



TEST REPORT

Report No.: E0631.01-301-47

Rendered to:

CR LAURENCE CO., INC.
Vernon, California

PRODUCT TYPE: Hopper (Projected Inward)
SERIES/MODEL: 7200

SPECIFICATION: AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class CW – PG75: Size Tested 1524 x 813 (60 x 32 in.) – Type AP
Design Pressure	±3600 Pa (±75.19 psf)
Air Infiltration	0.1 L/s/m ² (0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	540 Pa (11.28 psf)

Test Completion Date: 08/21/14

Reference must be made to Report No. E0631.01-301-47, dated 10/10/14 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.
4 Rancho Circle
Lake Forest, California 92630
949-460-9600

3.0 Project Summary:

3.1 Product Type: Hopper (Projected Inward)

3.2 Series/Model: 7200

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimen tested successfully met the performance requirements for a **Class CW – PG75: Size Tested 1524 x 813 (60 x 32 in.) – Type AP** rating.

3.4 Test Dates: 08/19/14 - 08/21/14

3.5 Test Record Retention End Date: All test records for this report will be retained until August 21, 2018.

3.6 Test Location: C.R. Laurence's test facility in Los Angeles, California. Calibration of test equipment was performed by Architectural Testing 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.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Marco Ramirez	CR Laurence Co., Inc.
Jarod S. Hardman	Architectural Testing, Inc.

4.0 Test Specification:

AAMA/WDMA/CSA 101/IS.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 1.24 m ² (13.34 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1524	60	813	32
Vent	1487	58-9/16	772	30-3/8

5.2 Frame Construction:

Frame Member	Material	Description
Head and sill	Thermally broken aluminum	See attached drawing #T-31030.
Jambs	Thermally broken aluminum	See attached drawing #T-31031.

	Joinery Type	Detail
All corners	Coped	Secured though jambs into screw bosses with two #8 x 1" Phillips pan head screws at each corner.

5.3 Vent Construction:

Vent Member	Material	Description
Top rail, bottom rail, stiles	Thermally broken aluminum	See attached drawing #H-31034.

	Joinery Type	Detail
All corners	Mitered	Secured at corners with two aluminum corner keys, Drawing #USA-1731, that are secured to rails and stiles with two dimples in the aluminum to retain each end of the key.

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping:

Description	Quantity	Location
Foam filled bulb gasket	1 row	Inserted into channel of frame full perimeter.
Foam filled bulb gasket	1 row	Inserted into channel of vent full perimeter with a 12" hold back from the head at the stiles.

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 A1-D1	1/4" clear tempered	1/4" clear tempered	Interior set, butyl tape glazed with 3/8" x 7/32" tape (see attached drawing #USA-1823) and secured at interior with glazing bead (see attached Drawing #T-31043) and rubber wedge gasket (see attached Drawing #USA-1819B)

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Vent	1	1365 x 650	53-3/4 x 25-5/8	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weep hole	1" x 3/8"	2	Centered 5-1/2" from jambs at the exterior face of the sill with a weep hole cover inserted into opening (see attached Drawing #USA-2445B).

5.0 Test Specimen Description: (Continued)

5.7 Hardware:

Description	Quantity	Location
Cam Lock	2	Located 7-1/2" from stile on top rail of vent and secured to vent with two #10 x 3/8" Phillips flat head SST screws and gasket 20408.
Cam strike	2	Located directly opposite cam and secured to head of frame with two #10 x 1/2" Phillips pan head SST screws.
Truth Heavy Duty 4 Bar Hinge	2	Located against sill and secured to jamb with three #10 x 1/2" Phillips pan head SST screws through predrilled holes, also secured to vent with four #10 x 1/2" Phillips pan head SST screws through predrilled holes.

5.8 Reinforcement:

Drawing Number	Location	Material
USA-1731	Two inserted into each corner joint of vent assembly.	Aluminum

5.9 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a Pine wood buck. The rough opening allowed for a 1/8" shim space. The exterior and interior perimeters of the window were sealed with structural silicone sealant.

Location	Anchor Description	Anchor Location
Full perimeter	#12 x 2-1/2" Phillips pan head screws	Through frame into jamb 3" from corner and 12" on center.

