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CR LAURENCE CO., INC.
TEST REPORT

SCOPE OF WORK
AAMA/WDMA/CSA 101/I.S.2/A440-17 TESTING ON 900 ARCHITECTURAL TERRACE DOOR WITH LOW PROFILE THRESHOLD

REPORT NUMBER
I3839.01-303-47 R4

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05/03/18 - 05/18/18

ISSUE DATE 06/06/18
REVISION DATE 07/05/18

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05/18/22

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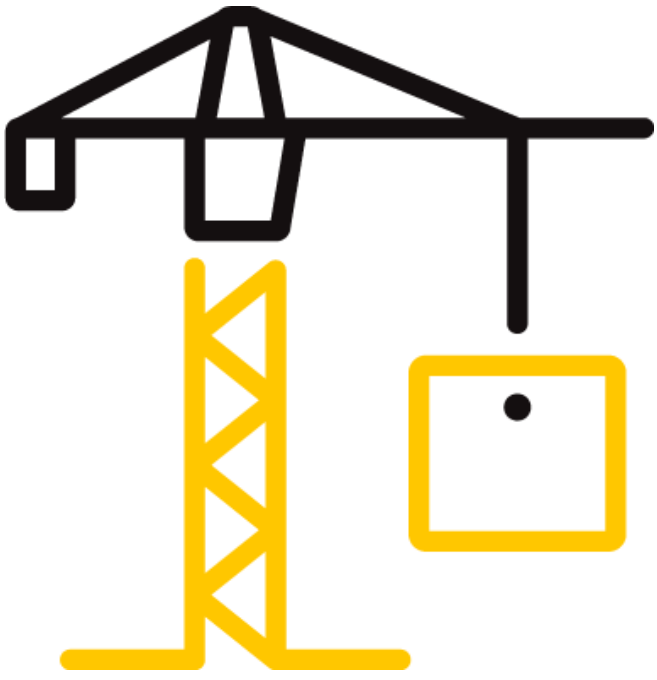


REPORT ISSUED TO

CR LAURENCE CO., INC.
2503 E Vernon Avenue
Los Angeles, California 90058

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by CR Laurence Co., Inc. 2503 E Vernon Avenue to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-17, *NAFS 2017 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*, on their 900, Architectural Terrace Door. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at CR Laurence Co., Inc. test facility in Los Angeles, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class AW – PG80: Size Tested 1219 x 2438 mm (48 x 96 in) - ATD
Design Pressure	±3840 Pa (±80.20 psf)
Air Infiltration	<1.0 L/s/m^2 (<0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

For INTERTEK B&C:

COMPLETED BY:	Jarod S. Hardman
TITLE:	Laboratory Manager
SIGNATURE:	Digitally Signed by: Jarod Hardman
DATE:	07/05/18

jsh:ab

SECTION 3
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17, *NAFS 2017 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA 205-15, *In-Plant Testing Guidelines for Manufacturers and Independent Laboratories*

AAMA 920-11, *Specification for Operating Cycle Performance of Side-Hinged Exterior Door Systems*

AAMA 925-13, *Specification for Determining the Vertical Loading Resistance of Side-Hinged Doors*

AAMA 1304-02, *Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems*

ANSI/BHMA A156.2-2011, *American National Standard for Bored & Preassembled Locks and Latches*

ASTM E283-04(2012), *Standard 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, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E331-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/8" shim space. The interior and exterior perimeter of the door was sealed with silicone sealant. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Through frame	#10 x 2-1/2” wood screws	6” from corners and 12” on center spacing

SECTION 5
EQUIPMENT

Calibration of test equipment was performed by Intertek B&C in accordance with AAMA 205-15 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Garrett Osterode	CR Laurence Co., Inc.
Jarod S. Hardman	Intertek B&C

SECTION 7
TEST SPECIMEN DESCRIPTION
Product Type: Architectural Terrace Door
Series/Model: 900 Low Profile Threshold

Product Size:

OVERALL AREA:	WIDTH		HEIGHT	
3.0 m^2 (31.9 ft^2)	millimeters	inches	millimeters	inches
Overall Size	1219	48	2438	96
Panel Size	1184	46-5/8	2410	94-7/8

