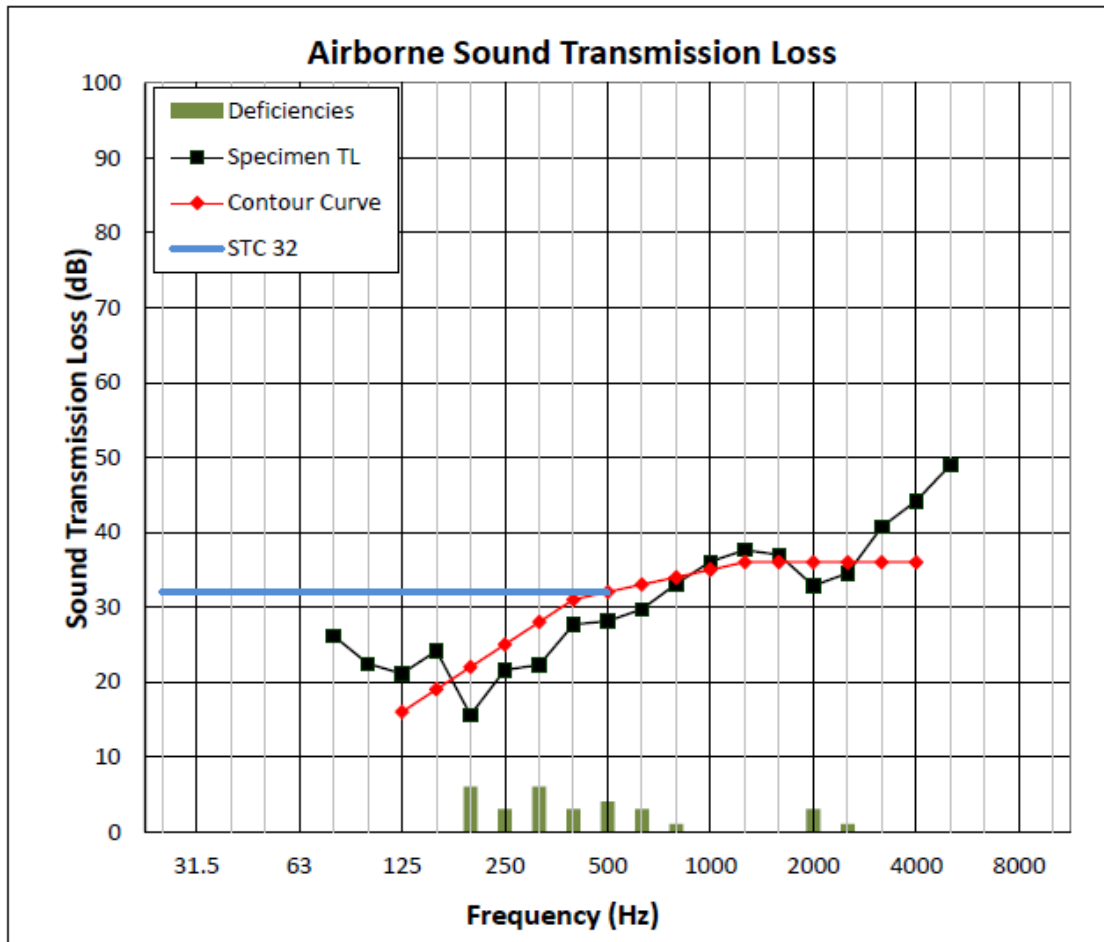
Report No.: K0598.01-303-11-R1

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### ASTM E90 AIRBORNE SOUND TRANSMISSION LOSS



<b>TEST DATE</b>	11/20/19				
<b>DATA FILE NO.</b>	K0598.01A				
<b>CLIENT</b>	CR Laurence Co. Inc.				
<b>DESCRIPTION</b>	Series/Model: 3252 Curtain Wall With 1" IG (1/4" Tempered Exterior, 1/2" Air Space, 1/4" Tempered Interior)				
<b>SPECIMEN AREA</b>	4.00 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	20.4 °C	<b>SOURCE TEMP</b>	20.0 °C
<b>TECHNICIAN</b>	Marco T Sant	<b>RECEIVE HUMIDITY</b>	42%	<b>SOURCE HUMIDIT</b>	43%