7.0 Test Results: The temperature during testing was 29°C (84°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 35.6 N (8.0 lbf) Maintain motion: 129 N (29.0 lbf) Locks: 44.5 N (10.0 lbf)	Report Only 135 N (30.4 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m ² (0.01 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Water Penetration, per ASTM E 547 at 220 Pa (4.59 psf)	N/A	N/A	2
Uniform Load Deflection, per ASTM E 330 Deflections taken at bottom rail +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	N/A	N/A	2
Uniform Load Structural, per ASTM E 330 Permanent sets taken at bottom rail +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	N/A	N/A	2
Forced Entry Resistance, per ASTM F 588, Type: B - Grade: 10	Pass	No entry	
Awning, Hopper, Projected Hardware Load Test 140 N (30 lbf)	9.1 mm (0.36")	43.9 mm (1.73")	

7.0 Test Results: (Continued)

Optional Performance			
Title of Test	Results	Allowed	Note
Water Penetration, per ASTM E 547 at 540 Pa (11.28 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 Deflections taken at bottom rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	8.4 mm (0.33") 0.3 mm (0.01")	8.4 mm (0.33") max. 8.4 mm (0.33") max.	3,4
Uniform Load Structural, per ASTM E 330 Permanent sets taken at bottom rail +5400 Pa (+112.8 psf) -5400 Pa (-112.8 psf)	0.8 mm (0.03") 0.8 mm (0.03")	4.3 mm (0.17") max. 4.3 mm (0.17") max.	3,4

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

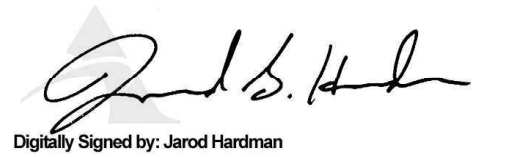
Note 3: Loads were held for 10 seconds.

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.

Architectural Testing will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing, Inc. 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 specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.



Digitally Signed by: Jarod Hardman

Jarod S. Hardman
Laboratory Manager



Digitally Signed by: Leaton Kirk

Leaton Kirk
Director – Regional Operations

JSH: ms

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

- Appendix-A: Alteration Addendum (1)
- Appendix-B: Location of Air Seal (1)
- Appendix-C: Drawings (16)



Test Report No.: E0631.01-301-47
Report Date: 10/10/14
Test Record Retention End Date: 08/21/18

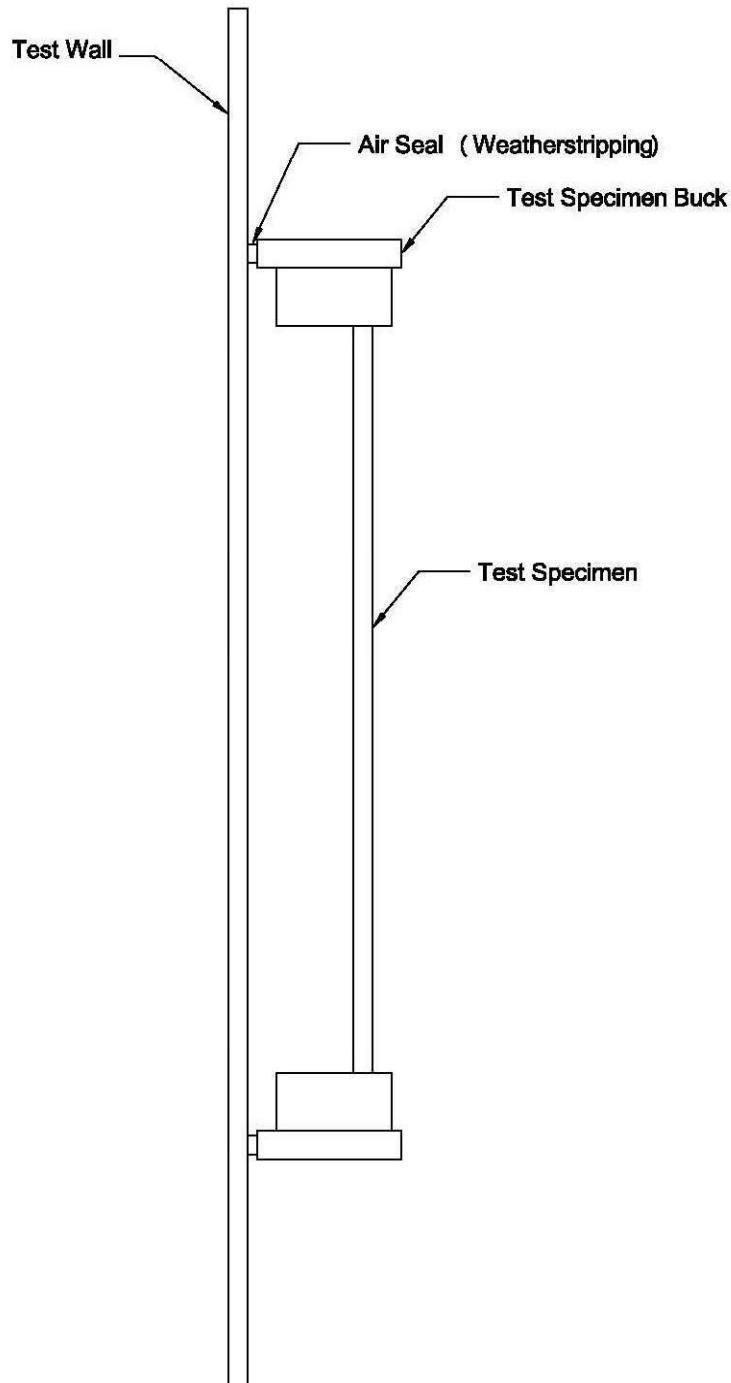
Appendix A

Alteration Addendum

Note: *No alterations were required.*

Appendix B

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.





