TEST REPORT

Report No.: F5054.01-301-47

Rendered to:

CR LAURENCE CO., INC.
Vernon, California

PRODUCT TYPE: Store Front
SERIES/MODEL: TT601

Title	Summary of Results
Design Pressure	±1920 Pa (±40.10 psf)
Air Infiltration	0.1 L/s/m^2 (0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Reference must be made to Report No. F5054.01-301-47, dated 04/05/16 for complete test specimen description and detailed test results.

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

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

3.0 Project Summary:

3.1 Product Type: Store Front

3.2 Series/Model: TT601

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: 02/09/16

3.5 Test Record Retention End Date: All test records for this report will be retained until February 9, 2020.

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 205-01 "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 will not be retained by Intertek-ATI, customer opted to hold on to specimen.

3.8 Drawing Reference: The test specimen drawings were not reviewed by Intertek-ATI because of customer holding on to specimen. Drawings showing specimen construction are located in Appendix C.

3.9 List of Official Observers:

Name	Company
Garrett Osterode	CR Laurence Co., Inc.
Ron Wooten	CR Laurence Co., Inc.
Jarod 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: 10.13 m^2 (109.02 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	3310	130-5/16	3060	120-15/32

5.2 Frame Construction:

Frame Member	Material	Description
Head	Aluminum	Head compensation channel, Part No. RT63011, with aluminum glazing bead Part No. RW62211.
Head	Aluminum	Header extrusion, Part No. RT65211, with aluminum glass stop Part No. RW65311.
Horizontal mullion	Aluminum	Horizontal mullion, Part No. RT66311, with aluminum glass stop Part No. RW65311.
Sill	Aluminum	Sub sill extrusion, Part No. FF70011.
Sill	Aluminum	Sill extrusion, Part No. RT66411.

5.0 Test Specimen Description: (Continued)

5.2 Frame Construction: (Continued)

Frame Member	Material	Description
Jamb	Aluminum	Vertical jamb mullion, Part No. RT65511, with aluminum vertical mullion caps.
Vertical mullion	Aluminum	Splayed mullion, Part No. RT69311.
Vertical mullion	Aluminum	Post mullion, Part No. RT69111.
Sill	Aluminum	End dam, Part No. EC806.

	Joinery Type	Detail
All corners	Flush	Secured through jambs at frame corners with #8 x 5/8" Phillips Tek screws and through vertical mullions with #10 x 1" Phillips washer head sheet metal screws.

5.3 Reinforcement: No reinforcement was utilized.

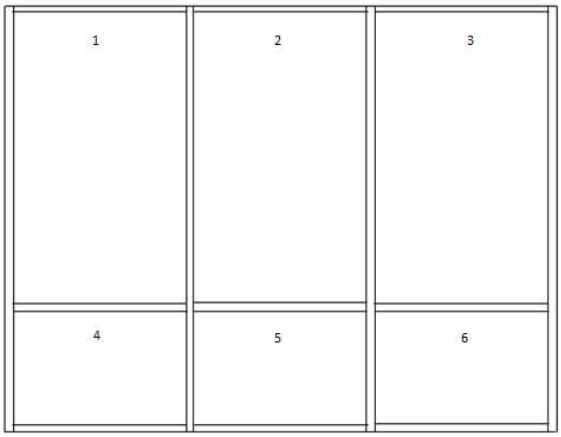
5.4 Weatherstripping: No weatherstripping was utilized.

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen 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 system with roll in gasket

5.0 Test Specimen Description: (Continued)

5.5 Glazing: (Continued)



Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Upper fixed lite (1)	1	1005 x 2030	39-9/16 x 79-15/16	1/2"
Upper fixed lite (2)	1	1005 x 2030	39-9/16 x 79-15/16	1/2"
Upper fixed lite (3)	1	1005 x 2030	39-9/16 x 79-15/16	1/2"
Lower fixed lite (4)	1	1005 x 792	39-9/16 x 31-3/16	1/2"
Lower fixed lite (5)	1	1005 x 793	39-9/16 x 31-7/32	1/2"
Lower fixed lite (6)	1	1005 x 790	39-9/16 x 31-3/32	1/2"

5.6 Drainage:

Method	Size	Quantity	Location
Weep hole	1-1/4" x 1/8"	5	12" from the corner and 24" on center spacing

5.7 Hardware: No hardware was utilized.

6.0 Installation:

The specimen was installed into a Pine wood buck. The rough opening allowed for a 1/4" shim space. The interior and exterior perimeter of the window was sealed with silicone sealant.

