



# Testing Evaluation Laboratories, Inc.

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

**AAMA/WDMA/CSA 101/I.S.2/A440-08 and  
AAMA/WDMA/CSA 101/I.S.2/A440-11  
Canadian Supplement A440S1-09**

## TEST REPORT SUMMARY

Test Report Issued To:

**FLEETWOOD WINDOWS AND DOORS  
1 Fleetwood Way  
Corona, CA 92879**

**3800-T Impact Resistant Aluminum Fixed Windows**

| Title                                     | Summary of Results                                   |
|---|--|
| Primary Product Designator                | Class LC- PG65 4597 x 3048 (181 x 120) Type FW       |
| Design Pressure                           | +3112/-3112 Pa (+65.0/- 65.0 psf )                   |
| Air Infiltration                          | 0.00 L/s/m <sup>2</sup> (0.00 scfm/ft <sup>2</sup> ) |
| Air Infiltration/Exfiltration (A440S1-09) | Level Fixed: < 0.20 L/s•m <sup>2</sup>               |
| Water Resistance                          | 718 Pa (15.0 psf)                                    |
| Structural Test Pressure                  | +4668/-4668 Pa (+97.5/- 97.5 psf )                   |
| Forced Entry                              | No Entry   |

Reference should be made to Report No. TEL 01991313 for complete test specimen description and data. For corresponding data regarding ASTM E1886 and ASTM E1996 reference should be made to Report No. TEL 01991314.

For Testing Evaluation Laboratories, Inc.

  
Vivian K. Wright,  
President



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**AAMA/WDMA/CSA 101/I.S.2/A440-08 and  
AAMA/WDMA/CSA 101/I.S.2/A440-11  
Canadian Supplement A440S1-09**

**Issued to:**

**FLEETWOOD WINDOWS AND DOORS  
1 Fleetwood Way  
Corona, CA 92879**

**IAS Lab Certification Number: TL-299**

|                       |                       |
|-----------------------|-----------------------|
| <b>Report No:</b>     | <b>TEL 01991313</b>   |
| <b>Test Dates:</b>    | <b>April 24, 2015</b> |
| <b>Report Date:</b>   | <b>June 26, 2015</b>  |
| <b>Revision Date:</b> | <b>June 30, 2015</b>  |

**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. The specimen tested successfully met the performance requirements as follows: Class LC- PG65 4597 x 3048 (181 x 120) Type FW

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

***AAMA/WDMA/CSA 101/I.S.2/A440-08, AAMA/WDMA/CSA 101/I.S.2/A440-11  
and Canadian Supplement A440S1-09  
Standard Specification for Windows, Doors and Unit Skylights***

**Test Specimen Description:**

|                          |  |
|--------------------------|--|
| <b>Series / Model:</b>   | <b>3800-T Fixed Windows</b>                                      |
| <b>Type:</b>             | <b>Aluminum Fixed Windows</b>                                    |
| <b>Overall Size:</b>     | <b>4597 mm x 3048 mm (181.00" x 120.00) – Specimen 1 – (OOO)</b> |
| <b>Daylight Opening:</b> | <b>1448 mm x 2975 mm (57.00" x 117.13") – Specimen 1 – (OOO)</b> |
| <b>Glazing Detail:</b>   | <b>See attached drawing number L-7350 for glazing details.</b>   |
| <b>Frame Material:</b>   | <b>Aluminum</b>  |
| <b>Finish:</b>           | <b>Mill Finish</b>   |

**For Tested Elevation, Vertical Cross Sections, Horizontal Cross Sections, Components, Frame Anchoring, Glazing Detail and Bill of Materials See Attached Drawing #L-7350.**

Test Results: 4597 mm x 3048 mm (181.00" x 120.00) 3800-T Series Aluminum Fixed Windows - 000

