



Testing Evaluation Laboratories, Inc.

2002 Wood Court Suite 1 – Plant City, FL 33563

Phone: 813-754-9887

ASTM E 1886-05 / ASTM E 1996-06
Missile Level "D" (Includes Wind Zone 4)

TEST REPORT SUMMARY

Test Report Issued To:

Fleetwood Windows and Doors
1 Fleetwood Way
Corona, CA 92879

Kona 3800 Aluminum Fixed Windows

Title of Test	Results			
	Specimens 1A, 1B, 1C 60.00 x 120.00	Specimen 2A 60.00 x 120.00	Specimen 4A 96.00 x 120.00	Specimen 5A 120.00 x 96.00
Impact	Pass	Pass	Pass	Pass
Fatigue Load Cycling	+65.0/- 65.0 psf	+65.0/- 65.0 psf	+65.0/- 65.0 psf	+65.0/- 65.0 psf

Reference should be made to Report No. TEL 01991008 for complete test specimen description and data. For corresponding data regarding AAMA/WDMA/CSA 101/I.S./2/A440-08 (A440S1-09) reference should be made to Report No. TEL 01991007.

For Testing Evaluation Laboratories, Inc.

Vivian K. Wright,
President



Testing Evaluation Laboratories, Inc.

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

TEST RESULTS

IAS Lab Certification Number: TL-299

Report No: TEL 01991008
Test Dates: January 13-20, 2014
Report Date: March 21, 2014

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 Kona 3800 Fixed Windows at TEL's Plant City, FL test facility.

Test specimen descriptions and results are reported herein.

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

ASTM E 1886-05 / ASTM E 1996-06
Missile Level "D" (Includes Wind Zone 4)

Test Specimen Description:

Series / Model:	Kona 3800 Fixed Windows
Type:	Aluminum Fixed Windows
Overall Size:	60.00" x 120.00 – Specimens 1a, 1b and 1c – (O) – Direct Mount 50.00" x 144.00" – Specimen 2a – (O) – Fin Mount 96.00" x 120.00" – Specimen 4a– (O/O/O) – Direct Mount 120.00" x 96.00" – Specimen 5a– (OOO) – Fin Mount
Daylight Opening:	57.10" x 117.10" – Specimens 1a, 1b and 1c – (O) 47.10" x 141.10" – Specimen 2a – (O) 93.06" x 37.375" – Specimen 4a– (O/O/O) - Top/Bottom Panels 93.06" x 37.50" – Specimen 4a– (O/O/O) – Center Panel 37.375" x 93.06" – Specimen 5a– (OOO) - End panels 37.50" x 93.06" – Specimen 5a– (OOO) - Center panel

Test Specimen Description: Continued

Glazing Detail: See attached drawing numbers L-7030, L-7108 and L-7109 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 numbers L-7030, L-7108 and L-7109.

IMPACT AND CYCLING TESTS

Specimen 1A – 60.0” x 120.0” Aluminum Fixed Window – (O)

ASTM E1886-05/1996-06 – 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, 3 oz.	8'-0"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	52.5"	111.0"	49.9 fps
2	Pass	30.0"	60.0"	50.2 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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.71
0% to 60%	0.0 to 39.0	300	2.98
50% to 80%	32.5 to 52.0	600	2.41
30% to 100%*	19.5 to 65.0	100	2.91

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.99
50% to 80%	32.5 to 52.0	1050	2.27
0% to 60%	0.0 to 39.0	50	2.98
20% to 50%	13.0 to 32.5	3350	2.90
*Panel deflected 1.25" from original plane at 100% Positive load and 3.13" 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.			

Jarrett Wright and James Hayhurst, Test Technicians

Mfg Observers – Joe Zammit

IMPACT AND CYCLING TESTS

Specimen 1B – 60.0" x 120.0" Aluminum Fixed Window – (O)

ASTM E1886-05/1996-06 – 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, 3 oz.	8'-0"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	30.0"	60.0"	49.9 fps
2	Pass	8.0"	8.0"	50.1 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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.84
0% to 60%	0.0 to 39.0	300	2.97
50% to 80%	32.5 to 52.0	600	2.99
30% to 100%*	19.5 to 65.0	100	2.89

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.99
50% to 80%	32.5 to 52.0	1050	2.51
0% to 60%	0.0 to 39.0	50	2.97
20% to 50%	13.0 to 32.5	3350	2.89

*Panel deflected 1.00" from original plane at 100% Positive load and 3.25" 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.

Jarrett Wright and James Hayhurst, Test Technicians

Mfg. Observers – Joe Zammit

IMPACT AND CYCLING TESTS

Specimen 1C – 60.0" x 120.0" Aluminum Fixed Window – (O)

ASTM E1886-05/1996-06 – 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, 3 oz.	8'-0"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	52.50"	111.00"	50.1 fps
2	Pass	30.00"	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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.93
0% to 60%	0.0 to 39.0	300	2.99
50% to 80%	32.5 to 52.0	600	2.35
30% to 100%*	19.5 to 65.0	100	2.19

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.98
50% to 80%	32.5 to 52.0	1050	2.27
0% to 60%	0.0 to 39.0	50	2.99
20% to 50%	13.0 to 32.5	3350	2.58

*Panel deflected 1.06" from original plane at 100% Positive load and 3.75" 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.

Jarrett Wright and James Hayhurst, Test Technicians

Mfg. Observers – Joe Zammit

IMPACT AND CYCLING TESTS

Specimen 2A – 54.0" x 144.0" Aluminum Fixed Window – (O)

ASTM E1886-05/1996-06 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
75°F	D	9.0 lbs, 2 oz.	8'-1/4"	17'1"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	24.00"	72.00"	50.1 fps
2	Pass	42.00"	9.00"	49.8 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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.40
0% to 60%	0.0 to 39.0	300	2.99
50% to 80%	32.5 to 52.0	600	2.14
30% to 100%*	19.5 to 65.0	100	3.00

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.99
50% to 80%	32.5 to 52.0	1050	2.08
0% to 60%	0.0 to 39.0	50	2.98
20% to 50%	13.0 to 32.5	3350	2.65

*Panel deflected 2.13" from original plane at 100% Positive load and 3.63" 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.

Jarrett Wright and James Hayhurst, Test Technicians

Mfg. Observers – Joe Zammit

IMPACT AND CYCLING TESTS

Specimen 4A – 96.0" x 120.0" Triple Mullled Aluminum Fixed Window – (O/O/O)

ASTM E1886-05/1996-06 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
76°F	D	9.0 lbs, 3 oz.	8'-0"	17'1"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	60.00"	48.00"	49.9 fps
2	Pass	80.00"	48.00"	50.1 fps
3	Pass	72.50"	8.00"	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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.64
0% to 60%	0.0 to 39.0	300	2.90
50% to 80%	32.5 to 52.0	600	2.00
30% to 100%*	19.5 to 65.0	100	2.98

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	3.00
50% to 80%	32.5 to 52.0	1050	1.87
0% to 60%	0.0 to 39.0	50	2.92
20% to 50%	13.0 to 32.5	3350	2.07
*Panel deflected 2.00" from original plane at 100% Positive load and 1.38" 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.			

