Testing Evaluation Laboratories, Inc.
2002 Wood Court Suite 1 – Plant City, FL 33563
Phone: 813-754-9887

ASTM E 1886-05 / ASTM E 1996-09
Missile Level "D" (Includes Wind Zone 4)

TEST REPORT SUMMARY

Test Report Issued To:

Fleetwood Windows and Doors
1 Fleetwood Way
Corona, CA 92879

3800-T Aluminum Fixed Windows

Title of Test	Results
	Specimen 1a 181.50 x 120.00
Impact	Pass
Fatigue Load Cycling	+55.0/- 60.0 psf

Reference should be made to Report No. TEL 01991314 for complete test specimen description and data. For corresponding data regarding AAMA/WDMA/CSA 101/I.S./2/A440-08 and A440-11 *(A440S1-09)* reference should be made to Report No. TEL 01991313.

For Testing Evaluation Laboratories, Inc.

Vivian K. Wright

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 01991314**
Test Date:	**April 24, 2015**
Report Date:	**June 26, 2015**
Revision Date:	**June 30, 2015**

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 3800-T 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 1996-09
Missile Level "D" (Includes Wind Zone 4)

Test Specimen Description:

Series / Model:	**3800-T Fixed Windows**
Type:	**Aluminum Fixed Windows**
Overall Size:	**181.00" x 120.00" – Specimen 1a – (OOO)**
Daylight Opening:	**57.00" x 117.13" – Specimen 1a – (OOO)**
Glazing Detail:	**See attached drawing number L-7350 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-7350.

IMPACT AND CYCLING TESTS

Specimen 1a – 181.0" x 120.0" Triple Mulled Aluminum Fixed Window – (OOO)

ASTM E1886-05/1996-09 – 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, 0 oz.	8'-0"	17'0"

Impact Location	Results	X - Measurement	Y - Measurement	Speed
1	Pass	91.00"	60.25"	50.1 fps
2	Pass	111.00"	8.00"	50.0 fps
3	Pass	60.25"	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.				

ASTM E1886-05/1996-09 – Fatigue Load Cycling **Design Pressure +55.0 psf / - 60.0 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	1.77
0% to 60%	0.0 to 33.0	300	1.65
50% to 80%	27.5 to 44.0	600	1.27
30% to 100%*	16.5 to 55.0	100	1.95

Negative % of Test Load	Negative Pressure Range (psf)	Number Of Cycles	Average Cycle Time (Sec)
30% to 100%*	18.0 to 60.0	50	1.80
50% to 80%	30.0 to 48.0	1050	1.38
0% to 60%	0.0 to 36.0	50	1.91
20% to 50%	12.0 to 30.0	3350	1.55
*Panel deflected 4.25" from original plane at 100% Positive load and 5.50" 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

Revision Log

Rev No.	Date	Page(s)	Revision(s)
0	6/26/2015	NA	Original Report Issue
1	6/30/2015	Cover and 1	Revised Product Name

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Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991314
Date 6/26/15 Verified by gw

PRODUCT: FLEETWOOD Spec. 1a

PART OR ASSEMBLY: TABLE OF CONTENTS

REVISIONS

NO.	DATE	BY

RW BUILDING CONSULTANTS, INC.
813.659.9197

DATE: 4/2/15
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7350
SHEET 1 OF 8