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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

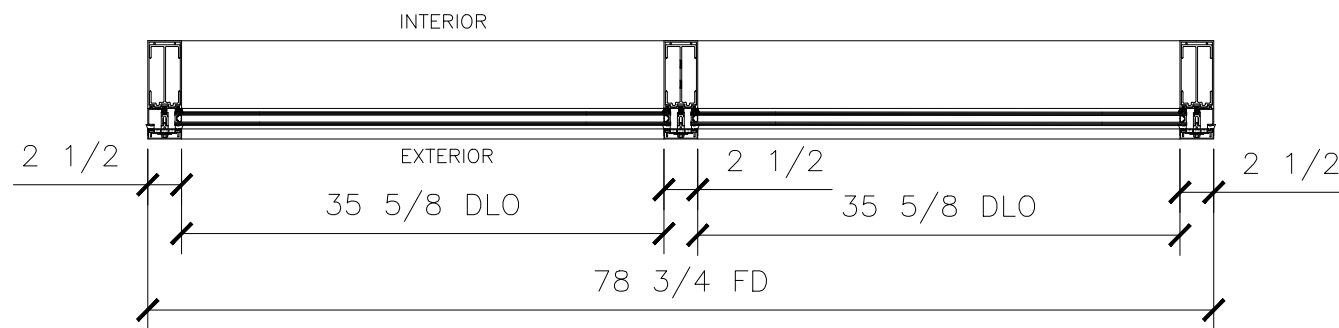
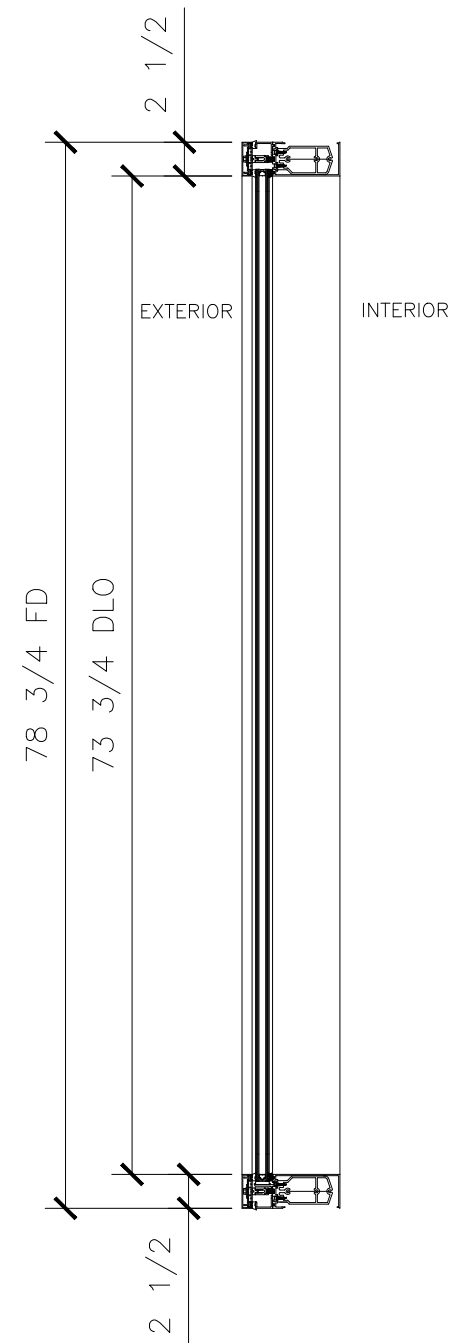
