Testing Evaluation Laboratories, Inc.

2002 Wood Court Suite 1 – Plant City, FL 33563
Phone: 813-754-9887

TEST RESULTS

Report No: TEL 01991439
Test Dates: October 5-13, 2015
Report Date: October 15, 2015

Dade Lab Certification Number: 15-0114.08
Test Notification Number: TEL 15-004

Issued to:

Fleetwood Windows and Doors
1 Fleetwood Way
Corona, CA 92879

Project Summary: Testing Evaluation Laboratories, Inc. (TEL) was contracted by Fleetwood Windows and Doors to perform tests on the 3900-T Side Hinged Doors at TEL's Plant City, FL test facility. ***For test results for TAS 202-94, please see test report number TEL 01991315.***

Test specimen descriptions and results are reported herein.

Test Specifications: **The test specimens were evaluated in accordance with the following:**

High Velocity Hurricane Zone Protocols TAS 201-94 and TAS 203-94

Test Specimen Description:

Series / Model:	**3900-T Side Hinged Doors**
Type:	**Inswing Aluminum Side Hinged Doors**
Overall Size:	**201.00" x 120.00" – All Specimens – (OXXO)**
Daylight Opening:	**28.50" x 108.00" – Door Panels – All Specimens** **47.00" x 108.00" – Sash Panel – All Specimens**
Glazing Details:	**See attached drawings for glazing details.**
Frame Material:	**Aluminum**
Finish:	**Mill Finish**

For Tested Elevation, Vertical Cross Sections, Horizontal Cross Sections, Components, Frame Anchoring, Glazing Detail and Bill of Materials See Attached Drawing number L-7495.

IMPACT AND CYCLING TESTS

Specimen 1 – 201.00" x 120.00" – Inswing Double Door with Sash Sidelites – Welded Astragal Bolt – OXXO

TAS 201 and 203 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
74°F	D	9.0 lbs, 1 oz.	8'-1/2"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	11.75 "	10.00"	50.2 fps
2	Pass	30.00"	60.00"	49.8 fps
3	Pass	61.00"	60.00"	49.8 fps
4	Pass	81.00"	3.00"	49.9 fps
5	Pass	101.00"	60.00"	49.9 fps
6	Pass	112.00"	11.50"	49.9 fps
7	Pass	120.50"	60.00"	50.0 fps

Orientation of Missile at Impact was within +/-5° of horizontal.
None of the impacts penetrated the specimens.
"X" measurement is from the left edge of test specimen.
"Y" measurement is from the bottom edge of test specimen.

TAS 201 and 203 – Fatigue Load Cycling **Design Pressure +55.0 psf / - 65.0 psf**

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	11.0 to 27.5	3500	1.69
0% to 60%	0.0 to 33.0	300	2.78
50% to 80%	27.5 to 44.0	600	1.84
30% to 100%*	16.5 to 55.0	100	2.78

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.96
50% to 80%	32.5 to 52.0	1050	1.63
0% to 60%	0.0 to 39.0	50	2.74
20% to 50%	13.0 to 32.5	3350	1.92

*Active Panel deflected 2.25" from original plane at 100% Positive load and 2.75" from original plane at 100% Negative load. At the completion of cycles the door panel was operable. There were no tears in the film. In our opinion, the tape and film used to seal for air leakage did not influence the results of the test.

James Hayhurst, Test Technician

IMPACT AND CYCLING TESTS

Specimen 2 – 201.00" x 120.00" – Inswing Double Door with Sash Sidelites – Welded Astragal Bolt – OXXO

TAS 201 and 203 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
74°F	D	9.0 lbs, 1 oz.	8'-1/2"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	11.75 "	10.00"	49.8 fps
2	Pass	30.00"	60.00"	49.8 fps
3	Pass	61.00"	60.00"	50.1 fps
4	Pass	81.00"	3.00"	50.1 fps
5	Pass	101.00"	60.00"	50.0 fps
6	Pass	112.00"	11.50"	49.9 fps
7	Pass	120.50"	60.00"	50.0 fps

Orientation of Missile at Impact was within +/-5° of horizontal.
None of the impacts penetrated the specimens.
"X" measurement is from the left edge of test specimen.
"Y" measurement is from the bottom edge of test specimen.

TAS 201 and 203 – Fatigue Load Cycling **Design Pressure +55.0 psf / - 65.0 psf**

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	11.0 to 27.5	3500	2.12
0% to 60%	0.0 to 33.0	300	2.10
50% to 80%	27.5 to 44.0	600	2.34
30% to 100%*	16.5 to 55.0	100	2.48

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.49
50% to 80%	32.5 to 52.0	1050	1.57
0% to 60%	0.0 to 39.0	50	2.84
20% to 50%	13.0 to 32.5	3350	1.56

*Active Panel deflected 2.375" from original plane at 100% Positive load and 2.875" from original plane at 100% Negative load. At the completion of cycles the door panel was operable. There were no tears in the film. In our opinion, the tape and film used to seal for air leakage did not influence the results of the test.

James Hayhurst, Test Technician

IMPACT AND CYCLING TESTS

Specimen 3 – 201.00" x 120.00" – Inswing Double Door with Sash Sidelites – Welded Astragal Bolt – OXXO

TAS 201 and 203 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
74°F	D	9.0 lbs, 1 oz.	8'-1/2"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	61.00"	60.00"	49.8 fps
2	Pass	81.00"	3.00"	49.8 fps
3	Pass	101.00"	60.00"	50.1 fps
4	Pass	120.00"	60.00"	49.9 fps
5	Pass	128.00"	108.00"	49.8 fps
6	Pass	131.00"	60.00"	49.9 fps
7	Pass	186.00"	60.00"	49.9 fps

Orientation of Missile at Impact was within +/-5° of horizontal.
None of the impacts penetrated the specimens.
"X" measurement is from the left edge of test specimen.
"Y" measurement is from the bottom edge of test specimen.

TAS 201 and 203 – Fatigue Load Cycling **Design Pressure +55.0 psf / - 65.0 psf**

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	11.0 to 27.5	3500	1.98
0% to 60%	0.0 to 33.0	300	2.29
50% to 80%	27.5 to 44.0	600	1.56
30% to 100%*	16.5 to 55.0	100	2.32

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.52
50% to 80%	32.5 to 52.0	1050	1.29
0% to 60%	0.0 to 39.0	50	2.35
20% to 50%	13.0 to 32.5	3350	1.72

*Active Panel deflected 2.375" from original plane at 100% Positive load and 3.00" from original plane at 100% Negative load. At the completion of cycles the door panel was operable. There were no tears in the film. In our opinion, the tape and film used to seal for air leakage did not influence the results of the test.

James Hayhurst, Test Technician

Conditions, Terms, and General Notes Regarding These Tests

The product tested **Has Been** compared to the detailed drawing, bill of materials and fabrication information supplied by the client so named herein. Our analysis, which includes dimensional and component description comparisons, indicate the tested product and engineering information supplied by the client **"Are Equivalent".** The report and representative samples will be retained for four years from the date of initial test.