Jarrett Wright and James Hayhurst, Test Technicians

Mfg. Observers – Joe Zammit

IMPACT AND CYCLING TESTS

Specimen 5A – 120.0" x 96.0" Triple Mullled Aluminum Fixed Window – (OOO)

ASTM E1886-05/1996-06 – Large Missile Impact (2 x 4 Southern Yellow Pine)

Cond. Temp Of Specimen	Missile Level	Missile Weight	Missile Length	Muzzle Distance From Specimen
75°F	D	9.0 lbs, 2 oz.	8'-1/4"	17'1"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	48.00"	80.00"	50.1 fps
2	Pass	48.00"	59.00"	49.7 fps
3	Pass	88.00"	72.00"	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.				

ASTM E1886-05/1996-06– Fatigue Load Cycling Design Pressure +65.0 psf / -65.0 psf

Positive % of Test Load	Positive Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
20% to 50%	13.0 to 32.5	3500	2.72
0% to 60%	0.0 to 39.0	300	2.91
50% to 80%	32.5 to 52.0	600	2.90
30% to 100%*	19.5 to 65.0	100	2.99

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	3.00
50% to 80%	32.5 to 52.0	1050	2.17
0% to 60%	0.0 to 39.0	50	2.97
20% to 50%	13.0 to 32.5	3350	2.61
*Panel deflected 2.00" from original plane at 100% Positive load and 2.13" 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.			

Jarrett Wright and James Hayhurst, Test Technicians

Mfg. Observers – Joe Zammit

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

Revision Log

Rev No.	Date	Page(s)	Revision(s)
0	3/21/2014	NA	Original Report Issue

DATE PLOTTED: 11/11/13 11:00 AM

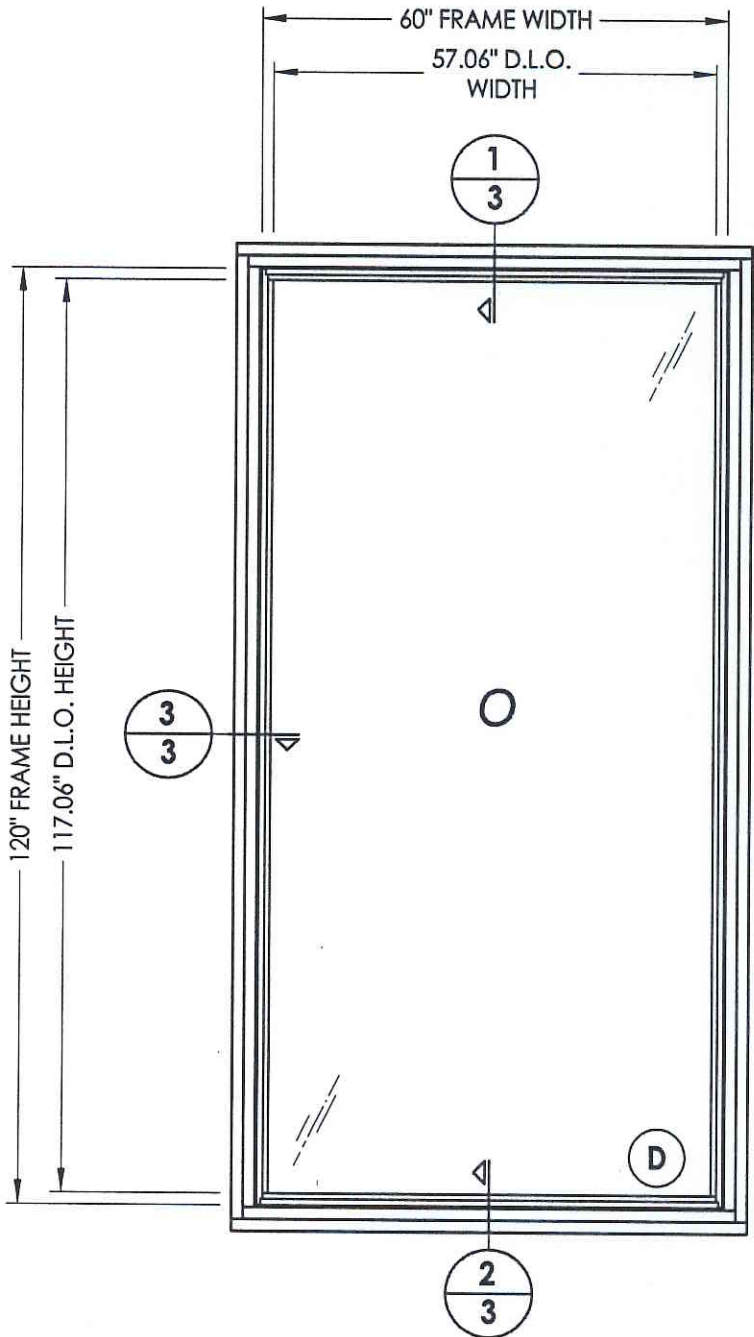
TABLE OF CONTENTS	
SHEET #	DESCRIPTION
1	Table of contents
2	Test elevation
3	Horizontal and vertical cross sections
4	Frame anchoring
5	Bill of materials, components and glazing detail

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations noted - TEL # 01991908
Date 3/21/14 Verified by [Signature]

PRODUCT: FLEETWOOD		
PART OR ASSEMBLY: TABLE OF CONTENTS		
REVISIONS		
NO.	DATE	BY

RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7030
SHEET 1 OF 5

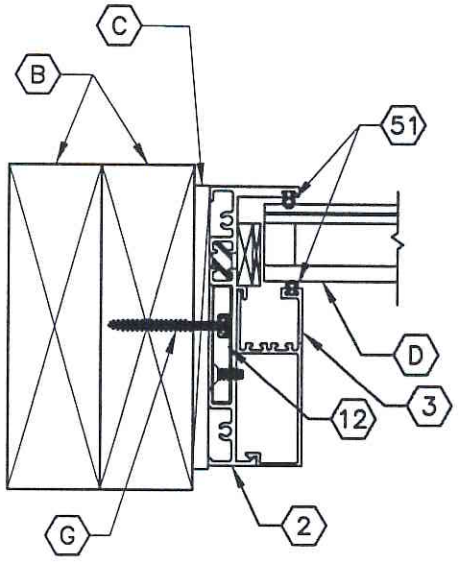


SPEC. #1, 1A, 1B, 1C

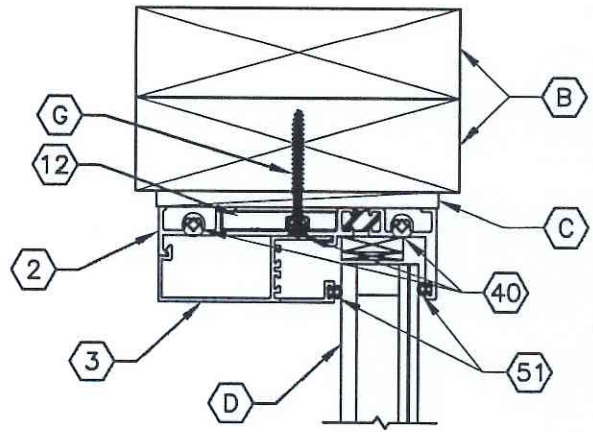
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 0199 1008
 Date 3/21/14 Verified *WJL*