Frame Construction:

FRAME MEMBER	MATERIAL	DESCRIPTION
Head	Aluminum	Thermally broken extrusion, Part #HT450 (see attached drawings Section 12)
Sill	Aluminum	Accessible threshold, Part #TH425 (see attached drawings Section 12)
Sill	Aluminum	Threshold cover, Part #TH426, snapped into interior side of threshold (see attached drawings Section 12)
Jambs	Aluminum	Thermally broken extrusion, Part Part #JI450 (see attached drawings Section 12)
	JOINERY TYPE	**DETAIL**
Head/Jamb	Lap	Joined with stainless steel #12 x 1” HWHSMS, Part #ST276
Jamb/Threshold	Lap	Joined with stainless steel #12 x 1” undercut PFMS, Part #ST280.
End Cap	-	Added to exterior corner surface with RTV408, Part #EC96499

Leaf:

FRAME MEMBER	MATERIAL	DESCRIPTION
Bottom rail	Aluminum	Thermally broken extrusion, Part #HT301 (see attached drawings Section 12)
Top rail and stiles	Aluminum	Thermally broken extrusion, Part #HT300 (see attached drawings Section 12)
	JOINERY TYPE	**DETAIL**
All corners	Mitered	Secured at corners with corner block (Part #CB291) that is secured through dimpling of leaf.

Reinforcement: *No reinforcement was utilized.*

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Blade Gasket, Part #WH358	1 row	Inserted into interior side of outer most leg of door leaf at head and jambs (see attached drawings Section 12).
Gasket Perimeter Wiper, Part #NP810	1 row	Inserted full width of bottom rail of leaf (see attached drawings Section 12).
Bulb Gasket, Part #WH356	1 row	Inserted into exterior face of inner most leg of frame around full perimeter (see attached drawings Section 12).

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	Exterior glazed with Dow Corning 121 at interior frame leg and glass stop (Part #WN429) with wedge gasket (Part #WH416) at exterior face (see drawings Section 12).

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Leaf	1	991 x 2240	39-1/8 x 88-3/16	1/2"

Drainage:

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
Weep hole	3/4" wide by 1/8" high	2	1” from each end of glazing pocket of bottom rail of leaf.

Hardware:

DESCRIPTION	QUANTITY	LOCATION
Handle assembly, Heritage O-S ACT45.5/31.5 CYL (Part #TH97715)	1	Secured to door leaf at lock stile with supplied hardware 36” from sill.
Butt hinge assembly (Part #WH7633)	4	Secured to frame with #12-24 pan head under cut head screws, to leaf with #12 PHSMS 8-5/8” from sill and 26-1/4” on center spacing.
Deadbolt strike (Part #TH701)	1	Secured to lock jamb directly opposite deadbolt with #10 x 1/2" PH (ST24000).
Tongue strike (Part #TH702)	2	Secured to jamb directly opposite tongue locks with #10 x 1/2" PHS (ST24000).
Shoot bolt strike (Part #TH703)	1	Secured to head of frame directly opposite shoot bolt with #10 x 1/2" PHS (ST24000).
Gear Box Bottom Extension (Part #TH7814238)	1	Attached to leaf with #8 x 1” flat head SMS (ST19842).
Gear Box Middle Extension (Part #TH7874227)	1	Attached to leaf with #8 x 1” flat head SMS (ST19842).
Gear Box Top Extension (Part #TH864231)	1	Attached to leaf with #8 x 1” flat head SMS (ST19842).
Dust Box (Part #DH700)	4	Clipped into jamb at strike locations.
Door Stop (Part #TH755)	1	Secured to frame head and top rail of leaf with #10 x 1/2" PHS (ST24000)

