



**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**

**WESTWOOD 250 Awning Window**

Title of Test	Results
	65.0 x 42.0
Impact	Pass
Fatigue Load Cycling	+65.0/- 65.0 psf

Reference should be made to Report No. TEL 01991059 for complete test specimen description and data. For corresponding data regarding AAMA/WDMA/CSA 101/1.S./2/A440-08 reference should be made to Report No. TEL 01991058.

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 01991059  
Test Dates: April 17, 2014  
Report Date: June 16, 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 Westwood 250 Awning Windows at TEL's Plant City, FL test facility. *Please see Report No. TEL 01990818 for additional impact specimens.*

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:** Westwood 250 Awning Windows  
**Type:** Aluminum Awning Window  
**Overall Size:** 65.00" x 42.00" – (X)  
**Daylight Opening:** 56.63" x 33.88" – (X)  
**Glazing Detail:** See attached drawing numbers L-7033B 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-7033B.

## IMPACT AND CYCLING TESTS

### Specimen 1A – 42.0" x 84.0" Aluminum Casement Window – (X)

#### ASTM E1886-05/ASTM E1996-06 – 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, 2 oz	8'-0"	17'1"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	32.0"	21.0"	49.6 fps
2	Pass	56.0"	11.0"	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/ASTM E1996-06 – 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	1.66
0% to 60%	0.0 to 39.0	300	2.06
50% to 80%	32.5 to 52.0	600	1.60
30% to 100%*	19.5 to 65.0	100	2.20

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	19.5 to 65.0	50	2.29
50% to 80%	32.5 to 52.0	1050	2.00
0% to 60%	0.0 to 39.0	50	2.24
20% to 50%	13.0 to 32.5	3350	1.37

\*Panel deflected 1.88" from original plane at 100% Positive load and 1.75" 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 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	6/16/2014	NA	Original Report Issue

L-7033B (REV. 11/14) RWTB LUMMING/L-7033B.DWG, L-7033B

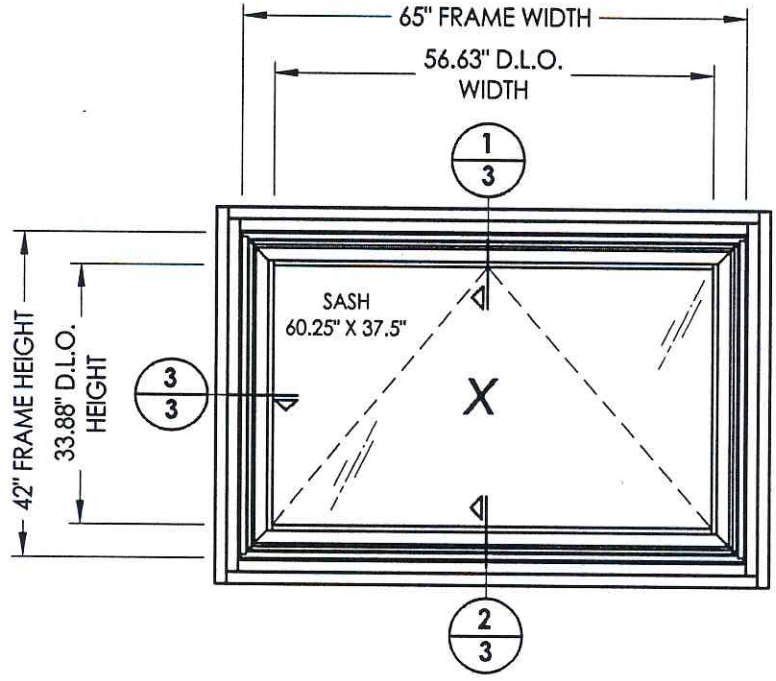
TABLE OF CONTENTS	
SHEET #	DESCRIPTION
1	Table of contents
2	Test elevation
3	Horizontal and vertical cross sections
4	Frame anchoring
5	Components and glazing details
6	Bill of materials

