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CR LAURENCE CO., INC.

FLORIDA BUILDING CODE TEST REPORT

SCOPE OF WORK
TAS 201, TAS 202, AND TAS 203 TESTING ON
D900 SIDE HINGED DOOR (SMALL MISSILE IMPACT)

REPORT NUMBER
I0495.01-303-18 R1

TEST DATE(S)
01/24/18 – 01/28/18

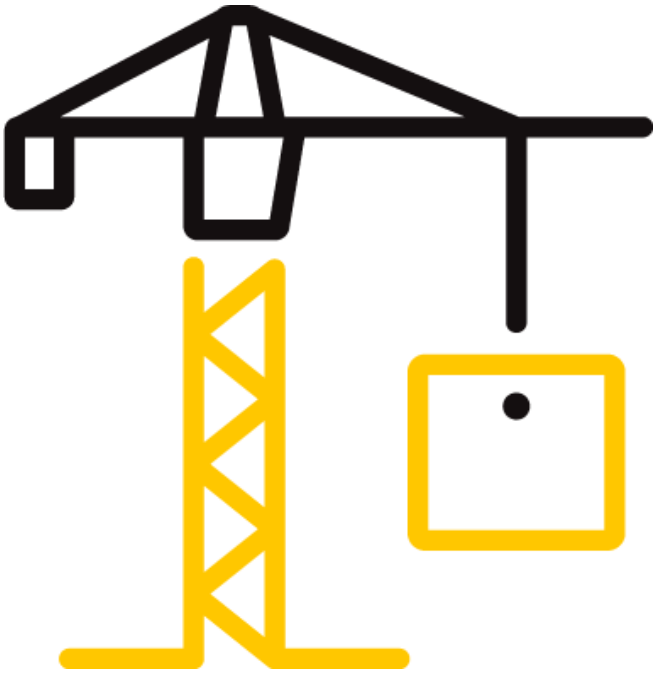
ISSUE DATE **REVISION DATE**
02/16/18 03/01/18

RECORD RETENTION END DATE
01/28/28

LABORATORY CERTIFICATION NO.
16-0421.01

PAGES
20

DOCUMENT CONTROL NUMBER
ATI 00651 (07/24/17)
RT-R-AMER-Test-2816



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TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: I0495.01-303-18 R1
Date: 03/01/18

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. to perform TAS 201, TAS 202, and TAS 203 testing in accordance with Florida Building Code for High Velocity Hurricane Zone requirements on their D900, Side Hinged Door. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in Lake Forest, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

The specimen(s) tested met the performance requirements set forth in the protocols.

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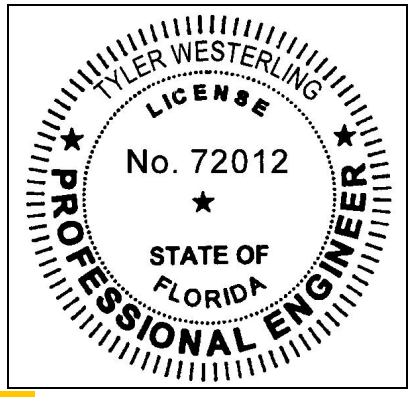
Product Type: Side Hinged Door
Series/Model: D900 (Small Missile Impact)



SPEC.	TEST PROTOCOL	DESIGN PRESSURE
1	TAS 202	+80 / -80 psf
2	TAS 201/203 (Small Missile)	+80 / -80 psf
3	TAS 201/203 (Small Missile)	+80 / -80 psf
4	TAS 201/203 (Small Missile)	+80 / -80 psf

For INTERTEK B&C:

COMPLETED BY:	Jarod S. Hardman	**REVIEWED BY:**	Tyler Westerling, P.E.
TITLE:	Laboratory Manager	**TITLE:**	Senior Project Engineer
SIGNATURE:	Digitally Signed by: Jarod Hardman	**SIGNATURE:**	Digitally Signed by: Tyler Westerling
DATE:	03/01/18	**DATE:**	03/01/18

jsh:ss

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SECTION 3
TEST METHODS

The specimens were evaluated in accordance with the following:

TAS 201-94, *Impact Test Procedures*

TAS 202-94, *Criteria for Testing Impact & Non Impact Resistant Building Envelope Components Using Uniform Static Air Pressure*

TAS 203-94, *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading*

SECTION 4
MATERIAL SOURCE/INSTALLATION

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

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

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Through frame	#10 x 2-1/2” SS Wood Screws	Maximum on center spacing 12” with maximum 8” from corner spacing

SECTION 5
EQUIPMENT

Cannon: Constructed from steel piping utilizing compressed air to propel the missile
Missile: 5/16" diameter ball bearings
Timing Device: Electronic beam type
Cycling Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device
Deflection Measuring Device: Linear transducers

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Date: 03/01/18

SECTION 6
LIST OF OFFICIAL OBSERVERS

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

SECTION 7
TEST SPECIMEN DESCRIPTION

Product Type: Side Hinged Door
Series/Model: D900 (Small Missile Impact)

Product Size(s):

OVERALL AREA:	WIDTH		HEIGHT	
2.6 m² (27.8 ft²)	millimeters	inches	millimeters	inches
Overall Size	1067	42	2438	96
Leaf	1030	40-9/16	2428	95-5/8

Frame Construction:

FRAME MEMBER	MATERIAL	DESCRIPTION
Head	Aluminum	Part No. HT450, thermally broken extrusion, see attached drawings.
Jamb	Aluminum	Part No. JI450,, thermally broken extrusion, see attached drawings.
Sill	Aluminum	Part No. HT451, thermally broken extrusion, see attached drawings.
	JOINERY TYPE	**DETAIL**
All Corners	Flush	Secured through jambs into head and sill with two #12-24 Phillips under cut flat head machine screws.