The test results are tabulated as follows:

| <u>Paragraph</u>            | <u>Title of Test – Test Method</u>  | <u>Results</u>  | <u>Allowed</u>  |
|-----------------------------|---|---|---|
| 5.3.2.1                     | Air Leakage Resistance per ASTM E283<br>@ 75 Pa (1.57 psf)  | 0.000 L/s/m <sup>2</sup><br>0.000 scfm/ft <sup>2</sup>    | 1.50 L/s/m <sup>2</sup><br>(0.30 SCFM/FT <sup>2</sup> ) |
|                             | Air Infiltration per ASTM E283<br>@ 299 Pa (6.24 psf)   | 0.000 L/s/m <sup>2</sup><br>(0.000 SCFM/FT <sup>2</sup> ) | 1.50 L/s/m <sup>2</sup><br>(0.30 SCFM/FT <sup>2</sup> ) |
|                             | Air Exfiltration per ASTM E283<br>@ 75 Pa (1.57 psf)  | 0.000 L/s/m <sup>2</sup><br>(0.000 SCFM/FT <sup>2</sup> ) | 1.50 L/s/m <sup>2</sup><br>(0.30 SCFM/FT <sup>2</sup> ) |
|                             | Air Exfiltration per ASTM E283<br>@ 299 Pa (6.24 psf)   | 0.000 L/s/m <sup>2</sup><br>(0.000 SCFM/FT <sup>2</sup> ) | 1.50 L/s/m <sup>2</sup><br>(0.30 SCFM/FT <sup>2</sup> ) |
| Note #1:                    | <i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 and A440-11 (A440 S1-09) for air infiltration/exfiltration.</i> |   |   |
| 5.3.3.2                     | Water Penetration Resistance per ASTM E547  |   | See Note #2   |
| 5.3.4.2                     | Uniform Load Deflection Test @<br>Design per ASTM E330  |   | See Note #2   |
| 5.3.4.3                     | Uniform Load Structural Test @<br>150% of Design Pressure per ASTM E330   |   | See Note #2   |
| Note #2:                    | <i>The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".</i>                                       |   |   |
| 5.3.5                       | Forced-entry Resistance Test per ASTM F588  |   |   |
|                             | Type: D                      Grade: 10  |   |   |
|                             | Disassembly Test  | No Entry  | No Entry  |
| <b>Optional Performance</b> |   |   |   |
| 4.3.2.1                     | Water Penetration Resistance per ASTM E547<br>@ 718 Pa (15.0 psf)   | No Leakage  | No Leakage  |

**Test Results:**

The test results are tabulated as follows:

**4.3.2.1 Uniform Load Deflection per ASTM E330**

| Range Allowable    | Time (seconds) | Load Pa (psf) | Location mm (in.) | Deflection mm (in.) |             |
|--------------------|----------------|---------------|-------------------|---------------------|-------------|
| Half Test Positive | 10             | 1556 (32.50)  |                   |                     |             |
| Test Positive      | 10             | 3112 (65.00)  | 1                 | 16.840 (0.663)      | See Note #3 |
| Half Test Negative | 10             | 1556 (32.50)  |                   |                     |             |
| Test Negative      | 10             | 3112 (65.00)  | 1                 | 16.891 (0.665)      | See Note #3 |

**Note #3:** *The deflections reported are not limited by AAMA/WDMA/CSA101/I.S.2/A440-08 and A440-11 (A440 S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only*

| Range               | Time (Seconds) | Load Pa (psf) | Location | Deflection mm(in.) | Set mm(in.)   | Allowable mm(in.) |
|---------------------|----------------|---------------|----------|--------------------|---------------|-------------------|
| Half Proof Positive | 10             | 2334 (48.75)  |          |                    |               |                   |
| Proof Positive      | 10             | 4668 (97.50)  | 1        | 25.568 (1.046)     | 0.127 (0.005) | 12.192(0.480)     |
| Half Proof Negative | 10             | 2334 (48.75)  |          |                    |               |                   |
| Proof Negative      | 10             | 4668 (97.50)  | 1        | 26.238 (1.033)     | 0.686 (0.027) | 12.192(0.480)     |