These test results were obtained by employing all requirements of the designated test methods with no Deviations unless explicitly noted in test report. The test results and specimen supplied for testing are in compliance with the reference.

The test results are specific to the product tested by this laboratory and of the sample supplied by the client named herein, and they relate to no other product either manufactured by the client, a fabricator of the client or of the client or of installed field performance.

This test report does not constitute certification of this product, but only that the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

Testing Evaluation Laboratories, Inc. makes no opinions or endorsements regarding this product and its performance. This report may not be reproduced or quoted in partial form without the expressed written approval of Testing Evaluation Laboratories, Inc.

Testing Evaluation Laboratories, Inc.'s letter, reports, its name or insignia or mark are for the exclusive use of the client so named herein and any other use is strictly prohibited. The report, letters and the name of Testing Evaluation Laboratories, Inc., its seal or mark shall not be used in any circumstance to the general public or in any advertising.

Limitation of liability: Due diligence was used in performing the tests and reporting the results. By acceptance of this report, this client agrees to hold harmless and indemnify Testing Evaluation Laboratories, Inc., its employees, sub-contractors, officers and owners against all claims and demands of any kind whatsoever, which arise out of or in any manner connected with the performance of work referred to herein.

Testing Evaluation Laboratories, Inc.

Vivian K. Wright,
President

William B. Shelton, P.E.
Florida P.E. #26686

Revision Log

Rev No.	Date	Page(s)	Revision(s)
0	10/15/2015	NA	Original Report Issue

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Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: TABLE OF CONTENTS

NO.	DATE	BY

REVISIONS

RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 10/6/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 1 OF 14

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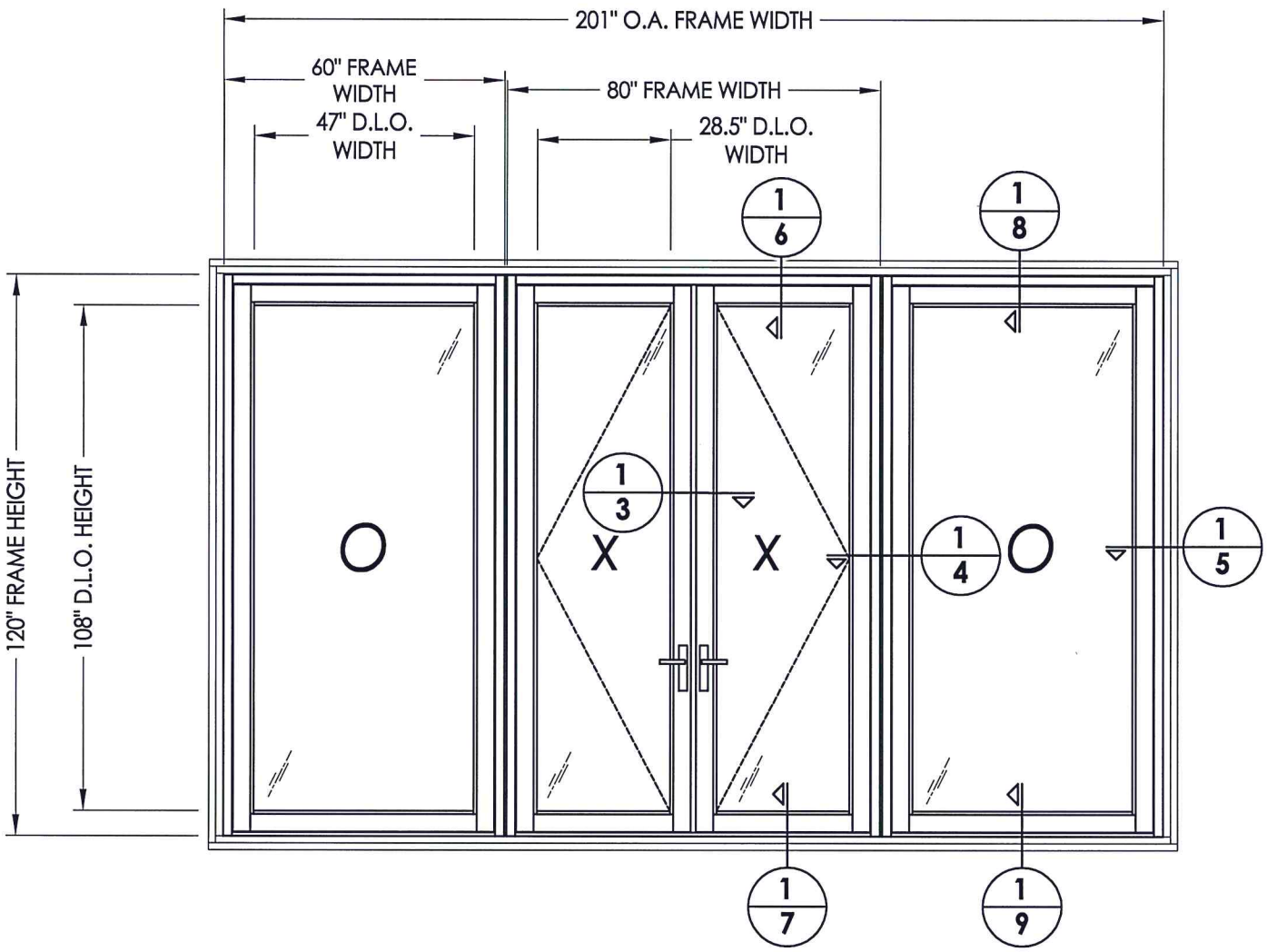

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
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PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: TEST ELEVATIONS

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DRAWING NO.: L-7495
SHEET 2 OF 14

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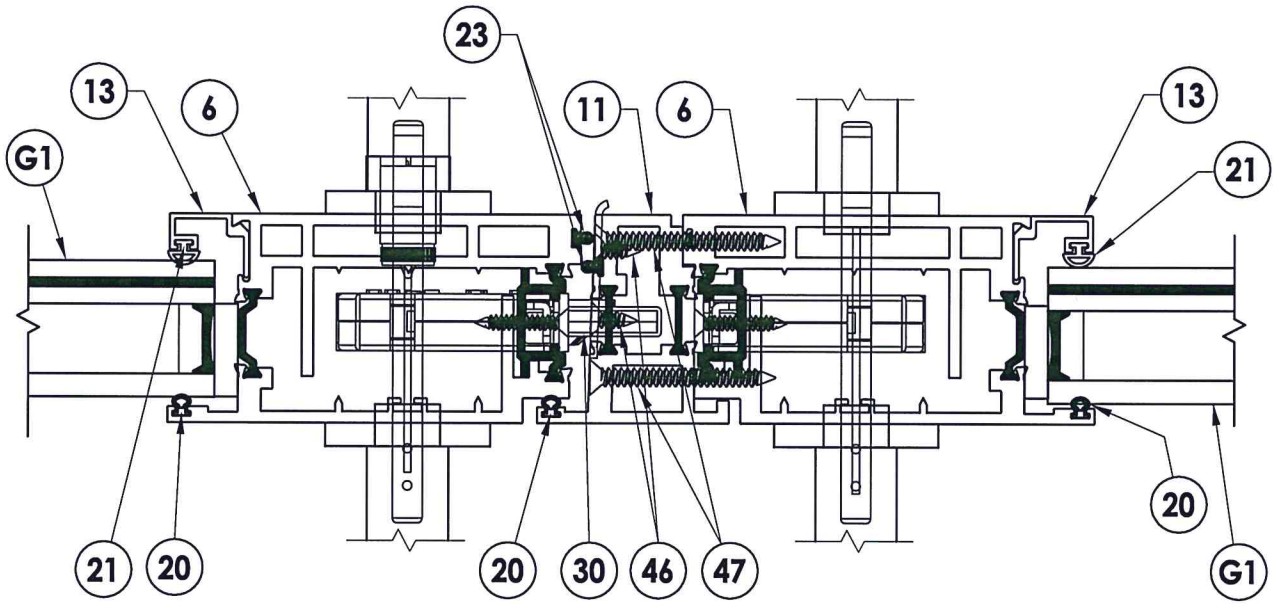
INTERIOR