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Door Leaf Construction:

DOOR LEAF MEMBER	PART #	MATERIAL	DESCRIPTION
Top rail, bottom rail, and stiles	HT300	Aluminum	Thermally broken extrusion, see attached drawings.
	JOINERY TYPE		**DETAIL**
All Corners	Mitered		Secured at corners with corner block (Part No. CB 291) and two #12-24 Phillips under cut flat head screws per member at corners.

Reinforcement: *No reinforcement was utilized.*

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Blade gasket, Part No. WH358	1 row	Inserted into channel of exterior leg of door leaf full perimeter of door.
Bulb gasket, Part No. WH342	1 row	Inserted into channel of interior leg of frame full perimeter of door.

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	OVERALL THICKNESS	GLASS MAKEUP	GLAZING METHOD
G1	1"	3/16" clear tempered glass 3/8" air space 3/16" heat-strengthened glass 0.060" Solutia PVB interlayer 3/16" heat-strengthened glass	Tape glazed at interior with Part No. GT416 and full perimeter Dow 795 cap bead. Glass Stop, Part No. WN429, with Wedge Gasket, part No. WH416, at exterior.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Leaf	1	838 x 2212	33 x 87-1/16	1/2"

Drainage: *No drainage was utilized.*

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Hardware:

DESCRIPTION	QUANTITY	LOCATION
Athinai M156/216N – Solid Brass w/ Deadbolt	1	Secured to door leaf 42” from sill.
Deadbolt Strike	1	Part No. TH701, secured to jamb directly opposite handle assembly.
Tongue Strike	1	Part No. TH702, secured to jamb directly opposite handle assembly.
Shoot Bolt Strike	2	Part No. TH703, secured to head and sill, directly opposite shoot bolt at locking jamb.
Hinge Assembly	4	Located 8” from head and sill and equidistant spacing along hinge stile, each hinge was secured to the frame and stile with four #12-24 Phillips under cut flat head machine screws per side.

Screen Construction: No screen was utilized.

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TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: I0495.01-303-18 R1
Date: 03/01/18

SECTION 8
TEST RESULTS

Protocol TAS 202-94, *Static Air Pressure*

Test Date(s): 01/24/18 through 01/28/18
The temperature during testing was 17°C (63°F). The results are tabulated as follows:

Test Specimen #1

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per TAS 202 at 1.57 psf (25 mph)	0.1 L/s/m^2 (0.02 cfm/ft^2)	1.5 L/s/m^2 (0.30 cfm/ft^2) max.	1
Air Leakage, Infiltration per TAS 202 at 6.24 psf (50 mph)	0.3 L/s/m^2 (0.06 cfm/ft^2)	1.5 L/s/m^2 (0.30 cfm/ft^2) max.	1
Water Penetration, per TAS 202 15% of Positive Design Pressure at 720 Pa (15.04 psf)	Pass	No leakage	
Forced Entry Resistance, per AAMA 1304	Pass	No entry	

Note 1: Test Date 01/24/18, Time: 9:00 AM

Test Specimen #1: Preload and Design Load per TAS 202

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)		PERMANENT SET (in.)	
		MEASURED	ALLOWED	MEASURED	ALLOWED
+40.0 50% of Test Pressure	1	0.03	N/A	0.01	N/A
	2	0.07	N/A	0.00	N/A
	3	0.06	N/A	0.01	N/A
+80.0 Design Pressure	1	0.08	N/A	0.02	N/A
	2	0.15	N/A	0.01	N/A
	3	0.12	N/A	0.01	N/A
-40.0 50% of Test Pressure	1	0.02	N/A	0.00	N/A
	2	0.11	N/A	0.01	N/A
	3	0.06	N/A	0.01	N/A
-80.0 Design Pressure	1	0.06	N/A	0.01	N/A
	2	0.21	N/A	0.02	N/A
	3	0.15	N/A	0.02	N/A

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TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: I0495.01-303-18 R1
Date: 03/01/18

Test Specimen #1: Structural Overload Load per TAS 202

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)		PERMANENT SET (in.)	
		MEASURED	ALLOWED	MEASURED	ALLOWED
+120.0 Test Pressure	1	0.11	N/A	0.02	N/A
	2	0.25	N/A	0.03	N/A
	3	0.16	N/A	0.03	N/A
-120.0 Test Pressure	1	0.12	N/A	0.03	N/A
	2	0.45	N/A	0.04	N/A
	3	0.27	N/A	0.03	N/A

Note 2: *Positive and negative uniform static load test loads were held for 30 seconds.*

Note 3: *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 4: *See Sketch #1 for indicator locations. Deflection/permanent set reported is the overall deflection between three points (longest unsupported span) which accounts for support movement.*

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TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: I0495.01-303-18 R1
Date: 03/01/18

Protocol TAS 201-94, *Small Missile Impact Procedures*

Test Date: 01/25/18
The temperature during testing was 18°C (65°F). The results are tabulated as follows:

Test Specimen #1

IMPACT #	MISSILE WEIGHT (oz.)	MISSILE COUNT	MISSILE VELOCITY (ft./sec.)
1	0.07	10	129.5
2	0.07	10	130.0
3	0.07	10	130.0

Test Specimen #2

IMPACT #	MISSILE WEIGHT (lbs.)	MISSILE LENGTH (in.)	MISSILE VELOCITY (ft./sec.)
1	0.07	10	130.5
2	0.07	10	130.0
3	0.07	10	130.0