**Note #4:** *Deflection/Set measurements taken at center of mullion.*

## 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 and 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

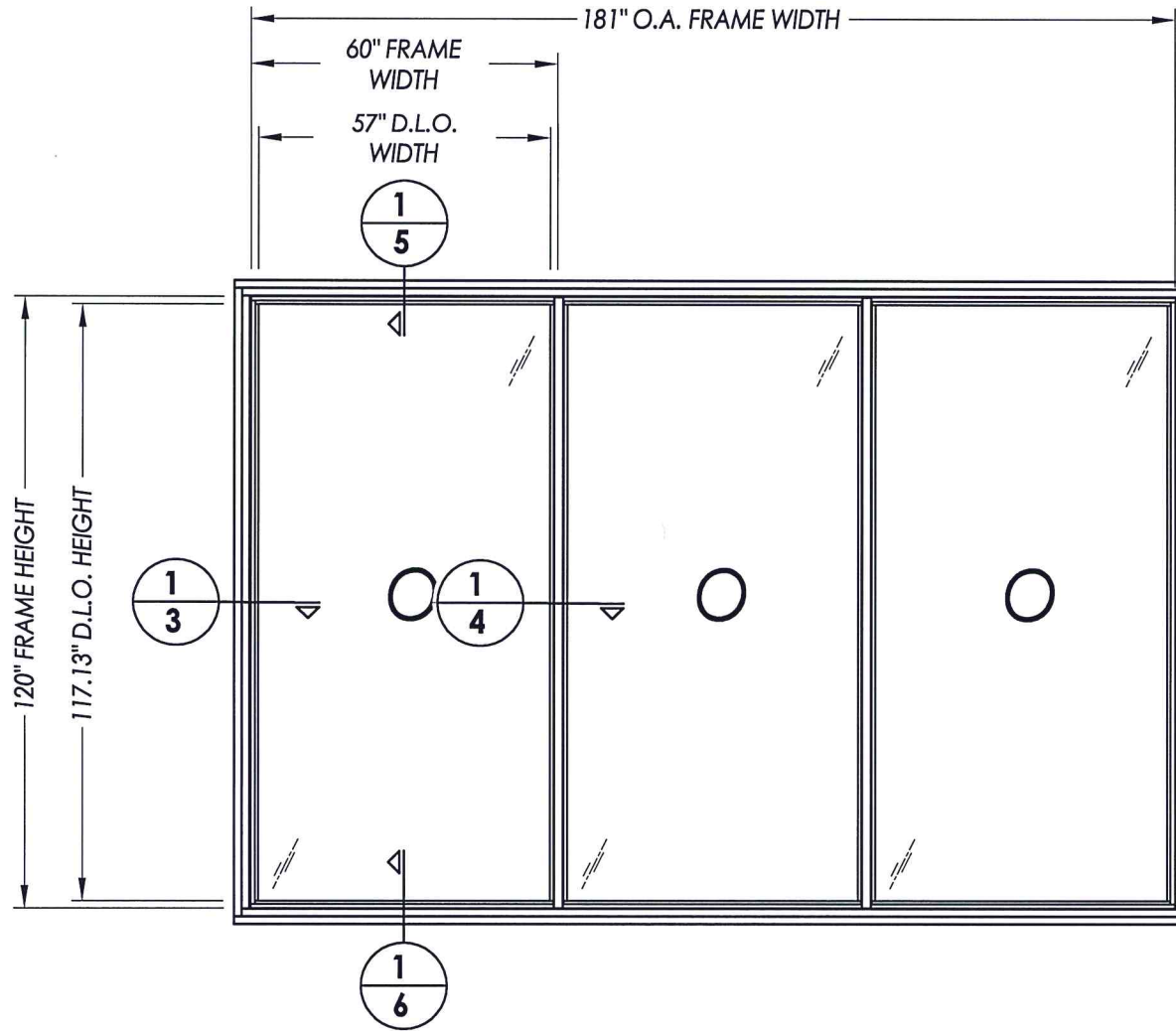
**Revision Log**

| <b>Rev No.</b> | <b>Date</b>      | <b>Page(s)</b>     | <b>Revision(s)</b>           |
|----------------|------------------|--------------------|------------------------------|
| <b>0</b>       | <b>6/26/2015</b> | <b>NA</b>          | <b>Original Report Issue</b> |
| <b>1</b>       | <b>6/30/2015</b> | <b>Cover, 1, 2</b> | <b>Revised Product Name</b>  |

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

Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by ga

|   |           |
|---|-----------|
| PRODUCT:<br>FLEETWOOD<br>SPEC. 1  |           |
| PART OR ASSEMBLY:<br>TABLE OF CONTENTS  |           |
| NO.   | DATE      |
| BY  | REVISIONS |
|  |           |
| DATE: 4/2/15  |           |
| SCALE: N.T.S.   |           |
| DWG. BY: JK   |           |
| CHK. BY: LFS  |           |
| DRAWING NO.:<br>L-7350  |           |
| SHEET <u>1</u> OF <u>8</u>  |           |