Location	Anchor Description	Anchor Location
Comp channel	1/4" x 2-1/2" lag bolts	6" from the corners and 18" on center spacing

7.0 Test Results: The temperature during testing was 20°C (68°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Air Leakage, per ASTM E283 at 300 Pa (6.27 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	0.5 L/s/m^2 (0.1 cfm/ft^2) max.	
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Preload, per ASTM E330 +960 Pa (+20.05 psf)	-	-	1, 2
Air Leakage, per ASTM E283 at 300 Pa (6.27 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	0.5 L/s/m^2 (0.1 cfm/ft^2) max.	3
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	3
Uniform Load Deflection, per ASTM E330 Deflections taken at vertical mullion +1920 Pa (+40.10 psf) -1920 Pa (-40.10 psf)	 8.9 mm (0.35") 7.8 mm (0.31")	 16.5 mm (0.65") max. 16.5 mm (0.65") max.	 1, 2
Air Leakage, per ASTM E283 at 300 Pa (6.27 psf)	0.4 L/s/m^2 (0.08 cfm/ft^2)	0.5 L/s/m^2 (0.1 cfm/ft^2) max.	4
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	4
Uniform Load Structural, per ASTM E330 Permanent sets taken at vertical mullion +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	 0.5 mm (0.02") 0.8 mm (0.03")	 5.8 mm (0.23") max. 5.8 mm (0.23") max.	 1, 2

7.0 Test Results: (Continued)

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

Note 1: Loads were held for 10 seconds.

Note 2: Tape and film were to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Note 3: Test performed after the application of uniform load preload.

Note 4: Test performed after the application of uniform load deflection load.

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.:

Digitally Signed by: Jarod Hardman

Jarod S. Hardman
Laboratory Manager

JSH:ss

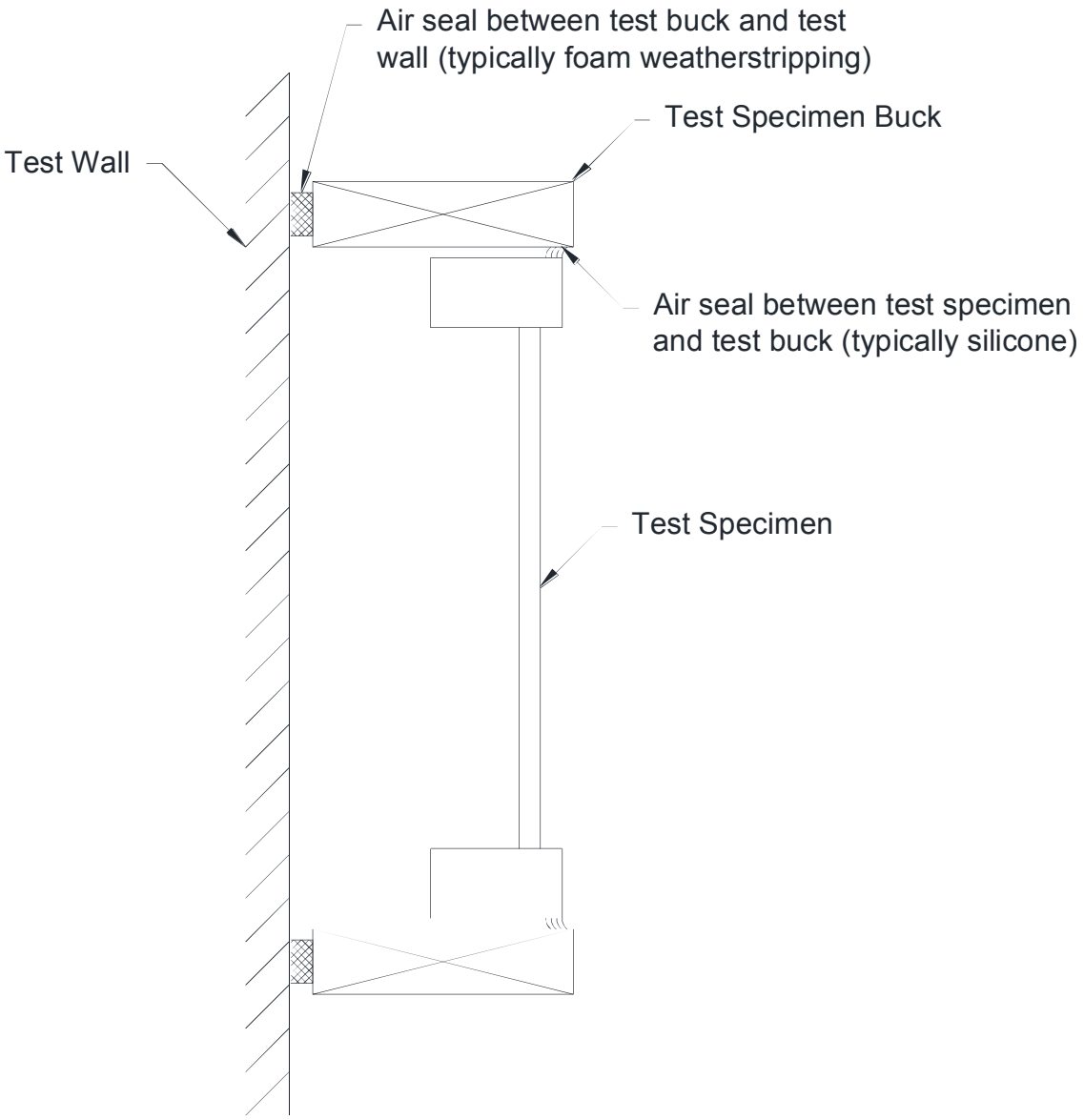
Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Location of air seal (1)
Appendix B: Drawings (13)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	03/09/16	N/A	Original report issue.
1	04/05/16	2	Corrected referenced test standard from AAMA 501.1 to AAMA 501