Test Specimen #3

IMPACT #	MISSILE WEIGHT (lbs.)	MISSILE LENGTH (in.)	MISSILE VELOCITY (ft./sec.)
1	0.07	10	129.5
2	0.07	10	130.0
3	0.07	10	130.0

Note 5: *See Sketch #2-4 for impact locations.*

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Date: 03/01/18

Protocol TAS 203-94, *Cyclic Wind Pressure Loading*

Test Date(s): 01/25/18 through 01/28/18
The temperature during testing was 22°C (72°F). The results are tabulated as follows:

Test Specimen #1: Cyclic Test Spectrum and Average Cycle Time per TAS 203

DESIGN PRESSURE	**STAGE**			
+80.0 / 80.0 psf	**1**	**2**	**3**	**4**
POSITIVE PRESSURE RANGE (psf)	16.0 – 40.0	0 – 48.0	40.0 – 64.0	24.0 – 80.0
AVERAGE CYCLE TIME (sec.)	2.35	2.38	1.95	2.36
NUMBER OF CYCLES	3500	300	600	100
	5	**6**	**7**	**8**
NEGATIVE PRESSURE RANGE (psf)	24.0 – 80.0	40.0 – 64.0	0 – 48.0	16.0 – 40.0
AVERAGE CYCLE TIME (sec.)	3.14	2.62	2.30	2.26
NUMBER OF CYCLES	50	1050	50	3350

Test Specimen #2: Cyclic Test Spectrum and Average Cycle Time per TAS 203

DESIGN PRESSURE	**STAGE**			
+80.0 / 80.0 psf	**1**	**2**	**3**	**4**
POSITIVE PRESSURE RANGE (psf)	16.0 – 40.0	0 – 48.0	40.0 – 64.0	24.0 – 80.0
AVERAGE CYCLE TIME (sec.)	1.98	2.61	2.14	3.15
NUMBER OF CYCLES	3500	300	600	100
	5	**6**	**7**	**8**
NEGATIVE PRESSURE RANGE (psf)	24.0 – 80.0	40.0 – 64.0	0 – 48.0	16.0 – 40.0
AVERAGE CYCLE TIME (sec.)	3.35	2.81	2.28	2.56
NUMBER OF CYCLES	50	1050	50	3350

Test Specimen #3: Cyclic Test Spectrum and Average Cycle Time per TAS 203

DESIGN PRESSURE	**STAGE**			
+80.0 / 80.0 psf	**1**	**2**	**3**	**4**
POSITIVE PRESSURE RANGE (psf)	16.0 – 40.0	0 – 48.0	40.0 – 64.0	24.0 – 80.0
AVERAGE CYCLE TIME (sec.)	1.98	2.61	2.14	3.15
NUMBER OF CYCLES	3500	300	600	100
	5	**6**	**7**	**8**
NEGATIVE PRESSURE RANGE (psf)	24.0 – 80.0	40.0 – 64.0	0 – 48.0	16.0 – 40.0
AVERAGE CYCLE TIME (sec.)	3.35	2.81	2.78	2.56
NUMBER OF CYCLES	50	1050	50	3350

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SECTION 9
CONCLUSIONS

The small missiles impacted each intended target. Each impact location was carefully inspected. No signs of penetration, rupture, or opening after the small missile impact test were observed; as such, each test specimen satisfies the small missile requirements of TAS 201. Upon completion of testing, specimens tested for TAS 201-94 met the requirements of Section 1626 of the Florida Building Code, Building.

AND

No signs of failure were observed in any area of the test specimen during the TAS 202 testing; as such, the test specimen satisfies the requirements of TAS 202. Upon completion of testing, specimens tested for TAS 202-94 met the requirements of Section 1620 of the Florida Building Code, Building.

AND

No signs of failure were observed in any area of the test specimens during the cyclic load test; as such, the test specimens satisfy the cyclic load requirements of TAS 203. Upon completion of testing, specimens tested for TAS 203-94 met the requirements of Section 1626 of the Florida Building Code, Building.