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NO.	DATE	BY	REVISIONS
DATE: 9/25/13			
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CHK. BY: LFS			
DRAWING NO.: L-7030			
SHEET 2 OF 5			

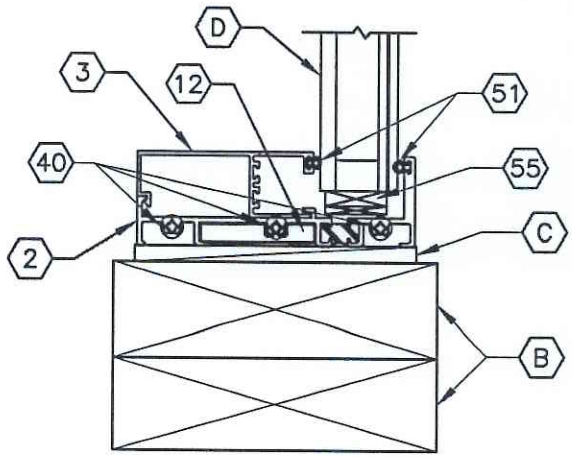
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3 HORIZONTAL CROSS SECTION



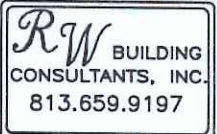
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3 VERTICAL CROSS SECTION



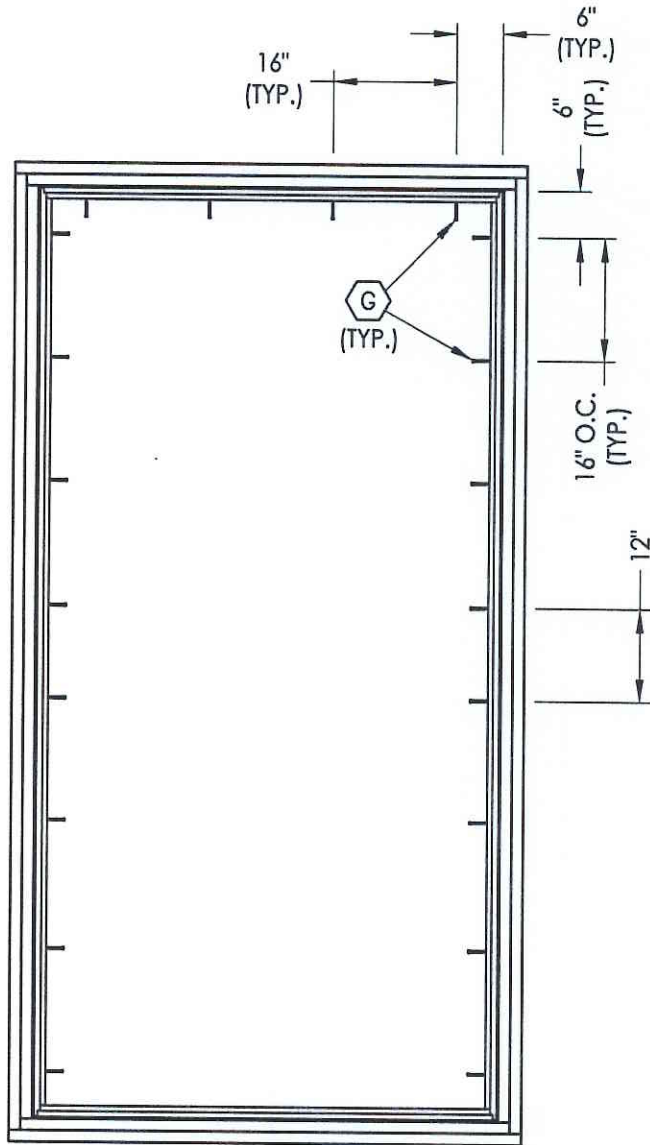
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3 VERTICAL CROSS SECTION



Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted TEL # 0199 1008
 Date 3/21/14 Verified by *ellw*

PRODUCT: FLEETWOOD		PART OR ASSEMBLY: VERTICAL AND HORIZONTAL CROSS SECTIONS	
		NO.	DATE
			BY
REVISIONS			
 RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7030			
SHEET 3 OF 5			

10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM 10/25/13 10:00 AM



FRAME ANCHORING
2X buck construction

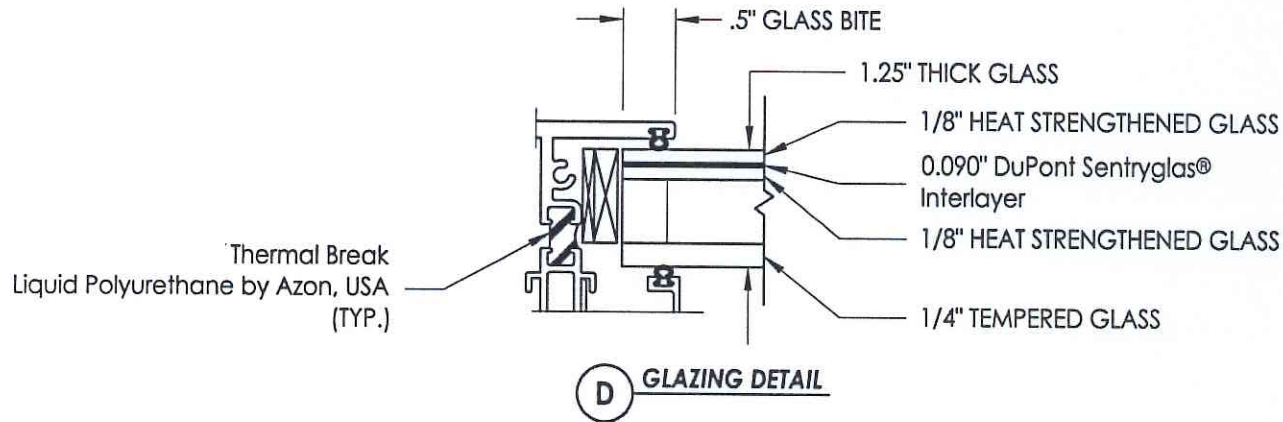
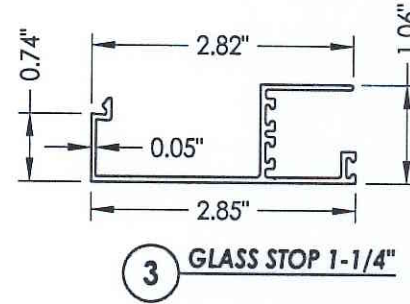
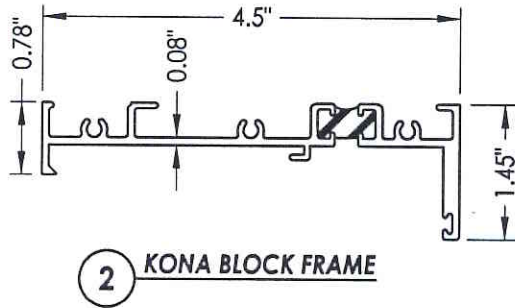
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 Specimen Complies with Drawing
 Deviations Noted - TEL # 01991008
 Date 3/21/14 Verified by *[Signature]*

