



TEST REPORT

Report No.: G9949.01-303-47

Rendered to:

CR LAURENCE CO., INC.
Vernon, California

PRODUCT TYPE: Fixed Lite Storefront System
SERIES/MODEL: IT451

Title	Summary of Results
Design Pressure	±1440 Pa (±30.08 psf)
Air Infiltration at 1.57 psf	0.3 L/s/m ² (0.06 cfm/ft ²)
Air Infiltration at 6.27 psf	0.1 L/s/m ² (0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)
Uniform Load Structural Test Pressure	±2160 Pa (±45.11 psf)

Reference must be made to Report No. G9949.01-303-47, dated 07/17/17 for complete test specimen description and detailed test results.

1.0 Report Issued To: CR Laurence Co., Inc.
2100 East 38th Street
Vernon, California 90058

2.0 Test Laboratory: Architectural Testing, Inc., an Intertek company ("Intertek-ATI")
25800 Commercentre Drive
Lake Forest, California 92630
949-460-9600

3.0 Project Summary:

3.1 Product Type: Fixed Lite Storefront System

3.2 Series/Model: IT451

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. Test specimen description and results are reported herein.

3.4 Test Date: 04/05/17

3.5 Test Record Retention End Date: All test records for this report will be retained until April 5, 2021.

3.6 Test Location: CR Laurence Co., Inc. test facility in Vernon, California. Calibration of test equipment was performed by Intertek-ATI in accordance with AAMA 205-15 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.7 Test Specimen Source: The test specimen was provided by the client. Representative samples of the test specimen were retained by the customer.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Intertek-ATI and are representative of the test specimen reported herein. Test specimen drawings are located in Appendix B.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Garrett Osterode	CR Laurence Co., Inc.
Jarod S. Hardman	Intertek-ATI

4.0 Test Methods:

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

ASTM E330/E330M-14, *Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E331-00 (2009), *Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

AAMA 501-15, *Methods of Test for Exterior Walls*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 11.8 m ² (127.5 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	4318	170	2743	108

5.2 Frame Construction:

Frame Member	Material	Description
Head	Aluminum	4" head anchor, Part No. HT250, see attached Drawing Sheet 2.
Head and jambs	Aluminum	Head and jamb mullion, Part No. 1T442, see attached Drawing Sheet 2.
Horizontal mullion	Aluminum	Part No. 1T423, see attached Drawing Sheet 2.
Sill	Aluminum	Sub sill, Part No. FT400, see attached Drawing Sheet 2.
Sill	Aluminum	Part No. 1T433, see attached Drawing Sheet 2.
Jamb	Aluminum	Insert-Slotted, Part No. IX200 with end caps Part No. EC450, see attached Drawing Sheet 2.
Vertical mullion	Aluminum	IT572/IT570 vertical, Unitized Expansion Mullion-Male, Part No. IT572, see attached Drawing Sheet 2.

5.0 Test Specimen Description: (Continued)

Frame Member	Material	Description
Vertical mullion	Aluminum	IT572/IT570 vertical, Unitized Expansion Mullion-Female, Part No. IT570, see attached Drawing Sheet 2.
Vertical mullion	Aluminum	IT470/IT479 vertical, Unitized Expansion Mullion-Male, Part No. IT470, see attached Drawing Sheet 2.
Vertical mullion	Aluminum	IT470/IT479 vertical, Unitized Expansion Mullion-Female, Part No. IT479, see attached Drawing Sheet 2.
Vertical mullion	Aluminum	IT569/IT566 vertical, Unitized Mullion-Female, Part No. IT569, see attached Drawing Sheet 2.
Vertical mullion	Aluminum	IT569/IT566 vertical, Unitized Mullion-Male, Part No. IT566, see attached Drawing Sheet 2.

	Joinery Type	Detail
All corners	Flush	Secured through jambs and vertical mullions into horizontals with two #10 x 3/4" sheet metal screws at each union.

5.3 Reinforcement: No reinforcement was utilized.

5.4 Weatherstripping:

Description	Quantity	Location
Vinyl Isolator 2-Finer	1 row	Inserted into the vertical mullion at interior and exterior face of IT572/IT570 interface and IT470/IT479 interface, see attached Drawing Sheet 2.