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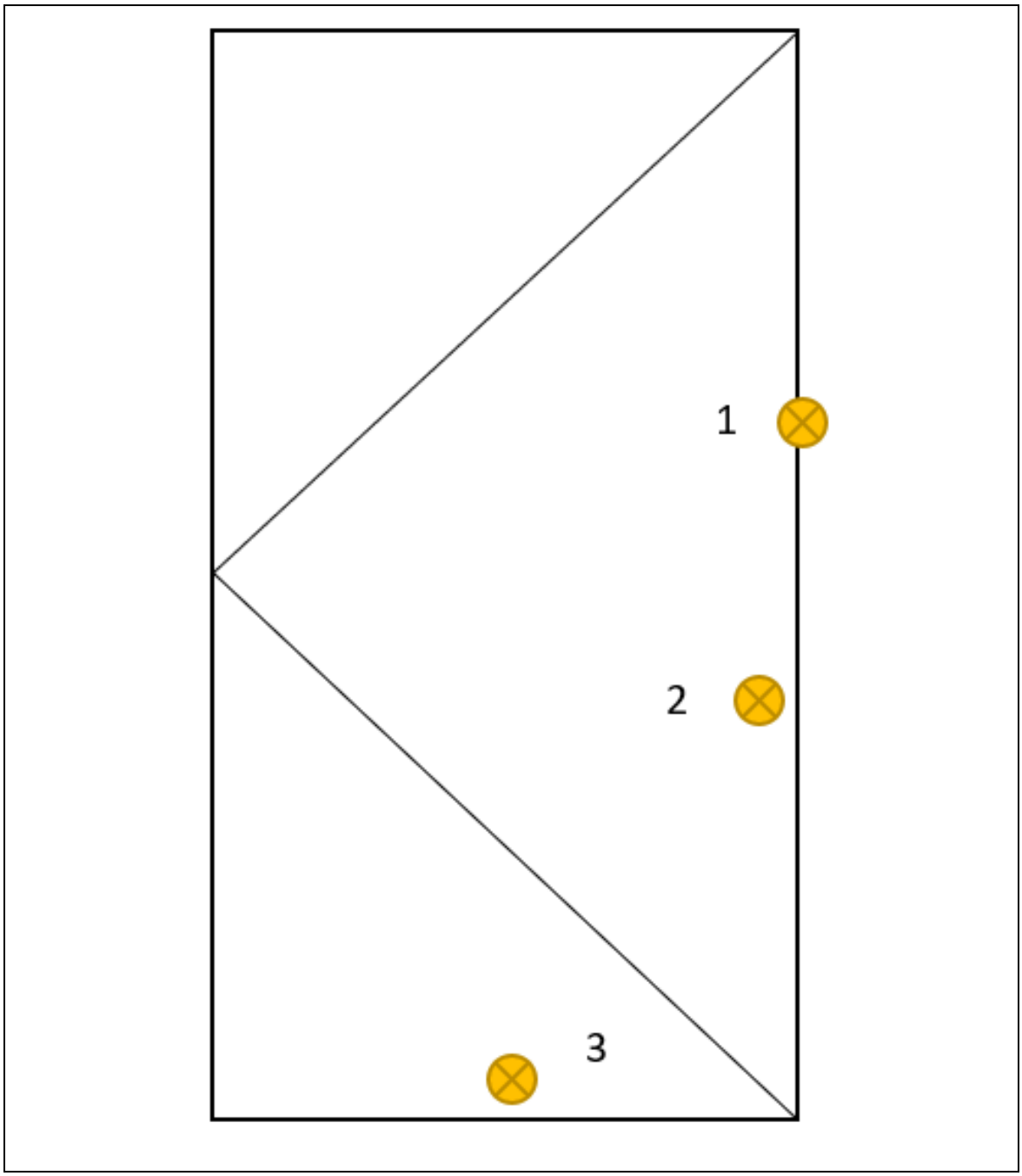
Date: 03/01/18

SECTION 10
SKETCH(ES)



Sketch No. 1
TAS 202 Indicator Locations

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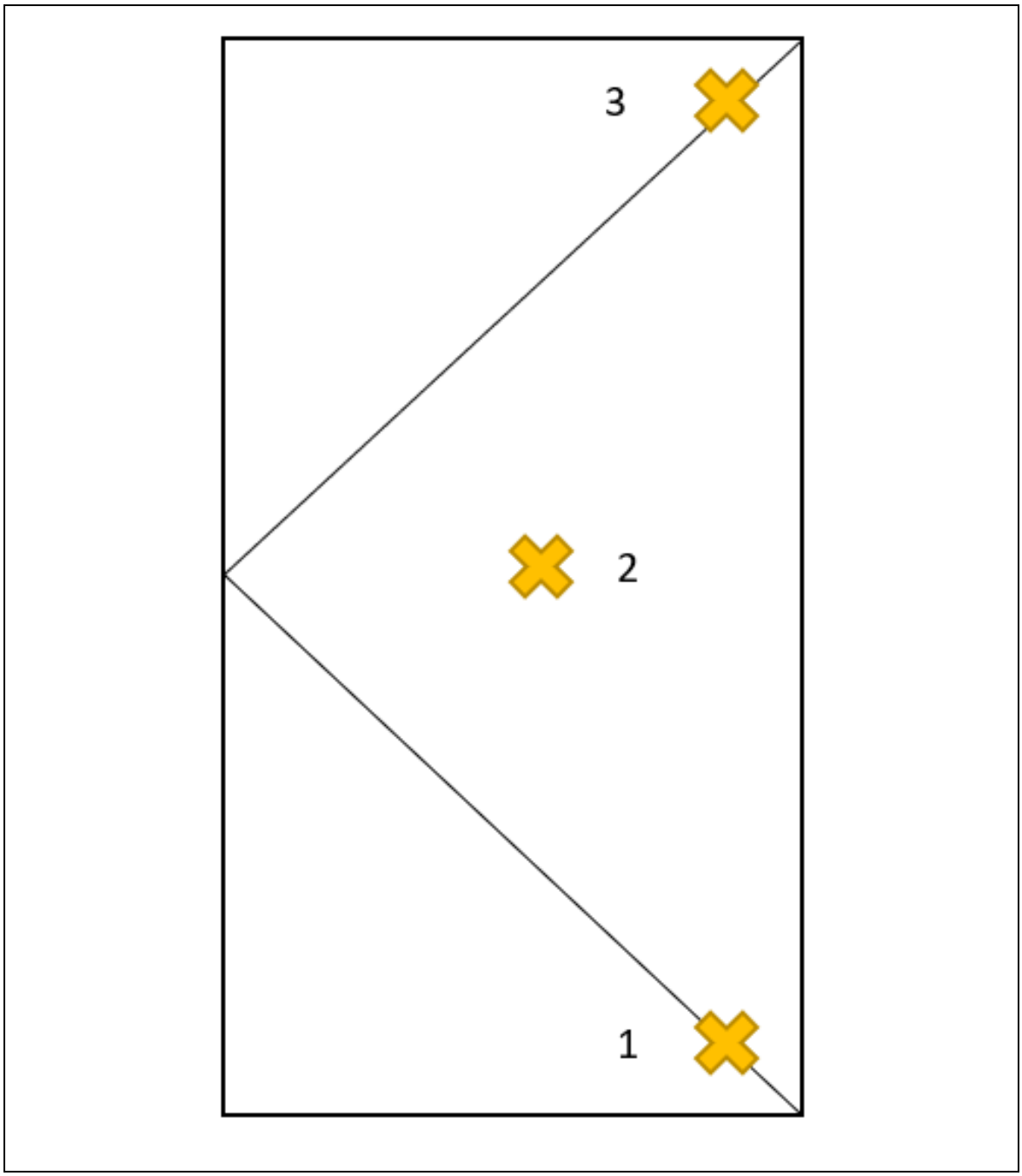