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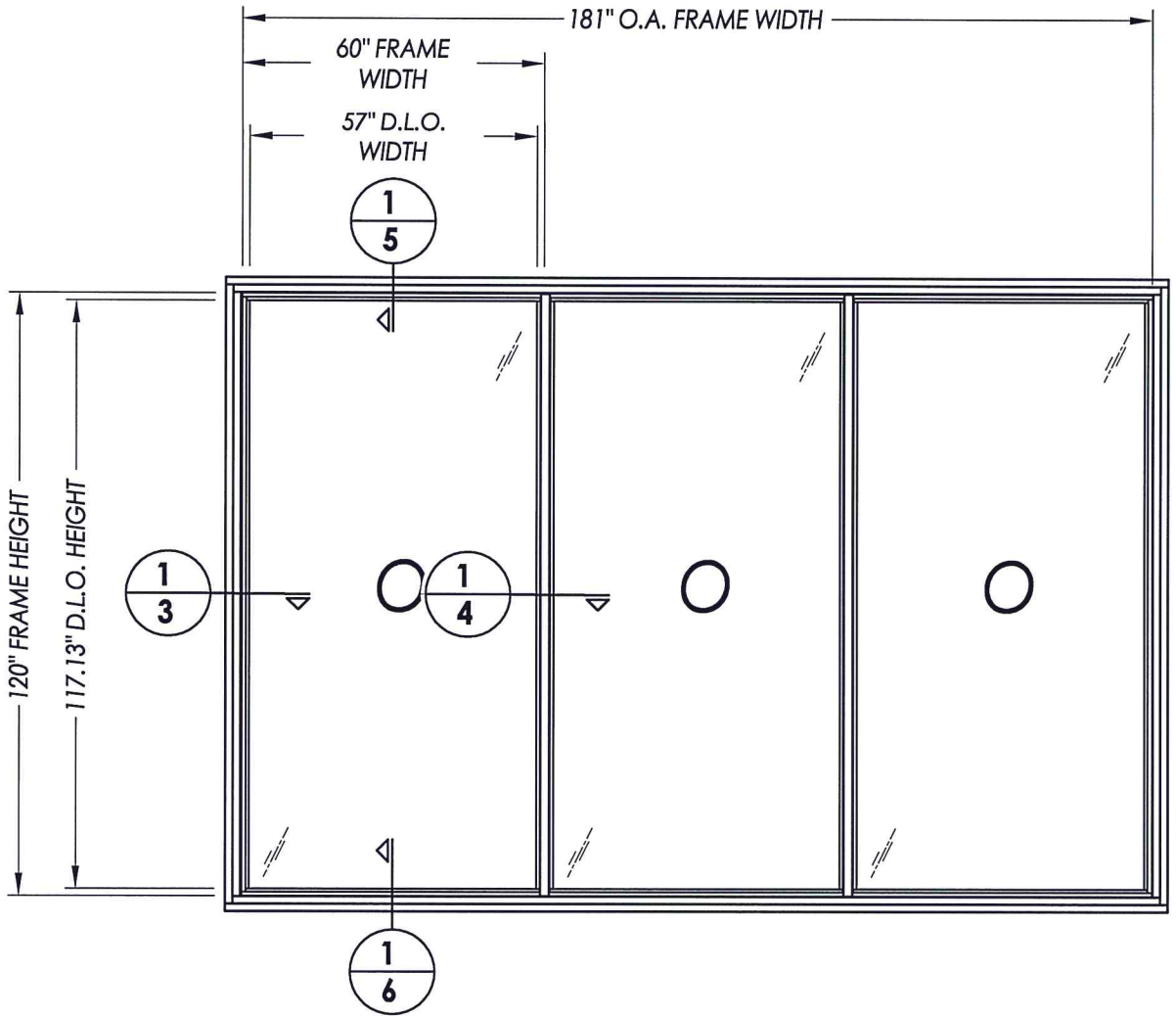

Testing Evaluation Laboratories Inc.
Specimen Complies with Drawing
Deviations Noted - TEL# 01991314
Date 6/26/15 Verified by JA

PRODUCT: FLEETWOOD Spec. 1a

PART OR ASSEMBLY: TEST ELEVATIONS

NO.	DATE	BY

REVISIONS

RW BUILDING CONSULTANTS, INC.
813.659.9197

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DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: L-7350
SHEET 2 OF 8

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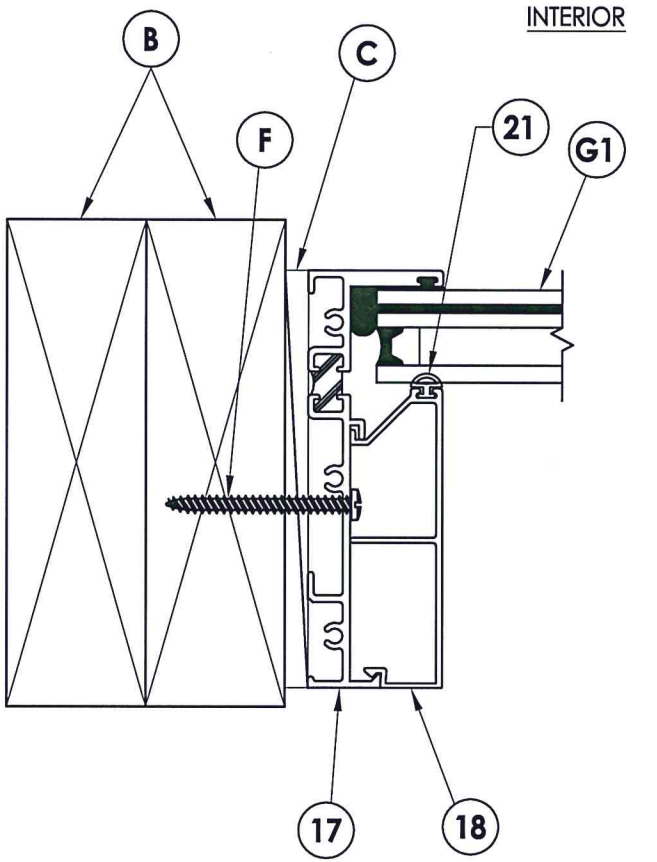