5.0 Test Specimen Description: (Continued)

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
1" IG	Aluminum Spacer – Dual Seal (A1-D)	1/4" Clear Tempered	1/4" Clear Tempered	Dry glazed with neoprene setting blocks and press in gasket (Part No. NP225) at interior and exterior face of glazing with glazing stop (Part No. IM453) snap fit at exterior face.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Upper fixed lite	4	1016 x 1524	40 x 60	1/2"
Lower fixed lite	4	1016 x 860	40 x 33-7/8	1/2"

5.6 Drainage:

Method	Size	Quantity	Location
Weep Hole	1/8" x 1-1/4"	8	Through exterior face of sill at 6" from corner and 24" on center spacing.

5.7 Hardware: No hardware was utilized.

5.8 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/2" shim space. The exterior and interior perimeters of the window were sealed with Dow Corning 795 silicone sealant.

Location	Anchor Description	Anchor Location
Through head and sill	3/8" x 2" lag screw	6" from corner and 18" on center spacing

7.0 Test Results: The temperature range during testing was between 21°C (70°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Uniform Load Preload, per ASTM E330 +720 Pa (+15.04 psf)	-	-	2, 3
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	0.3 L/s/m ² (0.06 cfm/ft ²)	0.3 L/s/m ² (0.06 cfm/ft ²) max.	1
Air Leakage, Infiltration per ASTM E283 at 300 Pa (6.27 psf)	0.1 L/s/m ² (0.01 cfm/ft ²)	0.3 L/s/m ² (0.06 cfm/ft ²) max.	1
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E330 Deflections taken at vertical mullion +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	10.4 mm (0.41") 10.9 mm (0.43")	15.5 mm (0.61") max. 15.5 mm (0.61") max.	3
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	0.3 L/s/m ² (0.06 cfm/ft ²)	0.3 L/s/m ² (0.06 cfm/ft ²) max.	1
Air Leakage, Infiltration per ASTM E283 at 300 Pa (6.27 psf)	0.1 L/s/m ² (0.01 cfm/ft ²)	0.3 L/s/m ² (0.06 cfm/ft ²) max.	1
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Structural, per ASTM E330 Permanent sets taken at vertical mullion +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	4.8 mm (0.19") 2.0 mm (0.08")	5.3 mm (0.21") max. 5.3 mm (0.21") max.	3, 4

7.0 Test Results: (Continued)

General Note: *All testing was performed in accordance with the referenced standard(s).*

Note 1: Test Date 04/05/17 / Time: 08:00 AM

Note 2: Preload procedure per AAMA 501-15

Note 3: Loads were held for 10 seconds.

Note 4: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period.

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 Intertek-ATI.

For ARCHITECTURAL TESTING, INC.:

Jarod S. Hardman
Laboratory Manager

JSH:ec/ss

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

Appendix A: Location of air seal (1)