Sketch No. 2
TAS 201 Impact Locations Specimen #1

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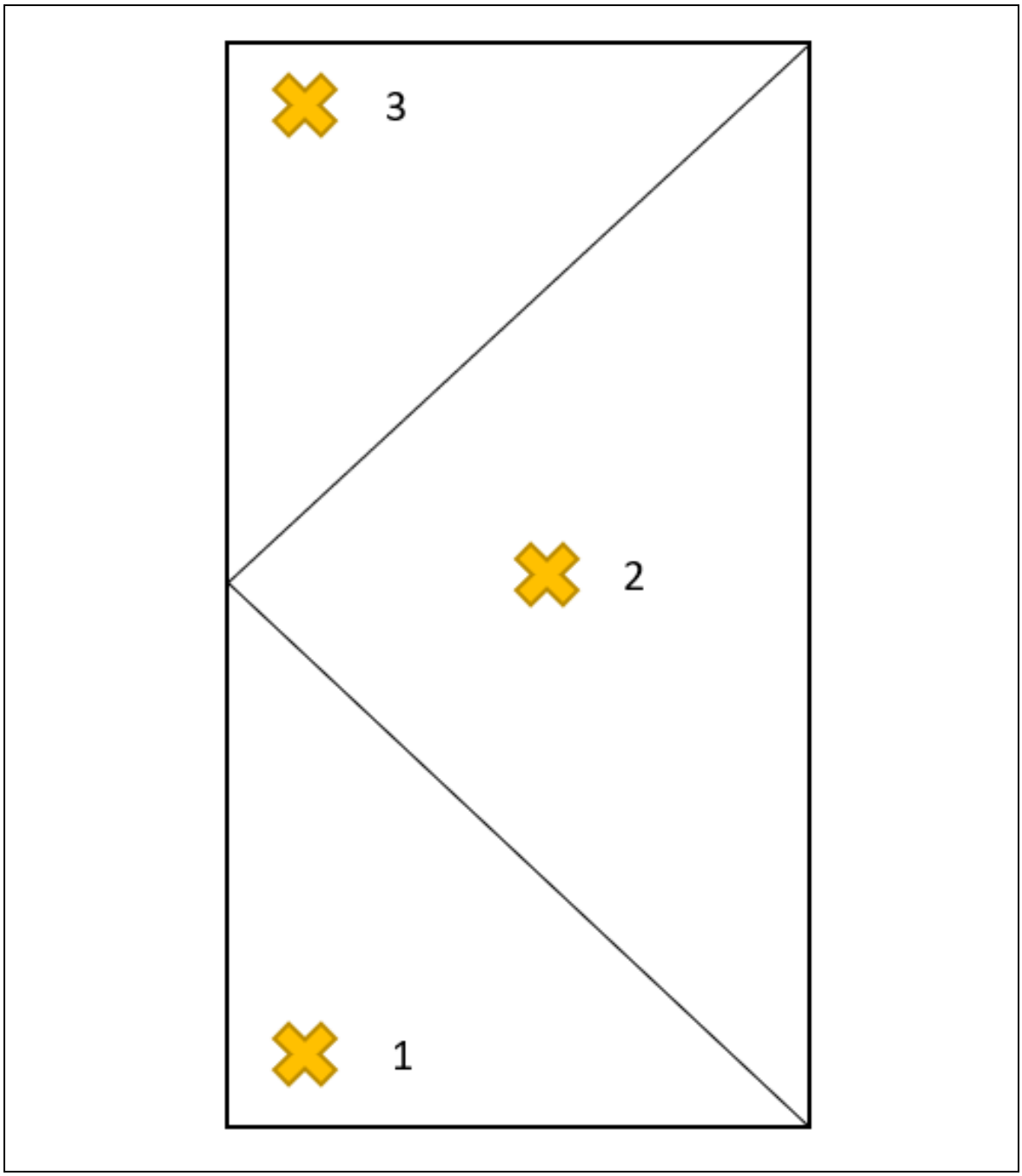
Date: 03/01/18