PRODUCT: FLEETWOOD	
PART OR ASSEMBLY: FRAME ANCHORING	
NO.	DATE
REVISIONS	BY
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> RW BUILDING CONSULTANTS, INC. 813.659.9197 </div>	
DATE: 9/25/13	
SCALE: N.T.S.	
DWG. BY: JK	
CHK. BY: LFS	
DRAWING NO.: L-7030	
SHEET 4 OF 5	

BILL OF MATERIALS

ITEM #	DESCRIPTION	MATERIAL
B	2X BUCK SG >= 0.55	WOOD
C	1/4" MAX. SHIM SPACE	-
G	#10 x 2" PFH WOOD SCREW	STEEL
2	KONA BLOCK FRAME	6063-T6 ALUM
3	GLASS STOP (1-1/4")	6063-T6 ALUM
12	SHEAR BLOCK	ALUM
40	#10 X 1" PPH SMS	STEEL
51	MINI BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-
55	SETTING BLOCK	-

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 0199/008
 Date 3/21/14 Verified by *WJL*



PRODUCT:	FLEETWOOD
PART OR ASSEMBLY:	BILL OF MATERIALS, COMPONENTS AND GLAZING DETAIL

NO.	DATE	BY	REVISIONS


RW BUILDING CONSULTANTS, INC.
 813.659.9197

DATE: 9/25/13
 SCALE: N.T.S.
 DWG. BY: JK
 CHK. BY: LFS
 DRAWING NO.: L-7030

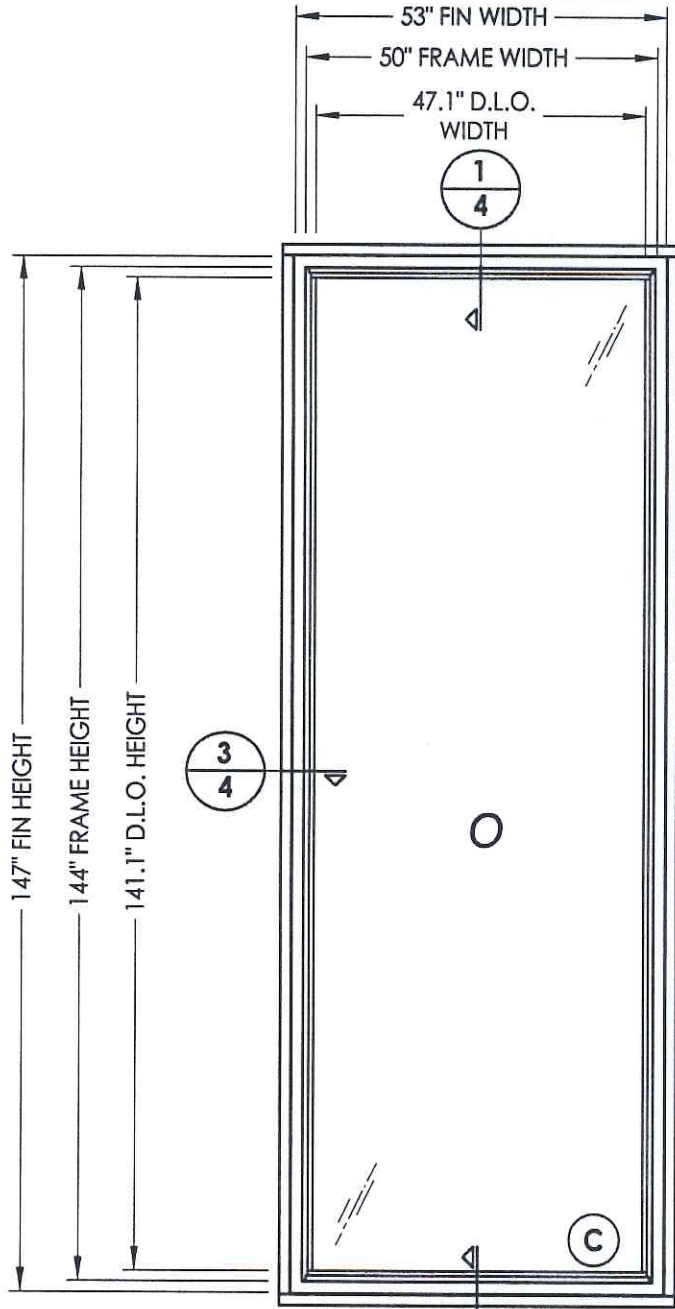
SHEET 5 OF 5

TABLE OF CONTENTS	
SHEET #	DESCRIPTION
1	Table of contents
2	Test elevation
3	Test elevation
4	Horizontal and vertical cross sections
5	Frame anchoring
6	Frame anchoring
7	Components and glazing detail
8	Bill of materials

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing **01991008**
 Deviations Noted - TEL # **813.659.9197**
 Date: **3/21/14** verified by **[Signature]**

PRODUCT: FLEETWOOD			
PART OR ASSEMBLY: TABLE OF CONTENTS			
NO.	DATE	BY	REVISIONS
			
DATE: 1/14/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7108			
SHEET <u>1</u> OF <u>8</u>			

R.W. BUILDING CONSULTANTS, INC. 1000 N. 17TH STREET, SUITE 200, WASHINGTON, DC 20002

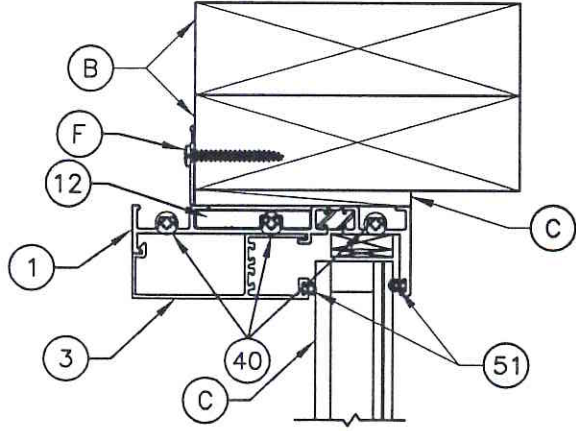


SPEC. #2, 2A

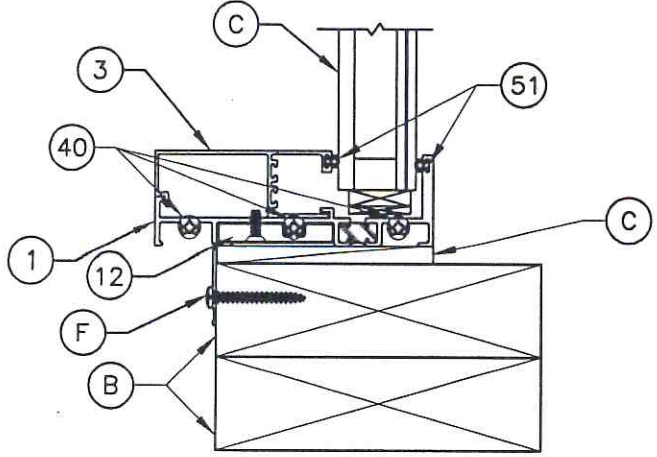
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted TEL # 01991008
 Date 3/21/14 Verified by *Ullaw*