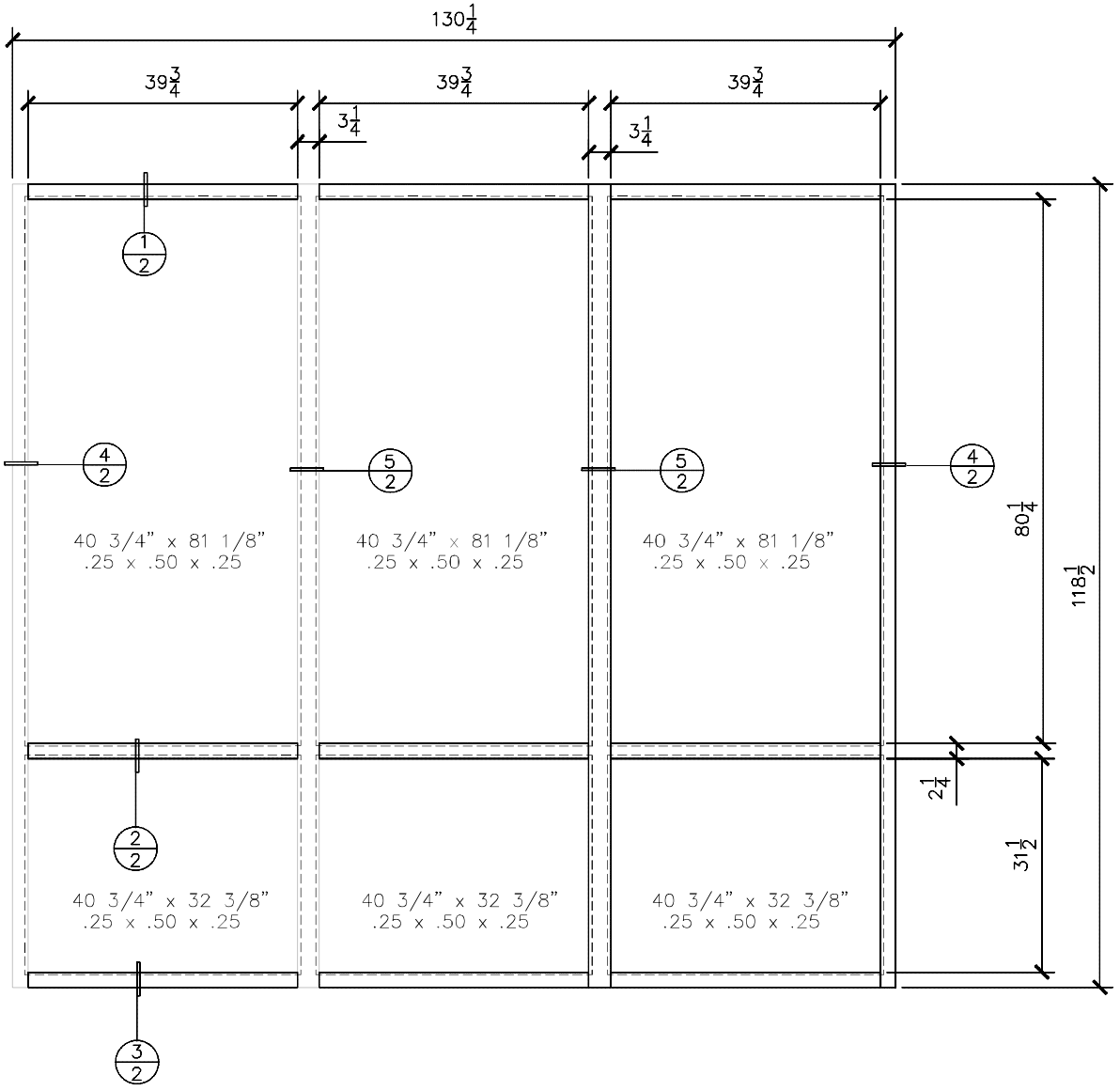
Appendix A

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				
C2	FRAME COMPONENTS	RT66411	CRL U.S. ALUMINUM SILL EXTRUSION	
C3		RT65211	CRL U.S. ALUMINUM HEADER EXTRUSION	
C4		RW65311	CRL U.S. ALUMINUM GLASS STOP	
C5		RT66311	CRL U.S. ALUMINUM HORIZONTAL MULLION	
C6		RT65511	CRL U.S. ALUMINUM VERTICAL JAMB MULLION	
C7		RT69311	CRL U.S. ALUMINUM 10" SPLAYED MULLION	
C8		RT69111	CRL U.S. ALUMINUM 10" POST MULLION	
C9		RT63011	CRL U.S. ALUMINUM HEAD COMPENSATION CHANNEL	
C10		RW60011	CRL U.S. ALUMINUM STIFFENER PLATES	
C11		EC806	CRL U.S. ALUMINUM END DAMS	
C12		----	CRL U.S. ALUMINUM VERTICAL MULLION CAPS	
C12		FT60011	CRL U.S. ALUMINUM FLUSH FILLER	
C13		FF70011	CRL U.S. ALUMINUM SUB SILL EXTRUSION	
C14		RW62211	CRL U.S. ALUMINUM GLAZING BEAD	
W1	WTHR. STRIP	NP425	CRL 1/2" EPDM SPONGE CURTAINWALL EXTERIOR GASKET	
W2		NP606	CRL CURTAINWALL GASKET	
W3		NP625	CRL EXT. GLAZING GASKET DURO 70 EDPM	
W4		VS200	CRL VINYL ISOLATOR	
G1	GLASS		.025 X .050 X .025 INSULATED GLASS (TEMPERED) ALUMINUM SPACER DUAL GLAZED	
G2		SB663	NEOPRENE SETTING BLOCK	
G3		SB334	CRL SETTING BLOCK - 1" GLAZING	
G4		RW667	SETTING BLOCK CHAIR	
H2	HARDWARE	EF12	CRL CLOSED CELL 1/2" DIA. BACKER ROD	
H3		95CBL	SILICONE BUILDING SEALANT	
H4		RTV408C	CRL CLEAR RTV408 NEUTRAL CURE SILICONE	
H5		----	1/4" X 2 1/2" LAG BOLT ASME B15.2.1 ZINC COATED ASTM 153	
H6				
S1		ST251	#10X1" PHILLIPS WASHER HEAD SMS TYPE AB	
S2		ST19011	#8X5/8" PHILLIPS OH. TEK. ZP.	
WD1	WTR. DIVRTR.	WD665	WATER DAM RT693	
WD3		WD669	WATER DAM RT655 JAMB	