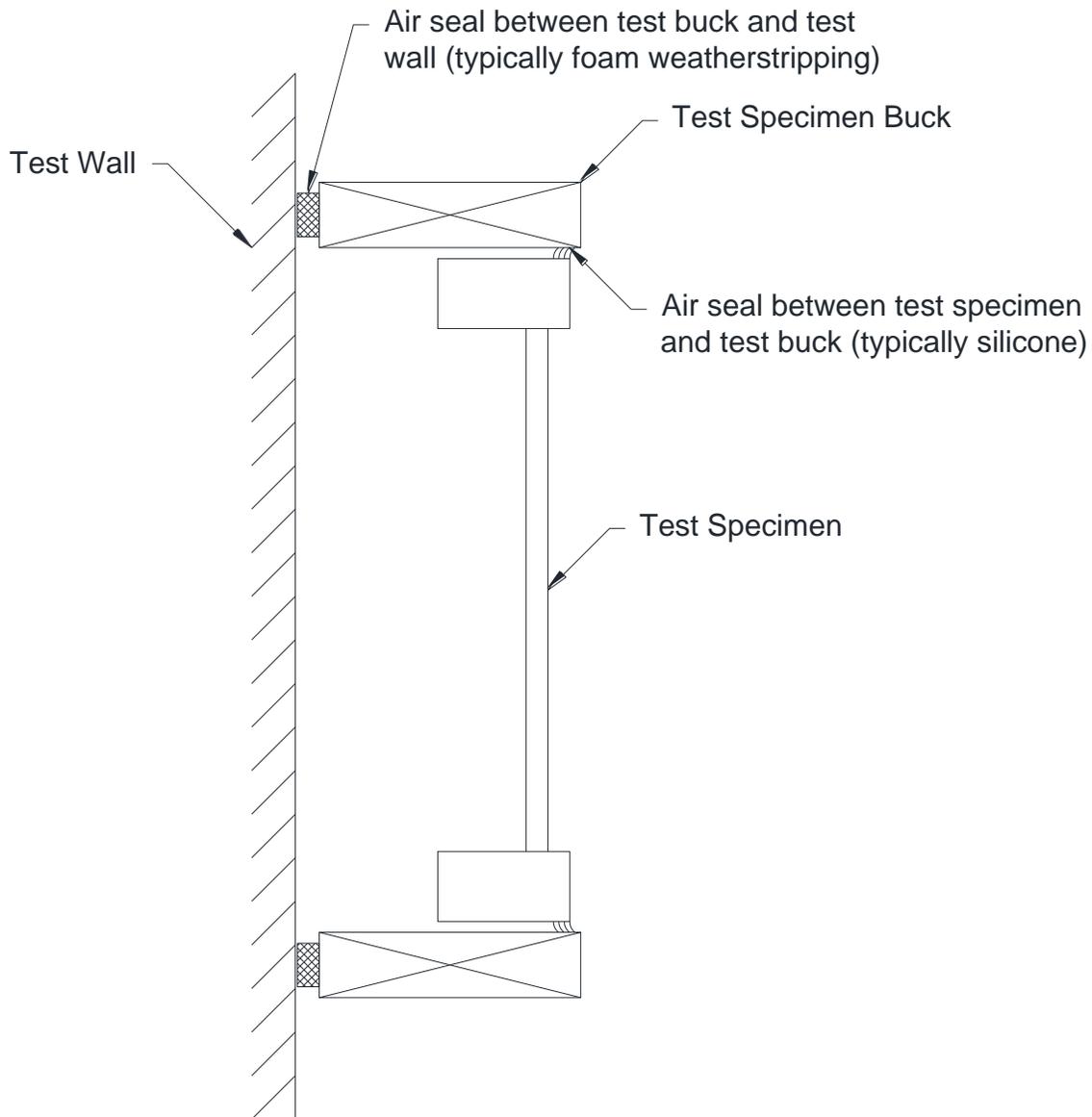
Appendix B: Drawings (3)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	04/11/17	N/A	Original report issue.
1	07/17/17	Appendix B	Revision to drawing page 3 to show proper screw penetration at sill.