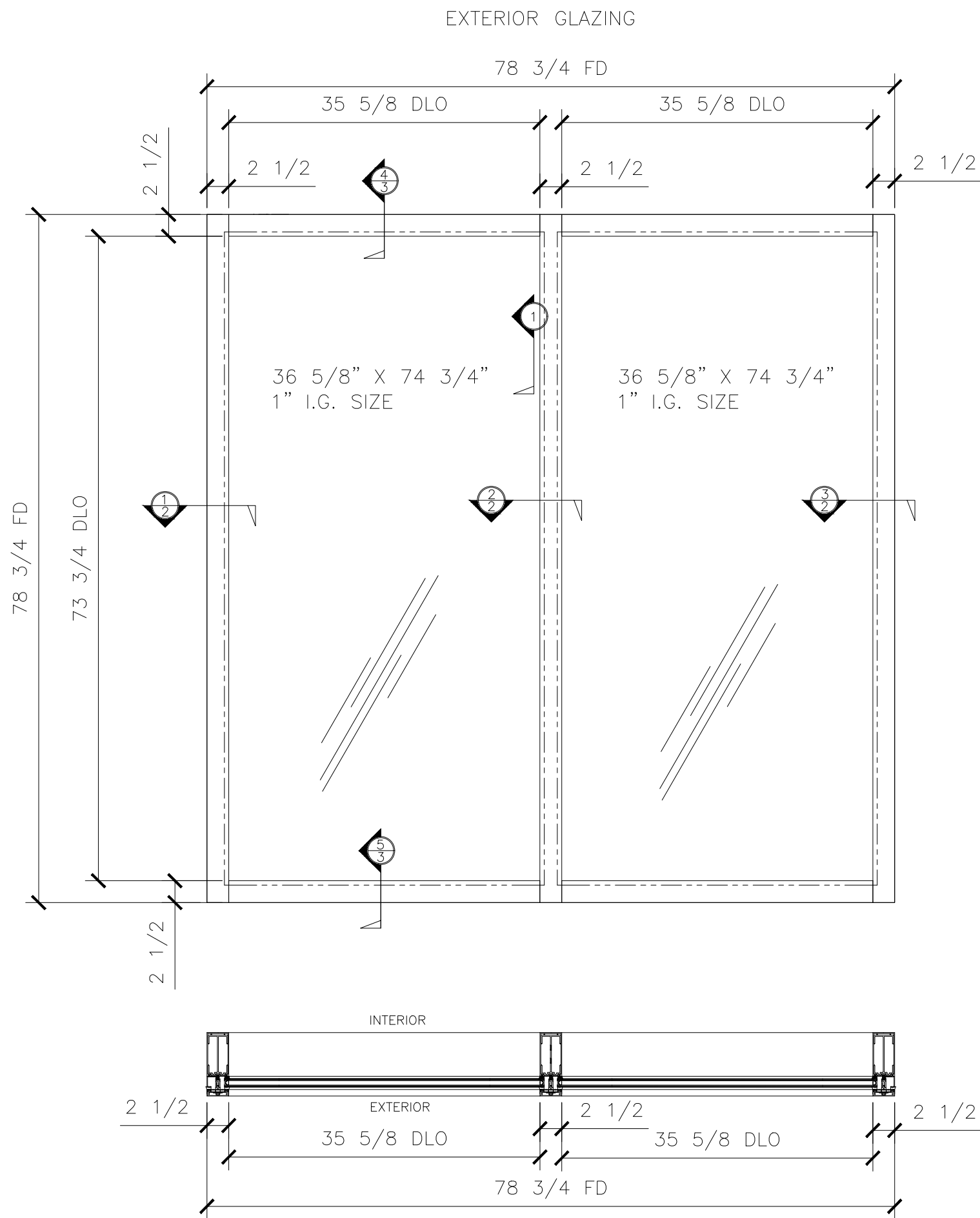
Telephone: 949-460-9600  
Facsimile: 717-764-4129  
[www.intertek.com/building](http://www.intertek.com/building)