PRODUCT: FLEETWOOD	
PART OR ASSEMBLY: TEST ELEVATION	
NO. DATE BY	
REVISIONS	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> RW BUILDING CONSULTANTS, INC. 813.659.9197 </div>	
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SCALE: N.T.S.	
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CHK. BY: LFS	
DRAWING NO.: L-7108	
SHEET <u>3</u> OF <u>8</u>	

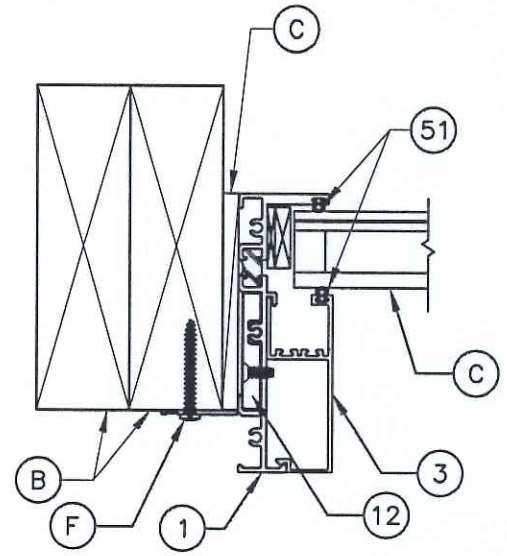
1000 VERTICAL CROSS SECTION BUILDING MATERIALS LABORATORY 7



1 / 4 **VERTICAL CROSS SECTION**



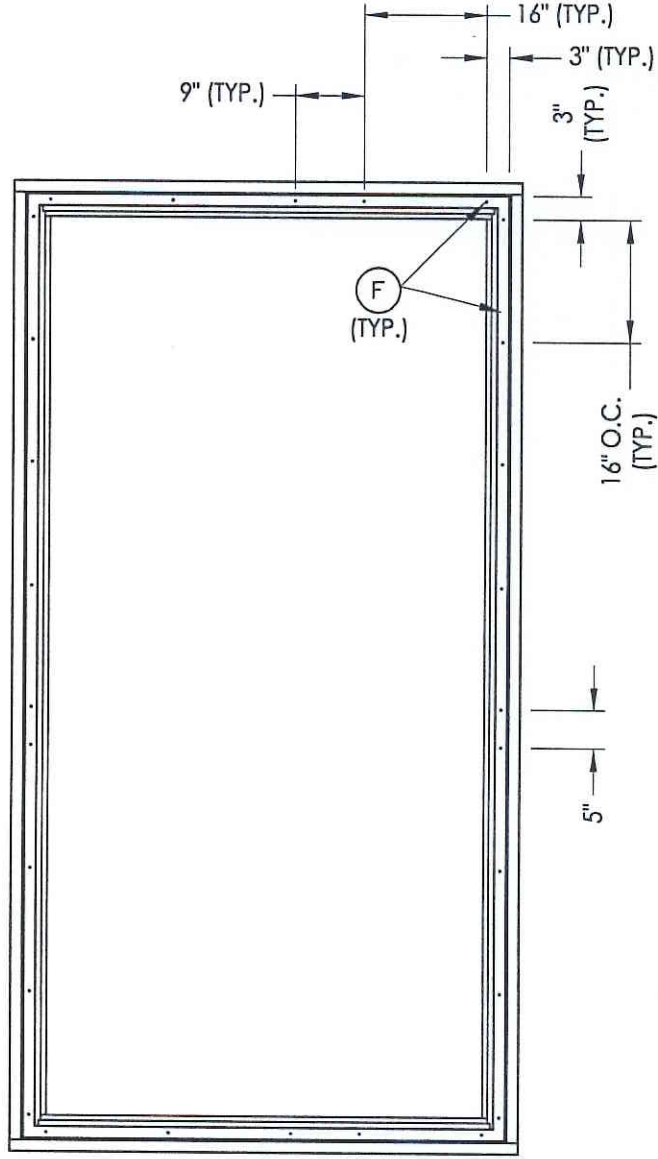
2 / 4 **VERTICAL CROSS SECTION**



3 / 4 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 0199 1008
 Date 3/21/14 Verified by *slw*

	FLEETWOOD			
PRODUCT:		PART OR ASSEMBLY:	VERTICAL AND HORIZONTAL CROSS SECTIONS	
		NO.	DATE	BY
				REVISIONS
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SCALE: N.T.S.				
DWG. BY: JK				
CHK. BY: LFS				
DRAWING NO.: L-7108				
SHEET 4 OF 8				



FRAME ANCHORING W/ FIN
2X buck construction

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted TEL # 01991008
Date 3/21/14 Verified by JAW

RW BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 1/14/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7108
SHEET 5 OF 8

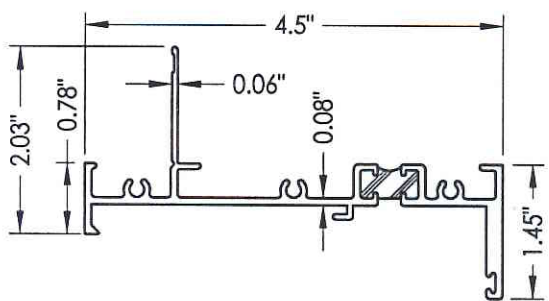
PRODUCT:

FLEETWOOD

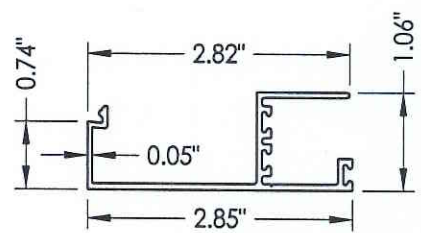
PART OR ASSEMBLY:

FRAME ANCHORING

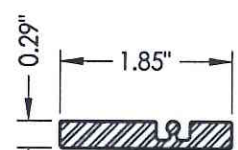
NO.	DATE	BY	REVISIONS



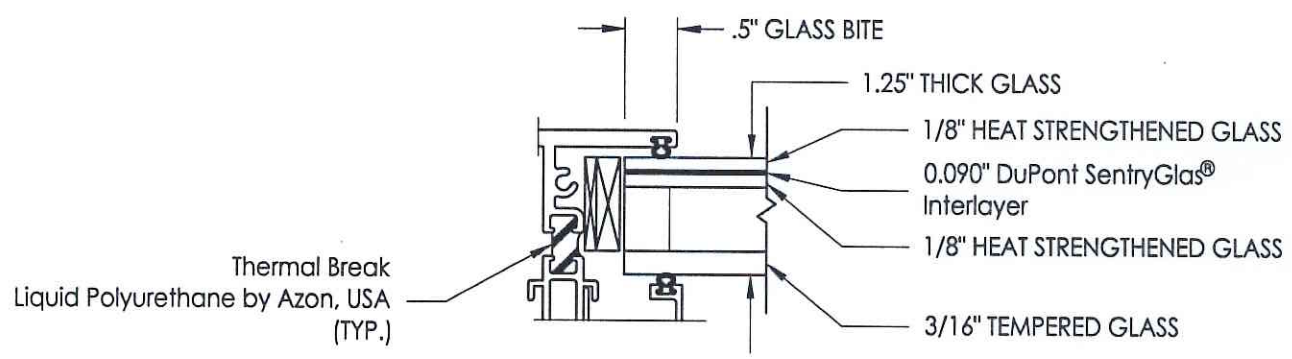
1 KONA FIN FRAME



3 GLASS STOP 1-1/4"



12 SHEAR BLOCK

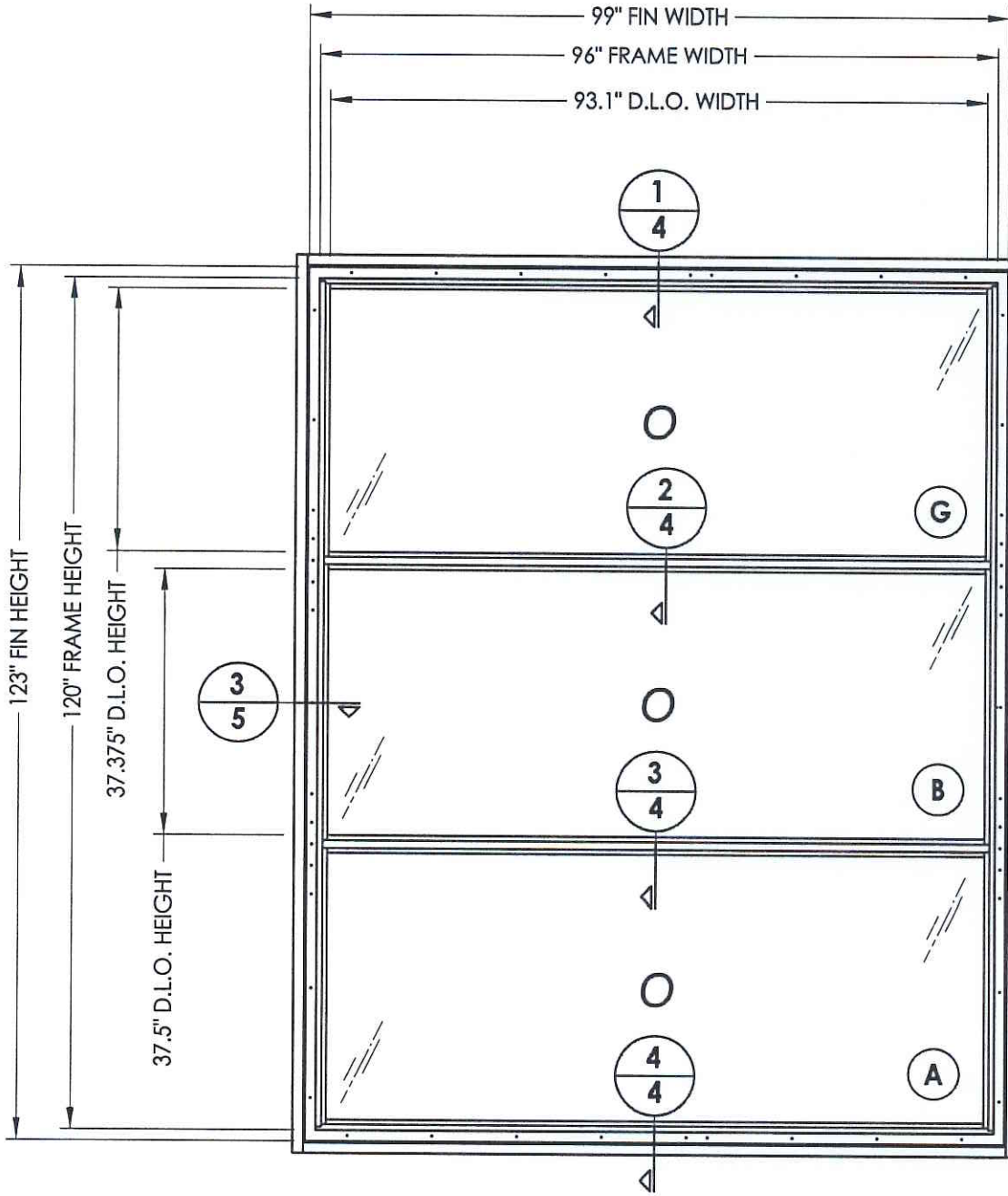


C GLAZING DETAIL

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 019991998
 Date 3/11/14 Verified by JLF

PRODUCT:		FLEETWOOD	
PART OR ASSEMBLY:		COMPONENTS AND GLAZING DETAILS	
NO.	DATE	BY	REVISIONS
<div style="border: 1px solid black; padding: 5px; text-align: center;"> RW BUILDING CONSULTANTS, INC. 813.659.9197 </div>			
DATE: 1/14/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7108			
SHEET 7 OF 8			

R.W. BUILDING CONSULTANTS, INC. 1000 N. 17TH AVE., SUITE 1000, DENVER, CO 80202

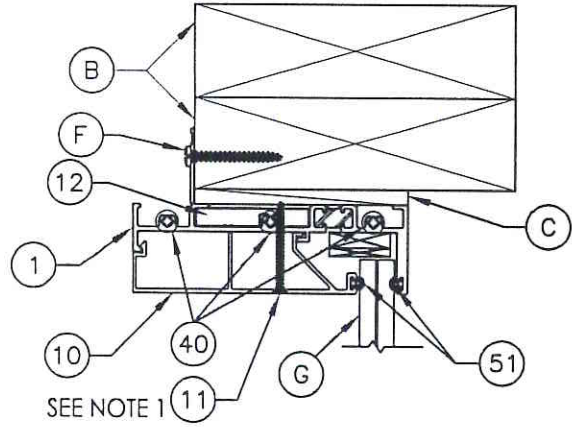


SPEC. #4, 4A

Testing Evaluation Laboratories Inc
 Speciman Complies with Drawing
 Deviations Noted - TEL # 0199 1008
 Date 3/21/14 Confirmed by *[Signature]*

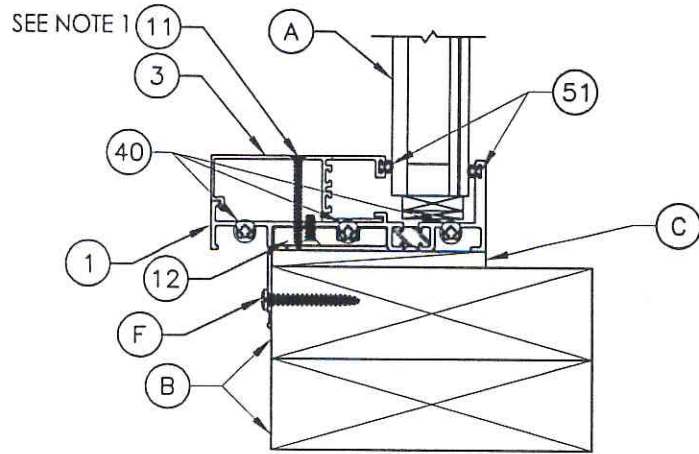
PRODUCT: FLEETWOOD	
PART OR ASSEMBLY: TEST ELEVATION	
NO.	DATE
BY	REVISIONS
 RW BUILDING CONSULTANTS, INC. 813.659.9197	
DATE: 1/15/14	
SCALE: N.T.S.	
DWG. BY: JK	
CHK. BY: LFS	
DRAWING NO.: L-7109	
SHEET 3 OF 10	