1/3 **HORIZONTAL CROSS SECTION**

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Specimen Complies with Drawing
Deviations Noted - TEL# 01991314
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PRODUCT: FLEETWOOD Spec. 1a

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CHK. BY: LFS
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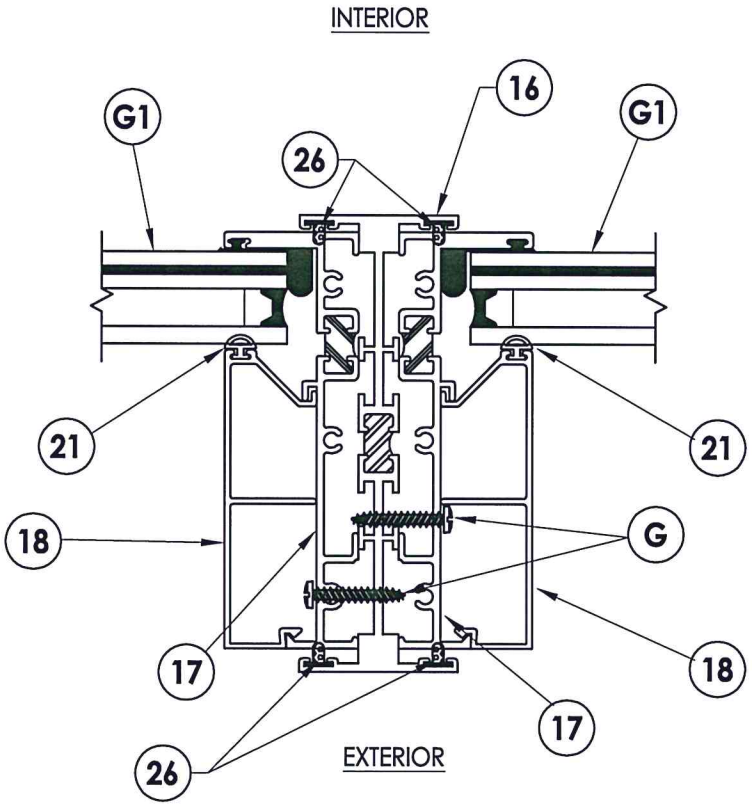

1/4 **HORIZONTAL CROSS SECTION**

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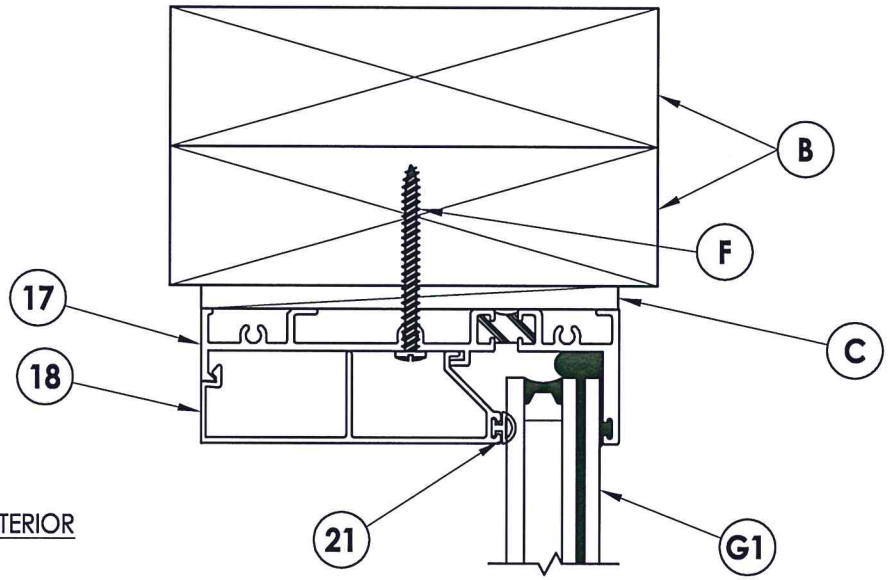