Testing Evaluation Laboratories Inc  
 Specimen Complies with Drawing # 0199.1059  
 Deviations Noted, TEL # 813.659.9197  
 Date 6/16/14 verified by WJW

PRODUCT: <b>FLEETWOOD          WESTWOOD 250          AWNING WINDOW</b>	
PART OR ASSEMBLY: <b>TABLE OF CONTENTS</b>	
	REVISIONS NO.      DATE      BY
 <b>RW BUILDING          CONSULTANTS, INC.</b> 813.659.9197	
DATE: <b>4/23/14</b>	
SCALE: <b>N.T.S.</b>	
DWG. BY: <b>JK</b>	
CHK. BY: <b>LFS</b>	
DRAWING NO.: <b>L-7033B</b>	
SHEET <u>1</u> OF <u>6</u>	

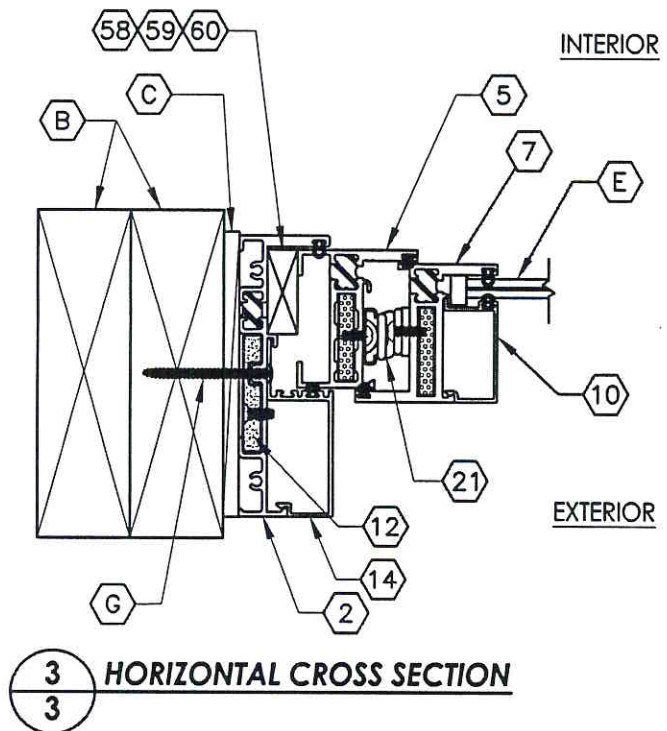


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Testing Evaluation Laboratories Inc  
Specimen Complies with Drawing  
Deviations Noted TEL # 01991059  
Date 4/16/14 Certified by *WJL*

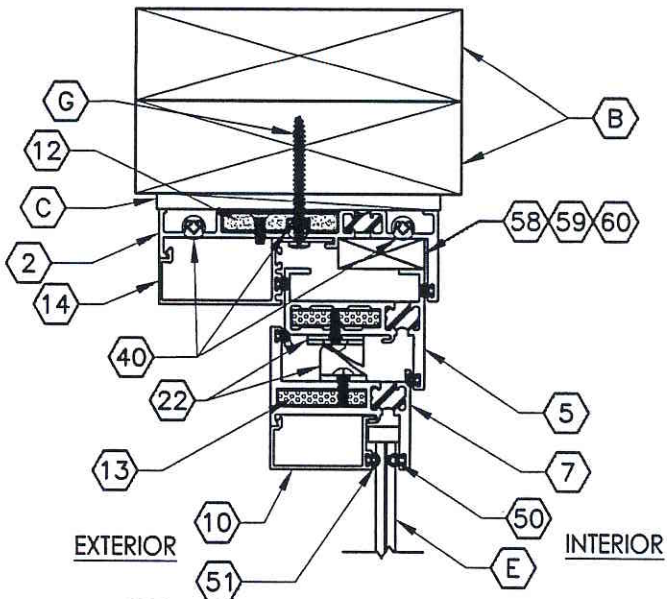
PRODUCT: FLEETWOOD WESTWOOD 250 AWNING WINDOW		PART OR ASSEMBLY: TEST ELEVATION	
NO.	DATE	REVISIONS	BY
DATE: 4/23/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033B			
SHEET 2 OF 6			