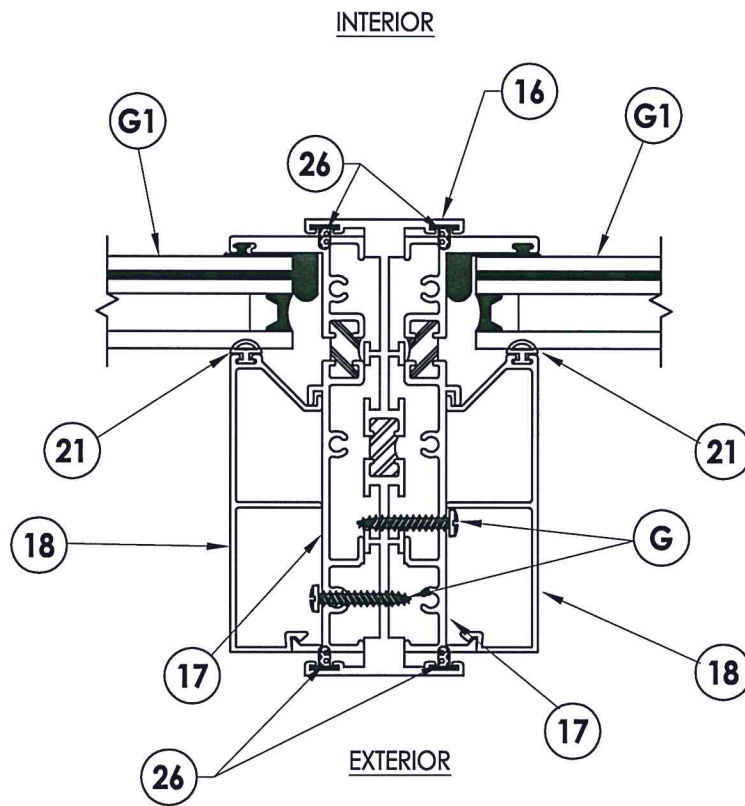


Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by ga

|                            |      |                                   |    |
|----------------------------|------|-----------------------------------|----|
| PRODUCT: FLEETWOOD SPEC. 1 |      | PART OR ASSEMBLY: TEST ELEVATIONS |    |
| NO.                        | DATE | REVISIONS                         | BY |
|                            |      |                                   |    |
|                            |      |                                   |    |
|                            |      |                                   |    |
|                            |      |                                   |    |
|                            |      |                                   |    |
|                            |      |                                   |    |
| DATE: 4/2/15               |      |                                   |    |
| SCALE: N.T.S.              |      |                                   |    |
| DWG. BY: JK                |      |                                   |    |
| CHK. BY: LFS               |      |                                   |    |
| DRAWING NO.: L-7350        |      |                                   |    |
| SHEET 2 OF 8               |      |                                   |    |