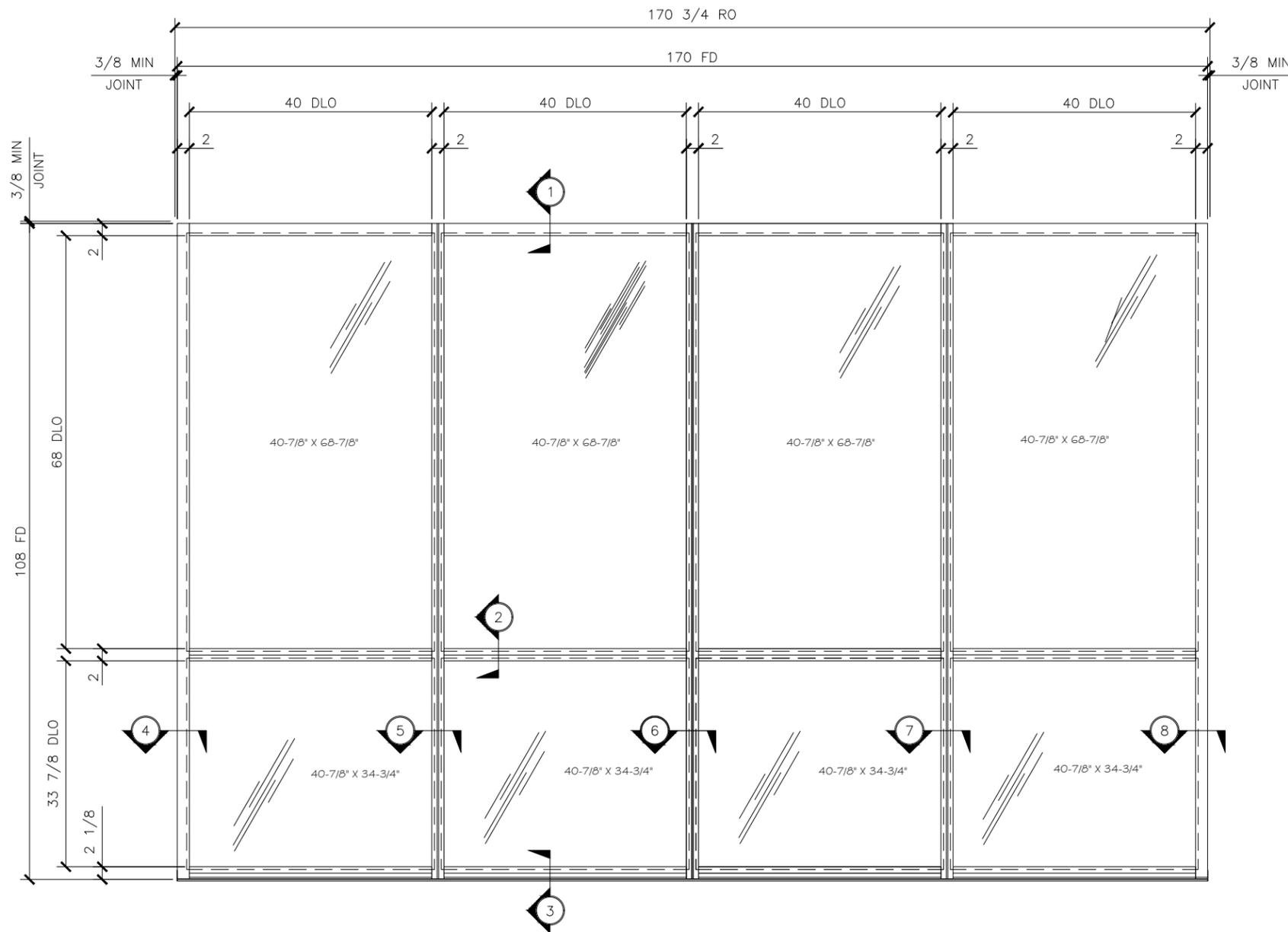
Appendix A

Location of Air Seal: The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



Appendix B

Drawings



ITEM		PT. NO.	PART DESCRIPTION
C1	FRAME COMPONENTS	1T442	HEAD/JAMB MULLION
C2		1T433	SILL
C3		FT400	SUB-SILL
C4		IM453	GLASS STOP
C5		IX200	INSERT-SLOTTED 1" I.G.
C6		IT572	UNITIZED EXPANSION MULLION-MALE
C7		IT570	UNITIZED EXPANSION MULLION-FEMALE
C8		HT250	HEAD ANCHOR-4"
C9		1T423	HORIZONTAL
C10		IT470	UNITIZED EXPANSION MULLION-MALE
C11		IT479	UNITIZED EXPANSION MULLION-FEMALE
C12		IT569	UNITIZED MULLION-FEMALE
C13		IT566	UNITIZED MULLION-MALE
W1	WTHR STRIP	NP225	GLASS GASKET
W2		VS200	VINYL ISOLATOR-2 FINGER
W3			
G1	GLASS		.025 X .050 X .025 INSULATED GLASS (TEMPERED) ALUMINUM SPACER DUAL GLAZED
G2		SB200	NEOPRENE SETTING BLOCK
G3		WB452	"W" ANTI-WALK-BLK
H2	HARDWARE	ST25200	#10ABX1-3/4.PHL.PH.SMS.ZP
H3		-----	3/8" X 2" LAG SCREWS
H4		EC450	END CAP
H5		HT250	"F"-CLIPS
H6			
H7			
H8			
H9		-----	3/8" X 2" LAG SCREWS
S1		EF12C	1/2" CLOSED CELL BACKER ROD
S2	DOW795	DOW CORNING STRUCTURAL BUILDING SILICONE	

TEST REQUIREMENTS

AIR INFILTRATION:
 <0.06 CFM/SQ.FT. @ 6.24 PSF

STATIC WATER:
 <12 Psf.