**TEST REPORT FOR CR LAURENCE CO. INC.**

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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 3252  
EXTERIOR GLAZED  
CURTAIN WALL SYSTEM

Glazing Contractor:

DATE: 12/6/2019  
DRAWN BY: RA  
CHECKED BY: XX  
SCALE: AS SHOWN  
JOB #: PTC844560



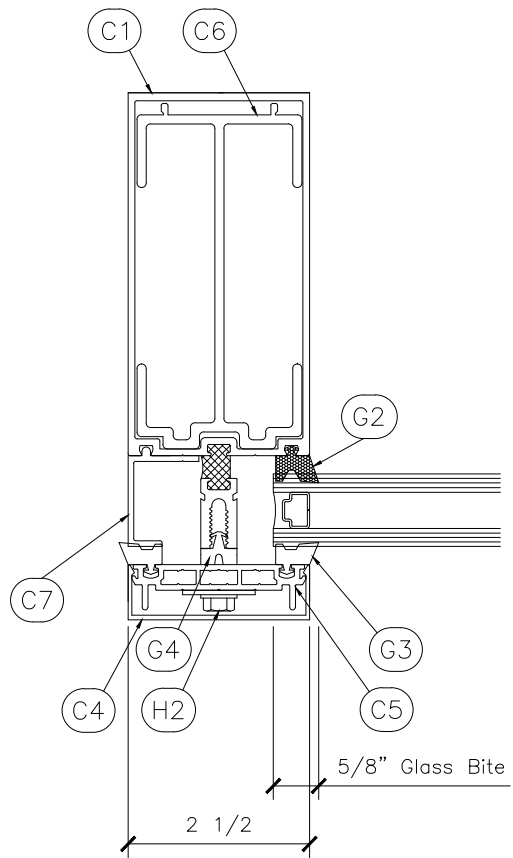
C.R. LAURENCE CO.  
ARCHITECTURAL PRODUCTS  
2100 E. 38TH Street, Los Angeles, CA 90058  
www.crlaurence.com

SERIES 3252  
EXTERIOR GLAZED  
CURTAIN WALL SYSTEM

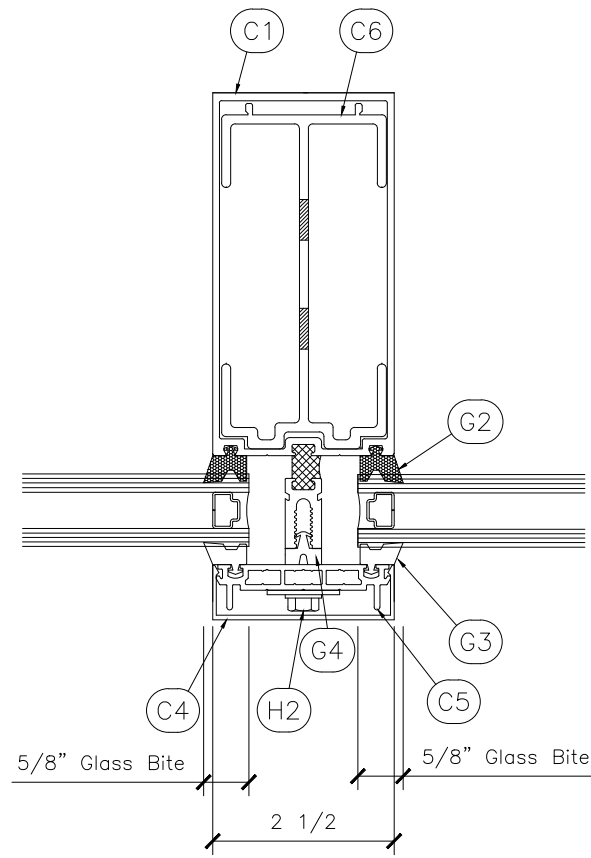
Job Name:

Glazing Contractor:

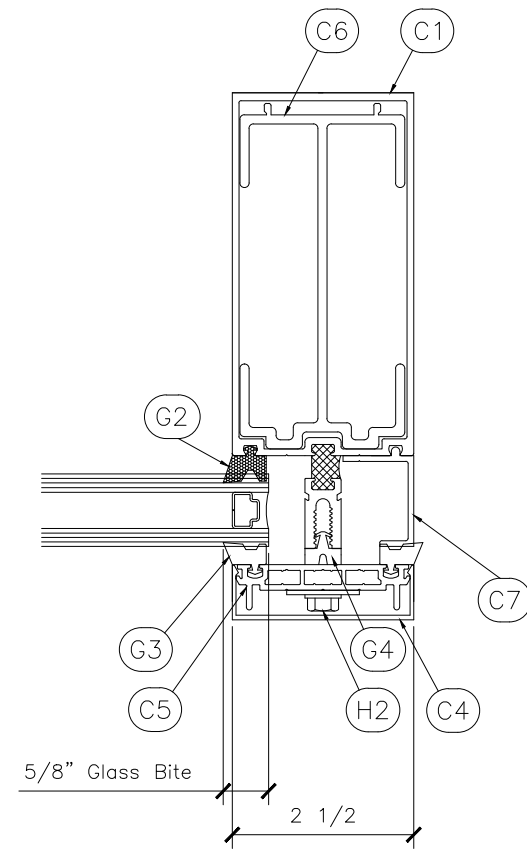
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DRAWN BY: RA  
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SCALE: AS SHOWN  
JOB #: PTC844560