SECTION 8
TEST RESULTS

The temperature during testing was 21°C (70°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Force to Latch Side-Hinged Door System, per ANSI/BHMA A156.2	Force to Latch: 97.9 N (22.0 lbf) Deadbolt: 62.3 N (14.0 lbf)	Report only Report only	
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	Report only	
Air Leakage, Infiltration 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.	1
Water Penetration, per ASTM E547 and ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	
Door Leaf Cycling, (First half) per AAMA 910 12500 cycles	Pass	No Damage	
Locking Hardware Cycling, (First half) per AAMA 910 2000 cycles	Pass	No Damage	
Door Leaf Vertical Load, per AAMA 910 at 890 N (200 lbf)	Pass	No Damage	
Door Leaf Corner Block, per AAMA 910 at 334 N (75 lbf)	Pass	No Damage	
Door Leaf Cycling, (Second half) per AAMA 910 12500 cycles	Pass	No Damage	
Locking Hardware Cycling, (Second half) per AAMA 910 2000 cycles	Pass	No Damage	
Force to Latch Side-Hinged Door System, per ANSI/BHMA A156.2	Force to Latch: 97.9 N (22.0 lbf) Deadbolt: 62.3 N (14.0 lbf)	Report only Report only	

Uniform Load Deflection, per ASTM E330 Deflections taken at lock stile +3840 Pa (+80.20psf) -3840 Pa (-80.20 psf)	 1.8 mm (0.07") 2.3 mm (0.09")	 13.7 mm (0.54") max. 13.7 mm (0.54") max.	 2, 3, 4
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	 <0.1 L/s/m^2 (<0.01 cfm/ft^2)	 Report only	
Air Leakage, Infiltration 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.	 1
Water Penetration, per ASTM E547 and ASTM E331 at 580 Pa (12.11 psf)	 Pass	 No leakage	
Uniform Load Structural, per ASTM E330 Permanent set taken at lock stile +5760 Pa (+120.3 psf) -5760 Pa (-120.3 psf)	 0.0 mm (0.00") 0.0 mm (0.00")	 4.8 mm (0.19") max. 4.8 mm (0.19") max.	 2, 3, 4
Forced Entry Resistance, per AAMA 1304, 1330 N (300 lbf) point load	 Pass	 No entry	

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: Loads were held for 10 seconds.

Note 3: At the conclusion of the test, there were no signs of damage to the door panel, frame, construction, fasteners, glazing, weatherstripping, or system assembly.

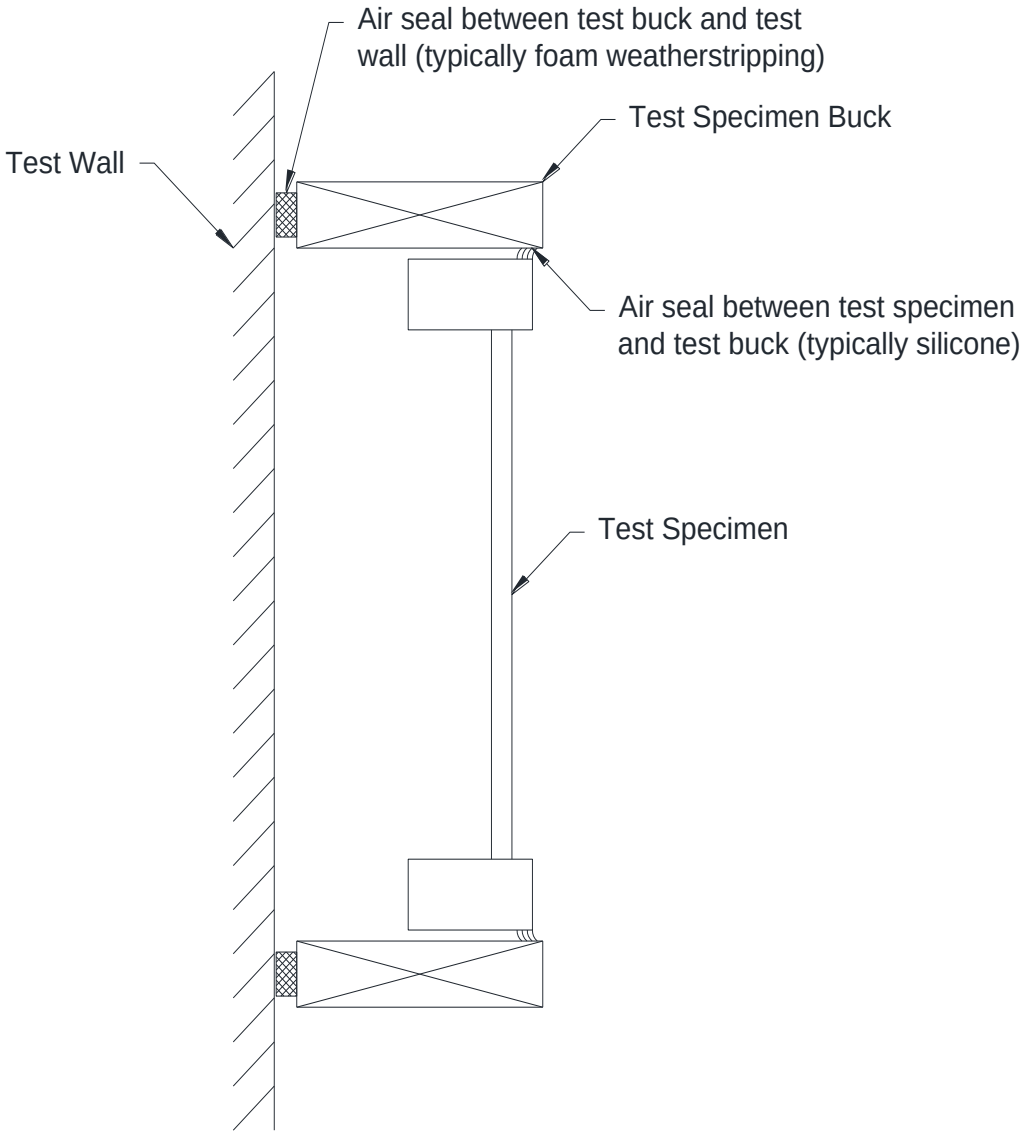
Note 4: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