DESIGN PRESSURE:
 30 PSF

STRUCTURAL OVERLOAD:
 45 PSF

TESTING SEQUENCE:
 Pre Load
 Air
 Water
 Design Pressure
 Air
 Water
 Structural Overload

REVISIONS



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

IT 451 SERIES

Job Name:

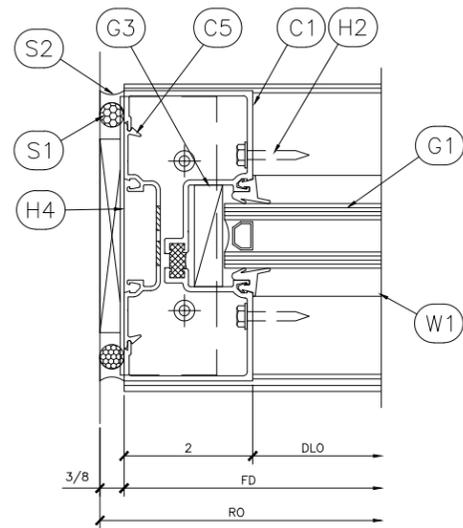
Glazing Contractor:

DATE: 9.7.2016
 DRAWN BY: GDO
 CHECKED BY: XX
 SCALE: AS SHOWN
 JOB #: PTC590981

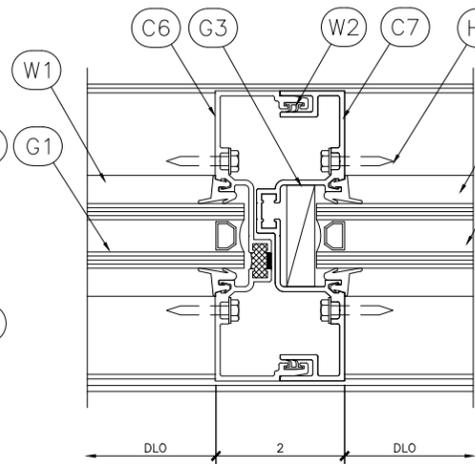


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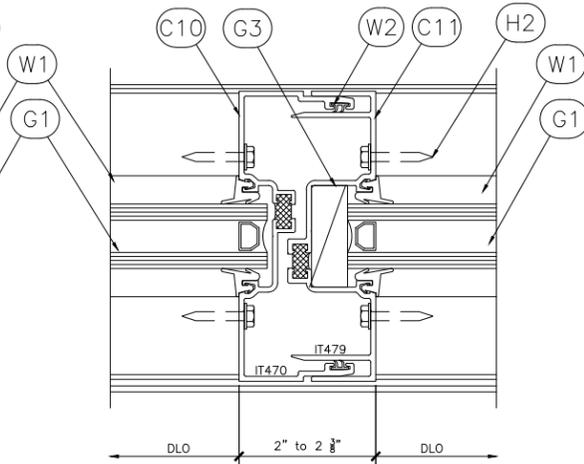
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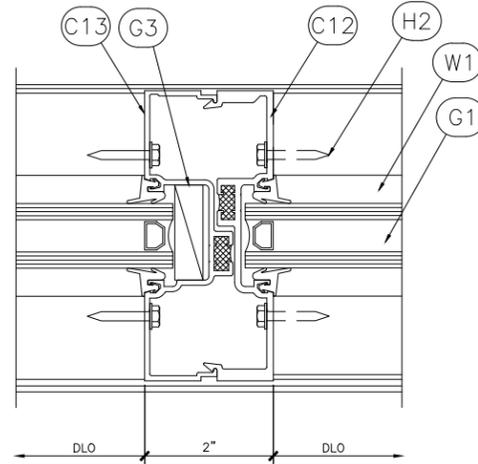
SECTION DETAIL AT JAMB ④



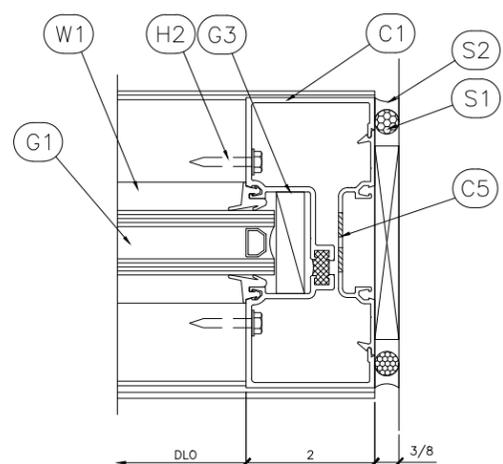
SECTION DETAIL AT IT572/IT570 VERTICAL ⑤