1/5 **VERTICAL CROSS SECTION**

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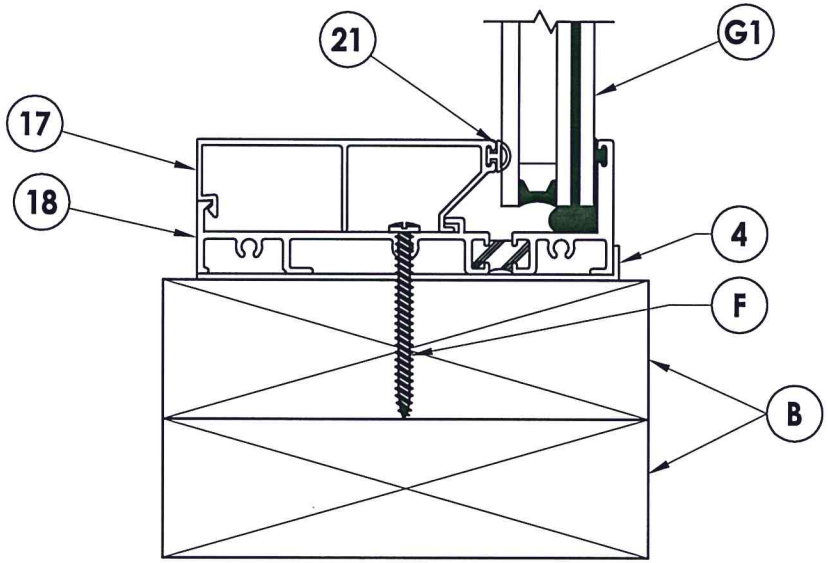
EXTERIOR

INTERIOR



1/6 **VERTICAL CROSS SECTION**

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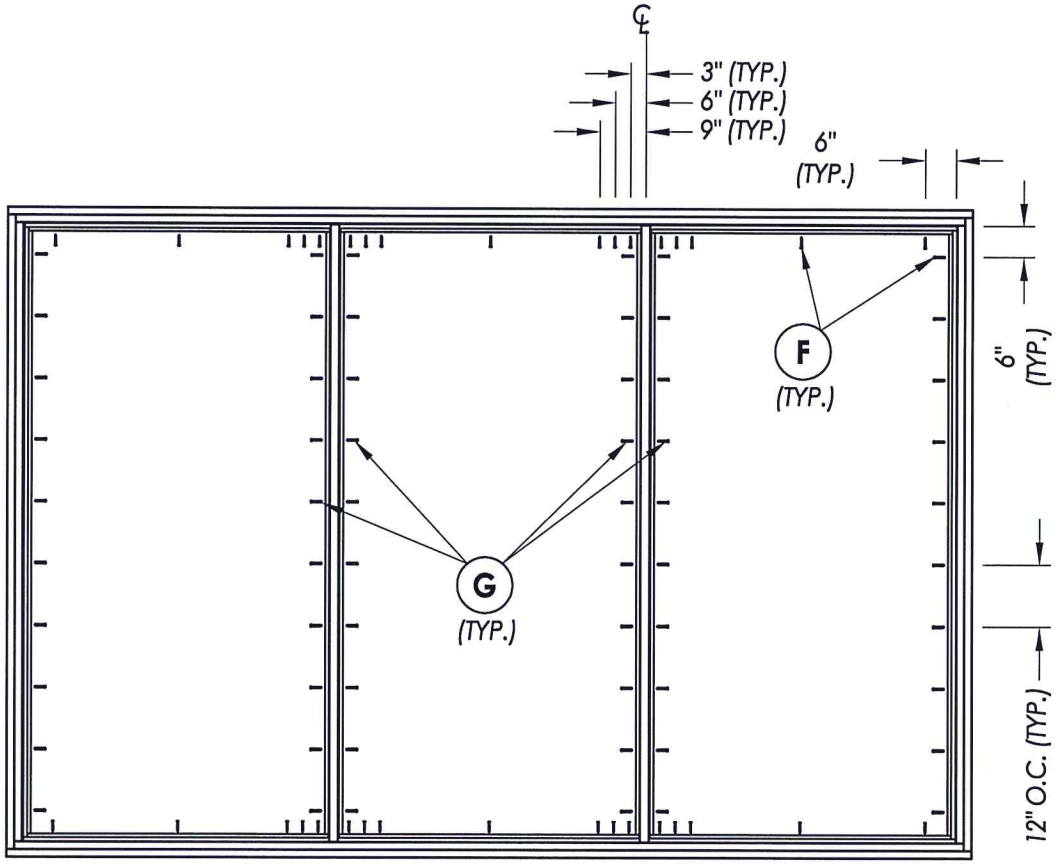