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawings
 Deviations Noted: TEL # 819 919 1008
 Date: 3/21/14 Verified by: *[Signature]*



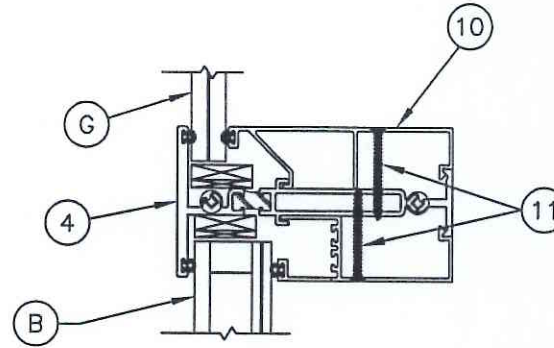
SEE NOTE 1

1
4 VERTICAL CROSS SECTION



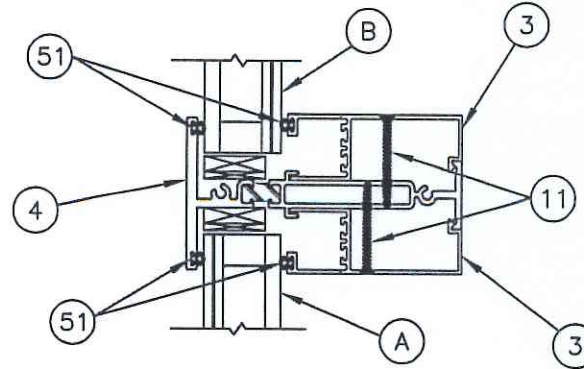
SEE NOTE 1

4
4 VERTICAL CROSS SECTION



NOTE:
 1. Item #11 located 6" from each end and one in center (3) total.

2
4 HORIZONTAL CROSS SECTION

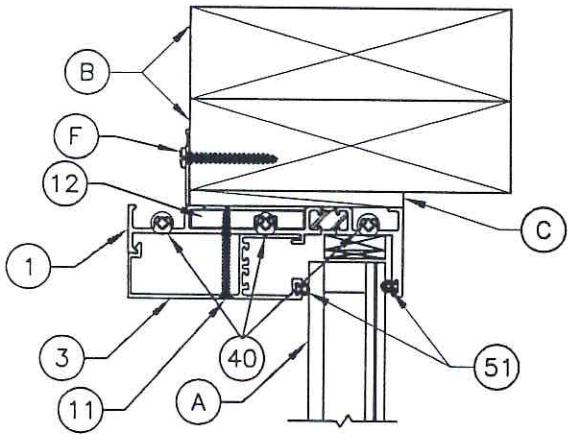


3
4 HORIZONTAL CROSS SECTION

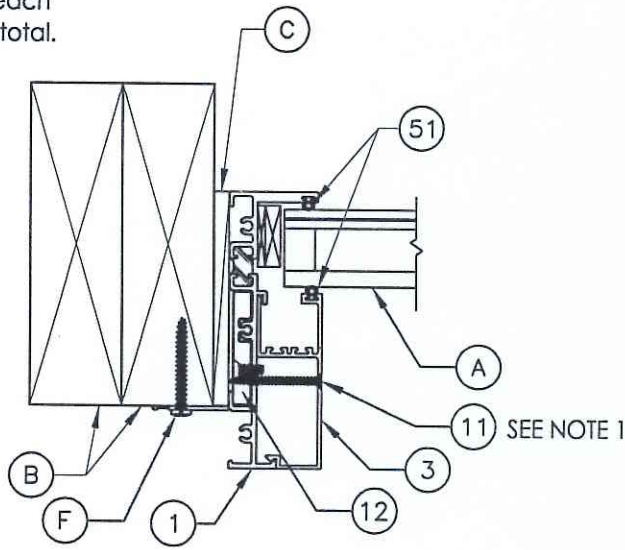
PRODUCT:		FLEETWOOD	
PART OR ASSEMBLY:		VERTICAL AND HORIZONTAL CROSS SECTIONS	
NO.	DATE	BY	REVISIONS
RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 1/15/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7109			
SHEET 4 OF 10			

NOTE:
 1. Item #11 located 6" from each end and one in center (3) total.

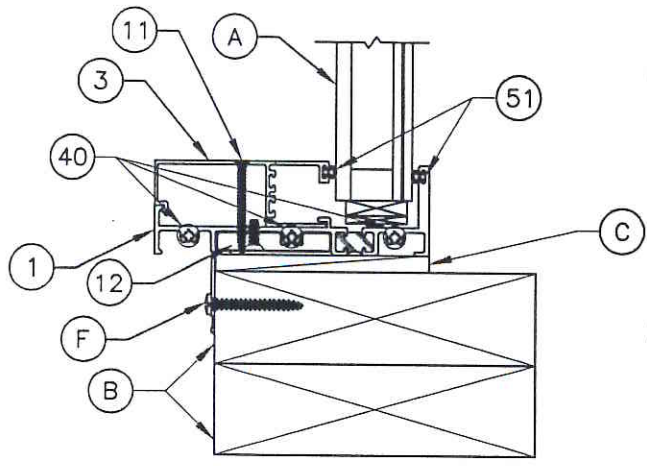
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01991098
 Date 3/21/14 Verified by *[Signature]*



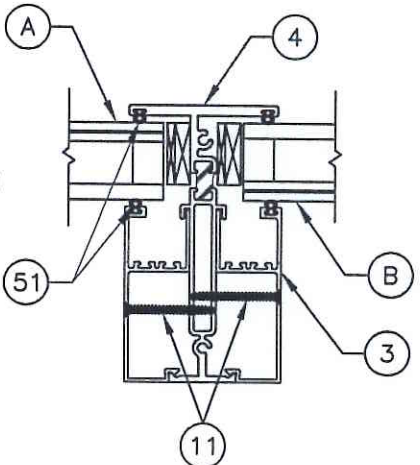
1
5 VERTICAL CROSS SECTION



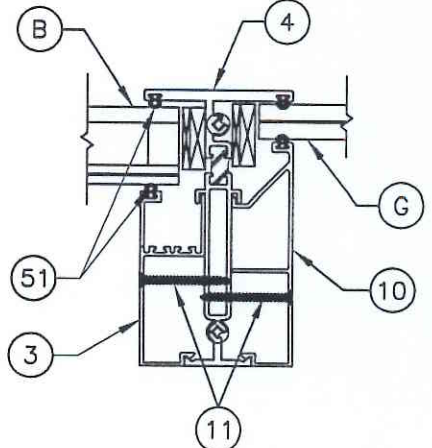
3
5 HORIZONTAL CROSS SECTION



2
5 VERTICAL CROSS SECTION



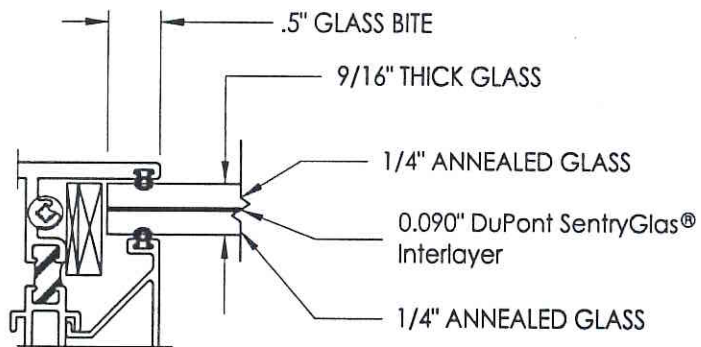
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5 HORIZONTAL CROSS SECTION