SECTION DETAIL AT IT470/IT479 VERTICAL ⑥



SECTION DETAIL AT IT569/IT566 VERTICAL ⑦



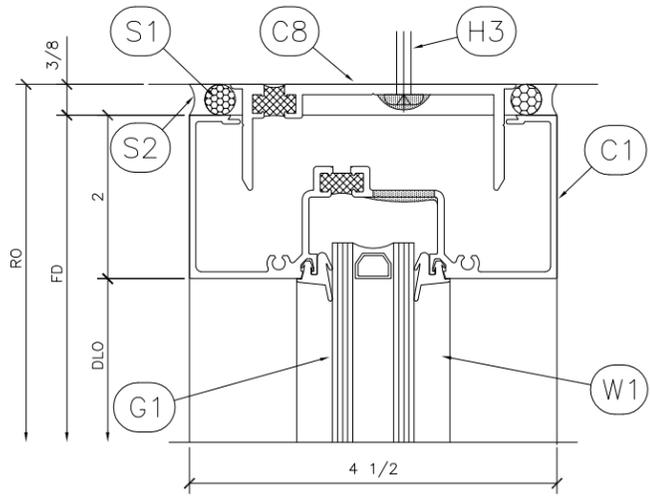
SECTION DETAIL AT JAMB ⑧

IT 451 SERIES

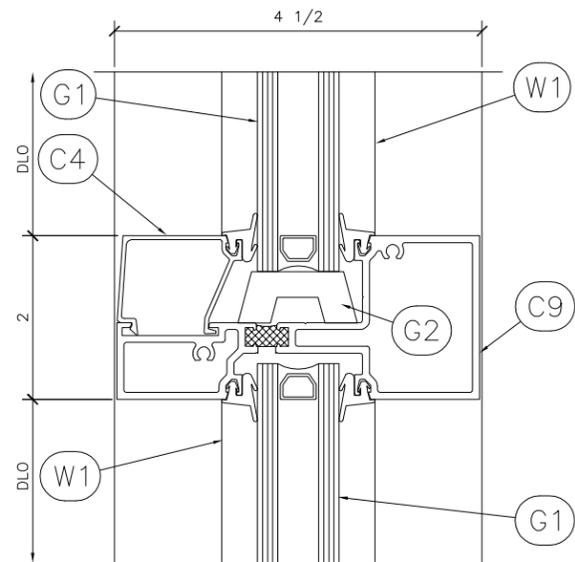
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Glazing Contractor:

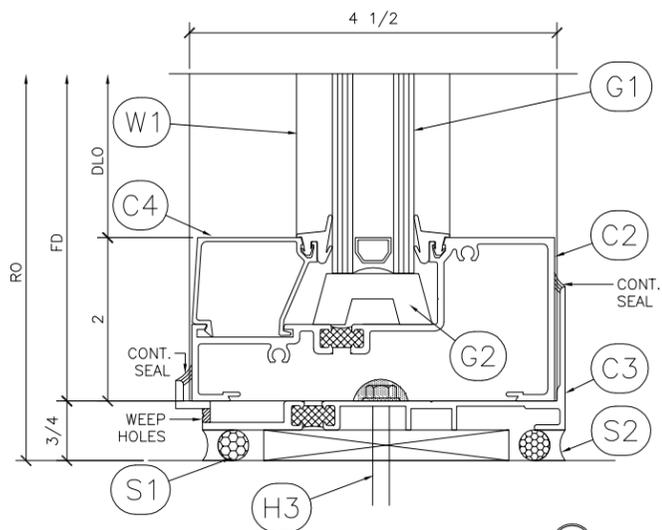
DATE: 9.7.2016
DRAWN BY: GDO
CHECKED BY: XX
SCALE: AS SHOWN
JOB #: PTC590981



SECTION DETAIL AT HEAD ①



SECTION DETAIL AT INTERMEDIATE HORIZONTAL ②



SECTION DETAIL AT SILL ③

REVISIONS



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