Sketch No. 3
TAS 201 Impact Locations Specimen #2

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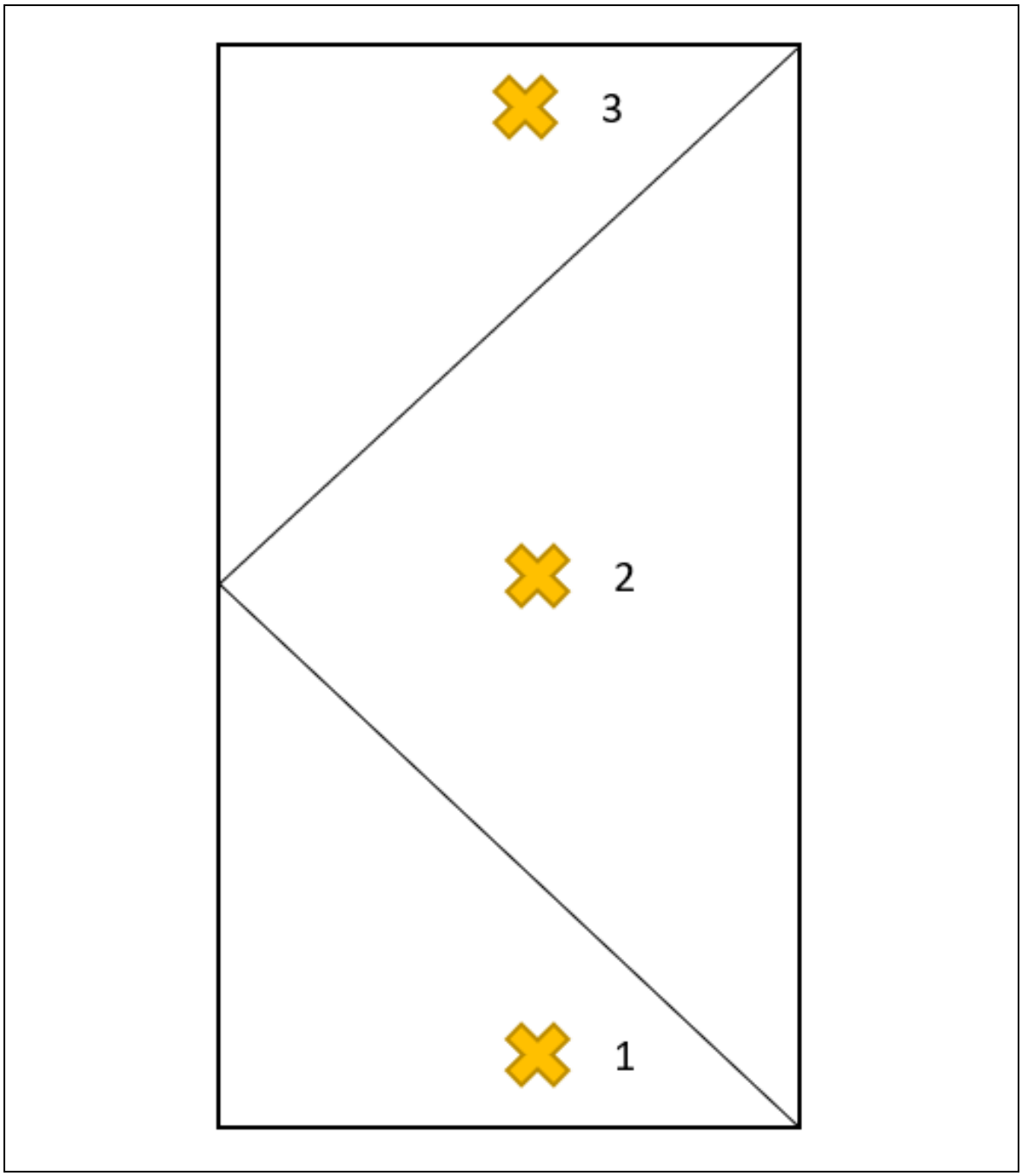

Sketch No. 4
TAS 201 Impact Locations Specimen #3

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TEST REPORT FOR CR LAURENCE CO., INC.
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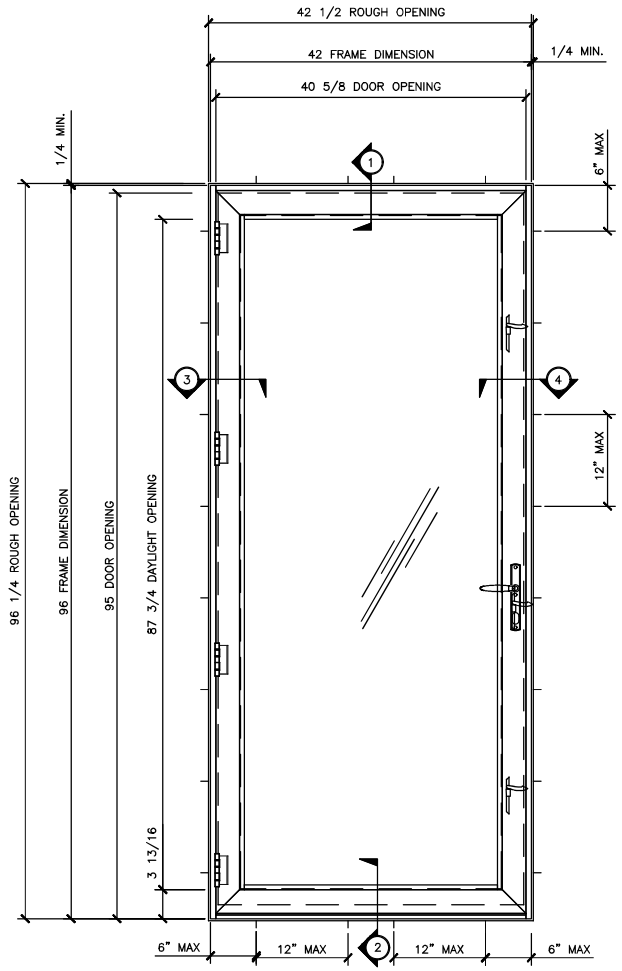
Date: 03/01/18

SECTION 11
DRAWINGS

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 D900 TERRACE DOOR– OUT–SWING