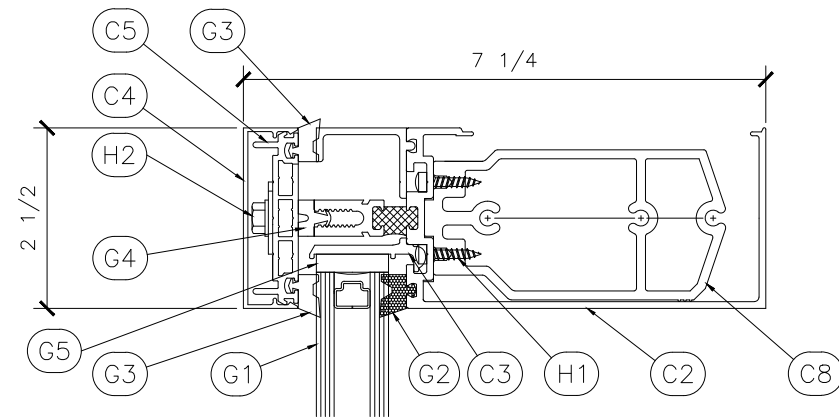
① SECTION DETAIL – JAMB



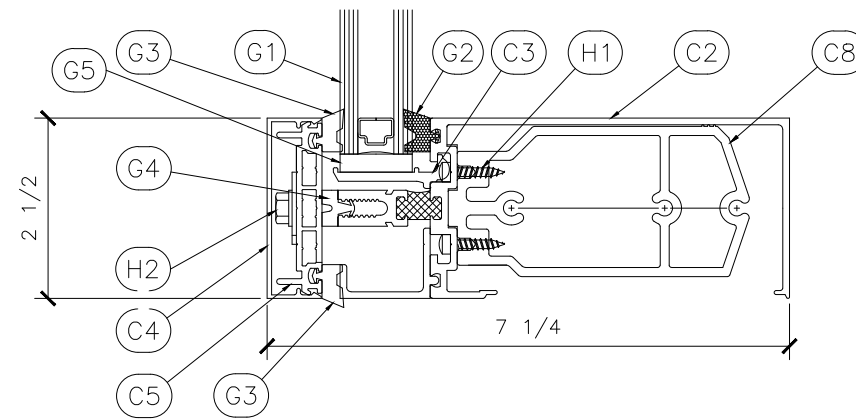
② SECTION DETAIL – VERT. MULL.



③ SECTION DETAIL – JAMB



④ SECTION DETAIL – UPPER HORIZONTAL



⑤ SECTION DETAIL – LOWER HORIZONTAL

ITEM		PT. NO.	PART DESCRIPTION
C1	FRAME & SASH COMPONENTS	PT905	VERT. MULLION
C2		PT927	HORZ. MULLION-5" O.B.
C3		SC927	SETTING CHAIR
C4		PW901	F-CAP
C5		TB927	POLYAMIDE PRESSURE BAR
C6		SL945	MULLION SPLICE SLEEVE
C7		PC931	GLAZ'G. ADAPTER-PERIMETER BAR
C8		AP947	SHEAR BLOCK
G1	GLAZING	1/4" TEMP X 1/2" AIR X 1/4" TEMP INSULATED GLASS - ALUMINUM SPACER - DUAL GLAZED	
G2		NP930	INT. GLAZING GASKET
G3		NP927	EXT. GLAZING GASKET
G4		NP928	PRESSURE BAR GASKET
G5		SB577	SETTING BLOCK-80 DUROMETER
G6		AW901	EDGE BLOCK
H1	HARDWARE	ST933	8A X 3/4", PHL, FH, SMS Z.P.
H2		MS24000	1/4-20 X 1.25, HWH W/SER, CP Z.P.



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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