TEST REQUIREMENTS

AIR INFILTRATION:
<.06 CFM/SQ.FT. @ 6.24 PSF

STATIC WATER:
6.24 PSF

STRUCTURAL DEFLECTION:
40 PSF (0.2% permenant set)

STRUCTURAL OVERLAOD:
60 PSF (0.2% permenant set)

TESTING SEQUENCE:
Static Ait
Static Water
Structural Deflection
Structural Overload

REVISIONS

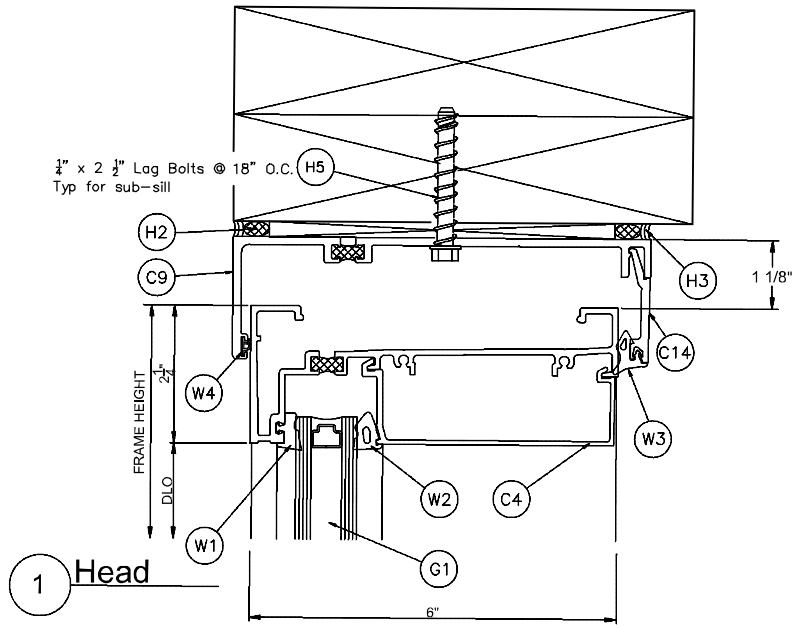
C.R.LAURENCE CO.
ARCHITECTURAL PRODUCTS
2100 E. 38TH Street, Los Angeles, CA 90058
www.crlaurence.com

Job Name: TT601 UNIT GLAZE SPLAYED MULLION

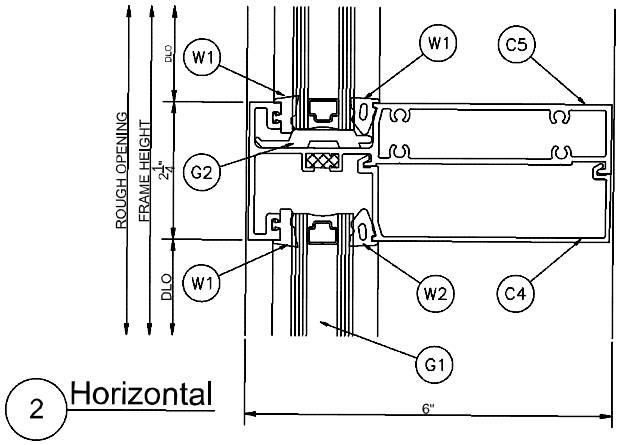
Glazing Contractor:

DATE:	4-1-2015
DRAWN BY:	GDO
CHECKED BY:	XX
SCALE:	AS SHOWN
JOB #:	PTC460326

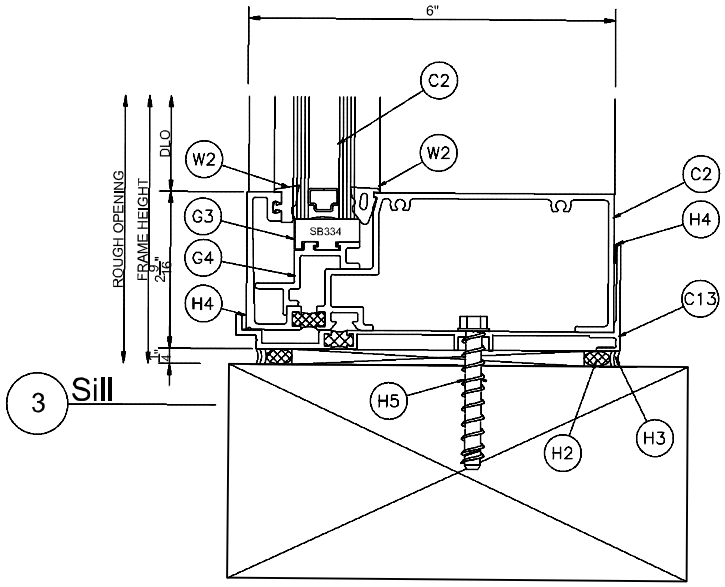
SHT 1 OF 4



1 Head



2 Horizontal

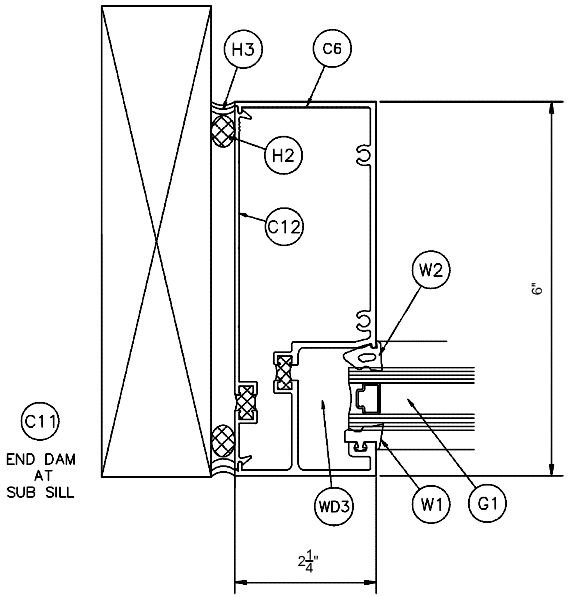


3 Sill

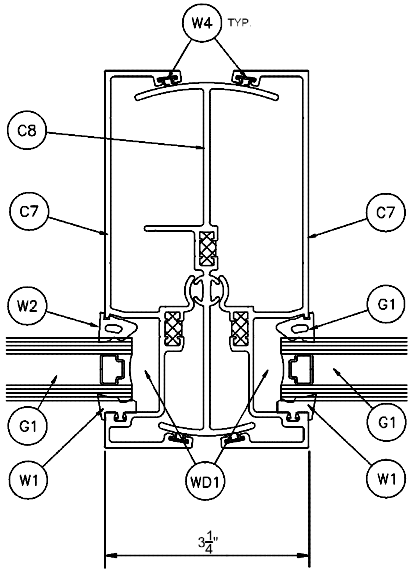
SHT 2 OF 4	Glazing Contractor:	Job Name: TT601 UNIT GLAZE SPLAYED MULLION	C.R.LAURENCE CO. ARCHITECTURAL PRODUCTS 2100 E. 38TH Street, Los Angeles, CA 90058 www.crlaurence.com

JOB #: PTC460326 | SCALE: AS SHOWN | CHECKED BY: XX | DRAWN BY: GDO | DATE: 4-1-2015

REVISIONS



4 Jamb
F&D-SKIP DEBRIDGE



5 Splayed Mullion
F&D-SKIP DEBRIDGE

REVISIONS

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SPLAYED MULLION

Glazing Contractor:

DATE:	4-1-2015
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SCALE:	AS SHOWN
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SHT 3 OF 4