FRAME ANCHORING
(2X buck installation)

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PART OR ASSEMBLY: FRAME ANCHORING

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SHEET 7 OF 8

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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 2" PFH WOOD SCREW	-	STEEL
G	#10 x 1" PFH WOOD SCREW		STEEL
4	SILL PAN	-	SHEET METAL (ALUMINUM)
16	KONA I-MULLION	3082	6063-T6 ALUM
17	KONA FRAME	3805	6063-T6 ALUM
18	KONA 1" GLASS STOP	3801	6063-T6 ALUM
21	BULB VINYL - LARGE (EPDM 70 Durometer)	25031	TREMCO, # TX19638E
26	Q-LON FOAM SEAL	19120	SCHLEGEL CORP., # U 5212
50	4" LONG SETTING BLOCK	18620	-

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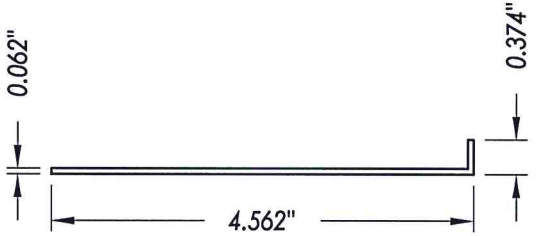
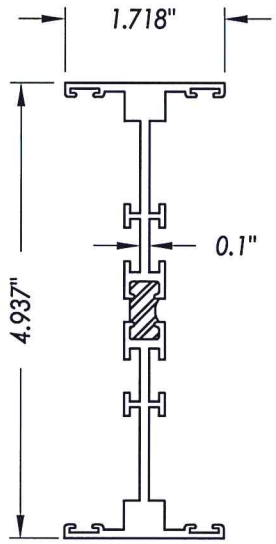
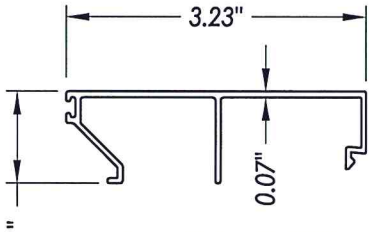


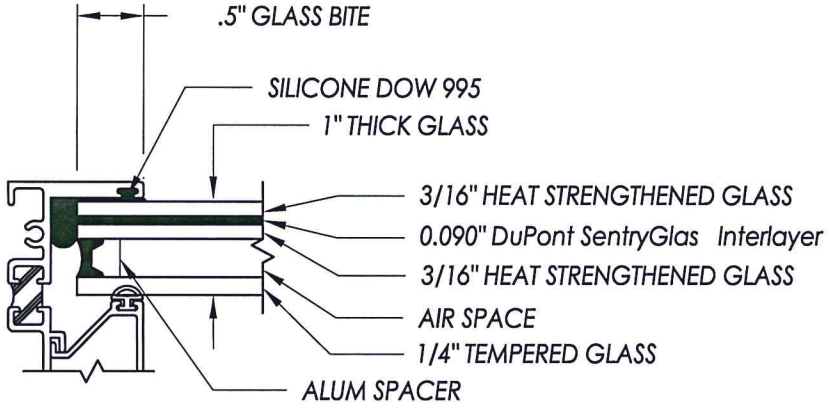
4 SILL PAN



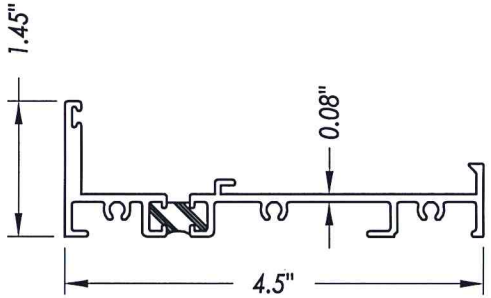
16 KONA I-MULLION



18 KONA 1" GLASS STOP



G1 GLAZING DETAIL



17 KONA FRAME

PRODUCT: FLEETWOOD Spec. 1a

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

NO.	DATE	BY
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