EXTERIOR

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

1/3 **HORIZONTAL CROSS SECTION**

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: HORIZONTAL CROSS SECTIONS

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CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 3 OF 14

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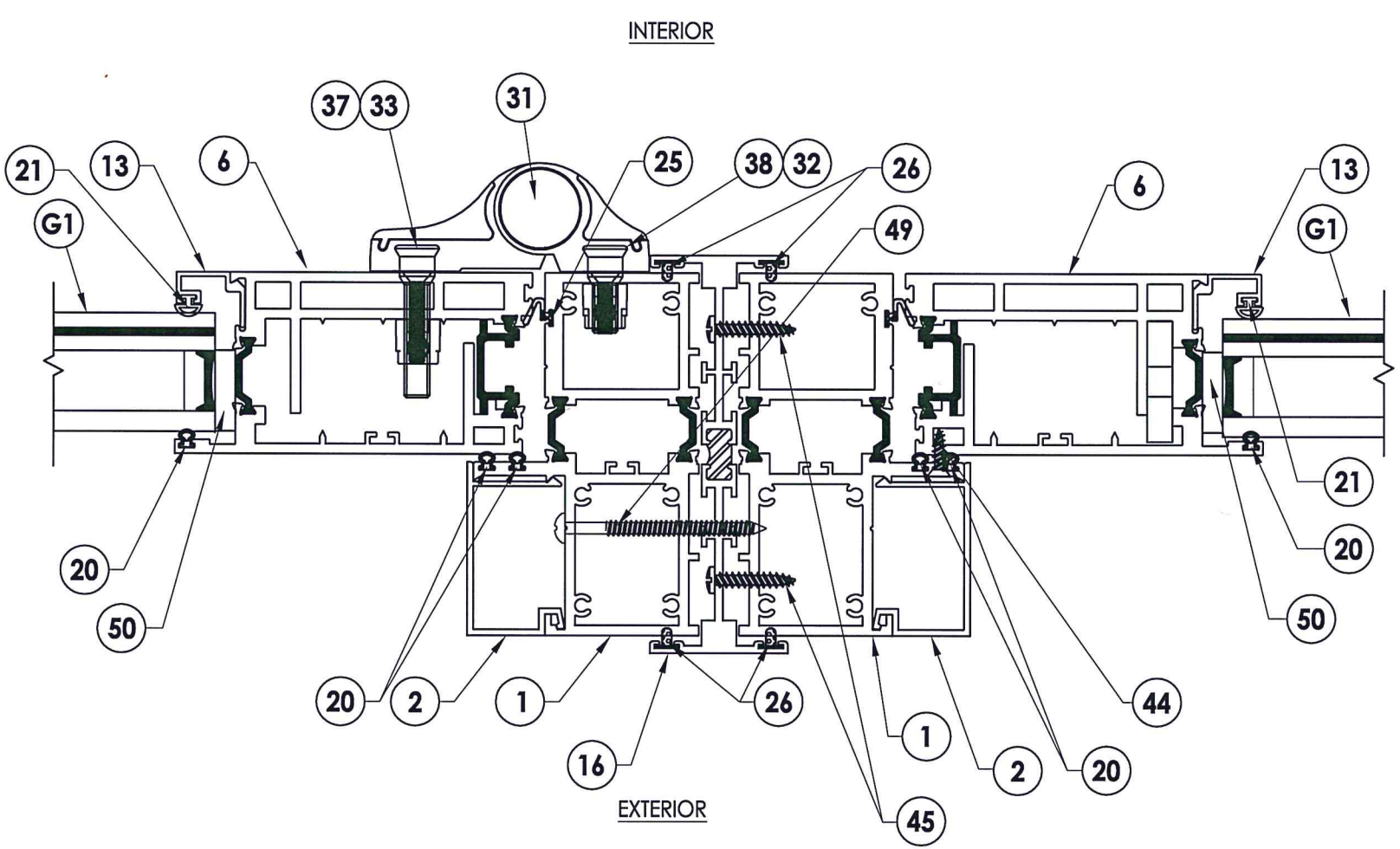

1/4 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: HORIZONTAL CROSS SECTIONS

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SHEET 4 OF 14

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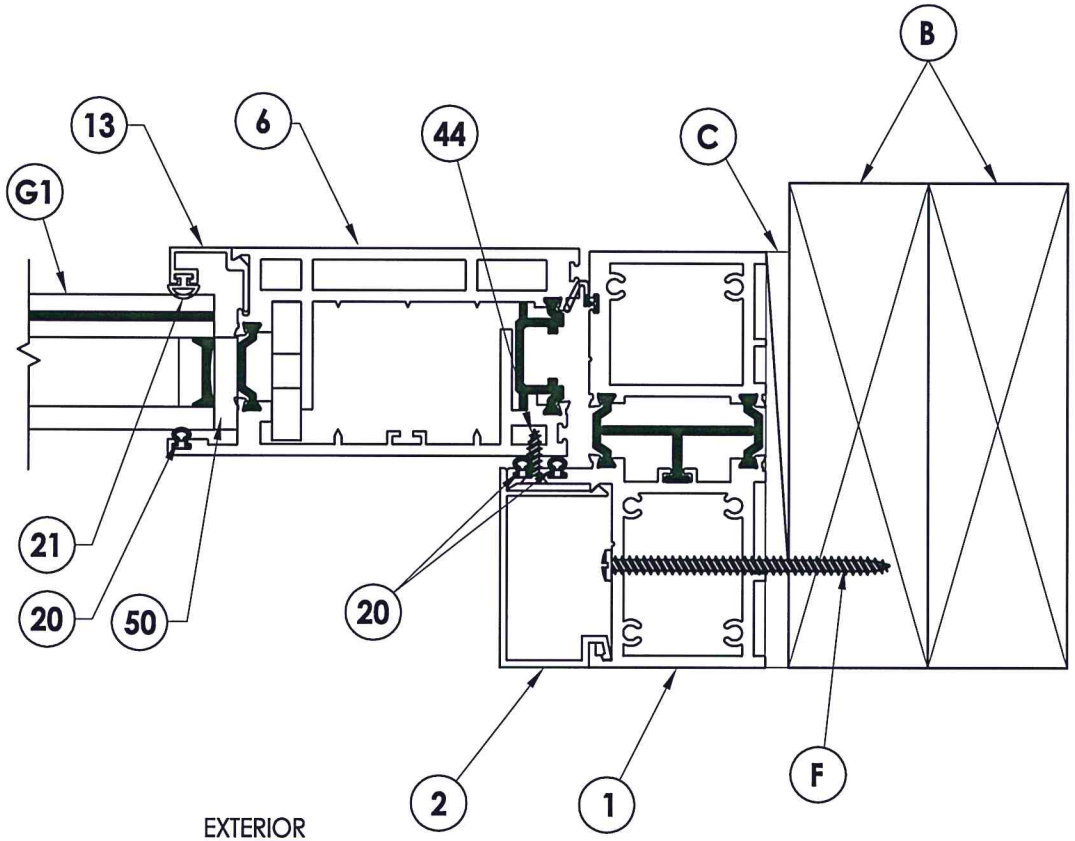
INTERIOR