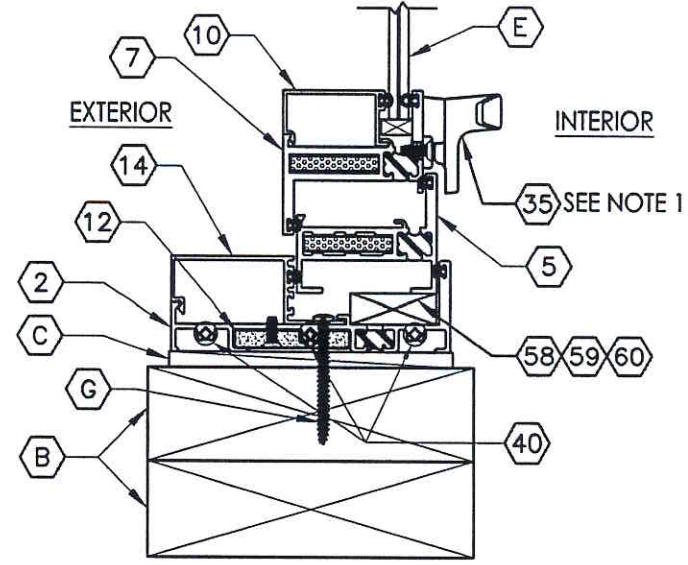
**3** HORIZONTAL CROSS SECTION

NOTE:  
1. Item #35 located 17"  
from each end (2) total.

Testing Evaluation Laboratories Inc  
Specimen Complies with Drawing  
Deviations Noted TEL # 0199 1059  
Date 10/14 Verified by *[Signature]*



**1** VERTICAL CROSS SECTION

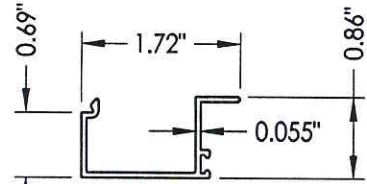


**2** VERTICAL CROSS SECTION

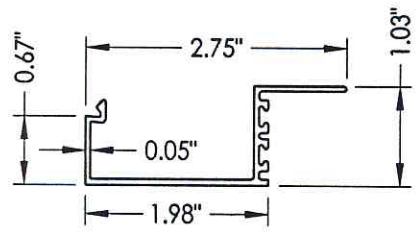
PRODUCT: FLEETWOOD WESTWOOD 250 AWNING WINDOW		PART OR ASSEMBLY: HORIZONTAL AND VERTICAL CROSS SECTIONS	
NO.	DATE	BY	REVISIONS
 RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 4/23/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033B			
SHEET 3 OF 6			



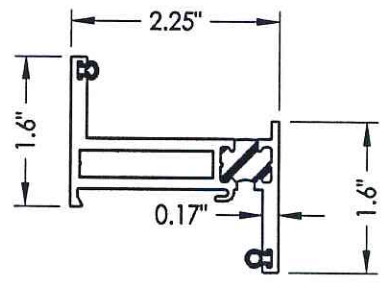




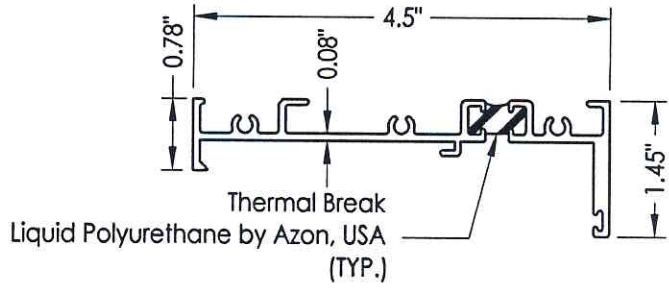
10 GLASS STOP 5/16", 7/16"