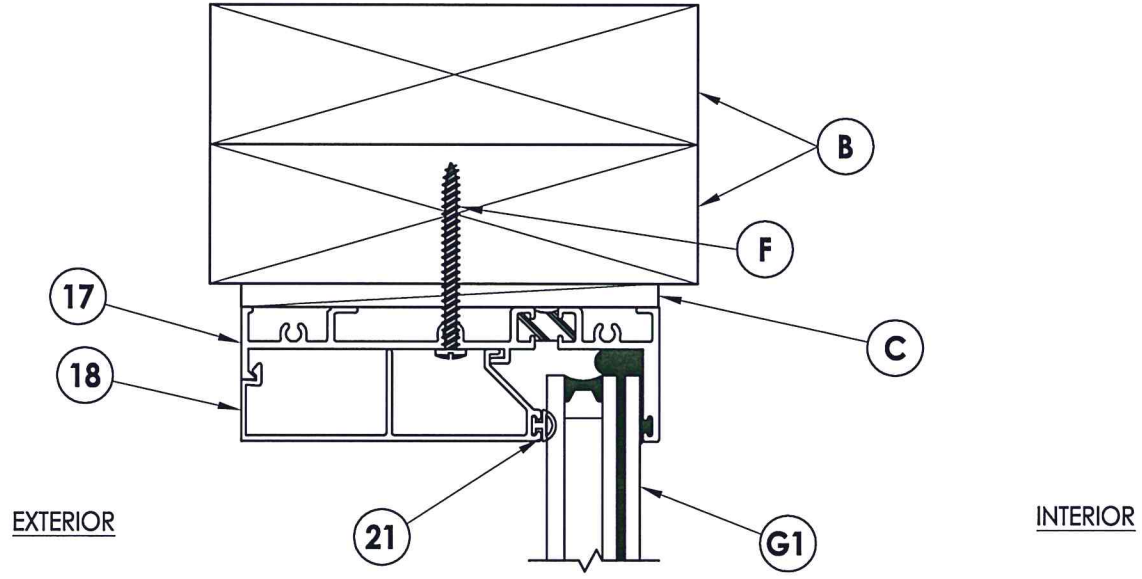




**1** HORIZONTAL CROSS SECTION  
**4**

Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by gw

|                   |      |                           |    |
|-------------------|------|---------------------------|----|
| PRODUCT:          |      | FLEETWOOD SPEC. 1         |    |
| PART OR ASSEMBLY: |      | HORIZONTAL CROSS SECTIONS |    |
| NO.               | DATE | REVISIONS                 | BY |
|                   |      |                           |    |
|                   |      |                           |    |
|                   |      |                           |    |
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| DATE: 4/2/15      |      |                           |    |
| SCALE: N.T.S.     |      |                           |    |
| DWG. BY: JK       |      |                           |    |
| CHK. BY: LFS      |      |                           |    |
| DRAWING NO.:      |      |                           |    |
| L-7350            |      |                           |    |
| SHEET 4 OF 8      |      |                           |    |



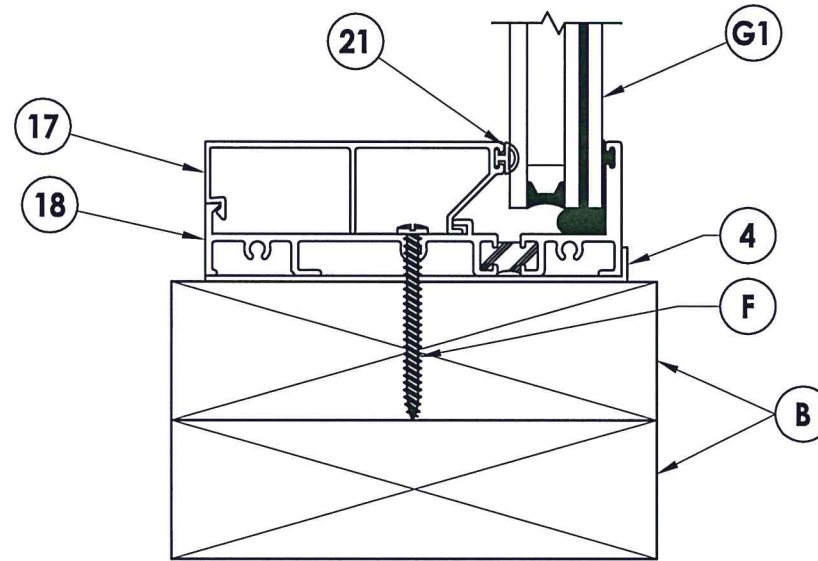
1  
5 VERTICAL CROSS SECTION

Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by gw

|                            |      |                         |    |
|----------------------------|------|-------------------------|----|
| PRODUCT:                   |      | FLEETWOOD SPEC. 1       |    |
| PART OR ASSEMBLY:          |      | VERTICAL CROSS SECTIONS |    |
| NO.                        | DATE | REVISIONS               | BY |
|                            |      |                         |    |
|                            |      |                         |    |
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|                            |      |                         |    |
| DATE: 4/2/15               |      |                         |    |
| SCALE: N.T.S.              |      |                         |    |
| DWG. BY: JK                |      |                         |    |
| CHK. BY: LFS               |      |                         |    |
| DRAWING NO.:               |      |                         |    |
| L-7350                     |      |                         |    |
| SHEET <u>5</u> OF <u>8</u> |      |                         |    |