EXTERIOR

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
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1/5 **HORIZONTAL CROSS SECTION**

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: HORIZONTAL CROSS SECTIONS

NO.	DATE	REVISIONS	BY

RW BUILDING CONSULTANTS, INC.
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SHEET 5 OF 14

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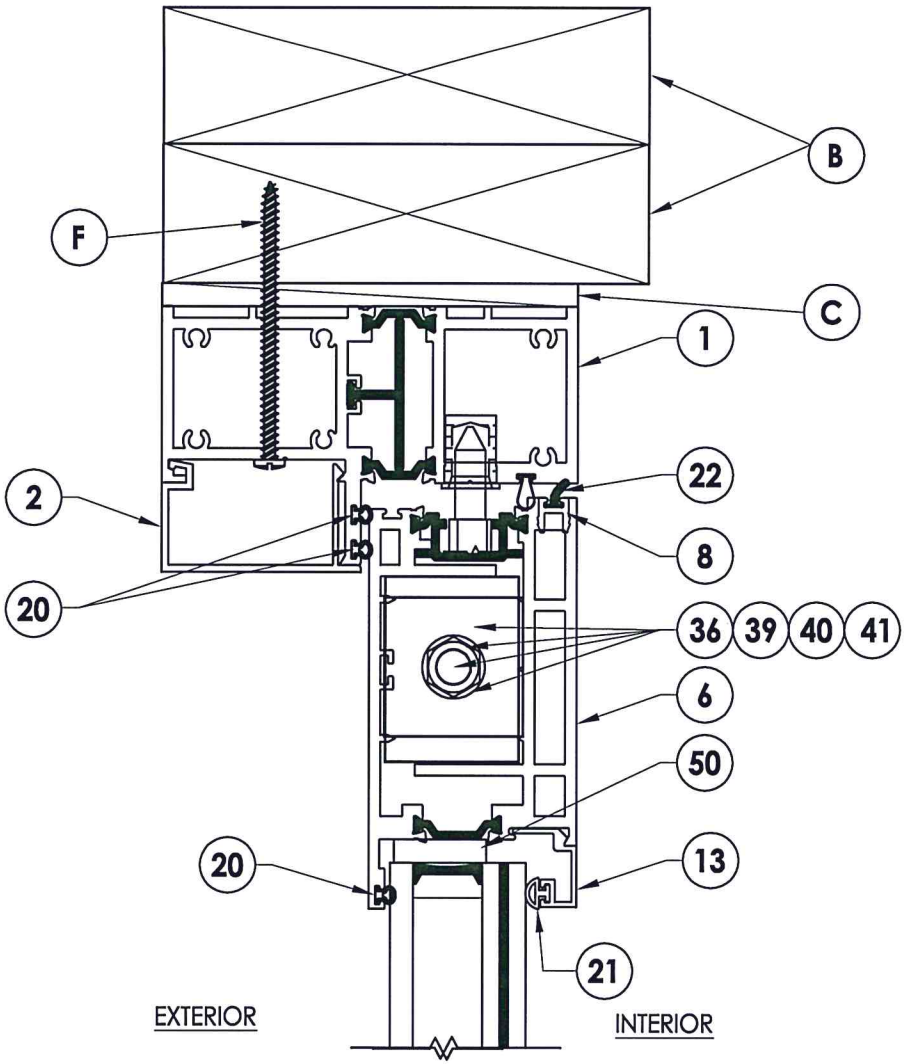

1/6 **VERTICAL CROSS SECTION**

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: VERTICAL CROSS SECTIONS

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DATE: 10/6/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 6 OF 14

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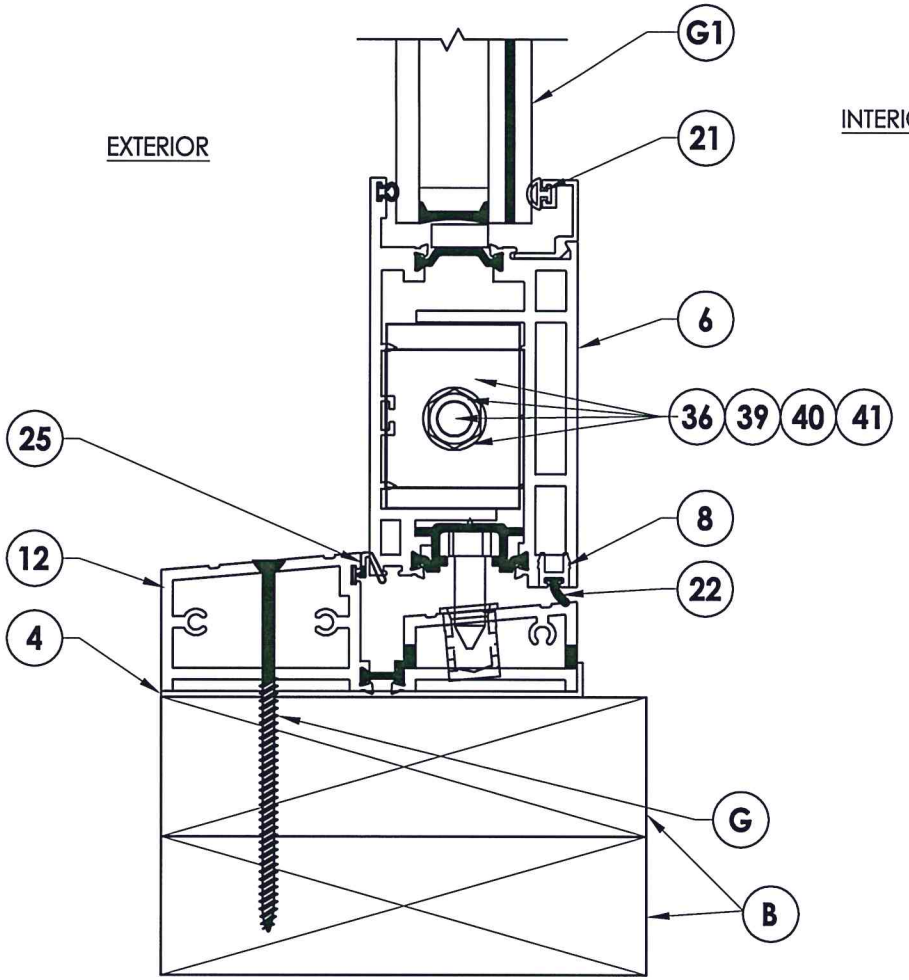