SECTION 9
ALTERATIONS

No alterations were required.

SECTION 10
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.

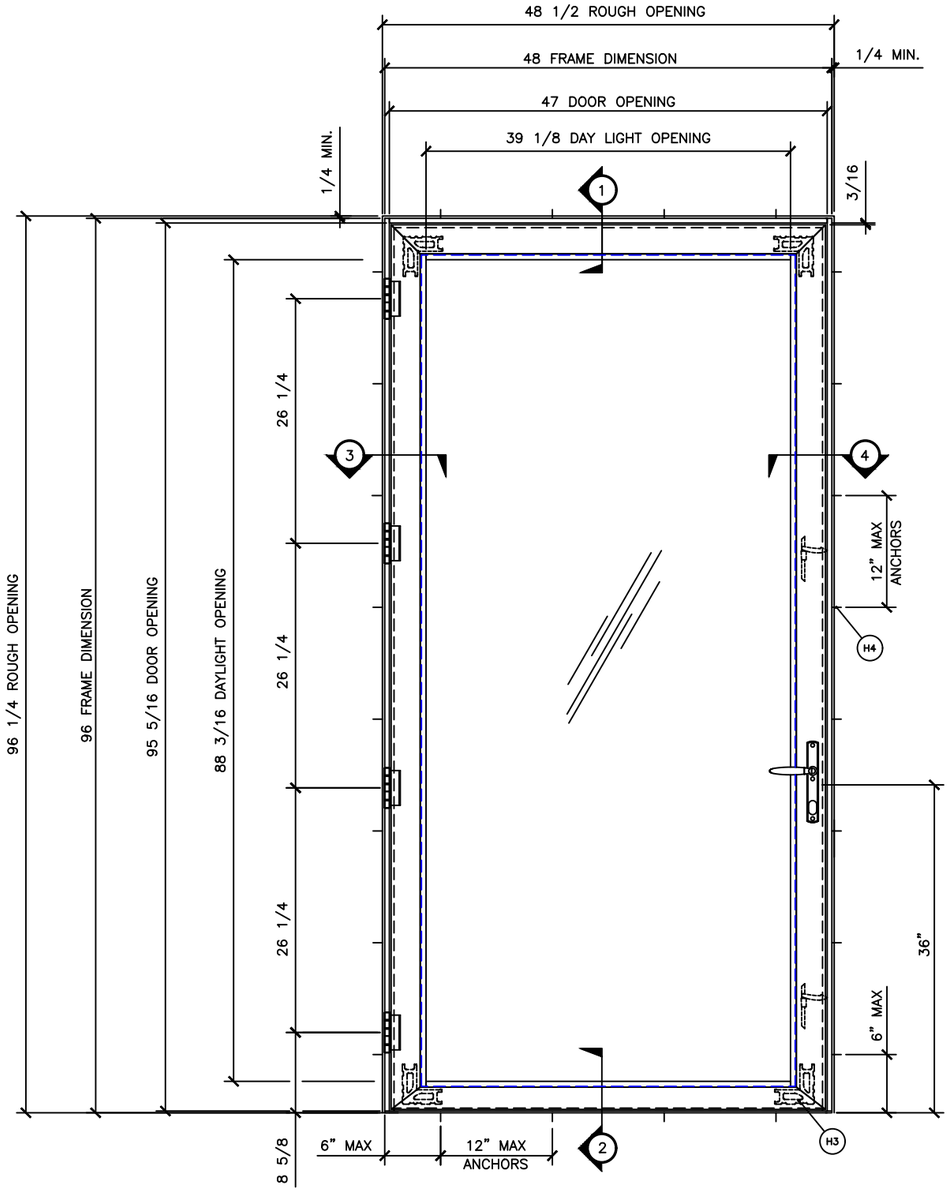


SECTION 11
CONCLUSION

The specimen tested successfully met the performance requirements for a **Class AW – PG80: Size Tested 1219 x 2438 mm (48 x 96 in) - ATD** rating.

SECTION 12
DRAWING(S)

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.



1 SERIES 900 TERRACE DOOR OUT-SWING ACCESSIBLE THRESHOLD

1 1/2"=1'-0"

ITEM		PT. NO.	PART DESCRIPTION	
C1	FRAME & SASH COMPONENTS	HT301	BOTTOM RAIL	
C2		WN429	GLASS STOP	
C3		JI450	FRAME-JAMB	
C4		HT450	FRAME-HEAD	
C5		HT300	SASH MEMBER	
C6		WH751	HINGE ASSEMBLY	
W1	WTHR STRIP	WH358	BLADE GASKET	
W2		GT416	GLAZING TAPE	
W3		WH416	WEDGE GASKET-EXTERIOR GLAZING	
W4		WH356	BULB GASKET-PRIMARY SEAL	
W5		NP810	GASKET-PERIMETER WIPER	
G1	GLAZING		1/4" Temp-1/2" AIR FILL ALUM SPACER - 1/4" TEMP	
G2		SB222	SETTING BLOCK	
G3		WB410	EDGE BLOCK	
H2	HARDWARE	EC96499	END CAP-FRAME CORNER	
H3		CB291	CORNER BLOCK	
H4		----	#10 X 2 ½" WOOD SCREWS	
H5		TH97715	HERITAGE O-S ACT45.5/31.5 CYL	
H6		----	#12-24 x 7/8 PH UNDER CUT FLAT HEAD MACHINE SCREWS	
H7		ST27542	#12-24 x 1" SS PPHSMS	
H8				
H9		TH701	DEADBOLT STRIKE	
H10		TH702	TONGUE STRIKE	
H11		TH703	SHOOT BOLT STRIKE	
H12		TH425	ACCESSIBLE THREASHOLD (TH426-SNAP COVER)	
H13		TH7814238	GEAR BOTTOM EXTENSION	
H14		TH7874227	GEAR MID EXTENSION	
H15		TH7864231	GEAR TOP EXTENSION	
H16		DH700	DUST BOXES (4)	
H17		TH755	DOOR STOP	
S1		EF38C	3/8" CLOSED CELL BACKER ROD	
S3		DC121BL	DOW CORNING 121 BLACK-2PART	
S4		RTV 408C	CRL-RTV 408 CLEAR	