1 1/2"=1'–0"

ITEM		PT. NO.	PART DESCRIPTION	
C1	FRAME & SASH COMPONENTS	HT300	BOTTOM RAIL	
C2		WN429	GLASS STOP	
C3		JI450	FRAME–JAMB	
C4		HT450	FRAME–HEAD	
C5		HT300	SASH MEMBER	
C6		WH751	HINGE ASSEMBLY	
C7		WH7633	WEEP HOLE COVERS	
W1	WTHR STRIP	WH358	BLADE GASKET	
W2		GT416	GLAZING TAPE	
W3		WH416	WEDGE GASKET	
W4		WH342	BULB GASKET INTERIOR	
G1	GLAZING		3/16" CLEAR TEMP–3/8" AIR–3/16" HEAT STRENGTH'ND .060 SOLUTIA PVB–3/16" HEAT STRENGTH'ND	
G2		WB410	WEDGE BLOCK	
G3		SB222	SETTING BLOCK	
G4		SB450	SPACER GASKET	
G5		NP267	HOLLOW FORM GASKET	
G6		TH701	DEADBOLT STRIKE	
G7		TH702	TONGUE STRIKE	
G8		TH703	SHOOT BOLT STRIKE	
G9		HT451	STANDARD THRESHOLD–OUTSWING	
H3	HARDWARE	CB291	CORNER BLOCK	
H4		----	#10 X 2 ½" SS WOOD SCREWS	
H5		-----	ATHINAI M156/216N–SOLID BRASS W/DEADBOLT	
H6		----	#12–24 PH UNDER CUT FLAT HEAD MACHINE SCREWS	
S1		EF38C	3/8" CLOSED CELL BACKER ROD	
S3		DC795BL	DOW CORNING 795 BLACK–BUILDING SEALANT	

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Report #: I0495-303-18

Date: 02/28/18

Verified by:

TEST REQUIREMENTS

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

STATIC WATER:
15 Psf

DESIGN PRESSURE:
80 Psf

STRUCTURAL OVERLOAD:
120 Psf

TAS-201-94 SMI, LEVEL A *WIND ZONE 4*

TAS-202-94 Uniform Static Air Pressure ±80.0psf DP, 15.0psf water

TAS 203-94 Cyclic Pressure loading ±80.0psf DP

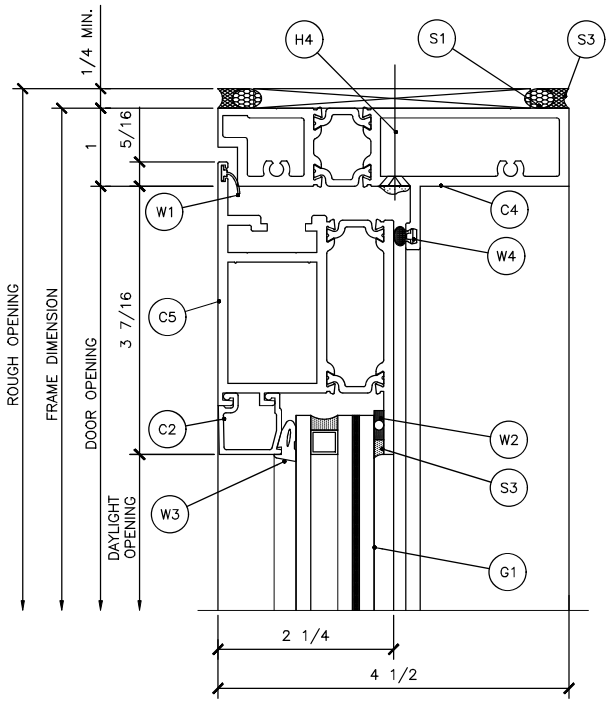
REVISIONS

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

Job Name: SERIES D900 TERRACE DOOR 42" X 96" OUTSWING–SMI

Glazing Contractor:

DATE: 8.31.2017
DRAWN BY: GDO
CHECKED BY:
SCALE: AS SHOWN
JOB #: PTC694395



1 OUT-SWING DOOR -HEAD

1-0"=1'-0"

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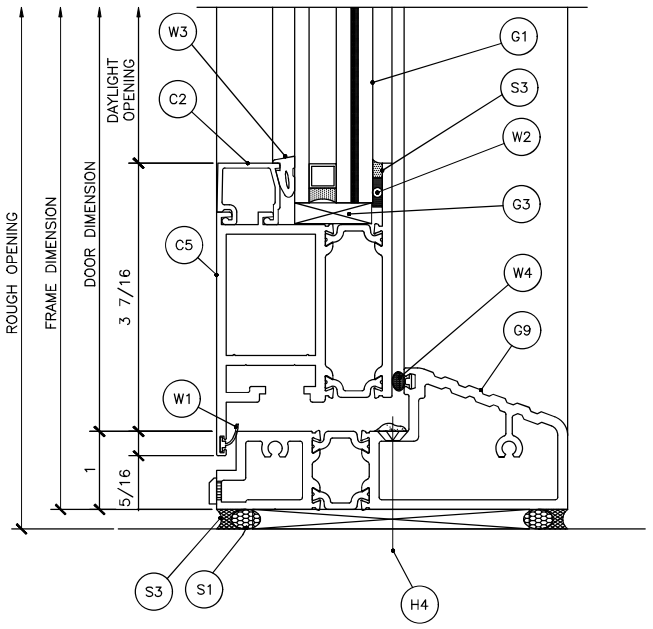
Report #: I0495-303-18