1/7 **VERTICAL CROSS SECTION**

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
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PRODUCT: FLEETWOOD OXXO (INSWING)

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DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 7 OF 14

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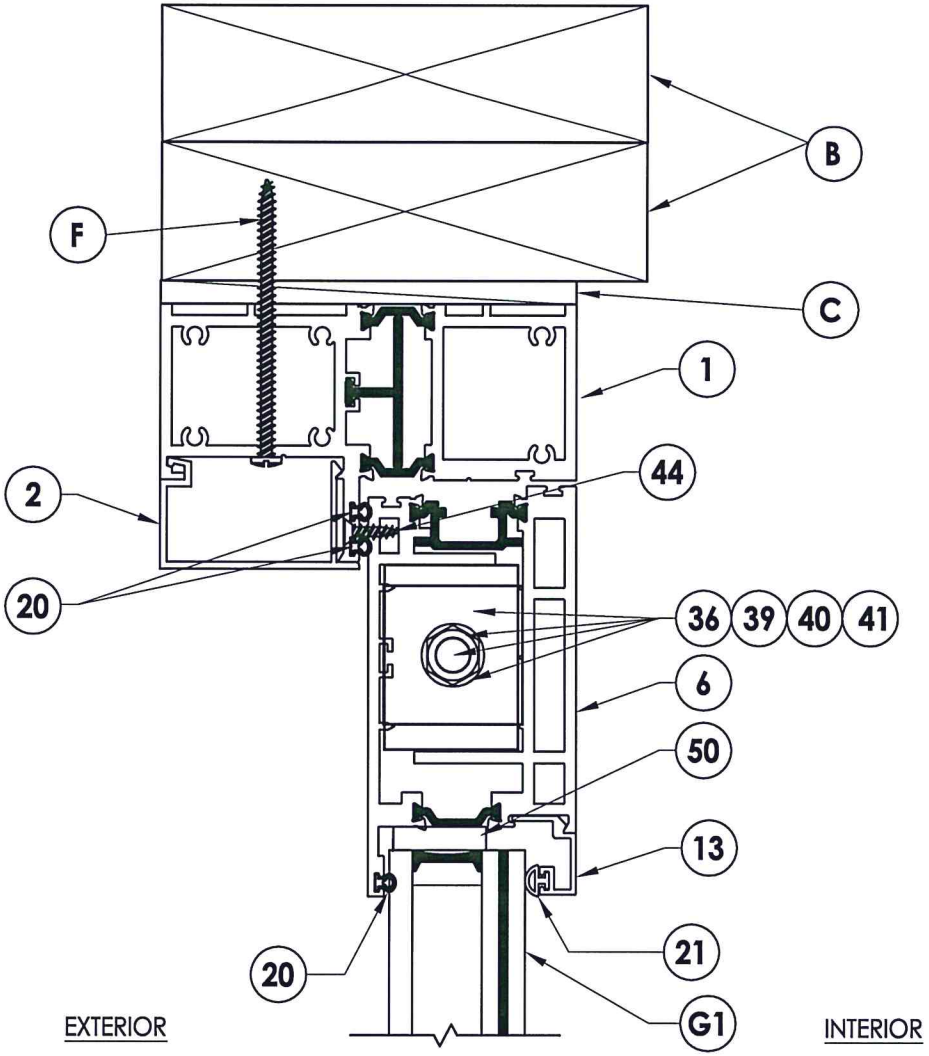

1/8 **VERTICAL CROSS SECTION**

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Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: VERTICAL CROSS SECTIONS

NO.	DATE	BY	REVISIONS

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DATE: 10/6/15
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DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 8 OF 14

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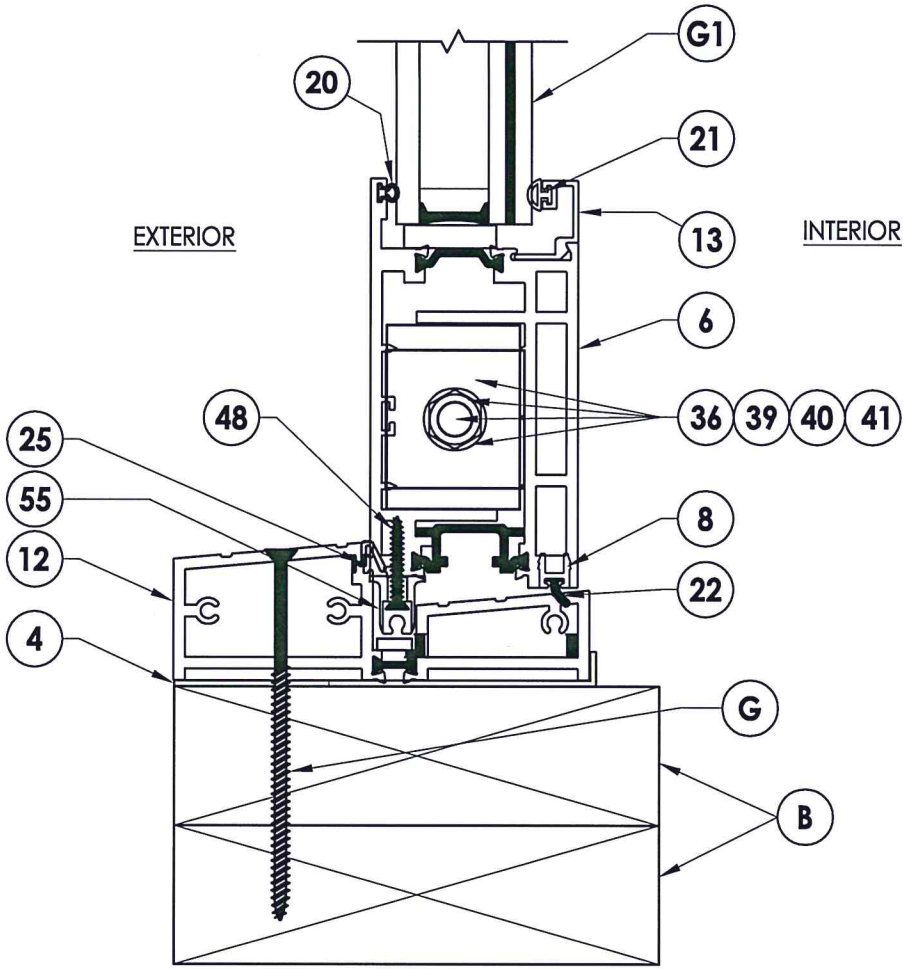