TEST REQUIREMENTS

AIR INFILTRATION:
1.57 CFM Report Only
<0.10 CFM/SQ.FT. @6.27 CFM

STATIC WATER:
12 PSF

DESIGN PRESSURE:
80 PSF

STRUCTURAL OVERLOAD:
120 PSF

Testing Sequence:
Class AW - PG80 ATD

REVISIONS

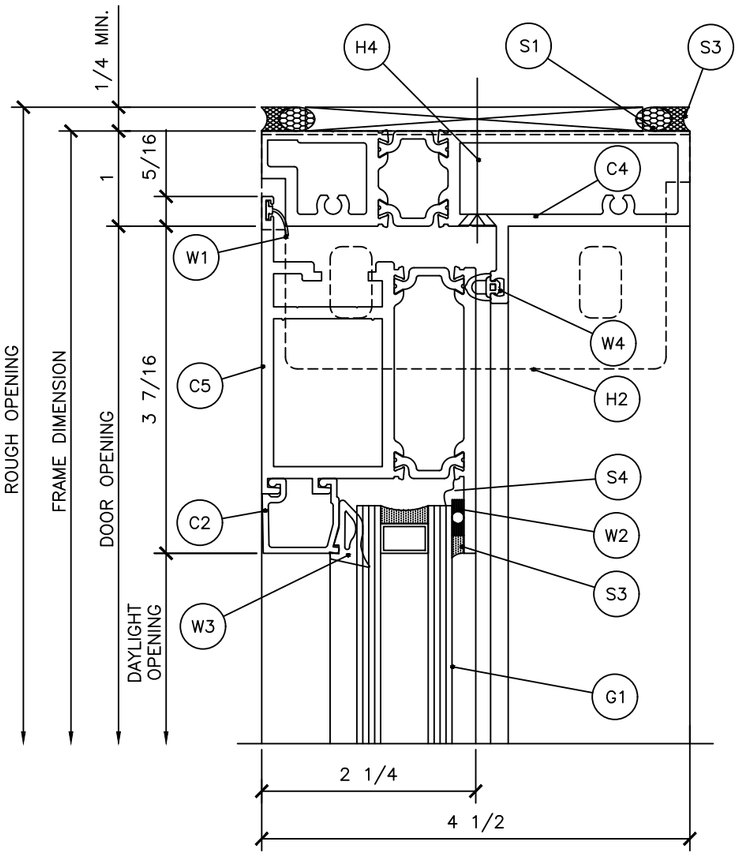
CERTIFIED ISO9000 COMPANY
C.R.LAURENCE CO.
ARCHITECTURAL PRODUCTS
2100 E. 38TH Street, Los Angeles, CA 90058
www.crlaurence.com

Job Name:
900 SERIES TERRACE DOOR
48" X 96" OUTSWING
LOW PROFILE THRESHOLD

Glazing Contractor:

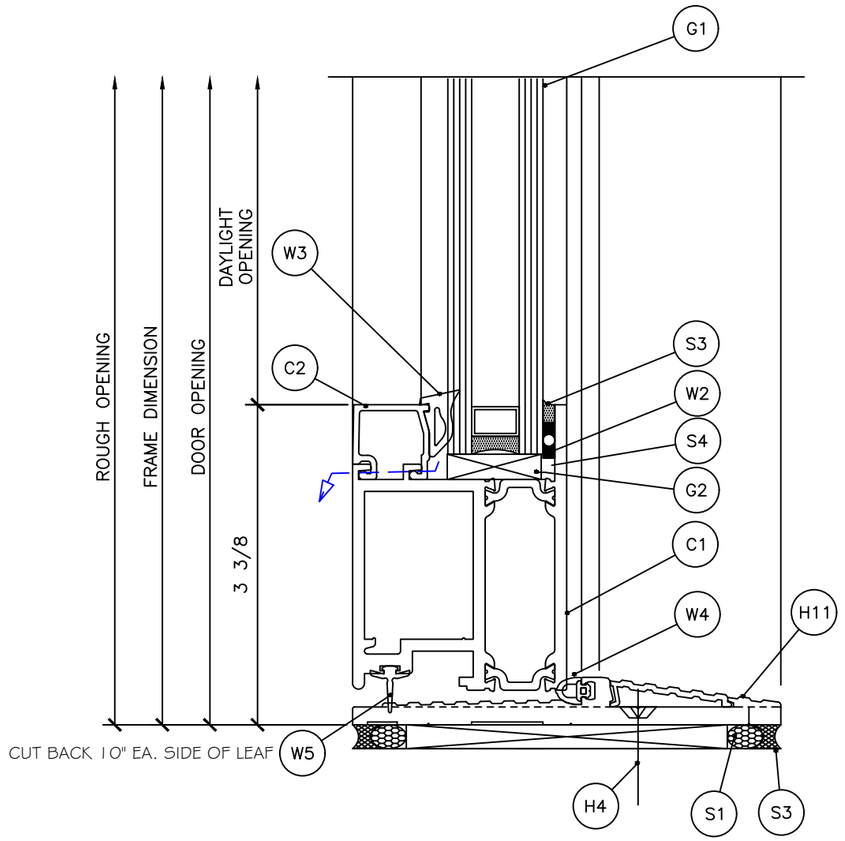
DATE: 5.6.2018
DRAWN BY: GDO
CHECKED BY:
SCALE: AS SHOWN
JOB #: PTC737823

SHT 1 OF 3



1 OUT–SWING DOOR – @ HEAD

1–0"=1'–0"



2 OUT–SWING DOOR –LOW PROFILE THRESHOLD

1–0"=1'–0"

REVISIONS

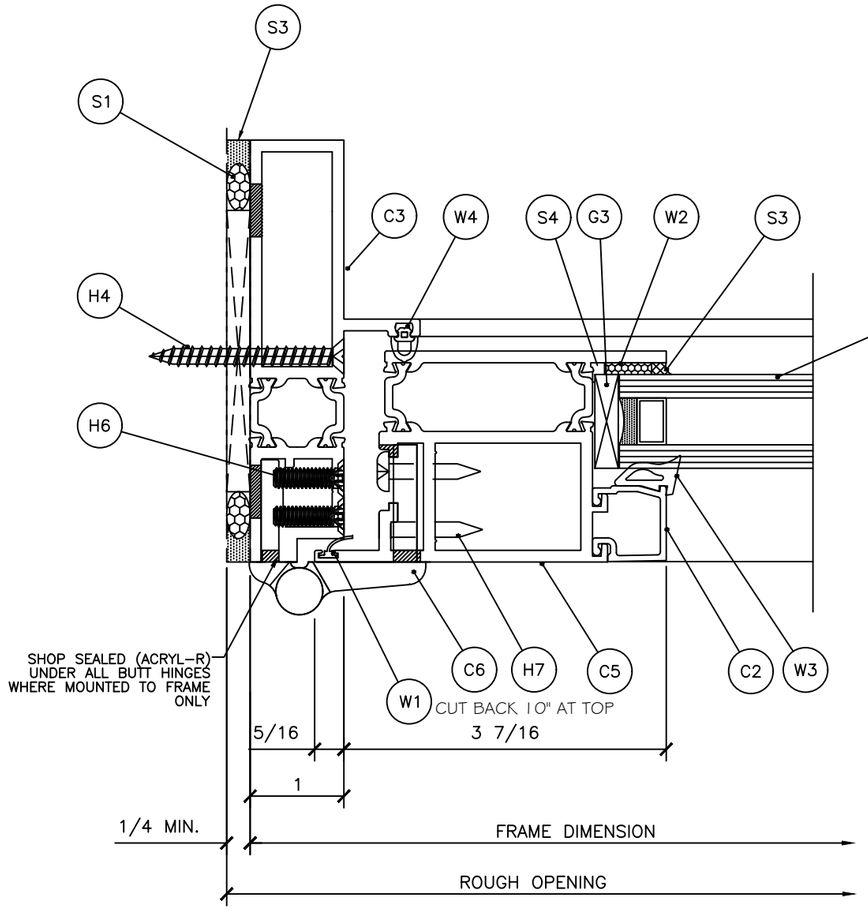
C.R.LAURENCE CO.
ARCHITECTURAL PRODUCTS
2100 E. 38TH Street, Los Angeles, CA 90058
www.crlaurence.com

Job Name:
900 SERIES TERRACE DOOR
48" X 96" OUTSWING
LOW PROFILE THRESHOLD

Glazing Contractor:

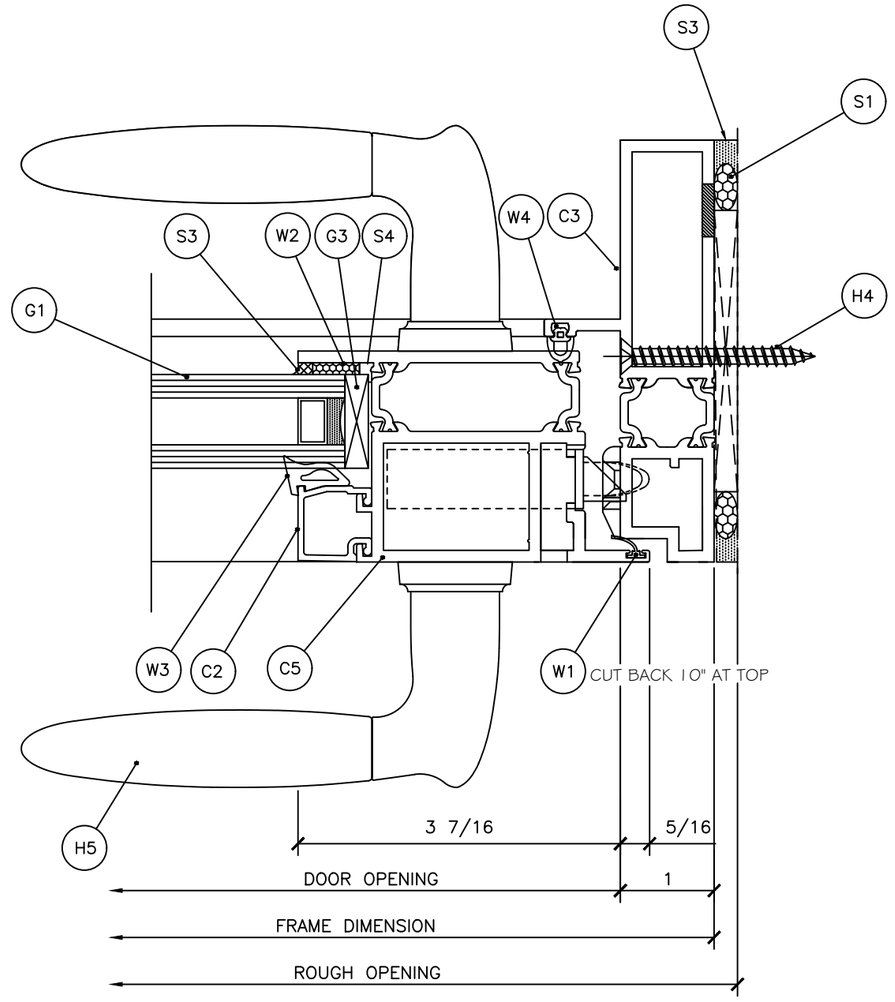
DATE:	5.6.2018
DRAWN BY:	GDO
CHECKED BY:	
SCALE:	AS SHOWN
JOB #:	PTC737823

SHT 2 OF 3



3 OUT-SWING DOOR @ JAMB

1-0"=1'-0"



4 OUT-SWING DOOR @ JAMB/LOCK STILE

1-0"=1'-0"

REVISIONS

ISO9000 CERTIFIED COMPANY

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

Job Name: 900 SERIES TERRACE DOOR 48" X 96" OUTSWING LOW PROFILE THRESHOLD

Glazing Contractor:

DATE:	5.6.2018
DRAWN BY:	GDO
CHECKED BY:	
SCALE:	AS SHOWN
JOB #:	PTC737823

SHT 3 OF 3

SECTION 13
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	06/06/18	N/A	Original Report Issue
1	06/08/18	5	Add glazing pocket weep hole reference.
1	06/08/18	7-8	Correct air exfiltration to infiltration notation.
2	06/08/18	7-8	Change air infiltration allowable to report only for 1.57 psf.
2	06/08/18	1-3	Update AAMA reference to 17.
2	06/08/18	11	Update drawing page 1.
3	06/28/18	3	Correct fastener size reference.
3	06/28/18	4	Added descriptions of each union.
3	06/28/18	5	Add reference to drawings.
3	06/28/18	6	Add additional descriptions regarding individual hardware components.
3	06/28/18	7-8	Correct air infiltration pass/fail criteria.
4	07/05/18	10-13	Drawing attachment correction