EXTERIOR

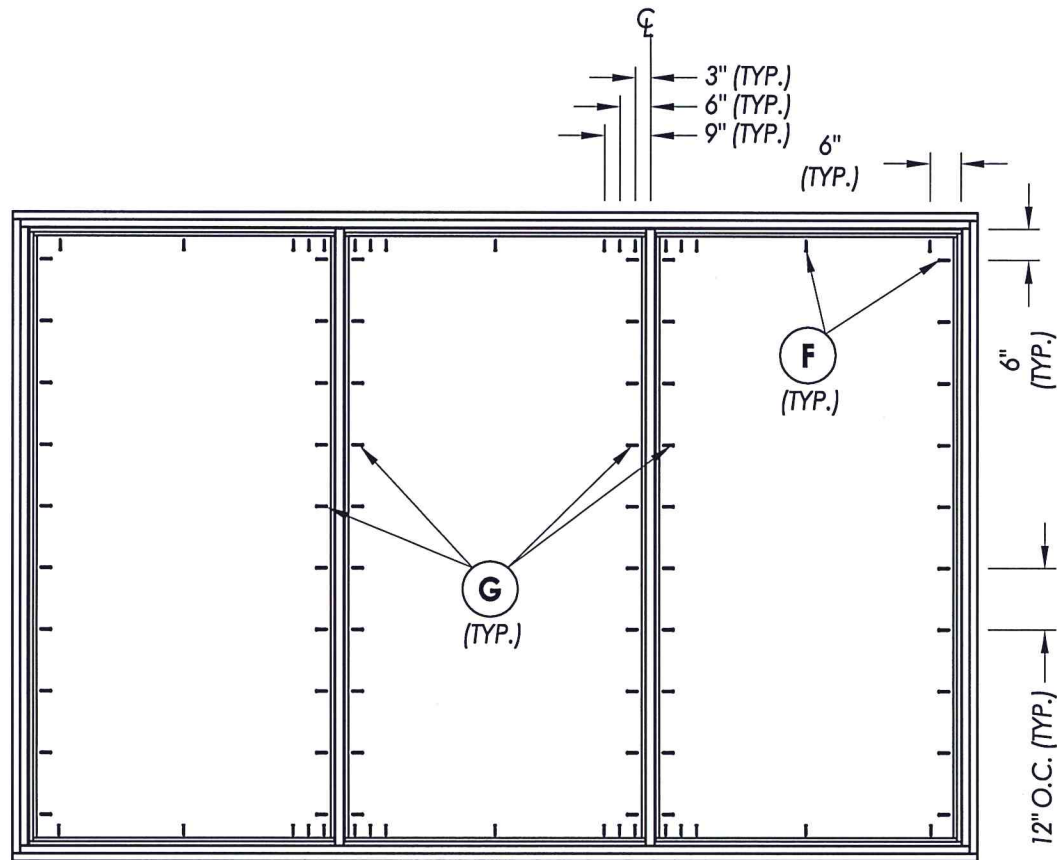
INTERIOR



**1** VERTICAL CROSS SECTION  
**6**

Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by g.j.

|  |      |                         |           |
|--|------|-------------------------|-----------|
| PRODUCT:   |      | FLEETWOOD SPEC. 1       |           |
| PART OR ASSEMBLY:  |      | VERTICAL CROSS SECTIONS |           |
| NO.  | DATE | BY                      | REVISIONS |
|  |      |                         |           |
|  |      |                         |           |
|  |      |                         |           |
|  |      |                         |           |
|  |      |                         |           |
| <br><b>RW</b> BUILDING CONSULTANTS, INC.<br>813.659.9197 |      |                         |           |
| DATE: <u>4/2/15</u>                                      |      |                         |           |
| SCALE: <u>N.T.S.</u>                                     |      |                         |           |
| DWG. BY: <u>JK</u>                                       |      |                         |           |
| CHK. BY: <u>LFS</u>                                      |      |                         |           |
| DRAWING NO.:<br><u>L-7350</u>                            |      |                         |           |
| SHEET <u>6</u> OF <u>8</u>                               |      |                         |           |