1/9 **VERTICAL CROSS SECTION**

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: VERTICAL CROSS SECTIONS

NO.	DATE	REVISIONS	BY

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DATE: 10/6/15
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DWG. BY: JK
CHK. BY: LFS
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SHEET 9 OF 14

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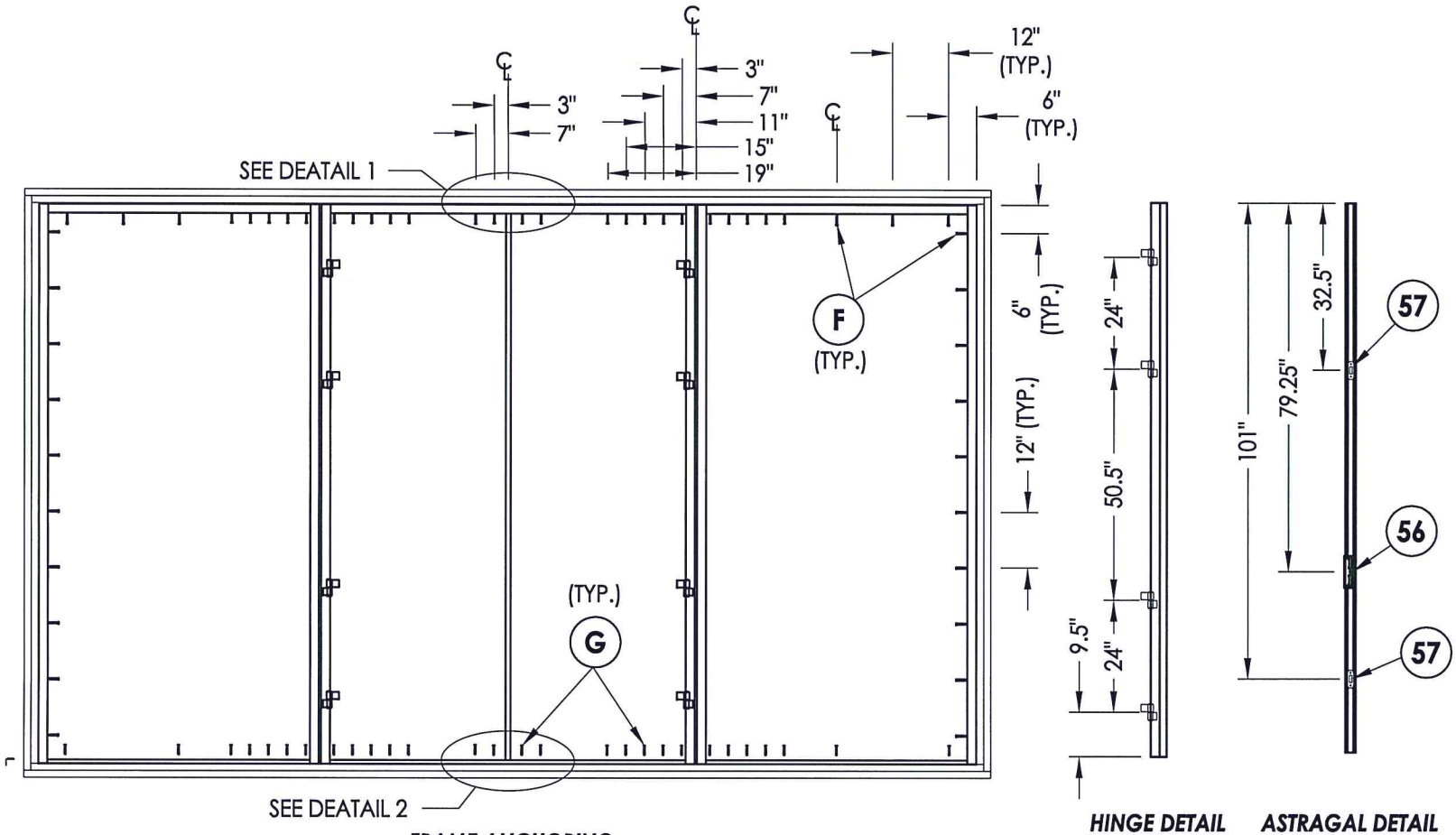
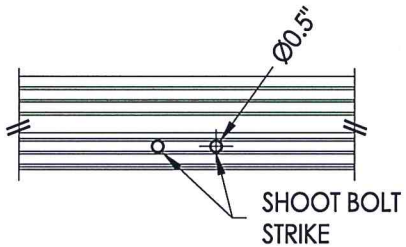


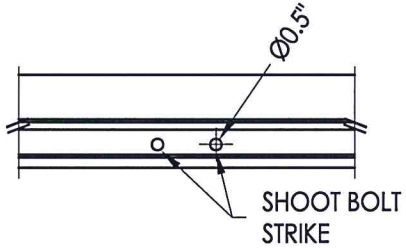
FRAME ANCHORING
(2X buck installation)