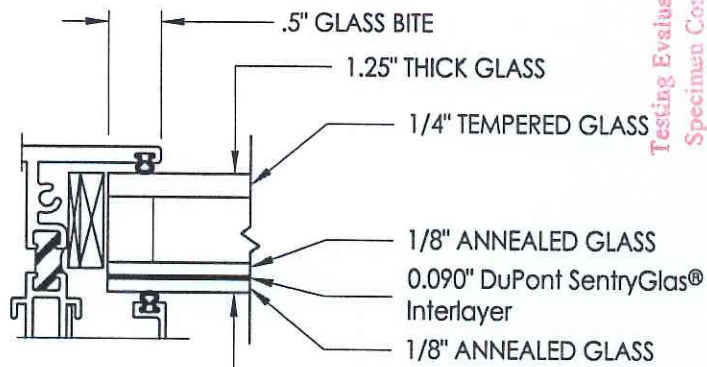
5
5 HORIZONTAL CROSS SECTION

PRODUCT: FLEETWOOD	
PART OR ASSEMBLY: VERTICAL AND HORIZONTAL CROSS SECTIONS	
NO.	DATE
BY	REVISIONS
 RW BUILDING CONSULTANTS, INC. 813.659.9197	
DATE: 1/15/14	
SCALE: N.T.S.	
DWG. BY: JK	
CHK. BY: LFS	
DRAWING NO.: L-7109	
SHEET 5 OF 10	

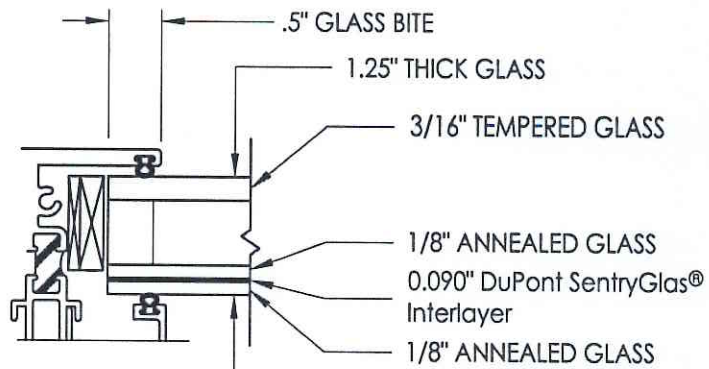
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviation Noted - TEL # 800-999-8008
 Date 3/21/14 Verified by WJW



G GLAZING DETAIL

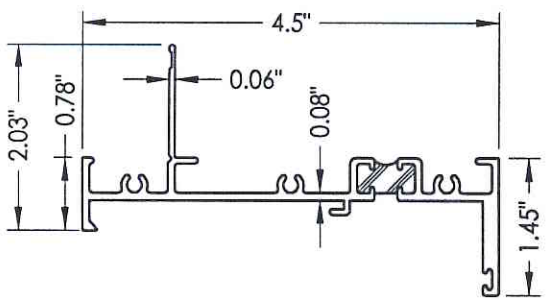


B GLAZING DETAIL

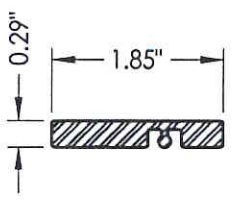


A GLAZING DETAIL

PRODUCT: FLEETWOOD		PART OR ASSEMBLY: GLAZING DETAILS	
NO.	DATE	BY	REVISIONS
<div style="border: 1px solid black; padding: 5px;"> RW BUILDING CONSULTANTS, INC. 813.659.9197 </div>			
DATE: 1/15/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7109			
SHEET <u>6</u> OF <u>10</u>			

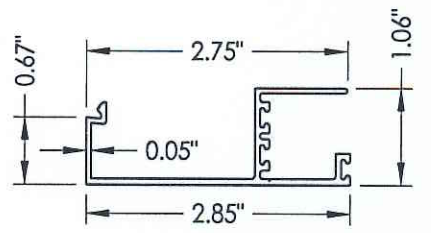


1 KONA FIN FRAME

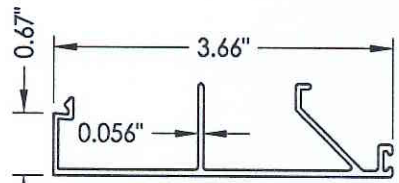


12 SHEAR BLOCK

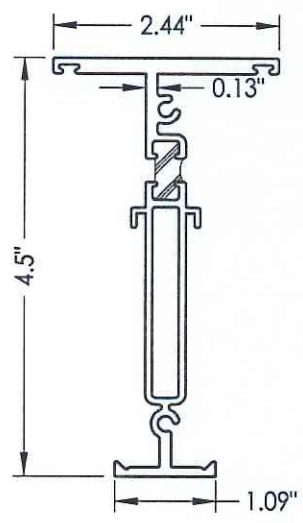
Testing Evaluation Laboratories Inc.
 Specimen Complies with Drawing
 Deviations Noted TEL # 01991008
 Date 3/21/14 Verified by [Signature]



3 GLASS STOP 1-1/4"



10 GLASS STOP 9/16"




4 MULLION

PRODUCT: FLEETWOOD		PART OR ASSEMBLY: COMPONENTS AND GLAZING DETAILS	
		NO.	DATE
		BY	
REVISIONS			
 RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 1/15/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7109			
SHEET <u>9</u> OF <u>10</u>			

BILL OF MATERIALS

ITEM #	DESCRIPTION	MATERIAL
B	2X BUCK SG >= 0.55	WOOD
C	1/4" MAX. SHIM SPACE	-
G	#10 x 2" PFH WOOD SCREW	STEEL
F	#10 x 1-1/2" PPH WOOD SCREW	STEEL
1	KONA FIN FRAME	6063-T6 ALUM
3	GLASS STOP (1-1/4")	6063-T6 ALUM
4	MULLION	6063-T6 ALUM
10	GLASS STOP (9/16")	6063-T6 ALUM
11	#8 x 1-1/2" PFH SMS	STEEL
12	SHEAR BLOCK	6061-T6 ALUM
40	#10 X 1" PPH SMS	STEEL
51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
55	SETTING BLOCK	-

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 0199 1008
 Date 3/21/14 verified by *[Signature]*

PRODUCT:	FLEETWOOD		
PART OR ASSEMBLY:	BILL OF MATERIALS		
NO.	DATE	REVISIONS	BY
			
DATE: 1/15/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7109			
SHEET 10 of 10			