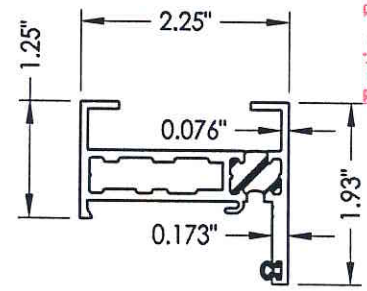
14 INSERT STOP



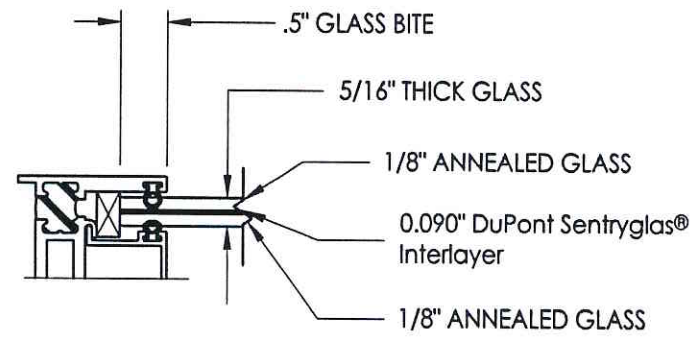
7 ZEE BAR (PANEL)



2 KONA BLOCK FRAME



5 BLOCK FRAME



E GLAZING DETAIL


Testing Evaluation Laboratories Inc  
 Specimen Complies with Drawing  
 Deviations Noted. TEL # 019991059  
 Date 6/16/14 Verified by *WJW*

PRODUCT:		FLEETWOOD WESTWOOD 250 AWNING WINDOW	
PART OR ASSEMBLY:		COMPONENTS	
NO.	DATE	BY	REVISIONS
 RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 4/23/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033B			
SHEET 5 OF 6			

**BILL OF MATERIALS**

ITEM #	DESCRIPTION	MATERIAL
B	2X BUCK SG >= 0.55	WOOD
C	1/4" MAX. SHIM SPACE	-
G	#10 x 2" PPH WOOD SCREW	STEEL
2	KONA BLOCK FRAME	6063-T6 ALUM
5	WESTWOOD BLOCK FRAME	6063-T6 ALUM
7	WESTWOOD ZEE BAR (PANEL)	6063-T6 ALUM
10	GLASS STOP (5/16", 7/16")	6063-T6 ALUM
12	SHEAR BLOCK	ALUM
13	CORNER KEY	ALUM
14	INSERT STOP	6063-T6 ALUM
21	4 BAR HINGE	SS
22	SNUBBER-COMMERCIAL PULL-IN BLOCK	SS
35	CAM HANDLE / STRIKE PLATE	SS
40	#10 X 1" PPH SMS	STEEL
46	SCREW NO 8, FHP, .750"	STEEL
50	BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-
51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
58	WOOD BLOCK .50" X 1.250"	-
59	ALUMINUM BLOCK .50" X 1.250"	-
60	PVC BLOCK .50" X 1.250"	-
61	SETTING BLOCK 4" x 1/8" x 1"	-

Testing Evaluation Laboratories Inc  
 Specimen Complies with Drawing  
 Deviations Noted TEL # 01991059  
 Date 6/16/14 Verified by *dlw*

PRODUCT: <b>FLEETWOOD                  WESTWOOD 250                  AWNING WINDOW</b>	
PART OR ASSEMBLY: <b>BILL OF MATERIALS</b>	
	REVISIONS NO.    DATE    BY
 RW BUILDING CONSULTANTS, INC. 813.659.9197	
DATE: 4/23/14	
SCALE: N.T.S.	
DWG. BY: JK	
CHK. BY: LFS	
DRAWING NO.: L-7033B	
SHEET 6 OF 6	