HINGE DETAIL

ASTRAGAL DETAIL



DETAIL 2



DETAIL 1

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: FRAME ANCHORING

NO.	DATE	REVISIONS	BY

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DATE:	10/6/15
SCALE:	N.T.S.
DWG. BY:	JK
CHK. BY:	LFS
DRAWING NO.:	L-7495
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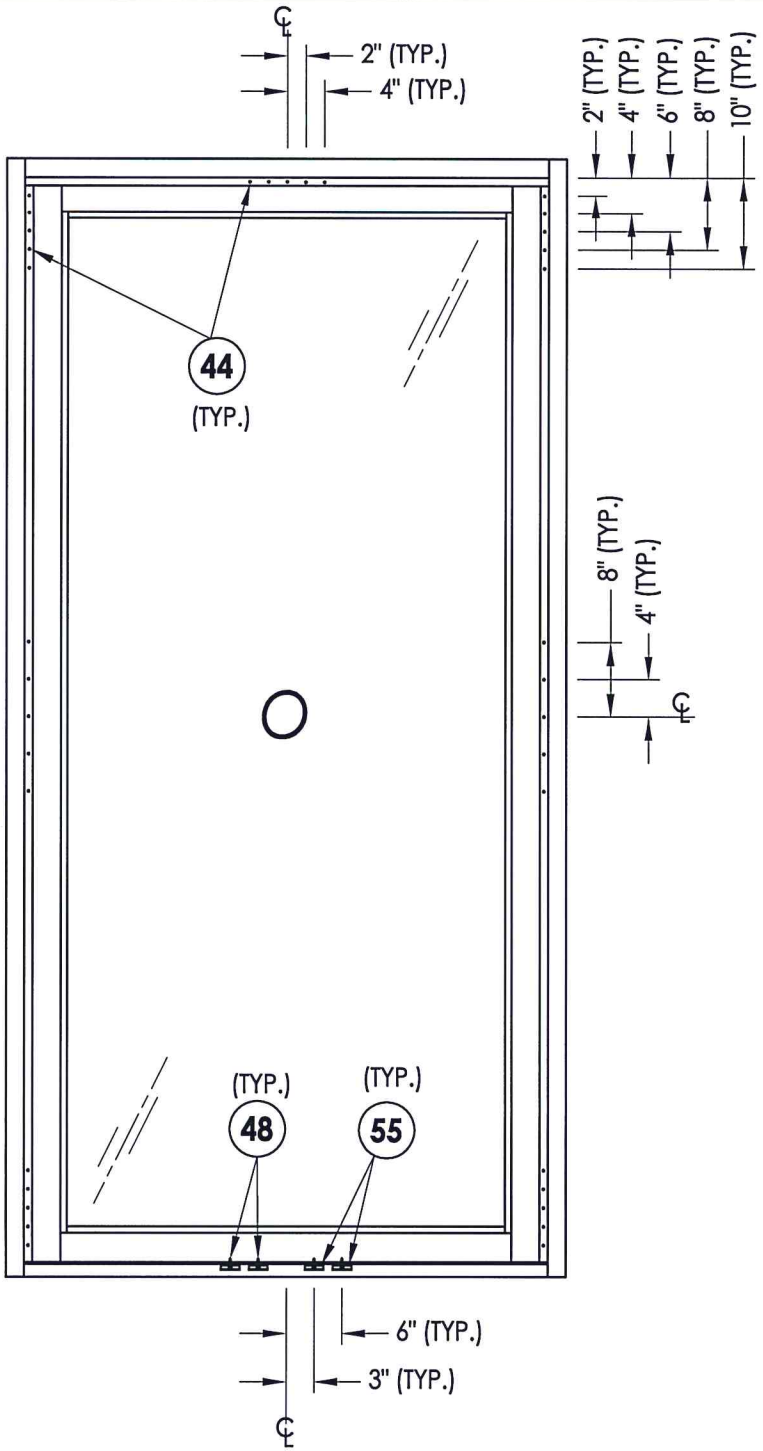

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: SIDELITE PANEL DETAIL

NO.	DATE	BY

REVISIONS

RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 10/6/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 11 OF 14

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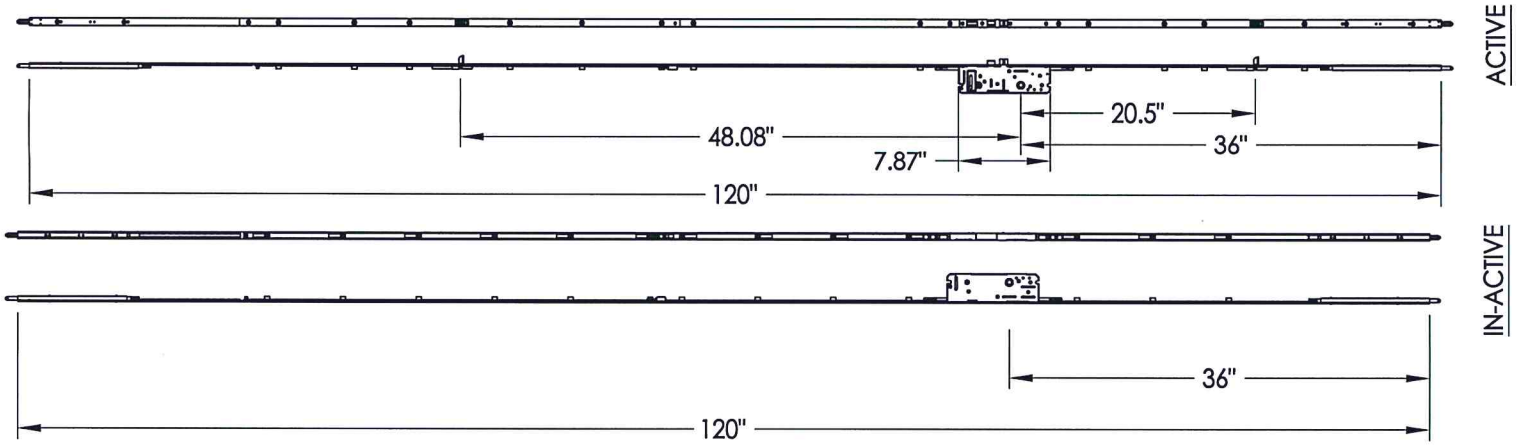
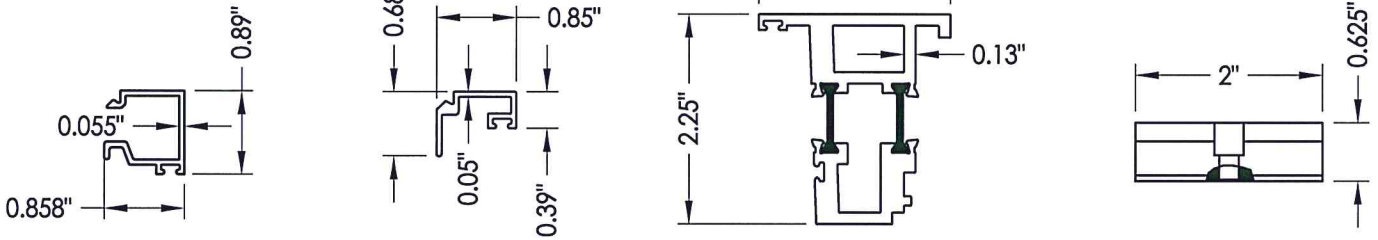