Date: 02/28/18

Verified by:



2 OUT-SWING DOOR-AT THRESHOLD

1-0"=1'-0"

REVISIONS

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ARCHITECTURAL PRODUCTS
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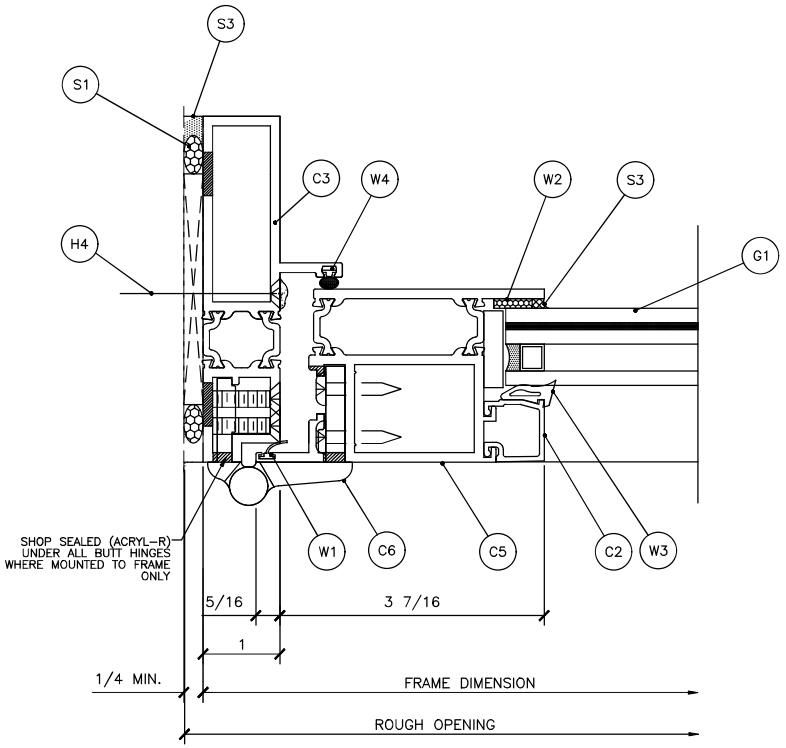
www.crlaurence.com

Job Name: SERIES D900 TERRACE DOOR 42" X 96" OUTSWING-SMI

Glazing Contractor:

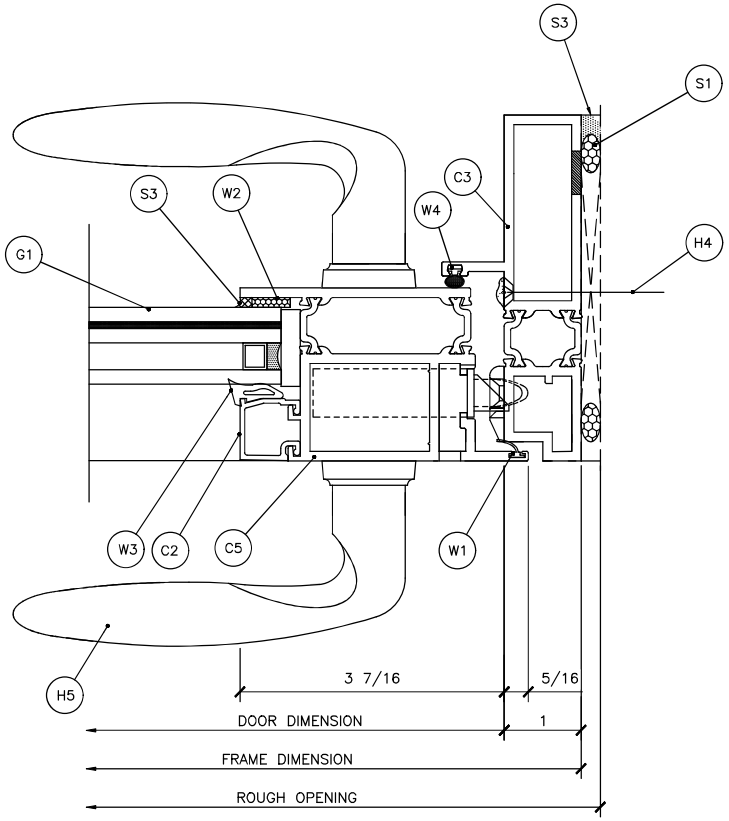
DATE: 8.31.2017
DRAWN BY: GDO
CHECKED BY:
SCALE: AS SHOWN
JOB #: PTC694395

SHT 2 OF 3



3 OUT-SWING DOOR @ JAMB

1-0"=1'-0"



4 OUT-SWING DOOR @ JAMB/LOCK STILE

1-0"=1'-0"

intertek
Total Quality. Assured.

Report #:	I0495-303-18
Date:	02/28/18
Verified by:	

REVISIONS

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

Job Name: SERIES D900 TERRACE DOOR 42" X 96" OUTSWING-SMI

Glazing Contractor:

DATE:	8.31.2017
DRAWN BY:	GDO
CHECKED BY:	
SCALE:	AS SHOWN
JOB #:	PTC694395

SHT 3 OF 3

25800 Commercentre Drive
Lake Forest, California 92630

Telephone: 949-460-9600
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CR LAURENCE CO., INC.
Report No.: I0495.01-303-18 R1
Date: 03/01/18

SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	02/16/18	N/A	Original Report Issue
1	03/01/18	4	Correct overall frame dimension measurements.
1	03/01/18	5	Update glazing gasket part number.
1	03/01/18	17-19	Update drawings to reflect gasket part number change.