Test Report No.: E0631.01-301-47
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Test Record Retention End Date: 08/21/18

Appendix C

Drawings



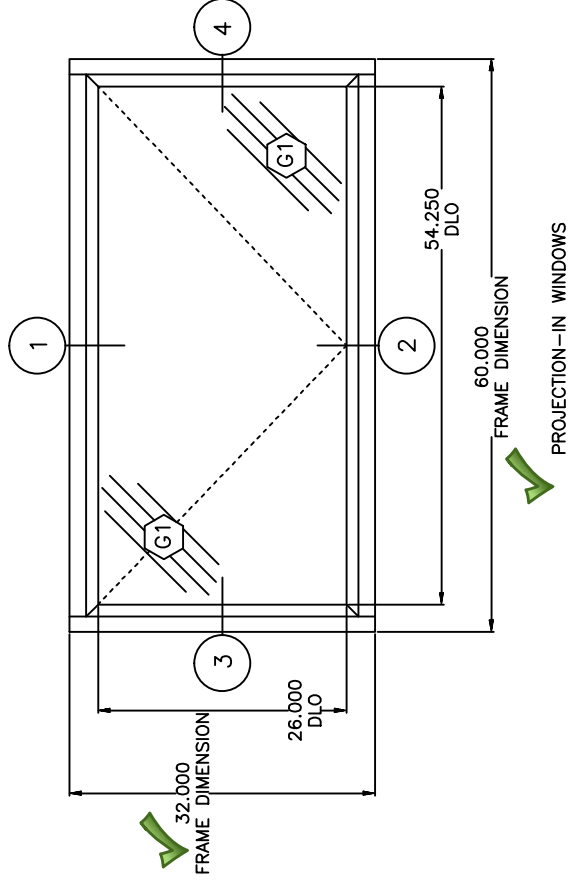
Architectural Testing

Report #: E0631-301-47

Date: 10/06/2014

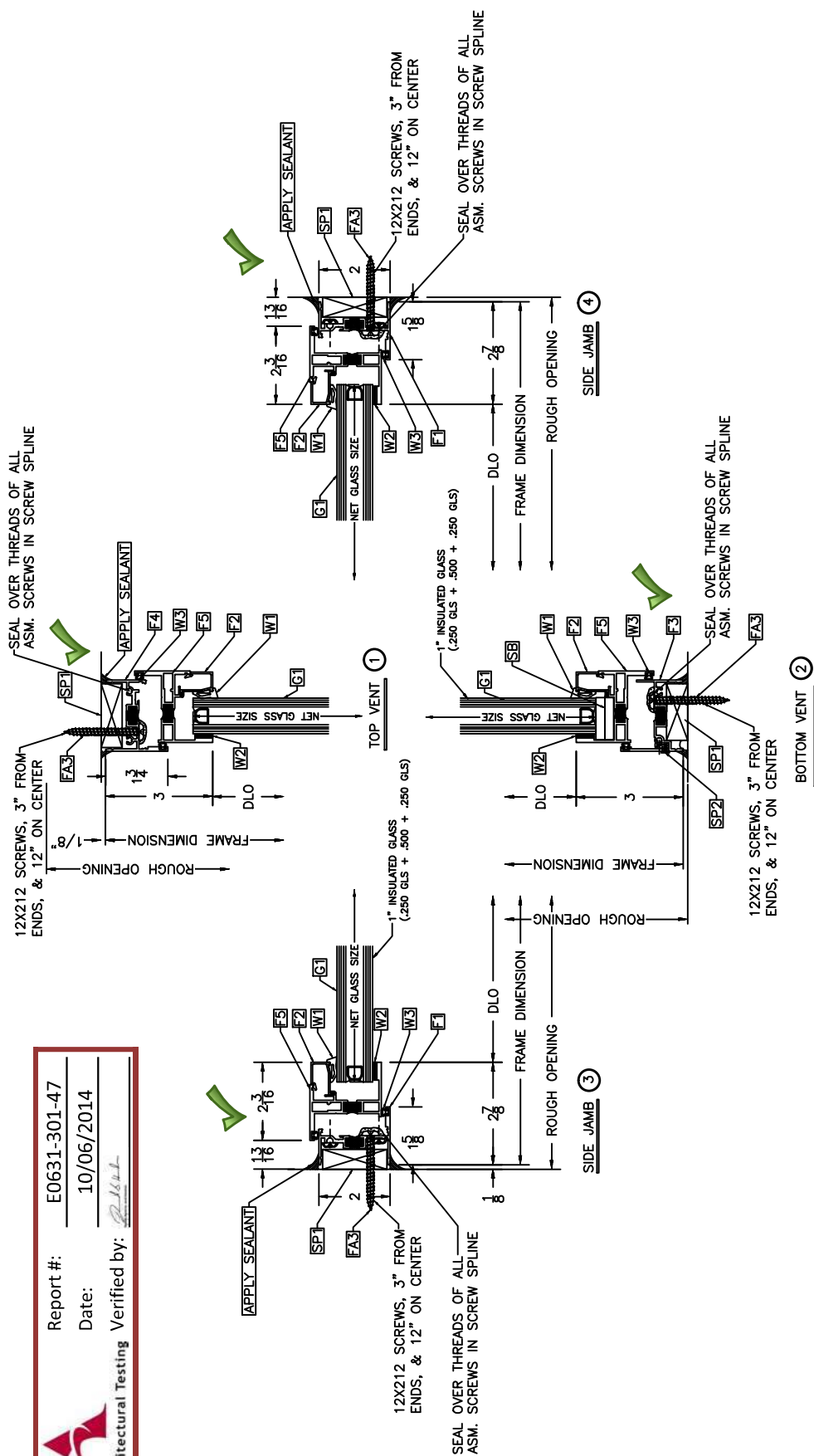
Verified by: RLH/L

MU20147200P1188



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 Report #: E0631-301-47
 Date: 10/06/2014
 Verified by: *P. Hunt*



NOTE:
1. PRODUCT TESTING & CERTIFICATION NO.: PTC394452
(PRODUCT BEING TESTED: TV20411)

[illegible]



Report #: E0631-301-47
Date: 10/06/2014
Verified by: *[Signature]*

ITEM #	PART NO	DESCRIPTION	COMMENTS	QTY.	FINISHES	
					CLASS 1	BROWN
F1	CT203	SIDE JAMB		1		
F2	CC208	GLAZING STOP		1		
F3	CT202	TOP & BOTTOM VENT		1		
F4	CT201	HEADER SILL		1		
F5	CT306	VENT P.L.		1		
W1	WH344	WEDGE GASKET		1		
W2	GT187	GLAZING TAPE		1		
W3	WH342	BULB GASKET		1		
		SILICONE				
G1	1" GLASS	1/200 INSULATED BLAT GLASS (250" CLEAR + 250" SPACER + 250" CLEAR)		1		
FA1	ST241	10X3/4 FLAT HEAD PHILLIP S/M/S				
FA2	ST183	8X3/4 FLAT HEAD PHILLIP S/M/S				