**FRAME ANCHORING**  
(2X buck installation)

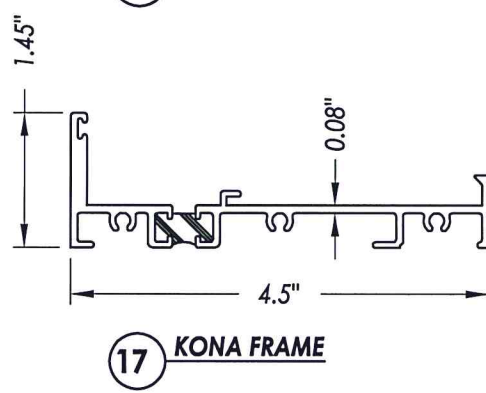
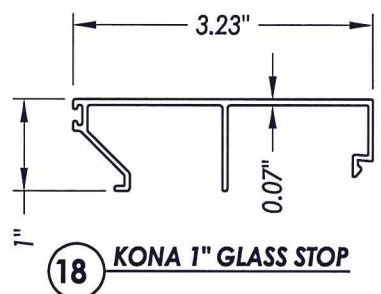
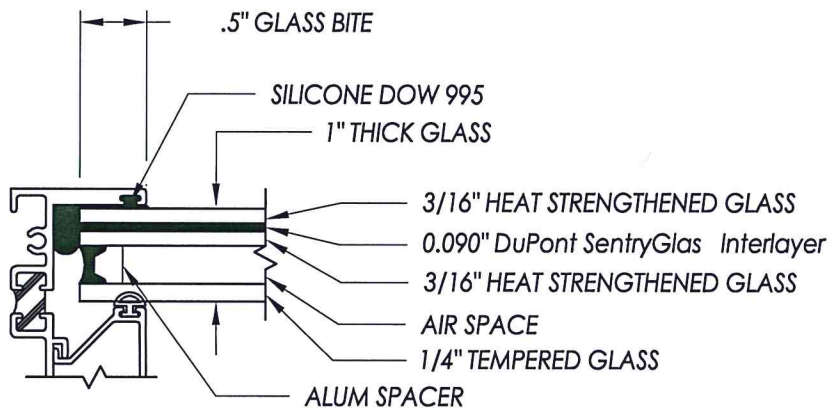
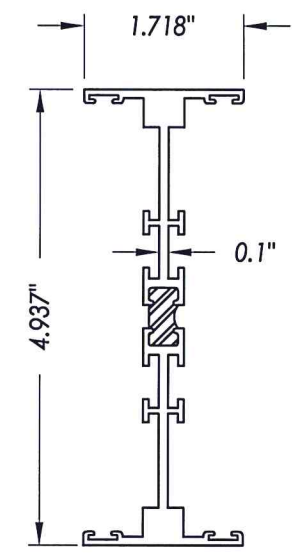
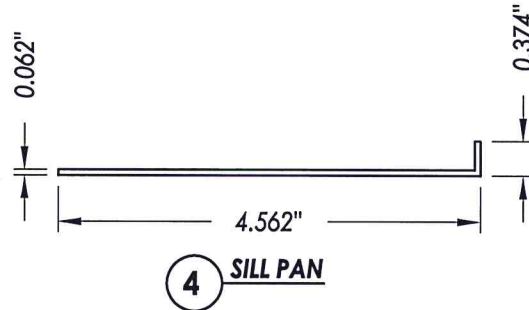
Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by gws

|                            |      |                   |    |
|----------------------------|------|-------------------|----|
| PRODUCT:                   |      | FLEETWOOD SPEC. 1 |    |
| PART OR ASSEMBLY:          |      | FRAME ANCHORING   |    |
| NO.                        | DATE | REVISIONS         | BY |
|                            |      |                   |    |
|                            |      |                   |    |
|                            |      |                   |    |
|                            |      |                   |    |
| DATE: 4/2/15               |      |                   |    |
| SCALE: N.T.S.              |      |                   |    |
| DWG. BY: JK                |      |                   |    |
| CHK. BY: LFS               |      |                   |    |
| DRAWING NO.:               |      |                   |    |
| L-7350                     |      |                   |    |
| SHEET <u>7</u> OF <u>8</u> |      |                   |    |

**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 | -                        |

Testing Evaluation Laboratories Inc.  
 Specimen Complies with Drawing  
 Deviations Noted - TEL# 01991313  
 Date 6/26/15 Verified by gw



|                            |      |  |    |
|----------------------------|------|--|----|
| PRODUCT: FLEETWOOD SPEC. 1 |      | PART OR ASSEMBLY: BILL OF MATERIALS, COMPONENTS AND GLAZING DETAIL |    |
| NO.                        | DATE | REVISIONS  | BY |
|                            |      |  |    |
|                            |      |  |    |
| DATE: 4/2/15               |      |  |    |
| SCALE: N.T.S.              |      |  |    |
| DWG. BY: JK                |      |  |    |
| CHK. BY: LFS               |      |  |    |
| DRAWING NO.: L-7350        |      |  |    |
| SHEET <u>8</u> OF <u>8</u> |      |  |    |