30 MULTI-POINT LOCK
TRUTH

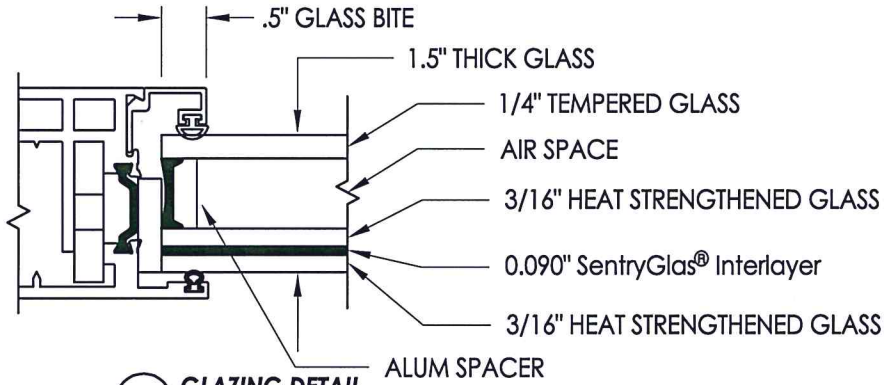


7 1" GLASS STOP

13 1-1/2" GLASS STOP

11 ASTRAGAL

55 FIXED SILL BLOCK



G1 GLAZING DETAIL

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

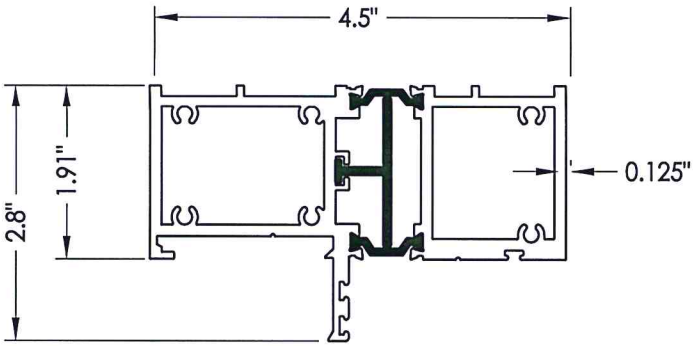
PART OR ASSEMBLY: COMPONENTS AND GLAZING DETAIL

NO.	DATE	BY	REVISIONS

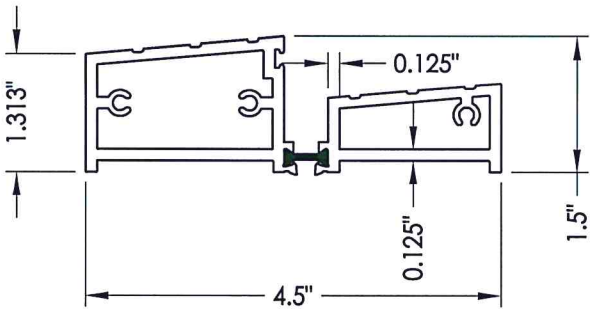
RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 10/6/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 12 OF 14

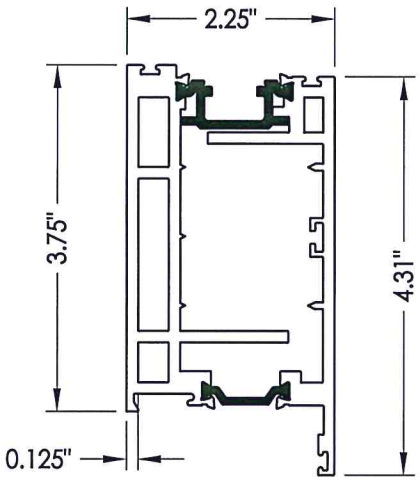
R:\Clients\Fleetwood PERMANENT\C - Drawings\Lab Dwgs\L-7495 oxxo INSWING.dwg, 12



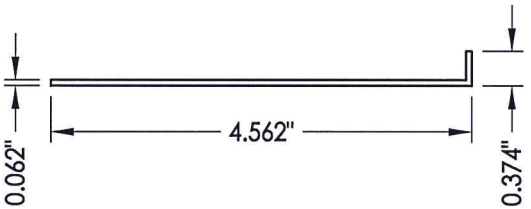
1 **BLOCK HEAD & JAMBS** (Fin)



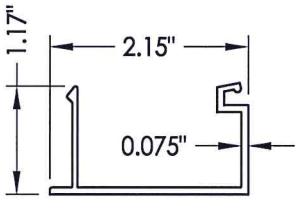
12 **IN-SWING SILL**



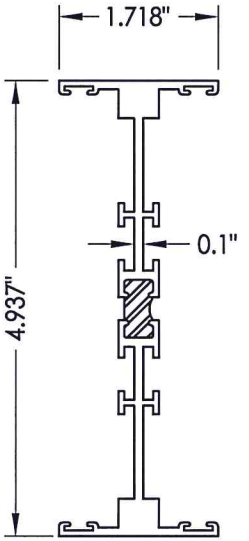
6 **SASH**



4 **SILL PAN**



2 **FRAME SNAP-IN**



16 **KONA I-MULLION**

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: COMPONENTS

NO.	DATE	REVISIONS	BY

RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 10/6/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7495
SHEET 13 OF 14

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BILL OF MATERIALS

ITEM #	DESCRIPTION	PART#	MATERIAL
B	2X BUCK SG >= 0.55	-	WOOD
C	1/4" MAX. SHIM SPACE	-	-
F	#10 x 3" PPH WOOD SCREW	-	STEEL
G	#10 x 4" PFH WOOD SCREW	-	STEEL
1	FRAME	3911	6063-T6 ALUM
2	FRAME SNAP-IN	3912	6063-T6 ALUM
4	SILL PAN	-	SHEET METAL (ALUMINUM)
6	SASH	3902	6063-T6 ALUM
8	ATLANTIC SEAL CLIP	3916	6063-T6 ALUM
11	ASTRAGAL	3905	6063-T6 ALUM
12	IN-SWING SILL	3904	6063-T6 ALUM
13	1-1/2" GLASS STOP	-	6063-T6 ALUM
16	KONA I-MULLION	3082	6063-T6 ALUM
20	BULB VINYL - MINI (EPDM 70 Durometer)	25199	TREMCO, # TX20801E
21	BULB VINYL - LARGE (EPDM 70 Durometer)	25031	TREMCO, # TX19638E
22	FOAM SEAL	25196	EMESBURY, # 32390
23	Q-LON FOAM SEAL	25189	SCHLEGEL CORP., # Q225T190
25	Q-LON FOAM SEAL	25059	SCHLEGEL CORP., # QEZ 376
26	Q-LON FOAM SEAL	19120	SCHLEGEL CORP., # U 5212
30	LOCKING HARDWARE (5 point lock)	-	TRUTH
31	BUTT HINGE	-	SAVIO
32	BACK UP KIT	20535	SAVIO
33	HINGE BOLT, 8M X 48MM (FOR PANEL)	25026	SAVIO
36	BACK UP PLATE FOR CORNER BLOCK	25025	-
37	MACHINE SCREW NO 10-32, FHP 1.125"	25074	STAINLESS STEEL
38	MACHINE SCREW NO 10-32, FHP .75"	25073	STAINLESS STEEL
39	HEX HEAD CAP SCREW .375-16, 2.250"	25175	STAINLESS STEEL
40	.375-16 SS. HEX NUT	25023	STAINLESS STEEL
41	.375 SPLIT LOCK WASHER	25024	STAINLESS STEEL
42	.375-16 SS. HEX NUT	25176	STAINLESS STEEL
44	#8 x 1/2" PFH SMS	-	STEEL
45	#10 x 1" PFH SMS	-	STEEL
46	SCREW NO 10, UFHP .5"	20275	STAINLESS STEEL
47	SCREW NO 10, FHP 2"	20298	STAINLESS STEEL
48	#8 x 1" PFH SMS	-	STEEL
49	#10 x 3" PFH SMS	-	STEEL
50	4" LONG SETTING BLOCK	18620	-
55	FIXED SILL BLOCK	-	6063-T6 ALUM
56	LATCH AND DEADBOLT STRIKE PLATE	-	STEEL
57	STRIKE PLATE	-	STEEL

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991439
Date 10/06/15 Verified by

PRODUCT: FLEETWOOD OXXO (INSWING)

PART OR ASSEMBLY: BILL OF MATERIALS

NO.	DATE	BY

REVISIONS

RW BUILDING CONSULTANTS, INC.
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DATE: 10/6/15
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DWG. BY: JK
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DRAWING NO.: L-7495
SHEET 14 OF 14

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