FA3	12X212RPHMS	12X212 PAN HEAD PHIL WOOD SCREW				
FA4	ST205	8X1/2 PHILLIPS PH S/M/S				
FA5	ST242	NO. 10 AB X 1/2" PHL. PH. SMS ZP				
FA6	MS153	NO. 10-24 UC X 9/16" PHL FH MS SS				
FA7	ST242	NO. 10 AB X 1/2" PHL. PH. SMS ZP				
SB		SETTING BLOCK		4		
SP1		SHIMMY AS REQUIRED		4		
SP2	WH276	WEEPING COVER		2		
	WH616	PROJECTION ARM				
	WH269	STRIKE PLATE				
	WH259 / 260	CAM HANDLE				
	CB304	CORNER ANGLE		4		



NOTE:
1. PRODUCT TESTING & CERTIFICATION NO.: PTC394452
(PRODUCT BEING TESTED: TV20411)

THIS DRAWING AND THE DESIGN SHOWN
HEREIN IS THE PROPERTY OF
C.R. LAURENCE CO., INC.
AND MAY NOT BE
REPRODUCED OR
TRANSMITTED IN ANY FORM OR BY ANY MEANS
ELECTRONIC OR MECHANICAL, INCLUDING
PHOTOCOPYING, RECORDING, OR BY ANY
INFORMATION STORAGE AND RETRIEVAL SYSTEM,
WITHOUT WRITTEN PERMISSION FROM C.R. LAURENCE CO., INC.

C.R. LAURENCE CO., INC.
2100 E. 38TH STREET
LOS ANGELES, CA 90058

DRAWING NO. MU20147200P1188
SHEET NO. 3 OF 3

DATE: 07.07.14
SCALE: NONE
TITLE: 7200 SERIES WINDOW
CONFIG: 60 X 32 PROJ-IN TOP
BILL OF MATERIAL

REV.	DESCRIPTION	DATE	BY